

**Latvijas Universitāte**

**PROMOCIJAS DARBS**

**Rīga, 2016**

University of Latvia

Faculty of Economics and Management



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**IMPACT OF  
CORPORATE ENTREPRENEURSHIP ON  
INNOVATION AND BUSINESS PERFORMANCE  
WITHIN AIRLINES**

Doctoral Thesis

Submitted for the Doctor's degree in Management science (Dr.sc.admin.)

Subfield Business Management

Supervisor,

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Riga, 2016

## **ANNOTATION**

The subject of this dissertation is corporate entrepreneurship and its impact on innovation and business performance.

Research has been applied in the particular context of airlines in order to assess the impact of the concept on innovation and performance in this particular field. Primary research has been conducted among airlines which pursue different business models from all around the world, involving both qualitative and quantitative research methods. The dimensionality of corporate entrepreneurship in terms of its composition, major drivers and enablers within airlines has been investigated and the impact of its components on innovation and business performance has been assessed. The foundations of corporate entrepreneurship have been studied through the critical reflection of various existing theoretical models, which have eventually been enhanced through findings from primary research in the field. Innovativeness, proactiveness and risk-taking have been considered as main influencing factors of innovation and performance through corporate entrepreneurship. Additionally, an emphasis has been set on the people dimension in the entrepreneurial process, viewing corporate entrepreneurs as initiating factors for entrepreneurial activities within organizations and leadership as an essential role model for guiding the entrepreneurial organization. Furthermore, the strategic relevance of corporate entrepreneurship has been elaborated, using the concept as a predictor of innovation and business performance.

Management possibilities for innovation and performance through corporate entrepreneurship have been developed in the particular context of network-, hybrid-, and low-cost airlines. In fact, corporate entrepreneurship has been reflected as an instrument to drive competitiveness from internally, based on current industry challenges related to the competitive environment, cost position and profitability. Corporate entrepreneurial output has been conceptualized as the Return on Corporate Entrepreneurial Intensity, involving degree and frequency of innovation. The model relates results from entrepreneurial activities to measurable business performance metrics.

# CONTENTS

<b>INTRODUCTION .....</b>	<b>1</b>
Actuality of the Topic.....	1
Aim and Tasks of the Dissertation .....	2
Main Hypothesis and Research Questions .....	2
Methods and Sources used .....	3
Main Results and Theses for Defense .....	3
Novelty .....	4
Limitations.....	5
Approbation of Research Results in Scientific Conferences.....	6
Publications .....	7
Structure of the Dissertation.....	8
Words of Gratitude.....	9
<b>1. CORPORATE ENTREPRENEURSHIP.....</b>	<b>10</b>
1.1 The Nature of Corporate Entrepreneurship.....	12
1.2 Innovation in the Context of Corporate Entrepreneurship .....	16
1.3 Business Performance in the Context of Corporate Entrepreneurship.....	17
1.4 Models of Corporate Entrepreneurship for Innovation and Performance.....	18
1.5 Influencing Factors for Innovation and Performance.....	23
1.5.1 Innovativeness, Proactiveness and Risk-Taking .....	27
1.5.2 People: Corporate Entrepreneurs.....	30
1.5.3 Leadership .....	35
1.6 Innovation and Performance as Results from Corporate Entrepreneurship.....	38
1.7 Obstacles for Innovation and Performance .....	46
<b>2. CORPORATE ENTREPRENEURIAL CHALLENGES FOR INNOVATION AND BUSINESS PERFORMANCE WITHIN AIRLINES .....</b>	<b>49</b>
2.1 State of Demand for Air Travel.....	50
2.2 Influencing Factors of Airline Performance.....	52
2.2.1 Competitive Environment.....	56
2.2.2 Cost Position.....	59
2.2.3 Profitability.....	63
2.2.4 Internal Entrepreneurial Orientation.....	68
2.3 Corporate Entrepreneurial Possibilities for Innovation and Performance.....	69
2.3.1 Management Initiatives in Full Service Network Airlines.....	74
2.3.2 Management Initiatives in Hybrid Airlines .....	77
2.3.3 Management Initiatives in Low-Cost Airlines .....	80
2.3.4 Reflection of Management Initiatives in different Airline Business Models.....	84
2.4 The Return on Corporate Entrepreneurial Intensity within Airlines.....	86
<b>3. DRIVING INNOVATION AND BUSINESS PERFORMANCE THROUGH CORPORATE ENTREPRENEURSHIP WITHIN AIRLINES.....</b>	<b>89</b>
3.1 Research Model of Corporate Entrepreneurship within Airlines and Hypotheses ...	91
3.1.1 Dependent Variables of the Primary Research Model .....	95
3.1.2 Independent Variables of the Primary Research Model.....	96
3.2 Instruments of Qualitative and Quantitative Research conducted .....	98
3.3 Data Collection & Analysis within the Primary Research conducted.....	99
3.4 Participants & Sample of Primary Research conducted.....	101
3.5 Qualitative Research Results on Corporate Entrepreneurship within Airlines .....	104

3.6 Quantitative Research Results.....	106
3.6.1 Dimensionality of Corporate Entrepreneurship within Airlines.....	113
3.6.2 Influencing factors of Airline Business Performance.....	115
3.6.3 Influencing factors of Airline Innovation Performance .....	117
3.6.4 Corporate Entrepreneurial Intensity .....	121
3.6.5 The Return on Corporate Entrepreneurial Intensity .....	123
3.7 Interpretation of Results from Primary Research.....	124
3.7.1 Dimensionality of Corporate Entrepreneurship within Airlines.....	125
3.7.2 Influencing Factors on Airline Innovation and Business Performance .....	128
3.7.3 Corporate Entrepreneurial Intensity .....	130
3.8 Summary of Key Findings .....	133
<b>4. CONCLUSIONS AND SUGGESTIONS .....</b>	<b>135</b>
<b>BIBLIOGRAPHY .....</b>	<b>141</b>
<b>APPENDIX .....</b>	<b>152</b>
Appendix 1: Porter’s Five Forces of the Competitive Environment applied to Airlines	152
Appendix 2: List of Questions for Expert Interviews .....	153
Appendix 3: List of Experts .....	154
Appendix 4: Content Analysis of Expert Interviews.....	155
Appendix 5: Example of Invitation for Participation in the Quantitative Survey .....	160
Appendix 6: Example of Quantitative Online Questionnaire.....	161
Appendix 7: Intermediate Data from Discriminant Analysis regarding Hypothesis 7 ...	168

## LIST OF TABLES

Table 2-1: Comparison of Low-Cost, Hybrid and Full-Service Airline Business Models .....	71
Table 2-2: Performance Ratios of Selected Network Carriers (in EUR) .....	74
Table 2-3: Performance Ratios of Selected Hybrid Carriers (in EUR) .....	78
Table 2-4: Performance Ratios of Selected Low-Cost Carriers (in EUR) .....	81
Table 3-1: Framework of the Primary Research .....	89
Table 3-2: Operationalization of Research Aspects, Hypotheses and Analysis.....	101
Table 3-3: Demographic Segmenting Dimensions of Quantitative Sample .....	102
Table 3-4: Factor loadings from rotated component matrix.....	113
Table 3-5: Results from multiple regression analysis: Impact on business performance of the 3-dimensional model involving innovativeness, proactiveness and risk-taking.....	115
Table 3-6: Results from multiple regression analysis: Impact on business performance of the 4-dimensional model, also involving the people component .....	116
Table 3-7: Results from simple regression analysis: Impact of organizational factors fostering corporate entrepreneurship on business performance .....	117
Table 3-8: Results from multiple regression analysis: Impact on innovation performance of the 3-dimensional model involving innovativeness, proactiveness and risk-taking .....	118
Table 3-9: Results from multiple regression analysis: Impact on innovation performance of the 4-dimensional model, also involving the people component .....	119
Table 3-10: Results from simple regression analysis: Impact of organizational factors fostering corporate entrepreneurship on innovation performance .....	119
Table 3-11: Results from simple linear regression analysis: Impact of corporate entrepreneurial intensity on business performance.....	123
Table 3-12: Test of Research Hypothesis.....	134

## LIST OF FIGURES

Figure 1-1: Framework of Corporate Entrepreneurship, Innovation and Performance .....	16
Figure 1-2: Corporate Entrepreneurship Model of Guth and Ginsberg.....	19
Figure 1-3: Model of Strategic Entrepreneurial Orientation .....	20
Figure 1-4: Corporate Entrepreneurial Process Model.....	21
Figure 1-5: Visible and Invisible Elements of Corporate Entrepreneurial Culture.....	26
Figure 1-6: Dimensionality of Corporate Entrepreneurship.....	29
Figure 1-7: Corporate Entrepreneurial Leadership Elements.....	37
Figure 1-8: Conceptualization of Frequency and Degree of Corporate Entrepreneurship.....	42
Figure 2-1: Passenger Growth 2008 – 2028 between Europe and other parts of the world.....	51
Figure 2-2: Success Factors for Innovation and Performance through .....	54
Figure 2-3: The effect of higher availability on airfare .....	58
Figure 2-4: Typical Airline Cost Structure: Major Cost Blocks .....	59
Figure 2-5: Fuel and Labor Costs as a Share of Total Operating Costs within Airlines .....	60
Figure 2-6: Comparison of Airline Cost Positions (US cent).....	61
Figure 2-7: Airline Revenue, Cost and Breakeven Loadfactor .....	62
Figure 2-8: Airline Profitability Development (Return on Capital Employed).....	64
Figure 2-9: Profitability in the Air Transport Value Chain, Return on Invested Capital .....	65
Figure 2-10: Performance comparison of selected network-, hybrid-, and low-cost airlines ..	85
Figure 2-11: The Return on Corporate Entrepreneurial Intensity within Airlines .....	87
Figure 3-1: The underlying primary research model related to the impact of corporate entrepreneurship on innovation and performance within airlines .....	95
Figure 3-2: Development of the Quantitative Research Sample .....	103
Figure 3-3: Geographic Location of Sample Airlines .....	106
Figure 3-4: Operation range Sample Airlines .....	107
Figure 3-5: Partnership integration of sample airlines .....	107
Figure 3-6: Business models of sample airlines .....	107
Figure 3-7: Sample characteristics regarding turnover, employees, passengers and fleet .....	108
Figure 3-8: Age groups of respondents .....	109
Figure 3-9: Sample years of airline working experience.....	109
Figure 3-10: Gender of respondents .....	110
Figure 3-11: Hierarchical levels of respondents.....	110
Figure 3-12: Functional characteristics of respondents within sample .....	111
Figure 3-13: Competitive intensity in markets of competition, oligopoly and monopoly .....	111

Figure 3-14: Performance development of network-, hybrid-, and low-cost airlines over the past two years.....	112
Figure 3-15: Factor Scores indicating the individual contributions of variables to main dimensions and variance of the main components explained .....	114
Figure 3-16: Summary of results from multiple and simple linear regression analysis .....	120
Figure 3-17: Combination of corporate entrepreneurial degree and frequency in terms of new product, service or process innovations within airlines.....	121
Figure 3-18: Different types of innovation within airlines.....	122
Figure 3-19: Corporate entrepreneurial intensity among airlines with different characteristics regarding size and partnerships .....	122
Figure 3-20: The Return on Corporate Entrepreneurial Intensity .....	124

## **INTRODUCTION**

Airlines from all over the world are increasingly confronted with changing industry dynamics and intense competition. No matter what business model an airline pursues, there are particular challenges related to all of them. While environmental factors, such as the global economic-, social- and political development cannot be controlled, airlines can prepare for sustainable competitiveness from internally. Corporate entrepreneurship constitutes a viable philosophy for steering innovation and change within organizations, ultimately aiming at the creation of wealth for companies.

### **Actuality of the Topic**

The future development of the airline industry bears enormous challenges and risks, but also opportunities for airlines: growth rates of supply are generally above growth rates of natural demand and external factors can have a substantial impact on the overall profitability of airlines, which are traditionally operating at very low profit margins. These factors include cost for jet fuel, which is inextricably linked to the development of the global oil price, environmental policies, geo-political developments, governmental regulations, subsidies and many more.

It is evident that the airline industry is very heterogeneous in its structure. Airlines are pursuing different business models and therefore naturally are more or less innovative in nature. While traditional network airlines tend to be rather challenged to overcome barriers related to their own internal structures and bureaucracy, low-cost airlines are confronted with the challenges related to over-proportional growth, which requires a market-driven business conduct. Clearly, in order to sustain on the long-run, airlines of all business models are required to find innovative ways of how to address dynamic market challenges. Corporate entrepreneurship does not protect airlines from external influences and the dynamics of industry competition. However, it appears as a viable instrument to steer competitiveness from internally through a focus on the recognition of opportunities and their transformation into innovation.

Hence, corporate entrepreneurship should foster innovation in terms of strategic renewal, constant organizational rejuvenation and the continuous improvement of products and services as well as internal processes in order to ultimately positively influence business performance and contribute to sustainable profitability.

## **Aim and Tasks of the Dissertation**

The purpose of this dissertation is to investigate the impact of corporate entrepreneurship on innovation and business performance within airlines. Thus, the major tasks related to the underlying research can be stated as:

- to conduct extensive secondary research on the state of knowledge related to corporate entrepreneurship and its implications on innovation and firm performance;
- to analyse aspects regarding the components of corporate entrepreneurship and its organizational prerequisites for successful implementation;
- to elaborate the importance of corporate entrepreneurship for innovation and business performance in the context of airlines, in-light of their particular challenges;
- to conduct expert interviews with airline executives in order to generate new knowledge on aspects related to corporate entrepreneurship, its dimensionality in terms of its constitution, performance implications and related management challenges;
- to perform structured analysis of content generated through expert interviews;
- to conduct quantitative research among airline executives in order to reveal the underlying dimensionality of corporate entrepreneurship and to prove its influence on airline innovation and business performance;
- to perform various statistical analysis within the scope of quantitative research, such as descriptive statistics, simple- and multiple linear regression analysis, main component factor analysis and discriminant analysis;
- to critically reflect and triangulate findings from literature review, qualitative expert interviews and quantitative survey results in a way which allows to draw holistic conclusions on the topic.

In order to operationalize the research topic, the underlying thesis shall be presented in the following paragraph.

## **Main Hypothesis and Research Questions**

The main hypothesis of this dissertation has been formulated as: “Corporate entrepreneurship promotes innovation and business performance within airlines.”

In order to operationalize this thesis, the following research questions have been developed:

1. Which factors contribute to corporate entrepreneurship within airlines?

2. What is the impact of corporate entrepreneurship on innovation performance within airlines?
3. What is the impact of corporate entrepreneurship on business performance within airlines?
4. Are entrepreneurial airlines more successful in terms of innovation and business performance than less entrepreneurial airlines?

### **Methods and Sources used**

Primary research has been conducted using a mixed-research approach involving both qualitative and quantitative methods. This fostered a better understanding of the research topic through triangulation of findings from both approaches. Qualitative research has been used to inform the quantitative portion of this dissertation, and vice versa. Firstly, problem-based airline expert interviews have been conducted and analyzed through content analysis. Secondly, quantitative data has been collected through an online survey. Analysis has been performed using SPSS software for statistical data processing. Descriptive statistics have been run in order to characterize the sample. Factor analysis has been used to reveal the underlying dimensionality of corporate entrepreneurship within airlines, in the context of the construct's constitution and major influencing factors. Furthermore, simple and multiple regression analyses have been used in order to prove the impact of corporate entrepreneurship and its identified components on airline innovation and business performance. Additionally, discriminant analysis was used in order to analyze differences on certain aspects between airlines with particular characteristics.

A number of different sources have been used within the secondary research of this dissertation ranging from theoretical books and articles in academic journals to online sources, reports by international organizations and airline publications. Primary sources include expert interviews and findings from the quantitative survey.

### **Main Results and Theses for Defense**

The following main results have been revealed by the underlying research within this dissertation, contributing new aspects to the academic discourse on corporate entrepreneurship and its impact on innovation and business performance:

- It is proven that corporate entrepreneurship within airlines is determined by aspects of innovativeness, proactiveness, risk-taking and people and that these factors are partly significant contributors of airline innovation business performance.
- Corporate entrepreneurial behavior fosters innovation and performance within airlines and contributes to the generation of wealth in this particular context.
- It has been revealed that there is a significant positive relationship between corporate entrepreneurial intensity and business performance. Corporate entrepreneurial output in form of business performance is higher within airlines possessing of high corporate entrepreneurial intensities. Thus, entrepreneurial airlines are more successful than less entrepreneurial airlines.
- Corporate entrepreneurship does not protect airlines from external influences harming profitability, but it provides a viable instrument to steer competitiveness from internally.

All of these aspects lead to the fact that corporate entrepreneurial intensity indeed promotes innovation and business performance within airlines through the above mentioned factors. Additionally, the return on corporate entrepreneurial intensity is measurable when relating the construct to performance metrics.

As a result from primary and secondary analyses, the main theses for defense are stated below:

1. Corporate entrepreneurship is determined by innovativeness, proactiveness, risk-taking and people within airlines.
2. Airline business performance is positively influenced by corporate entrepreneurship.
3. Airline innovation performance is positively influenced by corporate entrepreneurship.
4. Entrepreneurial airlines are more successful than less entrepreneurial airlines.

## **Novelty**

Based on findings from primary-, and secondary research, as well as on the research methods used, the following aspects constitute the novelty of this dissertation:

- A model of corporate entrepreneurship has been created, which newly involves the dimension of people as an integral element for entrepreneurial behavior determining the degree of corporate entrepreneurship within organizations. In this respect, a modified theory related to the determinants of corporate entrepreneurship has been elaborated.
- An enhanced theory of how organizational factors contribute to fostering entrepreneurship within organizations has been developed.

- The impact of corporate entrepreneurship on innovation and business performance has been shown in the particular context of airlines for the first time. Additionally, primary research in the field has been conducted among airlines of different business models from geographic locations all over the world.
- Corporate entrepreneurship has been related to the aspect of strategic airline orientation, building the foundation of a new model of innovation and business performance for airlines pursuing different business models. Differences between airlines within these business models have been elaborated, analyzed and critically reflected.
- Corporate entrepreneurship has been identified as an instrument to drive innovation and business performance within airlines in-light of current industry challenges, stating concrete management opportunities in order to enhance innovation and business performance. Respective suggestions have been made, pointing at opportunities of how the concept can yield results in practice.
- For the first time, the aspect of corporate entrepreneurial output has been conceptualized in the form of Return on Corporate Entrepreneurial Intensity, which involves an alternative definition of the framework between degree and frequency of corporate entrepreneurship.
- Various aspects of innovation within airlines have been investigated which draw a holistic picture regarding the state of the industry concerning process-, product-, and service improvements. Implications for management within airlines in different business models have been formulated.

## **Limitations**

This dissertation studies the impact of corporate entrepreneurship on innovation and performance within airlines, investigating the current time period basically starting in the year 2000. However some elements are included in the study originating earlier in order to make certain aspects more understandable. Primary research has been conducted between April and August 2014. The quantitative survey has been conducted using an online questionnaire. Even though the survey has been distributed to 7.797 email addresses of airline executives, only 241 cases could be used for statistical analysis, constituting a response rate of 3,1%. Nevertheless, the achieved sample size can be considered as substantial and allowed data processing. Business performance has been measured through self-reporting by the survey respondents. There might be a certain bias between the indicated reality and the actual situation. However, given the fact that the sample mainly consists of respondents on managerial level, this is not seen as critical.

## **Approbation of Research Results in Scientific Conferences**

International Conference on New Challenges of Economic and Business Development, University of Latvia, Riga: May 10<sup>th</sup> – 12<sup>th</sup> 2012. Paper presented: “The Impacts of Growth on Commercial Innovation in the Airline Industry”.

2012 International Conference for Business and Economics “Innovative Approaches of Management Research for Regional and Global Business Development”, University of Applied Sciences Kufstein Tirol International Business School: August 3<sup>rd</sup> – 5<sup>th</sup> 2012. Paper presented: “Service quality, customer satisfaction and business performance: critical aspects and links in the Austrian travel-related hospitality industry”.

Interdisciplinary Scientific International Conference for PhD students and assistants QUAERE, Hradec Kralove, The Czech Republic: May 20<sup>th</sup> – 24<sup>th</sup> 2013. Paper presented in the session on Management and Marketing: “The Return on Corporate Entrepreneurial Intensity”.

2013 International Business and Economics Conference “Current Approaches of Modern Management and Strategy Research”, University of Applied Sciences Kufstein Tirol International Business School: November 29<sup>th</sup> – 30<sup>th</sup> 2013. Paper presented: “The Return on Corporate Entrepreneurial Intensity”.

72 Annual Scientific Conference of University of Latvia, Riga: February 5<sup>th</sup> 2014. Paper presented in the session on Impact of globalization to national economies and business: “Corporate Entrepreneurial Output: Capitalizing on Innovation”.

The 3<sup>rd</sup> International Virtual Conference of Informatics and Management Sciences ICTIC, University of Zilina, Slovakia: March 24<sup>th</sup> - 28<sup>th</sup> 2014. Paper presented: “Corporate Entrepreneurial Output: Innovation and Performance”.

The 2<sup>nd</sup> International Conference on Advances in Social Science, Management and Human Behaviour SMBH, Zurich, Switzerland: October 25<sup>th</sup> – 26<sup>th</sup> 2014. Paper presented: “Driving Innovation and Business Performance through Corporate Entrepreneurship: Innovativeness, Proactiveness, Risk-taking and People”.

International Scientific Conference for Doctoral Students and Young Researchers EDAMBA, Bratislava, Slovak Republic: November 13<sup>th</sup> – 14<sup>th</sup> 2014. Paper presented: “The Impact of Corporate Entrepreneurship on Innovation and Business Performance within Airlines”.

## **Publications**

Trestl, M. (2012): The Impacts of Growth on Commercial Innovation in the Airline Industry, in: Proceedings of the International Conference on New Challenges of Economic and Business Development, University of Latvia, Riga, ISBN 978-9984-45-519-8, pp. 726-737; available online at: [http://www.evf.lu.lv/fileadmin/user\\_upload/lu\\_portal/projekti/evf/konferences/maijs\\_2012/session8/Trestl.pdf](http://www.evf.lu.lv/fileadmin/user_upload/lu_portal/projekti/evf/konferences/maijs_2012/session8/Trestl.pdf).

Trestl, M. (2013): The Return on Corporate Entrepreneurial Intensity, in: Reviewed Proceedings of the Interdisciplinary Scientific International Conference for PhD students and assistants QUAERE, Hradec Kralove, Czech Republic, ISBN 978-80-905243-7-8, pp. 126-135; in disc, available online at: [http://www.quaere.econference.cz/english/volume-2013\\_en.html](http://www.quaere.econference.cz/english/volume-2013_en.html).

Trestl, M. (2014): Corporate Entrepreneurial Output: Innovation and Performance, in: Proceedings of the Conference of Informatics and Management Science of the 3<sup>rd</sup> International Virtual Conference ICTIC, Bratislava, Slovak Republic, ISSN 1339-231X, pp. 110-115; in disc, available online at: <http://ictic.sk/archive/?vid=1&aid=2&kid=50301-7>.

Trestl, M. (2014): The Impact of Corporate Entrepreneurship on Innovation and Business Performance within Airlines, in: Proceedings of the International Scientific Conference for Doctoral Students and Young Researchers EDAMBA, Bratislava, Slovak Republic, ISBN 978-80-225-4005-6, pp. 590-600; in disc, available online at: <http://www.edamba.eu/>.

Trestl, M. (2015): Driving Innovation and Business Performance through Corporate Entrepreneurship: Innovativeness, Proactiveness, Risk-taking and People, in: International Journal of Business and Management Study, Vol. 2 (1), ISSN 2372-3955, pp. 242-248; available via Seek Digital Library online at: <http://seekdl.org/nm.php?id=5623>.

## **Structure of the Dissertation**

This dissertation is structured in three main chapters. The first chapter deals with theory on corporate entrepreneurship and its effects on innovation and business performance. It focuses on the nature of corporate entrepreneurship and on underlying models conceptualizing the construct. Furthermore, a number of major influencing factors of innovation and performance are elaborated, such as innovativeness, proactiveness, risk-taking, people as corporate entrepreneurs, and leadership. The imminent importance of opportunity recognition is explained and potential results from entrepreneurial activity are presented as corporate entrepreneurial output. Finally, a number of obstacles and barriers of corporate entrepreneurship are presented.

The second chapter puts context in reality and reflects previous experience in the field. In this respect, the importance of corporate entrepreneurship as a mechanism to stimulate innovation and drive business performance is explained in the concrete context of airlines. Firstly, it outlines the general state of demand for air travel and emphasizes the importance of aviation for the global economy, underlining the fundamental relevance of corporate entrepreneurship for airlines. Secondly, major parameters of airline performance regarding the competitive environment, cost position and profitability are reflected. Thirdly, management possibilities for innovation and performance through entrepreneurial initiatives are presented using a total of nine example airlines in the segments of network-, hybrid-, and low-cost carriers. Finally, the construct of return on corporate entrepreneurial intensity leads to the third chapter.

The third chapter is concerned with the research methods used and presents results from primary research. The underlying research model is presented and its independent and dependent variables are clearly identified. Furthermore, the research strategy is presented and the research instruments for both qualitative and quantitative methods are explained. Additionally, data collection and analysis as well as research participants and the sample are introduced. Finally, the results from qualitative and quantitative research are presented, including the outcome from expert interviews, followed by results from factor analysis relating to the dimensionality of corporate entrepreneurship within airlines, the impact of corporate entrepreneurship on innovation and business performance and results from simple and multiple regression analyses are outlined. Lastly, findings are interpreted and reflected from many different points of view. Key findings are summarized, which lead to the formulated conclusions and suggestions.

## **Words of Gratitude**

Special thanks shall be expressed to all airline executives who have been available for expert interviews and to those industry professionals who have taken their time to complete the survey. Furthermore, gratitude is extended towards the University of Latvia, Faculty of Economics and Management, in particular to Dr oec., professor Baiba Savrina for her continued support and dissertation supervision.

## **1. CORPORATE ENTREPRENEURSHIP**

This chapter deals with the construct of corporate entrepreneurship, its nature, influencing factors, definitions and models from a literature review perspective. It emphasizes and describes innovation and performance as well as opportunity recognition and eventually summarizes the underlying objectives of corporate entrepreneurship in its output.

Global competitive challenges create an immanent need for new and innovative management methods and approaches. Businesses are reacting in very different ways to these challenges. As external change forces internal change, firms are increasingly aware of the fact that there is no universal way of approaching competitive challenges. Environmental challenges create a need for new and innovative management practices, which require organizational capabilities in order to be addressed (Nasution and Mavondo 2008, p. 478). Customers segments are increasingly heterogeneous and fragmented, while at the same time customer expectations are constantly rising. Higher levels of customer orientation and customer centricity require higher levels of organizational capabilities to deal with these aspects (Spiess et al. 2014, p. 6). The key question which companies have to answer is whether they are simply remaining competitive or if they are achieving sustainable competitive advantage. Managers must therefore understand that their firm will only have a justified market existence in the future, if it is able to achieve sustainable competitive advantage and clearly differentiate itself from major competing market players (Porter 1979, p. 2).

Conventional management practice has become obsolete in today's fast-paced global business environment with inevitable diminishing returns, intensified competition and unpredictable external influences. Thus, companies have to understand the imminent need for alternative philosophies in order to achieve sustainable competitive advantages. This requires organizations and their executive leaders to continually reinvent themselves. Competitive advantage relies on adaptability, flexibility, speed, aggressiveness and innovativeness (Hamel 2007). Corporate entrepreneurship can be described as a path to sustainable competitive advantage.

The concept of corporate entrepreneurship can be related to the resource-based view of the firm (Barney 1991, p. 50), which notes dynamic capabilities as viable instruments for enhancing existing routines in order to build long-term competitive advantage (Eisenhardt and Martin 2000, pp. 1105). Corporate entrepreneurship and its components can therefore be seen as such a dynamic capabilities and thus as a philosophy of strategic management (Güttel 2009, p. 126).

In addition, dynamic capabilities describe an organization's abilities to use its resources, which are required to perform tasks and to improve performance (Maritan 2001, pp. 513), thus to exploit and explore resources.

During recent years, research has emphasizes a lot on the phenomenon of entrepreneurship. Although the term entrepreneurship has already been used for more than the past two centuries, considerable controversy still exists on its underlying meaning. However, the essence of entrepreneurship can be expressed as creating value through combining resources in order to pursue opportunities (Stevenson and Jarillo-Mossi 1986, p. 10). More than that, entrepreneurship consists of seven integral perspectives (Morris 1998, p. 14):

1. creation of wealth,
2. creation of enterprise,
3. creation of innovation,
4. creation of change,
5. creation of jobs,
6. creation of value, and
7. creation of growth.

It is the process of creating something new, such as new business ventures. Traditionally, entrepreneurs organize resources to produce and market new products or services, co-ordinate and negotiate with various stakeholders, set up a new strategy, organization structure and culture and create markets in the sense of bringing together supply and demand (Leibenstein 1968, p. 80).

Corporate entrepreneurship takes these perspectives further. While the undertakings of entrepreneurship are related to the creation of new businesses, its corporate form focuses on entrepreneurial behavior within existing organizations (Echols and Neck 1998, p. 39). An extensive number of conceptualizations have been elaborated in order to explain the phenomenon. These have used terms such as intrapreneurship and intrapreneuring, corporate venturing (MacMillan 1986), intra-corporate entrepreneurship (Cooper 1981), internal corporate entrepreneurship (Schollhammer 1981), as well as innovative and entrepreneurial strategy making (Dess, Lumpkin and Covin 1997). The concept of intrapreneurship firstly appeared in 1976 when it was related to elevated organizational performance by increasing opportunities for success. Indeed, opportunities are at the core of today's modern understanding of corporate entrepreneurship. Given these aspects it is evident that corporate entrepreneurship takes place internally, while entrepreneurship tends to mainly be focused externally (Amo and

Kolvereid 2005, p. 8). It stimulates innovation and the creation of value from people within the company. Also, it has been used to describe entrepreneurial behavior within mid-sized and large enterprises and is an organization-wide attitude towards risk-taking, opportunity recognition and the acceptance of failure. Furthermore, it is an attitude towards driving competitive advantage through seeing opportunities instead of problems and through following a philosophy of re-writing rules. The concept has evolved to an organization-wide philosophy which challenges bureaucracy, encourages innovation and fosters continuous renewal (Barringer and Bluedorn 1999, p. 421). It can be seen as the sum of an organization's efforts towards innovation, renewal and venturing (Ling, et al. 2008, pp. 560). These efforts may include formal and informal activities, aiming at recognizing opportunities related to processes, products and services as well as responses to general market developments (Zahra, Neubaum and Huse 2000). Moreover, corporate entrepreneurship is inextricably linked to innovation and change (McFadzean, O'Loughlin and Shaw 2005, p. 352). It provides a guiding principle of how organizations can cope with new competitive realities and affects strategy, structure and culture by redefining the purpose of the organization (McFadzean, O'Loughlin and Shaw 2005, pp. 351).

### **1.1 The Nature of Corporate Entrepreneurship**

Corporate entrepreneurship can be seen as a result of entrepreneurial behavior. This is related to innovation and opportunity recognition in different forms and frequencies (Morris and Sexton 1996, p. 6). Regarding the construct from a process perspective, the recognition of a sustainable entrepreneurial opportunity is followed by a certain stage of exploitation, which may ultimately be turned into innovation and performance. Thus, corporate entrepreneurship and management are not two separate functions, but complementary tasks within organizations. While the first one focuses on opportunity recognition and the development of innovation, the second one ensures the optimal use of resources and coordinates activities. Organizations have to find a healthy balance between the two functions, as corporate entrepreneurship should support management and vice versa (Sundbo 1999, p. 107).

According to Herbert and Brazeal (1999, pp. 12), companies can be characterized within a framework of four archetypes, combining functional management and corporate entrepreneurial integration:

1. innovation-negating companies do not innovate at all. They are resistant to change and do not even innovate on a micro-scale. Employees, who are generating new ideas for

change are being seen as disturbers. Thus, such enterprises will only be successful under stable environmental market conditions;

2. randomly innovating companies are implementing change from time to time. While they might even possess of functions, dealing with development, the innovation process is not institutionalized. Thus, innovation and change occurs randomly;
3. in contrast, entrepreneurial-oriented companies have institutionalized innovation processes which might even be incentivized. Employees are expected to recognize opportunities and are supported with their ideas for change by attitudes and the corporate culture. Very often, companies with entrepreneurial orientations tend to produce incremental innovations, which are different from fundamental innovations, but nonetheless of strategic relevance for sustainable competitive advantage;
4. finally, entrepreneurial companies find innovation as a core process and competency within their organization. Innovations include incremental- and radical changes as those companies are continuously striving for new products, services, processes and markets. Additionally, the exploitation of new distribution channels is a central element of the organization's innovation attitude, which requires a high portion of strategic flexibility.

This leads to the conclusion that innovation and change are of strategic relevance for entrepreneurial companies, which must ensure supportive operational structures and processes.

As management and corporate entrepreneurship should complement each other, it becomes evident that the aforementioned conceptualization of Herbert and Brazeal (1999) underlines this suggestion by pointing out that an organization might not be able to sustain on the long-run only by identifying itself via entrepreneurial attributes such as pro-activity, innovativeness and risk-taking. Even corporate entrepreneurial companies that possess of these characteristics need to have a certain degree of stability and management ability, which is important in order to fulfil internal and especially external expectations. Corporate Entrepreneurial intensity, therefore needs to be combined with a degree of continuity.

Companies are very often heavily confronted with intense market dynamics. External factors, such as activities by competitors, new products and services, new technologies and distribution solutions require the capability to quickly react to changes in the market environment. Businesses are therefore forced to adapt their internal organizational development dynamics to the external dynamics of the market, thus to create a co-evolutionary linkage between the organisation and the market (Eisenhardt and Galunic 2000, Lewin et al. 1999). This, in turn requires an organizational design and culture suitable for the market environment, which enables the business to cope with market developments and to sometimes influence and break

rules within the industry, following the concept of “creative destruction” (Schumpeter 1934, 1993). In order to grow, companies need to understand the competitive entrepreneurial spirit similar to what they had in the very early phases of their economic history. It has proven successful for growing businesses to stimulate entrepreneurial behaviours and mind-sets within their organisations and to allow groups of individuals to operate independent and self-dynamic (Shulman et al. 2011, p. 40). This is where the concept of corporate entrepreneurship comes in place to stimulate and navigate innovation and performance.

Corporate entrepreneurship shall promote the organisation’s attitude towards innovation and development at least to such an extent that the business can cope with the surrounding market dynamics, as described above. Thus, it is a practical goal of corporate entrepreneurship to promote and support entrepreneurial behaviour within existing organisation. The relevance of the philosophy results from increased competitive intensity, growing environmental- and market dynamics as well as from growing complexity in economic systems (Miller 1983). Environmental factors include uncertainty, risk and change (Amit et al. 1993, Braganza and Ward 2001). Furthermore, the industry life cycle (Porter 1980) plays an integral role in the strategic behaviour of companies and thus has an important effect on the relevance of corporate entrepreneurship (Covin and Slevin 1991, p. 10). A large number of companies react to growing competition with non-entrepreneurial answers and strategies, such as restructuring and re-organization. However, the really valuable answers to those challenges lie in strategies around opportunity recognition and sustainable innovation.

Morris and Sexton (1996, p. 7) claim that innovation is at the core of the corporate entrepreneurial concept as it combines entrepreneurship and management. While the initial opportunity is recognized through the implementation of innovation and change, a certain phase of exploitation follows. This leads to the already above mentioned conclusion that corporate entrepreneurship and management are two complementing perspectives within an organization. While management is concerned with the optimal allocation of resources and with the coordination of activities, corporate entrepreneurship focuses on the generation of innovation, resulting in the recognition of new business opportunities. This requires organizational resources and the development of organizational competencies to implement strategic options and to turn these into innovation for improved performance. Seen from a different perspective, corporate entrepreneurship follows the logic of maximization of opportunities and chances, while management focuses on the creation of competitive advantages and on minimizing losses (Michael, Storey and Thomas 2002, p. 45).

In order to explain the corporate entrepreneurial concept better, various approaches can be followed. Steinle and Draeger (2002, pp. 265) distinguish between four different corporate entrepreneurial approaches: the person-oriented approach, the organisation-oriented approach, the strategy-oriented approach, and the culture-oriented approach.

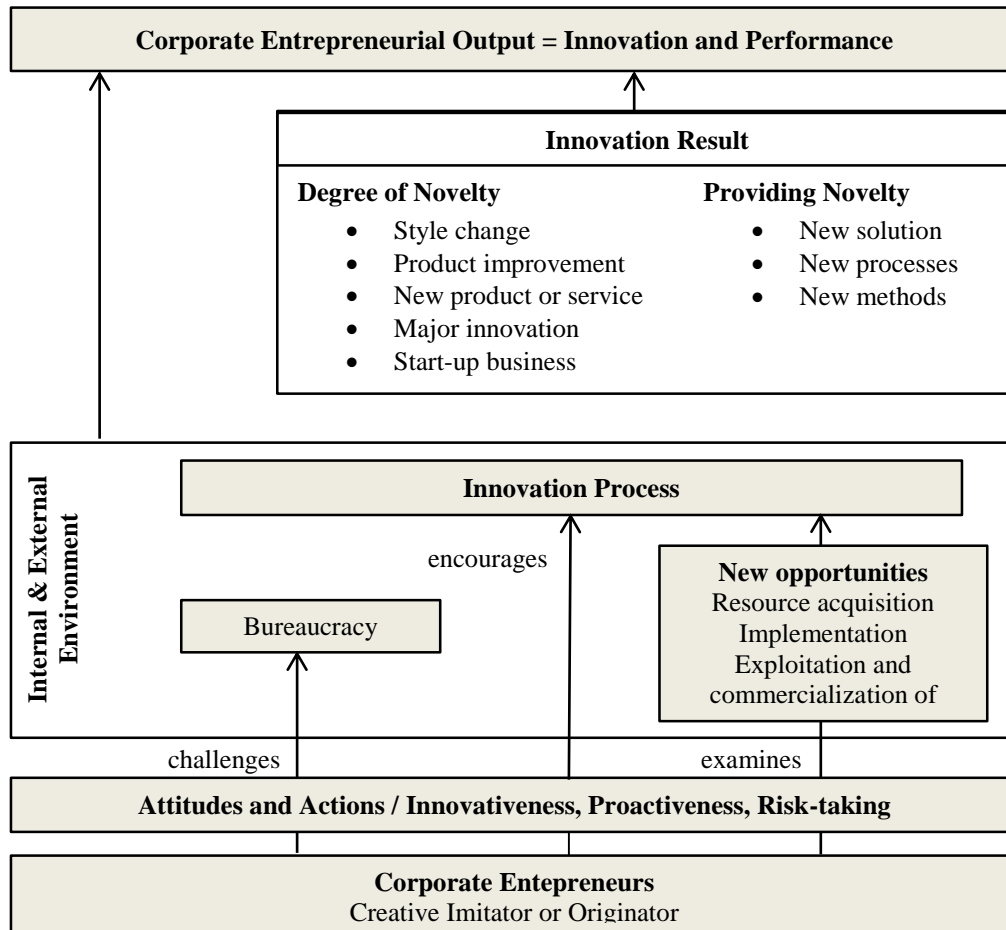
The person-oriented approach focuses on the personalities of the intrapreneurs and attests them very specific characteristics and traits such as high motivation, creativity and the aspiration for autonomy. The challenge for the management is to identify and to promote those intrapreneurs, who are generally able to combine two major tasks: the development of a vision and its realization. The organisation-oriented approach distinguishes between structure and process. While the structural focus emphasizes the creation of organizational units which can act autonomously, the process focus targets the innovation process, ranging from idea generation to implementation. The strategy-oriented approach focuses on the organizational power to innovate and on entrepreneurial thinking.

A corporate entrepreneurial strategy includes vision and behavioural aspects which aim at continuous rejuvenation of the organization as well as on the recognition and exploitation of opportunities. This leads to the culture-oriented approach, which attempts to create an entrepreneurial culture, involving characteristics such as emotional commitment, a sense of responsibility and caring, striving for high performance standards, tolerance for defects and errors and the support of the management for the allocation of resources in order to generate ideas and for opportunity recognition (Ireland, Covin and Kuratko 2009, pp. 20). In this context, it is fundamental to have the appropriate resources available within the organization. Kirton (2003) argues that people solve problems and develop solutions in different ways. On the one hand, there can be real innovators, who tend to reject the commonly accepted perception of problems and attempt to redefine them. On the other hand, there are adaptors, who tend to accept problems and their constraints. This group of individuals is creating very few new and creative solutions but is confident in implementing solutions effectively, not questioning their weaknesses.

For the purpose of this dissertation, corporate entrepreneurship is defined as a vision-directed organization-wide reliance on entrepreneurial behavior that continually attempts to create value for a company in terms of business performance through innovation and change. The following sections provide an explanation and definition of innovation and business performance in the context of corporate entrepreneurship.

## 1.2 Innovation in the Context of Corporate Entrepreneurship

Corporate entrepreneurship can be the determining factor for innovation and business performance. In an attempt to emphasize the strong link between corporate entrepreneurship and innovation, McFadzean et al. (2005, p. 357), have developed a holistic model, integrating both concepts which is shown in the illustration below.



**Figure 1-1: Framework of Corporate Entrepreneurship, Innovation and Performance**  
 Source: created by author from: McFadzean, E., O’Loughlin, A., Shaw, E. (2005): Corporate entrepreneurship and innovation part 1: the missing link, in: European Journal of Innovation Management, Vol. 8, No. 3, pp. 350-372.

Within their conceptualization, corporate entrepreneurs initiate the innovation process, which might also be called entrepreneurial process through examining new opportunities, acquiring resources, implementing, exploiting and commercializing the these opportunities while at the same time challenging bureaucracy. According to the model, innovation results in either new products and services to customers, new solutions, new processes or new methods of commercialisation. Hence, the conceptualization views the ability to recognize opportunities as a crucial element for any corporate entrepreneur in order to ultimately transform opportunities into innovation and performance. The degree of innovation may vary and can be a style change,

product line extension, product improvement, a new product, or a major innovation. All of the above contribute to add value to the organization.

The illustration highlights that corporate entrepreneurs act as the origin of corporate entrepreneurial activities, which – through the antecedents of innovativeness, proactiveness and risk-taking initiate the innovation process, eventually yielding corporate entrepreneurial output in the sense of innovation and performance.

Opportunity recognition, therefore is at the beginning of the corporate entrepreneurial innovation process. Research on opportunity recognition has originally been emphasizing the question of why some individuals do recognize opportunities and others do not (Baron 2006, p. 105). More recently, however research points at findings indicating that opportunity recognition requires an individual and an organizational side (Hsieh, Nickerson and Zenger 2007, pp. 1260). According to Schumpeter (1912), opportunity recognition can result in invention, which is different from innovation. Opportunities will only turn into innovation if they are successfully going through the corporate entrepreneurial process, which transforms opportunities into innovations and finally commercializes them for firm performance. Opportunities firstly need to be identified and then evaluated in-light of its potential future value for the firm. Furthermore, opportunity recognition is explained by Baron (2006, p. 104), who suggests a model of pattern recognition. The model considers the knowledge- and experience-based interpretation of events, trends and changes by corporate entrepreneurs as key to whether an opportunity is recognized, or ignored. Additionally, Baron argues that the knowledge and experience of a corporate entrepreneur, together with alertness to, and search for opportunities are variables related to opportunity recognition.

Given all of these theoretical aspects, this dissertation defines innovation as a combination of frequency of new product-, service- or process improvements and the degree of their newness. The following section attempts to define the construct of business performance in the context of corporate entrepreneurship.

### **1.3 Business Performance in the Context of Corporate Entrepreneurship**

The underlying aim of corporate entrepreneurship is to create value for the organization and to promote the creation of wealth through innovation. Schumpeter (1961) viewed entrepreneurship as the primary catalyst for innovation as it deals with why and how opportunities arise, and how organizations and individuals make use of them. Differently expressed, the concept can be seen as an approach for promoting and sustaining competitiveness

and transforming organisations into opportunity-recognizing entities for value-creating innovation (Guth and Ginsberg 1990, pp. 5; Miller 1983, pp. 770; Lumpkin and Dess 1996, pp. 135). In order to capitalize on innovation through corporate entrepreneurship in the sense of business performance, airlines need to align their organizations in a way that they are able to foster entrepreneurial activities. Favorable organizational structures, flat hierarchies and fast decision making processes are important elements of an entrepreneurial atmosphere within organizations. Furthermore, there are a number of influencing factors which determine the degree of corporate entrepreneurship, including innovativeness, proactiveness, risk-taking and people (Luo et al. 2005, pp. 277; Ireland et al. 2009, p. 24). These drivers and enablers are commonly referred to as the dimensions of corporate entrepreneurship. Results from corporate entrepreneurial activities may include product-, service-, and process improvements that enhance the competitive position of firms on the market (Aldred and Unsworth 1991, p. 18; Zahra 1991, pp. 260). In fact, corporate entrepreneurial output is determined by corporate entrepreneurial intensity, which consists of degree and frequency of innovation (Kuratko et al. 2011, p. 75). How to make effective use of corporate entrepreneurship in order to drive innovation and business performance is a particular challenge for airlines and constitutes the underlying research problem of this dissertation.

