Entrepreneurship

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Trust of Potential Buyers in New Entrepreneurial Ventures

An Analysis of Trust Drivers, the Relevance for Purchase Intentions, and the Moderating Effect of Product or Service Qualities

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Entrepreneurship

„Entrepreneurship“ ist ein noch relativ junger Forschungszweig, der jedoch in Wissenschaft und Praxis stetig an Bedeutung gewinnt. Denn Unternehmensgründungen und deren Promotoren nehmen für die wirtschaftliche Entwicklung einen zentralen Stellenwert ein, so dass es nur folgerichtig ist, dem auch in Forschung und Lehre Rechnung zu tragen.
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Gunnar Wiedenfels

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With a foreword by Prof. Dr. Malte Brettel

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Foreword

The concept of customer loyalty has come to play an important role in established businesses. It is a well-known fact that a higher level of customer loyalty leads to greater company success. As a result, instruments of Relationship Marketing and the role played by trust and the creation of trust are becoming increasingly important. This is also the case with young enterprises: Brinkmann, for example, has ascertained that customer loyalty can contribute to success even in the early stages of company development. However, the role played by trust in this process until now appears to have been insufficiently researched. There is agreement on principle that trust is also important for New Entrepreneurial Ventures. There is, however, a lack of clarity with regard to a suitable concept of trust so that Welter und Smallbone (2006) declare a "need for greater conceptual clarity with respect to the various forms of trust and the interrelationships between them". A series of studies is in fact already available in which theoretical models of trust are discussed; however, the scientific discussion has hitherto particularly lacked a broad empirical validation of the models considered.

It would therefore be interesting to recognise which individual factors empirically influence a trust or trust development model in order to derive specific information for the companies involved in different industries or business phases.

This is exactly where this dissertation by Gunnar Wiedenfels starts off. His objective is to examine both theoretically and empirically the role trust can play in the relationship between a New Entrepreneurial Venture and its customers whereby the dissertation focuses particularly on the empirical work.

Altogether Mr Wiedenfels attains his self-imposed objectives in an interesting way. This can be particularly observed in the empirical section: by conducting a survey of customers in two industries the author is very successful in assessing measures taken by businesses and establishing the role that trust can play in this process. Through a comparison of the two industries he can also derive interesting conclusions with regard to how different the effects of trust can be depending on the product being purchased. This interestingly developed empiricism is also substantiated: in the theoretical sections of his work the author also creates added value by providing an overview of the important literature relevant to the discussion of trust in the case of the particular object considered: the New Entrepreneurial Venture.

In this respect this book is an important contribution to the theory. However, also practitioners would benefit from reading this dissertation. Mr Wiedenfels succeeds in deriving some very practical conclusions, which entrepreneurs can use to improve their relationships with their customers. So hopefully the work as a whole will find the broad readership it deserves.

Malte Brettel

Acknowledgements

Researching trust has been extraordinarily rewarding. The fact that so little specific research had previously been published on trust in New Entrepreneurial Ventures resulted in substantial interest in and support for this project. This was particularly true of the practitioners involved, who not only contributed to numerous inspiring conversations about this work, but were also extremely helpful and supportive of its progress.

The central concept of this research project – trust – is relevant to a broad range of situations in daily life well beyond the scope of this dissertation. Interestingly, the basic patterns of trust building and consequences of trust seem to remain the same independent of context, be it in a personal or business relationship, or at an individual or societal level. This is clearly evident in the example of the ongoing financial crisis, arguably a trust crisis. Trust builds business and, apparently, too much trust had built too much business in the first decade of the twenty-first century. This was true for US home builders, who trusted their banks' promises of ever-increasing property prices, as well as for the world's finest bankers and government officials, who, among others, trusted that Lehman Brothers was "too big to fail." In the wake of its collapse, even financially healthy firms have found it difficult to raise funds – trust levels seem insufficient to maintain normal economic activity. Austrian poet Johann Nepomuk Nestroy (1801 - 62) said that too much trust was often folly, but too much distrust was always a calamity – an observation applicable not only to the ongoing crisis and its effects.

At the end of my project, I would like to express my sincere gratitude to a number of people whose support of my studies has been invaluable.

- Prof. Dr. Malte Brettel, the supervisor of this dissertation, who made the nearly two years of doctoral studies an unforgettable time. He created an unrivaled research atmosphere at his chair at the RWTH in Aachen.

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- The team of the WIN chair at the RWTH Aachen, especially Birgit Maaßen and Gesine Rottmann for their great support on administrative issues, and my fellow

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- My doctoral colloquium in Hamburg: Dr. Arne Schneemann, Dr. Andreas Kremer, and, above all, Dr. Philipp Espel – not only for their constructive feedback in our frequent sessions, but also for their continued coaching.

- Several practitioners involved in setting up the empirical part of the research project. Among the large number of helpful supporters, I would like to specifically mention

    - Dietrich Schulze van Loon, Managing Partner of Moltan van Loon Communications Consultants GmbH,

    - Stephan Fink, Partner and Speaker of the Management Board of Fink und Fuchs Public Relations AG,

    - Gerhard Pfeffer, Editor in Chief of the Internet portal pr-journal.de, and

    - Rolf Hug, Managing Director of Heindl Server GmbH and Editor in Chief of The Solarserver (www.solarserver.de)

  for their interest in the study, feedback on key aspects of the survey and industry-specific issues, promotion of the survey, and recommendation of experts to contact.

- Hundreds of participants in the survey, who invested their valuable time to support this research effort.

Gunnar Wiedenfels

Overview of contents

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List of abbreviations

AGFI	Adjusted goodness-of-fit index
AMOS	Analysis of Moments Structures
AVE	Average variance extracted
B2B	Business to business
B2C	Business to consumer
BdP	Bundesverband deutscher Pressesprecher (Federal Association of German Press Spokespersons)
BSW	Bundesverband Solarwirtschaft (Federal Association of the Solar Industry)
CFA	Comfirmatory factor analysis
CFI	Comparative fit index
CI	Condition index
CMS	Consultancy Management Standard
df	Degrees of freedom
DGS	Deutsche Gesellschaft für Solarenergie (German Solar Energy Society)
DPRG	Deutsche Public Relations Gesellschaft e.V. (German Public Relations Society)
DSL	Digital subscriber line
EM algorithm	Expectation Maximization algorithm
EPIA	European Photovoltaic Industry Association
GFI	Goodness-of-fit index
GPRA	Gesellschaft Public Relations Agenturen e.V. (Society of Public Relations Agencies)
ISO	International Organization for Standardization
IT	Information technology
LISREL	Linear Structural Relations
MBA	Master of Business Administration

NEV	New entrepreneurial venture
NFI	Normed fit index
NTBF	New technology-based firm
pdf	Portable document format
PLS	Partial Least Squares
PR	Public relations and communications consulting
PV	Photovoltaic
RMSEA	Root mean squared error of approximization
SEM	Structural equation model(ing)
SPSS	Statistical Package for Social Sciences
TÜV	Technischer Überwachungsverein (Technical Monitoring Association)
US(A)	United States (of America)
VIF	Variance inflation factor

1 Introduction

1.1 Problem statement

There is a broad consensus that entrepreneurial activity is an important driver of overall economic welfare. Authors have underlined the contribution of new entrepreneurial ventures (NEVs) to economic growth in general and, more specifically, to the generation of new employment opportunities.[1] Moreover, structural change in established economies through investments in innovation and technological evolution is to a large degree attributed to such firms.[2] Consequently, a high level of entrepreneurial activity is seen as an indicator for mid-term growth prospects for an economy.[3] The political establishment underlines that it shares this view and reacts accordingly, e.g., by planning the introduction of a new law benefiting new, technology-oriented ventures through tax-privileged financing.[4]

In the light of such far-reaching hopes attached to the development of NEVs in an economy, the large degree of mortality among such ventures is a serious issue. Empirical research finds that new ventures are prone to failure within the first years of operation.[5] Brüderl and Preisendörfer (2000) note that approximately 50% of all new firms have disappeared after five years, considering this estimate to be conservative.[6] The entrepreneurship literature refers to this phenomenon as the "liability of newness", underlining the negative connotation.

Such high failure rates are not surprising, considering that new ventures often start as *"experiments"*, based on a new idea or technology, with limited resources, be they financial or personal.[7] Specifically, Gruber (2003) notes that these firms face several

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1 Cf., e.g., Sternberg and Wennekers (2005), p. 200, Van Stel, Carree, and Thurik (2005), p. 311, Wong and Cheung (2005), pp. 342-343, Jung (2004), pp. 7-8, Brüderl and Preisendörfer (2000), p. 46.

2 Cf. Schumpeter (1947), pp. 151ff., Egeln, Gehrke, Legler, Licht, Rammer, and Schmoch (2007), p. 47, Schefczyk and Pankotsch (2002), p. 36.

3 Cf. Egeln et al. (2007), p. 48.

4 Cf. N.N. (2007a), p. 8.

5 Cf., e.g., Freeman, Carroll, and Hannan (1983), pp. 692ff., Aldrich and Auster (1986), p. 43, Brüderl and Schüssler (1990), p. 531.

6 Cf. Brüderl and Preisendörfer (2000), p. 48.

7 Cf. Stokes (2000), p. 1, Gruber (2003), p. 602, or Pearce II and Michael (1997), p. 301.

important marketing-related challenges compared with established players, among others, a lack of trust of key stakeholders.[8]

Gruber identifies the lack of trust as a key reason for new venture failure, arguing that *"emerging firms face difficulties in creating exchange relationships with stakeholders as they lack the reputation, track record and legitimacy of established firms."*[9] More specifically focusing on potential buyers, Wilson (2001) highlights the requirement of trust for successful new ventures to *"establish a stream of sales early on and keep the new firm a going concern."*[10] Therefore, it seems to be a key requirement for NEVs to gain the trust of potential buyers to survive.[11]

However, Jarillo (1988) notes that *"entrepreneurs cannot expect blind trust."*[12] And the specific nature of NEVs and the nature of trust make this task even more challenging. Trust is known to form based on positive outcomes of past interaction such as personal experience with the counterpart or a good reputation. Unfortunately, new ventures, as new players in the market, are typically relatively short of both.[13] Moreover, they are small and thus limited in their resources. Hence, straightforward trust building measures such as large-scale reputation advertising campaigns are usually not an option.[14] Consequently, Qu and Cardozo (1997) argue that trust building *"may be the most challenging task facing an entrepreneur."*[15] Jarillo (1988), in a similar vein, finds that building trust is *"a fundamental entrepreneurial skill."*[16]

Thus, one of the core questions for the management of NEVs is, how exactly to best build trust of potential buyers. To answer this question requires an analysis of potential drivers of trust: characteristics of a firm and, more importantly, levers that can actively be influenced by the management team to build trust. The purpose of this thesis is to give an answer to this fundamental question.

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8 Cf. Gruber (2003), p. 601ff.
9 Gruber (2003), p. 608.
10 Wilson (2001), p. 1.
11 Cf., e.g., Shapiro (1987), p. 636, Ali and Birley, p. 749, Gruber 2003, pp. 601-602, Jarillo p. 36.
12 Jarillo (1988), p. 37.
13 Cf. Wilson (2001), p. 1.
14 Cf. McKnight, Kacmar, and Choudhury (2004), p. 255.
15 Qu and Cardozo (1997), p. 689.
16 Jarillo (1988), p. 36.

1.2 Relevant literature and research gap

While this important issue has been discussed frequently in the literature, relatively little is known about the mechanisms of how such new firms can build trust, especially with regard to sound and quantitative empirical findings.[17] A review of the literature should follow the location of this highly specific research topic at the interface of two disciplines, marketing and entrepreneurship. First, the central phenomenon analyzed here is trust. Trust has been researched in various fields of social and behavioral sciences[18], however, applied to the specific situation of a purchasing act or relationship, it becomes a central construct in the field of marketing, more specifically, relationship marketing. Second, the focal research object of this work is the NEV, which is clearly a central element of entrepreneurship research.

Within the field of marketing, trust is of specific interest in the context of relationship marketing. Berry (2002) notes this central role of trust in the retrospective on his seminal paper published in 1983: *"I did not discuss the role of trust. Today, I would position core service(s), service quality and trust at the center of relationship marketing. All else revolves around these constructs."*[19] Similarly, Morgan and Hunt (1994) identify trust as one of two key mediating variables in relationship marketing.[20]

Accordingly, there is a large body of literature on trust in buyer-seller relationships, applying a variety of theories to explain trust building.[21] However, the most prominent approaches are clearly focused on the situation of established firms. This is evident from an analysis of the concepts involved in explaining trustworthiness perceptions. For example, Morgan and Hunt (1994) see communication within the relationship and absence of opportunistic behavior as key parameters, both of which only seem to become relevant once a relationship has been established. It is obvious that such models fail to cater to the needs of owners/managers of new ventures striving for their first customer contacts and *building* relationships rather than *maintaining* them. With regard to empirical results, the review of relationship marketing literature does not reveal any studies specifically considering the special situation of new ventures.

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[17] Cf., e.g., Ali and Birley (1998), p. 749, Gruber (2003), p. 610.
[18] Refer to section 2.2.1 for a broader overview.
[19] Berry (2002), p. 73.
[20] Cf. Morgan and Hunt (1994), pp. 20ff.
[21] Cf. section 3.1.2.

Moreover, as most entrepreneurship researchers agree, it would be lightheaded to simply transfer findings that properly describe the situation of established firms to a context of new ventures.[22] As Hills (1999) puts it: *"just as a child is not a little adult, a new venture or SME is not a little Fortune 500 firm."*[23] Specifically with regard to entrepreneurial marketing, Fillis (2002) notes that the type of marketing required for the successful management of a small business is fundamentally *"at odds with general frameworks of marketing."*[24]

Hence, the concepts proposed in the relationship marketing literature hardly contribute to the understanding of what it takes to build the trust required to develop a customer relationship from the perspective of a new venture.

As mentioned, entrepreneurship is the second research discipline touched by the key question of this thesis. Accordingly, a potential answer to the question could be expected from the entrepreneurship literature. Generally, *"entrepreneurship is the process of identifying, valuing and capturing opportunity. This typically occurs under conditions of uncertainty and tight resource constraints and is driven by individual initiative."*[25] Within this broad scope, the question of trust is examined at the interface of entrepreneurship and marketing. This interface has only relatively recently begun to receive substantial attention in the research community, to a large degree driven by the foundation of the *Research Symposium On Marketing And Entrepreneurship* within the University of Illinois at Chicago.[26]

The literature on entrepreneurial marketing does offer several works focusing on the role of trust for new ventures and entrepreneurial trust building. Table 1 gives an overview of the most relevant publications found. However, a closer look at the existing work reveals two key limitations of the existing research.

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[22] Cf., e.g., Stokes (2000), p. 2.
[23] Hills (1999), p. 7.
[24] Fillis (2002), pp. 134-135.
[25] Low (2001), p. 21.
[26] Cf. Hills (1999), pp. 5ff, or, for the relevance of the work published in the context of the research group, Gruber (2003), p. 603.

Authors	Research Approach	Central Findings
Becherer (1993)	Empirical, exploratory	Expertness and trustworthiness are critical to the credibility of a new venture.
		Information disclosure by the new venture alters consumers' perceptions about its credibility.
		Credibility of the new venture has strong effect on a consumer's overall opinion of the new venture.
Sanner (1997a)	Empirical, exploratory	Three types of trust can be identified: person-based, enterprise-based, and institution-based.
		While there can be initial (pre-) trust, trust is also determined by action processes between customer and supplier over time.
Ali and Birley (1998)	Empirical, exploratory	Trust production modes according to Zucker (1986) and antecedents of trust according to Mayer et al. (1995) provide a sound foundation of a customer trust building model in an entrepreneurial context.
		Further, enthusiasm and a shared vision seem relevant.
		Finally, entrepreneurs seem to benefit from forgiveness in cases, in which quality might not be up to the mark.
Qu and Cardozo (1997)	Non-empirical, conceptual	Combination of trust production modes according to Zucker with trust perspectives by Husted (1989) in a theoretical model of new venture trust building.
Wilson (2001)	Non-empirical, conceptual	Theoretical model of credibility based on signaling theory.
		Proposition of network contacts to positively moderate the effect of signals.
Gruber (2003)	Non-empirical, review	Summary of approaches found in the literature.
		Identification of a research gap with regard to the trust building process.
Deutsch and Ross (2003)	Non-empirical, formal	Formal model of the payoffs of investment in reputable directors.
		Hiring reputable directors should have a positive effect on new venture performance through the signaling of firm quality.
Rode and Vallaster (2005)	Empirical, exploratory	A consistent corporate identity and communication fosters new venture success due to its positive effect on trust of various stakeholders including customers.
Welter and Smallbone (2006)	Non-empirical, review	*"Need for greater conceptual clarity with respect to the various forms of trust and the interrelationships between them."*[27]
		"Need for studies that are able to convincingly demonstrate the importance of trust in entrepreneurship and business development (e.g., with respect to business networks) rather than just its existence."[28]

Table 1: Overview of studies researching buyer trust in new ventures[29]

[27] Welter and Smallbone (2006), p. 472.
[28] Welter and Smallbone (2006), p. 472.
[29] Own literature review.

First, there is an obvious lack of conceptual clarity on the topic of trust. Related constructs such as reputation, credibility, trust, and trustworthiness are used almost interchangeably.[30] A clear delineation of trust from its antecedents and its consequences is hardly made. Consequently, Welter and Smallbone (2006) note a *"need for greater conceptual clarity with respect to the various forms of trust and the interrelationships between them."*[31] Associated with this issue, there seems to be no work that actually covers the full logical chain from firm activities and characteristics leading to the perception of trustworthiness, the development of trust, and, finally, a positive consequence of trust such as a purchase intention or even firm performance.

Second, several of these papers are focused on theoretical perspectives on the issue that do not offer any empirical insights. The few *empirical* studies build their contribution on case studies, drawing on individual cases and interview sessions. So far, there is no study that analyzes the levers available to the entrepreneurial management for the formation of buyer trust based on a broad and quantitative empirical analysis.[32]

Due to the nature of entrepreneurship as a young relatively young discipline[33], such conceptual and exploratory approaches seem appropriate and the associated findings are valuable contributions. However, as Carson (1999) notes, research on entrepreneurial marketing should move beyond the exploratory stage. Moreover, explicit calls for research on the importance of trust and trust building for new ventures have been made. Welter and Smallbone (2006) as well as Gruber (2003) note a particular lack of studies researching trust in an entrepreneurial context.[34] Gruber specifically views the existing studies as *"a starting point for future research activities."*[35]

The present research project attempts to contribute to closing this gap. Therefore, a large-scale hypothesis-testing analysis of the relevance of trust for the purchase intentions of potential customers and the trust building levers available to the management of an NEV will be pursued. This analysis will be based on a clear

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[30] Refer to Table 1.
[31] Cf. Welter and Smallbone (2006), p. 472.
[32] Cf. Gruber (2003), p. 610.
[33] Cf., e.g., Low (2001), p. 17. Here, Low argues that the field of entrepreneurship may be considered to have reached its adolescence.
[34] Cf. Welter and Smallbone (2006), p. 467, and Gruber (2003), p. 610.
[35] Gruber (2003), p. 610.

conceptualization of trust, its antecedents, and consequence. The following section will further elaborate on the more concrete research objectives of this dissertation.

1.3 Research objectives

Welter and Smallbone (2006) make it very clear in their introductory article to a special issue on trust of the journal *Entrepreneurship: Theory and Practice*[36] that it is a difficult task to research trust empirically, especially in an entrepreneurial environment. They note that, even with regard to the special issue in 2006, most research is non-empirical or qualitative.[37] In order to make a quantitative empirical contribution, this research project needs to be focused on a clearly formulated research setting. In an attempt to fulfill that requirement, the overarching purpose of this thesis can be described as follows.

> *Empirically and quantitatively analyze the role of trust as well as the relevance of trust building levers in relationships of NEVs with their potential customers.*

To achieve this overarching goal, three specific research objectives are pursued. First, it has been mentioned that the literature so far does not seem to offer a model of trust building and the effect of trust in buyer-seller relationships suited to the specific situation of NEVs. Accordingly, this research project needs to develop such a model, which leads to the first research objective:

1. *Basic model: Develop and empirically test a theory-driven end-to-end model of trust building and the effect of trust on the purchase intentions of a potential buyer.*

End-to-end, in this context, refers to the objective of describing and testing a model including both the driver level, i.e., measures and characteristics to help the management of a supplier build buyer trust, and the effect on purchase intentions at the same time. The model to be developed should provide a sound description of the key drivers[38] and mechanisms at work during trust building and it should be applicable to firms in early development stages, i.e., NEVs. Achieving this objective will make it

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[36] Cf. Welter and Smallbone (2006), p. 469.
[37] Cf. Welter and Smallbone (2006), p. 469.
[38] In this document, the term *driver* will be used to refer to the set of *given characteristics* and *influenceable levers* relevant for the formation of trust.

possible to test the often hypothesized importance of trust and to answer the question of how trust can be fostered even *before* the first purchase is made. It is worth noting that the model to be developed here shall be of a general nature. I.e., it is supposed to be applicable to the context of NEVs but also to established firms.