Literature distinguishes many different approaches of measuring business performance. It mainly focuses on the management and monitoring of internal activities (Kristensen and Westlund 2004, p. 635). For the purpose of this dissertation, the domain of financial and operational performance is defined as business performance. According to Kuratko, Morris and Covin (2011, pp. 378) these aspects are related to financial metrics, such as earnings, turnover, market share and profit margin. In order to adopt a more tailored approach towards airlines, operational metrics, such as improved competitive position, fleet growth, improved customer satisfaction, reduced costs, increased revenues and increased passenger load factor is added.

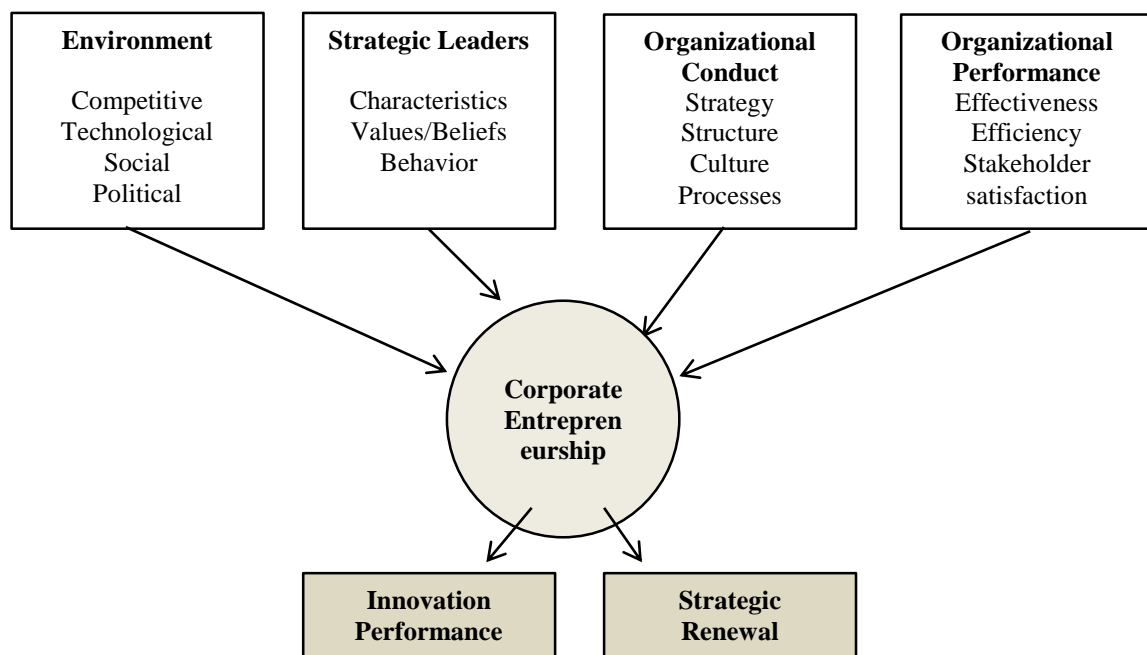
As the terms corporate entrepreneurship, innovation and business performance have now been defined in the sections above, the following part of the dissertation presents various models of corporate entrepreneurship which aim at innovation and business performance.

#### **1.4 Models of Corporate Entrepreneurship for Innovation and Performance**

The models of corporate entrepreneurship presented in this section are being viewed as abstract pictures of the reality, which conceptualize complex relationships and show interrelations among variables involved. There are numerous models trying to conceptualize corporate

entrepreneurship. Generally, literature distinguishes between two model streams, which are either related to organizations or to the external environment of organizations (Antoncic and Hisrich 2004, p. 521). Lyon et al. (1999) have argued that organizational and environmental factors influence the relationship between corporate entrepreneurship and performance, thus these factors have a direct impact on corporate entrepreneurial output through the level of corporate entrepreneurial intensity. In addition to that, Kuratko and Welsch (1994) attempted to reflect various models and come to the conclusion that many of them involve external factors as well as strategy, structure and person-related variables.

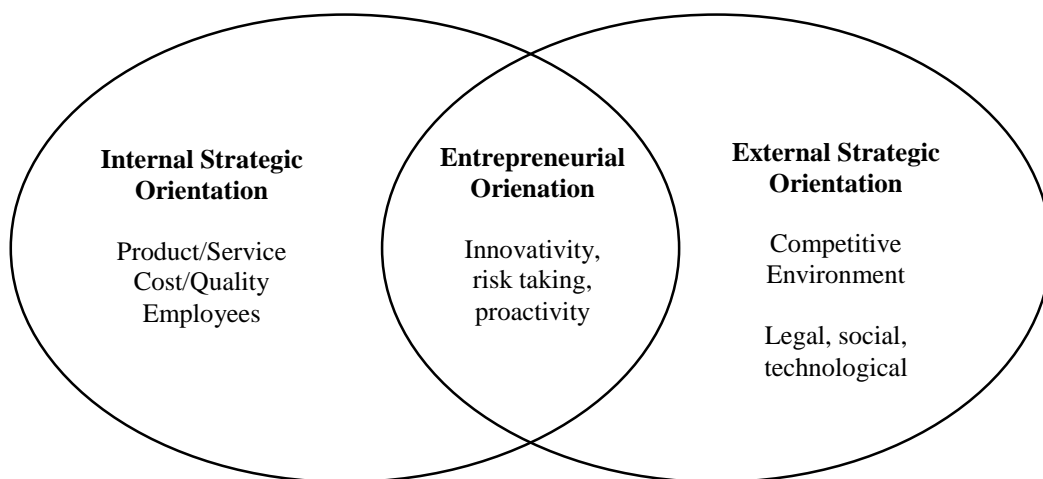
A commonly accepted model is the one by Guth and Ginsberg (1990, pp. 5), which states that corporate entrepreneurship is expressed by extensive innovation performance and strategic renewal. The model explains corporate entrepreneurship as a four-dimensional construct involving variables such as environment, strategic leaders, organization conduct and organization performance. Moreover, the model attempts to fit corporate entrepreneurship into the scope of strategic management. It states that the environmental dimension consists of competitive, technological, social and political aspects; the dimension of strategic leadership involves leadership characteristics, values, beliefs and behaviour; the organization conduct is made of strategy, structure, culture and processes; and the organization performance is determined by effectiveness, efficiency and stakeholder satisfaction, as illustrated in the figure below.



**Figure 1-2: Corporate Entrepreneurship Model of Guth and Ginsberg**

Source: Created by author from: Guth, W.A., Ginsberg, A. (1990): Guest editors' introduction: Corporate Entrepreneurship, in: Strategic Management Journal, Vol. 11, pp. 5-15.

The model, however can be criticised because it is lacking a holistic perspective and a process view of corporate entrepreneurship, which is integrated by the conceptualisation of Aloulou and Fayolle (2005, p. 32). Their model is also based on an environmental view of corporate entrepreneurship-driven organizations, however it differentiates between an internal and an external environment. The external environment focuses on macroeconomic aspects as well as legal-, socio-cultural, technological and natural aspects. The competitive environment emphasizes the competitive situation within an industry and is oriented towards suppliers, customers, substitution products, new market players and rivalry among existing firms. The internal environment deals with culture, structure and strategy as well as with resources, competencies and routines. Entrepreneurial orientation results from the external and internal environments acting as suppliers for chances and resources. According to their argumentation, companies following the concept of corporate entrepreneurship will have aspects of opportunities and resources as key elements integrated in their corporate (entrepreneurial) strategy. The figure below summarizes the model.



**Figure 1-3: Model of Strategic Entrepreneurial Orientation**

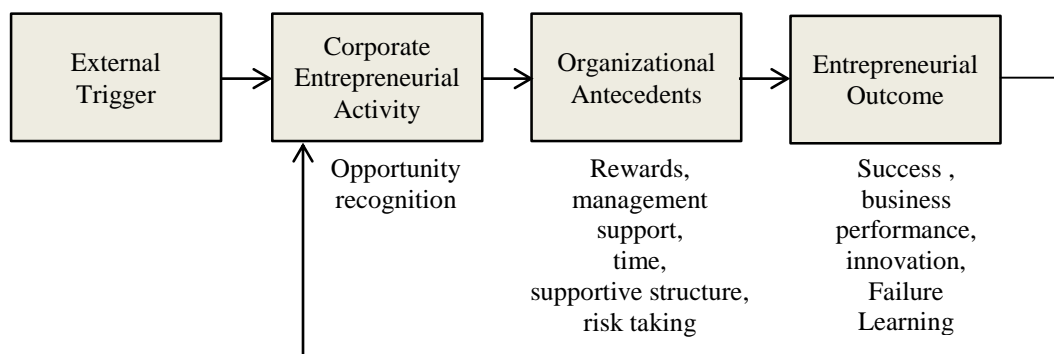
Source: created by author from: Aloulou, W., Fayolle, A. (2005): A conceptual approach of entrepreneurial orientation within small business context, in: *Journal of Enterprising Culture*, Vol. 13, No. 1, pp. 21-45.

The micro model of entrepreneurship and innovation (Shaw, O’Loughlin and McFadzean 2005) refers to the environmental factors involved in more detail. It integrates the element of innovation, and conceptualizes the linkages from a macro- and micro perspective. The macro-model concentrates on the environmental drivers of innovation, the need of society and advances in technology as well as on the frequency and rate of innovation development. According to the model, companies can respond to environmental challenges or future opportunities by innovation. Thus, new needs of society and the market place act as initiating factors for the innovation process, which is very often linked to uncertainty, risk, and change

(Amit et al. 1993; Braganza and Ward 2001). Technology also plays an integral role in the innovation process as new technology is an important push-factor, which has an impact on innovation (Roberts 1988).

Performance and innovation are initiated by external factors. The innovation process gets started, which involves the stages of idea generation, opportunity recognition, research opportunity and finally the further development of the idea. This is followed by the commercialisation step, which includes the adoption and diffusion of new products and services and leads to following output stages of innovation. The micro model will further elaborate on the innovation process, which complements the macro model and focuses on the underpinnings of the corporate entrepreneurship and innovation process. These can be categorized within five factors and include inputs, which are being transformed into outputs during the entrepreneurial catalytic transformation process. Furthermore, contextual factors and the relationship between the various elements are influencing factors for the process of generating innovation and performance through corporate entrepreneurship. As Couger (1995) states, creativity is at the core of the configuration of the innovation process and thus assists in the development of new ideas. Through the corporate entrepreneurial catalytic transformation, creative inputs are being transformed into measurable outputs, which can be success, failure or lessons learned.

An alternative model is explained by Kuratko et al. (2004, pp. 77), which attempts to view corporate entrepreneurship from an angle of sustainability, describing an organization’s ability to continuously perform entrepreneurship, rather than viewing it from the strategic perspective of Guth and Ginsberg (1990, pp. 5), as described above.



**Figure 1-4: Corporate Entrepreneurial Process Model**

Source: created by author from: Kuratko, D.F., Hornsby, J.S., Goldsby, M.G. (2004): Sustaining corporate entrepreneurship: a proposed model of perceived implementation / outcome comparisons at the organizational and individual levels, in: International Journal of Entrepreneurship and Innovation, Vol. 5, No. 2, pp. 77-89.

The model describes a transformational trigger as being the initial cause for corporate entrepreneurial activity. This can be either an external threat, market developments, crises or simple business opportunities. Corporate entrepreneurial activities, which are driven by individuals within the organization transform opportunities into entrepreneurial outcomes, which means innovation and performance. As the entrepreneurial process is heavily dependent on individuals, the model focuses on the motivation of employees to behave as entrepreneurs. This has several organizational antecedents, such as rewards, management support, resources including people, money, time, relationships, supportive organizational structures and risk taking. The framework argues that entrepreneurial behavior will result from agreement between employee and leadership that the entrepreneurial activities are equitable.

An integrative model is provided by Ireland et al. (2009), which strategically integrates corporate entrepreneurship throughout the organization. The focus lies on the continuous integration of entrepreneurship throughout the organization and is based on three pillars:

1. the entrepreneurial strategic vision,
2. a pro-entrepreneurship organizational architecture, and
3. entrepreneurial processes and behavior.

Additionally, the model distinguishes between the organization, top-level management and employees. Employees must possess individual entrepreneurial cognitions involving entrepreneurial beliefs, attitudes and values. These lead to opportunity recognition and exploitation. The organization itself considers external, environmental conditions such as competitive intensity, technological change and product-, service- and market developments. The organizational architecture supports corporate entrepreneurship through structure, culture, resources, capabilities and reward systems. Top-level management plays a central role in the integrative model, as it links the corporate entrepreneurial organization with its employees through leading with an entrepreneurial strategic vision.

Kuratko, Morris and Covin (2011, p. 22) summarize various models of corporate entrepreneurship which have been discussed above, by combining the foundations of the construct with entrepreneurial organization and entrepreneurial performance into a contingency model. Foundations of corporate entrepreneurship include internal and external environmental factors; the entrepreneurial organization consists of human resource capabilities, corporate strategy, organizational structure and culture. All of these aspects eventually contribute to innovation and strategic renewal, which leads to sustainable entrepreneurial performance.

Other normative models of corporate entrepreneurship which are not discussed in more detail have been developed by Antoncic and Hisrich (2001), Covin and Slevin (1991), Dess et al. (1997), Lumpkin and Dess (1996), Naman and Slevin (1993), Russell and Russell (1992) and Zahra (1991).

Critically reflecting the models presented above, Antoncic and Hisrich (2004, p. 521) argue that only very few normative models integrate the dimension of relationships and strategic alliances. Therefore, in addition to the two direct antecedent concepts of environmental and organizational factors, their model also includes the dimension of organizational alliances and relationships with other firms and relates them to wealth creation and performance. Furthermore, a communality among most of the models of corporate entrepreneurship under review points at the fact that entrepreneurial output is innovation and performance. This means that these two variables tend to be the outcome of corporate entrepreneurial activity. The following section attempts to highlight these two aspects in some more detail by pointing at corporate entrepreneurial influencing factors for innovation and performance.

### **1.5 Influencing Factors for Innovation and Performance**

As already outlined in previous sections, the construct of corporate entrepreneurship can be approached from a number of different angles. It is important to understand the various angles, which shall be explained in more detail below pointing at the influencing factors of corporate entrepreneurship, which include the dimensionality of corporate entrepreneurship, people within the organization as corporate entrepreneurs, and leadership. Likewise, influencing factors of innovation and performance through corporate entrepreneurship can be attributed to the following aspects (Frank 2009, pp. 25; Steinle and Draeger 2002):

- strategy-oriented influence,
- organizational influence,
- person-oriented influence, and
- culture-oriented influence.

Steinle and Draeger (2002) have formulated a person-, organization-, and strategy-oriented approach towards corporate entrepreneurship, which is enhanced by Frank (2009) by a culture-oriented approach. The person-oriented approach focuses on individuals within organizations. Wunderer (1994) characterizes three different types of employees within a company:

1. corporate entrepreneurs, who fully act as entrepreneurs;

2. entrepreneurial oriented employees, who situatively act as entrepreneurs; and
3. simple job owners who do not act entrepreneurially at all, but simply do their job.

Thus, it must be an objective of organizations to focus on creating an environment, which enables corporate entrepreneurs to unfold themselves within a broad room to maneuver. The entrepreneurial individual can be characterized by an internal locus of control, calculated risk-taking, commitment, persistent problem solving and opportunity orientation. Organizations have to support corporate entrepreneurs with the development of their vision, based on recognized opportunities and their transformation into innovation. Hornsby et al. (2003, pp. 29) emphasize the importance of the stimulus for entrepreneurial activity, which stands at the beginning of the entrepreneurial innovation process. These can include a change in management, a crisis, the development of a new procedure, economic or technological changes and revised consumer demand. Covin and Slevin (1991), however enhance the view of Hornsby et al., by classifying the corporate entrepreneurial initiating factors into external variables, strategic variables and internal variables.

External variables include the advance of technological sophistication, industry and product lifecycles and market dynamics, such as competition. Strategic variables consist of mission strategy, business practices and competitive tactics. Internal variables can be described by management influences, such as control, resources, authority and planning horizons; venture-specific factors, such as scanning, evaluation of business feasibility and support; precipitating factors, such as dissatisfaction, opportunity, initial encouragement and need for change; and finally entrepreneurial descriptors, which include traits, personal fitness, knowledge and experience (McFadzean, O'Loughlin and Shaw 2005, p.360). All of these variables contribute to the individual's decision whether or not to act entrepreneurially, thus to turn opportunities into innovation and increase firm performance.

The organization-oriented approach emphasizes processes and structures. When focusing on structures, separate organizational units are built which perform entrepreneurial activities, such as the exploitation of new business fields, products or services (Nathusius 1979). In this context, corporate venturing plays an integral role as these separate business units must be equipped with the necessary budgets to perform their tasks. Corporate ventures can be characterized by the fact that they have evolved from internal efforts as a kind of an "intraprise". The process orientation also belongs to organizational influences on innovation and performance and emphasizes the process of innovation generation and implementation. In this context, bureaucracy can be a harming factor for corporate entrepreneurial output, as it leads to perceived boundaries, which could prevent individuals within organizations to recognize

problems outside their own area of responsibility. Therefore, companies are challenged by creating organizational structures which are supportive and which have the administrative abilities to recognize opportunities, evaluate and implement ideas (Hornsby, Kuratko and Zahra 2002, pp. 253).

The strategic perspective focuses on the organizational power to innovate. As already pointed out in previous sections, corporate entrepreneurship is a strategy in itself, however the challenge lies in the development of a corporate strategy which is entrepreneurial. In order to better describe the role of corporate entrepreneurship in strategy formulation, four key strategic concepts can be used (Kuratko, Morris and Covin 2011, pp. 169):

1. strategic advantage,
2. strategic positioning,
3. strategic flexibility, and
4. strategic leverage.

Firstly, strategic advantage is related to innovation as the key to develop sustainable competitive advantages. Innovation is inextricably linked with continuous learning and is a strategic core competence of the entrepreneurial organization. In this context, strategy is related to exploring and exploiting competitive advantage on the market. Secondly, strategic positioning deals with a firm's external perception on the market, which is based on a distinct set of attributes, which link strategy and entrepreneurship. Thirdly, strategic flexibility and adaptation is a big challenge for organizations, which on the one side have to continuously innovate and demonstrate continuity on the other side. Strategic corporate entrepreneurship requires organizations to be open for change in directions and willing to continuously rethink strategies, plans resources as well as structure, culture and managerial systems. Finally, strategic leveraging is a creative process of getting more with less. It describes the ability of corporate entrepreneurs to stretch resources and to neglect currently existing resource constraints.

As Ireland et al. (2009) argue, corporate entrepreneurship strategy must possess of a clear strategic entrepreneurial vision, a pro-entrepreneurship organization structure as well as entrepreneurial processes and behaviors throughout the organization. As the strategy-oriented approach includes personnel- and organizational aspects, it can be seen as the most integrative approach to corporate entrepreneurship. Contributing factors to an entrepreneurial strategy include (Kuratko, Morris and Covin 2011, pp. 174):

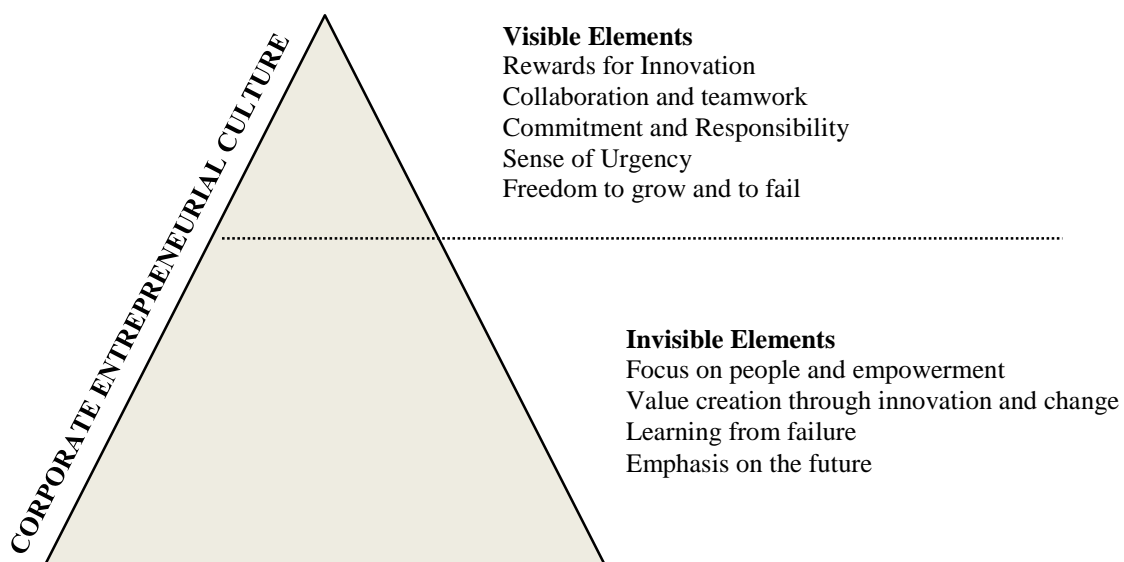
- the development of an entrepreneurial vision,
- the increased perception of opportunities,

- the institutionalization of change,
- the desire to be innovative,
- a commitment to the investment in individual's ideas,
- sharing risks and rewards with employees, and
- the acceptance of failure.

Referring to culture-oriented influences on innovation and performance through corporate entrepreneurship, there are many different levels of how entrepreneurial aspects can be embedded in corporate cultures. Generally, there is a great debate about whether or not culture can be changed. Wilson (2001, p. 362) argues that cultures within groups evolve and change over time as influencing factors of culture might change as well. These influencing factors are:

- the general business environment,
- leadership,
- management practices, and
- formal- and informal socialization processes.

Therefore, culture can be seen as behavioral patterns, which consist of visible and invisible aspects. Visible aspects include behavioral patterns, the physical and social environment as well as written and spoken language, while less visible aspects of culture lie deeper and are related to values and very basic assumptions about reality, as illustrated in the figure below.



**Figure 1-5: Visible and Invisible Elements of Corporate Entrepreneurial Culture**  
 Source: created by author from: Kuratko, D.F., Morris, M.H., Covin, J.G. (2011): Corporate Innovation and Entrepreneurship - Entrepreneurial Development within Organizations, 3rd edition, International Edition: South-Western Cengage Learning.

Combining all these aspects, the entrepreneurial culture consists of a focus on people and empowerment, value creation through innovation and change, rewards for innovations, learning from failure, collaboration and teamwork, freedom to grow and to fail, commitment and personal responsibility, emphasis on the future and a sense of urgency.

Entrepreneurial culture must definitely involve both, visible and indeed invisible aspects as well. It is of crucial importance for entrepreneurial success or failure that the entrepreneurial culture is accepted throughout the organization and supported by top and middle management. Therefore, top management has to act as facilitator (Sykes and Block 1989), encourager (Sathe 1989) and resource provider (Kuratko, Ireland, et al. 2005) in this context. Facilitation refers to the ability and willingness of managers to promote entrepreneurial activities, while encouraging staff to recognize opportunities and foster innovative ideas. Also, management has to provide the necessary resources for effective innovation and performance. Furthermore, compensation and reward schemes seem to have an important influence as they act as motivators for employees to act in an entrepreneurial manner (Brazeal 1993, pp. 76). Incentives and rewards may not only refer to financial gains in the form of equity and equity equivalents, bonuses or salary increases, but might also include social status and recognition (Bhardwaj, Sushil and Momaya 2011, p. 190).

Summarizing the four perspectives discussed, there are strategic, organizational, cultural and person-related influences on innovation and performance through corporate entrepreneurship. The following section focuses on the dimensionality of corporate entrepreneurship, in terms of the construct's composition and major driving forces.

### **1.5.1 Innovativeness, Proactiveness and Risk-Taking**

Several works have been elaborated as an attempt to understand overall dimensionality or driving forces of corporate entrepreneurship, however no general agreement among them can be attested. For the purpose of this dissertation, the term dimensionality refers to the constitution of corporate entrepreneurship related to its major influencing factors. Lumpkin and Dess (1996, p. 150), for example characterize corporate entrepreneurship by factors of innovativeness, proactiveness, risk taking, autonomy and competitive aggressiveness. Zahra and Covin (1995, pp. 51), only argue a three-dimensional approach, involving venturing, innovation and self-renewal. A widely accepted dimensionality, however is based on the work of Luo et. al (2005, pp. 277), which involves three of the above mentioned five dimensions identified by Lumpkin and Dess, namely innovativeness, proactiveness and risk-taking. In addition to these three

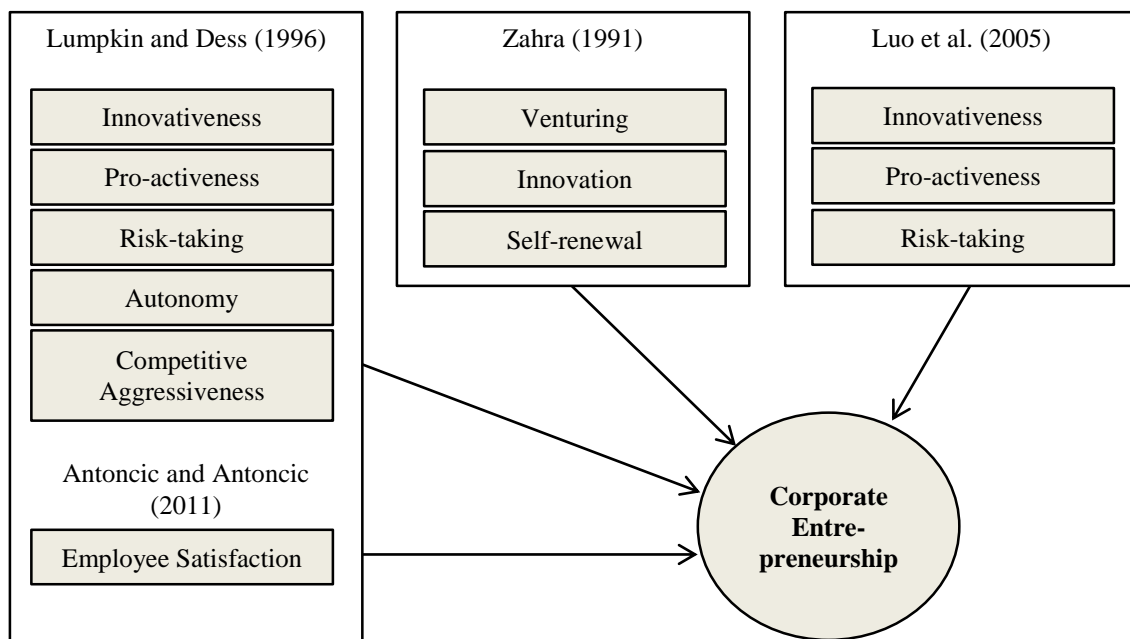
dimensions, it must not be forgotten to also consider corporate entrepreneurship's most fundamental attitude, which is the ability to identify opportunities and to transform those into innovation and change. This section attempts to describe the above mentioned three fundamental dimensions in more detail.

Firstly, innovativeness can be viewed in a variety of different ways. Generally, however innovativeness applies to products, services, markets and technologies. Already Schumpeter (1934) argued that innovation is at the heart of the entrepreneurial process. It possesses of a range of peculiarities as it might be related to many different facets of business, such as cost reduction, repositioning, new applications, product or service improvements, product or service enhancements, new products or services to a certain market or even new to the world. In order to explore the innovativeness dimension, it is important to understand the sources of innovation. These can range from pressure to innovate caused by external forces and new technologies, to globalization effects – to mention just a few. Corporate entrepreneurship and innovation links together at a point where innovation on the one side and corporate entrepreneurs on the other side must break rules in order to move forward and drive change. The organizational challenge lies in the ability to allow corporate entrepreneurs to break rules and think out of their usual box in order to emphasize the transformation of opportunities into real business ventures. Furthermore, innovativeness is a strategic issue and relates to processes and structures, which support innovation within organizations as well as time and speed, which is crucial for implementing innovation on the market. In a strategic context, corporate entrepreneurship attempts to formalize the innovation process in order to make it a key element of every individual within the organization, rather than relying on random innovation. Innovativeness involves seeking of creative, unusual or novel solutions to problems and needs.

Secondly, the proactiveness dimension refers to the ability of pursuing initiatives in advance of competitors as well as to the timely execution of anticipated tasks and activities which are necessary for an entrepreneurial opportunity. Proactiveness deals with how companies recognize opportunities and transform them into change and innovation for performance. Proactiveness is about an attitude of acting rather than re-acting. It may be manifested in three different ways: seeking new opportunities, introducing innovation ahead of competition and eliminating mature or declining businesses (Venkatraman 1989, pp. 950). Corporate entrepreneurship refers to proactiveness not only as transferring ideas into concepts, it additionally involves opportunity recognition, the internal marketing of this opportunity, its implementation and launch as well as its success or failure.

Finally, the dimension of risk-taking is inextricably linked to the above discussed factors of innovativeness and proactiveness. It is about the extent to which there is uncertainty about whether potentially successful or disappointing results of a decision will be realised (Dewett 2004, p. 258) Innovation is about creating something new, which in-turn is about the unknown and, naturally incurs risk. The focus of corporate entrepreneurship lies on moderate and calculated risk, rather than on extreme, uncontrollable risks, which can better be managed by focussing on frequent, lower-risk innovations rather than on a one-time high-risk innovation. On the opposite, it is also very risky for companies not to innovate as they are likely to be outperformed by innovative competing market players. Thus, organizations must find the right balance between their innovation activities and related risk involved within their strategy.

Lumpkin and Dess (1996) enhance the three-dimensional conceptualization of corporate entrepreneurship, as briefly described above by two more factors, namely autonomy and competitive aggressiveness. Another extension of the dimensionality stems from Antoncic and Antoncic (2011, p. 600), who suggest to enhance the construct with the factor of employee satisfaction.



**Figure 1-6: Dimensionality of Corporate Entrepreneurship**

Sources: created by author from: Antoncic, J.A., Antoncic, B. (2011): Employee satisfaction, intrapreneurship and firm growth: a model, in: *Industrial Management & Data Systems*, Vol. 111, No. 4, pp. 589-607.

Lumpkin, G.T., Dess, G.G. (1996): Clarifying the entrepreneurial orientation construct and linking it to performance, in: *Academy of Management Review*, Vol. 21, No. 1, p. 135-172.

Luo, X., Zhou, L., Liu, S. (2005): Entrepreneurial firms in the context of China's transition economy: an integrative framework and empirical examination, in: *Journal of Business Research*, Vol. 58, pp. 277-284.

Zahra, S.A. (1991): Predictors and financial outcomes of corporate entrepreneurship: an exploratory study, in: *Journal of Business Venturing*, Vol. 6, No. 4, pp. 259-285.

In light of all the above discussed factors, it is of central importance to reflect on the overall objective of corporate entrepreneurship, which is achieving sustainable competitive advantage, driving innovation and performance. Hence it is legitimate to view corporate entrepreneurship as a strategic attitude towards risk taking, innovation and pro-activeness. Also, aspects such as organization structure, management and employee leadership must not be forgotten. In a corporate entrepreneurial setting, the employee is the main actor, constituting the corporate entrepreneur, who acts within the strategy, structure and culture defined by middle- and top management, supporting entrepreneurial activities in order to achieve innovation and leverage business performance. Sydow and Windeler (1998, pp. 257) describe the nature of corporate entrepreneurship as a dynamic interplay between employees and management, which requires reflexive qualities on both sides. Moreover, innovation and performance are heavily dependent on individuals acting within organizations (Heinonen and Toivonen 2008, p. 594) – the corporate entrepreneurs, who are introduced in the next section.

### **1.5.2 People: Corporate Entrepreneurs**

Individuals who have capabilities and the willingness to act as an entrepreneur are key factors in corporate entrepreneurship. Corporate entrepreneurs usually possess of certain traits and characteristics, as they (McFadzean, O'Loughlin and Shaw 2005, p. 352):

- challenge bureaucracy,
- examine new opportunities,
- acquire resources,
- implement, exploit and commercialize opportunities, and thus
- encourage innovation.

Corporate entrepreneurs transform classic entrepreneurial traits and characteristics into a corporate setting in an existing organization, however are different than classic managers (Thornberry 2003). Traditionally, managers are mainly concerned with setting objectives and achieving their objectives with the most effective deployment of available resources. Managers are measured by how efficient and effective they are able to utilize the resources under their control (Drucker 1985, pp. 147). Their major challenge is to transform inputs such as human, technical or financial capital into outputs according to the above mentioned objectives. The manager must therefore be an effective planner, strategist, organizer, director, staffer,

motivator, budgeter, evaluator, coordinator and supervisor. On the opposite, corporate entrepreneurs tend to possess of different characteristics, as they can be described as visionary, opportunity-seekers, creators, innovators, calculated risk-takers, resource leveragers, guerrilla thinkers, change agents and adaptive implementers of new ideas (Kuratko et al. 2005, pp. 701; Darling 1999, pp. 311; Heinonen and Toivonen 2008, p. 585; de Villiers-Scheepers 2012, pp. 405; Srivastava and Agrawal 2010, p. 165; Bhardwaj et al. 2011, pp. 194; Thornberry 2003, p. 333).

Organizations are in a certain dilemma with corporate entrepreneurs. While they can be the driving force for innovation and change on the one side, they can be difficult team members to deal with for their superiors on the other side. Real corporate entrepreneurs do not necessarily make their manager's life easy. Heinonen and Toivonen (2008) have attempted to investigate the relationship between leaders and their subordinates within a corporate entrepreneurial environment. The quantitative study was conducted in a public-sector, municipal health and social care organization in Finland within the scope of a broader organizational development project. Results revealed that managers are more likely to support contented followers than self-confident change agents, who could be characterized as corporate entrepreneurs (Heinonen and Toivonen 2008, p. 594). This shows that it is a particular challenge to promote corporate entrepreneurship within organizations and to empower individuals with their own ideas and initiatives from a management style perspective.

Although top management might support corporate entrepreneurs, the challenge very often lies in the acceptance of employee initiatives with their immediate superiors in middle management levels. Whether individuals within organizations become corporate entrepreneurs or silent followers is heavily dependent on (Heinonen and Toivonen 2008, pp. 591):

- management behavior,
- job satisfaction,
- self-confidence, and initiative.

Corporate entrepreneurs need to have great appreciation and support from their superiors behind their initiatives. They need to be stimulated, supported and protected, whereas management must learn tolerance towards failure and become more flexible and creative (Kuratko, Morris and Covin 2011, pp. 21). Corporate entrepreneurs have both an attitudinal and behavioral dimension, which are related to a certain ways of acting and thinking. The attitudinal dimension of thinking is about recognizing opportunities, embracing change through envisaging the future rather than relying on the presence, optimism and constant critical reflection of the current

reality. The behavioral characteristics of corporate entrepreneurs are a sense of innovation and for calculated risk, resource leveraging, guerrilla skills and vision (Kuratko et al. 2005, pp. 700).

Corporate entrepreneurs are very often dissatisfied with the status quo and have a desire to improve things, based on their true belief that better ways exist. Therefore, leadership plays an essential role in promoting corporate entrepreneurs. Senior management is crucial for the cultivation of corporate entrepreneurship within organizations (Chen, Zhu and Anquan 2005, p. 538) and has an impact on how the rest of the organization deals with business challenges.

Key abilities in this context include:

- the capacity to endure uncertain situations,
- the ability to recognize and seize opportunities, and
- the ability to accept and learn from failure.

Hence, successful corporate entrepreneurs will make a positive contribution to innovation and performance of a firm (Chen, Zhu and Anquan 2005, p. 539), working together with other people within the organization, forming effective teams that come together to share a common goal. The overall culture of an organization is guided by its strategic direction, set forth in the corporate vision and refers to the sum of shared norms, values and beliefs of individuals within the organization or the team. Values and beliefs are the guiding principles of an organization. Without a thorough understanding of the entrepreneurial vision by every single individual within the organization, corporate entrepreneurship might not become alive (Bhardwaj, Sushil and Momaya 2011, p. 200). Previous experience shows that if people are put together in effective teams, their efforts exceed the sum of individual contributions (Bhardwaj, Sushil and Momaya 2011, p. 195). Corporate entrepreneurial teams are almost self-directed and have a certain degree of autonomy within the organization.

Studies on the composition of teams have revealed that teams consisting of individuals, coming from different functional divisions are likely to be particularly effective. Of course, these teams need managerial support of their collective, interdisciplinary talent (Hitt, et al. 2001, pp. 480). In the corporate entrepreneurial context, not all venture teams eventually need to be successful with the capitalization of their opportunity in form of innovation or change. As discussed already in previous chapters, a certain acceptance and tolerance of failure is at the core of the corporate entrepreneurial philosophy. The challenge, however is to transfer the knowledge generated from failure to other venture teams and to new projects. The cross-functional structure of venture teams promotes the knowledge transfer and may elevate effectiveness through balances, contrasts and dissonance (Bhardwaj, Sushil and Momaya 2011, p. 196).

The management and transfer of knowledge is an integral part of the corporate entrepreneurial culture for managing people and teams. One of the major challenges related to knowledge transfer is that the vast majority of knowledge is existing only in people's heads and lacks sufficient documentation. Therefore, knowledge transfer is a difficult task. In the case of airlines, this is of particular relevance as organizations very often extend globally and have units that are geographically distant from each other. Previous experience from a different industry shows how this challenge can be mastered (Thornberry 2003, p. 336).

Furthermore, corporate entrepreneurship requires pragmatic structures that support creative thinking and autonomous acting, avoiding extensive hierarchies and bureaucracy. It calls for rather non-hierarchical organization structures, which equips employees with flexibility and room for development (Bhardwaj, Sushil and Momaya 2011, p. 200). The author states that an effective structural approach to corporate entrepreneurship can be the introduction of matrix organizations. This involves individuals from different business units to legitimately work together and form functional teams for pursuing corporate entrepreneurial goals and objectives. In such an organizational setup, employees are permanently attached to one department, but simultaneously also have assignments to other units in matrix organizations. Some matrix organizations can be only related to a specific project, others can be of more permanent character. A matrix approach can involve units of different departments to work together on a specific project or even for a longer working group or forming a task force on a specific topic, while still being permanently attached to a certain department.

Beside the organizational design, compensation and reward are other crucial structural drivers of corporate entrepreneurship in relation to people. In order to understand the construct of monetary reward and compensation better, it is necessary to have a closer look at two of the most fundamental motivational theories by Abraham Maslow and Frederick Herzberg. Herzberg's two-factor approach basically divides Maslow's five-step hierarchy into two dimensions. The first dimension, hygiene factors refer to the lower-level physiological, security and social needs, while the second dimension, also referred to as motivators consolidate the upper-level needs of self-esteem and self-actualization (Herzberg 1968). It is suggested that companies should focus on motivators in order to really motivate someone. The most interesting element of Herzberg's theory, however lies in the categorization of monetary aspects of work, as he relates salary and compensation to hygiene factors. This, in turn means that money is not really motivating people to perform as there are other factors, such as achievement and recognition that form the basis of intrinsic motivation. Extrinsic motivation is attributed to hygiene factors, which are relatively easy to satisfy and therefore also easily exchangeable.

Hence, according to the two-factor approach of motivation, building challenges and opportunities for achievement are the best form to motivate people. Interestingly, the theory states that in case hygiene factors are not satisfied, it leads to dissatisfaction, while the fulfillment of motivator factors leads to satisfaction.

Findings from both Herzberg's and Maslow's motivational theories are of central relevance in corporate entrepreneurship and help to understand motivational factors that could potentially have a positive impact on corporate entrepreneurial output in the sense of innovation and performance. Summarizing the two motivational theories under review, it becomes clear that compensation can only play a marginal role in the success or failure of innovation and performance. Building on the theoretical foundations of Maslow's and Herzberg's theories, the following paragraph discusses compensation and reward as drivers of corporate entrepreneurship in more detail.

Compensation includes monetary and non-monetary forms. Monetary forms of compensation refer to wages, salaries and bonuses, while non-monetary forms of compensation can refer to intrinsic or psychic compensation. In this respect, three classes of compensation can be determined:

1. Direct monetary compensation (salary and wages, incentives, merits, etc.);
2. Indirect monetary compensation (benefits and services);
3. Non-monetary compensation (recognition, status, challenging work, learning and development opportunities, responsibility, status, title, etc.)

Increasingly, companies are introducing performance-based compensation models, which involve all three types of compensations described above. Additionally, companies have various instruments to reward employees, which might include above mentioned monetary compensation, but also status symbols, such as more office space, or a company car. In the sense of corporate entrepreneurship, compensation and reward play a central role and companies should aim at supporting corporate entrepreneurial activities in the organization with appropriate compensation and reward schemes. Again, the example of the software industry shows how incentives and rewards can be operationalized (Bhardwaj, Sushil and Momaya 2011, p. 199):

- bonus payments may apply on the basis of business performance based on various performance metrics;
- senior management compensation can be based on competitiveness over a continuous period of time, fostering sustainability;

- employees might be rewarded by training, development and an appraisal system;
- stock options can be offered as part of the compensation model;
- challenging projects and tasks can be assigned to highly talented employees;
- employees can be rewarded with promotion, recognition, respect, enhanced status and the opportunity to personally grow.

Furthermore, previous experience in the field shows that employee satisfaction in the context of corporate entrepreneurship has a positive influence on firm performance (Antoncic and Antoncic 2011, p. 599). This underlines the central importance of compensation and reward. Hence, it has been found that there are four fundamental dimensions of employee satisfaction:

1. general satisfaction (i.e. working hours, work conditions, reputation);
2. employee relationships (to managers, co-workers and subordinates);
3. culture, benefits and compensation;
4. employee loyalty.

Summarizing, compensation and reward are important drivers of corporate entrepreneurship, however monetary and non-monetary aspects have to be considered. In industries with low levels of profitability, alternative forms of compensations need to be developed in order to save cost of wages. In this respect, incentives and rewards might be useful in the form of free tickets for employees and their families if specific goals or objectives have been achieved, in the particular case of airlines.

The following section attempts to explore the crucial role of management and leadership as an influencing factor of innovation and performance through corporate entrepreneurship in more detail.

### **1.5.3 Leadership**

Without doubt, leadership plays a key role for corporate achievement, motivating people, organizational behavior and eventually for economic success and profitability, innovation and performance. Literature distinguishes various leadership styles, ranging from the authoritarian, over the democratic to the well-known laissez-faire style. Generally, people- and result oriented leaders can be characterized. While every leadership style possesses of its individual advantages and disadvantages, the personal characteristics of the leader must not be forgotten, especially in a corporate entrepreneurship setting. In today's modern business world, many organizations are striving for growth as their core objective, which exposes organizations to big challenges and very often make traditional management and leadership styles obsolete. Nonetheless, it is

important to understand traditional leadership styles, managerial behaviors and leader's characteristics in order to successfully transform them into a corporate entrepreneurship environment for the successful capitalization of innovation and performance.

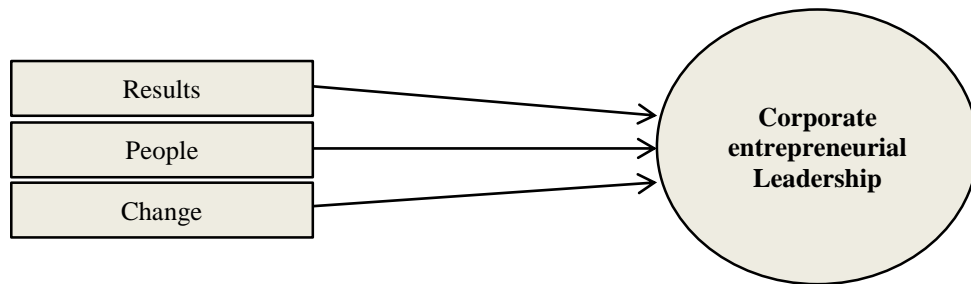
Corporate entrepreneurship requires a certain leadership style which allows subordinates to unfold themselves within their own initiatives and give individuals within organizations their room to maneuver in order to generate results. Also, leadership must be open and tolerant towards failure. Therefore, corporate entrepreneurship requires a balanced leadership behavior, which focuses on both people and results (Darling 1999, p. 215).

Leadership is all about inspiring people (Darling 1999, p. 317). Thus it is about influencing other elements within a given system of an organization, which includes formal and behavioral aspects. Formal aspects include formal goals, financial resources, technology, customers, physical facilities, organization design as well as rules and regulations. Behavioral aspects involve attitudes, communication patterns, informal team processes, personality, conflict, political behavior as well as underlying competencies and skills. Leadership comes into play when dealing with both – formal and behavioral aspects of an organization, however very often behavioral aspects seem to be of higher relevance for successful leadership. The concept of inspirational leadership deals with personal qualities or charisma, which influences the leadership manner. Inspirational leadership has a lot to do with vision and the ability to see the bigger picture as well as with a certain tolerance towards failure. This is underlined by the fact that inspirational leaders have big influence in group processes and dynamics within an organization. Charisma and inspirational attitudes can lead to a high degree of power.