The second research objective results from the insight that the relevance of trust depends to a large degree on *uncertainty*, or, more precisely, *risk* involved in entering a relationship. This fundamental dependency is acknowledged by most trust researchers regardless of their perspectives and basic disciplines.[39] In the specific context of buyer-seller relationships, such risk is substantially influenced by the asymmetry of information between seller and buyer.[40] The greater the difference in information on the quality of the product or service sold between buyer and seller, the higher is the risk for the buyer. Within the theory of the economics of information, the framework of *product qualities* is applied in order to classify products or services depending on the degree of inherent information asymmetries.[41] Just as the degree of these information asymmetries varies between *search*, *experience*, and *credence goods*[42], the role of trust should vary in buyer-seller relationships depending on the type of product in question. Given this expected variability, a sound model of trust building and the effects of trust should anticipate the influence of the product qualities (search, experience, or credence) dominating the buyer-seller relationship. Accordingly, the second objective of this research is the following:

2. *Moderation: Propose and empirically test hypotheses regarding the effect of different product qualities according to the economics of information on the proposed model of the role of trust.*

Achieving this second research objective is beneficial in two ways. First, the inclusion of the effect of product qualities in the proposed model should enhance its explanatory and predictive relevance, since an important moderating effect is considered. Second, an empirical test of the model across buyer-seller relationships differing with respect to the degree of inherent information asymmetry should provide confidence in the

[39] Refer to section 2.2.
[40] Cf. Akerlof (1970), p. 488.
[41] Cf. Nelson (1970) and Darby and Karni (1973). Refer to section 2.3 for a broader discussion of the theory.
[42] Refer to section 2.4.

general nature of the empirical findings: if the model proves valid across such different settings, a large degree of generality can be assumed.

The first two research objectives are essentially independent of the life cycle stage of the supplying firm, since they are concerned with the development and test of a *general* model of trust building valid both for the situation of NEVs and established firms. These steps are prerequisites for the analysis of trust building between NEVs as suppliers and potential buyers. This third and last research objective pursued in this work transfers the general model to the specific context of NEVs:

3. *NEV context: Empirically test the proposed model in a large quantitative data sample of relationships of NEVs with potential buyers and compare the results with data for established firms to derive specific and actionable recommendations for the management of NEVs.*

Achieving this last objective closes the research gap discussed in the previous section. Thereby, this study contributes to the entrepreneurship literature in providing, for the first time, insights from large-scale empirical analysis on how potential buyers develop trust in NEVs and how this affects their purchase intentions. Figure 1 summarizes the research objectives of this work.

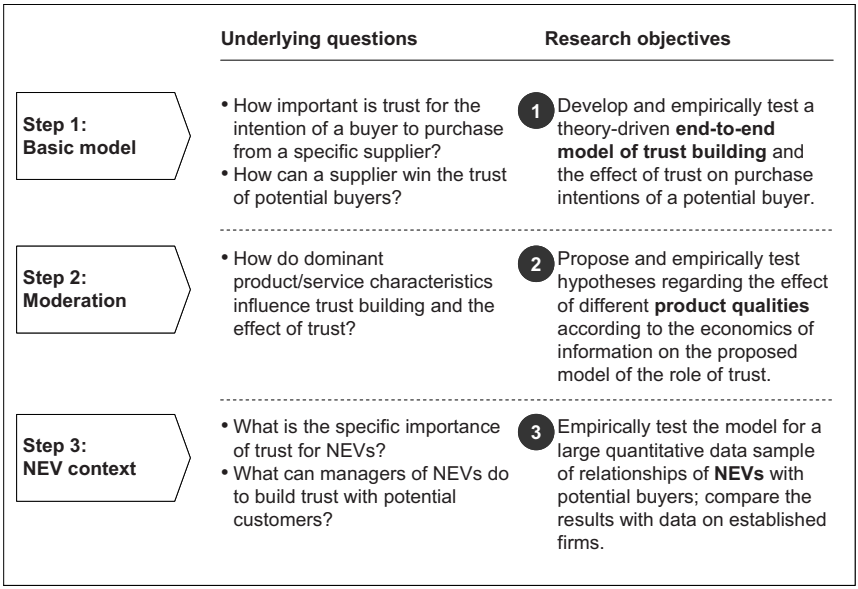

Figure 1: Research objectives of this dissertation[43]

1.4 Structure of this document

This document is structured as follows. Subsequent to this introduction, chapter 2 introduces the conceptual basics this study builds on. In this chapter, the focal object of this research, the new entrepreneurial venture, is defined and delineated from related concepts. Further, the inter-disciplinary nature of *trust* is described, leading to a definition of trust followed in the context of this research. In a third step, the type of buyer-seller relationship analyzed in this thesis is specified more precisely. Finally, the theory of the economics of information is introduced to derive the framework of product qualities relevant in this context.

Chapter 3 deals with the selection of a suitable theoretical foundation of this study. While the effect of trust on purchase intentions is inherent to the conceptualization of trust chosen in chapter 2.2, a theoretical basis for the mechanisms of trust building needs to be found. For this purpose, a set of criteria for the evaluation of potential

[43] Own illustration.

theoretical approaches is defined. Based on these criteria, the three different theories of trust building found most important on the basis of a literature review are evaluated after a presentation of the central ideas.

Chapter 4 presents the research model. Following the structure of the research objectives presented earlier, the first step is the development of hypotheses within a general model of trust building and the effect of trust on purchase intentions. Herein, the conceptualization of trust described in chapter 2 is combined with the theoretical foundation selected in chapter 3. In a second step, hypotheses on the moderating effect of industry characteristics are derived from the application of the theory of the economics of information to the present research context.

In chapter 5, the empirical analysis of the research model is prepared. In a first section, the method of statistical analysis – structural equation modeling using the PLS algorithm – is selected and presented. The second section continues with a description of the relevant criteria for the assessment of the statistical quality of a PLS estimation. In order to prepare the measurement of the mostly latent variables included in the research model, the next section describes the operationalization of the model, i.e. the new development or adoption of existing statistical measurement instruments.

Due to the complex structure of a data sample required to achieve the research objectives of this work, one chapter (6) is dedicated to describing the survey design and process and to introducing the sample data that is used for the empirical analysis. The specific nature of the research topic necessitates a clear focus of the study, which is defined in section 6.1. Subsequently, section 6.2 describes the process of data collection, including the communication with survey participants and the evaluation of the response rate. Finally, section 6.3 closes the chapter with an assessment of the data sample along the criteria devised in the relevant literature.

In chapter 7, the actual empirical analysis is described. It begins with an assessment of the quality of measurement and estimation – a critical precondition for the reliability of the estimation results. Next, it presents the results of individual hypotheses in the research model, differentiating between results based on the analysis of the full sample and results from the comparison of sub groups within the sample.

Finally, chapter 8 discusses and interprets the empirical findings presented in chapter 7 in the light of the relevant literature and specifics of the present research setting. Based on this interpretation, implications are extracted from the content of this work. These

implications will be presented in two sections, focusing on the research contribution and the managerial practice in NEVs, respectively. A concluding section will finalize the document.

Figure 2 summarizes the structural description of this document.

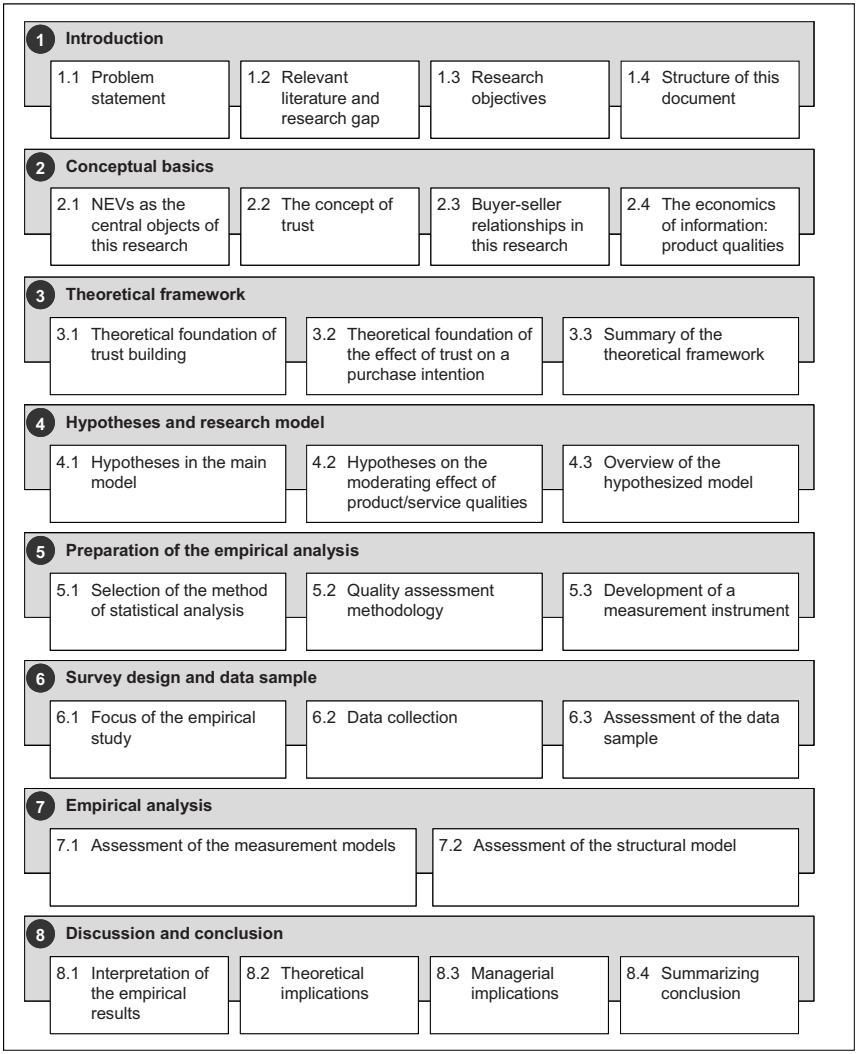

Figure 2: Overview of the structure of this document[44]

[44] Own illustration.

2 Conceptual basics

The analysis of the research objectives described in the previous chapters involves several concepts. Specifically, NEVs as the central objects of this study, the phenomenon of trust, buyer-seller relationships, and the theory of the economics of information need to be introduced, since later sections of this thesis will build on these concepts.

The purpose of chapter 2 is to ensure conceptual clarity regarding these concepts. Specifically, section 2.1 will define *new entrepreneurial ventures*, delineating this research object from established firms, and introduce special characteristics of NEVs that are relevant for the research context. Afterwards, section 2.2 acknowledges the role of *trust* across several scientific disciplines and provides clarity regarding different conceptualizations, especially the concept of trust that forms the basis of this study. In section 2.3, the broad term *buyer-seller relationship* will be specified more concretely to describe the precise focus of the present study. Finally, section 2.4 gives an introduction to the concept of *product/service qualities* according to the theory of the economics of information. This framework lays the foundation for the development of specific, industry type-depending research hypotheses in chapter 4.2.

2.1 NEVs as the central objects of this research

Carland, Hoy, Boulton, and Carland (1984) argue that several publications on entrepreneurial research *"...may be misleading in their conclusions"*[45], the reason being that *"they neglect to distinguish adequately between entrepreneurs and other business managers."*[46] This section will develop a conceptually clear definition of NEVs followed in this work and describe the implied special characteristics of this specific type of economic actor.

2.1.1 Definition of NEVs

NEVs are the predominant research object in the field of entrepreneurship. However, even within this scientific field, there is a large variety of similar concepts, such as "new ventures", "new technology-oriented ventures", "new technology-based firms

[45] Carland et al. (1984), p. 357.
[46] Carland et al. (1984), p. 357.

(NTBF)"[47], etc. Accordingly, approaches to *classify* firms with respect to their entrepreneurial nature, differ as well.[48]

In an attempt to depart from this conceptual diversity, the following section will outline the concept of NEVs in the context of this work on the one hand and the delineation from established firms on the other hand. Herein, the argument will follow the components "new" and "entrepreneurial" of the term "new entrepreneurial venture". Generally, for a first specification, as outlined in the first chapter, the current research is attempting to understand the challenges facing *profit-oriented firms* rather than *non-profit organizations*. The latter are therefore excluded from the definition of NEVs followed here.[49]

2.1.1.1 The meaning of "new"

With regard to the delineation of the concept of new or young firms, the entrepreneurship literature offers different approaches. The term *"new"* is an attempt to differentiate firms based on their age. This poses two questions: a) when does a firm begin to exist, i.e., at what point in time is the firm's age zero, and b) how long must a firm exist in order to still be considered new?

a) In legal terms, the firm begins to exist at the time of the formal act of incorporation, i.e., registration of the business with the respective authorities.[50] However, several authors have argued that this legal perspective is not helpful for the economic analysis as the relevant entrepreneurial activities happen independently of such a formal point in time.[51] Szyperski and Nathusius (1977), consequently, offer a widely cited perspective by understanding the foundation of a firm as the process of the creation of a system that is qualitatively differentiated from its environment and has in the same structure not existed previously.[52]

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[47] Cf. Storey and Tether (1998), p. 933.
[48] Hungeling (2007), for example, identifies dichotomous, evolution-theoretical, and life cycle approaches. Cf. Hungeling (2007), p. 15.
[49] This approach follows Claas (2006), p. 41.
[50] Cf. Luger and Koo (2005), p. 18.
[51] As, for example, seen by Kazanjian (1988), who explicitly mentions the entrepreneurial activities that start *"before their formal creation, as signified by incorporation."* Kazanjian (1988), p. 262.
[52] Cf. Szyperski and Nathusius (1977), p. 25.

b) Trying to name a precise upper limit for the age of a new venture to be still new, some authors suggest five years, while others go as far as eight to twelve years.[53] Due to this deviation of opinions in the relevant literature, a purely quantitative assessment of the age of a firm seems insufficient. Fallgatter (2004) identifies environmental factors such as industry, technology, resources and market structure as important determinants of the duration of the stadium of a firm being new.[54]

Opposing the notion of providing a specific age limit for new firms, authors have used phase model approaches to the problem.[55] The fundamental assumption behind these concepts is that *"organizations evolve in a consistent and predictable manner."*[56] The Entrepreneurship literature offers a variety of different development phase concepts[57]. Key differences are regarding the scope of the model. Whereas, for example, Hanks et al. (1993) propose a *life cycle* model spanning the full lifetime of a firm[58, 59], other models only include the development steps of a firm until maturity, as, for example, the one developed by Kazanjian (1988).[60] The latter ones are referred to as growth models. Despite these conceptual differences and further variation regarding the content of individual development stages between the models found in the literature, there is broad agreement on the overall sequence of stages. Dodge and Robbins (1992) synthesize that life cycle models typically contain conception and expansion phases in the beginning of the life cycle followed by a stabilization and an establishment phase towards the end.[61]

These phase models not only accomplish a content-oriented differentiation of the newness of a firm. They also help identify the most relevant challenges for the management of firms within each stage of development as well as the resulting configuration of organizational and managerial variables, especially actions required for the survival of the firm and the transition to the next phase.[62]

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[53] Cf. Fallgatter (2004), p. 28.
[54] Cf. Fallgatter (2004), p. 28.
[55] Cf. Hanks, Watson, Jansen, and Chandler (1993), p. 5.
[56] Hanks et al. (1993), p. 5.
[57] See Kaiser and Gläser (1999) for a comprehensive review of the related literature and an overview of life cycle concepts or Hanks et al. (1993) for a synthesis from a selection of approaches.
[58] Cf. Hanks et al. (1993), p. 10.
[59] Other authors following this approach include Miller and Friesen (1984).
[60] Cf. Kazanjian (1988), p. 261-266.
[61] Cf. Dodge and Robbins (1992), pp. 28ff.
[62] Cf. Kazanjian (1988), p. 258.

One of the most prominent approaches has been developed by Kazanjian (1988).[63] From the vantage point of technology development, he drafts a growth model that is centered around the technology-market interaction, with the model containing four explicit phases. The first phase (conception and development) deals with the *"invention and development of a product or a technology."*[64] The second phase of commercialization begins with the securing of a financial backing that enables the development of a marketable technology that goes beyond the shop prototype central to the development efforts in the first phase. Towards the end of this second phase, the venture, in addition to its focus on the technical development of the product, needs to prepare itself for market entry. The third phase (growth) usually follows, *"if a product is technically feasible and achieves market acceptance."*[65] According to the author, this third phase is marked by an almost constant state of change, with an increasingly structured and specialized organization and intake of specially trained professionals from outside the firm.[66] This need for change is driven by high, above market level growth. At the transition to phase four (stability), the growth slows down to market average. The venture has become a *"stable, functional, operating company."*[67] However, new challenges evolve. After managing the implications of strong growth, the firm now needs to sustain sufficient growth and market position in this fourth phase. The need to develop a second product arises.[68] As can be seen from the description of the life cycle stages, Kazanjian (1988) was mainly considering technology-based ventures with his approach. However, the core of his argument – the matching of product innovations with market demand – seems to be relevant independent of the type of product or service offered.

Claas (2006) has partly adapted the model by Kazanjian (1988) in her study on market orientation in growth-oriented ventures.[69] The author used an operationalization of Kazanjian's concept for her study with 271 German new growth-oriented ventures. In an analysis of pre-test feedback from participants of her survey, she identified two key weaknesses of the concept in her research setting. First, the description of the phase characteristics seems to have been too complicated to grasp for a substantial number of

[63] Cf. Kazanjian (1988), pp. 257ff. For other relevant life cycle approaches, refer to Hanks et al. (1993), pp. 223ff., or Greiner (1972), pp. 37ff.
[64] Kazanjian (1988), p. 262.
[65] Kazanjian (1988), p. 264.
[66] Cf. Kazanjian (1988), p. 264.
[67] Kazanjian (1988), p. 265.
[68] Cf. Kazanjian (1988), p. 265.
[69] Cf. Claas (2006), p. 167-169.

the participants, partly due to the fact that the phases were described along multiple dimensions. At the same time, this multidimensional description made it difficult to rate one's own company within that framework, because the idealized phase description were hardly matched by real-world firms. Second, pre-test participants explicitly complained about the lack of a phase that is centered on the break-even. Consequently, Claas (2006) adapted the concept to incorporate the requested changes. The former issue was addressed through a projection of the growth stages to the market perspective as the most important perspective in her research context. The latter was resolved by including another stage (consolidation) in the model – between growth and stability – that is characterized by a focus of the management team on ensuring profitability of the business.[70] The successful modification has lead to some recognition in subsequent research.[71] Specifically, the adapted model seems suitable for the present work, because it resembles an empirically well-tested concept for the differentiation of growth stages among German firms. Table 2 gives an overview of the development phases in the adapted model by Kazanjian (1988).

This work shares the view that a specific absolute age does not provide a valid delineation of the term "new" for two reasons. First, the characteristics associated with development stages seem to determine the specifics of new ventures that justify the role as research objects in their own right. It seems logical that these characteristics are bound to transitions between development phases. These transitions, however, seem to happen at firm specific points in time, not after a certain absolute number of years. Second, in an attempt to develop a model that is valid across different industries, the use of an age threshold to define new ventures appears specifically difficult. As Fallgatter (2004) notes, a new firm in one industry can be much older or younger in the absolute number of years than a new firm in a different industry.[72]

Consequently, this research will base the determination of the status of a firm being new on a life cycle model, more specifically, the model developed by Kazanjian (1988), as modified by Claas (2006). As mentioned earlier, this model provides a well-tested concept for the delineation of new ventures in a German context. Based on this definition of new ventures, established firms will be seen in this research as firms that have reached the fourth phase of consolidation.

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[70] Cf. Claas (2006), p. 169.
[71] E.g., Engelen (2008), Müller (Forthcoming).
[72] Cf. Fallgatter (2004), p. 28.

Phase	Description of predominant phase characteristics
Conception and development	The primary focus of all activities is on product development and design, securing adequate financial resources and developing the market
Commercialization/ market entry	The company has a product that performs well and meets a need in the marketplace. It has some revenues and some backlog of orders. There is sufficient capability to produce and sell but the company has yet to be firmly established in the market.
Growth	The company is characterized by high growth rates in sales. The major internal focus is on issues of how to produce, sell and distribute the products in volume.
Consolidation	The growth rate slows to a level consistent with market growth. Primary focus of the company's activities is to attain profitability while maintaining growth momentum.
Maturity/ diversification	Within the company, the major internal activities include diversification efforts. 2nd or 3rd generation products or totally new product lines are being developed and the penetration of new geographic markets is pursued.

Table 2: Adapted growth phase concept used in this research[73]

In contrast to several other works dealing with NEVs, this study will not assume an age limit in terms of a number of years.[74] The reason for this is that – based on the above considerations – life cycle models seem to be better able to capture the aspects of newness than a single age parameter. In the context of this research , the assessment of firm newness will only be required for comparably few firms.[75] Therefore, it seems feasible to base the assessment on the more time-consuming, but highly reliable approach of in-depth discussion of the firm life cycle stage with firm representatives.

2.1.1.2 The meaning of "entrepreneurial"

Having clarified the understanding of a firm being *new*, it is noteworthy that not all new firms can be considered to be *entrepreneurial*.[76] Two conceptual distinctions seem to be relevant. Szyperski and Nathusius (1977) focus on the creation type of the business under review. They differentiate original from derivative and dependent from independent business creations.[77] Carland et al. (1984), in their fundamental paper on entrepreneurs and small business owners, highlight the key differences between

[73] Based on Kazanjian (1988), pp. 257ff. Adapted from Claas (2006), p. 169, and Engelen (2008), p. 228.
[74] Cf., e.g., Wolff (2008), p. 18, who limits her study to firms of an age of ten years or less, or Kessell (2007), p. 117, who focuses on firms no older than 5 years.
[75] Refer to section 6.1.
[76] Cf. Carland et al. (1984), p. 354.
[77] Cf. Szyperski and Nathusius (1977), p. 26-27.

entrepreneurial ventures and small business ventures to be the innovativeness and growth orientation of the former.[78]

Business creation type. Szyperski and Nathusius (1977) distinguish along two dimensions. First, between creations for which relevant structures have existed before the actual foundation and those founded without any relevant structures in place. The former is referred to as a *derivative foundation* while only the latter is considered to be an *original foundation*. With the two types of businesses starting from vantage points that are typically not comparable, Luger and Koo (2005) suggest distinguishing between them in the scientific analysis.[79] The second differentiation relates to the legal status of the founder at the time of the business creation. If the founder is legally dependent in the sense of an employment relationship, his business creation is considered to be *dependent*, if he is not, then his creation is independent.[80] The independent creation is expected to exhibit greater degrees of freedom than the dependent one, which is typically influenced by the legally related organization.

With regard to the present research, the nature of the new venture being an original foundation is of specific relevance. In the case of a derivative foundation with relevant structures of the firm in place before the actual creation, several typical characteristics of new ventures do not apply.[81] Specifically, the liability of newness, referred to in the first chapter of this thesis in the argument for the specific challenge of a lack of trust for new ventures, does not necessarily exist, since such a venture may draw on existing structures and resources. Accordingly, this research focuses on new ventures in the form of original foundations.

Innovativeness and growth orientation. In their paper on the distinction between entrepreneurs and small business owners, Carland et al. (1984) build on the early work on entrepreneurship by Schumpeter (1926). Their core argument is that a large fraction of the research on entrepreneurship may actually be misleading, failing to clearly delineate the concept of an entrepreneurial venture from other small business ventures.[82] In addition to newness, they highlight the requirement of innovativeness for a venture to qualify for being entrepreneurial.[83] Building on Schumpeter (1926),

[78] Cf. Carland et al. (1984), p. 358.
[79] Cf. Luger and Koo (2005), pp. 18-19.
[80] Cf. Szyperski and Nathusius (1977), p. 26.
[81] Refer to section 2.1.2.
[82] Cf. Carland et al. (1984), p. 357.
[83] Cf. Carland et al. (1984), p. 358.

they argue that this innovativeness can become manifest in five basic forms of strategic behavior: introduction of new goods, introduction of new methods of production, opening of new markets, opening of new sources of supply, or industrial reorganization.[84]

Clearly, innovativeness is a differentiating factor also within this research setting. It has been mentioned earlier that an entrepreneurial venture is sometimes seen as a form of an experiment. There is an obvious difference with respect to the notion of an experiment, depending on the innovativeness of the venture. A non-innovative venture is simply a way of doing the same thing in a different organization; accordingly, the uncertainty involved should be much lower. This research will only view innovative new ventures as being entrepreneurial.

In addition to innovativeness, Carland et al. (1984) suggest that entrepreneurial ventures typically pursue above-average growth.[85] This view is shared by other authors as well, for example, Timmons (1999), speaking of *"growth-minded ventures."*[86]

The notion of growth orientation is of specific relevance in the present research. It was argued in the introduction that trust is relevant for the firms in question, because it is required in order to build a customer base. For a new venture that is not interested in growth but rather the result of a founder seeking self-employment, building such a customer base is much less of an issue. Consequently, this thesis assumes only growth-oriented ventures to be entrepreneurial.

To summarize the thought elaborated in the previous paragraphs, a venture shall be considered *entrepreneurial* in the context of this research, if it is an *original foundation*, involving *innovation* that pursues above-average growth. It is worth noting that all conditions are necessary, so that an entrepreneurial venture needs to fulfill all three requirements.

2.1.1.3 NEVs in the context of this research

To summarize the various views on new and entrepreneurial firms, this section derives the definition of NEVs that this research work will be following.

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[84] Cf. Carland et al. (1984), p. 357.
[85] Cf. Carland et al. (1984), p. 358.
[86] Timmons (1999), p. 42.

NEVs in the context of this research meet the following criteria:

- They are new with respect to the adapted life cycle model by Kazanjian (1988), i.e., they have not yet reached the fourth development phase of consolidation.[87]
- They have been originally created according to the framework by Szyperski and Nathusius (1977), i.e., the most relevant structures of the venture have not been in place before the foundation of the business.
- They are innovative in at least one of the forms explained above and growth-oriented, as demanded by Carland et al. (1984).

In order to assess robustness of the research model to be developed with regard to the newness of a firm, not only a definition of NEVs is required but also a definition of *established firms*. In this research, firms that have reached the phase of consolidation according to the life cycle model will be considered to be established.

2.1.2 Specific characteristics of NEVs

Welsh and White (1981) state that *"a small business is not a little big business."*[88] This fundamental statement justifies viewing NEVs as a specific research object. In the Entrepreneurship literature, it is argued that such a specific analysis is necessary due to the special characteristics of NEVs.[89] These special characteristics, directly related to the nature of such young firms, pose particular challenges to the firm's management. That is the reason why the literature typically speaks of *liabilities*, highlighting the threatening nature of these characteristics[90], even though some authors also apply a more positive view, pointing out the chances for young firms as well as some advantages in exploiting such chances.[91] While some of the challenges mentioned in this context certainly also apply to established firms, the situation of young firms typically includes several of the challenges at the same time.

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[87] The version of the model as modified by Claas (2006) will be applied.
[88] Welsh and White (1981), p. 18.
[89] Cf. Gruber (2004), p. 166, Welsh and White (1981), p. 18.
[90] Cf., e.g., Stinchcombe (1965), p. 148, or Freeman et al. (1983), p. 693.
[91] Gruber (2003), e.g., argues that new firms can have an advantage over established players due to lower levels of *inertia*, which increasingly becomes an obstacle towards successful decision making (p. 602). While such advantages for NEVs undoubtedly exist, the focus here is on the liabilities, since these have direct implications for the research of trust in NEVs.

The analysis of these liabilities is highly relevant in the context of this research, since these specific characteristics of new entrepreneurial ventures not only imply general management challenges. They have a substantial influence on the research of trust and trust building in these firms. The following paragraphs will describe the most important liabilities resulting from NEV characteristics, placing an emphasis on their impact on trust building.

Liability of newness. Empirical research has found that new organizations are more likely to die than old ones.[92] Stinchcombe (1965) has coined this finding the *liability of newness*, also providing a number of explanations. First, new organizations need to learn new roles and tasks, sometimes even having to invent them from scratch, which induces costs and distracts the focus from the core business management.[93] Second, the new venture depends to a much larger degree than an established firm on the cooperation of strangers and is thus more vulnerable to, among others, lack of trust.[94] Third, Stinchcombe (1965) argues that new organizations often go along with new organizational forms or structures that have yet to prove their effectiveness in the market.[95]

Two specific implications for trust building in new ventures are obvious. First, the lack of trust has to be resolved to overcome barriers to market success. That means, trust building has to be on the management agenda. At the same time, trust building is not as straightforward as for established firms. Researchers agree that trust is easily built based on experience from previous interactions.[96] Here, a new venture faces a substantial disadvantage compared with an established firm that can draw on a history of market transactions. Consequently, the effort and thought required to build trust will be larger for an NEV.

Liability of smallness. Closely related to the newness of a firm is the smaller size compared with established firms.[97] Again, based on empirical findings, smallness is seen as a liability of new ventures. Aldrich and Auster (1986) have shown that size is positively related to the probability of firm survival[98], similarly, Freeman et al. (1983)

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92 Cf. Freeman et al. (1983), p.692.
93 Cf. Brüderl and Schüssler (1990), p. 530, or Aldrich and Fiol (1994), p. 645.
94 Cf. Gruber (2003), p. 602.
95 Cf. Stinchcombe (1965), pp. 148ff.
96 Refer to section 2.2.
97 Cf. Luger and Koo (2005), p. 18.
98 Cf. Aldrich and Auster (1986), p. 180.

find a negative effect of smallness even if controlling for newness.[99] As the key reason for this liability, the literature specifies resource bottlenecks resulting from the small size, especially with regard to personnel and financing.[100] The personnel bottleneck can materialize in the lack of knowledgeable, specialized, and experienced professionals.[101] The financing bottleneck is especially relevant because it implies that small firms literally cannot survive an extended period of limited economic success, potentially even despite promising future prospects.[102]

The implication of smallness on trust building is a direct consequence of the resource limitations. While trust is critical to the success of the venture, the measures pursued to build it need to be carefully prioritized and selected to ensure resource efficiency. For example, a broad advertising campaign, which is generally assumed to help build customer trust, may not be an option for an NEV.[103]

Liability of growth. Inherent in the newness and growth orientation[104] of NEVs is another challenge that the literature refers to as the *liability of growth* or *liability of adolescence*.[105] Throughout the development of new firms, they traverse through different phases or stages, each of which implies new challenges for the management through a shift in environmental influencing factors or the requirements of management attention.[106] Tyebjee, Bruno, and McIntyre (1983) show that several entrepreneurs feel overstretched when it comes to adapting the initial venture through the introduction of new processes or even the development of a new product in later stages.[107] It is argued that this effect leads to a higher mortality of young firms at the time of the first growth and change processes, i.e., after the very early phase of firm development. Following this argument, Brüderl and Schüssler (1990) deny a monotonic relationship between age and likelihood of survival that is typically assumed by authors describing the liability of newness.[108] They argue that death is unlikely at the very beginning of a firm's existence for two reasons: a) a venture

[99] Cf. Freeman et al. (1983), p. 706.
[100] Cf. Schefczyk and Pankotsch (2002), p. 23, Welsh and White (1981), p. 18, Storey and Tether (1998), pp. 329-330.
[101] In the survey among new firms in Cleveland by Storey (1985), *skill shortage* was the problem most frequently mentioned (p. 332).
[102] Cf. Aldrich and Auster (1986), p. 181, or Gruber (2004), p. 167.
[103] For the trust effect of advertising, refer to McKnight et al. (2004), p. 255.
[104] Refer to section 2.1.1.2.
[105] Cf. Brüderl and Schüssler (1990), pp. 533ff.
[106] Refer to section 2.1.1.1.
[107] Cf. Tyebjee et al. (1983), p. 62.
[108] Cf. Brüderl and Schüssler (1990), p. 533, or Fichman and Levinthal (1991), p. 444.

typically starts with an *"initial stock of resources"*[109] that supports the organization for some time and b) the firm will not be abandoned by all participants of the market place, unless there is a vast amount of negative information about the firm. Fichman and Levinthal (1991) propose a comparison with interpersonal relationships, arguing that there is some goodwill inherent in new relationships.[110] Consequently, the authors suggest a *liability of adolescence* to underpin the increasing risk that comes along with aging and growth in the first stages of a new venture.

With regard to trust of potential customers, growth can be a danger if the venture becomes overstretched and is not able to fulfill its promises in the market. It has been shown that past exchange outcomes drive perceptions of trustworthiness, both directly and indirectly through their impact on firm reputation.[111] During periods of strong growth and associated structural change it can become more challenging to ensure satisfactory quality for the customer, especially with given resource constraints mentioned above. A prominent example may be the strongly growing business of new players offering fixed line telephony and broadband internet access (DSL) in Germany.[112] Along with a strong increase in subscribers for these new service providers, complaints about delay and failures accumulate with reports on highly dissatisfied and angry customers.[113] Clearly, this is a case of trust disruption in the wake of strong growth.

Liability of owner-dependency. It has been widely acknowledged that ownership and management of new firms are often held by the same person: the entrepreneur and founder, especially in the case of original foundations.[114] Consequently, the firm's fortune is tightly connected to characteristics and capabilities of the so called owner-manager. Empirical works on the relevance of the owner-manager underpin a significant impact of the founder's capabilities on the success of a new venture.[115] However, owner-managers also tend to be involved on an emotional level. This possibly leads to decisions being made not based on fact and rationale alone, but with

[109] Brüderl and Schüssler (1990), p. 533.
[110] Cf. Fichman and Levinthal (1991), pp. 444-445.
[111] Cf., e.g., Zucker (1986), p. 60.
[112] According to N.N. (2007b), the number of connected households has grown by 1.7 million in 2007 vs. the previous year, which translates into a 40% year-on-year growth rate (p. 17).
[113] Cf. Späth (2007).
[114] Cf., e.g., Kazanjian (1988), p. 160, Schefczyk and Pankotsch (2002), pp. 24 and 32-33, Shane and Stuart (2002), p. 154, Szyperski and Nathusius (1977), p. 29.
[115] Cf. Chandler and Hanks (1993), p. 85.

an emotional element.[116] This can be a handicap, especially in relation to the liability of adolescence, if owner-managers fail to react to the first dramatic changes, because they adhere to their original ideas, do not realize a potential skill gap, or do not delegate sufficiently.[117]

With regard to trust building, owner dependency cannot be clearly seen as an asset or a liability. Previous research has shown that trust in a new venture seems to be correlated with the trustworthiness of the entrepreneur.[118] Consequently, depending on the entrepreneur's characteristics, trust building might be a more or less difficult task for a new venture.

Liability of uncertainty. A fifth liability discussed in the literature is referred to as the liability of uncertainty. The uncertainty is essentially a resulting effect from the combination of innovation and young age. Innovations typically imply new combinations of resources, often in new, developing markets, i.e., they lead to high levels of external uncertainty.[119] This is complemented by the additional uncertainty from within the new venture: as already mentioned, the young age implies only a limited set of experiences as well as tight resource constraints. Both have adverse effects with regard to uncertainty: the lack of experience reduces the chance of correctly assessing new situations and responding appropriately, the tight resource constraints limit the ability to obtain external expertise.[120] Moreover, due to the typically small product range, new ventures cannot benefit from risk diversification.[121]

A key issue of uncertainty is that it reinforces the implications of the other liabilities discussed. This is specifically true for trust building. In an environment of uncertainty, it is much more challenging to make reliable promises in the market and to select the most efficient means to drive buyer trust.

Table 3 summarizes the discussed liabilities along with the key issues for the management of NEVs. It is worth noting, that the original characteristics underlying the liabilities explained, i.e., newness, smallness, growth, owner dependency, and

[116] Cf. MacMahon and Murphy (1999), p. 26.
[117] Cf. Kao (1989), p. 184.
[118] Cf. Sanner (1997a), p. 349.
[119] Cf. Gruber (2004), p. 167, and Wippler (1998), p. 16.
[120] Cf. Atherton (2003), pp. 1384-1385, and Busenitz and Barney (1997), pp. 13-14.
[121] Cf., e.g., Geursen and Conduit (2001), p. 21.

uncertainty, can also lead to positive effects and advantages.[122] As mentioned earlier, newness, for example, can lead to higher flexibility as opposed to the inertia of established firms. Further, as Gruber notes, the uncertainty is inherent in the entrepreneurial opportunity: the entrepreneur builds his venture on an opinion fundamentally different from that of other market participants – an uncertain bet on his idea.[123]

Liability	Implied management challenges	Specific trust building challenges
Newness	Lack of standard procedures Lack of experience Lack of trust	Need to build trust Trust from previous interactions highly limited, i.e., investment in other trust building measures required
Smallness	Limited financial and personnel resources Lack of functional and specialized knowledge	Need to strictly focus on most efficient trust-building activities Need to limit the time required for trust building as far as possible
Growth	Continuous adaptation of structures and processes to the development stage Complex management tasks to be managed under time pressure	Need to maintain high-quality, trust-building interactions and market presence
Owner dependency	Dependency on owner's or founder's personality, motivation, skills, and specific qualifications	Ambiguous, depending on the entrepreneur's trust-relevant characteristics
Uncertainty	Lack of historic data Planning to be based on assumptions rather than certain facts and figures Reinforcement of negative impact of other liabilities	Reinforcement of negative impact of other liabilities

Table 3: Liabilities of NEVs[124]

2.2 The concept of trust

The following section aims at selecting an appropriate conceptualization of trust from the wide range of approaches found in the relevant literature. This is for two reasons. First, trust is special in that it has been researched across a large number of disciplines

[122] Cf., e.g., Schefczyk and Pankotsch (2002), p. 24, or Gruber (2003), p. 602.
[123] Cf. Gruber (2004), p. 167.
[124] Adapted from Engelen (2008), p. 40.

with different approaches to the issue. Despite some commonalities, each discipline has a slightly different perspective on the topic of trust, so that various definitions with different research implications exist. Second, the conceptualization chosen is the key for a substantial part of the research model proposed later in this work, as it directly affects the positioning of the trust construct in the logical chain from a supplier's trust building measures and attributes to the final intention of a potential customer to make purchases from that supplier.

The following section will briefly sketch the range of theoretical fields, in which trust plays a role. Following that, the understanding of trust according to key perspectives found in the literature will be presented: psychology, sociology, economics, and (relationship) marketing. Finally, the last section introduces an integrated view based on the work of Mayer, Davis, and Schoorman (1995) and justifies its suitability as a basis for the understanding of trust in this study.

2.2.1 Trust as an inter-disciplinary phenomenon

The topic of trust has been researched and broadly discussed in various disciplines.[125] Authors in the fields of psychology, economics, sociology, marketing, organization, politics, and communications have added to the understanding of the concept of trust with specific perspectives and findings relevant to their respective fields of study[126]. Rotter (1980) provides a reason stating that: *"interpersonal trust is an important variable affecting human relationships at all levels: relationships between government, between minorities and majorities, buyers and sellers, patients and therapists, parents and children, and so on."*[127]

Among the perspectives on trust from the various disciplines, four appear to be especially relevant in the context of this research. These are the fields listed by Doney and Cannon (1997): *psychology*, *sociology*, *economics*, and *marketing*.[128] Psychology and sociology are the basic sources of the concept of trust with a large share of the

[125] Cf. Doney and Cannon (1997), p. 36, Ho and Weigelt (2005), p. 519, Lewicki, McAllister, and Bies (1998), p. 438.
[126] See Lewicki et al. (1998), Mayer et al. (1995), or Rousseau, Sitkin, Burt, and Camerer (1998) for comprehensive reviews.
[127] Rotter (1980), p. 1.
[128] Cf. Doney and Cannon (1997), p. 36.

trust literature building on psychological as well as on sociological concepts.[129] Economic theories, through the examination of economic exchange, deal with issues closely related to trust, however, do not appreciate trust as a central construct. Important trust building mechanisms recognized in other disciplines, however, are mirrored in economic theories, especially in (evolutionary) game theory and in the new institutional economics. Marketing, or – more specifically – *relationship marketing* is the discipline that the research topic of this dissertation is most closely related to. Trust in buyer-seller relationships has been on the agenda of many researchers in this field.

The following sections will briefly describe the key elements of the respective perspectives on trust. It will be shown that all perspectives presented add to the understanding of trust in the present research. However, all four of these seem to be too strictly limited within their own boundaries to serve as a basis for the conceptualization of trust in this thesis. Therefore, finally, an *interdisciplinary approach* to the analysis of trust is presented that originates from the field of *organization* but has found wide acceptance in the trust literature in various research fields. This fifth approach, a concept developed by Mayer et al. (1995) overcomes the boundaries mentioned above and provides a framework suitable for the research of trust pursued here.

2.2.2 Important conceptualizations of trust

2.2.2.1 Psychological perspective

Among the most influential works on trust from the area of psychology are the publications by the social psychologist Deutsch (1958) as well as the personality psychologists Erikson (1953) and Rotter (1967)[130].

Deutsch provides a very general definition of trust[131], highlighting several important points valued in subsequent research. First, he includes the notion of risk as a necessary prerequisite for trust to be a non-trivial concept. This view is a fundamental commonality in most of the subsequent research on trust. Second, however, he clearly

[129] It is evident from a review of the literature that most conceptualizations of trust extensively draw on the psychological and sociological literature, especially on seminal works by Rotter (1967) and Luhmann (1979).
[130] Alternatively, authors often refer to the book published in 1972: Rotter, Chance, and Phares (1972).
[131] See Deutsch (1958), p. 266, for the full text definition.

differentiates trust from *gambling* in underlining the importance of an expectation of a positive outcome.[132] Third, he mentions the differentiation between a general form of trust, directed towards the individual's environment, and a more specific type of trust, which is directed at a particular counterpart.[133]

Erikson (1953) focuses on the general type of trust that he calls *basic trust*.[134] He understands basic trust as a feeling of being able to rely on people and oneself. This feeling develops as a part of personality during early stages of childhood.[135] Erikson considers a reasonable amount of basic trust to be a core element of a healthy personality. According to the author, a lack of basic trust can lead to generalized mistrust, materializing in schizophrenia and psychoses in extreme cases.[136]

Rotter (1967) provides a widely referenced definition of *interpersonal trust: "Interpersonal trust is defined here as an expectancy held by an individual or a group that the word, promise, verbal or written statement of another individual or group can be relied upon."*[137] According to his application of the *Social Learning Theory*, trust develops based on *own* previous experience with groups or individual people or based on statements made by significant, trusted sources.[138]

In summary, the psychology-based trust concepts provide an important foundation for trust research even across borders of disciplines. In terms of the nature of the construct, trust is mainly seen as a personality variable[139], with aspects that go far beyond rationality. With regard to the applicability to the present research setting, psychological conceptualizations of trust provide valuable contributions, but – compared with alternative approaches – do not seem specific enough to the context buyer-seller relationships.