Indeed, there are many variables influencing the effectiveness of leadership in a corporate entrepreneurial setting. In order to yield performance and profitability, positive leadership is essential. Tombaugh (2005, p. 17) states that positive leadership is the starting point for an organizational culture tailored to its strengths and a general positive attitude. The attitudinal aspects of leadership seem to be especially relevant in phases of economic growth, as growth very often is associated with a large portion of uncertainty. Studies, investigating leadership styles and characteristics under phases of uncertainty show that even in difficult economic situations, leadership can make a difference and can very much help organizations to improve. Organizational excellence and positive leadership is supported by a number of distinct aspects: attention through vision, meaning through communication, trust through positioning and confidence through respect (Darling 1999, p. 309). The particular abilities of corporate entrepreneurial leadership include the capacity to endure uncertain circumstances, recognizing opportunities rather than problems and learning from failure (Chen, Zhu and Anquan 2005, p.

539). On the other side, leadership could also hinder innovation and change through corporate entrepreneurial activity. If leadership is not willing to accept change, it may put a barrier to growth and business development. A key characteristic of leaders striving for sustainable change is drive and agility (Sheehan 2011, p. 46), which will help them to accept and recognize a new leadership reality.

Arvonen (2002) defines the leadership construct in terms of corporate entrepreneurial leadership through people-, result- and change orientation, as illustrated below.



**Figure 1-7: Corporate Entrepreneurial Leadership Elements**

Sources: created by author from: Arvonen, J. (2002): Change, production and employees – an integrated model of leadership, Dissertation, Stockholm: Stockholm University.

Blake, R.R.; Mouton, J.S. (1985): The Managerial Grid III, Gulf Publishing Company.

Corporate entrepreneurial leaders will provide an organization with ideas on how to do things differently and better, push development and growth, will initiate new projects and will share thoughts and plans about the future. In a corporate entrepreneurial setting, situational leadership is supported by recent research findings outlining success factors for organizational excellence and profitable growth (Darling 1999, p. 321). Successful leaders are personalities who inspire by appropriate means, who have sufficient competence to influence a group of individuals in order to create willing followers for the achievement of set corporate goals. For them it is important to combine all leadership goals and strategies with corporate objectives and culture. Entrepreneurial leaders will always get attention through outstanding ideas, visionary thinking and attitudes. Powerful communication will support ideas and concepts to be communicated and sold to subordinates and fellow people within and outside the organization.

Summarizing, leadership plays a crucial role in steering innovation and performance through corporate entrepreneurship. Many leadership styles are defined in the literature, however no research under review can clearly and without misunderstanding state the most appropriate leadership style or managerial behavior for corporate entrepreneurship. Very often, leadership is bi-dimensionally conceptualized, involving a perspective of people and results. Recent theory, however enhances the basic bi-dimensional leadership grid by a third perspective, an

orientation towards change, which aims at pushing innovation and growth while fostering new ideas and processes. Successful leaders will focus on inspiring people through leadership traits and skills. Situational leadership involves four principal leadership behaviors (delegating, participating, selling and telling), which can be applied in correspondence to individual situations, problems and people. Leadership will most probably be effective, if it involves various approaches to leading and inspiring others in order to achieve common goals. Corporate entrepreneurial leaders have to encourage corporate entrepreneurs to drive innovation and performance.

After the review of influencing factors of corporate entrepreneurship, the following section emphasizes on innovation and performance as results from corporate entrepreneurial activity.

### **1.6 Innovation and Performance as Results from Corporate Entrepreneurship**

All aspects discussed above are indeed relevant for describing, characterizing and conceptualizing the construct of corporate entrepreneurship. One aspect, however paramountly stands out, which has not been discussed so far and which is the result of corporate entrepreneurial activity: the objective of corporate entrepreneurship, namely corporate entrepreneurial output.

In reference to the model of sustained corporate entrepreneurship (Kuratko, Hornsby and Goldsby 2004, pp. 77), there are individual and organizational entrepreneurial outcomes. Individual outcomes can be described by the perceived decision-outcome relationship, while organizational outcomes are related to perceived activity-outcome relationship. Moreover, the assessment of entrepreneurial activity within organizations involves both process- and outcome dimensions. Entrepreneurial outcome is expected to have positive influence on company performance, related to measurable metrics, such as innovation, growth dimensions, profit, sales volume and many more (Burgelman 1984, pp. 160).

Over the past decades, a lot of research has been focusing on innovation, its nature and impacts within organizations and economies. Innovation has frequently been described according to the view of Schumpeter (1939), which basically states that economic change is caused by innovation and entrepreneurial activities. Identifying the most trenchant definition of the term innovation is not an easy task, given the abundance of scientific works on the topic. In order to understand the term better, it helps to elaborate it from its very origin. The term “innovatio” originally stems from Latin language. It stands for “renewal” and for the creation of “something new” (Hinterhuber 1975, p. 26). Several definitions consider a process perspective to be of

explanatory value to the innovation term. The innovation process may consist of different stages, ranging from idea generation, research design and development to manufacturing, marketing and sales (Dooley and O'Sullivan 2001; Knox 2002). Critically reflecting the innovation process described above, capturing knowledge and learning from experience are the final – and integral steps, which are missing in the above description. These are independent from success or failure, but most likely the success or failure of future innovations will be dependent on them (McGrath 1999; Schaffer and Paul-Chowdhury 2002). Creative thinking and entrepreneurial behaviour alone, however will not be sufficient ingredients for successful innovation performance, as there are positive and negative characteristics as requirements (Dömötör and Franke 2009). Factors promoting innovation performance are:

- high flexibility referring to organisational design and structure;
- low bureaucracy in internal processes and governance;
- innovation-promoting corporate entrepreneurs.

Innovation may manifest as product, service or new market. Linking innovation to the concept of corporate entrepreneurship, success or failure is the outcome of the entrepreneurial process, which transforms opportunities into innovation. Drucker (1985, p. 27) states that entrepreneurs innovate and that innovation is the specific instrument of entrepreneurship. This underlines the inextricable linkage between corporate entrepreneurship and innovation. In light of these aspects, innovation may be defined as the outcome of the corporate entrepreneurial process, adding value to the organization and its stakeholders which relates to firm performance. Innovation develops new products, services and markets, as well as it critically rejuvenates existing processes and procedures within organizations (Covin and Slevin 1991; Knox 2002; Lumpkin and Dess 1996). Thus, corporate entrepreneurship must accept the critical role of innovation as its instrument to creating sustainable competitive advantage and for leveraging firm performance. Therefore, sources for innovative opportunities must be explored and creativity must be fostered systematically within organizations. The innovation development process, which basically can be seen as a synonym for the corporate entrepreneurial process has to structure the development of innovation and firm performance.

As discussed above, the entrepreneurial output of an organization may be determined by the level of innovativeness, risk-taking and pro-activeness. However, output also depends on behavioral dimensions. While Kuratko et al. (2011, pp. 46) argue that corporate entrepreneurship may come from above, below or from other departments, recent studies take on a more strategic view and describe either top-down or bottom-up sources (Heinonen and

Toivonen 2008, p. 585), which can occur simultaneously within entrepreneurial organizations in order to create entrepreneurial output, innovation and performance. In order to do so, a number of pre-requisites exist (Miller and Friesen 1983; Guth and Ginsberg 1990). Among others, these can be related to the environment of an organization, the organization itself, its internal factors and above all top- and middle management behavior, whose central task is to create an atmosphere which fosters innovation and change. Before elaborating the concrete potential outputs of the corporate entrepreneurial process regarding innovation and performance in more detail, it is important to state that the result from it does not necessarily need to be success. One of the key elements of a corporate entrepreneurial orientation is to accept that its potential output may fail. Therefore it requires a certain tolerance towards failure and learning from them. In order to understand the term failure better, it is advisable to differentiate its underlying meaning by conceptualizing three different failure types (Kuratko, Morris and Covin 2011, pp. 284):

1. moral failure results from immoral behavior;
2. personal failure can be related to incompetence, lack of motivation, or misunderstandings;
3. uncontrollable failure occurs outside of the boundaries of personal control and very often is related to entrepreneurial failure.

Particular attention has to be paid at uncontrollable failures and to systematically learning from them. A critical view on the conceptualization of failure reveals that success is generally considered to be the positive counterpart of failure. However, this is a dangerous misunderstanding, as entrepreneurial failures may lead to ultimate success, if learning takes place and the organization critically reflects on its past activities.

Learning can be divided into individual and organizational learning (Molina and Callahan 2009, pp. 392). Individual learning takes place at the level of the corporate entrepreneur and constitutes a system-oriented process, aiming at the development of skills which help individuals to survive within organizations, and in turn help organizations to adapt to constant changes. Individual learning within organizations rather happens informally, outside the boundaries of classes or seminars (Lans, et al. 2004, p. 76). Organizational learning partly consist of individual learning, as individuals continue to learn and continue to discover and exploit opportunities, individual learning routines become institutionalized and contribute to organizational learning as a whole (Crossan, Lane and White 1999, pp. 527). Organizational learning aims at increasing the adaptive capacity of an organization through the processing and development of knowledge from captured information (Callahan 2003, p. 163). Organizational

learning is very often initiated by irritations, which can be described as negative disconfirmation between expectations and perceptions. The role of individual and organizational learning within the entrepreneurial process has not been clearly answered to date, although Smilor (1997, p. 344) clearly states that effective corporate entrepreneurs are exceptional learners, who learn from everything, involving customers, suppliers, competitors, colleagues, other entrepreneurs, experience and by doing.

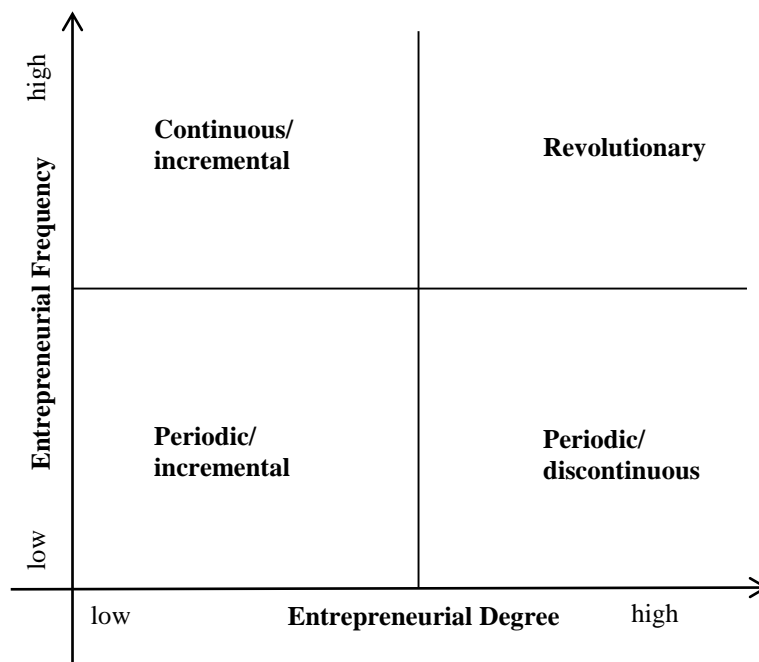
This illustrates the importance of learning in the corporate entrepreneurial process, as it involves learning, resulting knowledge and innovation capability. Thus, the acceptance of failure as a potential output of the corporate entrepreneurial process is of critical relevance in understanding the meaning of corporate entrepreneurship and its objectives as well as in enhancing it to the innovation capability of an organization.

In order to assess corporate entrepreneurial output, Ireland et al. (1996) suggest a three-step entrepreneurial health audit, which involves the assessment of a company's entrepreneurial intensity, the diagnosis of the corporate entrepreneurial climate, and the creation of an organization-wide understanding of the innovation process. The concept of entrepreneurial intensity will be considered in later sections of this dissertation in more detail. However, it combines the degree of corporate entrepreneurship, including its underlying dimensionality, involving innovativeness, risk-taking and proactiveness as well as the frequency of corporate entrepreneurship, related to innovation. The concept may explain the overall entrepreneurial orientation of organizations.

Generally, as already outlined previously, one of the underlying aims of corporate entrepreneurship is to create value for the organisation and to promote wealth creation through innovation (Drucker 1985; Ireland et al. 2001). In order to evaluate whether success or failure can be attested at the end of the corporate entrepreneurial funnel, Aldred and Unsworth (1991, p. 18) as well as Zahra (1991, pp. 260) suggest that successful corporate entrepreneurship manifests itself through:

- the development of new markets,
- improved products, services and applications,
- value creation,
- organizational renewal,
- organizational learning, and
- business performance and growth.

All of these potential outputs from corporate entrepreneurial activity can be related to innovation and performance and are summarized in the concept of entrepreneurial intensity, which consists of innovation levels and frequencies (Kuratko, Morris and Covin 2011, pp. 74). Hence, organizations may be described by the amount and the degree of entrepreneurial activities within a certain period. This is particularly related to the level and the nature of innovation, which could either be characterized as incremental or radical. In order to conceptualize these aspects more clearly, the entrepreneurial grid provides a suitable instrument. It combines the dimensions of corporate entrepreneurial frequency, related to the number of events and corporate entrepreneurial degree, related to the three pre-requisites of corporate entrepreneurship: innovativeness, risk-taking and proactiveness. The bi-dimensional construct allows to classify entrepreneurial intensity from high to low. Low entrepreneurship frequency and low entrepreneurship degree result in periodic/ incremental entrepreneurship intensity, while high entrepreneurship frequency and high entrepreneurship degree results in revolutionary degree.



**Figure 1-8: Conceptualization of Frequency and Degree of Corporate Entrepreneurship**

Source: created by author from: Kuratko, D.F., Morris, M.H., Covin, J.G. (2011): Corporate Innovation and Entrepreneurship - Entrepreneurial Development within Organizations, 3rd edition, International Edition: South-Western Cengage, p. 75

Entrepreneurial intensity can be periodic and discontinuous in case of high degree and low frequency; continuous and incremental in case of high frequency and low degree; as well as dynamic with medium frequency and degree. The entrepreneurial grid can be applied to both organizations and managers in order to define their entrepreneurial intensity. The fundamental

question related to entrepreneurial intensity is whether or not it has an impact on performance. Rauch et al. (2009, pp. 765) have empirically found a statistically significant relationship between entrepreneurial intensity and performance, which is related to a number of quantitative metrics such as revenue growth, employment growth and other financial as well as non-financial indicators. Miles, Covin and Heeley (2000, p. 69) argue that the linkage between performance and entrepreneurial intensity is especially strong within companies undergoing a certain situation of crisis, which can be observed in industries, possessing of turbulent external environments. Thus, firms with better performance indicators tend to be the ones with a stronger entrepreneurial orientation, compared to their competitors. Entrepreneurial intensity, however cannot be held at high levels at all times, thus it is critical to understand that it might be subject to a life cycle. Moreover, there can be time phases in which companies tend to have higher entrepreneurial intensities than in other time periods, in which firms are more focussing on consolidation and continuity.

All of the arguments presented above legitimate the central question about the return on corporate entrepreneurial intensity. It is of particular relevance, in order to judge on whether or not corporate entrepreneurship is a viable mechanism to leverage sustainable competitive advantage through innovation and performance. Up to date, scientific research does not possess of any construct measuring the return on corporate entrepreneurial intensity. Thus, this shall be subject to the empirical investigation within the scope of this dissertation. Interestingly, the above mentioned research findings also indicate differences regarding entrepreneurial orientation among various divisions, functions or departments within the same organization. What applies to the entire concept of corporate entrepreneurship and its triggers appears also as a valid argument when investigating the internal environment of companies: departments which have to operate under conditions of pressure and turbulence, tend to have a higher entrepreneurial orientation than other departments, which are not exposed to such degrees of pressure and turbulence. It is of particular relevance for top management to exactly know the return on entrepreneurial intensity in order to effectively manage and steer innovation.

Corporate entrepreneurship has a risky character (Garvin and Levesque 2006, p. 102), which appears to be of particular relevance for airlines. The industry is facing intense competition and has to continuously cut costs and revise strategic directions. Some market players even have had or still have to downsize their operations or outsource parts of it in order to restore profitability. Therefore, it appears that innovation is key to airlines in order to leverage overall performance and profitability. In regards to innovation, the original work of Schumpeter (1934) distinguished between innovations in the field of products, processes, suppliers, marketing and

organization. Without doubt, this view has been enhanced by many research works as the economic structure has shifted towards a service economy. Hence, service innovations are identified by Evangelista and Sirilli (1998, pp. 255) as product- and process innovations, innovations in information technology, human resource innovations and organizational innovations. In addition, Hjalager (1994, 1997, 2002) has identified eight types of innovations, which are explicitly developed in the context of a service company and can therefore be applied to the airline industry:

- product innovations, such as new destinations or flight service classes;
- process innovations, which aim at leveraging operational efficiency;
- management innovations, changing what managers do and how they do it;
- institutional innovations, such as joint ventures, partnerships or strategic alliances;
- information technology innovations, such as new state-of-the art systems;
- logistic innovations, which aim at enhancing operational efficiency;
- transactional innovations, such as vertical integration of other service providers;
- distribution innovations, which include the exploitation of new distribution channels and other forms of new distribution capabilities.

Considering all of the beformentioned aspects of innovation typology, literature widely distinguishes between two forms, respectively degrees of innovation: radical and incremental (Abemathy and Utterback 1978), which the various innovation types might take on. Radical innovations generate something extremely new and involve aspects, which have the ability to change fields, create new markets or fundamentally change current realities . On the contrary, incremental innovations happen more frequently than radical innovations and involve smaller improvements, which are indeed new. As incemental innovations happen continuously, they might lead to a final radical innovation, which vice versa can be the result of a number of incremental innovations. Having outlined various innovation sources, types and forms, the central importance of initial business opportunities in the innovation process paramountly stands out. As opportunity recognition is heavily influenced by individuals within an organization, corporate entrepreneurship must attempt to create an atmosphere which fosters creativity to recognize opportunities and which motivates corporate entrpreneuers to transform and commercialize those into corporate entrepreneurial output. Criticizing the above mentioned eight-dimensionality of service innovation by Hjalager, Bieger and Weinert (2006, p. 93) have distilled five innovation types for services: market innovation, process innovation, product innovation, involvement innovation and service innovation.

Another factor which is extremely central in the innovation development process is creativity, which is inextricably linked to innovation. While corporate entrepreneurship is mainly about transforming ideas and opportunities into business ventures, creativity deals with the development of new ideas, concepts and processes. The capability to innovate is the sum of creativity and the transformation of ideas (Malorny, Schwarz and Backerra 1997, p. 3). Generally, there are two different types of creativity (Malorny, Schwarz and Backerra 1997, p. 7):

1. aesthetic creativity, which mainly is related to arts, and
2. problem-solving creativity, which explains the transformational process of ideas and opportunities into new products, services, and processes, i.e. the corporate entrepreneurial process.

The creative personality therefore is of central importance to systematic creativity and possesses of widely the same characteristics as corporate entrepreneurs. These include phantasy, knowledge, openness, ability to learn, risk taking, motivation, discipline, independence and vision, to mention just the most relevant ones. Hence creativity is very often seen as an unstructured, randomly occurring phenomenon, corporate entrepreneurial firms are challenged to consciously and systematically manage the creative process in order to develop innovation in a structured way.

There are a couple of different views on the creative process in the literature, which may be summarized within four stages (Malorny, Schwarz and Backerra 1997, p. 26):

1. the awareness of a certain problem is created within the preparation phase. During that phase, first partial ideas on how the solution could look like are developed;
2. the incubation phase describes a stage where the corporate entrepreneur relaxes and continues to work on a solution in sub-consciousness;
3. enlightenment during which sudden ideas lead to intuitive understanding;
4. ideas are being reviewed and specified during the verification phase.

It is of vital importance for top management in corporate entrepreneurial organizations to provide corporate entrepreneurs with freedom, challenges and access to resources in order they are motivated to pursue creative ideas, recognize opportunities, take calculated risk and transform those ideas and opportunities into viable business ventures, in the sense of corporate entrepreneurial output.

Beside all of the previously mentioned aspects on corporate entrepreneurship, its nature, influencing factors and its output, it appears as important to also elaborate on obstacles for innovation and performance through corporate entrepreneurship, which is the subject of the following section.

### **1.7 Obstacles for Innovation and Performance**

There are numerous constraints, which may have a negative impact on innovation and performance as corporate entrepreneurial output. Morris (1998, p. 97) has summarized these obstacles by identifying six harming dimensions, which are described in more details below:

1. unfavorable systems,
2. bureaucratic structures,
3. different strategic direction with no entrepreneurial vision,
4. internal policies and procedures,
5. inadequate people, non-entrepreneurs, and
6. unfavorable culture.

Systems are related to misdirected reward and evaluation systems, oppressive control systems, inflexible budgeting, inflexible allocation of budgets, and bureaucracy. Structural constraints are related to hierarchical levels, too narrow span of control, responsibility without authority, top-down management, restricted communication flows and lack of accountability for innovation and change. In the context of structural constraints, top-down management appears of particular relevance, as Heinonen and Toivonen (2008, p. 585) suggest in their research findings that corporate entrepreneurship is more a simultaneous top-down and bottom-up approach. Constraints related to the strategic direction of the firm include absence of innovation goals, lack of a formal entrepreneurial strategy, lack of vision and commitment as well as a lack of entrepreneurial role models in top management. Policies and procedures may harm innovation and performance through corporate entrepreneurship given long, complex approval cycles, extensive bureaucracy, over-reliance on already long-established rules of thumb and by unrealistic performance criteria. The people dimension involves fear of failure, resistance to change, protection of old structures and procedures, short-term orientation and inappropriate skills for managing entrepreneurial change. In this context, it is important to again note the discrepancy between management and employees, which has already been previously discussed, as managers are more likely to support reliable followers than “critical, self-confident change agents”, such as corporate entrepreneurs (Heinonen and Toivonen 2008, p.

594). Finally, the cultural dimension bears lack of consensus over norms, values and beliefs, lack of fit of values within the current competitive environment as well as values which conflict with the underlying drivers, namely innovativeness, proactiveness and risk-taking.

Literature does not arouse any general criticism on the concept of corporate entrepreneurship, as it is widely considered to be a viable philosophy for leveraging firm performance (e.g. Molina and Callahan 2009, pp. 398). However, certain criticism is levelled towards existing models of corporate entrepreneurship given their limited generalizability due to relatively small sample sizes in respective studies. Furthermore, a large number of theories are the result of research carried out in the United States, which constitutes another limitation related to the generalizability of research findings and their implications for other economies (Antoncic and Hisrich 2004, p. 523).

Another obstacle is created by the aspect of management. Top management is challenged to create an organizational climate that allows creativity. It must provide the strategic intent in form of an entrepreneurial vision as guiding principle and motive for the organization to perform highly and transform opportunities into innovation and new business. Likewise, it has to ensure that the organizational structure is supportive of corporate entrepreneurship and create an attractive compensation and reward scheme to promote corporate entrepreneurial activity. Hence, one of the most important challenges for top management is to rationalize opportunities into the company's portfolio (Burgelman 1984, pp. 155). Also, top management has to measure the corporate entrepreneurial output as an indicator for the generated value (Bhardwaj, Sushil and Momaya 2011, p. 202). Middle management has to focus on employee's interdisciplinary understanding and on communication between top- and operational-level management. As previous research on how to teach managers to be corporate entrepreneurs has shown, one of the key barriers for successful corporate entrepreneurship is the willingness or ability of firms to remunerate corporate entrepreneurs in an appropriate manner (Thornberry 2003, pp. 228). Another barrier is the almost classical dilemma of managers, who are very often deeply involved in operational tasks with only little or no time and capability left for strategic projects. This is often caused by short-term result orientation of the company. Furthermore, jealousy seems to play a role as a barrier of innovation and performance through corporate entrepreneurship, as some managers do not really want their subordinates to be successful. This, of course harms corporate entrepreneurial activity. Finally, a structural problem can occur as a barrier to successful implementation of innovation through corporate entrepreneurship when the venture team is not properly organized in a matrix organization style. In this case, corporate

entrepreneurs might get between senior- and middle management's expectations, when their immediate manager assigns distracting tasks to them.

Summarizing, the imminent relationship between corporate entrepreneurship, innovation and performance becomes evident. Corporate entrepreneurship challenges bureaucracy, examines new opportunities, acquires resources, implements, exploits and commercializes opportunities and thus encourages innovation through attitudes and actions (McFadzean, O'Loughlin and Shaw 2005, p. 352). Hence, innovation would not take place without any kind of entrepreneurial activity. In turn, innovation creates sustainable competitive advantage and promotes firm performance (Felício, Rodrigues and Caldeirinha 2012, p. 1729). Therefore, corporate entrepreneurship is a vital instrument to promoting firm performance and to creating sustainable competitive advantage.

The previous sections have attempted to elaborate on the theory of corporate entrepreneurship as an instrument to foster innovation and firm performance. In this sense, the nature of corporate entrepreneurship has been explained and various models have been presented. As influencing factors for innovation and performance through corporate entrepreneurship, aspects around the construct dimensionality of innovativeness, proactiveness and risk-taking have been reflected. Also, the relevance of corporate entrepreneurs and leadership has been highlighted. Opportunity recognition has been analyzed as an instrument to initiate the corporate entrepreneurial process in order to drive corporate entrepreneurial output for innovation and performance. Finally, a number of obstacles and barriers for innovation and performance have been presented. The following chapter aims at putting context in reality through an analysis of previous experience.

## **2. CORPORATE ENTREPRENEURIAL CHALLENGES FOR INNOVATION AND BUSINESS PERFORMANCE WITHIN AIRLINES**

This chapter puts context in reality and gives an overview of the airline industry's current challenges and development. Corporate entrepreneurial challenges of airlines pursuing different business models will be emphasized and performance influences through corporate entrepreneurship will be discussed.

As discussed in the previous chapter, innovation and performance generally comes through strategy, structure and culture fostering dynamic capabilities, opportunity recognition and organizational learning. As the airlines are traditionally known for high growth rates and rapid expansions, innovation and performance is a critical issue on the strategic agenda of many commercial airlines. Starting with the advent of commercial jet airplanes in the late 1950s, the business model of future-oriented airlines has completely changed (Golightly 1967, p. 67). This was, when – all of a sudden – competition became increasingly intense and technological innovation led to modern marketing and distribution. Still today, technological innovation plays a critical role in commercial aviation. Radical product and distribution innovations have changed the whole industry – on a more or less sustainable basis. As a consequence of the development of mega-carriers, airline alliances and joint ventures, many small-, medium- and even large-sized airlines from all around the world have had to revise their strategic directions and partly make adaptations to their business models. In fact, small- and medium-sized airlines will have to organize their business model in a way to cope with globally operating mega-brands (Chan 2000, pp. 506). The capabilities to adapt to changing market developments and to innovate, therefore, seem to be central to any airline business in the future. Airlines need to find innovative ways to stay competitive and enhance their business models. Given its adventurous character and its public dimension, the airline industry has constantly found itself in the social and economic limelight. Thus, it has always been a major innovator of marketing and distribution strategies (Rapp 2000, p. 317).

Traditionally, airlines are operating with very low profit margins, which are different depending on the business model pursued.

As an empirical investigation of employee productivity and quality on profitability in the US airline industry reveals (Parast and Fini 2010, pp. 467), labor productivity is the most significant predictor of profitability. Curiously, on-time performance has no direct influence on

profitability. In addition to labor productivity, the price for jet fuel, average annual maintenance cost and employee salaries are significant predictors of airline profitability. Not only these research findings show that the airline industry is undergoing difficult times. The basic problems, the industry is facing are seasonal demand fluctuations, which lead to underutilization of resources, high labor and capital requirements, fuel intensity, government intervention and organized labor in unions (Raghavan and Rhoades 2008; Taneja 1988; Taneja 2003; Williams 2002).

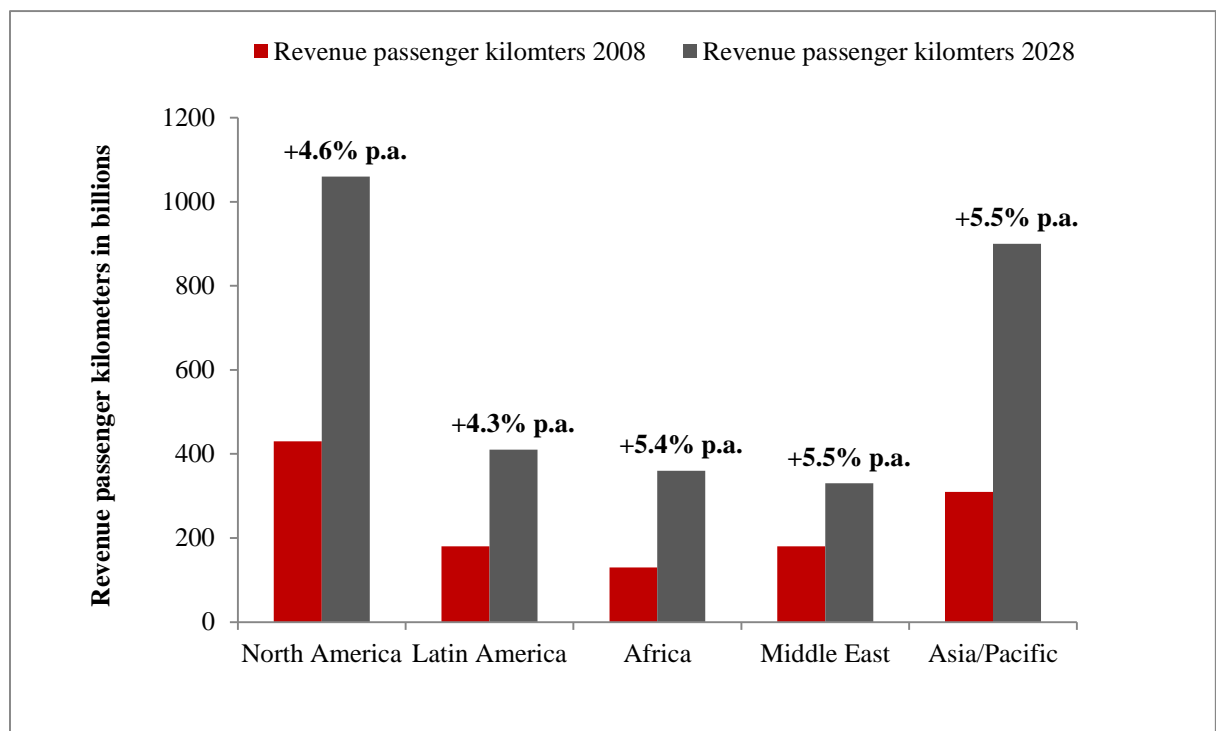
The big unpredictable variable in the airline business is the development of demand, which, in addition to the structural problems outlined above contribute to a high level of industry complexity. Therefore, given the unpredictable external environment, airlines must strive for internal competitive advantages, which promote overall performance and equip the airline with the necessary power to compete on the dynamic market (Parast and Fini 2010, p. 459). Corporate entrepreneurship can be one such approach to drive innovation and performance through innovativeness, proactiveness and risk-taking. The following section briefly outlines the development of demand for air travel as one of the major variables in the development of the industry. Demand for air travel can be seen as the foundation of any entrepreneurial activity in the industry.

## **2.1 State of Demand for Air Travel**

Today, the airline industry is one of the world's most important economic drivers, enabling mobility, international trade and global access while at the same time facing enormous challenges. Aviation is part of one of the world's biggest industries, travel and tourism, which accounts for 9% of the global GDP (World Travel & Tourism Council 2011, p. 3). For the first time in history, the World Tourism Organization has reported one billion international tourist arrivals in the year 2012, which are expected to further grow and reach about 1.8 billion in 2030 (UNWTO 2013, p. 2). These international tourist arrivals are expected to take different regional intensities: while Europe will grow at a rather stable rate, steep growth is expected to occur in Asia and the Pacific as well as in Africa and the Middle East. Already previously, Asia and the Pacific grew above the global average at a compound annual growth rate of 13%, followed by the Middle East, accounting for 10%, the Americas with 5% and Europe at 6% during the years between 1995 and 2012 (UNWTO 2012, pp. 5).

These developments are supported by the World Travel and Tourism Council's statistics (2011, pp. 10), stating that the average annual tourism growth rate in established economies accounts

for 2,2%, while tourism in emerging economies is growing at a substantially faster pace with an annual growth of around 4,4%. Simultaneously, the International Civil Aviation Organization ICAO (2008) forecasts the growth of revenue passenger kilometers parallel to the forecast of international tourism arrivals by the World Tourism Organization. Revenue passenger kilometer, RPK, is an aviation industry ratio which is the sum of the paying passengers times the distance they have travelled. The figure below shows the expected passenger growth between Europe and the rest of the world in RPK from 2008 to 2028. It is evident that the biggest growth in revenue passenger kilometers is expected to occur between Europe and the Asia/Pacific region, accounting for a 5,5% increase from 2008 to 2028. The second biggest growth with an increase of 5,5%, however at a much lower absolute level will occur between Europe and the Middle East. Indeed, this is an effect of the constant rise of middle east carriers, increasingly connecting Europe to their hub airports in the gulf region. Traffic between Europe and Africa is expected to grow at around 5,4%, between Europe and North America at a rate of 4,6% and finally between Europe and Latin America of approximately 4,3%.



**Figure 2-1: Passenger Growth 2008 – 2028 between Europe and other parts of the world**  
 Source: created by author from: ICAO (2008): International Passenger Traffic Forecast, International Civil Aviation Organization: Montreal.

The global aviation industry today accounts for some 425 billion US dollar in annual income. This would put the industry on rank 21, if it was considered as a country in the global ranking

of Gross Domestic Products. The industry employs approximately 5,5 million workers directly, with a much larger number of workforce being employed indirectly by the industry. Global airlines carry around 3 billion passengers and more than 50 million tonnes of cargo every year (World Travel & Tourism Council 2011, pp. 6). According to the International Air Transport Association IATA, aviation benefits passengers and freight with cost-effective transportation, contributes to the overall economic growth of nations, provides significant revenues to national public finances, creates large numbers of high-value jobs and delivers extensive catalytic benefits to international trade and tourism (IATA 2011).

All of these discussed developments raise the question, if the global airline industry will be capable of managing this predicted growth in a sustainable way. In order to draw a conclusion on this issue and to understand the relevance of corporate entrepreneurship for innovation and performance within airlines, the following sections focus on the competitive environment, as well as on the main drivers of competitiveness, costs and profitability.

## **2.2 Influencing Factors of Airline Performance**

A recent study conducted in the US airline industry revealed some substantial findings on the main factors driving airline profitability and what kind of innovations could improve performance. Kumar, Johnson and Lai (2009, pp. 695) generally suggest that the airline industry is going through a four-stage cycle.

During the first phase, the economic environment is still stable and airlines are earning profits, placing new aircraft orders and are pursuing certain growth strategies. During the second phase, the economy crashes and the demand for air travel declines. This is when former profits are likely to turn into losses and the formerly placed aircraft orders for expansion and growth might be cancelled. After the crash, a certain stage of stabilization is taking shape, in which the actions the industry and its players have taken are yielding first results. Also, the demand for air transport is recovering, however revenues are still under pressure, due to the delivery of new aircraft and the related capacity increase. Finally, the recovery phase causes profits to rise given economic growth, increased demand yield higher revenues and the cost position is stabilized.

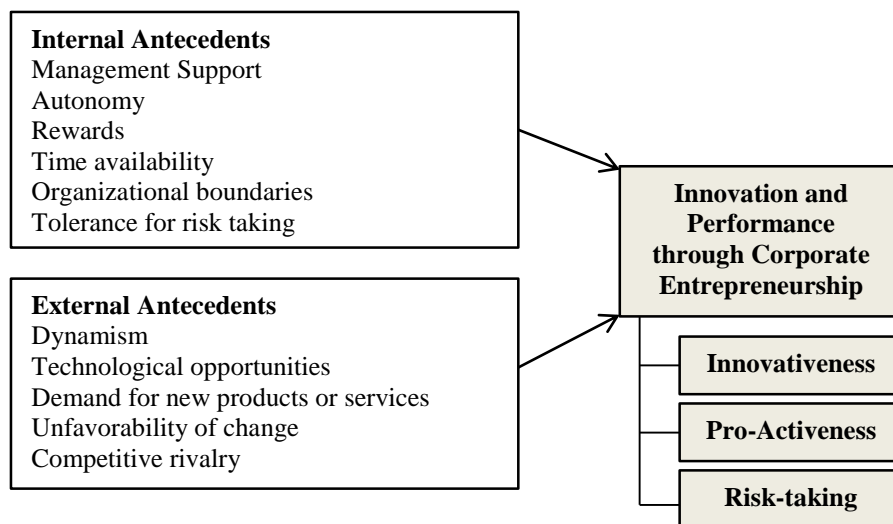
Many factors are influencing the demand for air transportation and very often, airlines are forced to take corrective actions internally and externally in order to speed the process of recovery up and to restore profitability. Experience in the US industry shows that situations of crises can have a lethal impact on the aviation sector. In fact, since 2002 a total of 11 US-carriers have had to file for Chapter 11 bankruptcy. These airlines include US Airways, United

Airlines, Air Canada, Aloha Airlines, Northwest Airlines, Delta Airlines and other smaller carriers.

What experience also shows is that airlines are only able to get out of bankruptcy when the internal organizational environment is able to adapt to change and innovates, in addition to a favorable development of the external market environment, including an increase in demand for air transportation. The study also suggests a number of performance improvement possibilities (Kumar, Johnson and Lai 2009, pp. 705), which include improved sales through revenue management techniques and better marketing, reduced costs, and an abundance of process-related measures. When analysing the proposition of reducing costs for performance improvements, it is necessary to take a closer look to the operational cost structure. The study has investigated the cost structure of American Airlines and Southwest Airlines and found that there are partly substantial differences in terms of costs as percentages of revenue. Moreover, it was found that Southwest Airlines has better management over its costs even though the costs for wages and salaries, which, beside costs for jet fuel, constitute the second largest cost source of an airline, are higher than the costs for wages and salaries of American Airlines. There might be an explanation of this phenomenon, when taking the concept of corporate entrepreneurship into consideration.

Corporate entrepreneurial output is determined by entrepreneurial intensity, which is significantly influenced by organizational antecedents. As a study conducted among 146 companies in South Africa revealed, strategic corporate entrepreneurship is heavily dependent on a supportive internal environment (de Villiers-Scheepers 2012, p. 417). Organizational antecedents are related to internal and external factors. Internal antecedents include management support, autonomy, rewards, time availability and organizational boundaries. External factors focus on dynamism, technological opportunities, demand for new products, unfavorability of change and competitive rivalry. The study suggests that the underlying dimensionality of corporate entrepreneurship as already described in previous chapters around factors of innovativeness, proactiveness and risk-taking is heavily influenced by these internal and external antecedents. Management support, autonomy and reward are identified as key determining factors and thus as critical success factors for corporate entrepreneurial output and performance. Very often, the airlines are confronted with dynamism, technological opportunities, demand, change and rivalry – exactly those external antecedents revealed in the study, but it needs to capitalize on these factors. Thus, the internal organizational climate has to support managerial and operational staff to operationalize corporate entrepreneurship through support, autonomy and rewards. Also a different study, conducted among 184

manufacturing firms in Turkey has come to the conclusion that an internal supportive climate, providing management support for entrepreneurial activities with a special tolerance towards risk taking will contribute to the innovation performance, thus to corporate entrepreneurial output of a company (Alpkan, et al. 2010, p. 749). Probably, Southwest Airlines managed to have their organization act entrepreneurially to a higher extent than American Airlines, which might explain the difference in cost bases and overall performance, presented at the beginning of this paragraph. Also, rewards play a central role in the corporate culture of Southwest Airlines. For a very long time, Southwest Airline’s strategic objectives have been profitability, constant expansion and defending its high place on the Fortune 500 list (Bunz and Maes 1998, p. 163). Doing so, the airline has constantly focused on maintaining its excellent relations to employees and its customers. One of the most predominant sources of success for Southwest Airlines can be described as attitude. The company’s corporate culture is created alongside an attitude of autonomy and entrepreneurship, enabling the organization to constantly renew itself through fulfilling the internal antecedents described above. Other key characteristics of Southwest’s corporate culture include customer centricity, productivity through people, hands-on, value-driven, simple form and lean staff. The example of Southwest Airlines will be taken up again in later sections, analyzing entrepreneurial objectives of airlines in different business models. The figure below summarized the critical success factors for innovation and performance that might be relevant for airlines in particular.



**Figure 2-2: Success Factors for Innovation and Performance through**

Sources: created by author from: Alpkan, L.C., et.al. (2010): Organizational support for intrapreneurship and its interaction with human capital to enhance innovation performance, in: Management Decision, Vol. 48, No. 5, p. 740

De Villiers-Scheepers, M.J. (2012): Antecedents of strategic corporate entrepreneurship, in: European Business Review, Vol. 24, Iss. 5, p. 405

The case of Southwest Airlines clearly illustrates that corporate entrepreneurship is a viable tool for elevating profitability. The airline has encouraged autonomy and entrepreneurship of its employees through management support, autonomy and reward. An exceptional tolerance towards failure as a natural and forgivable occurrence is also attributed to the airline as an illustrative experience of applied corporate entrepreneurship (Bunz and Maes 1998, pp. 164). Furthermore, a strong corporate culture together with a certain extent of job stability, opportunities for growth, rewards and incentives for compensation form the internal antecedents of corporate entrepreneurial intensity within Southwest Airlines. While generally, Southwest Airlines is the more profitable airline compared to American Airlines, as discussed above its costs for wages and salaries are around 5% higher. This fact can be attributed to the commitment of Southwest's corporate culture to its people and explains the corporate entrepreneurial intensity within the company.

One of the conclusions that can be drawn on this fact is that the cost for corporate entrepreneurship in the form of its organizational antecedents, reward in particular, in this case amounts to 5% of all cost of wages. However, as described, the overall profitability of Southwest is higher than the profitability of American Airlines. This could mean that the 5% surcharge on cost for wages and salaries are being reinvested into change and innovation through corporate entrepreneurship, which lead to cost savings in other areas where innovation has been capitalized. This, in turn has a positive impact on overall profitability and firm performance.

It has now become clear that there are a number of influencing factors of innovation and performance through corporate entrepreneurship. The following sections elaborate on the three most relevant factors and reflect them to the particularities of airlines. These include:

- the competitive environment,
- cost and profitability as well as
- the internal entrepreneurial orientation.

### 2.2.1 Competitive Environment

In order to analyze the competitive environment of airlines, Michael Porter's five forces model is applied. The model suggests that the competitive environment is determined by rivalry among existing firms, threat of new entrants, bargaining power of buyers, threat of substitute products or services and bargaining power of suppliers (Porter 1979, pp. 6). Porter emphasizes the relevance of competition and its characteristics as crucial factors for individual firm strategy formulation as competitive intensity is about to determine the overall profitability of an industry.

The first force to determine the state of an industry is the threat of new entrants, which generally describes the situation when a new competitor enters a market and raises supply, capacity respectively. Porter identifies six major sources of barriers to entry:

- economies of scale describe the situation when a new entrant must enter a market already with a certain size, or otherwise accepts cost disadvantages;
- product differentiation forces new entrants to heavily invest in order to overcome customer loyalty;
- capital requirements create an entry barrier especially in industries where initial investments are substantial;
- cost disadvantages independent of size pose new entrants in a disadvantaged position compared to established market players, as they might possess of special resources, knowledge, suppliers, etc. which create a certain cost advantage for them;
- access to distribution channels can sometimes be a major hurdle for new entrants, especially when distribution capacity is limited and has to be taken from competitors;
- government policy can limit entry to industries or regulate those.

The second force identified by Porter is the bargaining power of suppliers, who may influence the market by either raising prices or reducing the quality of goods and services.

Thirdly, the bargaining power of buyers can be related to price sensitivity of end consumers and the power of retailers to influence the consumer's purchasing decision.

The fourth aspect, threat of substitute products, describes competing products with better price-performance ratios.

Finally, rivalry among existing firms describes the effort of competing companies for higher market shares, using positioning strategies, price competition and other mechanisms.

Very often, products or services are lacking differentiation factors which may put a particular firm in an advantageous position. While most companies are exposed to many or all of the above described forces, firms may have the ability to influence aspects of competition through strategic shifts (Porter 1979, p. 8). Generally, rivalry among existing airlines is characterized by multiple direct and indirect competitors who either could be regional or global players competing on a specific route or over the entire network of an airline. Middle East carriers, for example are in a very special position related to their cost structure, which puts them in an advantageous position over many European legacy carriers, taking substantial market share to the Indian subcontinent and Asia/Pacific.

The bargaining power of suppliers can be attributed to different elements within the value chain of an airline. These include ground handling companies, air traffic control organizations, airports and eventually also governments who may interfere in competition with regulatory measures related to taxation or traffic rights. Airports are very often in a monopolistic position, which makes it possible for them to raise airport charges for airlines. In addition, internal factors such as the organization of employees in powerful labor unions put pressure on competition.