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[132] Cf. Deutsch (1958), p. 266.
[133] Cf. Deutsch (1958), p. 267.
[134] Erikson (1953), p. 15.
[135] More specifically, beginning with a child's birth, it needs to deal with more and more experiences of separation in situations of dependence: birth itself, the end of breast feeding, and the realization of oneself as an individual. In the case of an orderly development in a functioning family, the child learns that its parents are there to satisfy all needs, despite increasing separation. This way, the individual learns to expect people to be friendly and to identify with friendly people. This is the basis for basic trust.
[136] Cf. Erikson (1953), p. 15.
[137] Rotter (1967), p. 651.
[138] Cf. Rotter (1967), pp. 652-653.
[139] Cf. Rempel, Holmes, and Zanna (1985), p. 95.

2.2.2.2 Economic perspective

Despite the fact that there are many publications regarding trust-related issues, the concept of trust is not a central variable in the field of economics.

The classical and neo-classical economics are based on a utilitarian and welfare-oriented view as well as the assumption of the human being acting as a *homo oeconomicus* solely focused on rationality.[140] These arguments do not allow an influence of social relations or personality psychology[141]. At the same time, all rationally-based positive expectations within exchange relationships are parameters of an actor's expected utility function, and, consequently, trust is not a known construct in this setting.

The trust-related discussion has, however, touched other streams of economic theory, specifically the (evolutionary) game theory as well as the transaction cost theory.

In game theory, trust is mentioned frequently, in the context of *trust games*. Trust games typically have the form of a *prisoner's dilemma* game, a game between two actors, in which cooperative behavior implies social gains.[142] Trust, from this perspective, is defined as *cooperative behavior*.[143] Under the governance of the basic form of game theory, based on fully rational behavior of all actors, cooperation in such a setting is not a dominant strategy.

Single game (Prisoners' Dilemma). The idea of the prisoners' dilemma game is that two criminals are caught and interrogated separately. Their sentence will eventually depend on the outcome of the two interrogations. The best result would be – from the criminal's perspective – if both denied the crime, in which case they would both get away with a small punishment for some minor offense. In case they both confess, they will be sentenced based on the crime they committed; however, the positive notion of confessing will be reflected in a reduction in the verdict. In the case of one actor confessing while the other one denies, the honest one benefits from a principal witness treatment with the other one receiving the full punishment for his crimes – with no concessions for honesty or remorse.

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[140] Cf., e.g., Glastetter and Müller (1978), pp. 852-853, Anderson and Narus (1990), p. 19, or Labiano (2000), p. 146.
[141] Cf. Granovetter (1985), p. 483.
[142] Cf. Ho and Weigelt (2005), p. 521.
[143] Cf. Rigdon, McCabe, and Smith (2007), p. 993.

In this setting, the only stable equilibrium based on fully rational behavior of both parties is defecting, i.e., both parties will confess, so that they forfeit the social gain of cooperation, that is, denying.[144] The reason lies in the rational analysis conducted by each actor: if actor 1 confessed, the best response by actor 2 would be confessing as well in order to lower his expected penalty. If actor 1 denied, actor 2's best response would again be confessing in order to benefit from the reward as a principal witness.

Infinitely repeated game. In the case of repetition of the game, the situation changes. Here, a strategy is evaluated based on the payoff after the sum of all games, the *super game*.[145] Now, more cooperative strategies can become equilibrium strategies. Consider, for example two actors playing the *spite* strategy, in which they cooperate until the opponent defects, in which case they will defect ever after. Two actors playing this strategy will be cooperating infinitely.[146]

Finitely repeated game. Critics of the infinitely repeated game argue that the assumption of endlessness is unrealistic in human life. However, if the super game is finite at some point, it can be shown through reverse induction, that cooperative strategies cannot be equilibrium strategies, as defecting will always be the rational choice in the last step, "rolling forward" the mistrust.[147]

In *evolutionary game theory*, however, the assumption of strict rationality is eased and cultural and genetic evolutionary process can influence the actors' behavior.[148] The typical experiment consists of several "generations" of repeated games.[149] After each block, less successful strategies are sorted out and replaced by more successful ones. In such a setting, authors recognize an actor's *trustworthiness* based on his history of cooperative choices.[150] Now, individuals can signal their strategy and build a reputation.[151] Axelrod (1984) has shown that a cooperative *"TIT FOR TAT strategy"*[152], in which an agent initially cooperates, retaliates if provoked, but then quickly forgives, is an evolutionary stable strategy. That means that this strategy, even if only played by a minority in the beginning, can become a majority strategy after

[144] Cf. Varian (1999), p. 470-471.
[145] Cf. Varian (1999), p. 470-471.
[146] Varian (1999), p. 472.
[147] Cf. Varian (1999), p. 472.
[148] Cf., e.g., Ellison (1993), pp. 1050ff., or Kandori, Mailath, and Rob (1993), pp. 29-30.
[149] Cf. Axelrod (1984), p. 190, or Ellison (1993), p. 1049.
[150] Cf. Rigdon et al. (2007), p. 992.
[151] Cf. Rigdon et al. (2007), p. 992.
[152] Axelrod (1984), p. 170.

several repetitions. Obviously, the factors identified to support this evolution are to a large degree borrowed from outside of economic theory.[153]

In summary, one can say that in the context of game theory, trust is conceptually acknowledged, however, with a very limited meaning in the form of a track record of cooperativeness.

The transaction cost theory, developed by Williamson (1975)[154] is another stream of economic theory frequently associated with the concept of trust.[155] Its idea goes back to a seminal work by Coase (1937), in which he argues that firms exist because of a comparison of the costs of market exchange with the costs of organization.[156] Fundamental assumptions of the theory depart from the neo-classical paradigm. First, bounded rationality is assumed as opposed to fully rational actors – a consequence of information asymmetries and people's limited information processing capacity. Second, the transaction cost theory is based on the assumption of opportunism rather than utility-maximizing behavior framed by integrity as assumed in the neoclassical theory.[157] Despite the fact that Williamson is easing the strict assumptions of neoclassical theory, he makes very clear that trust is not a concept inherent to transaction cost theory. He argues that contractual, institutional, and societal prerequisites often argued to build trust are *safeguards* in the sense of his theory in fact, thus leaving no need for a concept of trust, at least within the context of economic exchange.[158]

In summary, due to comparably strict assumptions regarding the nature of economic actors, economic theories do not provide a useful basis for the conceptualization of trust. Nonetheless, important insights for the development of trust can be gained from the combination of economic ideas with a trust concept from adjacent disciplines. This is especially relevant for the effect of information asymmetries and, consequently, product qualities on trust according to the economics of information as well as the role of institutions as a basis for trust according to sociological theory. Both will be discussed in later sections.

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[153] Axelrod (1984), p. 145, for examples notes that a certain degree of *social structure* is required in the population of players for cooperation to prevail.
[154] Cf. Williamson (1975).
[155] As, for example, in Ganesan (1994), pp. 1ff., Zaheer and Venkatraman (1995), pp. 373ff., Ripperger (2005), pp. 26-27, or North (1996), pp. 27ff.
[156] Cf. Coase (1937), p. 390.
[157] Cf. Ghoshal and Moran (1996), p. 14.
[158] Cf. Williamson (1993), p. 478.

2.2.2.3 Sociological perspective

Lewis and Weigert (1985) published a central paper in which they developed a sociological conceptualization of trust by integrating available theoretical thinking especially by Barber (1983) and Luhmann (1979).[159] In their view, trust is sociological in nature, as *"individuals would have no occasion or need to trust apart from social relationships"*.[160] This view opposes the understanding of personality psychologists mentioned above, who see trust as a personality trait: sociologically, it is an attribute of a social structure or a relationship.

Consequently, Lewis and Weigert (1985) define trust by saying that *"trust exists in a social system insofar as the members of that system act according to and are secure in the expected futures constituted by the presence of each other or their symbolic representations."*[161] Similarly, Zucker (1986) states that *"from a sociological perspective, trust is defined as a set of expectations shared by all those involved in an exchange."*[162] Furthermore, Lewis and Weigert identify three components of trust: *cognitive* (*rational*), *emotional*, and *behavioral*. Whereas the cognitive and emotional components regard the development of trust through considering evidence of trustworthiness of an opponent and through affective bonds in the relationship respectively, the behavioral component describes the action taken based on trust, which can in turn produce new input for the cognitive and emotional processes.[163]

As opposed to economists, researchers in the field of sociology generally subscribe to the view that trust is a necessary prerequisite for social and economic exchange.[164] In line with other disciplines, they also underline the requirement of a certain amount of risk in engaging in a relationship for the concept of trust to make sense.[165] However, the sociological concept of trust does not seem well-suited as a basis for the analysis pursued here. The sole focus on the *relationship* aspect of trust does not take into consideration the dispositional, personality-related portion of trust building. With regard to the goal of this dissertation to develop a model of buyer trust in NEVs with a

[159] Cf. Lewis and Weigert (1985), p. 968.
[160] Cf. Lewis and Weigert (1985), p. 969.
[161] Cf. Lewis and Weigert (1985), p. 968.
[162] Zucker (1986), p. 54.
[163] Cf. Lewis and Weigert (1985), p. 970ff.
[164] See, for example Zucker (1986), p. 56, Granovetter (1985), p. 489, Lewis and Weigert (1985), p. 968.
[165] Cf. Lewis and Weigert (1985), p. 968.

large degree of conceptual clarity as demanded in recent publications, this comparably limited perspective on trust does not seem sufficient.

2.2.2.4 Relationship marketing perspective

Much of the recent research on trust originates from the field of relationship marketing. The basic understanding of marketing expressed by Levitt (1960) that *"the entire corporation must be viewed as a customer-creating and customer-satisfying organism"*[166] highlights the importance of the "creation" of customers, i.e., converting potential buyers into customers. Along with a shift in the focus of marketing research towards the *relationship* aspects of marketing, trust has finally become a central construct of interest in the marketing literature.[167] Berry (2002), one of the first authors using the term *relationship marketing* in his 1983 paper, names trust as one of the three central constructs of relationship marketing in his retrospective in 2002.[168]

When it comes to defining trust, the related literature offers a large range of different definitions.[169] What these have in common is the fact that they usually draw on the psychology literature mentioned above to conceptually frame trust, with Rotter's fundamental work building the basis for a large proportion of the publications. Also, the relationship aspect of trust is typically underlined, i.e., authors see trust as an attribute of a specific relationship as opposed to a general personality trait.

However, the conceptualizations of trust used in the relationship marketing literature differ quite substantially in two aspects: a) the understanding of trust as a belief or an intention or both, and b) the elements of trustworthiness of an opponent.

Regarding the first aspect, the key question is, where *trusting* begins. Ganesan (1994) defines trust as a perception of *credibility* and *benevolence* in an exchange partner and uses operationalizations of these two constructs to measure trust.[170] This view understands trust as a *belief*, which has been seen as *perceived trustworthiness* rather than *trust* by other authors.[171] Moorman et al. (1992), on the other hand, draw on early

[166] Levitt (1960), p. 56.
[167] Cf. Morgan and Hunt (1994), p. 20.
[168] Cf. Berry (2002), p. 73.
[169] Cf. Sirdeshmukh, Singh, and Sabol (2002), pp. 15-16, or Moorman, Zaltman, and Deshpande (1992), p. 315.
[170] Cf. Ganesan (1994), p. 3.
[171] Cf., e.g., Mayer et al. (1995), pp. 715ff., or Moorman et al. (1992), p. 315.

psychological works[172] highlighting once more the view that trust would not be necessary without placing oneself or own resources at risk.[173] Consequently, they define trust as a *"willingness to rely on an exchange partner in whom one has confidence"*[174]. The willingness to rely, as an intention, is thus the actual manifestation of trusting, while trusting beliefs are a necessary but not a sufficient condition for trust. Other authors even go a step further, including a purchase intention in their conceptualization of trust. Here, the idea is that there needs to be more than an abstract willingness to rely in order to justify the term trusting intention.[175]

The second aspect is the question of what it takes to be trustworthy. In other words, what are the positive trusting beliefs mentioned above about? Ganesan's *credibility* and *benevolence* are mentioned frequently, other authors highlight *competence, honesty*, *benevolence*, and *predictability*[176], *dependability* and *reliability*[177], *reliability* and *integrity*[178]. Despite some overlap, there is a large list of different factors of trustworthiness and trusting beliefs that can be found in the literature.[179]

In summary, despite the important role of trust in the field of relationship marketing, there is no broad agreement on the conceptualization of trust regarding the differentiation between its antecedents, the construct itself, and its outcomes. The same applies to the relevant dimensions within the construct of trustworthiness.

2.2.2.5 Inter-disciplinary perspective according to Mayer et al.

The conceptual diversity described above acts as the vantage point of a seminal paper on trust by Mayer et al. (1995).[180] In this well-appreciated publication, the authors acknowledge the vast diversity regarding the concept of trust, both across disciplines and within disciplines with respect to a clear differentiation of the construct from antecedent factors and its outcomes. As a response to that situation, they strive for an integrated concept of trust that incorporates the commonalities found in the various approaches, yet clarifying the construct's unresolved issues.

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[172] E.g., Deutsch (1958) or Rotter et al. (1972). Cf. Moorman et al. (1992) p. 315.
[173] Cf. Moorman et al. (1992), p. 315.
[174] Moorman et al. (1992), p. 315.
[175] Stewart (2003), p. 5.
[176] McKnight, Cummings, and Chervany (1998), p. 476.
[177] Sirdeshmukh et al. (2002), p. 17.
[178] Morgan and Hunt (1994), p. 23.
[179] Cf. Mayer et al. (1995) for a comprehensive review.
[180] Cited by more than 1900 other publications by end of January, 2008, according to Google Scholar, see also Schoorman, Mayer, and Davis (2007), p. 344.

Based on a comprehensive literature review, they collect existing knowledge on the need for trust, definitions of trust and adjacent concepts, the relevance of risk as well as views on factors of trustworthiness.

As a result, the authors present a concept that not only defines trust, but also provides an explanation of trust through direct antecedents, namely factors of a counterpart's trustworthiness and a trustor's propensity to trust. On the consequence side of trust, they resolve the discussion around trusting beliefs, intentions, and behavior by specifying risk taking as the outcome of trust, incorporating risk as a relevant influencing factor of the relationship of trust and risk taking. Figure 3 shows an overview of the concept of trust according to Mayer et al. The following paragraphs will briefly sketch the roles of individual constructs within the concept proposed by Mayer et al.

Trust. According to Mayer et al., trust is defined as *"the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other part"*.[181] This definition, like many others, largely draws on psychology literature. It contains the notion of positive *expectations*, but also makes clear that expectations – or beliefs – alone do not form trust. Central to trust is the *willingness to be vulnerable*. This part of the definition captures the relevance of risk[182], without which there would be no vulnerability and no need to trust. The last half sentence on *monitoring and control* distinguishes trust from perceived predictability. Monitoring and control might ensure predictability and thus lead to cooperation, however, there is no notion of trust involved.[183]

[181] Mayer et al. (1995), p. 712.
[182] For the specific meaning of risk in the concept by Mayer et al. refer to the discussion of *risk taking in relationship* later in this section.
[183] Mayer et al. (1995), p. 714.

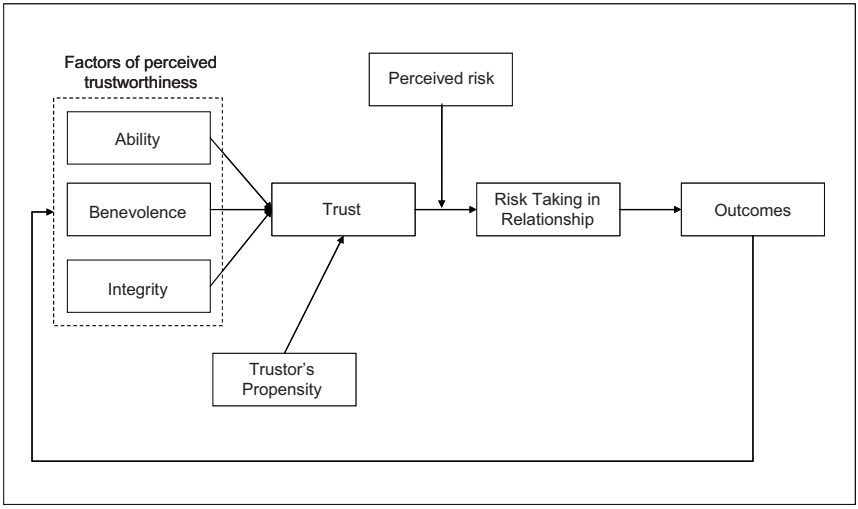

Figure 3: Overview of the trust concept by Mayer et al.[184]

Trustor's propensity to trust or *trusting disposition*. Mayer et al. support a) the view that trust can be the result of a general trusting propensity, in the form of a personality trait almost irrespective of the trustee, and b) the notion that the same trustor can exhibit different levels of trust for different people, thus incorporate his perception of his opponents' trustworthiness. The authors introduce the construct *propensity to trust* to describe the former aspect, a *"stable within-party factor that will affect the likelihood the party will trust."*[185] This understanding mirrors Erikson's notion of basic trust explained in section 2.2.2.1. Depending on one's own *"developmental experiences, personality types, and cultural background"*[186], different people will have varying tendencies to trust others. Extreme cases are "blind trust", where people trust in situations that most others would agree do not provide the basis for trust. On the other hand, Mayer et al. also mention the extreme case of distrust even in objectively trustworthy circumstances – this clearly relates to Erikson's examples of pathopsychological lack of trust.[187]

[184] Mayer et al. (1995), p. 715.
[185] Mayer et al. (1995), p. 715.
[186] Mayer et al. (1995), p. 715.
[187] Cf. section 2.2.2.1.

Factors of perceived trustworthiness. In addition to a personality-specific propensity to trust, Mayer et al. recognize the aspect of trustee-specific trustworthiness perceptions. As can be seen from an analysis of the marketing-related literature on trust, there is a wide variety of perspectives on trustee-specific direct antecedents of trust.[188] Mayer et al. see trustworthiness as a set of characteristics of an actor that positively influences others to trust him.[189] They come to the conclusion that three dominant factors appear most often and – as a set – seem to explain the majority of perceived trustworthiness: *ability*, *benevolence*, and *integrity*.[190, 191] Based on the authors' conceptualization, *"**ability** is that group of skills, competencies, and characteristics that enable a party to have influence within some specific domain"*[192], *"**benevolence** is the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive"*[193] and ***integrity*** means *"that the trustee adheres to a set of principles that the trustor finds acceptable."*[194] They propose that these dimensions of trustworthiness – if perceived by the trustor – explain the opponent-specific variation of his level of trust, in addition to the unspecific propensity to trust others.

Risk taking in relationship. In order to further clarify the concept of trust, Mayer et al. also define what they consider a result of trust in relationship settings: risk taking in a relationship. While trust itself – a willingness to be vulnerable – is not (yet) risky, the "*behavioral manifestation*"[195] of trust involves risk. While not all risk taking is related to trust, the authors argue that an individual will compare his level of trust in his counterpart – based on his personal trusting propensity as well as his perception of his counterpart's trustworthiness – with the level of *risk generally associated with the type of relationship* in question.[196] In situations, in which the level of trust in the specific counterpart outweighs the level of perceived risk associated with a relationship of the respective type, the trustor will engage. Whereas, if the trust level is insufficient for the amount of risk associated with such a relationship, the trustor will pass. After all,

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[188] Cf. section 2.2.2.4.
[189] Cf. Mayer et al. (1995), p. 716.
[190] Cf. Mayer et al. (1995), p. 717.
[191] Interestingly, the authors note that this set of characteristics parallels the requirements for a speaker to have *ethos*, according to Aristotle: intelligence, character, and goodwill. Cf. footnote in Mayer et al. (1995), p. 717.
[192] Mayer et al. (1995), p. 717.
[193] Mayer et al. (1995), p. 718.
[194] Mayer et al. (1995), p. 719.
[195] Mayer et al. (1995), p. 724.
[196] Cf. Mayer et al. (1995), p. 726.

trusting behavior is seen as a consequence of trust rather than a dimension of trust, as opposed to other views in the literature. Also, it is worth noting that this conceptualization involves a slightly different understanding of risk. Mayer et al. differentiate between the perceived risk generally associated with such a relationship, i.e., "*outside of considerations that involve the relationship with the particular trustee.*"[197] The latter is covered in the trustor's trust. In that aspect, the level of perceived risk is a moderator of the relevance of trust for risk taking in a relationship.

Overall, probably the most important contribution of the concept of trust proposed by Mayer et al. is the fact that it structures the variety of views on trust and provides a comprehensive and consistent concept incorporating and differentiating the different aspects frequently found in the literature. This has been recognized by the research community, as apparent from the large number of citations by authors from various disciplines.