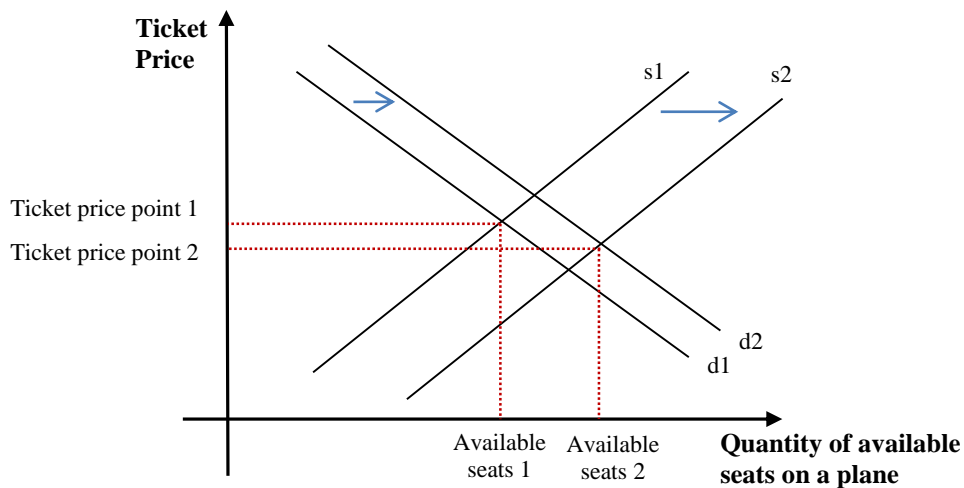
The bargaining power of buyers can be differentiated into indirect travel trade customers and direct end consumers. There are only very few global distribution systems for the travel trade, which possess of tremendous distribution power and still seem essential for an airline to sell effectively. On the side of end consumers, price sensitivity and transparency is rising, which puts additional pressure on competition.

Threat of substitute products or services can be summarized in the recent rise of alternative means of transportation in the form of high-speed trains, especially for what would otherwise be short-haul flights. Very often, train transportation on short distances seem more convenient given the extensive necessary security processes related to air travel.

Entrepreneurial airlines therefore have to consider all five aspects of the competitive environment, take calculated risk and act in an innovative and proactive manner in order to address the business challenges. An illustration of Porter's five forces model explaining the competitive environment applied to airlines can be found in the appendix of this dissertation.

Summarizing, airlines are increasingly forced to strategically maneuver through the market dynamics by adjusting some facets of the competitive forces. Without doubt, the increase of international tourism and aviation calls for at least parallel growth in air transport capacity. As it is already evident today, airlines are competing among each other with increasingly game-changing over-capacities. The introduction of new wide-body aircraft, which are capable of

transporting a surplus of passengers at only marginal higher cost compared to traditional single-deck widebody aircraft underlines this development. Moreover, capacity drives demand, and thus price elasticity. In turn, this means that without sufficient natural demand, the higher the capacity on a specific route in the market, the lower the price elasticity of demand. The figure below shows the effect of shifted supply in the market on the price level.



**Figure 2-3: The effect of higher availability on airfare**

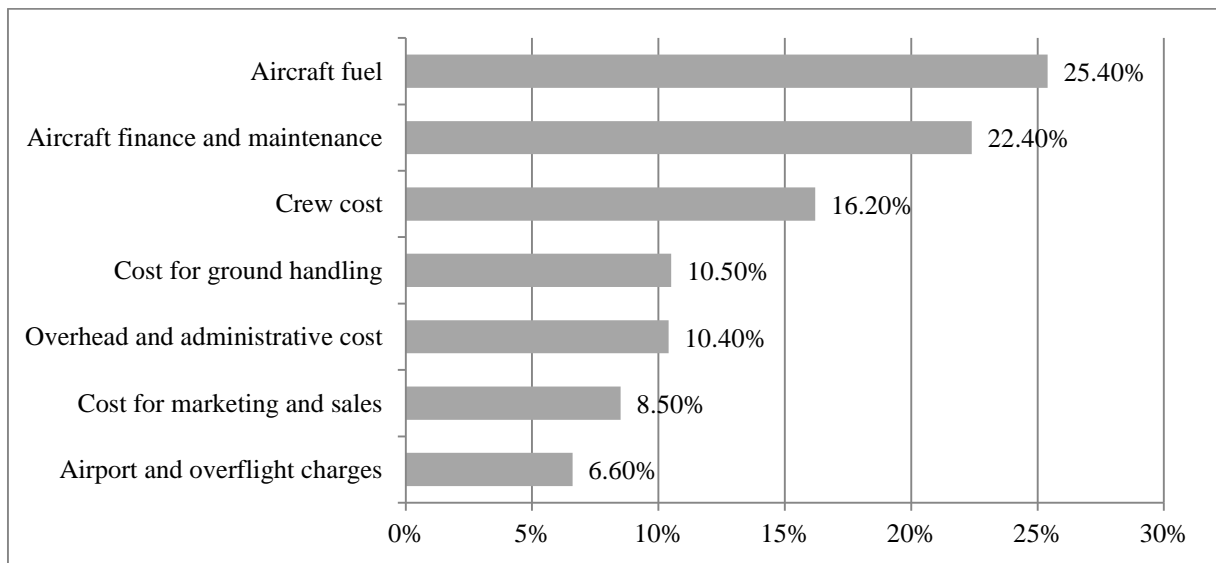
Source: created by author

Even if demand rises to a certain extent, higher supply will result in lower market prices. In terms of the airline industry, this means that if a carrier is adding capacity in a certain market and the demand can only be marginally stimulated, it will have a negative impact on the overall profitability of all competing market players due to lower price elasticity, resulting in lower prices for air tickets. In fact, the world fleet will double by the year 2032 as it is expected to grow to a total of 41.240 airplanes, compared to the global fleet of 20.310 airplanes in 2012. Taking into consideration that not all of the global fleet growth will take place in order to replace existing fleet, over half of new deliveries will be used for growth, marking a substantial global capacity increase in available seat kilometers. When taking a closer look to the deliveries by region, it is evident that the majority of 36% of all new airplanes until 2032 will be delivered to Aisa Pacific, followed by Europe (21%), North America (21%), Latin America (8%), Middle East (7%), CIS Commonwealth of Independent States (4%) and Africa, accounting for 3% (Boeing 2013, p. 15). This growth in capacity is overproportionate to the forecasted natural growth of demand. Therefore, competitive intensity among airlines will further grow in the future and airlines will have to take entrepreneurial initiatives to to sustain on the market. This underlines the critical character of innovation within airlines, which can be driven by corporate entrepreneurship. Taking a closer look at the airline cost position, it becomes clear that the

operational cost structure has increasingly developed to an important competitive factor, as discussed in the next section.

### 2.2.2 Cost Position

The cost structure of an airline is of central importance as determining factor for competitiveness and entrepreneurial activities have to aim at leveraging efficiency regarding the management of costs. Global challenges associated to costs include external factors, such as the development of the crude oil price, airport fees and overflight charges. The typical cost structure of an airline consists of seven large cost blocks, as illustrated in the figure below:

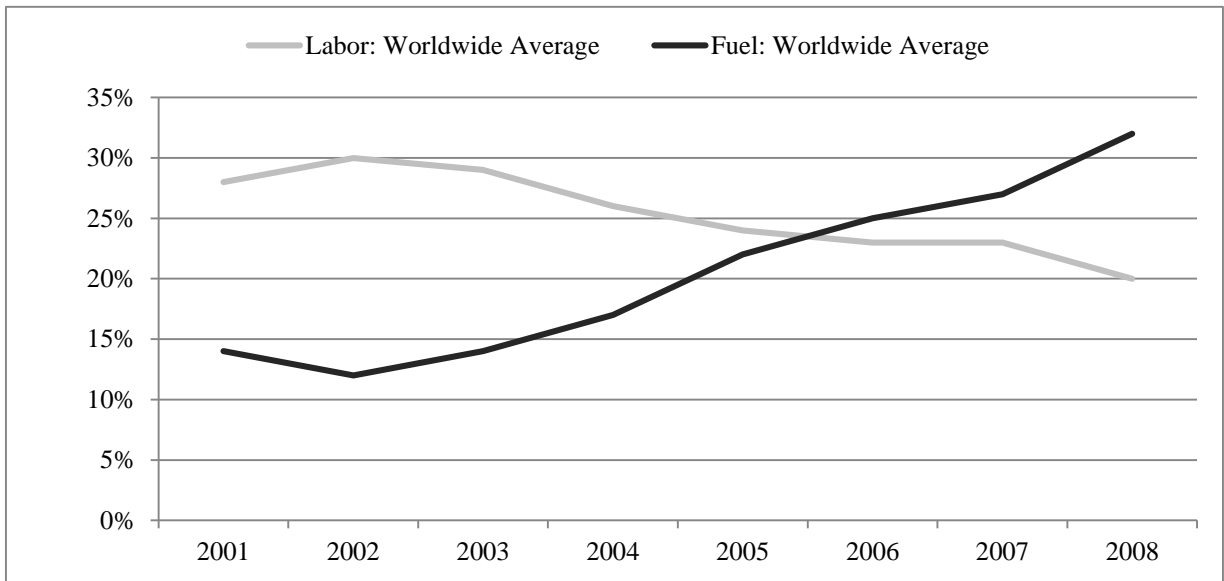


**Figure 2-4: Typical Airline Cost Structure: Major Cost Blocks**

Source: created by author from: IATA (2011): Vision 2050, Report, International Air Transport Association: Geneva

These figures highlight that cost for fuel accounts for approximately one quarter of the total airline operating cost. It is evident that an airline is dependent on external factors to eventually determine its operating cost structure. Taking the example of cost for aircraft fuel, which is determined by the crude oil price, it is highly volatile and therefore airlines tend to hedge fuel cost in order to mitigate their risk. Airlines must innovate and invest into new, fuel-saving technologies. The sharp rise in cost for aircraft fuel has put many airlines into very particular situations. On the one side, increased operational cost would have had to elevate prices for air tickets, however on the other side the aforementioned overcapacities in the markets and increased competitive intensity have forced airlines to lower their prices for tickets. This has brought the former equilibrium price out of balance. Therefore, many carriers had to cut on their operational cost, which they were able to directly influence such as staff, catering, ground

handling and others. The chart below illustrate this development from 2001 until 2008 and relates labor cost as a share of total operating cost to fuel cost as a share of total operating costs.



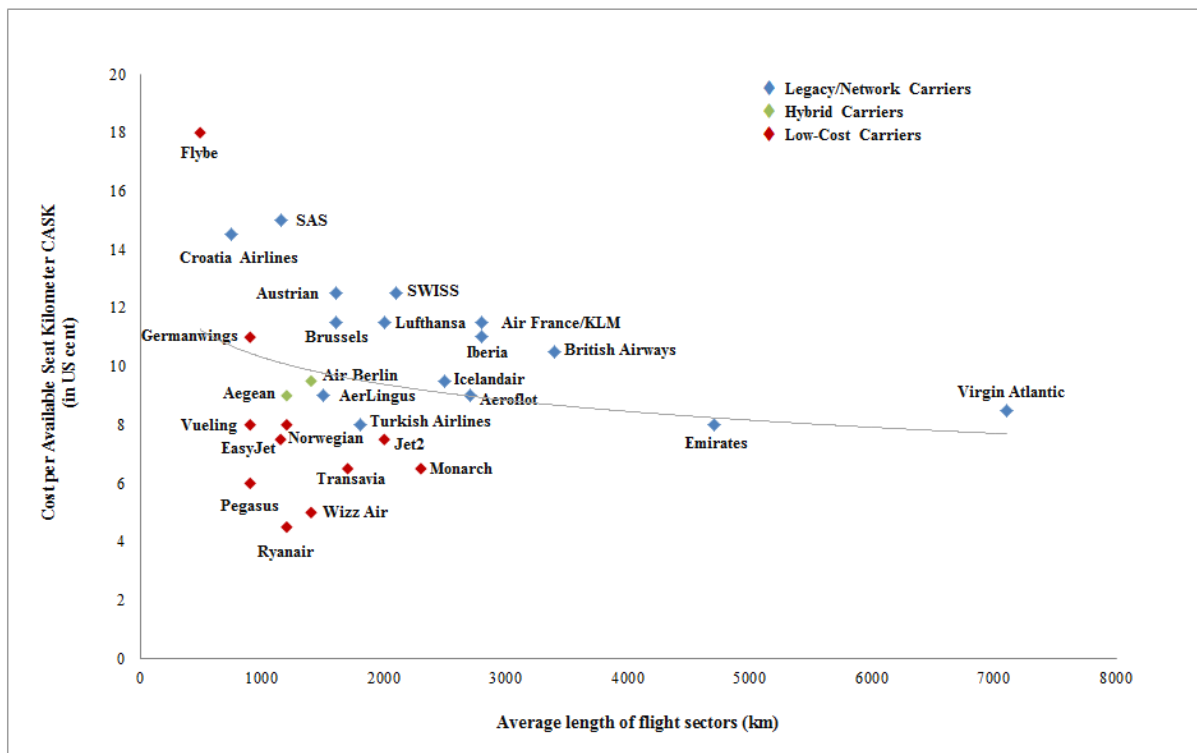
**Figure 2-5: Fuel and Labor Costs as a Share of Total Operating Costs within Airlines**

Source: created by author from: IATA (2010): Airline Fuel and Labour Cost Share of Total Cost, IATA Economics Briefing, International Air Transport Association: Geneva, p. 2

The above figure illustrates the general trends which airlines are exposed to in relation with internal and external cost factors. The cost for aircraft fuel cannot be directly influenced by the airlines, this is why there have to be alternative sources for cost savings in order to stay competitive, which very often are cost positions related to expenses for labor. The International Air Transport Association (IATA 2010, p. 2) has found out that there are regional differences in the levels of the two major cost positions. While cost for aircraft fuel is highest for North American airlines, it is comparable low for European carriers. However, European airlines are exposed to the worldwide highest labor costs, while Asian Pacific airlines have to calculate with the lowest cost of workforce.

These figures make it very clear that airlines have to continuously monitor their cost position very carefully as it has a substantial impact on the overall competitiveness. Regarding labor costs, it is a particular challenge for airlines to maintain a reasonable cost basis for their employees, while ensuring that the organization possesses of a talented and skilled workforce in order to master the industry challenges. Without doubt, this is also relevant in the context of corporate entrepreneurship, as employees play a central role in generating entrepreneurial output.

A common method to operationalize the cost position of an airline is done through a key ratio, referred to as cost per available seat kilometer, abbreviated as CASK. This measure provides a comparable means to analyzing the competitiveness of an airline related to its cost structure. The figure below illustrates a couple of aspects regarding the cost position of airlines. The two-dimensional graph involves the average length of flight sector and the cost per available seat kilometer in US dollar cents per airline. Information on stage length is provided mainly for the purpose of categorizing the various airlines. In addition, it provides evidence on the average type of service that the airline offers: the lower the average length of flight sector, the fewer medium- or long-haul flights the airline operates. In this case, the conclusion can be drawn that the airline mainly operates on short regional routes. Examples of such airlines include Flybe, Croatia Airlines, Germanwings and also some carriers from the low-cost segment, namely Ryanair, EasyJet and Vueling. The longest stage length can be attributed to Virgin Atlantic, which is an airline mainly concentrating on longhaul operations.

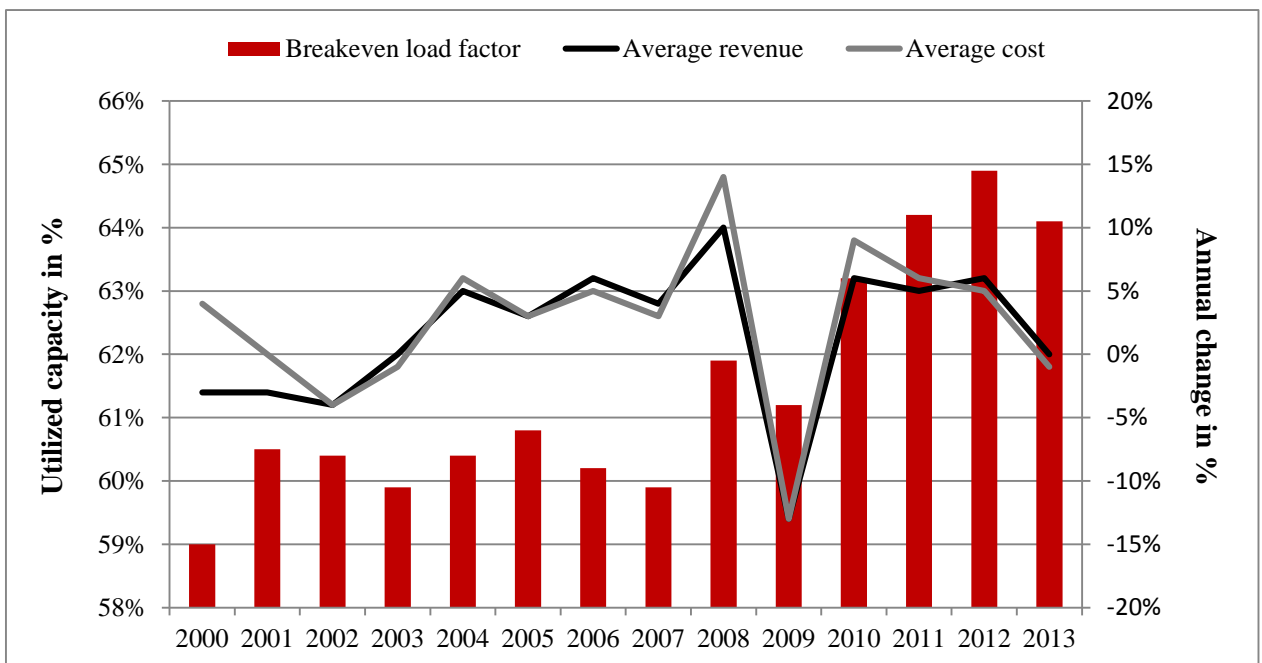


**Figure 2-6: Comparison of Airline Cost Positions (US cent)**

Source: created by author from: CAPA Center for Aviation (2014): Unit cost analysis of Emirates, IAG & Virgin; about learning from a new model, not unpicking it, available online at: <http://centreforaviation.com/analysis/unit-cost-analysis-of-emirates-iag--virgin-about-learning-from-a-new-model-not-unpicking-it-147262>, last updated on 11 January 2014

The comparison shows that traditional legacy carriers have a relatively disadvantaged cost position in comparison to low-cost and hybrid carriers. Also, full service network airlines from

the Middle East, such as Emirates in this analysis are having a substantially unit cost basis than European full service network airlines. Their cost advantage is heavily based on substantially lower labor and fuel cost, as well as corporate overheads and maintenance cost given their low average fleet age (CAPA Center for Aviation 2014). Even though a very low cost structure can be attributed to Emirates, the carrier cannot be considered as a low-cost airline. Its general business model is rather comparable to the business models of traditional European legacy carriers, with the exception of sector length. Emirates' average length of flights is much longer than the average sector length of most European carriers as their business model is mainly about connecting long-haul flights via the hub in the gulf region. The sector length of low cost carriers is relatively low, given the fact that they do only operate on short- and medium haul routes, with certain exceptions. It is remarkable that the majority of low cost airlines under review are able to produce at substantially lower cost per available seat kilometer compared to the industry average. This is where the competitive advantage of these airlines comes from. Thus, the cost structure of an airline can be a differentiating factor for competitive advantage on the market. Cost efficiency is of vital importance for an airline's ability to survive. The figure below shows the average development of cost and revenue per passenger from 2000 to 2013 and points at the increasingly high breakeven load factor.



**Figure 2-7: Airline Revenue, Cost and Breakeven Loadfactor**

Source: created by author from: IATA (2014): Annual Review, 70<sup>th</sup> Annual General Meeting, International Air Transport Association, Doha, p. 13

While the operating cost tend to increase over time given the developments and facts discussed above, average industry revenues decline given the fact that high overcapacities in the market

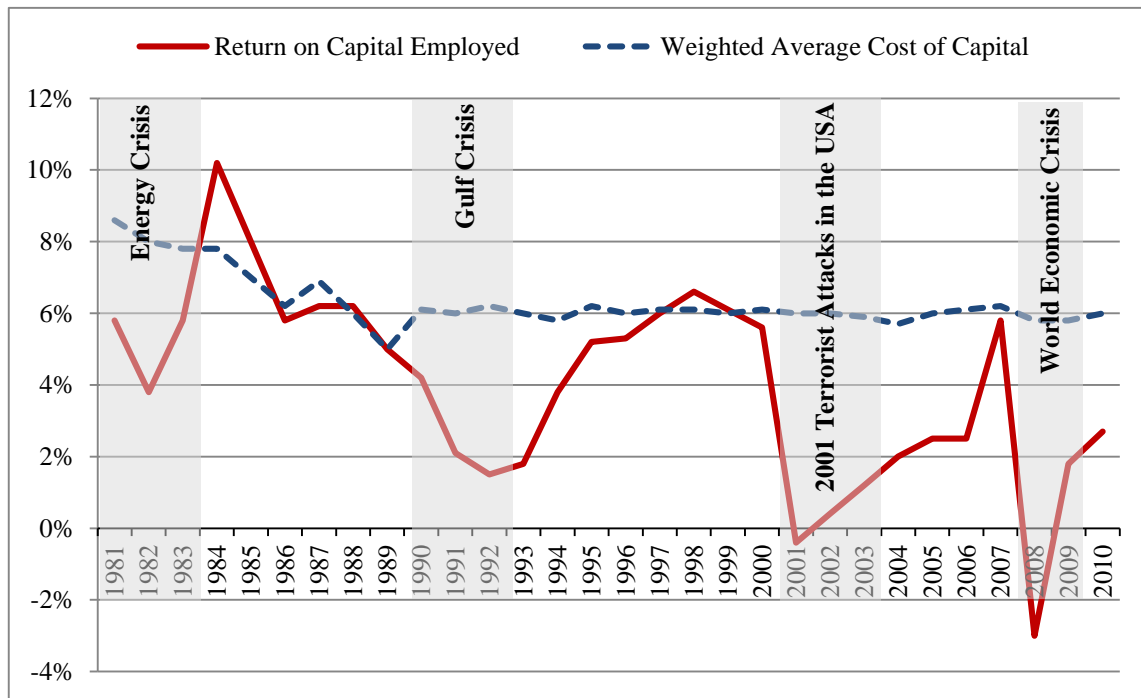
have a negative impact on average revenues. While the breakeven load factor in 2000 has been at 59% passenger load, it has increased until 2013 and reached a number of 64%. This means that airlines have to increasingly carry more passengers in order to achieve profitable results. In other words, the development of average revenue and costs largely is parallel, however costs can be higher than revenues during certain periods and therefore airlines have to compensate with revenue generated by the quantity of passengers carried.

Performance, therefore might be influenced by corporate entrepreneurial activities related to the optimization of an airline's cost position. The following section deals with the topic of airline profitability in more detail, and attempts to further emphasize the influencing power of cost and revenue on airline performance.

### **2.2.3 Profitability**

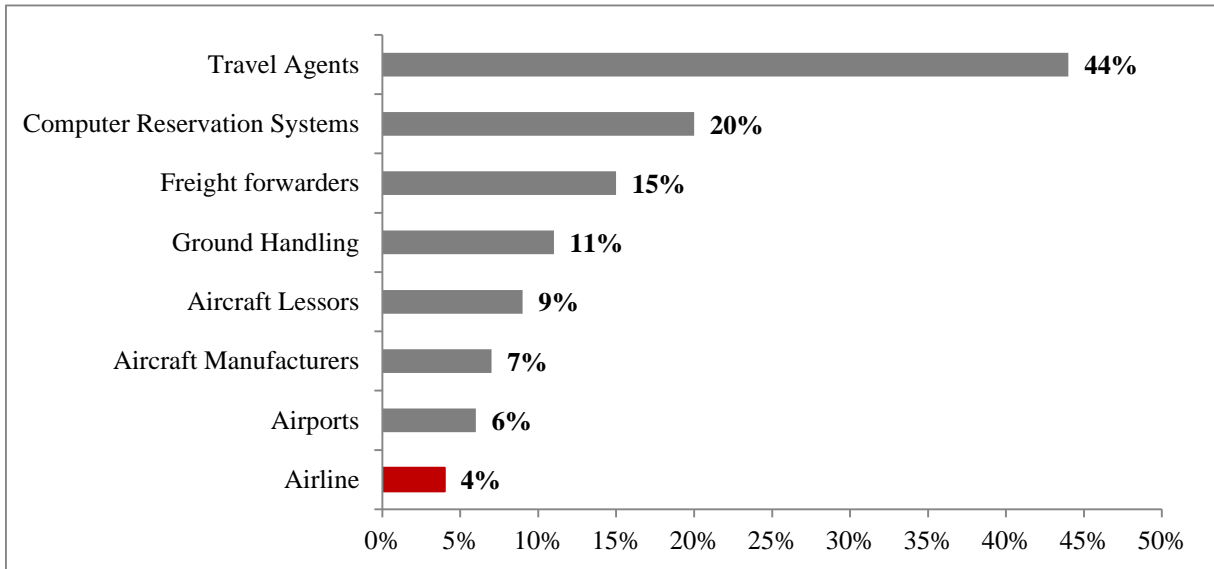
Generally, airline profitability is low. When comparing the profitability of the airline industry with other selected industries, it becomes clear that it is one of the least profitable industries at all (IATA 2013, p. 12). With an average return on invested capital of only 4%, it compares relatively poor to other industries such as pharmaceuticals (25%), software or IT services (20%) or even trucking (12%). The International Air Transport Association has compared industry profitability, measured as the return on capital employed by 69 public listed airlines worldwide. These airlines constitute approximately 70% of the global available seat kilometer offer. It is evident that the industry profitability is highly volatile and extremely exposed to external factors, such as economic, environmental or political crises.

Airlines have not been able to cover their cost of capital for the majority of years under review, which is especially the case during times of crises, such as the energy crisis between 1981 and 1983, the gulf crisis between 1990 and 1993, the crisis caused by the global threat of terrorism and the terrorist attacks in September 2011, and the world economic crisis between 2008 and 2009. Airlines have only been able to cover their cost of capital for five years within the period under review, namely in 1985, 1988 and from 1997 to 1999. The industry has only yielded an average profit margin of 0.7% between 2000 and 2009 (IATA 2011, p. 14). However, the weighted average cost of capital, as indicated in the graph above has only been ranging at around 6%, which calls for a profit margin of at least the same extent in order to cover the costs. The figure below shows the development of airline profitability between 1981 and 2010.



**Figure 2-8: Airline Profitability Development (Return on Capital Employed)**  
 Source: created by author from: Wojahn, O. (2012): Explaining Over-Capacities in the Airline Industry, IATA Key Policy Issues January 2012, International Air Transport Association: Geneva, p. 1

Only very few airlines have managed to create shareholder value in a sense of exceeding the necessary profit margins recently. Profitable airlines, however can be found in all major regions of the world, pursuing different business models ranging from traditional full service legacy carriers, over hybrid carriers to low-cost airlines. Among those most profitable carriers are only a hand full of airlines from Europe, however the worldwide most profitable airline with a profit margin of beyond 20% is the Irish low-cost carrier Ryanair, followed by Turkish Airlines, Aeroflot and Aegean. Currently, the world’s most profitable full-service long-haul airline is Central American, Panama-based Copa Airlines (IATA 2011, p. 14). When reviewing the industry profitability, it becomes clear that given the aforementioned external factors, airline performance is extremely volatile. However, recent statistics indicate that since the relative end of the world economic crisis in 2009, airlines worldwide are again gaining profitability, as the illustration above shows. However, taking a closer look into the profitability of various players within the air transport value chain, it can be seen that airlines on the one side are the reason why the value chain actually exists, but on the other side possess of the worst return on invested capital, as illustrated below.



**Figure 2-9: Profitability in the Air Transport Value Chain, Return on Invested Capital**  
 Source: created by author from: IATA (2013): Profitability and the Air Transport Value Chain, IATA Economics Briefing, No. 10, June 2013, Geneva: IATA, p. 19

With a weighted average return on invested capital, excluding goodwill, the airline itself is the least profitable element in the air transport value chain. Travel agents and distribution software, such as computer reservation systems are ranging on the side of the most profitable elements in the value chain. This circumstance may call for entrepreneurial activities and innovation within airlines to boost profitability through vertically integrating elements of the value chain in order to generate additional revenues.

After the review of all the previously discussed aspects, it has now become very clear that the airline industry is one of the most competitive industries in the world while it capitalizes one of the least returns on invested capital, compared to other industries. Although the generally expected market growth in travel and tourism is positive, the industry's competitive intensity is likely to further increase and rivalry among existing and new market players will intensify. One of the most powerful competitive advantages of an airline is its operating cost basis, which can only partly be influenced by the airline itself, as it is exposed to external variables, such as the price for crude oil, currency fluctuations, government policies or global crises. The imminent fact that global capacities will increase by 100% until the year 2032, while natural demand is expected to grow at a lower level, leads to the conclusion that chronic overcapacities are among the most predominant realities of the industry. In other words, operational cost will only decrease by a small percentage, stay stable or even slightly increase, while revenues are likely

to further remarkably decrease given overcapacities and competitive rivalry. In turn, airlines from all around the world are and will be facing the major challenge of how to improve their efficiency, cut costs and find their ways of how to justify price premiums through value propositions for the customer. These value propositions may lie in integrating elements of the value chain, which potentially benefit the customer and may include enhanced passenger experience at the airport, user friendly online products, hassle-free travel experience and other measures (IATA 2014, p. 50). As recent research findings indicate, there are five underlying business activities of airlines that potentially have an impact on performance (Huettinger 2014). These factors include strategic internal aspects, such as:

- influence of national culture,
- integration in airline alliance or joint venture,
- implementation of low-cost factors;

and environmental external aspects, such as:

- state influence, and
- liberalization of markets.

According to these findings, the influence of national culture is mainly related to emotional aspects of the purchasing decision, which could lead to the fact that a person prefers an airline that is associated with one's home country. The low-fares dimension deals with cost-related and strategic factors. Cost-related aspects include aircraft utilization, labor, airport charges, distribution, in-flight service, the number of aircraft types and the level of outsourcing. Strategic aspects are mainly concerned with issues around pricing, distribution and other commercial elements. The integration of an airline in an alliance or joint venture refers to generating revenues, reducing cost and exploiting opportunities with strategic partner airlines. These relationships can have widening, deepening or enlarging effects on the market of an airline. External factors refer to the liberalization of markets, which involves freedoms of the air, ownership structure of airlines and the degree of competition in markets. The degree of competition is operationalized by market share and market power, which is very often associated with a positive impact on profitability. However, there is no correlation at all between the airline size and its performance (IATA 2006, p. 1). An analysis of 85 of the world's major airlines accounting for 85% of the global passenger volume shows that there is a wide range of influencing factors on airline profit margins, however size is none of them. Moreover, there are strategic, cost and management aspects involved. Larger airlines, however can make more use of economies of scale and might be able to capitalize on lower relative rates for

services they have to buy from their suppliers. This, however is not an indicator of profitability, but can lead to higher relative operating profits.

Findings from a longitudinal study conducted among major airlines in the USA compared management characteristics as well as business strategies and related these variables to airline performance during market situations before and after deregulation. Findings contradict with the previously outlined argumentation which included the aspect of cost efficiency through reducing labor cost. Hence, it was found that in deregulated environments, airlines which spend more on their operations-related cost positions, including cost of labor, had better firm performance. This allows the conclusion that airline staff with reasonable levels of monetary compensation in terms of wages may contribute to better service levels and thus leverage firm performance. The study also revealed that there is a positive significant relationship between business strategy and firm performance. This means that airlines which possess of a broader strategic scope, driving greater value to the company, have higher performance level than others (Goll, Brown-Johnson and Rasheed 2008, p. 217). Again, these findings underline the importance of enhancing sources of revenue in order to increase airline performance.

Another study conducted in the US airline industry on performance improvement possibilities has revealed findings on aspects that might leverage the overall profitability of airlines (Kumar, Johnson and Lai 2009, pp. 698). Very generically, these aspects include:

- generating higher levels of revenue per passenger,
- reducing costs per passenger through operational improvements,
- maintaining or improving customer service.

A number of more specific recommendations for performance improvements have been identified, which generally can be attributed to one of the above aspects:

- scaling of wages according to the overall company performance,
- reducing maintenance cost through the use of only one or a few similar aircraft types
- improvement of sales through sophisticated revenue management methods,
- improvement of sales through more effective marketing,
- improvement of sales through new product and service offering,
- reduction of cost through improved processes,
- reduction of costs or improved utilization of assets through strategic partnerships,
- improvement of effectiveness through the identification of-, and focus on airline core competencies.

Also this study suggests that how employees are treated within an airline can ultimately have an impact on firm performance, as employees are ultimately responsible for the level of service offered to the customer (Kumar, Johnson and Lai 2009, p. 715).

When taking a closer look on the revenue perspective of an airline in order to improve overall performance, the discipline of revenue and pricing management is critical which brings up the topic of consumer behavior trends and their impact on airline product and service distribution. These trends consider behavioral, technological and demographic developments. Recent findings in this field have revealed a new future type of customer, who is heavily relying on the use of modern technologies when making purchases with airlines (Locke 2009, p. 270). Results point at five essential key competitive themes for the future:

- ability for distribution via multiple distribution channels, including online channels such as websites, search engines or social media platforms,
- ability to truly understand the customer, including information on who they are, what they want and the best possible way how and when to reach them,
- ability to apply multi-source communication strategy in order to stay connected with the customer beyond the point of sale
- ability to implement new ideas,
- ability to act instead of to re-act to innovation and market developments.

All of these aspects underline the importance of creating new products and services for airlines. It is an essential requirement in order to cater for the underlying needs of current and future customers. This is why change and innovation is required. In this sense, strategic corporate entrepreneurship may play an essential role for airlines to work on their sustainable profitability. Beside the competitive environment, cost and profitability, the internal entrepreneurial orientation of an airline plays an essential role for innovation and performance, as discussed in the following section.

#### **2.2.4 Internal Entrepreneurial Orientation**

An entrepreneurial vision is of vital importance for the organization in order to understand the direction the airline is heading to. The vision has to outline the strategic intent of the carrier and needs to be understandable for all employees within the organization, including top, middle, and operational-level management (Bhardwaj, Sushil and Momaya 2011, p. 194). Indeed, the vision needs to draw a concrete picture of an attainable future for the company. Very often, entrepreneurial visions are emotional and contain qualitative and quantitative elements

highlighting a firm's commitment to continuous innovation in various fields, such as product, process and technology. In order for top management to define the corporate entrepreneurial vision, it is of central relevance to formulate it in an innovative, inspiring and challenging, but also achievable way.

Also, effective corporate entrepreneurship is deeply founded in the corporate culture, which motivates and supports individuals and teams to recognize opportunities and to capitalize on innovation through change. Internal entrepreneurial orientation, therefore requires:

- Innovativeness
- Proactiveness
- Risk-taking
- Good people and entrepreneurs
- Entrepreneurial vision and leadership
- Tolerance towards failure
- Focus on opportunities and ideas
- Challenging bureaucracy and hierarchical structures.

The following section deals with management possibilities of corporate entrepreneurship for innovation and performance within airlines. First, principal airline business models and strategies are presented. Secondly, nine examples of network-, hybrid-, and low-cost airlines illustrate the relevance of corporate entrepreneurship in-light of innovation and performance.

### **2.3 Corporate Entrepreneurial Possibilities for Innovation and Performance**

Business strategy is crucial for every company. It refers to the fundamental method of how a firm plans to compete on the market within a given industry and how it plans to achieve its financial results. A clear business model is the basis for the formulation of business strategy and involves the essentials on which a company builds its profitability. Porter (1985) has formulated two very basic forms of how a company can achieve its revenues, namely either through pursuing a cost leadership strategy, or through a differentiation strategy. While cost leadership is mainly concerned with the generation of sustainable competitive advantages around the issue of costs, differentiation strives for the development of a comparative advantage over other market players through a unique set of value propositions in a product or service. In other words, differentiation focuses on creating special products or services which are important for the customer in terms of their quality, while cost leadership mainly concerns the achievement of a lower cost position compared to main competitors in order to offer products

or services at lower cost on the market. Cost leadership can be achieved through operational efficiencies, process improvements and economies of scale, to mention just a few examples of measures. On the other hand, differentiation can be achieved through enhanced functionality of products, higher quality, better customer service, advanced technology, service customizations and other characteristics.

The underlying product which is offered by airlines is very similar to each other, as it simply involves the transportation from one place to another.

Different customer segments and needs, however call for a diversified approach to corporate entrepreneurship. Therefore, airlines worldwide pursue different business models which can more or less be attributed to one of the two fundamental business strategies discussed above. Network carriers are traditionally following a differentiation strategy, while low cost airlines pursue a cost leadership strategy. In the middle of the two extremes are airlines, which are referred to as hybrid carriers. These airlines combine the pure low-cost philosophy with element of traditional network carriers.

While there is still an abundance of airlines in each of these segments, network carriers on the one side and low cost carriers on the other side have increasingly moved towards each other. This means that today, low cost carriers are trying to adapt elements of traditional network carriers and vice versa. Maintaining a low cost basis appears not to be enough of a competitive advantage for many low-cost airlines any more. Therefore, these companies are facing the particular challenge of maintaining their low cost basis, while on the other side integrating new product and service elements as well as pursuing new market opportunities. These market opportunities may range from a more diversified distribution channel mix, also including distribution channels which traditionally are more costly as being predominantly used by the network airlines, to new business segments such as the introduction of long-haul flights.

The table below attempts to summarize the elements of the various airline business models, which will be discussed in further detail in the following paragraphs.

	<b>Low-cost Airline</b>	<b>Hybrid Airline</b>	<b>Full-service Airline</b>
<b>Strategy</b>	Cost-leadership	Elements of cost-leadership and differentiation	Differentiation
<b>Network</b>	Regional network, mainly short-haul, point-to-point	Mainly regional flights integrated in a network logic	Global network with connecting flights
<b>Distribution</b>	Direct distribution to the end consumer via the internet	Mainly direct distribution with some travel trade elements	Distribution to the end consumer and to the travel trade
<b>Product</b>	Unbundled components of the flight	Partly unbundled flight products	Fully-integrated, bundled flight products
<b>Service</b>	Low standard of service to all customers	Medium standards of service within different segments	High standards of service within different segments
<b>Fleet</b>	Use of a single aircraft type	Use of a few different aircraft types	Use of many different aircraft types
<b>Partnerships</b>	No partnerships with other airlines, but with airports and suppliers	Moderate use of industry partnerships	Extensive use of industry partnerships
<b>Operating cost</b>	Low	Medium	High

**Table 2-1: Comparison of Low-Cost, Hybrid and Full-Service Airline Business Models**

Source: created by author

Network airlines, or full-service airlines tend to adopt a differentiation strategy with global networks focussing on connecting flights over one or more central airports, referred to as hub airports. Their products are integrated and mainly bundled together to certain packages, e.g. ticket price including two pieces of luggage and on-board meal. Sales and distribution is relying on both direct and indirect distribution channels, which involve the internet for the distribution to the direct consumer market and travel trade computer reservation systems for the distribution via indirect sales channels. Usually, network airlines offer a vast abundance of different service components to their various customer segments. Their fleet consists of many different aircraft types, each serving a specific segment, e.g. longhaul or shorthaul flights. Also, these carriers are very often pursuing extensive partnership strategies with other airlines, e.g. by joining an airline alliance or by forming a joint venture with strategic partner carriers. Given their orientation towards full service and different customer segments, the operating cost structure is rather high.

Hybrid airlines combine elements of both low-cost and full-service carriers. Their network is mainly concentrated regionally, but also focuses on connecting passengers. This means that their network strategy is different to the one of pure low-cost airlines, which is mainly targeting point-to-point passengers who are not using any connecting flights. Sales and distribution is

mainly concentrating on the direct customer segment, but also involves elements of sales and distribution to the travel trade, however not to such great extent as with full-service carriers. In other words, hybrid airlines may not be distributing through the costly global travel trade computer reservation systems, but may find other ways how to distribute to the travel trade at lower cost by implementing innovative solutions, by-passing the traditional sales channels. Their product can partly be unbundled, meaning that for example the ticket price would not include a free checked piece of luggage, however on-board meals and beverages would be included. Service levels tend to be lower than with full-service airlines, however certain service elements are offered to specific customer segments. As they are offering extensive service only to certain customer segments, they very often have to pay additional charges for extra service. Therefore, the operating cost basis of hybrid airlines is substantially lower compared to full-service carriers. Their fleet is very often concentrated on a few different aircraft types with a clear focus on keeping cost of fleet complexity low. Their integration into alliances or joint venture tends to be lower than with network airlines, however there are certain elements of collaboration with partner airlines in order to widen distribution power and use economies of scale. Such partnerships tend to be entered with large full service network carriers.

Low-cost airlines follow a cost-leadership strategy as their main goal is to offer low fares. Therefore, these airlines are forced to keep their operating cost low. In order to do so, they are reducing complexity to an absolute minimum in all fields of the operation. In terms of their network strategy, this means that they are focussing on shorter routes, mainly to cover the demand for point-to-point traffic with no focus on connecting or transfer passengers. Their distribution is kept simple and mainly targets direct customers via the internet. Low cost products are completely unbundled, which means that passengers who want to use certain service attributes have to pay for them, e.g. the ticket price may not include any baggage or on-board meals, but simply the airfare. Fleet efficiency is central in order to keep the cost basis as low as possible, therefore low cost carriers tend to only use one single aircraft type, which gives them the opportunity to streamline maintenance processes and cut costs. Usually these airlines do not pursue any partnership strategies with other airlines, however are very keen on vertically integrating elements of the passenger value chain. This means that low cost carriers are striving for partnerships with airports and other service providers in order to explore new revenue streams beside the actual sales of airline tickets.

Even though there are different characteristics of airlines attributed to the various business models, there are general industry challenges which may have an influence on innovation and performance, being out of control of entrepreneurial activities. These challenges include:

- general industry sensitivity to changes in economic conditions, such as recession or economic turmoil,
- government taxation on travel,
- regulations on passenger rights incur costs,
- Regulations (EU) on emissions trading increase costs,
- volcanic ash emissions could cause airlines to close down operation, losing revenues,
- outbreak of any significant disease could harm people from travelling, and
- global threat of terrorism.

Despite these aspects, airlines have to focus on their internal entrepreneurial orientation through innovativeness, risk-taking and proactiveness in order to generate corporate entrepreneurial output through innovation and performance to boost sustainable profitability. Airline profit margins are subject to great uncertainty and the industry is exposed to a phenomenon that costs are relatively stable while revenues tend to extreme fluctuations. Hence revenues are substantially more elastic than costs, this can lead to situations where airlines are simply not in a position any more to operate on a profitable basis, given the development that diminishing returns are not covering costs.

The following sections attempt to highlight performance and innovation within the three airline business models presented above. Moreover, key ratios for the assessment of performance for each carrier under investigation are presented and major corporate entrepreneurial objectives are being analyzed. In total, nine different airlines are reviewed, three within each business model. Example airlines have been purposefully selected, according to different business models and geographic location. An emphasis has been set on presenting particularities of airlines which are active in different environments and are confronted with particular entrepreneurial challenges. Therefore, the following carriers have been selected:

- **Full service network carriers:**  
Lufthansa German Airlines, Delta Air Lines and Etihad Airways
- **Hybrid carriers:**  
Jet Blue, Vueling Airlines and Air Berlin
- **Low-cost carriers:**  
Ryanair, Air Asia and Southwest Airlines

### 2.3.1 Management Initiatives in Full Service Network Airlines

In order to highlight the corporate entrepreneurial challenges for innovation and performance in the context of full service network airlines, three examples are analyzed. The carriers under consideration are Lufthansa German Airlines, Delta Airlines from the United States, based in Atlanta and Etihad Airways from the United Arab Emirates, with headquarters in Abu Dhabi. Delta Air Lines and Lufthansa are among the biggest airlines in the world, acting in two of the most traditional markets for air travel – Europe and North America. Etihad Airways has recently grown to a global player in the industry. The table below summarizes some of the most relevant performance ratios, characterizing the business performance of the three airlines under review. Financial numbers have been converted from US dollar into Euro for comparability reasons at a rate of 1 : 0,8.

	Lufthansa		Delta Air Lines		Etihad Airways	
	2012	2013	2012	2013	2012	2013
Revenue	30 bn	30,1 bn	29.3bn	30,2bn	3,8bn	4,9bn
Net Profit	1,3 bn	313 mn	840mn	2,7bn	33.6mn	49,6mn
Net Profit Margin	4%	1%	3%	7,1%	1%	1%
Seat Load Factor	78,8%	79,8%	83,8%	83,8%	78%	78%
Passengers	103,6 mn	104,6 mn	116,4m	116,9m	10,3 mn	11,5 mn
Employees	116.957	118.214	76.000	78.000	10.656	13.535
Fleet	627	622	717	743	70	89
Fleet Expansion	2025: +261		2016: +174		2020: 180+	
Destinations	216	211	592	606	94	102
Airline Partnerships	n.a.	33	n.a.	n.a.	40	47
Airline Investments	n.a.	8	n.a.	7	n.a.	7

**Table 2-2: Performance Ratios of Selected Network Carriers (in EUR)**

Sources: created by author from:

- Etihad Airways (2013): Annual Report, Etihad Airways: Abu Dhabi, UAE pp. 8
- Lufthansa German Airlines (2013): Annual Report, Deutsche Lufthansa AG: Cologne, pp. 6
- Lufthansa German Airlines (2012): Annual Report, Deutsche Lufthansa AG: Cologne, pp. 6
- Delta Air Lines (2012): Annual Report, Delta Air Lines ltd.: Atlanta, Georgia
- Delta Air Lines (2013): Annual Report, Delta Air Lines ltd.: Atlanta, Georgia

All three airlines have been able to grow their total revenues and passenger numbers from 2012 to 2013, however this does not automatically mean a growth in net profits. Net profit margins have been stable for Etihad Airways, but have declined for Lufthansa. Delta Air Lines on the other side has been able to significantly grow its net profit margin, making the US carrier one of the most profitable airlines in the world in 2013. These figures show that airlines are extremely fragile and very much exposed to a multitude of external and internal factors that have an impact on their overall performance. Despite that, all three airlines under review have considerable growth plans in terms of their fleet expansion over the next couple of years.