2.2.3 View on trust in this research

The present research project will adopt the integrative view on trust developed by Mayer et al. presented in the previous section, thereby following a large group of researchers who have embraced the concept ever since its publication in 1995.[198]

The concept provides the most suitable basis for this research effort for several reasons. First, through the clear differentiation between direct antecedents, trust itself, and the consequences of trust, this approach helps to structure the research model presented in chapter 4. Furthermore, the explicit integration of several related constructs within the conceptualization of trust follows the call for conceptual clarity regarding the concept trust and its related constructs. Second, Mayer et al. provide a concept that integrates the relationship-focused aspect of trustworthiness with the personality-focused aspect of trusting propensity.[199] Both aspects are well-elaborated in the literature and equally important with regard to the research questions analyzed here, since, here, trust is analyzed not only within existing relationships but also in earlier stages of relationship building, where the influence of a propensity to trust is

[197] Mayer et al. (1995), p. 726.
[198] Cf. Schoorman et al. (2007), p. 345-346, and, e.g., Mayer and Davis (1999), McKnight, Choudhury, and Kacmar (2002), Lee and Turban (2001), Stewart (2003), Becerra and Gupta (2003), McKnight et al. (2004), Schlosser, White, and Lloyd (2006), Williams (2007).
[199] Cf. Schoorman et al. (2007), p. 344-345.

expected to be of great importance.[200] The third advantage over its alternatives is that the concept by Mayer et al. is explicitly applicable across different levels of analysis.[201] It has served well in research on intra-organizational and inter-organizational relationships. Especially the relationship between buyers and suppliers is an application of the concept underlined by the authors.[202] Fourth and last, the reference to widely accepted psychological foundations and the concept's widespread recognition in literature provide confidence in a sound theory.

It is worth noting that this conceptualization of trust also provides a theoretical foundation for the positive effect of trust on purchasing intention, as hypothesized at a later point in this work.

2.3 Buyer-seller relationships in this research

The buyer-seller relationship as a central element of the research setting of the present study needs to be clearly defined and delineated. The following paragraphs will sketch the understanding of buyer-seller relationships in the context of this study.

Theoretically, the buyer-seller relationship is the core research object of relationship marketing. According to Dwyer, Schurr, and Oh (1987), a buyer-seller *relationship* is fundamentally different from a *discrete transaction*. In contrast to the former, the latter *"is manifested by money on one side and easily measured commodity on the other."*[203] The authors note that such transactions are rare. Transactions involving more complex products or repeated interactions incorporate a social, relational element.[204] While the role of trust is negligible in the case of discrete transactions, it is important in buyer-seller relationships.[205] Accordingly, in this research, the focus is on relational exchange rather than discrete transactions.

Such buyer-seller relationships can be further characterized along several dimensions. Specifically, with respect to NEVs as central research objects, the *stage* of the buyer-seller relationship is a relevant parameter. Further, relationships can be classified by the *type of buyers* involved. Another important question is concerned with the *outcome*

[200] McKnight et al. (1998), p. 474.
[201] Cf., e.g., Schoorman et al. (2007), p. 345.
[202] Cf. Schoorman et al. (2007), p. 345.
[203] Cf. Dwyer et al. (1987), p. 12.
[204] Cf. Dwyer et al. (1987), p. 12.
[205] Cf. Dwyer et al. (1987), p. 13.

of a buyer-seller relationship. Finally, especially with regard to the phenomenon of trust researched here, it is important to chose a *perspective* on the buyer-seller relationship.

Relationship stages. Dwyer et al. (1987) introduce the concept of four subsequent development stages of a buyer-seller relationship.[206] According to the proposed framework, the first stage, *awareness*, is characterized by unilateral considerations of potential exchange partners. In the second stage, *exploration*, bilateral interaction begins to occur in the form of mutual testing and probing. During *expansion*, the mutual dependence is increased based on satisfaction with the established relationship. Finally, in the last stage of *commitment*, sustained interdependence is ensured through long-term contracts or shared value systems. The understanding of a buyer-seller relationship followed in this research shall explicitly include the first stage of awareness, as this is the critical stage, in which NEVs make or break the early stream of revenue.[207] As a consequence, the empirical analysis will need to include data not only from existing customers of the NEVs evaluated, but also from non-customers, that is, buyers in the respective markets that do not have an established relationship with the supplier firm they assess. This design parameter of the present study also addresses limitations identified reported for other studies: for example, Grayson, Johnson, and Chen (2008) note that their analysis might be influenced by the fact that there data only contains responses from existing customers.[208]

Buyer type. The marketing literature differentiates between business-to-business and business-to-consumer marketing.[209] It is assumed here that there are fundamental differences in the relevance of trust-related constructs between consumers and professional buyers. For example, factors of institutional embeddedness such as certifications or membership in industry associations might be completely unknown to consumers while being of major importance from the perspective of a professional buyer. It therefore seems appropriate to target either of the two market types in the present research. Previous research has shown that the majority of German NEVs consider themselves to be focused on business-to-business (B2B) relationships. As an example, Wolff (2008) finds that only 19% of the respondents in her sample among new, growth-oriented ventures stated business-to-consumer (B2C) relationships to be

[206] Cf. Dwyer et al. (1987), pp. 11ff., for the following paragraph.
[207] Cf. Wilson (2001), p. 1.
[208] Cf. Grayson et al. (2008), p. 253.
[209] Cf., e.g., Ramani and Kumar (2008), p. 27.

their primary mode of business.[210] Similarly, Brinckmann (Forthcoming) reports that her sample of young, innovative firms was dominated by B2B-focused players with a share of 80% in the final sample.[211] Since the B2B market seems to be more relevant to the core object of this research, this study will focus exclusively on B2B relationships.

Outcome of the relationship. The literature on customer relationships differentiates between several relationship outcomes. Palmatier, Dant, Grewal, and Evans (2006), for example, distinguish between *customer-focused, seller-focused, and dyadic outcomes.* Typical customer-focused outcomes are relationship continuity, purchase intention, and (low) likelihood of leaving. Seller-focused outcomes typically deal with seller firm performance measures, such as sales, market share, or profit measures. Finally, dyadic outcomes are coordination or joint actions as forms of cooperation.

Starting from the initial statement of the problem in this dissertation, an objective performance measure would be best able to analyze the effect of trust on new venture success. However, two reasons make the use of such a measure inadvisable. First, there is likely to be a time lag between the development of trust and an effect on firm performance. Second, firm performance should be influenced by a multitude of factors, so that the effect of trust might be overlaid by substantial "noise" in the data. The dyadic outcome of cooperation seems to be too specific to certain types of relationships. At the same time, it seems to depart from the initial notion of trust leading to the establishment of a stream of sales. With regard to the remaining customer-focused outcomes, purchase intention seems to capture most clearly the aspects discussed in the first chapter. Moreover, according to the theory of planned behavior, intention is widely seen as a direct antecedent of actual behavior. Accordingly, purchase intention should provide a functioning proxy for actual purchase decisions. Ajzen (2002) states that *"given a sufficient degree of actual control over the behavior, people are expected to carry out their intentions when the opportunity arises. Intention is thus assumed to be the immediate antecedent of behavior."*[212] Even though the theory has been criticized, there seems to be sufficient empirical evidence for the close relationship between intention and actual behavior.[213]

[210] Cf. Wolff (2008), p. 230.
[211] Cf. Brinckmann (Forthcoming), p. 202.
[212] Ajzen (2002), p. 107.
[213] Cf. Ajzen (2002), pp. 107ff.

Taking all the above into consideration, the present study will focus on purchase intention as the core dependent variable in the analysis.

Perspective on the relationship. As a result of the focus on B2B relationships, this research is targeted at *professional buyers*. A *professional buyer* is considered to be any person who is *significantly involved in purchasing-related decision making* in the respective market *in his professional role*. It is worth noting that information regarding all constructs discussed here is therefore subjective, i.e., expressing the perception of the buyers surveyed. However, this seems to be the best approach to measurement in this study. Measuring trust in an objective way is a challenging if not impossible task.[214] Among the two subjective ways of measuring trust in a relationship, its antecedents, and outcomes, it seems more advisable to stay on the side of the trustor rather than of the trustee, since trust is largely determined by the perceptions of the trustor.[215]

To summarize the above considerations, a buyer-seller relationship, in the context of this thesis, shall refer to the relationship between a seller and a potential buyer in a business-to-business market. It explicitly includes early stages, in which the relationship is characterized by unilateral considerations and does not require previous interactions. As the core outcome of such a relationship, purchase intention will be evaluated, assuming a buyer perspective on the relationship.

2.4 The economics of information: product qualities

The second research objective phrased in chapter 1.3 describes that this study aims at incorporating context variability in the model of trust. As trust is assumed to vary in importance depending on the industry context[216], a sound description of the relevance of trust and trust building levers across a variety of contexts needs to take context factors into account.

In this respect, it has been elaborated earlier that the relevance of trust depends on the level of risk involved in a relationship.[217] In a purchasing context, a large portion of such risk can be explained through information asymmetry between seller and

[214] Cf., e.g., Welter and Smallbone (2006), p. 469, and Zucker (1986), p. 59.
[215] Refer to section 2.2.3 or, for example, Mayer et al. (1995) or Becherer (1993).
[216] Cf., among others, Palmatier et al. (2006), who give an overview of factors potentially moderating the effect of trust and positive relationship outcomes.
[217] Refer to section 2.2.3.

buyer.[218] In other words, the greater the difference between what the buyer and the seller know about the product and its quality and performance, the more important the influence of trust on the buyer's decision becomes.

The theory of the economics of information provides a framework helpful in structuring such information asymmetries. The following sections provide a short introduction to the theory through a reiteration of the theory's foundation and development, an explanation of the product or service qualities, which are the theory's central element from the perspective of this work, and finally an analysis of the relevance of these qualities for the research of buyer trust.

2.4.1 The economics of information

The theory of the economics of information goes back to Marschak (1954), who in his seminal work eased the assumption of perfect information within economic transaction.[219] The theory has been further advanced by Akerlof (1970), Spence (1973), and Stiglitz (1974), who were awarded the Nobel Prize in Economics in 2001 for their contributions. With regard to the notion of product qualities – the aspect of information economics most relevant for the present research context – Nelson (1970) as well as Darby and Karni (1973) have published seminal papers.

The starting point of the development of the theory was a criticism of the strict assumptions on the neoclassical microeconomics. Marschak (1954) was the first to propose a model that differentiated between environmental conditions and the information available about them, i.e., the model departed from the assumption of perfect information.[220] An actor's decisions in such a model are no longer reactions to actual environmental conditions but to the information about them that is known to the actor.

A second core assumption of the economics of information is that an economic actor can act opportunistically.[221] The combination of the two assumptions can lead to

[218] Schoorman et al. (2007) explicitely mention the relevance of information asymmetries in trust settings (p. 352).
[219] Cf. Marschak (1954), Picot and Wolff (2004), p. 1483.
[220] Cf. Picot and Wolff (2004), p. 1483.
[221] Cf., e.g., Spremann (1990), pp. 561ff.

opportunism among the actors in an economic exchange, if the information is asymmetrically distributed among them. This can eventually lead to market failure.[222]

As a consequence, economic actors are pursuing means of information exchange in order to resolve information asymmetries. The literature specifies two key concepts in this respect: *signaling*, performed by the better-informed actor, and *screening*, performed by the less-informed actor.

Signaling is a means of providing information otherwise hidden in a situation of information asymmetry, an *"observable, alterable characteristic"*[223]. The most prominent example is signaling in the job market through the investment in education.[224] Here, the information about the productive capabilities of a potential employee is initially hidden from an employer considering hiring him. Through the investment in education, the applicant signals skill and will to perform to his employer-to-be. In order for the signal to work as such, one critical assumption has to hold: the costs of acquiring the signal need to decline with increasing productive capability. This way, getting a good education is a rational choice for a talented person, but would not make sense for someone with low productive capabilities. In the case of the automobile market referred to by Akerlof (1970), warranties would be an effective signal offered by the seller of high-quality cars: the warranty offer would be inexpensive for him due to the high quality of the car he intends to sell, while it would be extremely costly for the seller of a "lemon".[225]

Screening. Screening, on the other hand, is a means of information generation for the disadvantaged party. According to Stiglitz (1974), it can take the form of an *examination* or a *self-selection mechanism*.[226] While the former describes an assessment of characteristics through the screening actor, the latter refers to an assessment of the behavior of the screened party.[227]

With regard to economic exchange transactions, the theory is focused on the buying party's uncertainty about quality and fair price of the goods offered.[228] In this context, the literature differentiates between *product (or service) qualities*, distinguishing

[222] Cf. Akerlof (1970), p. 489.
[223] Spence (1973), p. 359.
[224] Cf. Spence (1973), pp. 358ff.
[225] Cf. Akerlof (1970), pp. 499ff.
[226] Cf. Stiglitz (1974), pp. 29-31.
[227] Cf. Stiglitz (1974), pp. 29-31.
[228] Cf. Weiber and Adler (1995), p. 52.

search, *experience*, and *credence* qualities, which will be described in the following section.

2.4.2 Product qualities

The concept of product qualities attempts to differentiate how well the quality of a good or service can be judged by a buyer. Initially, Nelson (1970) introduced the distinction between *search* and *experience qualities* of a good.[229, 230] Darby and Karni (1973) added a third category, *credence qualities*.[231]

Search qualities are product characteristics that can be fully evaluated prior to the purchase. Provided the buyer invests the effort to *search*, there are theoretically no uncertainties regarding product quality.[232] Consequently, no information asymmetry is present in a purchasing setting involving goods characterized by such qualities. These characteristics are common among commodity products such as electricity.

Experience qualities are only revealed after purchase, through usage or consumption, thus some degree of risk is associated with the purchase.[233] Many products of day-to-day use are dominated by experience qualities, e.g., automobiles or computer software.

Finally, *credence* qualities of a product either fail to allow quality assessment or do so only at extreme additional costs, even after purchase or consumption. Obviously, risk regarding product quality is highest in this category. Darby and Karni (1973) define credence qualities as *"those which, although worthwhile, cannot be evaluated in normal use."*[234] Typical examples are vitamin supplements or repair services.

2.4.3 The role of product qualities in the present research

As evident from the previous paragraphs, the economics of information, more specifically, the central framework of product qualities, seems suitable to explain a large portion of the risk inherent in purchasing relationships. In chapter 1.3, the objective has been set to develop a model that incorporates some degree of context

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[229] Cf. Nelson (1970), pp. 312ff.
[230] Precisely, Nelson referred to search and experience *goods*, only clarifying later that the same good can have search and experience qualities at the same time. Cf. Nelson (1974).
[231] Cf. Darby and Karni (1973), pp. 68ff.
[232] Cf.Nelson (1970), p. 312.
[233] Cf.Nelson (1970), p. 312.
[234] Darby and Karni (1973), pp. 68-69.

variability to make it possible to generalize the findings from this study and to enhance the robustness of the proposed model.

Consequently, this study will incorporate product qualities as a major source of variability between industry contexts. The question remains, then, how to reflect product qualities in the present study.

There are two fundamental options on how to include the product qualities: leave it to the discretion of the survey participant to choose a buyer-seller relationship and subsequently classify the type of product involved, or provide a predetermined purchasing setting that is characterized by one or the other product quality. In the present study, the latter approach is pursued in order to maintain control over the classification rather than have this central assessment left to a survey respondent.

To accommodate this, the model will be tested in different sub samples of respondents from different industries, which are dominated by different types of product qualities. Herein, the analysis will focus on differences between *two types of industries*. An industry with predominant experience qualities will be referred to as an *experience industry*, whereas an industry with products and services predominantly described by credence qualities will be called a *credence industry*.[235] This way, the variability of product qualities will be captured on an industry level, which will allow an analysis of its effect through a group comparison between the two sub samples.

[235] The third type is deliberately excluded from the analysis. As shown earlier, the degree of risk associated with a decision to purchase *search* goods is very low. Trust, however, will be of specific interest in a situation that involves a certain amount of risk, so that it seems appropriate to focus the research effort on the other two product/service classes.

3 Theoretical framework

The previous chapter has clarified the understanding of terms and constructs central to this dissertation. While this is an important foundation for the analyses pursued here, the confirmatory approach of this thesis requires further theoretical foundation in order to make propositions about the relationships between the variables involved.

The purpose of chapter 3 is to select such a theoretical framework for the development of the research model in chapter 4. A theoretical foundation of this research must provide a sound explanation of the relevant drivers of trust and the effect of trust in a buyer-seller relationship. Moreover, the specific requirements of NEVs as sellers – as described in section 2.1.2 – need to be accounted for.

The chapter contains three parts. In section 3.1, the theoretical foundation of trust building is developed, while section 3.2 is concerned with the theoretical foundation of the effect of trust on purchase intentions. Finally, section 3.3 summarizes the theoretical framework applied in this dissertation.

3.1 Theoretical foundation of trust building

To facilitate the theory selection, section 3.1.1 outlines the assessment criteria derived from the research objectives. In the remaining sub sections, relevant theoretical approaches to trust building found in the literature are presented and evaluated along the criteria brought forth in section 3.1.1, which leads to the selection of the trust production modes by Zucker (1986) as the theoretical basis of trust building in this work.

3.1.1 Selection criteria for a theoretical framework

The assessment of theoretical approaches to trust building should lead to the selection of an approach that is best suited to answer the research questions formulated in section 1.3. The theoretical foundation for this research will be chosen based on the five criteria, three of which being of a general nature and two being directly derived from the specifics of NEVs. These will be described in the following paragraphs.

Comprehensiveness. In order to give a sound answer to the research questions, the theory needs to support a wide range of potentially relevant constructs. Especially in

the context of trust, a large spectrum of influencing factors needs to be recognized and structured.

Concreteness. This research aims not only at contributing to the academic understanding of trust building in Entrepreneurial settings, but also at identifying practical levers that help practitioners master their managerial challenges. Therefore, the theoretical framework must descend from the higher levels of abstraction to cover action-oriented and concrete constructs of trust building in NEVs.

Theoretical fit with the trust concept used in this research. Due to the interdisciplinary nature of the topic of trust, theories originate in different disciplines with potentially conflicting underlying assumptions. The selected theory, therefore, needs to be consistent with the assumptions underlying the fundamental understanding of trust as described in section 2.2.3.

The liabilities of NEVs discussed in section 2.1.2 also influence the selection rationale for a theoretical foundation of this work. Specifically, the liabilities of newness and smallness necessitate the consideration of additional criteria.

Coverage of aspects of early relationship stages. Considering their relative nascence, NEVs will be more interested in building initial trust leading to a first purchase rather than focusing on constructs such as loyalty and commitment in well-established ongoing relationships.[236] In terms of the relationship stages framework by Dwyer et al. (1987), this work specifically focuses on the awareness, exploration, and expansion phases rather than the commitment phase.[237] This rationale follows Tyebjee et al. (1983) who highlight credibility in the market place, a construct closely related to trust, as the core marketing goal in the earliest stage of marketing in a new venture.[238] While this is not to say that later-stage constructs such as commitment are unimportant for NEVs, a theoretical foundation of this work needs to span key elements of those early stages.

Abstraction from organizational structures. As argued in section 2.1.1.1, NEVs often lack a formal organizational structure due to their smallness. This has implications on the selection of a theory to analyze the research questions, since it implies the need for

[236] Qu and Cardozo (1997), p. 689.
[237] Cf. Dwyer et al. (1987).
[238] Tyebjee et al. (1983), p. 64.

a theory that does not rely on certain organizational levels as a prerequisite, such as, for example, a sales organization.

3.1.2 Theoretical approaches to the research of trust building

3.1.2.1 Overview

As explained in chapter 2.2.1, trust has been researched in a variety of disciplines. Consequently, there are several approaches to trust building that can be found in the relevant literature. A literature review has been conducted during the course of this project that, in accordance with the research objectives, focused on those publications that deal with trust not only in a business context, but also involve inter-firm relationships.[239] Despite the significant contributions of works such as the paper by Rempel et al. (1985) regarding trust in relationships and the understanding of the fundamental nature of trust, the present research context demands a theoretical foundation more specific to the relationship between professional buyers and sellers.

Probably due to the multi-facetted nature of trust, trust building is rarely analyzed based on a single theory. The major share of the publications revealed by the literature review originate from the field of relationship marketing. Here, the associated theoretical foundations are typically integrative approaches drawing on several theories, even from multiple disciplines. The sociological works focus on characteristics of the interpersonal and social environment of the relationship. An exception may be formed by the approaches relating to economic theory. These largely build on the (evolutionary) game theory seeing economic exchange as trust games, with reputation or track records as the key drivers of trustworthiness. However, the associated models typically only allow for a very formal, in real-life application often hardly action-oriented, analysis of the topic.[240, 241]

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[239] The body of literature on trust in economic exchanges is enormous. To focus the literature review, two criteria are applied. First, the literature is screened for studies dealing with *trust building between buyer and supplier*, which is the relationship setting of this research effort. Furthermore, the publications should be of highest quality standards according to the VHB Jourqual list, with indices equal to or greater than eight. However, some contributions from lower- or non-ranked journals as well as books are included if the topic is very closely related to the present research objective.

[240] Cf., for example, Axelrod (1984) or Ho and Weigelt (2005).

[241] Granovetter (2000) makes the point even stronger: trusting behavior can frequently be observed in reality in situations, in which economic theories would deny its existence (p. 7).