Without doubt, these plans bring a lot of challenges which have to be addressed in an entrepreneurial way, always considering innovation and performance improvement. According to the annual reports and business outlines of the three airlines analyzed, the major entrepreneurial challenges are as follows below.

**Major Entrepreneurial Objectives for Innovation and Performance within Lufthansa:**

- Expansion of the market position with a focus on higher earnings in order to boost operating margin for more capital expenditure capabilities
- Further development of the partnership portfolio
- Improve customer service and perceived quality through a focus on customer value offering five-star experiences on the ground and on board
- Act sustainably and entrepreneurially to increase company value
- Improve efficiency for a better energy footprint
- Care for good prospects and secure jobs for the employees

Even though Lufthansa is one of the largest airlines in the world, there are entrepreneurial objectives to even expand the market position, which aims at achieving better financial results in order to be able to reinvest in innovation and growth. The partnership portfolio is of central relevance for the carrier in a sense that it is involved in an airline alliance and in many different joint venture partnerships. Process innovations are putting an emphasis on increasing efficiency on the one side, and on delivering higher customer service levels on the other side. The next full service network carrier under review is US-based Delta Air Lines. Although, Lufthansa and Delta are based in different countries, their networks expand all over the world. Entrepreneurial challenges partially lie in the same fields.

**Major Entrepreneurial Objectives for Innovation and Performance within Delta Air Lines:**

- Resolve labor-related disputes that may lead to strikes and negatively affect operations
- Find new ways how to cope with increasing competition in the main hub airports, mainly from low cost carriers
- Development of the partnership portfolio with other airlines through joint ventures
- Find new ways how to maintain low operating cost basis, while adhering to all new governmental regulations

The aviation market in the US has been undergoing a major structural change recently. Many airlines, including Delta have had to dramatically cut costs and revise their strategic directions in order to secure sustainable competitiveness. These developments have had a negative impact on the motivation of employees, resulting in major labor disputes and even strikes. Delta Air Lines employed approximately 78.000 people in 2013, having a substantial social- and economic responsibility towards them. Thus, entrepreneurial challenges are dealing with labor disputes and the restoration of employee satisfaction, which ultimately will contribute to higher performance levels in terms of customer service and satisfaction. Intense competition from low-cost airlines, rising operating costs and government regulations form additional entrepreneurial challenges within the airline.

The third carrier under review in the category of full service network airlines is Etihad Airways. Etihad is based in Abu Dhabi and currently pursues an aggressive growth strategy. The company plans to expand its operating fleet from currently 89 aircraft in 2013, to more than 180 aircraft in 2020. For many European airlines these expansion plans put a major threat on their long-term planning. While previously discussed Lufthansa and Delta Air Lines have long been established in the market and are rather facing entrepreneurial challenges related to consolidation, re-structuring and innovation in processes, Etihad Airways emphasizes on growth and expansion. The company focuses on outstanding customer experience and the implementation of collaborative growth with other airlines. In other words, this means growth through acquisition of other carriers in order to gain global relevance and size. The Middle East, particularly the United Arab Emirates have created a favourable regulatory environment for home carriers to grow and expand for the benefit of their nations. Companies such as Etihad Airways, which are partly state-owned are massively benefiting from these environmental factors, having access to latest infrastructure and production factors such as personnel and jet fuel at globally unrivalled costs. These aspects are indeed reflected in the major entrepreneurial objectives for innovation and performance within Etihad Airways.

#### **Major Entrepreneurial Objectives for Innovation and Performance within Etihad Airways:**

- Management of substantial growth plans regarding the fleet until 2020
- Implementation of expansion through investment policy in other carriers outside of the United Arab Emirates for strategic global positioning
- Introduction of new aircraft types such as the Boeing 787 or the Airbus A380

- Improve fuel efficiency to optimize the operational cost position and to be able to reach more distant destinations from Abu Dhabi
- Create an outstanding guest experience
- Implementation of collaborative growth strategy with other airlines in order to gain the scale required to be a global competitive power in the industry
- Building a national Emirati workforce, creating local employment opportunities and to increase labor productivity

Reviewing all these entrepreneurial challenges, it is evident that there are a lot of facets that need to be addressed ranging from external factors such as coping with governmental regulations to organizational issues around resolving labor-related disputes or the introduction of new aircraft in the fleet. One of the key challenges identified by Lufthansa even explicitly addresses the issue of entrepreneurship, as it requires entrepreneurial acting in order to increase company value. Here, and in all other aspects of the above mentioned challenges, corporate entrepreneurship comes into play. Network carriers tend to have large organizations with bureaucratic structures and extensive hierarchies. This environment may harm corporate entrepreneurial activities, thus airlines have to work on overcoming internal barriers to innovation and performance improvements. Furthermore, these airlines have to be innovative, proactive and take certain risks in order to sustain on the market and to be ahead of the competition. In the segment of full service network carriers, these three fundamentals of corporate entrepreneurship appear as particularly important. In this respect, new structures and processes may lead to increased performance and foster innovation.

### **2.3.2 Management Initiatives in Hybrid Airlines**

Hybrid airlines combine elements of strategic cost leadership and differentiation. Very often they are concentrating on core business fields or geographic regions where they can grow and find profitable market niches. Also, co-operation agreements with larger network carriers or alliances help to widen networks and distribution power. The below illustration compares three hybrid carriers, US-based Jet Blue, Vueling Airlines from Spain and Air Berlin from Germany. Again, for comparability reasons, financial numbers have been converted from US dollar into Euro at a rate of 1 : 0,8.

	Jet Blue		Vueling		Air Berlin	
	2012	2013	2012	2013	2012	2013
Revenue	3,9bn	4,3bn	1,09bn	1,4bn	4,3bn	4,1bn
Net Profit	102,4mn	134,4mn	28,3mn	93,4mn	6,8mn	-315mn
Net Profit Margin	2.6%	3.1%	2.6%	6.7%	0.2%	-7.6%
Seat Load Factor	83,8%	83,7%	78%	79,6%	83,5%	84,8%
Passengers	28,9mn	30,5mn	14,4mn	17,2mn	33,4mn	31,5mn
Employees	15.000	15.000	1.752	1.937	9.284	8.905
Fleet	116	130	53	64	155	140
Fleet Expansion	2022: +136		2020: +62		n.a.	
Destinations	72	75	68	70	174	71
Airline Partnerships	22	23	3	3	15	15
Airline Investments	0	0	1	1	1	1

**Table 2-3: Performance Ratios of Selected Hybrid Carriers (in EUR)**

Sources: created by author from:

Jet Blue (2012): Annual Report, Jet Blue Airways Corp.: Long Island City, NY

Jet Blue (2013): Annual Report, Jet Blue Airways Corp.: Long Island City, NY

Vueling (2012): Annual Report, Vueling Airlines S.A.: Barcelona, Spain

Vueling (2013): Annual Report, Vueling Airlines S.A.: Barcelona, Spain

Air Berlin (2013): Annual Report, Air Berlin plc.: Berlin, Germany

Jet Blue is focusing on offering differentiated products and services combining competitive fares and quality. One of the airline's strategic objectives is to make use of a significant portfolio of airline partnerships through using new and innovative co-operation technologies which are more efficient compared to those of full service network airlines. Jet Blue has developed to one of the most successful airlines in North America through an effective focus on creating a unique travel experience for their passengers. Innovation and performance are mainly driven in the fields of product and service enhancement for the benefit of the customers. Approximately 90% of all passengers who travelled with Jet Blue in 2013 have flown on a one-stop itinerary, which means that their travel plans did not involve any connecting flights. This is a result of Jet Blue's efforts to focus business activities around six target geographic areas, which are regions of the United States where people tend to have more disposable income for travel than in other regions of the country. The total fleet of jet Blue consist of 130 aircraft in 2013 and involves only three different aircraft types. Typically for hybrid carriers, aircraft utilization is high, which supports lower costs, but also may cause vulnerability towards delays and cancellations, which may harm profitability.

### **Major Entrepreneurial Objectives for Innovation and Performance within Jet Blue:**

- Building a sustainable and mature network and leveraging geographic strength
- Targeting higher value customers and offering high margin products and services

- Creating new value propositions for customers, e.g. the new flight service class “Mint” and focus on the generation of ancillary revenues through new technologies
- Leveraging customer loyalty
- Further expansion in new international markets
- Improve commercial partnerships with other airlines
- Improve efficiency in distribution through direct online and mobile channels

The second hybrid airline under review is Vueling Airlines. The carrier is based in Barcelona, Spain and has recently been integrated into a bigger group of airlines in order to make more intensive use of synergies on both cost and revenue propositions. Partner airlines within the carrier’s airline group include powerful network carriers, such as Iberia and British Airways. Vueling Airlines has been operating a total fleet of 64 aircraft in 2013 with only one single aircraft type being used. The total net profit has substantially increased in comparison to 2012, which resulted in the highest net profit margin among all three hybrid carriers under review. The total number of employees working for Vueling Airlines amounts to about 2.000 people. Growth plans until 2020 include 62 additional aircraft to widen the currently existing route portfolio of 70 destinations.

**Major Entrepreneurial Objectives for Innovation and Performance within Vueling:**

- Continuous profitable growth in the core segment
- Making use of efficiency improvements and synergies within the airline group
- Improve operational efficiency to cut costs
- Maintain fleet efficiency
- Generate new sources of income for additional services
- Customization and personalization of offer to passengers

Thirdly, the German hybrid carrier Air Berlin has been analysed. It is the least profitable airline among all carriers under review, having generated a net loss of more than 300 million Euro in 2013. Air Berlin has undergone turbulent times: new investors, new executive management and new airline partnerships should help to close the gap between the current unsatisfactory performance situation and sustainable profitability. The company has huge responsibility, employing around 9.000 people and has already had to reduce its operating fleet, close routes and reduce the total number of workforce between 2012 and 2013. In order to overcome these

turbulences, Air Berlin has introduced an organization wide program for efficiency improvement, which comprises of an abundance of measures to restore profitability.

### **Major Entrepreneurial Objectives for Innovation and Performance within Air Berlin:**

- Social responsibility for employees in times of crises
- Strategic partnerships, including new ownership and control with Etihad Airways
- Explore partnerships with alliance airlines and new owner
- Restructuring for efficiency improvements in structures and processes
- Reducing cost wherever possible
- Generate higher revenues per passenger
- Strengthen management capabilities for the turnaround process
- Restructure the equity position

Summarizing all three hybrid carriers under review, it becomes clear that one of the major entrepreneurial challenges lie in enhancing the customer value proposition through offering innovative products and services for new revenue streams. Additional challenges are related to maintaining or enhancing efficiency and managing continuous profitable growth. Likewise, it is essential for hybrid carriers to carefully define their strategy of combining elements from differentiation, as discussed in the previous section on full service network airlines, and cost leadership, which will be emphasized in the next section on entrepreneurial challenges within low-cost airlines.

### **2.3.3 Management Initiatives in Low-Cost Airlines**

Pursuing a strategy of cost leadership means an organization-wide sensitiveness towards the imminent relevance of costs. This means that every activity within a low-cost airline has a certain aspect related to the issue of cost. As already previously mentioned, one of the core elements of the low-cost airline business model is to offer high frequency point-to-point flights at the lowest price possible. Service standards are very often low and additional service elements might be available for the passenger at a certain cost. These additional services generate ancillary revenues, which are of central importance for low-cost airlines in order to operate on a profitable basis. When considering the data presented in the table below comparing performance ratios of selected low-cost airlines, it becomes clear that net profit margins of these airlines are at a generally favourable rate. Airlines under review in this business model category are Ryanair, based in Ireland, US-low-cost carrier Southwest Airlines and Air Asia, based in Kuala Lumpur, Malaysia. For comparability reasons, financial numbers have been converted

from US dollar into Euro at a rate of 1 : 0,8 and from Malayan Ringgit into Euro at a rate of 1: 0,23.

	Ryanair		Southwest Airlines		Air Asia	
	2012	2013	2012	2013	2012	2013
Revenue	4,3bn	4,9bn	13,7bn	14,2bn	1,14bn	1,17bn
Net Profit	560,4mn	569,3mn	337mn	603mn	181,6mn	83,2mn
Net Profit Margin	13%	12%	2.5%	4.3%	16%	7%
Seat Load Factor	83%	84%	80,3%	80,1%	80%	79%
Passengers	75,8mn	79,3mn	109,4mn	108,1mn	36,9mn	42,6mn
Employees	8.438	9.059	45.861	44.831	10.000	13.000
Fleet	294	305	694	681	123	158
Fleet Expansion	2019: 410		2027: +547		2028: +536	
Destinations	160	180	79	96	56	83
Airline Partnerships	0	0	0	0	0	0
Airline Investments	1	1	0	1	6	6

**Table 2-4: Performance Ratios of Selected Low-Cost Carriers (in EUR)**

Sources: created by author from: Ryanair (2012): Annual Report, Ryanair Ltd.: Dublin, Ireland

Ryanair (2013): Annual Report, Ryanair Ltd.: Dublin, Ireland

Air Asia (2012): Annual Report, Air Asia Group: Kuala Lumpur, Malaysia

Air Asia (2013): Annual Report, Air Asia Group: Kuala Lumpur, Malaysia

Southwest Airlines (2013): Annual Report, Southwest Airlines Ltd.: Dallas, Texas

Ryanair's strategy as a low-cost airline includes low fares and best customer service in the group of low-cost airlines. It aims at offering frequent point-to-point flights on shorthaul routes and at maintaining low operation costs. These costs mainly involve personnel costs, cost for aircraft equipment, customer service costs and airport handling costs. The airline wants to take advantage of the internet in sales and distribution and aims at leveraging the performance through the increased sales of ancillary services. For very long, Ryanair has been the most profitable airline in the world. Still today, with a net profit margin of around 12%, the Dublin-based carrier is extremely profitable, however profitability has already been at higher levels in previous years. This is why Ryanair has identified the continued acceptance of the low-cost model by travellers as one of the risks to its success. In any case, the company has ambitious expansion plans until 2019 with more than 100 new aircraft on order. Currently, the carrier operates an extensive route portfolio, comprising of 180 destinations all over Europe from different base airports.

#### **Major Entrepreneurial Objectives for Innovation and Performance within Air Berlin:**

- Tackle risk of fuel cost development in a way that it does not harm the low cost basis
- Cope with seasonal fluctuations in demand through new and innovative solutions, e.g. seasonal grounding of parts of the fleet during off-peak months

- Maintain a low cost basis and avoid higher operational cost
- Organization-wide awareness to cost control
- Capital market fluctuations to harm the expansion policy of acquiring new aircraft
- Growth may expose the company to risk and can strain existing management resources; therefore, growth will require further resources in terms of skilled people, equipment, facilities and systems
- Cope with labor relations: avoid the obligation to raise salaries because of reasonable profitability and the seasonal grounding policy
- Focus on internet and e-commerce innovation for distribution cost efficiency
- Increase revenues through ancillary services

The next carrier under review is Air Asia, which is considered to be one of the most innovative and leading low-cost airlines in the world. Based in Malaysia, the airline was established in the year 2001 and attempts to make flying possible for everybody in Asia, even for classes of society with low disposable income for travel. It is therefore obvious that the development of Air Asia is important for the overall economic development of Asian societies. Different to many other low-cost airlines, Air Asia has six associated airlines, each operating from different base airports throughout Asia. These wholly owned subsidiaries are located in Malaysia, Singapore, Indonesia and Thailand. Among those airlines is a carrier called Air Asia X, which is one of the first low-cost airlines in the world that has entered the longhaul flight segment with a low-cost approach. The entire Air Asia group operates only two different types of aircraft: one for shorthaul operations for flights below four hours and another one for longhaul operations for flight lasting longer than four hours. In 2013, the company employed around 13.000 people and operated a total fleet of nearly 160 aircraft with about 500 more on order until 2028. Asia is the fastest growing market for commercial aviation, as it will be highlighted in one of the following sections in more detail. Therefore, Air Asia is expected to significantly grow in the future making a substantial economic impact in the region where it operates. These future plans call for entrepreneurial objectives in order to foster innovation and performance.

**Major Entrepreneurial Objectives for Innovation and Performance within Air Asia:**

- Enhance the utilization of aircraft
- Further lowering the cost basis through efficiency improvements and economies of scale among all airlines within the Air Asia Group
- Further reduce the cost of distribution and enhance the reach of online sales
- Further increase the share of ancillary revenues to a higher level (currently 16%)

- Reduction of marketing expenditure through the increased use of customer relationship management, social media and sponsorship
- Improving operational efficiency through new processes
- Strengthen customer loyalty by an enhanced focus on the loyalty program

The final carrier under review regarding the entrepreneurial objectives for innovation and performance is the US-low-cost carrier Southwest Airlines. Southwest has been one of the very first low-cost carriers in the world and reported consistent profitability during the past years. Beside its profitability and constant expansion, Southwest Airlines has a very special trait: attitude. The airline has been driven by visionary leadership and entrepreneurial orientation since its beginnings in 1971. In this respect, Southwest Airlines has been attested a label of entrepreneurial excellence, given the following factors (Bunz and Maes 1998, p. 164):

- a bias for action, empowering employees to generate ideas and try them,
- closeness to the customer through an attitude of personal interest and caring,
- autonomy and entrepreneurship encouraging innovation and risk-taking,
- productivity through people, selecting new employees according to attitude,
- regular (quarterly) active involvement of upper management in operations,
- cautious expansion, taking only calculated risks to grow,
- simple and lean organization structures fostering communications and fast decision-making processes,
- common understanding of quality, reliability, action, regular informal communication and quick feedback.

Today, Southwest Airlines employs nearly 45.000 people and has just recently expanded its service from only domestic routes to international operations, newly involving destinations in Latin America. The company possesses of a total fleet of nearly 700 aircraft, all of only one single aircraft type, with nearly 600 additional units to be delivered until 2027. In 2013, the airline generated a total revenue of nearly 18 billion US dollars, thereof more than 20% coming from ancillary earnings.

#### **Major Entrepreneurial Objectives for Innovation and Performance within Southwest:**

- Continue the culture of excellence
- Generate higher revenues, including more ancillary revenues through selling open premium boarding positions at the gate, increasing the early bird check-in price and implementing a no-show policy

- Network optimizations
- Focus on internet distribution (80% in 2013 of total revenues)
- Improve operational efficiencies through the integration of AirTran
- Internal cost management involving cuts in overhead costs
- Expansion into international markets

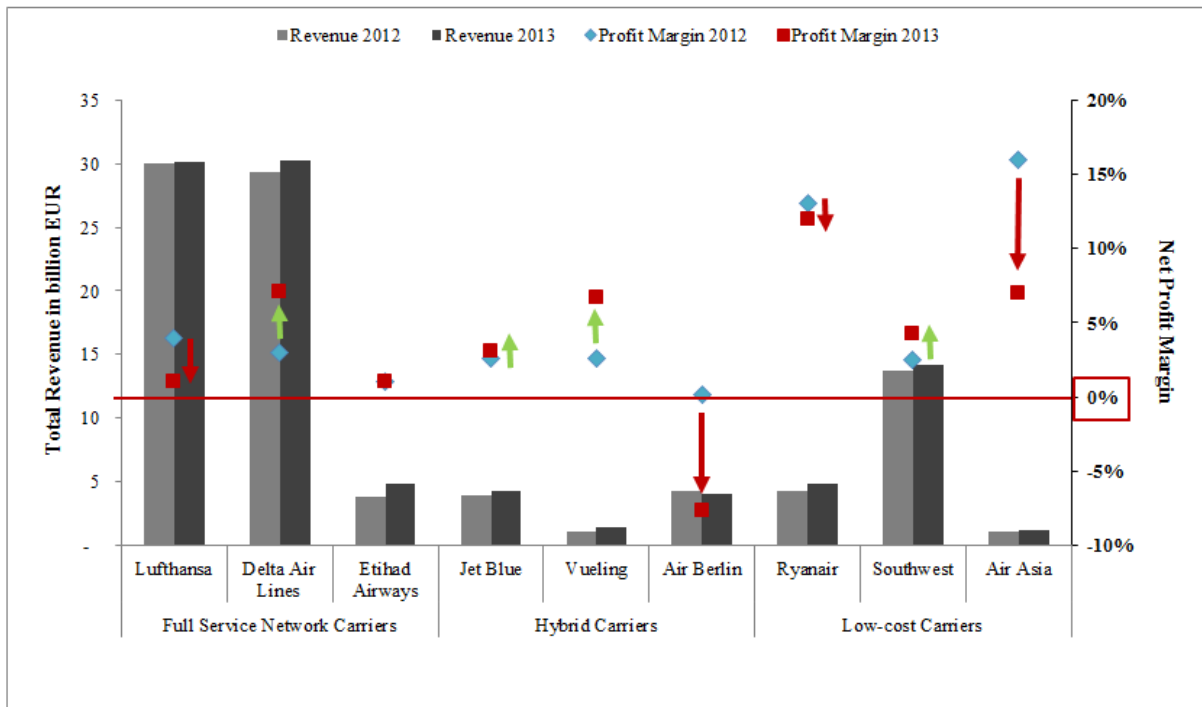
Critically reflecting on the major entrepreneurial issues within Southwest Airlines, it becomes clear that culture plays an essential role in their corporate strategy. As mentioned in previous chapters, culture refers to the sum of shared norms, values and beliefs of individuals within an organization. In this context, this appears as of central importance in order to create a common understanding of business conduct. Obviously, appreciation of employees is important for Southwest and forms the basis of the employee-employer relationship. This fact is different to most other carriers under review and may definitely be a very distinct key success factor for the airlines, simultaneously forming a key entrepreneurial challenge for innovation and performance.

The next section summarizes entrepreneurial challenges of full-service network-, hybrid-, and low-cost airlines and reflects on their performance levels.

#### **2.3.4 Reflection of Management Initiatives in different Airline Business Models**

Summarizing all of the above, it becomes clear that airlines of every business model are facing big entrepreneurial challenges in the future. Profitability is a fragile balance between costs and revenues, which is not only dependent on the internal entrepreneurial orientation of an airline around innovativeness, proactiveness and risk-taking, but also on external factors such as the overall development of economies, regulatory affairs or the natural environment.

It can be concluded that in terms of business performance, there are more or less successful carriers in all of the business models under review, however corporate entrepreneurship appears important for all of them in order to secure their profitability on a sustainable basis through innovation and performance. The figure below summarizes the level of profitability of the airlines under review.



**Figure 2-10: Performance comparison of selected network-, hybrid-, and low-cost airlines**

Sources: created by author from:

- Ethad Airways (2013): Annual Report, Etihad Airways: Abu Dhabi, UAE pp. 8
- Lufthansa German Airlines (2012, 2013): Annual Report, Deutsche Lufthansa AG: Cologne
- Delta Air Lines (2012, 2013): Annual Report, Delta Air Lines Ltd.: Atlanta, Georgia
- Jet Blue (2012, 2013): Annual Report, Jet Blue Airways Corp.: Long Island City, NY
- Vueling (2012, 2013): Annual Report, Vueling Airlines S.A.: Barcelona, Spain
- Air Berlin (2013): Annual Report, Air Berlin plc.: Berlin, Germany
- Ryanair (2012, 2013): Annual Report, Ryanair ltd.: Dublin, Ireland
- Southwest Airlines (2013): Annual Report, Southwest Airlines ltd.: Dallas, Texas
- Air Asia (2012, 2013): Annual Report, Air Asia Group: Kuala Lumpur, Malaysia

The figure highlights the zero profitability line on the right-side vertical axis, constituting net profit margins of the airlines under review. The left-side vertical axis stands for total revenues in billion Euro during the years 2012 and 2013. It can be seen that with the exception of one carrier (Air Berlin), all airlines have been able to increase their overall revenues during the period under review. Full service network carriers tend to generate higher total revenue numbers, given their bigger overall company size (two of the worldwide biggest airlines have been included in the investigation). While four of the airlines have been able to leverage their profit margins from 2012 to 2013, four carriers were losing profitability, one airline remained stable.

Corporate entrepreneurial challenges have been highlighted, mainly in connection with the following three fields:

- Reduction of operating costs
- Increase of revenues through new value propositions
- Increase efficiency in processes and structures

These aspects are objectives of corporate entrepreneurship within airlines that drive innovation and performance. No matter if an airline pursues a cost leadership or a differentiation strategy, or combines elements of both, innovation appears as essential element for the future viability of the business. The industry developments can be steered within airlines through their internal entrepreneurial orientation and focus on innovativeness, risk-taking and proactiveness as well as on people that act as corporate entrepreneurs.

Sustainable airline performance can be the result of corporate entrepreneurial intensity, which combines the degree and frequency of innovation. The dynamic environment of the airline industry calls for a number of performance improvements in order to ensure long-term, sustainable competitive advantages and profitability. Moreover, the rising expectations of passengers related to technology and personalization require airlines to constantly change and innovate. Long-term business viability requires corporate entrepreneurship to regularly capitalize on innovation, yielding measurable performance results.

The following section describes these corporate entrepreneurial outputs as the return on corporate entrepreneurial intensity.

#### **2.4 The Return on Corporate Entrepreneurial Intensity within Airlines**

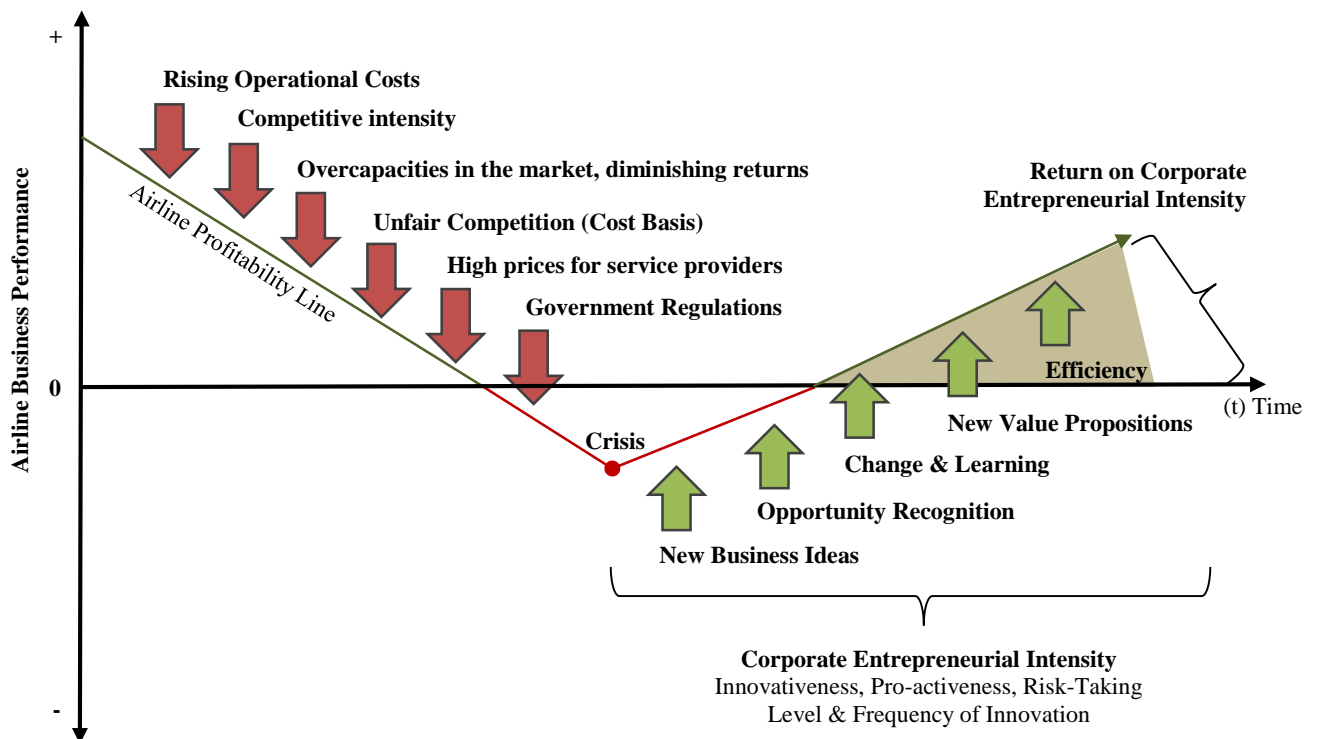
The imminent threat of new market entrants in aviation puts enormous pressure on existing market players. New airlines could follow a very different business model than current airlines and set new standards in terms of customer value propositions. The optimization of current business models and the development of a deep understanding of what future airline passengers really want are issues that are on top of the agenda of many airlines worldwide.

In addition, new sources of revenue need to be identified which provide value for the customer. On the cost side, efficiency improvements for constant optimization of the cost position are crucial. Therefore, airlines are forced to innovate and could follow a corporate entrepreneurial concept for strategic renewal. The development of new business models which focus on customer value and on the optimization of complexity has probably never been more important

in the industry before. In order to drive innovation and performance, corporate entrepreneurship can be applied on both managerial- and operational level within an airline. The particular challenge is to lower costs, while providing equal or even better service to the customers, increase revenues and optimize processes. Thus, it is evident that corporate entrepreneurial efforts in the airline industry should focus on (Polio, Watson and Vokurka 2006, pp. 48):

- operational improvements that lower the cost position,
- opportunities to increase revenues and enhance customer value propositions,
- improve customer service.

If airlines pursue a corporate entrepreneurial philosophy of opportunity recognition and innovation, they might find new and competitive ways of how to do things better than their rivals and to sustain on the market more successfully. A vision-directed corporate entrepreneurial strategy is likely to yield new business ideas and opportunities which could put airlines into an advantageous market position over its competitors and eventually could increase profitability, as illustrated below.



**Figure 2-11: The Return on Corporate Entrepreneurial Intensity within Airlines**

Source: created by author

While a number of environmental, external and internal factors, such as rising operational cost, competitive intensity, overcapacities in the market with related diminishing revenues, unfair competition given regional differences in airlines' cost bases, profitability of the air

service value chain and government regulations put pressure on profitability, corporate entrepreneurship seems to be a viable tool to manage that crisis. It focuses on the creation of new values within the airlines through new business ideas, opportunity recognition, change, individual and organisational learning, the creation of new value propositions for the customer and efficiency. Ultimately, a positive return on corporate entrepreneurial intensity might result from the degree of entrepreneurship and the frequency of innovation within airlines. The return on corporate entrepreneurial intensity indeed describes the corporate entrepreneurial output in form of any kind of performance related measure, such as profitability, profit margin, turnover, customer satisfaction, overall market share, passenger number and more.

The next chapter deals with the research method for the primary research within this dissertation.

### 3. DRIVING INNOVATION AND BUSINESS PERFORMANCE THROUGH CORPORATE ENTREPRENEURSHIP WITHIN AIRLINES

This chapter presents the primary research conducted in order to assess the impact of corporate entrepreneurship on innovation and performance within airlines. Primary research has been conducted between April and August 2014, involving both qualitative and quantitative research methods. By mixing qualitative and quantitative research methods, data triangulation is enabled in a way to approach the research problem from many different points of view. Furthermore, it is possible to gain a broader and deeper understanding of the complex research subject. Therefore, the main purpose of the qualitative research within this dissertation has been to explore, validate and justify the theoretical research model by airline experts, which constituted the basis for the quantitative research. The illustration below shows the framework of the primary research.

<b>1. Qualitative Research</b>	
<b>Purpose:</b>	Exploration, validation and justification of the research model
<b>Participants:</b>	Purposeful sample of selected airline executives
<b>Instrument:</b>	Problem-based interview
<b>Data Collection:</b>	Personal and telephone interviews
<b>Data Analysis:</b>	Summarizing interview protocol with remarks on validity
<b>2. Quantitative Research</b>	
<b>Purpose:</b>	Confirmation or falsification of research hypotheses
<b>Participants:</b>	Random sample of airline executives from worldwide population
<b>Instrument:</b>	Structured questionnaire with closed questions
<b>Data Collection:</b>	Online survey
<b>Data Analysis:</b>	Statistical analysis including descriptive statistics, reliability-, factor-, discriminant-, simple-, and multiple regression analysis
<b>3. Data Triangulation</b>	
<b>4. Research Results</b>	

**Table 3-1: Framework of the Primary Research**

Source: own illustration

Qualitative research has been conducted prior to the quantitative survey. Findings from qualitative interviews have contributed to the quantitative survey in many ways. The validation of the theoretical research model within the qualitative research phase has contributed to the creation of the research instrument for the quantitative survey.

In order to investigate the impact of corporate entrepreneurship on innovation and performance within airlines, it seemed essential to gather primary data from the particular industry. Therefore, the first step of the primary research involved expert interviews with middle- to senior airline executives, mainly to explore, validate and justify the theoretical research model. Potential interview partners have been contacted either via email or telephone in order to set a suitable date for the interview. Interviews have been conducted either personally or via telephone, as the geographic distance to some expert interview partners did not allow for all interviews to be conducted in person. Particular attention has been paid to the background of the interview partners. Experts have been selected from airlines that pursue one of the big three business models, namely network/legacy carrier, hybrid carrier or low-cost carrier. In total, 12 problem-based interviews have been conducted with an equal distribution of experts representing the aforementioned three major airline business models. All interviews have been audio recorded and summarized after interview completion, including remarks on the validity of contents. Each interview consisted of 8 open questions, which marked the interview guideline. The interview structure can be found in the appendix.

After completion of the expert interviews, data has been analysed and reduced to an essential volume of information. Based on the findings from qualitative expert interviews, the theoretical research model has been critically reflected and slightly adapted. Empirical findings from both secondary research and results from qualitative primary research have contributed to the composition of the quantitative research instrument. Quantitative research has been using an online questionnaire. Finally, both qualitative and quantitative findings have been triangulated and interpreted from many different points of view, as presented in the results section of this dissertation.

The underlying dimensionality of corporate entrepreneurship has been investigated in special regards to airlines and the impact of its components has been assessed on airline innovation and business performance. Furthermore, the concept of corporate entrepreneurial intensity and its return has been elaborated, explaining how corporate entrepreneurship creates value within airlines. Findings have been discussed from many different points of view and critically reflected on previous experience in the field as well on existing literature.

### **3.1 Research Model of Corporate Entrepreneurship within Airlines and Hypotheses**

This section presents the research model and explains the research hypotheses, operationalizing the underlying thesis of this dissertation, which has been formulated as:

Corporate entrepreneurial intensity promotes innovation and performance within airlines and is determined by innovativeness, proactiveness and risk-taking. The return on corporate entrepreneurial intensity (ROCEI) can be measured by relating corporate entrepreneurial intensity to performance metrics.

Corporate entrepreneurial intensity consists of the degree and frequency of innovation. Generally, research results in this field are multifarious. This is due to the different forms of corporate entrepreneurship and performance operationalization. In addition, studies conducted in different economic environments will most likely come to different research findings. No relevant studies have yet been conducted in the context of airlines. Wang and Zhang (2009), have conducted quantitative research in China in order to operationalize corporate entrepreneurship and assess its implications on firm performance. Their results point at a general four-dimensional construct, involving new business venturing, innovativeness, self-renewal and proactiveness. The study shows that a general positive relationship between corporate entrepreneurship and firm performance can be confirmed, however not all of the dimensions have significant impacts on the dependent variable. In particular, no significant relationship between new business venturing and firm performance can be confirmed. The authors explain that this might be an effect coming from the transitional character of China's economy, which in general possesses of a majority of rather new than mature businesses, compared to other countries of the world. Previous experience from a study conducted among 217 medium-sized companies in Portugal (Felicio, Rodrigues and Caldeirinha 2012) shows that the pro-activeness and innovativeness dimensions of corporate entrepreneurship have an effect on the long-term development of companies. Other dimensions which the study tested, such as autonomy, competitive energy and risk have proven a lower importance for performance. Another empirical study carried out among companies in Indonesia has only found a positive impact of the pro-activeness dimension on firm performance (Mohamad, et al. 2011).

The factor of employee satisfaction in the context of corporate entrepreneurship has proven to have a positive influence on growth of companies, in addition to other dimensions within a study conducted among 149 firms in Slovenia. It is suggested that major performance improvements by corporate entrepreneurship include (Antoncic and Antoncic 2011, p. 601):

- the stimulation of new demand,
- the exploration of new markets and market niches,
- the development of new products and technology,
- the introduction of technological newness and innovations, and
- the creation of a flexible organizational structure to advance business innovation.

Furthermore, corporate entrepreneurship has been found as a good predictor of organizational wealth creation, profitability and growth within a study conducted in various Slovenian industries, including manufacturing consumer and industrial goods, construction, retail and wholesale trade, engineering, research and development, consumer and business services, transportation and public utilities (Antoncic and Hisrich 2004, p. 529). Furthermore, the sample of 477 firms shows that corporate entrepreneurship has a certain impact on firm performance, however there are also external factors, such as industry growth and the development of demand for new products which have an impact on firm performance. It is argued that corporate entrepreneurship interacts with these factors. Therefore, the impact of corporate entrepreneurship on firm performance is confirmed. As already previously discussed, also this study reveals that organizational support is one of the most important predictors of corporate entrepreneurship. As Luo et al. (2005) have suggested, the underlying dimensionality of corporate entrepreneurship can be innovativeness, pro-activeness and risk-taking. Antoncic and Antoncic (2011) have found that not all of these factors are determining factors of corporate entrepreneurship. They suggest to enhance the scientific research in the field by the dimension of employee satisfaction, which seems reasonable given the central importance of employees in the corporate entrepreneurial process, however is lacking some empirical evidence.

Given all these aspects and the generally accepted models of corporate entrepreneurship by Lumpkin and Dess (1996), Zahra (1991) and Luo et al. (2005) regarding the dimensions of innovativeness, risk-taking and proactiveness, as well as from Antoncic and Antoncic (2011) regarding the dimension of employees, the author proposes that:

**H1: The dimensionality of corporate entrepreneurship within airlines is determined by innovativeness, proactiveness, risk-taking and people.**

H1A: Corporate entrepreneurship is partly determined by innovativeness within airlines.

H1B: Corporate entrepreneurship is partly determined by proactiveness within airlines.

H1C: Corporate entrepreneurship is partly determined by risk-taking within airlines.

H1D: Corporate entrepreneurship is partly determined by people within airlines.

The overall aim of corporate entrepreneurship is to create value for the organization. The output from corporate entrepreneurial activity can have both monetary or non-monetary facets and might range from successful implementations of innovation over improved business performance to failure. Entrepreneurial output is expected to have a positive influence on company performance, related to measurable metrics, such as business growth, profit, sales volume and many more (Burgelman 1984). Research findings on the linkages between corporate entrepreneurship, innovation and performance among small- and medium-sized enterprises (Ndubisi and Iftikhar 2012) reveal a direct relationship between innovation and performance. The impact of corporate entrepreneurship on airline performance can be substantial. While a number of external factors, such as rising operational cost, competitive intensity, overcapacities in the market with related diminishing ticket revenues, unfair competition given regional differences in airlines' cost bases, profitability of the air service value chain and government regulations put pressure on profitability, corporate entrepreneurship seems to be a viable tool to stimulate innovation and performance from internally. Additionally, corporate entrepreneurship focuses on the creation of new values within firms through new business ideas, opportunity recognition, change, individual and organisational learning, the creation of new value propositions for the customer and efficiency. It is therefore proposed that:

**H2: It is expected that there is a significant relationship between corporate entrepreneurship and innovation performance within airlines.**

H2A: There is a significant relationship between innovativeness and innovation performance within airlines.

H3A: There is a significant relationship between proactiveness and innovation performance within airlines.

H4A: There is a significant relationship between risk-taking and innovation performance within airlines.

H5A: There is a significant relationship between people and innovation performance within airlines.

**H3: It is expected that there is a significant relationship between corporate entrepreneurship and business performance within airlines.**

H2B: There is a significant relationship between innovativeness and business performance within airlines.

H3B: There is a significant relationship between proactiveness and business performance within airlines.

H4B: There is a significant relationship between risk-taking and business performance within airlines.

H5B: There is a significant relationship between people and business performance within airlines.

Ultimately, innovation and performance determine the return on corporate entrepreneurial intensity, which relates the organisational antecedents of corporate entrepreneurship, their degree and frequency of innovation. The return on corporate entrepreneurial intensity indeed describes the corporate entrepreneurial output in form of any kind of increase in performance related measure, such as profitability, profit margin, turnover or passenger number. Corporate entrepreneurial intensity is determined by the frequency and degree of corporate entrepreneurial activity. Therefore, the following hypothesis will be tested:

**H6: Entrepreneurial airlines are more successful than less entrepreneurial airlines in terms of innovation and business performance.**

H7: It is expected that the higher the corporate entrepreneurial intensity, the higher the business performance, expressed as Return on Corporate Entrepreneurial Intensity (ROCEI).

H8A: It is expected that fostering entrepreneurial behavior within airlines has a positive impact on innovation performance.

H8B: It is expected that fostering entrepreneurial behavior within airlines has a positive impact on business performance.

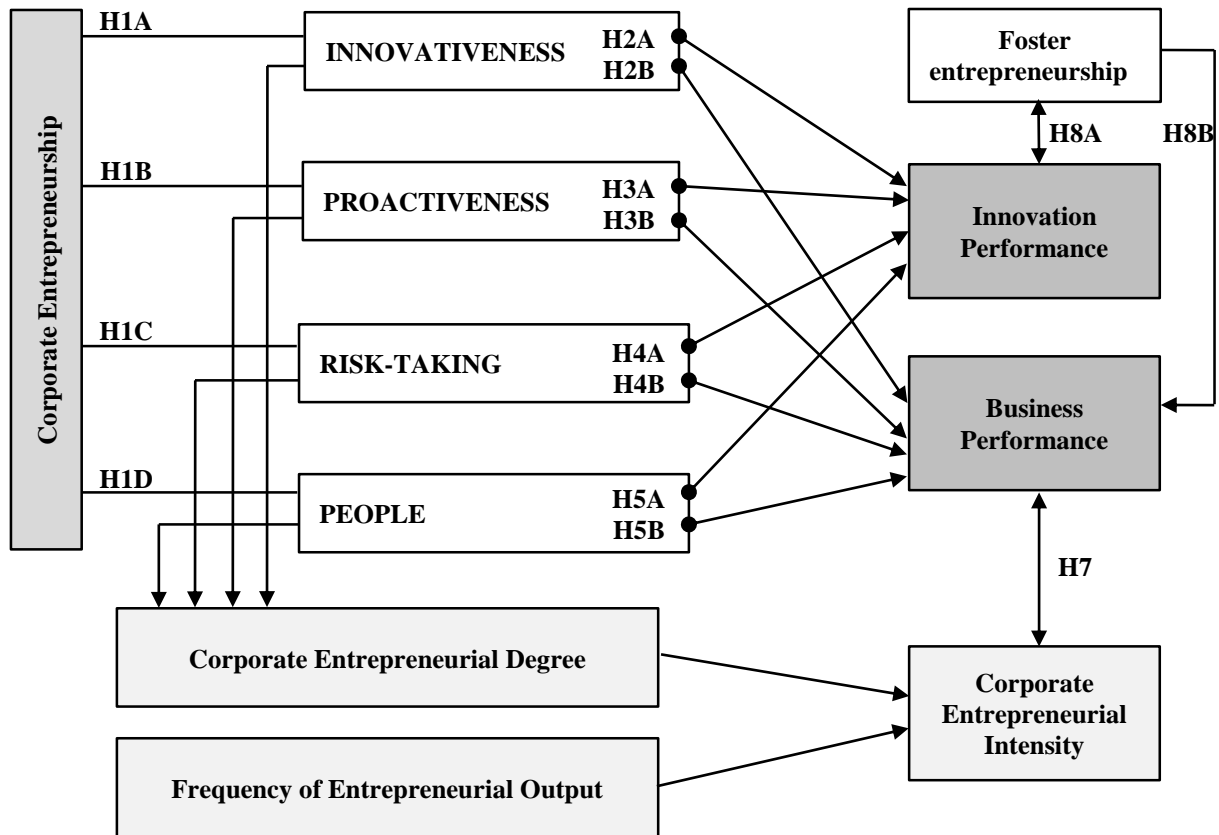
H9: Airlines which are part of any alliance, joint venture or group of airlines tend to be more entrepreneurial than others.

H10: Large airlines tend to be less entrepreneurial than small- and medium-sized airlines.

H11: Legacy carriers tend to be less entrepreneurial than hybrid and low-cost airlines.

The figure below illustrates the primary research model related to the impact of corporate entrepreneurship on innovation and performance within airlines. Also, the dependent and

independent variables are highlighted, which will be operationalized in more detail in the following sections.



**Figure 3-1: The underlying primary research model related to the impact of corporate entrepreneurship on innovation and performance within airlines**

Source: created by author

Innovation and business performance operationalize corporate entrepreneurial output as dependent variables in the research model. Independent variables include innovativeness, proactiveness, risk-taking and people. Corporate entrepreneurial degree and frequency of output, in terms of innovation determine corporate entrepreneurial intensity. In order to relate the various research variables to the corresponding hypotheses, the figure provides respective hypothesis references.

### 3.1.1 Dependent Variables of the Primary Research Model

Based on the research model presented above, two dependent variables have been defined: airline business performance and airline innovation performance. Business performance is operationalized by 10 items relating to airline performance metrics. Due to limited accessibility of objective information, it is measured through self-reporting, which has already been proven as acceptable by a number of former studies (Venkatraman and Ramanujam 1986, pp. 808).

## **Airline Business Performance**

- Growth in earnings before interest and taxes (EBIT)
- Growth in turnover
- Growth in overall market share
- Improved competitive position
- Growth in fleet
- Improved customer satisfaction
- Decline in cost per available seat mile or kilometer (CASM/CASK)
- Increase in revenue per available seat mile or kilometer (RASM/RASK)
- Increased passenger load factor
- Increased profit margin

Innovation performance is operationalized by seven items relating to degree and frequency of product, service and process innovation. Some aspects of the variable operationalization have been adopted from Kuratko, Morris and Covin (2011, pp. 378) and the commonly accepted measuring instrument for assessing corporate entrepreneurial intensity. These items are marked with a (\*) below.

## **Airline Innovation Performance**

- Number of product improvements or revisions\*
- Number of new product introductions compared to those of major competitors\*
- Degree of newness of new product introduction\*
- Number of service improvements or revisions\*
- Number of new service introductions compared to those of major competitors\*
- Degree of newness of new service introductions\*
- Number of new methods or operational processes\*

Following the explanation of dependent variables, the operationalization of independent variables is presented in the next paragraphs.

### **3.1.2 Independent Variables of the Primary Research Model**

In order to assess the underlying research hypotheses, a total number of five independent variables have been defined: innovativeness, proactiveness, risk-taking, people and fostering entrepreneurship. Innovativeness is operationalized by seven items, proactiveness consists of six

items, risk-taking includes 7 items and the assessment of fostering entrepreneurship is operationalized by five items.

### **Innovativeness**

- Rate of new product and service introductions compared to competitors\*
- Emphasis on continuous process improvements\*
- Seeking of unusual, novel solutions\*
- Ability to be creative in finding new solutions
- Putting the customer's future needs in the center of efforts
- Seeking new opportunities in co-operation with other airlines
- Investments in new product, service and process development

### **Proactiveness**

- Stepping out of the comfort zone to be the first on the market with innovation
- Setting trends in the industry through driving change
- Flat hierarchies and organization structures for fast decision making
- Active search for big opportunities\*
- Rapid growth as the dominant goal\*
- Steady growth and stability as primary concern\*

### **Risk-taking**

- Risk-taking by key executives in seizing and exploring chancy growth opportunities\*
- A "live and let live" philosophy in dealing with competitors\*
- A top management philosophy that emphasizes proven products and services, and the avoidance of heavy new product development cost\*
- Financial stability
- Cautious, pragmatic, step-at-a-time adjustments to problems\*
- Large, bold decisions despite uncertainties of the outcomes\*
- Compromises among the conflicting demands of owners, management, customers, etc.\*

### **People**

- Giving a certain responsibility to all employees
- People have time to work on new initiatives beside their daily routine work-load

- Provide employees (in middle- and lower management) with the opportunity to work on tasks and projects in own responsibility
- Trust in employees
- A strong identification with the airline identity and its brand
- Appreciative of flight- and other fringe benefits (if applicable)
- Loyalty towards the organization and co-workers
- Like to take on responsibilities and to take decisions within boundaries
- Like to work together with other colleagues
- Enthusiasm about travelling, flying and aviation in general

### **Fostering Entrepreneurship**

- Management awareness to have good people within the organization
- Managers acting as a role model for fellow employees within the organization
- Open management communication to the organization about objectives, goals and decisions
- Encourage individuals to spell out new ideas that may help to achieve common goals
- Foster talent and provide perspectives for personal- and career development

The following part explains the mixed research method of both qualitative and quantitative elements applied. The research approach involved qualitative expert interviews with twelve airline executives and a quantitative survey conducted among airline executives from all over the world. A sample size of 241 cases has been achieved and processed for data analysis. Primary research has been conducted between April and August 2014.

### **3.2 Instruments of Qualitative and Quantitative Research conducted**

In order to explore the underlying research model in the context of airlines, expert interviews have been designed around the following subjects, involving a total of 8 open questions:

- corporate entrepreneurial dimensionality,
- supporting elements of entrepreneurial behaviour,
- the theoretically constructed influencing dimension of “people”, and
- a general indication of the impact of corporate entrepreneurship on innovation and performance within airlines.

Finally, interview partners were invited to openly articulate any further thoughts, remarks or comments which they might have.

Following the qualitative research phase, the second step of primary research involved a quantitative survey. The questionnaire consisted of a total of 70 closed questions. Answers had to be selected either on a 5-point Likert scale or by choosing any one or multiple alternatives from the given answer categories. For the following aspects, different types of 5-point Likert scales have been used:

- Corporate Entrepreneurial Degree: from 1 “strongly disagree” to 5 “strongly agree”
- Innovation Performance: from 1 “significantly less” to 5 “significantly more”
- Business Performance: from 1 “not at all” to 5 “to a great extent”

Likert scales are valid research measurement scales which allow respondents to express the degree of agreement or disagreement with a particular statement on an ordinal scale regarding a specific variable (Likert 1932). Some of the measurement items have been adopted from previous research findings by Kuratko, Morris and Covin (2011, pp. 379), referred to as a valid measurement instrument of a firm’s entrepreneurial intensity. Additional items have been included in the questionnaire, based on the findings from the qualitative expert interviews. The questionnaire is generally structured in 8 sections, which each operationalizes one variable through various items. In addition, further descriptive variables and demographic questions completed the questionnaire. An example of the questionnaire can be found in the appendix.

### **3.3 Data Collection & Analysis within the Primary Research conducted**

As already indicated in the sections above, qualitative expert interviews have been conducted using a problem-based interviewing technique. Interviews have been structured along eight guiding questions, which have been formulated in an open way encouraging the interview partner to freely respond. The first complex of questions was related to the dimensionality of corporate entrepreneurship. Interview partners have been asked to talk about their thoughts on innovativeness, proactiveness and risk-taking in the concrete context of their airline. After the first three questions, interview partners were asked about further characteristics of entrepreneurial behaviour within airlines. This subject has been followed by the topic of employees. Respondents have now been required to share their thoughts on employees within airlines, especially regarding motivational elements. Further topics included the promotion of entrepreneurial behaviour and a general open question on the performance of airlines in terms

of success. Finally, airline experts have been asked if they would like to add some more aspects that have not been covered so far, or if they had any remarks or questions.

Following the expert interview phase, the quantitative research instrument has been designed. Therefore, a standardized online questionnaire has been used. In order to operationalize the online survey, the “SurveyMonkey” internet software has been used.

Descriptive analysis has been used to characterize the sample. In order to test the validity of the research construct, an exploratory factor analysis has been applied. Cronbach’s Alpha was calculated for the measurement of instrument reliability. Furthermore, in order to assess the impact of the independent variables on the dependent variables innovation and business performance, multiple linear regression analysis has been applied. Therefore, factor scores have been calculated for each participant as an average of all items contributing to the respective dimension. Missing values have automatically been replaced by means of substitution. Regarding differences between member- or non-member airlines of any alliance, joint venture or airline group in connection with their entrepreneurial orientation, expressed as corporate entrepreneurial intensity, discriminant analysis has been applied.

The below table summarizes the various aspect of the research problem and their operationalization in terms of hypotheses, independent and dependent variables. The table also provides information on the analysis tools used for each aspect of the research problem.

<b>Research Aspect</b>	<b>Hypotheses</b>	<b>Independent Variables</b>	<b>Dependent Variable</b>	<b>Analysis</b>
Dimensionality of corporate entrepreneurship	H1, H1A-H1D	Innovativeness, proactiveness, risk-taking, people	-	Factor analysis
Impact of corporate entrepreneurship on innovation	H2, H2A-H5A	Innovativeness, proactiveness, risk-taking, people	Innovation performance	Multiple linear regression analysis
Impact of corporate entrepreneurship on performance	H3, H2B-H5B	Innovativeness, proactiveness, risk-taking, people	Business performance	Multiple linear regression analysis
Return on corporate entrepreneurial intensity	H6, H7	Corporate Entrepreneurial Intensity	Business performance	Simple linear regression analysis
Promotion of corporate entrepreneurship	H8A	Fostering corporate entrepreneurship	Innovation performance	Simple linear regression analysis

Research Aspect	Hypotheses	Independent Variables	Dependent Variable	Analysis
Promotion of corporate entrepreneurship	H8B	Fostering corporate entrepreneurship	Business performance	Simple linear regression analysis
Alliance, joint venture or airline group membership	H9	Innovativeness, proactiveness, risk-taking, people	Membership within group, alliance or joint venture	Descriptive statistics
Airline size and entrepreneurial orientation	H10	Innovativeness, proactiveness, risk-taking, people	Airline size (small, medium, large)	Discriminant analysis and descriptive statistics,
Airline business model and entrepreneurial orientation	H11	Innovativeness, proactiveness, risk-taking, people	Airline business model (legacy, hybrid, low-cost)	Descriptive statistics

**Table 3-2: Operationalization of Research Aspects, Hypotheses and Analysis**

Source: created by author

### 3.4 Participants & Sample of Primary Research conducted

For qualitative research, a number of airline executive have been selected as research participants. A purposeful sampling method has been applied in order to yield the most information about the research problem under investigation. Respondents have been selected from a list of airline executives which has been compiled by the author. The interview partners have been located within different airline companies, representing each one of the three predominant industry business models. Thus, respondents have been interviewed from legacy/network carriers, hybrid carriers as well as from low-cost carriers. All participants were holding management functions within their airlines on lower-, middle- or upper level. Despite these similarities among the respondents, it is important to state that there were certain differences between them, mainly regarding their seniority and role within their organizations, gender, age and geographic location. Details on the research participants, including their job title and airline type can be found in the appendix. In order to better categorize between the different types of airlines, four demographic dimensions have been defined, including annual turnover, number of employees, number of annual passengers and fleet size. These dimensions should help to get a better understanding of the sample, beside the association of research objects with their underlying business model, which has been explained above and involves the category of network/legacy carriers, hybrid carriers and low-cost carriers. The below table summarizes the aforementioned four demographic segmenting dimensions.

	<b>Annual turnover (in USD)</b>	<b>Number of employees</b>	<b>Annual passengers</b>	<b>Fleet size</b>
Small airlines	< 500 million	< 600	< 2 million	< 10 aircraft
Medium airlines	500 million-10 billion	600-10.000	2-20 million	10-100 aircraft
Large airlines	> 10 billion	> 10.000	> 20 million	> 100 aircraft

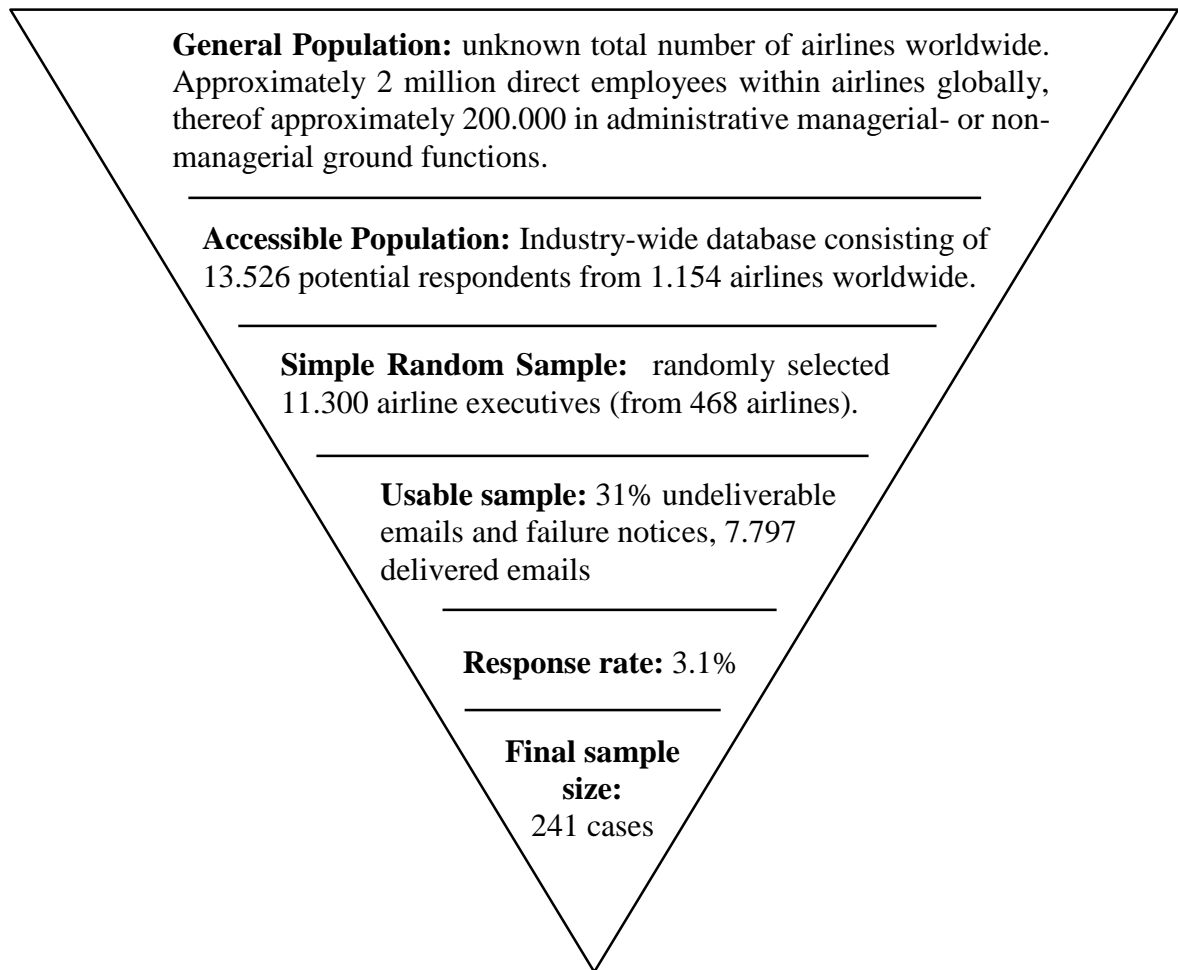
**Table 3-3: Demographic Segmenting Dimensions of Quantitative Sample**

Source: created by author

The research population for the quantitative survey cannot easily be defined as there are no reliable data on the total number of airlines worldwide. However, an attempt to do so involves data from the International Air Transport Association, which is the largest association of airlines worldwide. It currently counts 240 member airlines, which are responsible for 84% of the global air traffic (IATA 2014). The Air Transport Action Group (2008, p. 4), which is an international organization supported by the International Air Transport Association states that there are approximately 2 million people directly employed within airlines globally. This figure involves both member- and non-member airlines of the International Air Transport Association. As a general rule, it is assumed that approximately 10% of airline employees are managerial and non-managerial administrative staff, while the remaining 90% are working in the flight operations. When breaking down these figures, it is argued that out of the 2 million total airline workforce, there are approximately 200.000 managerial and non-managerial administrative employees, which can be seen as the general population of the quantitative survey. Without doubt, researching this large population in its entirety would not be feasible within the scope of this dissertation.

A simple random sample has been drawn from an airline industry database consisting of a total number of 13.526 potential research participants from 1.154 airlines worldwide. These potential research participants all represent managerial and non-managerial administrative employees of both member- and non-member airlines of the International Air Transport Association. A simple random sample has been drawn out of this database, by randomly selecting 11.300 potential respondents. These 11.300 units represent a total of 468 airlines from all around the world. All 11.300 randomly selected potential questionnaire respondents were sent an email invitation request for participation in the survey. A total of 3.503 emails, constituting 31% of the sample were not deliverable or have created failure notices which prevented the potential respondents from participation in the survey. This resulted in a final total sample size of 7.797

potential respondents. After a two week data collection phase, a response rate of 3.1% was achieved, yielding a final sample size for data processing of 241 cases. The figure below illustrates the development of the quantitative research sample from general population to final sample size.



**Figure 3-2: Development of the Quantitative Research Sample**

Source: created by author

The following sections present the results from qualitative and quantitative research related to the impact of corporate entrepreneurship on innovation and performance within airlines.

### **3.5 Qualitative Research Results on Corporate Entrepreneurship within Airlines**

This section summarizes the findings from qualitative expert interviews after content analysis. A more detailed compilation of the qualitative research results can be found in the annex of this dissertation.

#### **Innovativeness**

Innovativeness has a couple of different meanings within airlines. While there are some differences among airlines related to the three business models under review, a number of attributes regarding innovativeness can be related to all of them. These include a focus on new products and services for the customer in order to exploit new sources of revenue, as well as new processes and technology. Low-cost airlines relate innovativeness to being the first mover in certain fields, while network airlines also relate to more efficiency in processes. This underlines the fact that low cost airlines are more agile and capable of quickly innovating, while network carriers have rather large organization structures which harm their speed to market. Hybrid carriers also refer to the employee dimension regarding innovativeness, stating that there is a requirement for skilled people, who are capable of doing certain things.

#### **Proactiveness**

While low-cost airlines have already attributed speed to market to the dimension of innovativeness, being the first on the market with new, innovative solutions for enhancing customer value appears of centrally important regarding the proactiveness dimension of all three airline types. Hybrid- and low-cost airlines are striving for being active and not re-active and try to think about tomorrow's customer needs. Interestingly, network airlines view stepping out of their comfort zone as an element of proactiveness. This may lead to the conclusion that given the longer history of these carriers, it is more difficult for them to drive change and innovation. Thus, proactiveness is also related to favorable hierarchies and supportive organization structures that allow for fast decision making processes.

#### **Risk-taking**

All airlines under review have stated that no risk at all can be taken regarding operations. The attitude of safety first can be attributed to all three airline groups, including low-cost carriers who have often been referred to as cutting costs also in relation with safety standards. Thus, risk-taking only refers to commercial or business risk, not to operational risk. Airlines have to take these risks, however are very keen on being able to control and calculate them. Hybrid-

and low-cost airlines refer to risk as potential sources of new opportunities, while network airlines rather have to find a balance between risk and investor expectations. Risk-taking also relates to trying things and being tolerant towards failure, which is underlined by the meaning of corporate entrepreneurship.

Summarizing, it can be said that innovativeness within airlines largely refers to finding new solutions for enhancing customer value. Proactiveness relates to speed to market and the ability to act rather than to re-act. Finally, risk-taking refers to taking controllable and calculated business risk in order to drive innovation and performance.

### **Further Characteristics of corporate entrepreneurship within Airlines**

In addition to the three underlying dimensions of corporate entrepreneurship, there are a number of other characteristics of entrepreneurial behaviour within airlines. These include leadership as a role model for the entire organization, financial stability, a favourable regulatory environment, sufficient resources and technical capabilities. One further aspect, however paramountly stands out throughout all three airline types under review: the aspect of people.

### **Corporate entrepreneurs: People**

Having skilled and experienced employees within the organization is an important driver of entrepreneurial behaviour within airlines. As discussed in previous sections, airlines are not in a position to attract skilled labor only through competitive salaries. Moreover, there are other aspects which contribute to the motivation of people within airlines beside their actual salary. These include a general enthusiasm about the industry, a sense of belonging, having relevance to make an impact within the organization and working together in effective teams. Furthermore, general work conditions play a certain role in the motivation of employees within airlines, contributing to innovation and performance through corporate entrepreneurship. Another important monetary aspect of the motivation complex are travel and flight benefits. The freedom to define own work processes and being able to learn also contribute to employee satisfaction within airlines.

### **Supporting corporate entrepreneurial behaviour within airlines**

In order to foster entrepreneurial behaviour within airlines, it is important to provide employees with responsibilities. Employees should be allowed to start initiatives, based on opportunities, aiming at product-, service-, or process innovations. In this sense, corporate entrepreneurship contributes to innovation and performance. In order to yield favourable results, initiatives need a certain management support. Furthermore, it is important to encourage individuals within the

organization and to have trust in employees. Management is required to openly communicate with the employees, explaining decisions which have been taken and goals that have been set. In this regard, it is important to clearly identify common goals for the organization to work on.

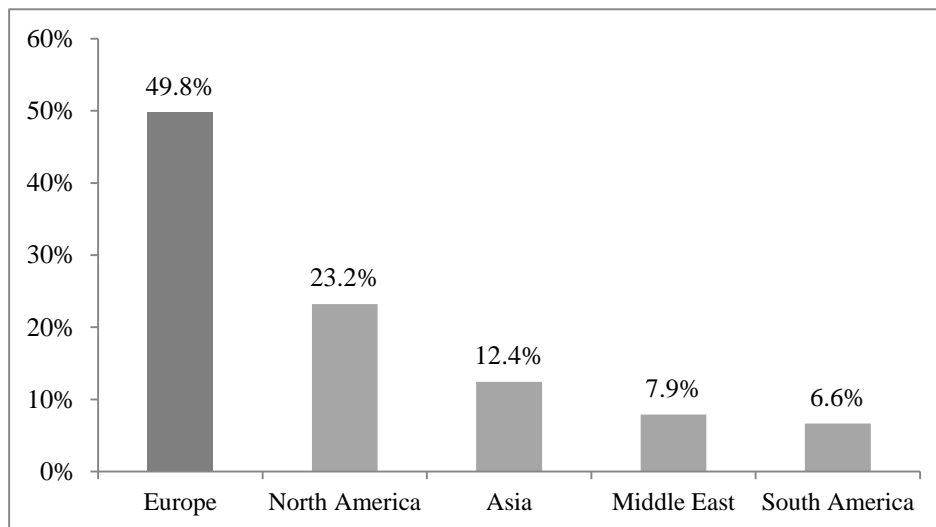
### **Assessment of the impact of corporate entrepreneurship on business success**

Airlines largely believe that entrepreneurial behaviour leads to business success, however there are environmental and internal obstacles, such as competition, regulation and own management.

The following section presents results from quantitative research related to corporate entrepreneurship within airlines.

### **3.6 Quantitative Research Results**

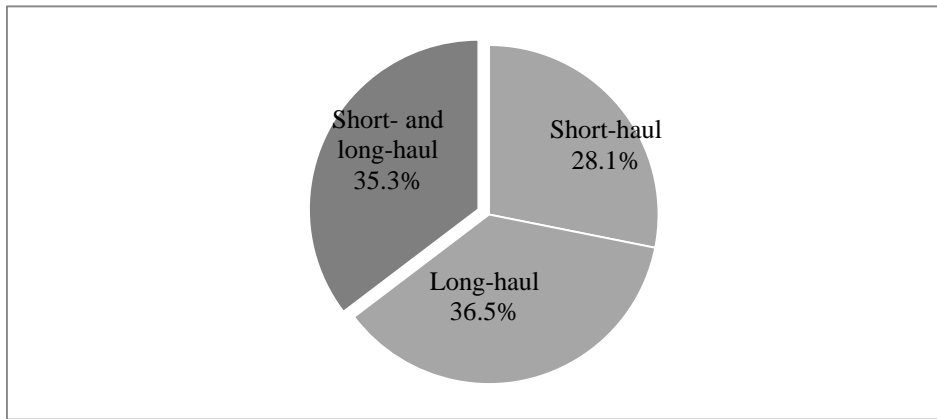
The sample consisted of 241 usable cases which have been processed for statistical analysis. The below figures characterize the research sample with economic data on the airlines and demographic data on the survey respondents.



**Figure 3-3: Geographic Location of Sample Airlines**

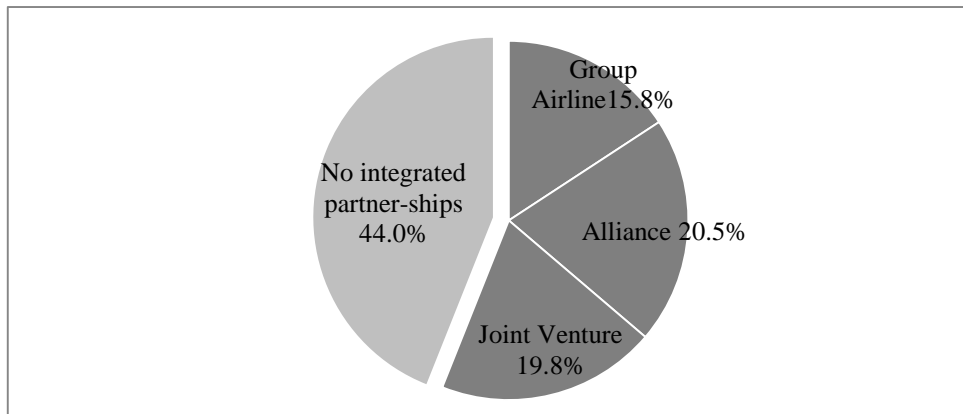
Source: Own quantitative research, Variable Z1

The majority of 49,8% of all respondents who participated are working for airlines which have their corporate headquarters in Europe, followed by North America (23,2%), Asia (12,4%), Middle East (7,9%) and South America (6,6%).



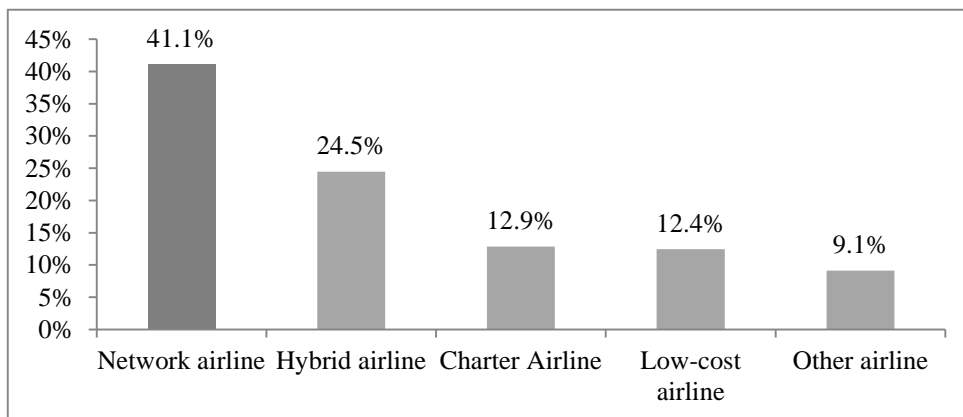
**Figure 3-4: Operation range Sample Airlines**  
 Source: Own quantitative research, Variables Z5A-C

About one third of airlines under review are operating on short-haul regional routes, another third is operating in the long-haul segment and the remaining third is combining both operational aspects.



**Figure 3-5: Partnership integration of sample airlines**  
 Source: Own quantitative research, Variable Z10

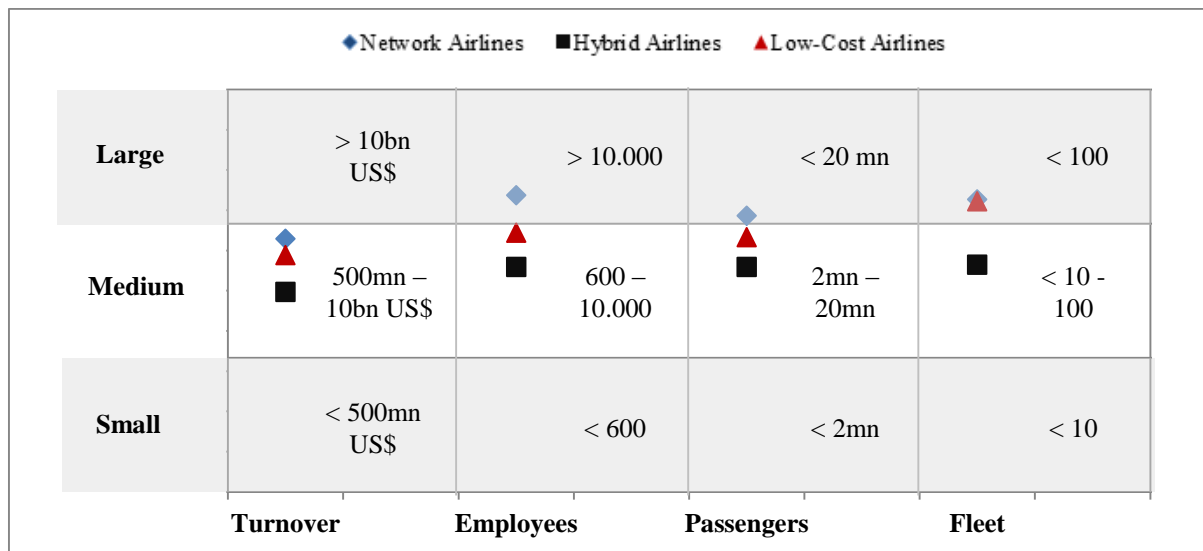
About 50% of the sample airlines are members of an integrated partnership form, either a group of airlines (15,3%), alliance (20,5%), or joint venture (19,8%).



**Figure 3-6: Business models of sample airlines**  
 Source: Own quantitative research, Variable Z4

The majority of airlines included in the sample can be attributed to the group of full-service network carriers (41,1%), followed by hybrid airlines (24,5%), low-cost airlines (12,4%) and others, accounting for 22%, whereof 12,9% belong to the group of charter airlines.

Regarding characteristics related to the dimension of airlines within the sample, the figure below summarizes the key metrics, expressed as annual turnover, number of employees, number of passengers per year and the number of aircraft in the fleet.

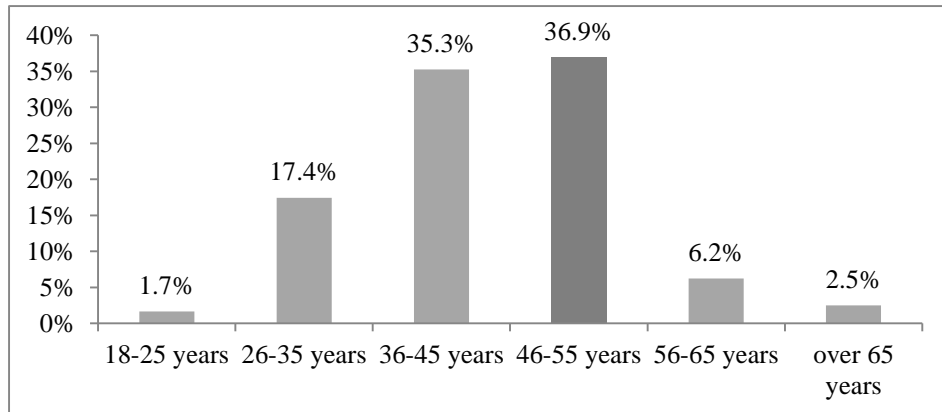


**Figure 3-7: Sample characteristics regarding turnover, employees, passengers and fleet**  
Source: created by author, own quantitative research, Variables Z6-9

According to the means of measurement categories under evaluation, it can be seen that full-service network carriers tend to be large airlines, while hybrid carriers are ranging on the lower end of the scales. Low-cost airlines can be characterized as medium-sized regarding some elements, such as turnover or the number of employees, however they possess of large fleets. This underlines their general business model of offering high-frequency point-to-point connection as this requires a rather large number of aircraft in use. Generally, only 15,4% of the sample airlines generate an annual turnover of more than 10 bn US\$, while the majority of carriers achieve less than 500 mn US\$ per year. Most of the sample airlines (41,5%) employ between 600 and 10.000 employees, while 35,7% of them operate with less than 600 and 22,8% with more than 10.000 people within their organizations. Only 21,2% of the airlines carry more than 20 mn passengers per year, while most of them (40,7%) generate less than 2 mn customers, some 38,2% of the sample carry between 2 mn and 20 mn passengers annually. The vast majority of airlines (43,6%) operate a fleet of between 10 and 100 aircraft, followed by less than 10 aircraft (30,7%) and more than 100 aircraft (25,7%). While airline characteristics have

now been described in economic terms, the following paragraphs deal with the introduction of the demographic details on the research respondents.

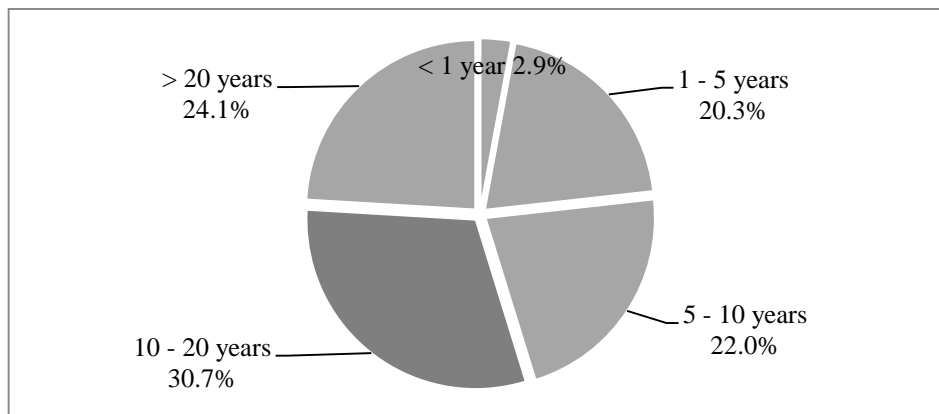
Most respondents are between 46 and 55 years old (36,9%), followed by the group of 36-45 year-olds (35,3%), 26-35 years (17,4%), 56-65 years (6,2%). About 4,7% of all participants are either under 25 years or over 65 years old.



**Figure 3-8: Age groups of respondents**

Source: Own quantitative research, Variable Z14

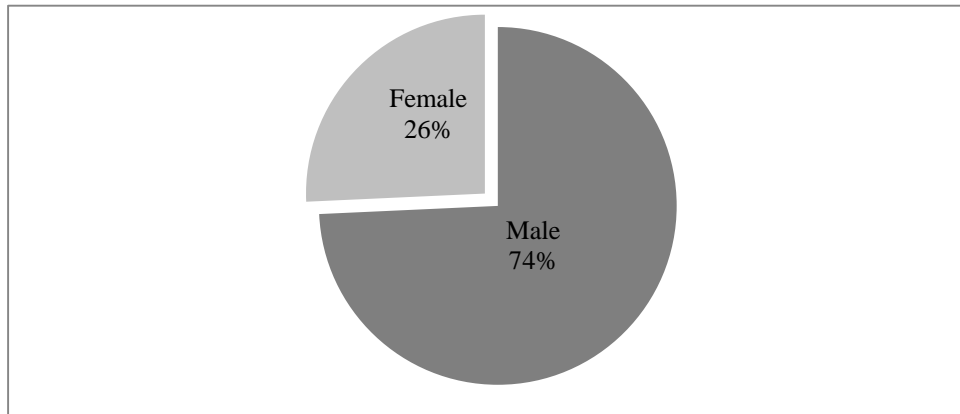
More than half of all respondents have been working within an airline for more than 10 years, while only 3% of survey participants are newcomers to the industry with experience of less than one year.



**Figure 3-9: Sample years of airline working experience**

Source: Own quantitative research, Variable Z15

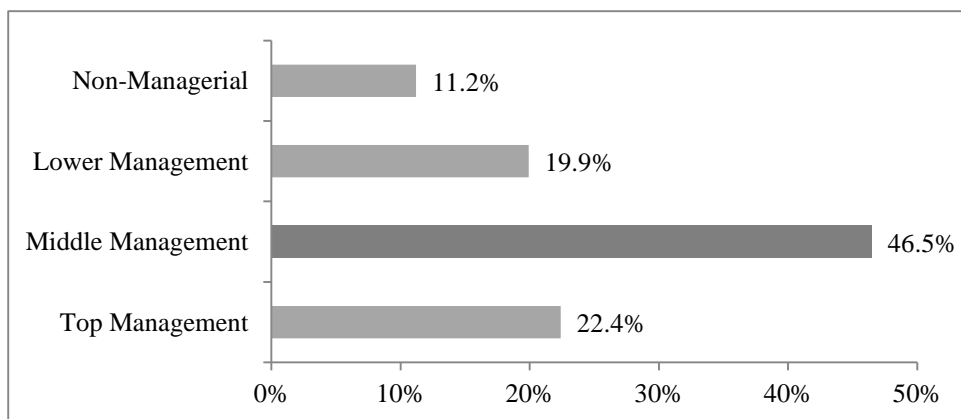
The majority of participants are male (74%), whereas females account for only 26% of the total sample.



**Figure 3-10: Gender of respondents**

Source: Own quantitative research, Variable Z13

Most participants are holding middle management positions within their airlines (46,5%), followed by top management (22,4%), lower management (19,9%) and non-managerial positions (11,2%). It is considered that the vast majority of the sample (lower to top management, constituting a total of 88,8% of the sample size) is very knowledgeable about business performance within their organizations. Usually these employee groups receive regular management information on financial and operational results of their airlines. Non-managerial employees are considered to have at least a basic understanding of their firm's performance situation. Thus, the sample is characterized as able to judge on related aspects.

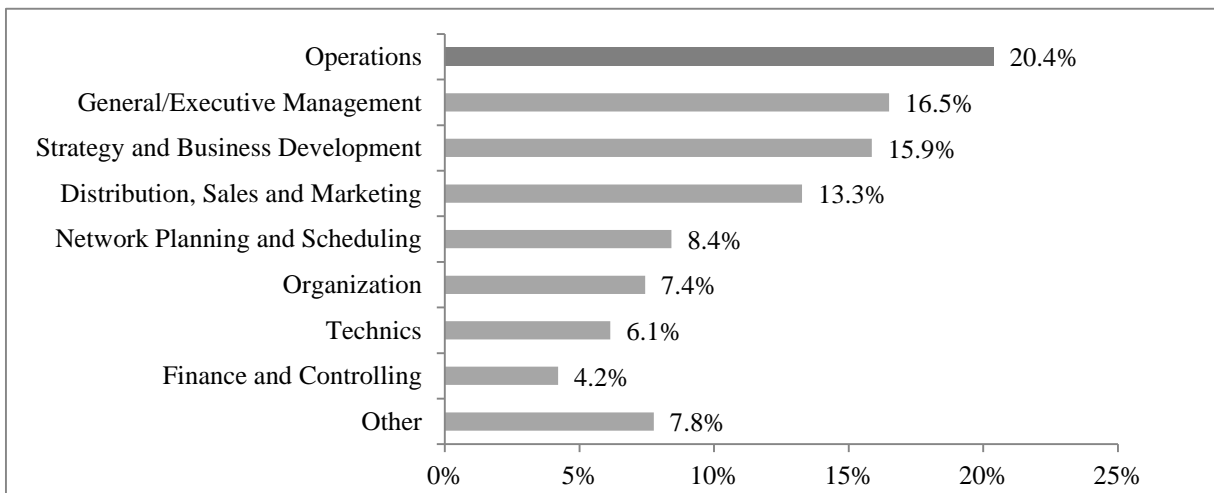


**Figure 3-11: Hierarchical levels of respondents**

Source: Own quantitative research, Variable Z11

About 20% of the survey respondents are working in the fields of operations management (20,4%), followed by general/executive management (16,5%), strategy and business development (15,9%), distribution, sales and marketing (13,3%), network planning and

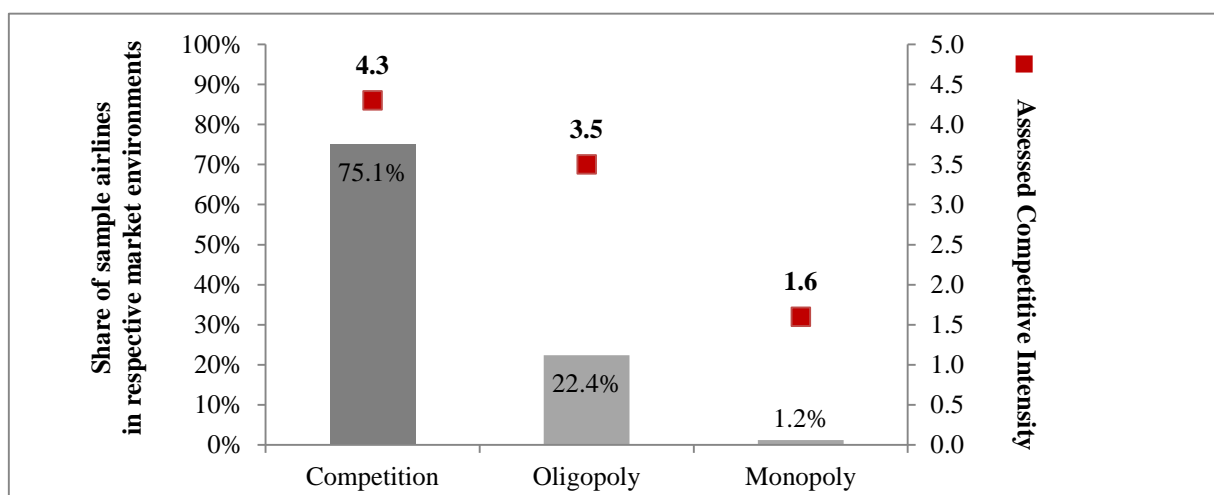
scheduling (8,4%), organization (7,4%), technics (6,1%), finance and controlling (4,2%) and others (7,8%).



**Figure 3-12: Functional characteristics of respondents within sample**

Source: created by author, own quantitative research, Variables Z12A-I

Most airlines under review are operating in competitive environments. This goes in-line with the previously presented predominant origins of sample airlines in Europe and North America. Only few airlines are operating in oligopoly or monopoly markets. Competitive market intensity is characterized as rather to very high with a rate of 4,3 on the scale from 1 (very low) to 5 (very high), oligopoly ranking at 3,5 and monopoly with the lowest competitive intensity, ranking at 1,6 respectively.

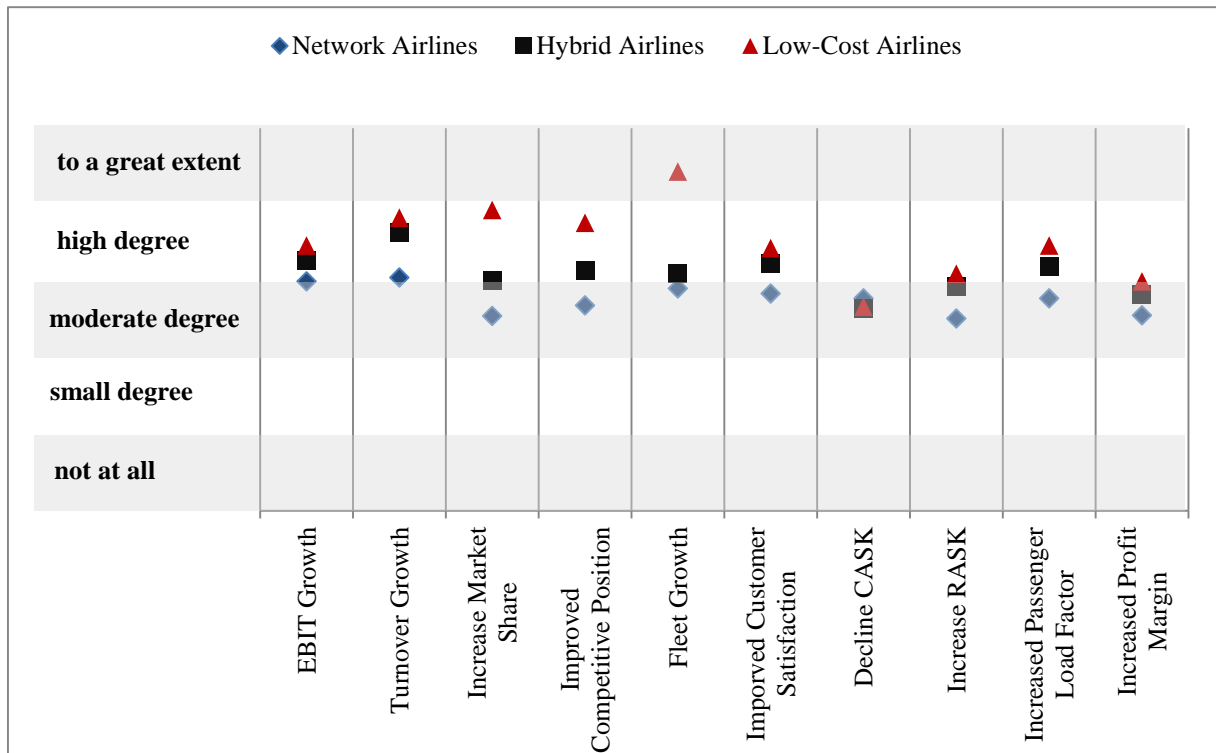


**Figure 3-13: Competitive intensity in markets of competition, oligopoly and monopoly**

Source: created by author, own quantitative research, Variables Z2-3

The following chart compares performance levels of network-, hybrid-, and low-cost airlines within the sample including ten major performance ratios and their characterization of growth over the past two years.

Airline business performance is defined as one of the dependent variables in the underlying research model. It is operationalized by the measuring items presented in the figure below. Generally reflecting on the performance levels of the airlines under review, it can be stated that during the past two years, performance levels have generally developed at a moderate to high degree.