In the following sections, three important approaches will be presented in detail. Not only are these three theories among the most often-cited works in the related literature, each of them lends itself as a potential theoretical foundation of this research for a different specific reason. First, the *Commitment-Trust Theory of Relationship Marketing* developed by Morgan and Hunt (1994) presented in section 3.1.2.2 is one of the central theories of relationship marketing. With trust as one of two key variables in the respective framework, the theory is a natural option for the theoretical foundation of this dissertation. Section 3.1.2.3 introduces the *Five Cognitive Processes of Trust Development* according to Doney and Cannon (1997). The study published by Doney and Cannon is arguably the study in the literature most closely related to the present research, with the exception of the focal research object: Doney and Cannon clearly examine established customer relationships with established firms. Finally, the framework of the *Production of Trust* published by Zucker (1986) is presented in section 3.1.2.4. Not only does Zucker's theory seem to offer a comprehensive description of trust building modes, it is also a theory frequently referred to in conceptual and exploratory studies on trust in entrepreneurial contexts.[242]

Each of the three approaches will be presented in one of the following sub sections. Following a brief overview of the approach, the role of trust within the framework and the basis of the trust building theory are explained. Finally, empirical findings are discussed. Following this descriptive section, each of the theories is tested for applicability to the present study based on the inventory of criteria developed above.

3.1.2.2 The commitment-trust theory of relationship marketing

Overview. One of the central theories regarding trust in buyer-supplier relationships is the Commitment-Trust Theory of Relationship Marketing, developed by Robert M. Morgan and Shelby D. Hunt and published in their successful paper in the Journal of Marketing in 1994[243].

The key contribution is the establishment of commitment and trust as highly relevant variables in customer relationships, mediating the theoretical connection between actor and relationship characteristics on the one hand and positive outcomes of marketing relationships on the other hand.[244] The authors argue that *"if cooperative relationships*

[242] Refer to Table 1 in section 1.2.
[243] Morgan and Hunt (1994).
[244] Cf. Morgan and Hunt (1994), p. 31.

are required for relationship marketing success, our results suggest that commitment and trust are, indeed, key."[245]

Role of trust in the framework. Morgan and Hunt theorize trust to be one of two key mediating variables of relationship marketing, parallel to commitment. They argue that the combination of the two encourages marketers to cooperate, strive for long-term benefits rather than attractive short-term alternatives, and engage in the required risk taking.[246] They empirically show that there is a mediating effect of trust and commitment enhancing the predictive quality of the antecedent factors analyzed. Among the outcomes within relationships – acquiescence, propensity to leave, cooperation, functional conflict, and uncertainty – trust is theorized to have beneficial effects on the latter three as well as on the other central mediating variable, commitment. The hypothesized positive effect of trust on cooperation is directly derived from the social-psychological works of Deutsch already mentioned in section 2.2.2.1. Building on the same theoretical basis, the functional conflict construct emphasizes that there will always be conflict in relationships; however, the way it is exercised is the key. The authors hypothesize trust to lead to the resolution of conflicts on a functional basis, that is, due to the existence of trust, *"disputes are solved amicably."*[247] Further, trust is expected to reduce decision-making uncertainty, because an actor can assume his opponent to be reliable. Finally, the authors posit a positive effect of trust on commitment, drawing on the social exchange theory, which derives from the principle of reciprocity that lack of trust *"would also serve to decrease commitment in the relationship."*[248]

Trust building theory. Morgan and Hunt build their theory on a review of *"the recently developing commitment and trust literature in marketing."*[249] Based on the review, they identify a set of precursors (drivers) for trust in a relationship: shared values, communication, and (absence of) opportunistic behavior.

Shared values are seen as *"the extent to which partners have beliefs in common about what behaviors, goals, and policies are important or unimportant, appropriate or inappropriate, and right or wrong."*[250] The rationale for the trust building capability of

[245] Cf. Morgan and Hunt (1994), p. 31.
[246] Cf. Morgan and Hunt (1994), p. 22.
[247] Morgan and Hunt (1994), p. 26.
[248] Morgan and Hunt (1994), p. 24.
[249] Morgan and Hunt (1994), p. 24.
[250] Morgan and Hunt (1994), p. 25.

shared values is derived from previous research on marketing in buyer-seller relationships and on channel marketing.

The authors define communication as *"the formal as well as informal sharing of meaningful and timely information between firms."*[251] Communication functions – according to the research on channel marketing referred to by the authors – as a relevant driver of trust *"by assisting in resolving disputes and aligning perceptions and expectations."*[252]

Finally, Morgan and Hunt identify opportunistic behavior as a key influencing factor of trust. Drawing on the transaction cost literature, they understand opportunistic behavior as *"self-interest seeking with guile"*[253]. Regarding the theoretical rationale for the negative impact of opportunistic behavior, Morgan and Hunt focus on channel marketing literature, in which – as opposed to the transaction cost theory from which the definition stems – opportunism is actually recognized as an explanatory variable.[254]

Empirical findings. Morgan and Hunt test their theory analyzing a sample of 204 responses to a survey conducted among automobile tire dealers in the United States of America. Using LISREL VII, Morgan and Hunt find their model widely supported. A comparison with a rival model excluding trust and commitment exhibits a substantially lower overall fit. Especially the part dealing with trust receives full support as hypothesized.

Figure 4 shows trust and the elements of trust building in the model analyzed by Morgan and Hunt.

Assessment of applicability to this study. Morgan and Hunt's theory is probably the most often-referenced theory among the three approaches discussed here; it has found wide acceptance in the field of relationship marketing. For the purposes of the present research, however, it does not seem suitable. While two of the five criteria (concreteness, abstraction from organizational structures) are not problematic, the theory fails with respect to the three remaining criteria. First, in terms of comprehensiveness, the commitment-trust theory focuses on a deliberately selected set of drivers of trust in a relationship. While this is sufficient in Morgan and Hunt's

[251] Morgan and Hunt (1994), p. 25, citing Anderson and Narus (1990).
[252] Morgan and Hunt (1994), p. 25.
[253] Morgan and Hunt (1994), p. 26.
[254] Morgan and Hunt (1994), p. 26.

research context, in which the focus was not only on trust, but also on commitment, it is insufficient to analyze the questions this work attempts to answer. Second, regarding the stage of the relationships analyzed, the authors specifically target ongoing relationships of established firms. The drivers of trust mentioned, especially opportunistic behavior and communication within the relationship are clearly constructs that are relevant at later stages in a relationship. Hence, they only provide limited insight for an NEV seeking to gain the trust of its first few customers. Third and finally, the theory is difficult to combine with the concept of trust as understood in this work, since the authors explicitly deny the presence of willingness in their conceptualization of trust.[255]

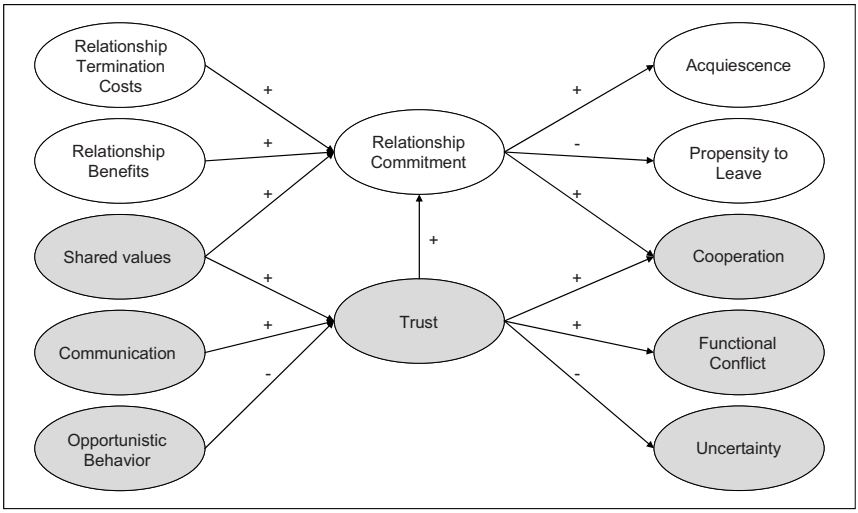

Figure 4: The research model analyzed by Morgan and Hunt[256]

3.1.2.3 Five cognitive processes according to Doney and Cannon

Overview. With a specific focus on the context of buyer-seller relationships, Doney and Cannon (1997) propose a model of five cognitive processes influencing trust of a buyer in a specific seller. Reviewing and combining literature from various disciplines, they identify five overarching processes of trust building: calculative, prediction, capability, intentionality, transference. Based on these five processes, they suggest a

[255] Cf. Morgan and Hunt (1994), p. 23.
[256] Morgan and Hunt (1994), p. 22.

model of trust in a sales person, trust in a supplier firm, and personal as well as relationship characteristics that influence the level of trust in both parties.

Role of trust in the framework. Doney and Cannon examine trust on two organizational levels in one model. They hypothesize that a buyer's decision on the selection of a supplier will be positively influenced by both his trust in a supplier as a whole and in the specific sales person he usually deals with. The authors choose this two-level structure, because they find it specifically relevant in their research context of industrial buying relationships.[257] They hypothesize and analyze two specific consequences of trust: purchase choice (a buyer's choosing the particular supplier for a purchase) and anticipated future interaction (a buyer's future purchase intention with that supplier). The latter is assumed only as a consequence of trust in the supplier firm, whereas the former is expected to be influenced by trust on both levels. The positive effect of trust is attributed to *source credibility* associated with a trusted supplier, i.e., derived from communications literature.

Trust building theory. As initially mentioned, the framework developed by Doney and Cannon is based on the combination of theoretical approaches found in the literature on trust from various disciplines.[258] The following paragraphs present the five individual processes along with the theoretical background according to the authors.

1. *Calculative trust building*. For the foundation of their calculative trust building process, Doney and Cannon draw on the economics literature, especially Williamson (1993)[259, 260] and a 1988 version of Dasgupta's contribution "Trust as a Commodity"[261]. They argue that, within the calculative process of trust building, a trustor develops trust through calculating his opponent's costs and gains resulting from a breach of his trust. If the net gain is negative for his opponent, he is considered trustworthy.

[257] Cf. Doney and Cannon (1997), p. 37.
[258] Cf. Doney and Cannon (1997), p. 37.
[259] In the original paper, the authors refer to a paper by Williamson in 1991 instead of 1993. From the citation it seems to be a mistake, as the citation refers to an article that was published in the Journal of Law & Economics in April 1993.
[260] It should be noted that Williamson explicitly denies the relevance of trust in economic relationships, stating that cooperation, i.e., "trust in brackets", is only a result of fully rational, *calculative* reasoning. To Williamson, *"calculative trust is a contradiction in terms."* Cf. Williamson (1993), p. 463.
[261] Dasgupta (2000).

2. The *prediction process* of trust building relies on a trustor's confidence regarding his ability to predict an opponent's behavior. The core assumption is that one can extrapolate an actor's past promises and behavior. The argument is rooted in the reference to organizational psychology literature.[262]

3. The authors argue for their third process, the *capability process*, through logical reasoning. If a party is perceived not to be capable of delivering on its promises, it cannot be considered trustworthy.

4. The fourth process introduced by Doney and Cannon is the intentionality process. Here, *"the trustor interprets the target's words and behaviors and attempts to determine its intentions in exchange."*[263] The authors focus on the literature on values and norms to argue that a party is more likely to be trusted, if the trustor builds an expectation of benevolent intentions.[264]

5. Finally, as a fifth process, the authors present the *transference process*. The argument is that a perception of trustworthiness of an actor can be transferred from a third party to the actual trustor, if the latter considers the former to be trustworthy. This mechanism had been described in an article by Milliman and Fugate (1988).[265]

Table 4 gives an overview of the trust building processes according to Doney and Cannon along with a description of the key drivers behind each of the processes.

Empirical findings. Due to measurement issues, it is a difficult research task to empirically validate the existence of trust building processes as suggested by Doney and Cannon. In acknowledgement of this fact, the authors focus their attention on the test of their model and the drivers of trustworthiness, which they have identified based on the structure of their five processes.[266] Both parts of their model are supported by the analyzed data sample to a large degree. Regarding the consequences of trust, they find that trust does influence anticipated future interaction, however, it does not explain (past) supplier choice after controlling for price/costs and delivery

[262] E.g., Lewicki and Bunker (1995); cf. Doney and Cannon (1997), p. 37.
[263] Doney and Cannon (1997), p. 37.
[264] Cf. Doney and Cannon (1997), p. 37.
[265] Cf. Milliman and Fugate (1988), pp. 3ff.
[266] Cf. Doney and Cannon (1997), p. 46.

performance. Regarding the drivers of trustworthiness, most of their hypotheses receive support.[267]

Trust building process	Description	Generic driver
Calculative	Trustor calculates the costs and/or rewards of a target acting in an untrustworthy manner	Costs are higher, when a target makes larger and/or relationship-specific investments
Prediction	Trustor develops confidence that target's behavior can be predicted	Trustor learns more about the target through repeated and broader experience
Capability	Trustor assesses the target's ability to fulfill its promises	Evidence of the target's ability to fulfill its promises
Intentionality	Trustor evaluates the target's motivations	Target's word and/or behavior indicates concern for the trustor
Transference	Trustor draws on "proof sources", from which trust is transferred to the target	Identification of trusted sources closely associated with the target

Table 4: Trust building processes according to Doney and Cannon[268]

Assessment of applicability to this study. As opposed to the commitment-trust theory, the five cognitive processes by Doney and Cannon (1997) do offer a comprehensive theoretical framework. The processes introduced within their theory allow hypothesizing on a broad range of constructs and their effects on trust. Moreover, many of the drivers analyzed in their work, already provide action-oriented insights also for the management of NEVs; consequently, the concreteness requirement is also fulfilled. However, Doney and Cannon, like Morgan and Hunt, specifically focus on ongoing relationships with established firms. Furthermore, their framework assumes the existence of a sales representative within the supplier firm and clearly differentiates between trust in the sales person and trust in the firm. As discussed above, many NEVs will lack such a formal organizational structure. Probably the most serious issue with regard to the context of this research is the compatibility of the trust concepts: at least two of the cognitive trust building processes are not clearly separable from dimensions of trustworthiness itself, which would certainly cause difficulties

[267] Cf. Doney and Cannon (1997), p. 44.
[268] Doney and Cannon (1997), p. 38.

during model development and measurement.[269] After all, the cognitive processes framework does not provide a suitable theoretical basis for this research.

3.1.2.4 Production of Trust according to Zucker

Overview. In 1986, Lynne G. Zucker published a central article on the "production" of trust in the journal Research in Organizational Behavior. Her vantage point is to understand how an economic structure evolves, why economic structures are what they are today on different levels of analysis, be it intra-firm, inter-firm, or society-wide. Analyzing the determinants of the evolution of economic structure in the USA during the period from 1840 to 1920, she reasons that trust has played a central role.[270]

Her argument begins with a critique of the existing literature on economic organization that, as she argues, answers questions in a *"piecemeal fashion, positing different causes for each level of economic organization."*[271] Through the explicit inclusion of social variables, especially trust, she develops a *"unified approach."*[272]

She argues that trust as a central social variable has overwhelming relevance for economic transactions. Trust, however, is determined through social aspects such as familiarity and characteristics of others in a population. As a consequence, changes in the structure of a society impacting the perception of such characteristics and familiarity will induce changes in the structure of an economy.

In order to make the influence of trust transparent, Zucker develops a general model of the development of trust, which she calls *"modes of trust production."*[273] Within that framework, she identifies three fundamental modes of the development of trust: process-based as the most straightforward form, characteristics-based as a form typical

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[269] One could even argue that the processes proposed by Doney and Cannon are not fully consistent with the concept of trust used in their own research. Early in their paper, the authors define trust by adopting the definition of trust brought forward by Ganesan (1994) (cf. Doney and Cannon (1997), p. 36). According to this definition, the perception of the exchange partner's expertise is one central part of trust itself (cf. Ganesan (1994), p. 3 or p. 16 with respect to the associated operationalization). According to the description of the capability process by Doney and Cannon (1997), trust would thus be built through trust itself, the analysis would measure the same construct twice and evaluate its relationship with itself.

[270] Cf. Zucker (1986), p. 54.

[271] Zucker (1986), p. 56.

[272] Zucker (1986), p. 56.

[273] Zucker (1986), p. 60.

for homogenous societies, and finally institution-based, which serves as a replacement type, substituting disrupted trust sources among the former two modes.[274]

Based on this conceptual framework, she empirically analyzes societal and economic changes in the United States between 1840 and 1980 with a focus on the disruption of trust production processes. She argues that certain institutional structures present in today's economic landscape are direct responses of the economic society to past changes that have made trust production more difficult.

Role of trust in the framework. Zucker recognizes trust as a key determinant of relationships and exchange. It is described as a critical prerequisite of economic exchange and *"essential for stable relationships"* from a sociological perspective.[275] With regard to delineation from typical economic concepts, she argues that trust is even relevant within a very structured economic and legal context, as *"trust is necessary even to write a contract – much is not specified in such a contract."*[276] As already laid out above, she even ascribes the structural design of the economy as a whole to trust.

Trust building theory. Probably more prominent than the empirical findings in Zucker's work is the development of a theoretical framework of trust building. Drawing on a sound basis of sociological, economic, and psychological theories, she identifies three modes of trust building: *process-based trust production*, where trust is tied to past or expected exchange, *characteristics-based trust production*, where trust is based on personal characteristics and assumed association with a certain cultural or societal group, and *institution-based trust production*, where trust is tied to broad societal institutions. While Table 5 summarizes the three modes of trust production along with central constructs of importance, the following paragraphs will elaborate on each of the three modes.

Process-based trust production could be viewed as the most direct form of trust building. Here, trust is based on the process of historic exchange and the expectation of future continuation. A history of successful relationship events or exchanges with a counterpart will help to consider him trustworthy. Zucker derives the process-based trust production mode from the historic examples of gift exchange in various cultures.

[274] Zucker (1986), p. 60.
[275] Zucker (1986), p. 56.
[276] Zucker (1986), p. 56.

Giving a gift based on the expectation of reciprocity is a form of risk taking. Over time, histories of gift exchange form a perception of trustworthiness of the counterpart based on this experience and first-hand knowledge.[277] As this form of trust building is highly specific to individual, well-established relationships between people, other forms of process-based trust building use *proxies* of such first-hand trustworthiness experience as a substitute. *Reputation* is one of the proxies used in market exchanges. Here, a trustor bases his perception of trustworthiness on generalized experiences of others rather than on his own.[278]

Trust building mode	Basis	Sources
Process-based	Tied to past or expected exchange	Reputation, brands, gift-giving, guarantees
Characteristics-based	Tied to specific persons, ascribed to a certain subculture	Family background, ethnicity, gender
Institution-based	Tied to formal social structures	Professional or firm associations, education, banks, regulation

Table 5: Modes of trust production according to Zucker (1986)[279]

Zucker stresses the point that process-based trust is highly specific to a particular person or firm and thus cannot be traded. However, actors *can* make investments in process-based trust: careful interaction with counterparts and trustworthy behavior at all times, but also brand building and advertising help build a reputation that is specific and valuable.[280] Process-based trust building could be considered the most straightforward mode of trust building, since it is closely related to most general ideas of trust building across disciplines.[281]

The second mode of trust production is based on a person's or firm's characteristics. Actual experience with individual transaction counterparts is usually rare, so the use of characteristics as a substitute is a way to judge trustworthiness of an unfamiliar counterpart. Here, the fundamental idea is that, based on certain characteristics of the trustee, the trustor makes the assumption that his counterpart belongs to a specific

[277] Cf. Zucker (1986), p. 60.
[278] Cf. Zucker (1986), p. 62.
[279] Adapted from Zucker (1986), p. 60.
[280] Cf. Zucker (1986), p. 62.
[281] For example, Rotter et al. (1972) from a psychological perspective, and authors from the field of game theory, who see the track record of trustworthy behavior as the dominant driver of trustworthiness, e.g., Ho and Weigelt (2005).

group of people. The characteristics *"serve as indicators of membership in a common cultural system, of shared background expectations."*[282] If he generally considers that group trustworthy, he can thus also consider his counterpart trustworthy. Examples for such characteristics are family background, ethnic origin, or sex. Zucker reasons that early economic exchange *"tended to be embedded in customary social structure"*[283] and that positions in early organizations were typically assigned based on family background.[284]

Compared with the other modes, trust building based on characteristics is "free" in that it is associated with characteristics, simply through general social processes. That also implies that an actor cannot invest in characteristics-based trust, nor can trust based on personal characteristics be transferred. Zucker's understanding of characteristics-based trust building resembles the concept of *embeddedness* described by Granovetter (1985) as well as that of person-based trust found relevant in entrepreneurial settings by Sanner (1997a).[285]

The third mode of trust production according to Zucker is *institution-based*. In the course of expansion of economic exchange outside of trade histories with well-known business partners or social sub-groups, a substitute source of trust building has evolved: institutions. Zucker (1986) highlights the central characteristic of institutionalization: abstraction of background expectations from individual relationships or groups. She describes two basic types of institutional trust-building mechanisms: person-/firm-specific and intermediary mechanisms.