**Figure 3-14: Performance development of network-, hybrid-, and low-cost airlines over the past two years**

Source: created by author, own quantitative research, Variables S1-10

As a result of descriptive analyses, differences can be noted among full-service network-, hybrid- and low-cost airlines, especially regarding fleet growth, which is exceptionally high in the group of low-cost carriers. Both hybrid- and low-cost airlines have managed to increase their revenues to a greater extent than network airlines. Also, differences can be attested to the development of profit margins and overall seat load factors. It appears that low-cost airlines possess of the highest performance levels throughout all measurement categories, while full-service network airlines tend to develop at the lowest rate.

The following section presents primary research findings regarding the underlying dimensionality of corporate entrepreneurship within airlines.

### 3.6.1 Dimensionality of Corporate Entrepreneurship within Airlines

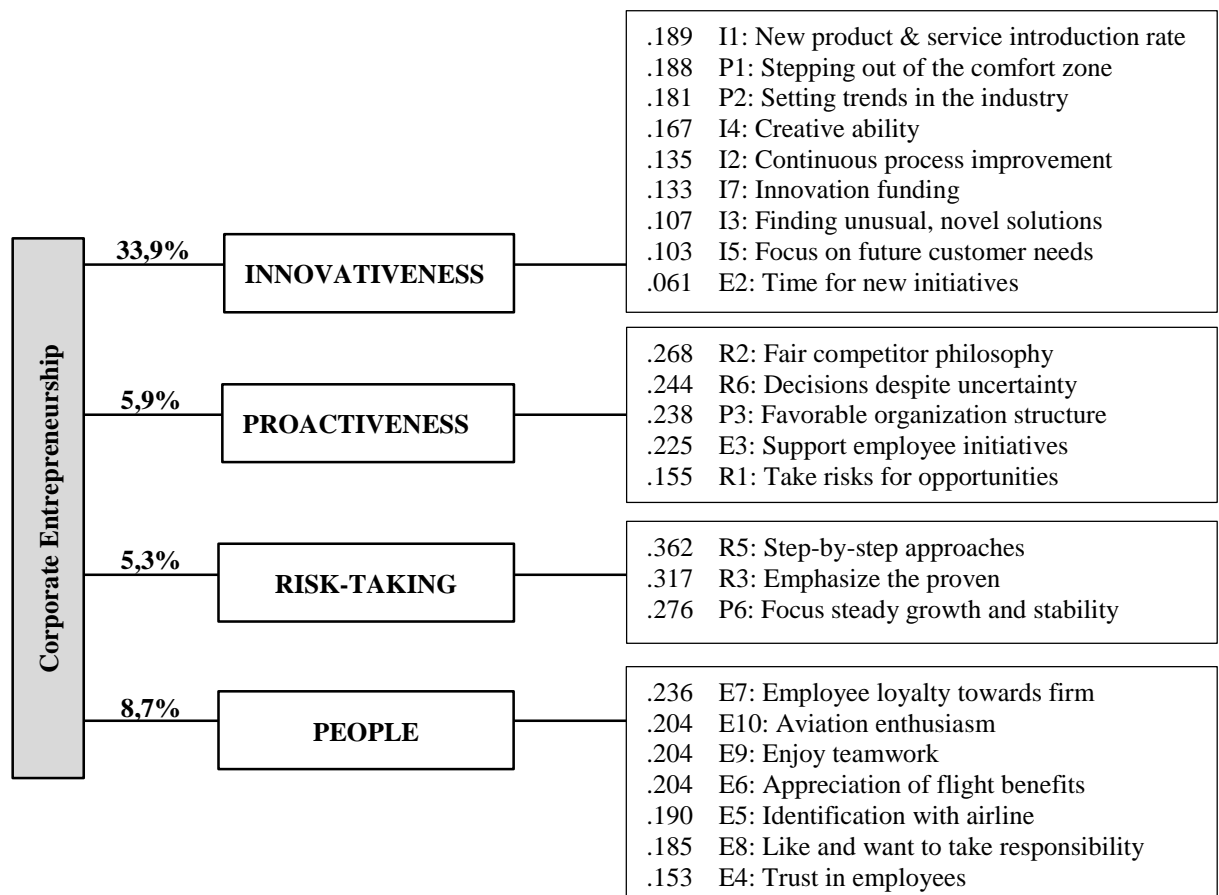
In order to assess the dimensionality of corporate entrepreneurship within airlines, a principal component factor analysis with Varimax rotation has been performed with 30 measurement items, theoretically relating to innovativeness, proactiveness, risk-taking and people gathered from the 241 sample elements. The Kaiser-Meyer-Olkin measure of sampling adequacy has been determined with a value of 0,895, which suggests that the sample is factorable. Bartlett's test of sphericity was significant with  $p < 0,05$ , indicating that there are correlations within the data and that factor analysis was appropriate (Backhaus, et al. 2008, pp. 323).

	Items	Dimension			
		1	2	3	4
P1	Stepping out of comfort zone	.827	.118	.165	-.125
P2	Setting trends in the industry	.816	.200	.121	-.044
I4	Creative ability	.785	.173	.175	.184
I1	New product & service introductions	.773	.200	-.003	-.152
I2	Continuous process improvement	.679	.234	.134	.129
I3	Unusual, novel solutions	.666	.215	.305	.135
I7	Innovation funding	.641	.264	.059	.098
I5	Focus on future customer needs	.634	.286	.209	.193
E2	Time availability for new initiatives	.530	.281	.296	.185
R1	Take risks for opportunities	.508	.138	.432	-.122
E1	Employee responsibility	.488	.231	.419	.321
I6	Airline partnerships	.474	.120	-.374	.311
P5	Rapid growth	.468	.138	.305	-.113
E9	Enjoy teamwork	.159	.820	.156	.216
E7	Employee loyalty towards firm	.219	.788	-.003	.089
E10	Aviation enthusiasts	.159	.719	.133	.164
E8	Like and want to take responsibility	.288	.706	.089	.159
E5	Identification with airline	.268	.655	.060	-.009
E4	Trust in employees	.223	.637	.424	.136
E6	Appreciation of flight benefits	.190	.636	-.141	.006
P3	Favorable organization structure	.378	.244	.574	.271
E3	Support employee initiatives	.222	.504	.524	.109
R6	Decisions despite uncertainty	.244	.162	.505	-.317
R2	Fair competitor philosophy	.112	-.117	.504	.102
P4	Seeking big opportunities	.483	.183	.493	.018
R5	Step-by-step approaches	.008	.079	-.055	.739
P6	Focus steady growth and stability	.156	.268	-.032	.610
R3	Emphasize the proven	-.190	-.188	.279	.609
R4	Financial stability	.288	.297	.121	.374
R7	Compromises	.023	.169	.014	.348

**Table 3-4: Factor loadings from rotated component matrix**

Source: created by author, own quantitative research

Cronbach's Alpha has been used as reliability coefficient in assessing the internal consistency of the model. The analysis revealed a value of 0,913 ( $> 0,7$ ) which indicates a very high level of internal consistency of the measurement scale for the particular sample. Components with Eigenvalues higher than 1 have been accepted and item loadings above 0,5 have been included. Seven main components have been extracted, however only four have been accepted for further consideration given Eigenvalues of the remaining three factors only slightly above 1. The cumulative value of the four dimensions explain 53,7% of the total variance. Innovativeness explains the majority of 33,9%, followed by people (8,7%), proactiveness (5,9%) and risk-taking (5,3%). Based on an analysis of item loadings, the original 30 measurement items have been reduced to 24 items. Thus, 6 items have been rejected. Analyzing individual contributions of each variable to the respective dimension, component score coefficients have been calculated. Negative values indicate a contribution below average, while positive values indicate a contribution above average, compared to all other dimensions. As a result of this analysis, one variable (R1) has been attributed to component 3. The figure below summarized the result of factor analysis, indicating four underlying dimensions of the research construct, operationalized by 24 variables.



**Figure 3-15: Factor Scores indicating the individual contributions of variables to main dimensions and variance of the main components explained**

Source: created by author, own quantitative research: Component Score Coefficients Matrix

### 3.6.2 Influencing factors of Airline Business Performance

In order to determine the impact of the independent variables on the dependent variable airline business performance, a step-wise approach has been chosen. Firstly, only three independent variables have been included in the model. These were innovativeness, risk-taking and proactiveness. Selection of these variables has been based on the theoretical dimensionality of corporate entrepreneurship as identified in the literature review (Lumpkin and Dess 1996), as well as on the empirical findings from the previously presented factor analysis. Secondly, the newly conceptualized component of people has been added to the construct, which has been found within the scope of this dissertation.

Factor scores have been calculated using the average of all items included in the respective dimensions, which have resulted from the previous factor analysis. Therefore, innovativeness consisted of 9 measurement items, proactiveness of 5, risk-taking of 3 and people of 7 items respectively. In order to test the Null-hypothesis of the model, which states that there is no significant relationship between the independent variables and the dependent variable, F-test has been performed. Its results indicate an f-value of 13,586 at a significance level of  $p=0,000$  ( $<0,05$ ) for the three-dimensional model and an f-value of 13,943 at a significance level of  $p=0,000$  ( $<0,05$ ) for the model also involving the people dimension. Thus, there are significant relationships within the models and the Null-hypotheses cannot be confirmed. The three-dimensional model possesses of a Durbin-Watson value of 2,052 and a value of 2,132 is associated with the four-dimensional construct. Both values are indicating low autocorrelation, justifying multiple regression analysis (Backhaus, et al. 2008, pp. 51). P-plot and histogram analysis point at normal distributions of data within the two models. The table below summarizes results from multiple regression analysis regarding the three-dimensional model, involving innovativeness, proactiveness and risk-taking as independent variables.

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-level	Collinearity Statistics	
	B	Std. Error	Beta			Rol.	VIF
(Constant)	1.302	.339		3.845	.000		
Innovativeness	.261	.077	.260	3.392	.001*	.611	1.637
Proactiveness	.193	.094	.159	2.059	.041*	.606	1.650
Risk-taking	.027	.074	.022	.364	.716	.986	1.014
$R^2 = 0.147$ ( $p < 0,05^*$ )							

**Table 3-5: Results from multiple regression analysis: Impact on business performance of the 3-dimensional model involving innovativeness, proactiveness and risk-taking**

Source: created by author, own quantitative research

Results show that the three-dimensional model explains 14,7% of the total variance in airline business performance. The independent variables innovativeness and proactiveness have a significant positive influence on airline business performance. However, no significant relationship was found between risk-taking and the dependent variable. Beta levels reveal innovativeness as the biggest predictor of airline business performance (0,260), proactiveness naturally ranging second with a Beta value of 0,159.

In order to enhance the level of determination and to examine the impact of the people dimension, the four-dimensional construct has been tested. The table below summarizes the results from multiple regression analysis, involving innovativeness, proactiveness, risk-taking and people as predictors of airline business performance.

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-level	Collinearity Statistics	
	B	Std. Error	Beta			Tol.	VIF
(Constant)	.816	.357		2.285	.023		
Innovativeness	.147	.081	.147	1.805	.072	.519	1.928
Proactiveness	.128	.093	.106	1.379	.169	.584	1.714
Risk-taking	-.022	.073	-.018	-.296	.767	.953	1.049
People	.323	.090	.265	3.599	.000*	.631	1.586
$R^2 = 0.191$ ( $p < 0,05^*$ )							

**Table 3-6: Results from multiple regression analysis: Impact on business performance of the 4-dimensional model, also involving the people component**

Source: created by author, own quantitative research

Through the inclusion of the people dimension, the explanatory power of variance in airline business performance has been increased by 4,4% to a total of 19,1%. The four-dimensional construct only finds significant relationships between the newly included people dimension and airline business performance. However, with collinearity tolerance values not under 0,25 and variance inflation factors (VIF) not over 5, no perfect multicollinearity among the independent variables can be attested to the model (Urban and Mayerl 2006, p. 232). Hence, the people dimension only adds content to the model which is already included in the construct through the remaining three dimensions.

Fostering corporate entrepreneurship has been proposed as further predictor of business performance. Whether or not these organizational factors have an influence on the dependent variable has been assessed by simple linear regression analysis. For contextual reasons, this variable has been separated from the previously presented models, as it does not directly relate to corporate entrepreneurship, but to the organizational factors that can support it. The

independent variable has been operationalized by five measuring items which have been summarized to a factor scores. Data indicated normal distribution. T-test showed an f-value of 50,043 at a significance level of 0,000. The variable explains 17,3% of the variance in business performance. A significant positive relationship has been found between organizational factors fostering corporate entrepreneurship and business performance ( $t=7,074$ ;  $p=0,000$ ). The results are summarized in the table below.

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-level
	B	Std. Error	Beta		
(Constant)	1.631	0.19		8.599	.000
Foster Entrepreneurship	0.362	0.051	0.416	7.074	.000*
$R^2 = 0.173$ ( $p < 0,05^*$ )					

**Table 3-7: Results from simple regression analysis: Impact of organizational factors fostering corporate entrepreneurship on business performance**

Source: created by author, own quantitative research

Summarizing, multiple linear regression analyses have revealed significant positive relationships between innovativeness, proactiveness and people on the one side, and airline business performance on the other side, explaining 19,1% of the dependent variable. Results from simple linear regression analysis show that organizational factors fostering corporate entrepreneurship also have a significant impact on airline business performance.

The following section presents research results on influencing factors of airline innovation performance.

### 3.6.3 Influencing factors of Airline Innovation Performance

Multiple regression analysis regarding the impact of the independent variables on airline innovation performance has been performed in a similar two-step approach as described in the previous section. The dependent variable has been calculated as an average of 9 measurement items related to the degree and frequency of innovation. Again, p-plot and histogram analysis point at normal distributions of data within the two models presented. F-test results indicate an f-value of 3,188 at a significance level of  $p=0,024$  ( $<0,05$ ) for the three-dimensional model and an f-value of 4,028 at a significance level of  $p=0,004$  ( $<0,05$ ) for the model also involving the people dimension. Therefore, significant relationships within the models can be attested and the Null-hypotheses can be rejected. The three-dimensional model possesses of a Durbin-Watson value of 2,010 and a value of 2,022 is associated with the four-dimensional construct. Again, both values are indicating low autocorrelation, justifying multiple regression analysis

(Backhaus, et al. 2008, pp. 51). The table below summarizes the results regarding the three-dimensional construct, involving innovativeness, proactiveness and risk-taking.

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-level	Collinearity Statistics	
	B	Std. error	Beta			Tol.	VIF
(Constant)	8.321	3.757		2.215	.028		
Innovativeness	2.116	.854	.202	2.478	.014*	.611	1.637
Proactiveness	-1.707	1.039	-.134	-1.643	.102	.606	1.650
Risk-taking	-1.498	.820	-.117	-1.826	.069	.986	1.014
$R^2 = 0.039$ ( $p < 0,05^*$ )							

**Table 3-8: Results from multiple regression analysis: Impact on innovation performance of the 3-dimensional model involving innovativeness, proactiveness and risk-taking**

Source: created by author, own quantitative research

The model explains 3,9% of the total variance in airline innovation performance. Proactiveness and risk-taking are not significantly related to the dependent variable. Innovativeness has a significant positive influence on innovation performance (Beta=0,202; p=0,14). The enhanced four-dimensional model also involving the people component explains 6,4% of the total variance in airline innovation performance, 2,5% more than the three-dimensional construct. Significant relationships have been found between proactiveness, risk-taking and people on the one side (all possessing of p-values below 0,05), and the dependent variable on the other side. Beta values point at a negative influence of risk-taking and proactiveness, while a positive influence on innovation performance can be attributed to the dimension of people with the strongest impact on innovation performance. In turn, this means that measurement items related to the factors of risk-taking and proactiveness do not positively influence airline innovation performance, but may have a negative impact on it. No significant relationship has been found between the factor of innovativeness and innovation performance in the four-dimensional construct. This means that contents from the innovativeness dimension may be explained by the newly included people dimension. The table below summarizes the findings from multiple regression analysis involving the four-dimensional construct.

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-level	Collinearity Statistics	
	B	Std. error	Beta			Tol.	VIF
(Constant)	4.497	4.014		1.12	0.264		
Innovativeness	1.22	0.917	0.116	1.331	0.184	.519	1.928
Proactiveness	-2.214	1.047	-0.174	-2.114	0.036*	.584	1.714
Risk-taking	-1.881	0.825	-0.147	-2.279	0.024*	.953	1.049
People	2.539	1.009	0.2	2.517	0.013*	.631	1.586
$R^2 = 0.064$ ( $p < 0,05^*$ )							

**Table 3-9: Results from multiple regression analysis: Impact on innovation performance of the 4-dimensional model, also involving the people component**

Source: created by author, own quantitative research

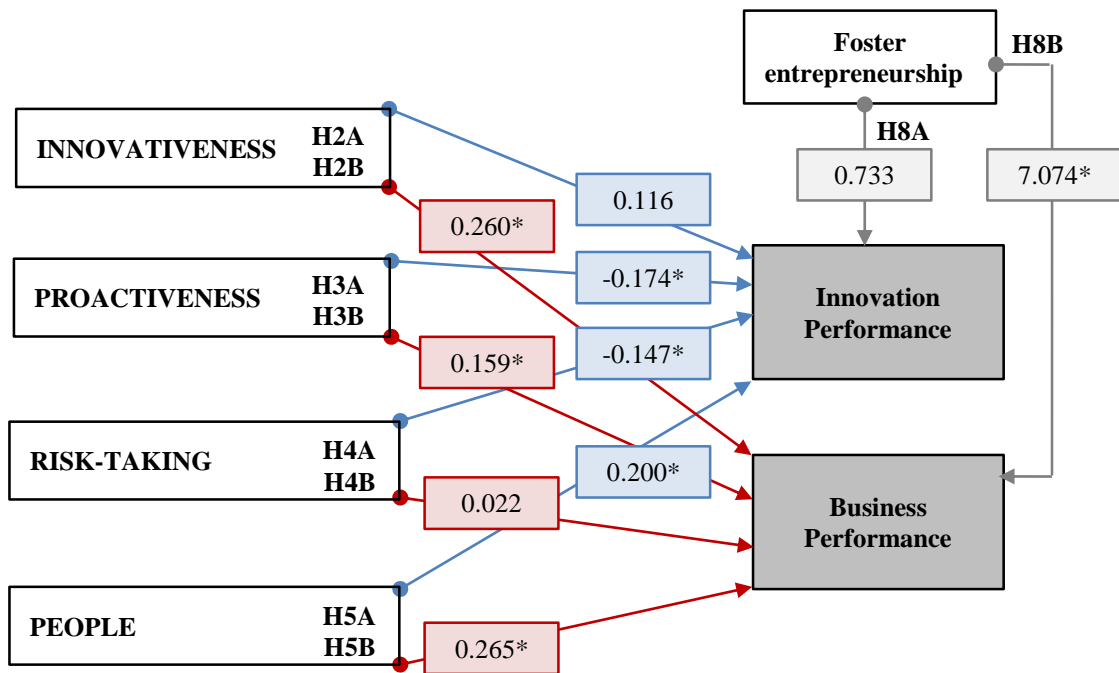
In regards to the impact of organizational factors fostering corporate entrepreneurship on airline innovation performance, t-test showed an f-value of 0,537 at a significance level of 0,464 indicating that the model is not significant.

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-level
	B	Std. Error	Beta		
(Constant)	3.453	2.179		1.585	.114
Foster Entrepreneurship	.431	.589	.047	.733	.464
$R^2 = 0.047$ ( $p < 0,05^*$ )					

**Table 3-10: Results from simple regression analysis: Impact of organizational factors fostering corporate entrepreneurship on innovation performance**

Source: created by author, own quantitative research

Summarizing, innovativeness, proactiveness, risk-taking and people have a significant positive influence on airline innovation performance. There is no relationship between organizational factors related to fostering corporate entrepreneurship and the dependent variable. The figure below illustrates key research findings about the impacting variables on airline innovation and business performance. It includes Beta coefficients for the independent variables (innovativeness, proactiveness, risk-taking, people) and t-values for the independent variable Foster entrepreneurship,  $p\text{-level} < 0,05^*$ .



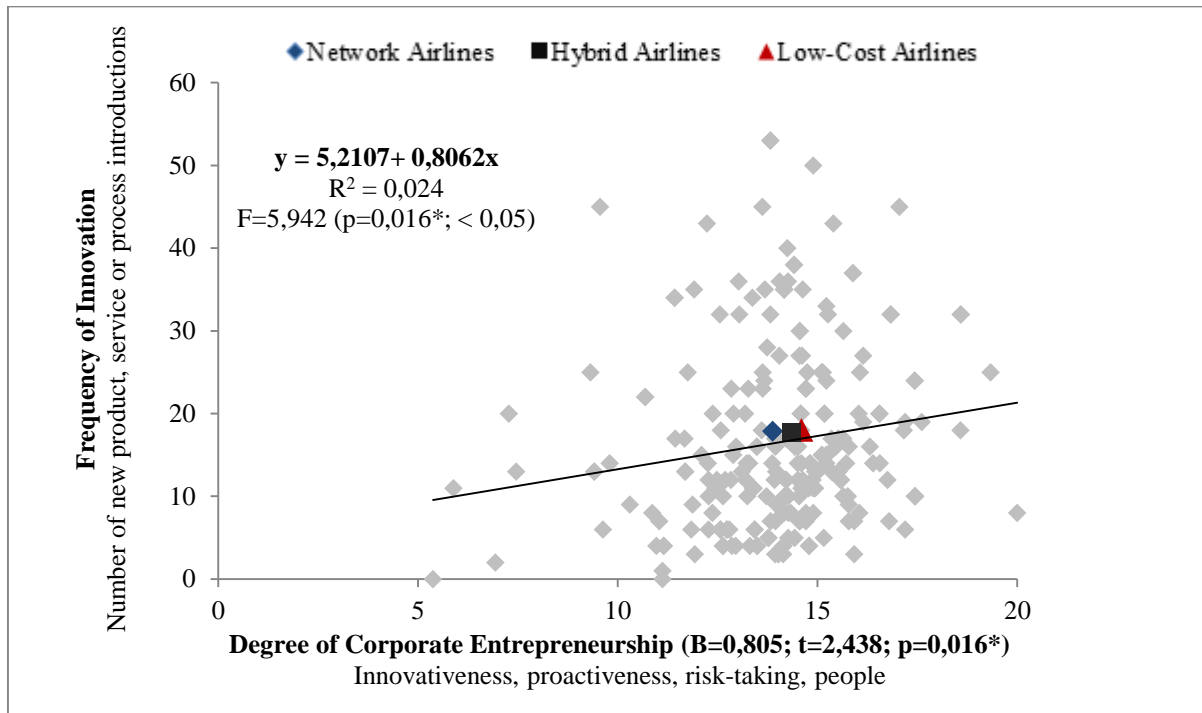
**Figure 3-16: Summary of results from multiple and simple linear regression analysis**  
 Beta values for independent variables innovativeness, proactiveness, risk-taking and people;  
 t-values for independent variable Foster entrepreneurship; sig.  $p < 0.05^*$   
 Source: created by author, own quantitative research

Summarizing, there are significant positive relationships between business performance and innovativeness, proactiveness and people. No significant relationship has been found between risk-taking and business performance. Furthermore, there is a significant positive relationship between people and innovation performance as well as between innovativeness and innovation performance in the first model, which did not involve the component of people. Significant negative relationships can be attested between innovation performance and proactiveness as well as risk-taking.

The following section presents results on the investigation of corporate entrepreneurial intensity.

### 3.6.4 Corporate Entrepreneurial Intensity

Corporate entrepreneurial intensity consists of degree and frequency of corporate entrepreneurship. Entrepreneurial degree has been calculated using an additive approach, combining innovativeness, proactiveness, risk-taking and people. The corporate entrepreneurial grid combines the two dimensions and illustrates the average corporate entrepreneurial intensity of network-, hybrid-, and low-cost airlines. The regression function shows that one additional number of innovation requires 0,81-times higher degree of corporate entrepreneurship.

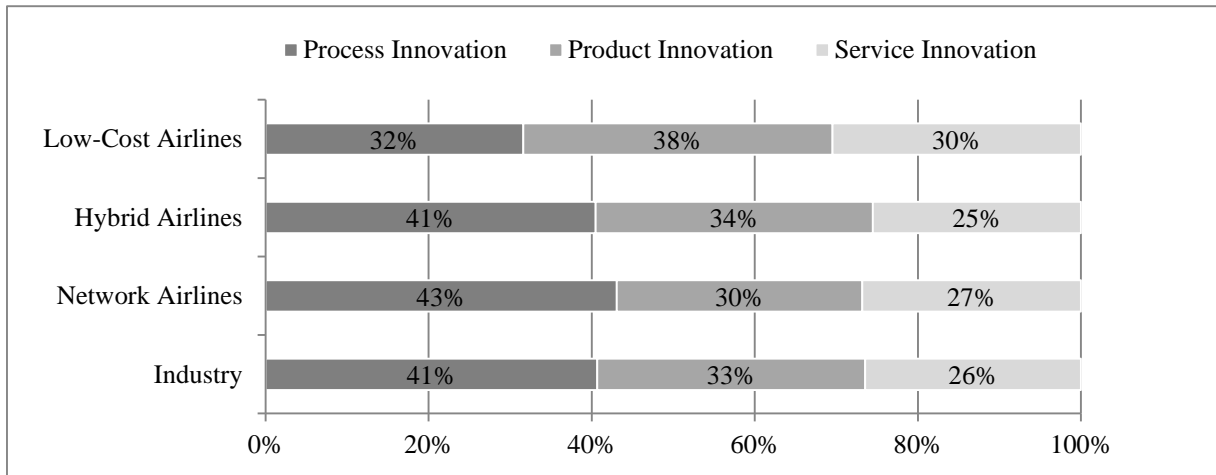


**Figure 3-17: Combination of corporate entrepreneurial degree and frequency in terms of new product, service or process innovations within airlines**

Source: created by author, own quantitative research

The above graph shows the average values of degree and frequency of corporate entrepreneurship combined as corporate entrepreneurial intensity. Degree refers to the four dimensions as identified by factor analysis. Frequency refers to the number of product, service or process innovations within the past two years. It can be seen that airlines of different business models are ranging on approximately the same level of innovation frequency, however there are differences in mean values regarding the degree of corporate entrepreneurship. Moreover, low-cost carriers tend to be the most entrepreneurial airlines regarding innovativeness, proactiveness, risk-taking and people, while network carriers are ranging on the lower end of the scale. Analyzing different types of innovation, the figure below presents the distribution of new product, service and process introductions within airlines during the past two years. It

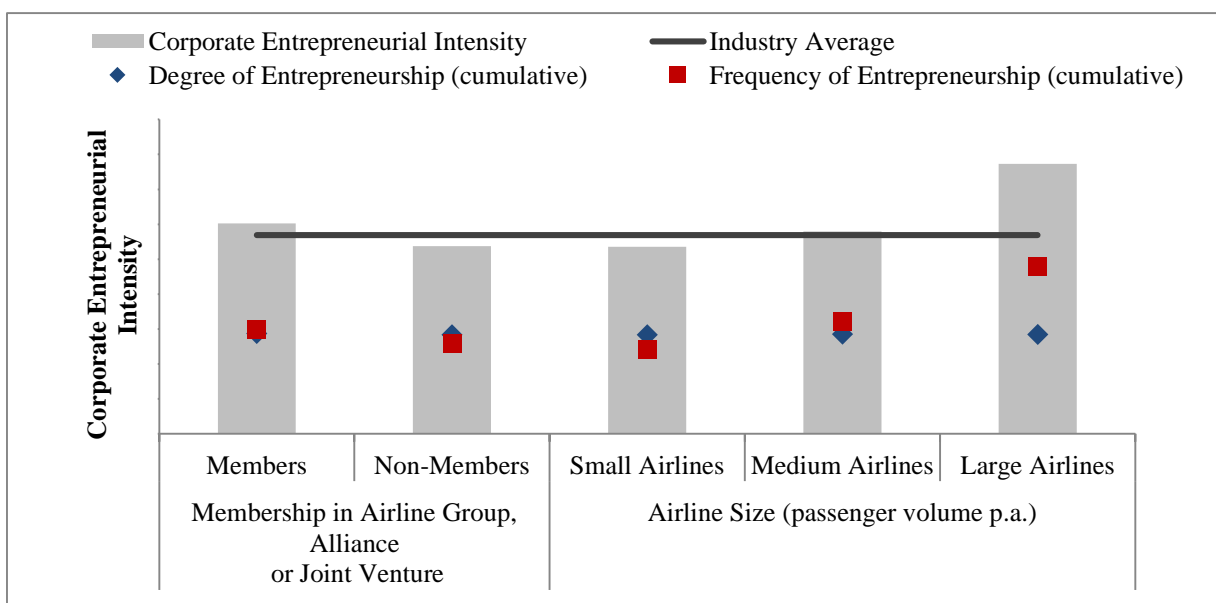
reveals that the predominant type of innovation is related to new processes and methods (41%), followed by product innovations (33%) and service innovations (28%).



**Figure 3-18: Different types of innovation within airlines**

Source: created by author, own quantitative research

Further results from descriptive analysis are pointing at different levels of corporate entrepreneurial intensities among airlines with different characteristics. Furthermore, airline size and membership in any alliance, group or joint venture has been investigated, as presented in the table below. Large airlines tend to be more entrepreneurial than small and medium-sized carriers. Member airlines of any alliance, group or joint venture also tend to possess of higher entrepreneurial orientation values than non-members.



**Figure 3-19: Corporate entrepreneurial intensity among airlines with different characteristics regarding size and partnerships**

Source: created by author, own quantitative research

### 3.6.5 The Return on Corporate Entrepreneurial Intensity

Results from simple linear regression analysis between the independent variable corporate entrepreneurial intensity (combining degree and frequency of corporate entrepreneurship) with business performance identified a positive relationship between the variables (F-value of 7,608 at  $p=0,006$ ;  $< 0.05$ ). A significant positive relationship has been found between the two variables, explaining 3,1% of the total variance ( $b=0,11$ ;  $t=2,758$ ;  $p=0,006^*$ ).

Model	Unstandardized Coefficients		Standardized Coefficients	t-value	p-level
	B	Std. Error	Beta		
(Constant)	2.577	.139		18.593	.000
Corporate Entrepreneurial Intensity	.011	.004	.176	2.758	.006*
$R^2 = 0.031$ ( $p < 0,05^*$ )					

**Table 3-11: Results from simple linear regression analysis: Impact of corporate entrepreneurial intensity on business performance**

Source: created by author, own quantitative research

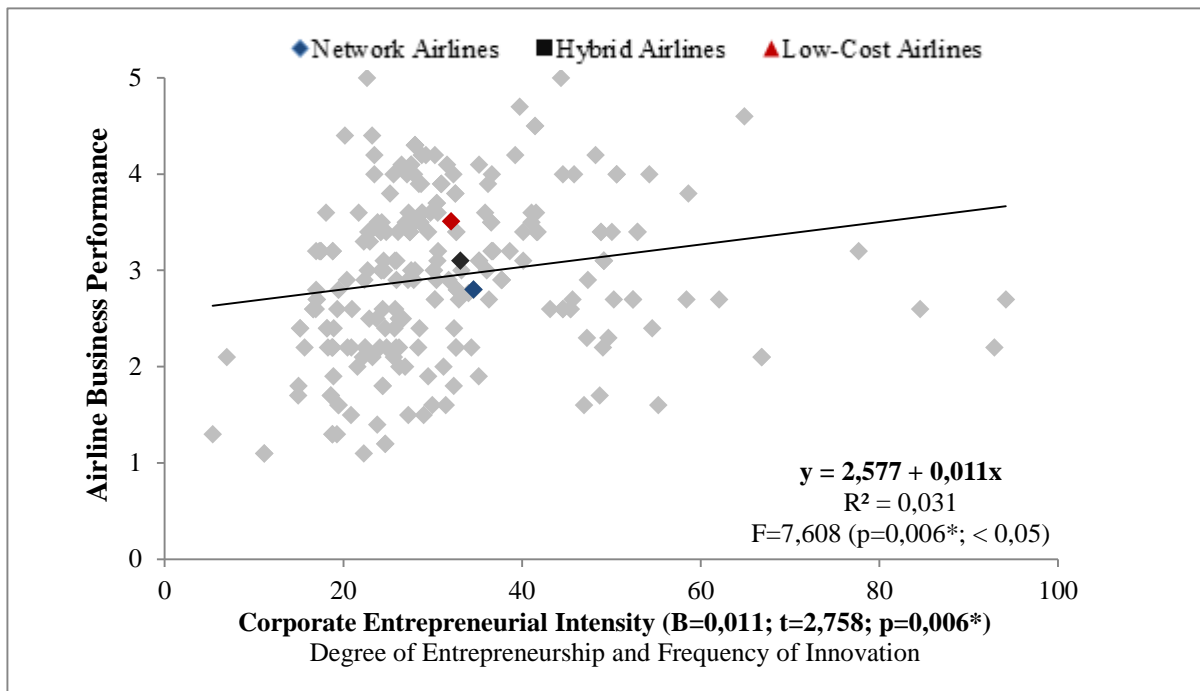
The general function for simple linear regression is defined as (Backhaus, et al. 2008, p. 64):

$$Y = b_0 + bx$$

Therefore, the increment of one unit airline business performance can be achieved through the investment of 0,011-times corporate entrepreneurial intensity. The following regression function describes the impact of corporate entrepreneurial intensity on business performance.

$$\text{BUSINESS PERFORMANCE} = 2,577 + 0,011 * \text{CORPORATE ENTREPRENEURIAL INTENSITY}$$

Following these findings on the significant positive impact of corporate entrepreneurial intensity on business performance, the relationship has been examined related to the three different airline business models, marking a more differentiated investigation of the phenomenon, as presented in the figure below. Analysis has shown that on average full-service network carriers possess of the lowest business performance value, however are slightly the highest ranking airline group regarding corporate entrepreneurial intensity. On the other side, the average of low-cost airlines has the highest performance level, however slightly the lowest corporate entrepreneurial intensity. Hybrid airlines are situated in the middle of the two with medium values on both items.



**Figure 3-20: The Return on Corporate Entrepreneurial Intensity**  
 Airline business performance combined with corporate entrepreneurial intensity  
 Source: created by author, own quantitative research

In order to get a better understanding of these differences in the entrepreneurial orientation of network-, hybrid-, and low-cost airlines, discriminant analysis has been performed. Results from univariate ANOVA shows that people ( $p=0,004$ ) and proactiveness ( $p=0,042$ ) are best predictors of differences between the airlines of different business models ( $p < 0,05$ ). The summary of canonical discriminant functions reveals an Eigenvalue of 0,124 and a significance level of 0,007 ( $p < 0,05$ ) for the first discriminant function. This function includes highest coefficients for proactiveness (0,754) and people (0,484). Thus, these two variables explain most of the differences related to corporate entrepreneurial intensity among airlines of the different business models.

### 3.7 Interpretation of Results from Primary Research

Airlines are increasingly exposed to intense competition and rapidly changing industry dynamics. Growth rates of supply are substantially above the growth rate of natural demand for air travel. Simultaneously, the industry is exposed to environmental influences regarding economic, social and political developments. These issues will constitute major threats for airline profitability in the future.

In order to sustain on the market, airlines have to focus on aspects of their business which they can actively influence rather than on external influences which are simply out of their direct

span of control. Hence, an emphasis on internal capabilities to constantly rejuvenate the organization and to drive innovation appears as centrally important for sustainable competitiveness (Covin and Slevin 1991; Knox 2002; Lumpkin and Dess 1996). Corporate entrepreneurship is a viable tool for driving innovation and change within airlines. It ultimately positively impacts business performance. As suggested by Guth and Ginsberg (1990, pp. 5), corporate entrepreneurship is expressed by extensive innovation performance and strategic renewal.

Furthermore, it involves the environment, strategic leaders, organization conduct and organization performance. These assumptions go in-line with empirical research findings of this dissertation, as fostering corporate entrepreneurship has a significant positive influence on business performance within airlines. In order to do so, airlines should be aware that they need good people within their organizations, who are capable of driving the business and change. Management must act as a role model for fellow employees within the organization, living an entrepreneurial spirit. Internal communication should be very open, with explanatory power of objectives, goals and decisions to the entire organization. Individuals should be encouraged to spell out new ideas which may help to achieve common goals. Finally, good people should have a perspective within the organization for personal and professional development. All of these aspects will contribute to innovativeness, proactiveness and risk-taking, which will lead to innovation performance and ultimately to elevated business success. The organizational challenge, however lies in the ability to allow corporate entrepreneurs to break rules and think out of their usual box in order to emphasize the transformation of opportunities into real business ventures.

The following paragraphs explain findings from primary research regarding the composition of corporate entrepreneurship within airlines and various influencing factors on innovation and performance.

### **3.7.1 Dimensionality of Corporate Entrepreneurship within Airlines**

In order to understand the construct of corporate entrepreneurship better, it is essential to clearly define its elements and characteristics. The dimensionality of corporate entrepreneurship has been discussed in many different ways in the literature. For example, Lumpkin and Dess (1996) propose a five-dimensional model involving innovativeness, proactiveness, risk-taking, autonomy and competitive aggressiveness. Other authors argue differently and enhance the model to more or less influencing factors (Luo et al. 2005; Zahra 1991; Antoncic and Antoncic 2011). Results from primary research point at four dimensions of corporate entrepreneurship

within airlines, explaining 53,7% of the construct. The highest determinant appears to be innovativeness, followed by people, proactiveness and risk-taking. The people dimension has been newly discovered within this dissertation. Findings from airline expert interviews and principal component factor analysis both support the crucial importance of people within the corporate entrepreneurial process in order to drive innovation and business performance.

Firstly, the innovation dimension within airlines is made up of nine different aspects. According to Kuratko et al. (2011, p. 378), innovativeness refers to processes and structures which support innovation, as well as to the availability of time to operationalize opportunities. These aspects are reflected in the empirical research findings, as time for new initiatives and the creative ability are – among others, found to be substantial contributors of innovativeness. A high rate of new product and service introductions describes the most important influencing factor of innovativeness, followed by the ability of airlines to step out of their comfort zone in order to set trends in the industry. In this context it has been found that focussing on future customer needs, technology and process efficiency is crucial for airlines. Findings from airline expert interviews indicate that there is an imminent need for the creation of new revenue streams, which is supported by the presented management possibilities for corporate entrepreneurial output in previous chapters.

Secondly, the proactiveness dimension mainly refers to how companies recognize opportunities and their ability to pursue initiatives in advance of their major competitors. Taking decisions despite uncertainty about the outcome appears to be an important element of proactiveness within airlines, which also involves aspects of risk-taking. Dewett (2004, p. 258) argues that entrepreneurial companies take decisions proactively with a calculated amount of risk, accepting certain uncertainty about whether the outcome of an initiative will be a success or failure. This is underlined by empirical findings, which indicate that taking risks in order to pursue opportunities is determining proactiveness within airlines. Being the first on the market with new solutions for the customer is important for airlines. Thus, the ability to capitalize innovation through corporate entrepreneurial activity should drive change, which is of particular relevance for airlines within the category of low-cost carriers. Organizational structures have to support proactiveness with flat hierarchies and fast decision making processes, as it has been revealed by airline expert interviews. This argument is reflected in the work of Aloulou and Fayolle (2005), which states that there are external and internal aspects that foster corporate entrepreneurial output. One such internal element is organizational structure with a favorable hierarchical design and only little bureaucracy. Given the exposure of airlines to an abundance of external factors, proactiveness also involves the ability to quickly adopt to changing market

conditions and customer needs. This is emphasized by Hornsby et al. (2003, p. 29), stating that corporate entrepreneurship may be initiated by an external stimulus, such as economic or technological changes, but also certain situation of crisis. Thus, airlines are challenged to proactively address these challenges.

The third dimension of corporate entrepreneurship involves risk-taking. It refers to the ability of leadership to accept new solutions and not to over-emphasize what has been proven successful in the past. In the context of airlines, risk-taking has to be seen from an internal and external perspective. While airlines are taking no risk at all related to aspects of flight operations, commercial and economic risk-taking is an essential element of their competitive strategy. External, or market risks, however must be controllable and calculated. Very often they involve a focus on steady growth and stability. For many airlines it is a particular challenge to balance risk of entrepreneurial activity with investor expectations on higher returns and performance. Hence, taking risks very often means to temporarily accept lower performance levels. Internal risks are more related to organizational aspects, which are of particular relevance for corporate entrepreneurship. These internal aspects can be attributed to the invisible elements of corporate entrepreneurial culture (Kuratko, Morris and Covin 2011, p. 221). They are important for every employee within an organization and involve the freedom to grow and to fail without having to fear any serious consequences at the workplace, such as job-loss or damaged reputation. Empirically, it has been found that trial and error, learning from failure and the freedom to spell out new ideas are integral elements of an airline's risk-taking dimension in corporate entrepreneurship. It refers to employees within airlines and to the way how leadership supports entrepreneurial behavior. This aspect already leads to the final component of corporate entrepreneurship within airlines: people.

The empirical discovery of the people dimension in the context of airlines underlines the argumentation of Sydow and Windeler (1998, p. 257), saying that corporate entrepreneurship is a dynamic interplay between employees and management. According to Wunderer (1994), there are three different types of employees within a company: corporate entrepreneurs, who fully act as entrepreneurs; entrepreneurial oriented employees, who situatively act as entrepreneurs; and simple job owners who do not act entrepreneurially at all, but simply do their job. Findings point at the central importance for airlines to have good people within their workforce. Hence, they need at least entrepreneurially oriented people who are highly motivated to perform their jobs. Heinonen and Toivonen (2008, p. 594) suggest that innovation and performance heavily depend on individuals acting within an organization. Nearly all expert interview partners have stated that people are of central importance for corporate

entrepreneurship. People have very particular industry know-how and sometimes vast airline experience which are valuable assets for airlines and their corporate entrepreneurial initiatives for innovation and performance. Airline employees want to be encouraged to generate and try new ideas. They like and want to take on responsibilities and enjoy teamwork. They are intrinsically motivated by enthusiasts about aviation and appreciate fringe benefits, such as free flights or other discounts on travel. Generally, they strongly identify themselves with their airline and want leadership to act as a role model. These findings go in-line with previous experience in the field as described in the case study on Southwest Airlines within the section explaining management possibilities of corporate entrepreneurship (Bunz and Maes 1998, p. 164). Also, Antoncic and Antoncic (2011, 9. 599) suggest fundamental aspects of employee satisfaction to play an integral role in the corporate development process. These include general satisfaction with the workplace, employee relationships, employee loyalty as well as benefits and compensation. All of these aspects have empirically been found to apply within airlines.

Summarizing, it has been found that innovativeness, proactiveness, risk-taking and people determine corporate entrepreneurship within airlines.

After the construct of corporate entrepreneurship as potential determinant for innovation and performance within airlines has now been defined, the relationship between these variables shall be interpreted in the following section.

### **3.7.2 Influencing Factors on Airline Innovation and Business Performance**

Many studies have investigated the impact of corporate entrepreneurship on firm performance and have revealed either partial or general significant positive influences of factors related to the respective construct on quantifiable performance metrics (Antoncic and Hisrich 2004; Wang and Zhang 2009; Zahra 2008; Ndubisi and Iftikhar 2012). For the purpose of this dissertation, the corporate entrepreneurial impact on airline innovation and business performance has been analyzed. These two dependent variables have been separated from each other.

Innovation performance refers to how often airlines introduce new products, services or processes on the one side, and to the extent of novelty regarding these new introductions on the other side. Entrepreneurial companies find innovation as a core process (Herbert and Brazeal 1999, pp. 12), which is fostered through corporate entrepreneurship. In turn, successful innovation may lead to elevated customer value regarding products and services, or to higher efficiency in regards to processes and business conduct. However, innovation does not simply

appear but can be the result of corporate entrepreneurial activity, which has been partially found true regarding airlines. Moreover, there is a significant relationship between airline innovation performance and proactiveness, risk-taking and people. No significant relationship has been found between innovativeness and innovation performance in a model which includes all four identified dimensions. However, when relating only three dimensions of corporate entrepreneurship to innovation performance (without the component of people), a significant relationship can be attested. This might be explained by the fact that very often people are the inherent driver of innovativeness in a sense that they want and like to take responsibility for new initiatives. Even though no significant relationship can be attested to the component of innovativeness in one of the regression models, findings from airline expert interviews point at the facts that innovativeness is important in order to foresee new trends and future customer demands.

In fact, a significant positive influence on innovation performance can only be attributed to the dimension of people. This means that employees who are satisfied with the general conditions of their workplace, who identify themselves with the airline they work for, who like and want to take on responsibility, and who enjoy working together in effective teams have a significant influence on airline innovation performance. Further significant relationships, however not in a positive direction have been found regarding proactiveness and risk taking. Simply explained, this means that airline innovation performance is not benefiting from step-by-step approaches to problems, an emphasis on proven and given circumstances and from a focus on steady growth and stability. Thus, innovation performance would require more radical approaches than step-by-step adjustments, less dependency on what has proven successful in the past and less focus on steady growth and stability. A fair competitor philosophy harms innovation performance and hesitant decision-making because of uncertainty about the outcome are not supportive as well.

The second dependent variable under investigation has been airline business performance, which was operationalized by quantifiable performance metrics, such as growth in turnover, profit, passenger number, fleet size, overall customer satisfaction, and others over the past two years. Airline business performance is positively influenced by innovativeness, proactiveness and people. This means that airlines which operationalize their entrepreneurial efforts in an innovative, proactive way, and which understand to successfully involve their employees in the corporate entrepreneurial process tend to generate higher performance levels than non-entrepreneurial airlines. No significant relationship has been found between risk-taking and performance. This underlines findings regarding influencing factors of innovation performance,

where risk-taking had a negative impact on the dependent variable. In other words, airline business performance is not influenced by step-by-step approaches to a problem, an emphasis on the proven and a focus on steady growth and stability. Neither in a positive, nor in a negative way. One reason explaining this might be the fact that for airlines within different business models, risk-taking may have a different relevance and therefore no generalizable, overall significant relationship of this variable has been found. Positive influences can be attributed to aspects related to innovativeness. This means that the rate of new product, service and process introduction benefits business performance. Also, creativity and time for new initiatives together with sufficient funds available for the creation of something new contribute to higher airline business performance. Airlines have to step out of their comfort zone and continuously reinvent themselves in order to drive business performance. A focus on future customer needs appears as of vital importance in this regard. These findings support the argumentation of Ireland et al. (2001), stating that the underlying intent of corporate entrepreneurship is to create wealth for an organization. Results show that this is true for the particular case of airlines.

The following section elaborates on findings regarding the return on corporate entrepreneurial intensity.

### **3.7.3 Corporate Entrepreneurial Intensity**

It has been found that corporate entrepreneurship has a significant influence on airline innovation and business performance. These relationships shall be discussed from various points of view within the following paragraphs.

Corporate entrepreneurial intensity is a two-dimensional construct involving the degree and frequency of entrepreneurship. An entrepreneurial grid results as a combination of these two scales, which has been presented in previous chapters. Airlines can be characterized with a rather high degree of corporate entrepreneurship, and medium frequency of innovation. Generally, corporate entrepreneurship positively impacts innovation performance, therefore it can be said that airlines which are more entrepreneurial possess of higher innovation performance levels than less entrepreneurial companies. Also, more entrepreneurial airlines tend to higher corporate entrepreneurial output in terms of their business performance. Thus, both innovation and business performance are generally positively influenced by an innovative, proactive, risk-taking conduct of business which understands to engage people in the entrepreneurial process of generating value. However, some differences between network-, hybrid- and low-cost airlines need to be clarified.

Firstly, even if there are only minor deviations regarding the frequency of innovation among the three airline business models, network carriers most frequently innovate followed by hybrid airlines and low-cost carriers. However, the majority of innovations within network carriers comes from new process introductions. There are less product and service developments than within hybrid or low-cost carriers, which possess of the highest rate of new product and service introductions. Thus, innovation activity within network carriers is largely concentrated on new processes while network- and low-cost airlines rather focus on the introduction of new products and services. In turn, network airlines are more busy with improving their internal way of how they conduct business, only indirectly benefiting the customer, while hybrid- and low-cost airlines tend to focus more on the development of new products and services, directly contributing to new customer value.

Secondly, when comparing business performance of the three airline types, it becomes clear that network airlines are the ones with the lowest performance levels, while low-cost carriers range on the upper level of the scale. Combining these performance levels with corporate entrepreneurial intensity, as a result of degree and frequency of entrepreneurship, it can be seen that based on the previously discussed issues related to frequency of entrepreneurship within network airlines, these carriers are possessing of the highest corporate entrepreneurial intensity. Seen from a different perspective, this means that although corporate entrepreneurship is most intense within network carriers, they are possessing of lowest performance levels. On the other side, low-cost airlines are the least entrepreneurial ones, however they can be attributed with the comparable highest performance levels. These findings may lead to the conclusion that corporate entrepreneurship has no positive impact on business performance, which however is not true as a general positive relationship can be found between the two variables. The relatively high corporate entrepreneurial intensity within network airlines stems from their overproportional introduction of new processes compared to the other two airline types. Therefore, focussing on product and service innovations through an innovative, proactive, risk-taking conduct of business which understands to engage people in the entrepreneurial process of generating value tends to lead to higher business performance levels than a focus on new process introductions. Indeed, airlines can be in different evolutionary stages, which generally seems to be the case for the three airline types under review. There are more or less dynamic periods a company goes through, which require different forms of entrepreneurial output and differentiated focuses on issues (Slevin and Covin 1990, pp. 45). Hence, it may be the case that network airlines first require new processes in order to then introduce new products and services.

Summarizing, being innovative, proactive, risk-taking and understanding to engage people in the entrepreneurial process leads to a higher frequency of innovation, which together generate higher levels of business performance within airlines.

In an attempt to quantify the return on corporate entrepreneurial intensity, the revealed regression functions have been analyzed. This analysis shows that in order to introduce one incremental unit of innovation in terms of new product, service or process, airlines have to invest in innovativeness, proactiveness, risk-taking and people in a manner which allows them to achieve a 0,81-times higher degree of corporate entrepreneurship. For example, a fully-dedicated product development executive of an airline works for 40 hours per week purely on product development. Doing so, the airline achieves an innovation frequency of one new product introduction per month. In order to get products developed faster, the airline aims at a monthly rate of two new product introductions. In order to achieve this, the airline has to invest 0,81 employees more with the same corporate entrepreneurial orientation as the first employee. Expressed differently, if an airline wants to double its innovation frequency, it has to invest additional 80% of the hitherto deployed resources. This example illustrates the effect of corporate entrepreneurship on innovation performance regarding employees, however there can also be other ways to achieve higher corporate entrepreneurial output. These might include organizational aspects which would allow an airline to be more innovative, proactive, risk-taking and make more efficient use of people needed for innovation., for example technology.

When interpreting the regression function regarding business performance, it can be seen that higher airline business performance by one unit requires the input of 1,1% more corporate entrepreneurial intensity. Hence, while an increase in innovation frequency required 80% more corporate entrepreneurial degree, business performance requires much less of an incremental input. However, the construct of corporate entrepreneurial intensity is much more complex than entrepreneurial degree and involves not only the degree of innovativeness, proactiveness, risk-taking and entrepreneurial people, but also the frequency of innovation. Corporate entrepreneurial intensity combines all aspects of corporate entrepreneurship under discussion and constitutes the major quantifiable term for the corporate entrepreneurial orientation of a company. A number of significant positive influences have been found between corporate entrepreneurial intensity and firm performance already in the past (Wiklund and Shepherd 2005, pp. 71; Morris and Sexton 1996, pp. 5; Wang and Zhang 2009, pp. 8), which has now been proven also for airlines. Summarizing, it can be said that the return on corporate entrepreneurship within airlines can be quantified as follows:

- The increment of innovation frequency by one unit requires the input of 0,8 (80%) times corporate entrepreneurial degree. If airlines want to double their innovation frequency from one to two new product-, service-, or process introductions within a set time period, they will need to add 80% more corporate entrepreneurial degree. This can either be achieved by adding 80% more corporate entrepreneurs or by increasing innovativeness, proactiveness or risk-taking by 80%.
- The increment of airline business performance by one unit requires the input of 0,011 (1,1%) corporate entrepreneurial intensity. If airlines want to raise their performance level by one unit (e.g. 1% higher growth rate), corporate entrepreneurship can positively influence this incremental 1% by 3,1%. Expressed differently, corporate entrepreneurship determines airline business performance to an extent of 3,1%. These 3,1% can be achieved by investing in 1,1% higher corporate entrepreneurial intensity.

The following section summarizes key research findings and presents the test of research hypotheses.

### **3.8 Summary of Key Findings**

Based on the research findings, it can be stated that corporate entrepreneurship within airlines combines aspects of innovativeness, proactiveness, risk-taking and people. As proposed by Antoncic and Hisrich (2004), Ireland et al. (2001), and McGrath (1996), a corporate entrepreneurial philosophy fosters innovation and performance within companies and contributes to the generation of wealth within organizations. This has been confirmed in the context of airlines within this dissertation. Moreover, innovativeness, proactiveness and people are significant contributors of airline business performance. Most innovation activities within airline are related to the introduction of new processes, followed by new products and services. Frequency and degree of innovation, combined in innovation performance, is influenced by corporate entrepreneurial aspects around proactiveness, risk-taking and people, partly as well by organizational innovativeness. Corporate entrepreneurial output, in form of business performance is higher within airlines possessing of high corporate entrepreneurial intensities. Hence, corporate entrepreneurial intensity combines degree of corporate entrepreneurship and frequency of innovation. When relating corporate entrepreneurial intensity to business performance, a significant positive relationship can be seen – the return on corporate entrepreneurial intensity. The following table summarizes the outcome related to each individual research hypothesis.

<b>H1</b>	<b>The dimensionality of corporate entrepreneurship within airlines is determined by innovativeness, proactiveness, risk-taking and people.</b>	<b>Confirmed</b> (53,7%)
H1A	Corporate entrepreneurship is partly determined by innovativeness within airlines.	Confirmed (33,9%)
H1B	Corporate entrepreneurship is partly determined by proactiveness within airlines.	Confirmed (5,9%)
H1C	Corporate entrepreneurship is partly determined by risk-taking within airlines.	Confirmed (5,3%)
H1D	Corporate entrepreneurship is partly determined by people within airlines.	Confirmed (8,7%)
<b>H2</b>	<b>It is expected that there is a significant relationship between corporate entrepreneurship and innovation performance within airlines.</b>	<b>Partly confirmed</b>
H2A	There is a significant relationship between innovativeness and innovation performance within airlines.	Partly confirmed
H3A	There is a significant relationship between proactiveness and innovation performance within airlines.	Confirmed
H4A	There is a significant relationship between risk-taking and innovation performance within airlines.	Confirmed
H5A	There is a significant relationship between people and innovation performance within airlines.	Confirmed
<b>H3</b>	<b>It is expected that there is a significant relationship between corporate entrepreneurship and business performance within airlines.</b>	<b>Partly confirmed</b>
H2B	There is a significant relationship between innovativeness and business performance within airlines.	Confirmed
H3B	There is a significant relationship between proactiveness and business performance within airlines.	Confirmed
H4B	There is a significant relationship between risk-taking and business performance within airlines.	Not confirmed
H5B	: There is a significant relationship between people and business performance within airlines.	Confirmed
<b>H6</b>	<b>Entrepreneurial airlines are more successful than less entrepreneurial airlines.</b>	<b>Confirmed</b>
<b>H7</b>	<b>It is expected that the higher the corporate entrepreneurial intensity, the higher the business performance, expressed as Return on Corporate Entrepreneurial Intensity (ROCEI).</b>	<b>Confirmed</b>
H8A	It is expected that fostering entrepreneurial behavior within airlines has a positive impact on innovation performance.	Not confirmed
H8B	It is expected that fostering entrepreneurial behavior within airlines has a positive impact on business performance.	Confirmed
H9	Airlines which are part of any alliance, joint venture or group of airlines tend to be more entrepreneurial than others.	Confirmed
H10	Large airlines tend to be less entrepreneurial than small- and medium-sized airlines.	Not confirmed
H11	Network carriers tend to be less entrepreneurial than hybrid and low-cost airlines.	Not confirmed

**Table 3-12: Test of Research Hypothesis**  
Source: created by author, results from own research

## 4. CONCLUSIONS AND SUGGESTIONS

This chapter highlights main conclusions from the research conducted and presents suggestions derived.

- Based on the primary research findings, it can be concluded that corporate entrepreneurship promotes innovation and business performance within airlines.

### General Conclusions

- Corporate entrepreneurship can be approached from four different perspectives, each focusing on a particular aspect of the concept, including the orientation towards persons, the organization, strategy and culture. Combining these four elements, the purpose of corporate entrepreneurship is to create value for a firm, involving an organization-wide reliance on entrepreneurial behavior, driving innovation, change and strategic renewal. Thus, innovation is at the core of the corporate entrepreneurial concept, aiming at leveraging business performance.
- Management and corporate entrepreneurship are two complementing disciplines within an organization. While management is more concerned with the optimal allocation of resources and with the coordination of activities, corporate entrepreneurship focuses on the recognition of new opportunities for their transformation into innovation, ultimately enhancing business performance.
- The capability to innovate requires creativity. Corporate entrepreneurship builds on innovation and therefore requires problem-solving creativity, which explains the transformational process of ideas and opportunities into new products, services and processes. In this context, creativity mainly involves the ability to approach topics from a different angle and to challenge existing assumptions.
- Results from corporate entrepreneurial activities can generally be grouped in six categories, each referring to innovation in their particular fields: the development of new markets, improved products, services and processes, value creation for the organization, organizational renewal, organizational learning as well as business performance and growth.

- In order to capitalize on corporate entrepreneurial output in terms of innovation and performance, it is essential to strategically integrate the concept throughout the organization. The strategic integration is based on an entrepreneurial strategic vision, a favorable organizational structure which avoids bureaucracy and fosters fast decision-making, opportunity recognition, the desire to be innovative, a commitment to the investment in individual's ideas as well as a certain tolerance towards failure.
- People are essential elements of the corporate entrepreneurial process. Typically, corporate entrepreneurs possess of certain traits and characteristics. They act as initiators for innovation through the recognition of opportunities, challenge bureaucracy and acquire resources in order to implement, exploit and commercialize these opportunities. Thus, corporate entrepreneurs encourage innovation and business performance.
- When relating the concept of corporate entrepreneurship to the process of innovation, four essential steps need to be noted. Firstly, an external or internal trigger causes the need for change. Secondly, corporate entrepreneurial activity is initiated by people within the organization, who recognize an opportunity. Thirdly, organizational antecedents help the corporate entrepreneurs to transform the recognized opportunity into a business venture through management support, the availability of time and favorable structures. Finally, the entrepreneurial output is generated in the sense of innovation and performance.
- The underlying dimensionality of corporate entrepreneurship involves many different factors, however the most predominant ones are innovativeness, proactiveness and risk-taking. These aspects conceptualize the degree of corporate entrepreneurship, which – together with its frequency in terms of the number of product-, service-, or process innovations result in corporate entrepreneurial intensity. In turn, corporate entrepreneurial intensity combines degree and frequency of innovation.

### **Specific Conclusions regarding Corporate Entrepreneurship within Airlines**

- Corporate entrepreneurship can leverage innovation performance and profitability of airlines through a business conduct that focuses on innovativeness, proactiveness and risk-taking as well as on the successful integration of employees in corporate entrepreneurial processes. Hence, airline business performance is significantly

influenced by innovativeness, proactiveness and people. This means that corporate entrepreneurial intensity is a reliable predictor of business success.

- Risk-taking is important for innovation performance, however it has to be controllable and calculated, otherwise it might have a negative impact on business performance. Therefore, airlines have to balance the level of risk they are willing to take between fostering innovation on the one side, and not compromising business performance on the other side. Corporate entrepreneurship, however has to take certain risk in order to pursue opportunities and turn ideas into innovation.
- Leadership plays an essential role in promoting entrepreneurial behavior within airlines. It has been found that the role model of leadership contributes to entrepreneurial behavior. Thus, corporate entrepreneurial leaders encourage corporate entrepreneurs to drive innovation and performance.
- Industry partnerships, such as the membership in an alliance, airline group or joint venture have a positive impact on corporate entrepreneurial intensity. Thus, innovation power within airlines can be leveraged through the collaboration with like-minded partners.
- Low-cost and hybrid airlines have managed to improve their performance levels over the past two years at a higher rate than full-service network airlines. They have largely focused their innovation efforts on new products and services, while network airlines have been more concerned with the improvement of their internal processes and working methods. Thus, corporate entrepreneurship is both a vehicle for steering internal and external innovation within airlines.

### **General Suggestions**

- Based on the fact that corporate entrepreneurship positively influences innovation within organizations, it is suggested to apply the construct as a viable instrument to steer constant rejuvenation and change through an organization-wide focus on the recognition of opportunities.

- In order to foster corporate entrepreneurial behavior, it is suggested to allow individual creativity within organizations and to create favorable un-bureaucratic structures as well as non-hierarchical internal policies and procedures.
- Given the research findings, it is suggested to focus on the empowerment of employees within organizations as well as to support a liberal culture of tolerance towards failure in order to unfold corporate entrepreneurial potential within organizations. In this respect, attractive compensation schemes which reward successful corporate entrepreneurial output shall be considered.
- In regards to corporate entrepreneurial leadership, it is suggested to accept the major task of leaders as being role models who demonstrate corporate entrepreneurial behavior around underlying values of innovativeness, proactiveness and risk-taking.

### **Suggestions to Executive Airline Management**

- Given the positive impact of corporate entrepreneurship on innovation and business performance, it is suggested to consider the concept as a strategic instrument to capitalize on innovation through three major aspects: generating higher levels of revenue per passenger, reducing costs per passenger through operational improvements, and maintaining or even improving customer service. In this sense, airlines should set an emphasis on future customer needs and find effective ways of how these can be addressed.
- Based on five future key competitive issues for airlines, corporate entrepreneurial efforts are suggested to be directed towards the ability for distribution via multiple channels, the ability to truly understand the customer, the ability to apply sophisticated communication techniques in order to retain existing and acquire new customers, the ability to implement new ideas, and the ability to act instead of to re-act to changing market developments. Thus, it is suggested to operationalize corporate entrepreneurship within airlines through innovativeness, proactiveness, risk-taking and people.
- Due to the central importance of employees in the corporate entrepreneurial process, it is suggested to systematically develop motivational factors to the aim of fostering entrepreneurial behavior within organizations. These factors may be designed around

both monetary- and non-monetary aspects, and definitely should include person-oriented elements such as responsibility, perspectives and freedom to unfold.

- In order to ensure sustainable competitiveness of airlines, it is suggested to design organizations in a way that they are able to quickly react to changing market dynamics. In other words, bureaucracy and extensive decision making processes harm corporate entrepreneurship and its output in terms of innovation frequency. As the primary research has revealed, speed-to-market is a crucial element of proactiveness within the corporate entrepreneurial construct. Therefore, favorable organizational structures need to be created, which enable a fast transformation process of opportunities to innovation.

### **Suggestions to Network Airlines**

- Based on the fact that the majority of innovations within network carriers are related to new process introductions, and on the comparable higher rate of new product- and service introductions within hybrid- and low-cost airlines, it is suggested to harness corporate entrepreneurship to drive innovation activity in the field of product and service development. This should aim at a more customer-centric product and service design, ultimately leveraging business performance.
- Given the relatively large size of most network airlines, the organizational environment is naturally not favorable for corporate entrepreneurial activity due to extensive hierarchies and long decision making processes. Therefore, it is suggested to institutionalize an organization-wide entrepreneurial orientation which involves employees on all hierarchical levels. Practically, this could have many different forms of operationalization, including regular management-employee communication platforms or a centralized database for ideas and opportunities where all employees can contribute to.
- Corporate entrepreneurship can be a viable tool to tackle labor-related disputes which might be ongoing within large network airlines. Very often these disputes are formed around different standpoints regarding salaries and compensation. In order to stress corporate entrepreneurial output in the form of innovation, all employees need to be encouraged to contribute their ideas for improvement. Therefore, it is suggested to develop a performance-based compensation and reward scheme, involving the entrepreneurial orientation of individual employees as performance indicator. In this

way, employees who actively engage in the creation of wealth for the organization should be adequately rewarded for their efforts.

### **Suggestions to Hybrid Airlines**

- As the underlying business model of hybrid carriers combines elements of differentiation and cost-leadership, it is suggested to focus corporate entrepreneurial initiatives on both the internal and external sophistication of the business model aiming at maintaining efficiency. This can point at enhancing internal cost structures and external differentiation through product-, service-, and process innovations.
- It is suggested to maintain favorable organizational structures, flat hierarchies and fast decision-making processes with lower levels of bureaucracy by the aim to foster corporate entrepreneurship for innovation and business performance.

### **Suggestions to Low-Cost Airlines**

- Based on the fact that low-cost airlines are largely operating on a profitable basis with already optimized cost structures, it is suggested to direct corporate entrepreneurial initiatives towards increasing customer satisfaction and value propositions. In other words, as the low-cost business model will only be able to further enhance profitability in the future through additional cost cutting to a limited extent, an emphasis needs to be set on revenue propositions. Therefore, an innovative, pro-active and risk-taking business conduct should aim at creating new customer value propositions for the generation of additional revenue streams.
- Additionally, it is suggested to maintain the organization-wide awareness towards cost efficiency and continue to focus on a pro-active business conduct through corporate entrepreneurship and innovation in the field of product- and service improvements in order to continue setting trends on the market.

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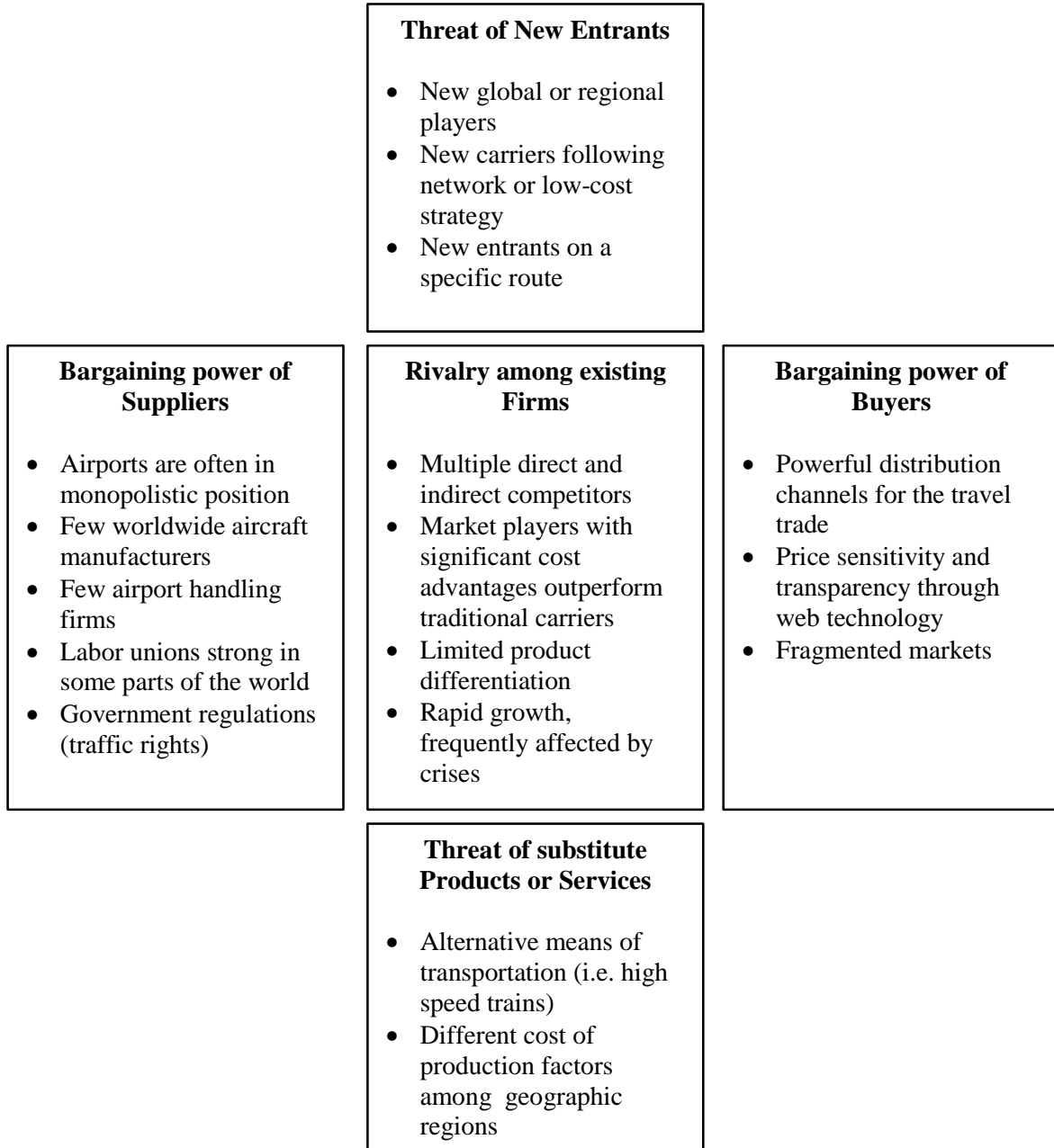
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# APPENDIX

## Appendix 1: Porter's Five Forces of the Competitive Environment applied to Airlines



### Analysis of the Competitive Environment of Airlines

Source: created by author from: IATA (2011): Vision 2050, Report on the future of the airline industry, International Air Transport Association: Singapore, pp. 22-31

## Appendix 2: List of Questions for Expert Interviews

Date	Respondent	Region	Airline Type

Dear Mr./Mrs....,

thank you very much for taking time to answer a few questions on corporate entrepreneurship and innovation. This study aims at investigating the impact of corporate entrepreneurship on performance and innovation within airlines. Therefore, a survey will be carried out among airline executives from all around the world. The following questions shall contribute to this survey by providing inputs from industry experts, as you are.

All answers are treated strictly confidential and will be used anonymously for statistical purposes only.

No.	Topic	Validity Remarks
1	Entrepreneurial behaviour is mainly influenced by innovativeness, proactiveness and risk-taking.	
1A	What does innovativeness mean for you in an airline?	
1B	What does pro-activeness mean for you in an airline?	
1C	What does risk-taking mean for you in an airline?	
1D	Do you think that there are further characteristics of entrepreneurial behavior within airlines?	
2	A further element are the employees. Not only their salary is important for motivation, but there are also other aspects. What do you think influences employee satisfaction within airlines?	
3	How do you think can entrepreneurial behavior be fostered?	
4	One last question – Do you think that entrepreneurial airlines are more successful than those with less entrepreneurial spirit? Why?	
5	Thank you very much – do you have something to add?	

### Appendix 3: List of Experts

	<b>Date</b>	<b>Airline Type</b>	<b>Position of Respondent</b>	<b>Region</b>	<b>Language</b>
1	03.08.2014	Hybrid/Small	Senior Commercial Manager	Europe	German
2	04.08.2014	Hybrid/Small	Network Manager	Europe	German
3	04.08.2014	Hybrid/Large	Director, Head of Network	Europe	German
4	06.08.2014	Hybrid/Large	Director, Head of Distribution	Europe	English
5	04.08.2014	LCC/Large	Network Manager	Europe	German
6	05.08.2014	LCC/Large	Commercial Director	Europe	English
7	06.08.2014	LCC/Large	Head of Planning	Europe	English
8	06.08.2014	LCC/Large	Customer Services Manager	Europe	English
9	04.08.2014	Legacy/Large	Executive Board Member	Europe	German
10	04.08.2014	Legacy/Large	Senior Director Industry Affairs	Europe	German
11	05.08.2014	Legacy/Large	Vice President Commercial	Europe	German
12	06.08.2014	Legacy/Large	Senior Manager Marketing	Europe	English

#### Appendix 4: Content Analysis of Expert Interviews

		What does innovativeness mean for you in an airline?		
		Network Carrier	Hybrid Carrier	Low Cost Carrier
1A	<b>INNOVATIVENESS</b>	<ul style="list-style-type: none"> <li>• Foresee new trends</li> <li>• New products, services for the customer</li> <li>• New processes &amp; technology</li> <li>• Ability of creativity</li> <li>• Awareness of change</li> <li>• Flexibility</li> <li>• More efficiency in processes</li> <li>• New collaborations (e.g. joint ventures)</li> <li>• New solutions for the customers for revenue</li> <li>• E-commerce</li> </ul>	<ul style="list-style-type: none"> <li>• New products, services for the customer</li> <li>• New processes &amp; technology</li> <li>• Ability of creativity</li> <li>• New solutions for the customers for revenue</li> <li>• Understand the customer</li> <li>• Be different than competitors</li> <li>• Need right people</li> <li>• Need funds</li> </ul>	<ul style="list-style-type: none"> <li>• New products, services for the customer</li> <li>• New processes &amp; technology</li> <li>• New solutions for the customers for revenue</li> <li>• Be first mover in certain fields (ahead of market)</li> </ul>

#### Qualitative Research Results regarding Innovativeness

Source: created by author, qualitative expert interviews

		<b>What does pro-activeness mean for you in an airline?</b>		
		<b>Network Carrier</b>	<b>Hybrid Carrier</b>	<b>Low Cost Carrier</b>
1B	<b>PROACTIVENESS</b>	<ul style="list-style-type: none"> <li>• Be the first one on the market</li> <li>• Speed to market</li> <li>• Challenge structures and processes</li> <li>• Step out of the comfort zone</li> <li>• Set ambitious goals</li> <li>• Adopt to changing customer needs quickly</li> </ul>	<ul style="list-style-type: none"> <li>• Be the first on the market</li> <li>• Speed to market</li> <li>• Be active and not re-active</li> <li>• Think about tomorrow's customer needs</li> <li>• Create first-mover advantages</li> <li>• Flat hierarchies</li> <li>• Supportive organization structure</li> <li>• Fast decision making process</li> </ul>	<ul style="list-style-type: none"> <li>• Be the first one on the market</li> <li>• Speed to market</li> <li>• Be active and not re-active</li> <li>• Think about tomorrow's customer needs</li> <li>• Create first-mover advantages</li> <li>• Drive change</li> </ul>

**Qualitative Research Results regarding Proactiveness**

Source: created by author, qualitative expert interviews

		<b>What does risk-taking mean for you in an airline?</b>		
		<b>Network Carrier</b>	<b>Hybrid Carrier</b>	<b>Low Cost Carrier</b>
1C	<b>RISK-TAKING</b>	<ul style="list-style-type: none"> <li>• No risk in operations (safety first attitude)</li> <li>• Must be controllable</li> <li>• Take calculated risk</li> <li>• Risk has to be taken</li> <li>• Balance between risk and investor expectation</li> </ul>	<ul style="list-style-type: none"> <li>• No risk in operations (safety first attitude)</li> <li>• Must be controllable</li> <li>• Take calculated risk</li> <li>• Risk has to be taken</li> <li>• Spell out new ideas without fear (internally)</li> <li>• Trial &amp; error: learn from failure</li> <li>• Risk brings opportunity</li> </ul>	<ul style="list-style-type: none"> <li>• No risk in operations (safety first attitude)</li> <li>• Take calculated risk</li> <li>• Risk has to be taken</li> <li>• Trial &amp; error: learn from failure</li> <li>• Risk brings opportunity</li> <li>• Always have a “plan B”</li> </ul>

**Qualitative Research Results regarding Risk-Taking**

Source: created by author, qualitative expert interviews

		<b>Do you think that there are further characteristics of entrepreneurial behavior within airlines?</b>		
		<b>Network Carrier</b>	<b>Hybrid Carrier</b>	<b>Low Cost Carrier</b>
1D	<b>OTHER CHARACTERISTICS</b>	<ul style="list-style-type: none"> <li>• People</li> <li>• Employees</li> <li>• Know-how</li> <li>• Sustainability in business decisions</li> <li>• Cost position</li> <li>• Financial stability</li> <li>• Regulatory environment</li> </ul>	<ul style="list-style-type: none"> <li>• People</li> <li>• Employees</li> <li>• Leadership function as role model</li> <li>• Processes</li> <li>• Sufficient resources</li> </ul>	<ul style="list-style-type: none"> <li>• People</li> <li>• Employees</li> <li>• Financial stability</li> <li>• Give responsibility</li> <li>• Technical capability</li> </ul>

**Qualitative Research Results regarding further entrepreneurial characteristics**

Source: created by author, qualitative expert interviews

		<p><b>A further element are the employees. Not only their salary is important for motivation, but there are also other aspects. What do you think influences employee satisfaction within airlines?</b></p>		
		<p><b>Network Carrier</b></p>	<p><b>Hybrid Carrier</b></p>	<p><b>Low Cost Carrier</b></p>
2	<p><b>EMPLOYEE SATISFACTION</b></p>	<ul style="list-style-type: none"> <li>• Attractive (“sexy”) business</li> <li>• Work conditions (part-time, unpaid leave, flexible working hours, home office, ...)</li> <li>• Travel benefits</li> <li>• Perspectives</li> <li>• Duty plans</li> <li>• Team-spirit</li> <li>• Good mood internally</li> <li>• Appreciation of work and accomplishment</li> <li>• Identification with the company and brand</li> <li>• Leadership behavior</li> <li>• Sense of belonging</li> <li>• Having responsibility</li> <li>• Having relevance to make an impact</li> </ul>	<ul style="list-style-type: none"> <li>• Attractive (“sexy”) business</li> <li>• Work conditions (part-time, unpaid leave, flexible working hours, home office, ...)</li> <li>• Team-spirit</li> <li>• Good mood internally</li> <li>• Identification with the company and brand</li> <li>• Sense of belonging</li> <li>• Having relevance to make an impact</li> <li>• Clear communication from top management on objectives &amp; targets</li> <li>• Freedom to define own work processes for employees</li> </ul>	<ul style="list-style-type: none"> <li>• Attractive (“sexy”) business</li> <li>• Travel benefits</li> <li>• Perspectives</li> <li>• Team-spirit</li> <li>• Good mood internally</li> <li>• Appreciation of work and accomplishment</li> <li>• Sense of belonging</li> <li>• Having relevance to make an impact</li> <li>• Being able to learn something</li> </ul>

**Qualitative Research Results regarding Employee Satisfaction**

Source: created by author, qualitative expert interviews

		<b>How do you think can entrepreneurial behavior be fostered?</b>		
		<b>Network Carrier</b>	<b>Hybrid Carrier</b>	<b>Low Cost Carrier</b>
3	<b>FOSTER ENTREPRENEURIAL BEHAVIOR</b>	<ul style="list-style-type: none"> <li>• Give responsibility</li> <li>• Allow initiatives</li> <li>• Allow decisions within certain boundaries</li> <li>• Management support</li> <li>• Open communication from top management</li> <li>• Understanding of goals and decisions taken</li> <li>• Encourage individuals</li> <li>• Incentives for achievement</li> </ul>	<ul style="list-style-type: none"> <li>• Give responsibility</li> <li>• Allow initiatives</li> <li>• Management support</li> <li>• Open communication from top management</li> <li>• Understanding of goals and decisions taken</li> <li>• Encourage individuals</li> <li>• Common goals</li> <li>• Influence of individuals</li> <li>• Role model of management</li> <li>• Benchmarking (in- and outside the industry)</li> <li>• Participative leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Give responsibility</li> <li>• Allow initiatives</li> <li>• Allow decisions within certain boundaries</li> <li>• Encourage individuals</li> <li>• Trust in the employees</li> </ul>

**Qualitative Research Results regarding fostering Entrepreneurial Behavior**

Source: created by author, qualitative expert interviews

		<b>One last question – Do you think that entrepreneurial airlines are more successful than those with less entrepreneurial spirit? Why?</b>		
		<b>Network Carrier</b>	<b>Hybrid Carrier</b>	<b>Low Cost Carrier</b>
4	<b>SUCCESS</b>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Depends on the environment</li> <li>• Depends on the management</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Faster competitive advantage than others</li> </ul>	<ul style="list-style-type: none"> <li>• Yes</li> <li>• Dependent on environment</li> </ul>

**Qualitative Research Results regarding Success of entrepreneurial Airlines**

Source: created by author, qualitative expert interviews

## Appendix 5: Example of Invitation for Participation in the Quantitative Survey

### Request for participation in the Airline Innovation and Performance Study

Von: michael.trestl@gmx.net via surveymonkey.com

Dear airline colleague,

you are invited to participate in the airline innovation and performance study, investigating the impact of corporate entrepreneurship on innovation and performance.

This survey is conducted within the scope of doctoral studies in International Management and Leadership at the University of Latvia, Riga and the University of Applied Sciences Kufstein Tirol International Business School. To complete the survey, it will take between 8 and 12 minutes.

All answers are treated strictly confidential and anonymously. The information provided is used for statistical and non-commercial purposes only.

Here is a link to the survey:

[https://surveymonkey.com/s.aspx?sm=SVtmIb\\_2bY3BtpAZZGyqAvSw\\_3d\\_3d](https://surveymonkey.com/s.aspx?sm=SVtmIb_2bY3BtpAZZGyqAvSw_3d_3d)

Thank you in advance for your participation!

If you are interested in the study results, or have additional questions, please reply to this email. Feel free to forward this survey to other colleagues within your organization.

Please note: If you do not wish to receive further emails from us, please click the link below, and you will be automatically removed from our mailing list.

[https://surveymonkey.com/optout.aspx?sm=SVtmIb\\_2bY3BtpAZZGyqAvSw\\_3d\\_3d](https://surveymonkey.com/optout.aspx?sm=SVtmIb_2bY3BtpAZZGyqAvSw_3d_3d)

## Appendix 6: Example of Quantitative Online Questionnaire

Page 1:

**AIRLINE INNOVATION AND PERFORMANCE STUDY**

For the following statements, please tick the number that best corresponds to your level of agreement with each statement.

**1. Your Airline is characterized by:**

	strongly disagree	disagree	neutral	agree	strongly agree
A high rate of new product and service introductions, compared to our competitors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
An emphasis on continuous process improvement	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk-taking by key executives in seizing and exploring chancy growth opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A "live and let live" philosophy in dealing with competitors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeking of unusual, novel solutions by senior executives to problems via the use of "idea people", brainstorming, etc	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A top management philosophy that emphasizes proven products and services, and the avoidance of heavy new product development cost	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stepping out of the comfort zone in order to be the first on the market with new solutions for the customer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The ability to be creative in finding new solutions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Setting trends in the industry through driving change where other competitors have to follow	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Putting the customer's future needs in the center of efforts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flat hierarchies and organization structures that allow fast decision making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Giving a certain responsibility to all employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Seeking new opportunities in co-operation with other airlines (e.g. forming a group, joint venture or alliance)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Investing a certain amount of the budget into new product, service and process development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Financial stability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People have time to work on new initiatives beside their daily routine work-load	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Faced a serious internal crisis situation during the past two years	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**AIRLINE INNOVATION AND PERFORMANCE STUDY**

**2. In your Airline, top-level management is characterized by:**

	strongly disagree	disagree	neutral	agree	strongly agree
Cautious, pragmatic, step-at-a-time adjustments to problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Active search for big opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rapid growth as the dominant goal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Large, bold decisions despite uncertainties of the outcomes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compromises among the conflicting demands of owners, management, customers, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Steady growth and stability as primary concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Awareness to have good people within the organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acting as a role model for fellow employees within the organization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Open communication to the organization about objectives, goals and decisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Encourage individuals to spell out new ideas that may help to achieve common goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Give good people a perspective for personal and professional career development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide employees (in middle- and lower management) with the opportunity to work on tasks and projects in own responsibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trust in employees	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**AIRLINE INNOVATION AND PERFORMANCE STUDY**

**3. In our airline, people are characterized by:**

A strong identification with the airline identity and its brand	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Appreciative of flight- and other fringe benefits (if applicable)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Loyalty towards the organization and co-workers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Like to take on responsibilities and to take decisions within boundaries	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Like to work together with other colleagues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enthusiasm about travelling, flying and aviation in general	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**AIRLINE INNOVATION AND PERFORMANCE STUDY**

**NEW PRODUCT INTRODUCTION**

Examples of products can be new routes, new fare products (e.g. bundles), new inflight product (e.g. seats), etc.

**4. What is the number of new products your airline introduced during the past two years?**

Number of new products:

**5. Please select the number that best corresponds to your level of agreement with each statement:**

How many product improvements or revisions did you introduce during the past two years, compared to the number of new product introductions?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How does the number of new product introductions at your organization compare with those of your major competitors?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**6. Regarding new product introductions:**

To what degree did these new product introductions include products that did not previously exist in your markets?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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**AIRLINE INNOVATION AND PERFORMANCE STUDY**

**NEW SERVICE INTRODUCTION**

Examples of services can be new customer service apps, new concept of onboard service, new check-in services, etc.

**7. What is the number of new services your airline introduced during the past two years?**

Number of new services:

**8. Please select the number that best corresponds to your level of agreement with each statement:**

How many existing services did you significantly revise or improve during the past two years, compared to the number of new service introductions?

How does the number of new service introductions your airline made compare with those of the competitors?

significantly less	<input type="radio"/>	less	<input type="radio"/>	same	<input type="radio"/>	more	<input type="radio"/>	significantly more	<input type="radio"/>
significantly less	<input type="radio"/>	less	<input type="radio"/>	same	<input type="radio"/>	more	<input type="radio"/>	significantly more	<input type="radio"/>

**9. Regarding new service introductions:**

To what degree did these new service introductions include services that did not previously exist in your markets?

not at all	<input type="radio"/>	small degree	<input type="radio"/>	moderate degree	<input type="radio"/>	high degree	<input type="radio"/>	to a great extent	<input type="radio"/>
not at all	<input type="radio"/>	small degree	<input type="radio"/>	moderate degree	<input type="radio"/>	high degree	<input type="radio"/>	to a great extent	<input type="radio"/>

**AIRLINE INNOVATION AND PERFORMANCE STUDY**

**NEW PROCESS INTRODUCTION**

Examples of new processes can include new systems for customer service, a major new sales or distribution approach, a new organization structure for more process efficiency, etc. new check-in services, etc.

**10. Please estimate the number of significant new methods or operational processes your organization implemented during the past two years.**

Number of new processes:

**AIRLINE INNOVATION AND PERFORMANCE STUDY**

11. Over the past two years, your airline has experienced:  
 (please select the number that best corresponds to your level of agreement with each statement)

	not at all	small degree	moderate degree	high degree	to a great extent
Growth in Earnings before Interest and Taxes (EBIT)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Growth in turnover	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Growth in overall market share	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved competitive position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Growth in fleet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved customer satisfaction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decline in Cost per Available Seat Mile or Kilometer (CASM/CASK)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase in Revenue per Available Seat Mile or Kilometer (RASM/RASK)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased Passenger Load Factor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased Profit Margin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**AIRLINE INNOVATION AND PERFORMANCE STUDY**

**12. The Head Office of your airline is located in:**

- Europe
- Asia
- Middle East
- North America
- South America
- Australia/New Zealand
- Africa

**13. The main market place of your airline (home market) is characterized as:**

- Monopoly (only one airline, restricted entry into the market)
- Oligopoly (only a few airlines, high entry barriers to the market)
- Competition (many different airlines, low entry barriers to the market)

**14. Please characterize the competitive intensity in your home market:**

	very low	low	moderate	high	very high
Competitive Intensity in the home market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**15. Please select the business model of your airline (indicate the most suitable)**

- Legacy/Network Carrier
- Hybrid Carrier
- Low Cost Carrier
- Charter Carrier
- Other

**16. Your airline is operating in the following segment(s):**

- Regional/Short-haul
- Long-haul

**17. The annual turnover of your airline is:**

- less than US\$ 500 million
- between US\$ 500 million and US\$ 10 billion
- more than US\$ 10 billion

**18. The number of employees working for your airline is:**

- less than 600 employees
- between 600 and 10.000 employees
- more than 10.000 employees

**19. The number of passengers your airline carries per year is:**

- less than 2 million passengers
- between 2 million and 20 million passengers
- more than 20 million passengers

**20. The fleet size of your airline is:**

- less than 10 aircraft
- between 10 and 100 aircraft
- more than 100 aircraft

**21. Is your airline member of any of the following:**

- Group of Airlines
- Alliance
- Joint Venture
- None

## AIRLINE INNOVATION AND PERFORMANCE STUDY

**22. Your position within the airline:**

- Top Management
- Middle Management
- Lower Management
- Non-Managerial

**23. In your work, you are mainly dealing with issues related to one of the following fields:**

- General/Executive Management
- Operations (e.g. flight- and ground operations, safety, security, etc.)
- Distribution, Sales and Marketing
- Network Planning and Scheduling
- Strategy and Business Development
- Technics (e.g. engineering, maintenance)
- Organization (e.g. human resources, administration)
- Finance and Controlling
- Other

**24. Your Gender:**

- Male
- Female

**25. Your Age:**

- 18-25 years
- 26-35 years
- 36-45 years
- 46-55 years
- 56-65 years
- over 65 years

**26. For how long have you been working in an airline?**

- less than 1 year
- between 1 and 5 years
- between 5 and 10 years
- between 10 and 20 years
- more than 20 years

**Appendix 7: Intermediate Data from Discriminant Analysis regarding Hypothesis 7**

<b>Tests of Equality of Group Means</b>					
	Wilks' Lambda	F	df1	df2	Sig.
Innovativeness	.973	1.637	4	236	.166
Proactiveness	.938	3.906	4	236	.004*
Risk-taking	.970	1.797	4	236	.130
People	.959	2.526	4	236	.042*
<i>p &lt; 0,05</i>					

<b>Eigenvalues</b>				
Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.124	83.8	83.8	.332
2	.017	11.1	95.0	.127
3	.006	4.4	99.3	.080
4	.001	.7	100.0	.031

<b>Wilks' Lambda</b>				
Test of Function(s)	Wilks' Lambda	Chi-square	df	p-level
1 through 4	.869	33.168	16	.007*
2 through 4	.976	5.612	9	.778
3 through 4	.993	1.755	4	.781
4	.999	.232	1	.630

<b>Standardized Canonical Discriminant Function Coefficients</b>				
	1	2	3	4
Innovativeness	-.248	.930	-.278	.946
Proactiveness	.754	-.988	.222	.303
Risk-taking	-.665	-.138	.725	.289
People	.484	.485	.530	-.896