"The person-/firm-specific type rest on membership in a subculture within which carefully delineated expectations are expected to hold"[286]. Here, institutions are used to signal association with a particular sub culture that promises expectations to hold. Trust in an institution is transferred to other parties through association with the trusted institution. Zucker refers to societal expectations on *"roles as diverse as the shaman, the lawyer and the private for-profit hospital"*[287] but also highlights the much more important contribution of *professionalization* in a modern economy. Professionalization goes along with extensive use of formal institutions such as

[282] Zucker (1986), p. 63.
[283] Cf. Zucker (1986), p. 63.
[284] Cf. Zucker (1986), p. 64.
[285] Cf. Sanner (1997b) and Granovetter (1985).
[286] Zucker (1986), p. 63.
[287] Zucker (1986), p. 63.

professional associations, certifications, industry associations, etc. According to Zucker, these institutional means are used in a signaling process to support trust in an economic actor: he signals that he belongs to a group that promises certain expectations to hold.[288]

The second form of institution-based trust building is centered on intermediary mechanisms and thus refers to characteristics of the market place in which the transaction takes place. Zucker refers to formal mechanisms involving third parties that are used to ensure transaction success. Key examples of this type of trust production means are the legal system in an economy or legal contracts. But also institutions such as stock exchanges, as Zucker argues, receive some of the justification of their existence from their role in the production of trust.[289] Exchange partners, according to the logic of trust building based on intermediary mechanisms, exhibit greater trust in an actor, if the latter is willing to place the transaction in such a formalized environment.[290]

As opposed to the first two modes, means of institutional trust building can be purchased. Not only can trust built on institutions be transferred, essentially, the mechanism *is founded* on trust transfer from institutions to individuals. This process is also referred to as *"trust transfer"*[291].

Regarding the interrelationship of the trust building modes, Zucker explicitly underlines that she is not implying that either of the three modes will eventually prevail, nor do all processes have to be present in every contextual setting. The importance of the three processes is dependent on the particular circumstances of the relationship.

Empirical findings. As mentioned above, the empirical analysis conducted by Zucker relates to the development of economic structures in the USA over the past one and a half centuries. Her core argument in the paper is that, along with changes in US society such as immigration and internal migration within the country, process-based and characteristics-based trust production processes were disrupted and, consequently, replaced more and more by institutional trust building.[292] At the same time, she notes

[288] Cf. Zucker (1986), p. 64, or Paxton (2007), p. 50.
[289] Cf. Zucker (1986), p. 65.
[290] Cf. Zucker (1986), p. 65.
[291] Stewart (2003), p. 6.
[292] Cf. Zucker (1986), p. 65.

that her *"brief review of evidence here cannot possibly prove the thesis, nor can it be fully supported without comparative evidence from other social systems."*[293] From the perspective of building trust in economic relationships, however, the record is more positive: the elements of the three trust building modes can be found in many publications on trust in the years following the publication of her paper.[294]

Assessment of applicability to this study. The framework proposed by Zucker seems well suited for this work. It offers a compact yet exhaustive structure of potential drivers of trust in economic relationships. At the same time, the specific constructs that Zucker lists within each of the trust production modes seem sufficiently concrete to allow for actionable research results. With regard to the entrepreneurial context of this work, the theory can be applied to early stages of exchange relationships; furthermore, it specifically stresses several elements of trust building in the absence of prior familiarity (characteristics- and institution-based trust production). Also, the theory does not assume a specific organizational structure. On the contrary, Zucker begins her argument with the statement that her framework shall be applicable independent of the level of economic organization.[295]

Only the fit of the concepts of trust needs to be discussed, as it is not straightforward. Zucker's argument is to be interpreted from a sociological perspective and a sociological understanding of trust.[296] Consequently, the trust building modes in her work need to be understood as building trust in a sense of common understanding and joint positive expectations.

In the context of this research – following the conceptualization of trust described in section 2.2.3 – it will be hypothesized that the modes of trust production influence trust through the perception of *trustworthiness* as an explicit antecedent of trust, i.e., as a mediator. The theory, as described by Zucker, does not explicitly mention the concept of trustworthiness. Therefore, it could be argued that its application in the present context is a slight departure from Zucker's theory as originally published. Yet, for a number of reasons, the approach chosen here is consistent with Zucker's theory. First, the concept of Mayer et al. (1995) identifies two constructs – propensity to trust

[293] Cf. Zucker (1986), p. 100.
[294] See, among others, Doney and Cannon (1997), McKnight et al. (2002), Stewart (2003), McAllister (1995), Ganesan (1994).
[295] Cf. Zucker (1986), p. 56.
[296] Cf. Zucker (1986), p. 54.

and trustworthiness – that form a mutually exclusive and collectively exhaustive set of antecedents of trust. While propensity to trust is solely focused on trustor characteristics, resulting from psychological disposition, trustworthiness represents the trustee-specific part. Zucker's modes of trust production explicitly deal with attributes of a trustee[297] and must thus connect with the trustworthiness element in the concept by Mayer et al. Second, the explanations in Zucker's original work underline that perception of trustworthiness is indeed a relevant factor influencing trust. For example, she describes the offering of product warranties as a signaling process: this clearly relates to trustworthiness.[298] At a later stage, she mentions that the process-based trust *"is highly specific to the particular individual"*[299], here even using the same wording as Mayer et al. (1995). Within the other two modes of trust production, all mechanisms explained explicitly refer to attributes of the trustee – whether directly personal or institutionally assigned. Third, this interpretation of Zucker's theory follows the arguments of well-recognized works by other authors, e.g., Pavlou and Dimoka (2006), Williams (2007), or McKnight et al. (1998) in their article in the Academy of Management Review, in which they use the same combination of Zucker's trust production influencing trustworthiness as seen by Mayer et al.[300]

However, Zucker's framework has not remained uncriticized. It has specifically been noted that Zucker only focuses on comparably *calculative* sources of trust, neglecting affect-based, emotional trust building.[301] While this argument seems justified, it does not pose a problem in the present research context. First, the study analyzes professional relationships, in which it is assumed that affective or emotional trust building mechanisms that are mainly seen in interpersonal or even romantic relationships are of lesser importance. Second, the framework is broad enough to cover the wide range of trust drivers found in the literature related to trust in buyer-seller relationships.

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[297] Cf. Zucker (1986), p. 60. Euijin and Tadisina (2007), p. 96, also note that even the institution-based trust drivers can be seen as building trust both on a macro (system trust) and on a micro level (trustworthiness of an actor).

[298] Cf. Zucker (1986), p. 62.

[299] Zucker (1986), p. 62.

[300] Cf. Aiken and Boush (2006), pp. 308ff., Pavlou and Dimoka (2006), pp. 392ff., Williams (2007), p. 595, McKnight et al. (1998), p. 479. Other examples are Parkhe (1998), who analyzes trust building in international alliances, Son, Tu, and Benbasat (2006), who analyze the use of trust production modes in the context of electronic B2B marketplaces, or Schurr and Ozanne (1985), who explicitly list several of the constructs out of Zucker's framework as drivers of trustworthiness (p. 940).

[301] Cf., e.g., McAllister (1995), pp. 25ff.

In summary, the framework of the modes of trust production proposed by Zucker (1986) fulfills all requirements described in section 3.1.1 and thus provides a sound theoretical basis for the research model to be developed in chapter 4.

3.2 Theoretical foundation of the effect of trust on purchase intentions

In addition to the theory of trust building, the effect of trust on purchasing intentions forms the second integral part of the logical chain to be evaluated in this study.

The positive outcomes of trust are so tightly intertwined with trust itself that a description of the possible positive (or negative[302]) consequences is part of most conceptualizations of trust. As section 2.2.2 has shown, there are various approaches to the construct of trust, and each of the related theories makes propositions about its outcomes. Other prominent theories that offer contributions to the question of positive effects of trust in personal, social, or economic relationships are the social exchange theory[303] and the social capital theory, respectively, the related concept of embeddedness.[304]

While several of these theories may be suitable to analyze the effect of trust in the research setting of this work, Lindenberg (1991) demands theoretical efficiency in a sense that the number of additional assumptions to be made for a research question to be answered building on existing theory should be minimal.[305] The present research addresses that demand by applying the model of trust according to Mayer et al. (1995) not only to the issue of defining trust itself but also as a theoretical foundation of the outcome of trust, in this case, purchase intention. Furthermore, by modeling trust and its outcome within one framework, potential issues regarding compatibility of separate theoretical spheres are avoided from the very beginning.

However, applying this theory to the present research context, i.e., hypothesizing a positive effect of trust in a supplier on a buyer's intention to purchase from that supplier, is only possible under three preconditions: a) making a purchase can be considered to be a form of *risk taking*, b) making a purchase can be considered to

[302] Langfred (2004), for example, complains about too positive a view on trust in the literature that – in his view – neglects potentially negative outcomes of unjustified high levels of trust.
[303] Refer to the seminal works by Thibaut and Kelley (1959), Homans (1961), and Blau (1964).
[304] Cf., e.g., Granovetter (1973), Coleman (1990), Putnam (1995), and, specifically on the idea of *social embeddedness*, Granovetter (1985).
[305] Cf. Lindenberg (1991), p. 36.

constitute a form of a *relationship*, and c) purchase intention is a strong proxy of making an actual purchase.

a) Ring and van de Ven (1992) argue that almost every transaction bears risks arising from various sources.[306] The most relevant source in a purchasing transaction may be the information asymmetry between the buyer and the seller, partly depending on the type of product or service sold.[307] Specifically in the context of professional buyer-supplier relationships, Doney and Cannon (1997) underline the inherent risk on the buyer side due to a potential impact of the supplying firm's actions on the costs and quality of the buying firm.[308] Consequently, the first precondition seems to be fulfilled in the present research context.

b) From a strictly economic perspective, making a purchase is a discrete transaction, involving no relational aspects. Criticizing the polar framework of market-based discrete contracts and hierarchical governance central to the transaction cost theory, Ring and van de Ven (1992), following MacNeil (1980), argue that economic exchange, in reality, lies somewhere between the two extremes.[309] Consequently, they highlight the role of relational aspects and suggest two additional forms of governance: recurring contracting transactions and relational contracting transactions. In a similar manner, Dwyer et al. (1987) state that it is hard to find actual discrete transactions.[310] As described in section 2.3, the research setting of this thesis are professional buyer-seller relationships, so that this second precondition is certainly fulfilled.

c) Also with regard to the third requirement, the discussion in section 2.3 provides the answer. In that section, it has been shown that there is a high interrelation between an intention and its behavioral manifestation. Accordingly, a purchase intention should be closely enough related to an actual purchasing act for the theory of Mayer et al. to be applied here.

To summarize these considerations, the trust concept by Mayer et al. provides a sound basis for the analysis of an effect of trust on purchase intentions in the type of relationships examined in this dissertation.

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[306] Cf. Ring and van de Ven (1992), p. 488.
[307] Refer to section 2.3.
[308] Cf. Doney and Cannon (1997), p. 36.
[309] Cf., MacNeil (1980), p. 60, and, for the whole paragraph, Ring and van de Ven (1992), pp. 485ff.
[310] Cf. Dwyer et al. (1987), p. 12.

3.3 Summary of the theoretical framework

The purpose of this chapter is the identification of a theoretical framework to explain the causal relationships of variables involved in the development of trust in buyer-seller relationships. Herein, the full scope of the logical chain from trust drivers to the purchase intention needs to be covered. This logical chain connects two integral parts. As evident from section 3.1, the first part, dealing with the question of *how* trust is built, can be analyzed using the theory of trust production modes according to Zucker. The second part, concerned with the relevance of trust for purchase intentions, can be explained applying the concept of trust developed by Mayer et al., as argued in the previous section. Bases on these two theoretical foundations, a model covering the full logical chain in the focus of this research project can be developed. Figure 5 gives a graphical representation of the theoretical framework applied in this study that will serve as a basis for the development of a research model in the following chapter.

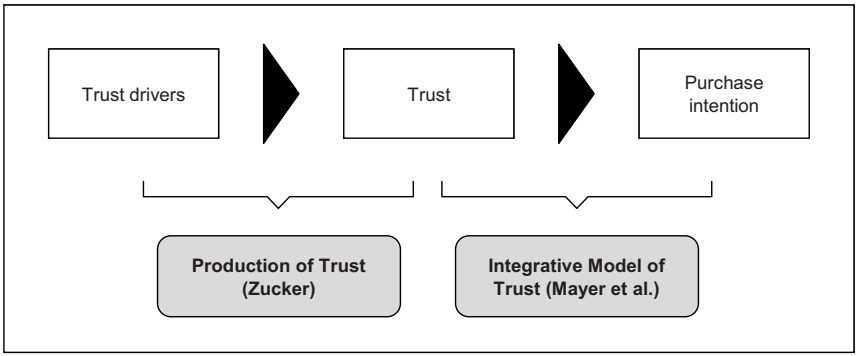

Figure 5: Theoretical framework applied in this study[311]

[311] Own illustration.

4 Hypotheses and research model

The purpose of chapter 4 is the development of the research model, the core of this research effort, through the proposition of research hypotheses on causal effects between constructs involved. The model development will follow two structuring elements: the research objectives of this thesis and the theoretical foundation developed in chapter 3.

In order to answer the first research question, a three-stage model of trust building and the effect of trust in a supplier is drafted based on the conceptual considerations discussed in the previous chapters. The hypotheses associated with this main model will be proposed in section 4.1.

Within the main model, there are three logical steps: trust and its effect on purchase intentions, direct antecedents of trust, and, finally, the drivers of trustworthiness. Hypotheses concerning the effect of trust will be analyzed first (section 4.1.1), followed by the direct antecedents of trust (section 4.1.2). These two sections largely draw on the conceptualization of trust according to Mayer et al. (1995). In the third step (section 4.1.3), the modes of trust production proposed by Zucker (1986) are applied to hypothesize the effects of drivers of trustworthiness[312], i.e., trust building measures and characteristics, on the perception of trustworthiness by a transaction partner.

Section 4.2 will then revisit the concept of product qualities described within the theory of the economics of information, as presented in section 2.4. This section is based on the implications of different levels of risk in a transaction due to different degrees of information asymmetry between the experience industry and the credence industry. Accordingly, associated differences in the trust model are hypothesized.

The chapter closes with a summary of the research model given in section 4.3.

[312] The term *drivers* will be used as a generalization of *measures* of trust building – that involve activities of the trustee – and *characteristics* of the trustee, that are of a more descriptive nature. Obviously, from a perspective of managerial implications, measures are more interesting, however, it is assumed based on the trust building theory that also more passive characteristics will contribute to the perception of an actor's trustworthiness.

4.1 Hypotheses in the main model

In this section, a model of trust building and the positive effect of trust on purchase intentions is developed. While the model will incorporate the specific characteristics and situational requirements of NEVs, it shall be designed to be robust across firm age classes and industry types.

4.1.1 The effect of trust on purchase intentions and the role of perceived risk

As argued in chapter 3, the framework suggested by Mayer et al. provides a sound basis for the hypothesis of a positive effect of trust on a purchase intention in the buyer-seller relationships in the focus of this study. Applying the authors' argument to this specific situation, a potential buyer compares his level of trust in a supplier with his perception of risk generally associated with a purchase of the respective product or service. If the trust level outweighs the risk perception, the purchase intention is formed. Accordingly, higher levels of trust should lead to higher (more certain) levels of purchase intention.

Theoretically, this view of a positive effect of trust in relationships is shared by various authors. From an economics point of view, Barney and Hansen (1994) and, similarly, Brettel and Heinemann (2003) argue that trust can be a competitive advantage for a firm as it allows it to enter a relationship without the provision of costly governance and control mechanisms.[313] Jarillo (1988) even reasons that *"lack of trust is the quintessential cause of transaction costs."*[314] Ring and van de Ven (1992) propose trust to be a necessary but not sufficient condition for economic transactions[315], and Granovetter (1985), from a sociological perspective, underpins the value of trust for the continuation of ongoing relationships.[316] Blau (1964) argues similarly from the perspective of the social exchange theory.[317] In the relationship marketing literature, *"trust is generally viewed as a key element of successful*

[313] Cf. Barney and Hansen (1994), p. 175, and Brettel and Heinemann (2003), p. 412.
[314] Jarillo (1988), p. 36.
[315] Cf. Ring and van de Ven (1992), p. 489.
[316] Cf. Granovetter (1985), p. 490.
[317] Cf. Blau (1964), pp. 60ff.

relationships."[318] Empirically, as well, positive effects of trust have been reported in various relationship contexts.[319]

Specifically in the context of customer relationships, there is supporting evidence for a positive effect of trust. Several empirical works find that trust positively influences constructs related to customer loyalty.[320] Other authors have found support for a trust influence on positive outcomes such as joint action[321], firm performance[322], and anticipation of future interaction[323].

With respect to a purchase intention, results are less clear. Stewart (2003) has proven a positive effect of trust on the intention to buy from a website.[324] But on the other hand, Doney and Cannon (1997) come to the conclusion that trust – while being important for intended future interaction within existing relationships – does not explain supplier choice in general. Moreover, other factors such as price and reliable delivery, in their study, seem to be much more important for the supplier choice decision. Also, Verhoef et al. (2002), find that trust is not a significant predictor of the number of services purchased in their study.[325]

From the perspective of NEVs, there has so far been little empirical data on the positive effects of trust of potential customers. However, there seems to be agreement on the relevance of trust to generate new customers. Qu and Cardozo (1997) theorize that *"the most important consequence of trust is that it is a necessary condition for any business to start."*[326] Ali and Birley (1998) agree, stating that *"at the start-up stage of any venture, when entrepreneurs are trying to acquire customers, among other resources, the management of risk and trust is of crucial importance."*[327]

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[318] Verhoef, Franses, and Hoekstra (2002), p. 203.
[319] Within organizations, Mayer and Gavin (2005) find trust to enhance the ability of managers to focus (p. 878), Brashear, Boles, Bellenger, and Brooks (2003) report a positive effect of trust on job satisfaction (p. 194). In channel relationships, Anderson, Lodish, and Weitz (1987) find evidence for a positive connection of a trusting relationship with resource allocation (p. 95), and Anderson and Weitz (1989) see relationship continuity positively correlated with the level of trust (p. 320).
[320] Cf., e.g., Morgan and Hunt (1994), p. 30, Nijssen, Singh, Sirdeshmukh, and Holzmüeller (2003), p. 46, Verhoef et al. (2002), p. 210, Chiou and Droge (2006), p. 621, and, in part, Ganesan (1994), p.9.
[321] Cf. Zaheer and Venkatraman (1995), p. 385.
[322] Cf. Luo, Hsu, and Liu (Forthcoming), p. 4.
[323] Cf. Armstrong and Yee (2001), p. 75, Doney and Cannon (1997), p. 46.
[324] Cf. Stewart (2003), p. 12.
[325] Cf. Verhoef et al. (2002), p. 210.
[326] Qu and Cardozo (1997), p. 698.
[327] Ali and Birley (1998), p. 755.

With only few negative findings in the literature, existing research seems to point to a positive relationship between trust in a supplier and purchase intention:

> Hypothesis HPI1: *Higher levels of trust in a supplier will positively influence the intention to purchase from that supplier.*

However, as discussed earlier, *"risk is an essential component of a model of trust"*[328]: trust is only relevant, if entering the relationship is actually risky.[329] That means the trustor will evaluate the situation based on his perception of risk generally associated with such a relationship. If he evaluates the relationship to be risk-free, he will not require trust to enter it. On the other hand, if he considers the relationship to be highly risky, he will be more likely to enter it if he has sufficient trust in the opponent. Mayer et al. (1995) mention a "threshold level of trust" depending on the perceived risk in the transaction. This view is shared by several authors.[330] To give one prominent example, Morgan and Hunt (1994) argue that – among other reasons – trust is important in customer relationships because it encourages marketers to *"... view potentially high-risk actions as being prudent because of the belief that their partners will not act opportunistically."*[331] Berry (2002) also underlines that customers will stick with providers they trust, especially in situations involving high purchasing risk.[332]

However, despite the unequivocal opinions on the relevance of risk, few studies explicitly include a risk perception construct and evaluate its relationship with trust and its consequences. A positive exception is Schlosser et al. (2006), who tests the moderating effect of risk perceptions on the link between factors of trustworthiness and purchase intentions. Her results confirm such moderation for the effect of ability beliefs (as one of the factors of trustworthiness) on online purchase intentions.[333]

In the context of new ventures, the literature draws a similar picture: while authors acknowledge the relevance of risk, they do not, however, explicitly include it in the models they propose.[334] Becherer (1993) even argues that the relevance of perceived

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[328] Mayer et al. (1995), p. 724.
[329] Refer to section 2.2.
[330] Cf. Moorman, Deshpandé, and Zaltman (1993), p. 82, Armstrong and Yee (2001), p. 64, Sirdeshmukh et al. (2002), p. 21, Morgan and Hunt (1994), p. 22, Ganesan and Hess (1997), p. 441.
[331] Morgan and Hunt (1994), p. 22.
[332] Cf. Berry (2002), pp. 74-75.
[333] Cf. Schlosser et al. (2006), p. 143.
[334] Cf. Ali and Birley (1998), p. 753, Becherer (1993), p. 115, Howorth and Moro (2006), p. 497.

risk is the key reason why trust is even more important for new ventures than for established players.[335]

After all, there seems to be sufficient theoretical support to formulate the following hypothesis:

> Hypothesis HPI2: *Higher levels of perceived risk associated with purchasing the respective good or service will positively influence (moderate) the effect of trust in a supplier on the intention to purchase from that supplier.*

Here, it is important to note the focus of the risk perception. Perceived risk, according to the concept by Mayer et al., refers to the risk *generally* associated with such a purchase, irrespective of the supplier. All supplier-specific considerations are covered in the *trust* construct.[336]

4.1.2 Direct antecedents of trust

Based on the conceptual understanding of trust followed in this research, there are two direct antecedents of trust: *trustworthiness* of the trustee and trustor-specific *trusting disposition* (or *propensity to trust*[337]).

Trustworthiness has been defined in section 2.2.2.5 as a set of characteristics of an actor that positively influences others to trust him. Mayer et al. (1995) view trustworthiness as a second-order construct of ability, integrity, and benevolence.

According to their theory, trustworthiness resembles those perceptions of a trusting actor that are not of a general nature but specific to a particular trustee.[338] Trust, so it is argued, takes into consideration attributes of a person to be trusted. Applying the framework suggested by Mayer et al. (1995) to the specific situation of a buyer-seller relationship, one can conclude, that a potential buyer's trust will be formed partly on his perception of the seller as being trustworthy.

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[335] Cf. Becherer, p. 115.
[336] Cf. Mayer et al. (1995), p. 726.
[337] Mayer et al. (1995) used the term *propensity to trust*, the literature also refers to *trusting disposition* as a synonym. For the sake of clarity, the latter term will be adopted in this research, as – opposed to the term propensity – it makes clear that the construct is a solely trustor-specific trait that has formed based on generalized past experience. Cf. McKnight et al. (1998), p. 477.
[338] Refer to section 2.2.2.5.

This causal relationship is also seen by other theorists. Ring and van de Ven (1992) explicitly mention trustworthiness attributes of the other in their discussion of trust[339], Johnson-George and Swap (1982) develop a scale for a construct called *specific trust*, specific with respect to a particular trustee, using items describing attributes of trustworthiness.[340] Barney and Hansen (1994), as well, argue that trustworthiness as an attribute of an exchange partner has an influence on trust as an attribute of a relationship.[341] As a matter of fact, the relationship between the two constructs is so close, that some authors consider elements of trustworthiness to be dimensions of trust, as, for example, Ganesan (1994).[342] Mayer and Davis (1999), however, argue and prove that trustworthiness and trust are two conceptually and statistically distinct constructs, despite high correlations indicating the close causal relationship.[343]

Consequently, empirical evidence for the relationship between trustworthiness and trust is abundant. In addition to Mayer and Davis (1999) and Mayer and Gavin (2005), who find trustworthiness relevant in an organizational setting[344], McKnight and colleagues analyze data supporting the effect, based on their 2002 sample.[345] Further confirmation has been found in the context of the world wide web and trust in e-commerce settings: Stewart (2003) shows a strong effect of trustworthiness[346], Lee and Turban (2001) see support for the effect of the integrity dimension[347], while Schlosser et al. (2006) find ability to be especially relevant[348]. Within buyer-supplier relationships, Moorman et al. (1993) examine the effects of similar constructs (abilities and motivations) on trust and find their hypotheses empirically supported.[349]

In the entrepreneurial context, Ali and Birley (1998) discuss a model including the abovementioned dimensions of trustworthiness with entrepreneurs and are in agreement on the hypothesized effect of trustworthiness on trusting behavior.[350]

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[339] Cf. Ring and van de Ven (1992), p. 489.
[340] Cf. Johnson-George and Swap (1982), pp. 1306ff.
[341] Cf. Barney and Hansen (1994), p. 176.
[342] Cf. Ganesan (1994), pp. 3f. Other authors implicitly see trustworthiness as a part of trust, as can be concluded from their operationalizations of the trust construct. Cf., e.g., Sirdeshmukh et al. (2002), Perrone, Zaheer, and McEvily (2003).
[343] Cf. Mayer and Davis (1999), p. 134.
[344] Cf. Mayer and Davis (1999), p. 134, and Mayer and Gavin (2005), p. 881.
[345] Cf. McKnight et al. (2002), p. 350.
[346] Cf. Stewart (2003), p. 12.
[347] Cf. Lee and Turban (2001), p. 86.
[348] Cf. Schlosser et al. (2006), p. 143.
[349] Cf.Moorman et al. (1993), p. 91.
[350] Cf. Ali and Birley (1998), pp. 756ff.

Similarly, Howorth and Moro (2006) propose the trustworthiness construct to have a substantial effect on trust, concluding from their case study work on entrepreneur-bank relationships.[351]

Consequently, the following causal relationship is proposed:

> Hypothesis HTR1: *Trust in a supplier will be positively influenced by the trustworthiness of the supplier.*

Trusting disposition is defined as *"the general willingness to trust others."*[352] It develops through generalization of experience with people in earlier stages of life. It is *independent* of the specific target of trust, especially, as McKnight and Chervany (2001) explicitly underline, disposition to trust is not dependent on the perceived trustworthiness of the other party.[353]

Applying this construct to the context of trust in a potential supplier, it can be concluded that the decision maker on the side of the potential buyer will also develop his trust in the supplier depending on his trusting disposition.

While trusting disposition is a construct central to psychological theories of trust[354], empirical results in business contexts regarding trusting disposition have been mixed. Mayer and Davis (1999), two of the authors of the central interdisciplinary concept of trust incorporating trusting disposition, analyze trust within an organization and the impact of performance appraisal systems. Their analysis does not support an effect of trusting disposition on the level of trust.[355] Similarly, McKnight et al. (2002) do not find an effect of trusting disposition on trusting intentions, a concept close to the understanding of trust in this research.[356] However, in their survey among US students about their trust in a web site in 2004, one of the key results is the importance of trusting disposition.[357] Specifically in the context of a buyer-seller relationship, Armstrong and Yee (2001) have analyzed the role of trust in the business conduct of Chinese business people in Malaysia. The authors, as well, conclude from their data that trusting disposition is driving trust.

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[351] Cf. Howorth and Moro (2006), p. 504.
[352] Mayer et al. (1995), p. 715.
[353] Cf. McKnight and Chervany (2001), p. 45.
[354] Refer to section 2.2.2.1.
[355] Cf. Mayer and Davis (1999), p. 131.
[356] Cf. McKnight et al. (2002), p. 350.
[357] McKnight et al. (2004), p. 260.

This deviation of findings can probably, in part, be explained by the recessive nature of trusting disposition. Some authors have noted that the importance of this construct seems to be high in early phases of interactions, i.e., when actual information on the counterpart's trustworthiness is limited.[358] Gill, Boies, Finegan, and McNally (2005), for example, found that a trusting disposition was an important predictor of the intention to trust in situations, in which information on the other's trustworthiness was ambiguous, but not when the other was considered clearly trustworthy or not.

Nevertheless, in the specific context of the focal research objects of this work – NEVs – a trusting disposition appears to be relevant. Even following the argument of Gill et al. (2005), one has to assume that at least for NEVs, trusting disposition is a relevant direct antecedent of trust. Due to their newness, they continuously face situations, in which they have to deal with unknown parties, in other words, parties who have only limited information about them.[359]

To summarize, despite the mixed findings in previous research, there is substantial reason to formulate the following hypothesis:

> Hypothesis HTR2: *Trust in a supplier will be positively influenced by the trustor's trusting disposition.*

4.1.3 Drivers of perceived trustworthiness

Having clarified direct antecedents of trust and its positive effect on purchase intentions, the following section aims at establishing hypotheses on the measures and characteristics of a supplier that drive the perception of trustworthiness. This part of the model responds to the objective of deducting actionable recommendations from this research.

As argued in section 3.1, this part of the research model will be based on the modes of trust production described by Zucker (1986). The structure of this section will follow the proposed framework of three different modes: process-based, characteristics-based, and institution-based.

[358] Cf., e.g., Mayer et al. (1995), p. 716.
[359] Cf. Gruber (2003), p. 602.

4.1.3.1 Process-based drivers

Trust is built on positive experience with previous interactions and thus develops over time.[360] In addition, Mayer et al. (1995) argue that perception of trustworthiness will be, among other factors, updated through previous exchange.[361] However, authors have as well argued that trust may be existing without any previous interaction between parties, so, for example McKnight et al. (1998) researching *initial trust* or Bigley and Pearce (1998) who theorize on trust between unfamiliar actors.[362]

According to Zucker, key elements of process-based trust production are one's own previous *exchange with the counterpart* and *proxies* for positive histories of exchanges. It will be shown that the *reputation* of a counterpart as well as *risk mitigation instruments* can act as such proxies. Zucker mentions that these proxies are most relevant in economic exchanges, since direct experience with a particular supplier is usually not available.[363]

Zucker derives the process-based trust production mode from the historic examples of gift exchange in various cultures. Giving a gift based on the expectation of reciprocity is a form of risk taking. Over time, histories of gift exchange form a perception of trustworthiness of the counterpart based on this experience and first-hand knowledge. However, especially in the context of NEVs, such first-hand knowledge is a scarce resource, because it takes trust to build it in the first place. As laid out earlier, the specific interest of this research project is to analyze trust building in very early stages of a firm's life cycle. Therefore, previous purchasing experience with the supplier is deliberately excluded from the research model in order to ensure applicability of the model to the present research context.[364]

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[360] Cf., e.g., McKnight et al. (1998), p. 473, Kumar and Scheer (1995), p. 349-350, Nooteboom, Berger, and Nooriderhaven (1997) p. 314.
[361] Cf. Mayer et al. (1995), p. 715.
[362] Cf. McKnight et al. (1998), p. 473, and Bigley and Pearce (1998), p. 410.
[363] Cf. Zucker (1986), p. 62.
[364] Zucker (1986) acknowledges that previous exchange as a process-based trust driver is highly effective if it is available. However, she also mentions that such trust building is highly specific to the relatively small number of existing exchange relationships, in which such experience can be built through *"extensive interaction over long periods of time"* (p. 62). It is evident from this description that the use of proxies seems to be an approach more appropriate to modern economic exchange.

Reputation is one of the proxies frequently used in market exchanges. Zucker defines it as *"a symbolic representation of past exchange history."*[365] Here, a trustor bases his perception of trustworthiness on generalized others' experiences rather than on his own.[366] Ganesan underlines the credibility-building capability of reputation, stating that *"it is built on the edifice of reliable and consistent behavior over time."*[367]

The recognition of a positive effect of reputation with regard to trustworthiness is theoretically widely shared. As initially mentioned, economic theorists see an actor's reputation in repetitive games as the core driver of a perception of trustworthiness and subsequent cooperative behavior.[368] The relationship marketing literature, as well, finds reputation theoretically important. Ganesan (1994) argues with the transfer of trust from trusted third parties through reputation[369], Doney and Cannon (1997) argue from a more economic perspective: costs of untrustworthy behavior are higher for a firm with a good reputation than for one with a bad reputation.[370]

This causal relationship has also been analyzed in several empirical works, with quite clear implications. McKnight et al. (2004) show a significant effect of reputation-focused advertising. Empirical insight from the relationship marketing literature points in a similar direction regarding the positive effects of reputation on trust, however, with somewhat more mixed results: Doney and Cannon (1997) propose the hypothesis but never report a result due to lack of discriminant validity of their reputation measure[371], Ganesan (1994) finds that the same hypothesis is not supported, however, using a somewhat different conceptualization of trust.[372] Finally, there are a number of authors who clearly do provide empirical support.[373]

With respect to NEVs as the research context of this work, Rode and Vallaster (2005), argue that corporate branding, a specific form of reputation building according to Zucker (1986), is critical for new ventures because of its importance for a competitive market entry.[374] Also, as opposed to personal purchasing experience that is argued to

[365] Zucker (1986), p. 62.
[366] Cf. Zucker (1986), p. 62.
[367] Ganesan (1994), p. 5.
[368] Refer to section 2.2.2.2.
[369] Cf. Ganesan (1994), p. 5.
[370] Cf. Doney and Cannon (1997), p. 38.
[371] Cf., e.g., Doney and Cannon (1997), pp. 38ff.
[372] Cf. Ganesan (1994), p. 11.
[373] Cf., e.g., Anderson and Weitz (1989), p. 319, Walsh and Beatty (2007), p. 140.
[374] Cf. Rode and Vallaster (2005), p. 124.

be less applicable to the special situation (newness) of NEVs, reputation as a generalized experience of other market participants can be developed despite limited customer interactions, hence, it should be applicable in the context of new firms.

Summarizing the considerations above, the first process-based trust building hypothesis can be formulated:

> Hypothesis HPR1: *Trustworthiness of a supplier will be positively influenced by the supplier's reputation.*

A second proxy for trustworthiness in the process-based sense is the use of guarantees or – more generally – *risk mitigation instruments*.

Typical examples for such instruments within a buyer-seller setting are *warranties*, *quality-dependent pricing*, *cancellation rights for the customer*, *product testing periods*, and *transaction insurances*.[375] Based on Zucker's theory, guarantees can produce trust in a party as the party offering guarantees increases its stakes in the relationship. If a guarantee does not hold, reputation will be damaged, which would not be in the interest of the trustee.[376] A second argument can be made by drawing on the discussion of the economics of information. Risk mitigation instruments are signals in the typical sense of that theory, signaling that the offering party is willing to ensure sufficient performance. It would be costly for the supplier to offer these warranties if he could not deliver the expected quality.[377] This argument holds for all of the individual measures listed above. Drawing on the closely related agency theory, Brettel and Heinemann (2003) find such measures to be a response to the hidden characteristics information asymmetry.[378] Schurr and Ozanne (1985) specifically highlight guarantees as an explicit antecedent of trust.[379]

Empirically, the relevance of these "explicit guarantees" has been found supported by and Schlosser et al. (2006) in a similar setting.[380]

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[375] Cf. Zucker (1986), p. 62, and Brettel and Heinemann (2003), p. 417. Interestingly, expert discussions during the pre-test phase of the empirical analysis highlighted largely the same measures. Refer to section 5.3.3.2.
[376] Cf. Zucker, p. 62.
[377] Cf. Spence (1973), p. 358.
[378] Cf. Brettel and Heinemann (2003), p. 414.
[379] Cf. Schurr and Ozanne (1985), p. 940.
[380] Cf. Schlosser et al. (2006), p. 135. Other authors include Berry (1995), pp. 236ff.

Specifically in the context of entrepreneurship, Qu and Cardozo (1997) propose the role of *safeguards* functioning as "hostages" against opportunistic behavior as critical for signaling trustworthiness in new ventures.[381] In a similar manner, Wilson (2001) theorizes a positive effect of signals on new venture trustworthiness and credibility.[382]

This leads to the following proposition:

> Hypothesis HPR2: *Trustworthiness of a supplier will be positively influenced by the supplier's offering of risk mitigation instruments.*

4.1.3.2 Characteristics-based drivers

The second mode of trust production is based on a person's or firm's *characteristics*. Actual experience with individual transaction counterparts is rare; use of *characteristics*[383] as a substitute is another way to judge trustworthiness of an unfamiliar opponent. Here, the fundamental idea is that, based on certain characteristics of the trustee, the trustor makes the assumption that his counterpart belongs to a specific group of people. If he generally considers that group trustworthy, he can thus also consider his counterpart trustworthy.[384] Section 3.1.2.4 has shown that reference can be made to characteristics such as family background, ethnic origin, or gender. However, in the context of professional buyer-seller relationships such personal characteristics as gender or ethnicity do not seem to be specifically relevant. Nevertheless, a literature review does reveal several constructs that seem to have an influence in such a relationship and that build a perception of trustworthiness following the characteristics-based mode as described by Zucker. Here, key elements are *social similarity*, *personal relationship*, and *local proximity*.

Social similarity – focusing on congruence of values and interests – is at the heart of characteristics-based trust building in that it directly supports the assumption of a common cultural background and thus the same *interpretive frame* mentioned by Zucker (1986). Doney and Cannon (1997) reason that *"trust is fostered because the buyer feels better able to assess the salesperson's intentions."*[385] This theoretical

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[381] Cf. Qu and Cardozo (1997), p. 693-694.
[382] Cf. Wilson (2001), pp. 4ff.
[383] Note the similar differentiation from signals in Spence (1973), p. 357. Spence distinguishes between *signals*, which can be altered by the actor, and *indices*, which are his characteristics that are beyond his own control, such as gender or age.
[384] Refer to section 3.1.2.4.
[385] Doney and Cannon (1997), p. 40.

argument is also shared by the social capital theory, in which shared values – a part of social similarity – are seen as a central requirement for relational exchange. For example, Fukuyama (1990) defines social capital as *"the existence of a certain set of informal rules or norms shared among members of a group that permits cooperation among them."*[386] Crosby, Evans, and Cowles (1990) refer to theories from the fields of social psychology and communication to justify their hypothesis of similarity influencing relationship quality, a construct explicitly containing the notion of trust and perceived integrity.[387] With respect to inter-organizational trust, McAllister (1995) as well as Fang, Palmatier, Scheer, and Li (2008) state cultural similarity as a key driver[388], while Dwyer et al. (1987) explicitly theorize that attitude similarity can lead to attraction in the exploratory phase of a buyer-seller relationship.[389]

On the side of empirical results, McAllister (1995) does not find support for his hypothesis, and neither do Anderson and Weitz (1989).[390] However, there is a large body of literature reporting positive findings. Crosby et al. (1990) see the hypothesis confirmed based on their data sample, so do Doney and Cannon (1997) and, in a meta analysis, Palmatier et al. (2006).[391] Other authors have positively evaluated the impact of the related construct of shared values.[392]

The notion of similarity seems to be especially relevant in the entrepreneurial context. Zucker (1986) derives the theorized importance from the patterns of early entrepreneurial activities taking place within highly homogeneous groups rather than across ethnic or geographical boundaries: *"innovative economic leadership (entrepreneurship) occurs in a fairly well-defined and socially homogeneous group"*[393] The literature on entrepreneurship, accordingly, features several examples of the importance of social groups and kinship, for example, Yusheng Peng (2004), who finds a relationship between kinship ties in Chinese villages and the number and size of private new businesses.[394] Kristiansen, researching entrepreneurial activity in

[386] Fukuyama (1990), p. 378.
[387] Crosby et al. (1990), p. 70.
[388] Cf. McAllister (1995), p. 28, and Fang et al. (2008), p. 94.
[389] Cf. Dwyer et al. (1987), p. 16.
[390] Cf. McAllister (1995), p. 52, and Anderson and Weitz (1989), p. 320.
[391] Cf. Crosby et al. (1990), p. 75, and Doney and Cannon (1997), p. 45, Palmatier et al. (2006), p. 149.
[392] Cf., e.g., Morgan and Hunt (1994), p. 30, Armstrong and Yee (2001), p. 68, Brashear et al. (2003), p. 194, Sirdeshmukh et al. (2002), p. 21, and Nicholson, Compeau, and Sethi (2001), p. 11, and, specifically in an entrepreneurial context, Howorth and Moro (2006), pp. 508-509.
[393] Zucker (1986), p. 63.
[394] Yusheng Peng (2004), p. 1045.

Africa, found that *"subcultures within African national context are probably of vital importance for the development of value systems, trust, and social capital and thereby also for business success."*[395] Finally, Jarillo (1988) explicitly mentions *"searching explicitly for people the entrepreneur can 'relate to', i.e. with similar values"*[396] as a trust building strategy for entrepreneurs.

The first characteristics-based hypothesis is thus:

> Hypothesis HCH1: *Social similarity between the supplier personnel and the trustor will positively influence the supplier's trustworthiness.*

By the same rationale, *local proximity* supports trustworthiness, as it equally supports the assumption of a common cultural background. Zucker (1986) explicitly mentions the relevance of *intra-local ties* as a source of trust. Empirically, there does not seem to be much research regarding the influence of local proximity on trust that goes beyond Zucker's analysis of early entrepreneurial relationships.[397] Howorth and Moro (2006) relate the fact that some banks in the United Kingdom have increased the number of their local branches to the lack of trust of local customers.[398] Sanner (1997a) found *local anchorage* to be important for building initial trust in a new venture, according to his case studies.[399]

Therefore, it is proposed:

> Hypothesis HCH2: *Local proximity of the supplier and the buyer will positively influence the supplier's trustworthiness.*

Another strong characteristics-based driver of trustworthiness should be a *personal relationship* with the trustee. A personal relationship shall be understood in this research as *a positive relationship or even friendship beyond the business context.* Having known the counterpart, one can be comparably sure of one's expectations towards this person.[400] Within Zucker's framework, a personal relationship might be the strongest form of association with a sub culture.

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[395] Kristiansen (2004), p. 1151.
[396] Jarillo (1988), p. 37. Highlighting and punctuation are copied from the original text.
[397] Cf. Zucker (1986), p. 63.
[398] Cf. Howorth and Moro (2006), p. 512.
[399] Cf. Sanner (1997a), p. 390.
[400] One could argue that personal relationship is actually a process-based driver of trustworthiness, as the attribution of trustworthiness is based on personal experience with the trustee. In this research,

Theoretically, this effect is closely related to the concept of social capital. Coleman (1988), arguing for the relevance of strong interpersonal ties in economic transactions, gives the example of the diamond wholesale market in New York: Jewish diamond traders exchange their valuable goods without actual insurance against each other's opportunism. The reason for this trusting behavior is seen in the close personal relationships: the disincentives of cheating include not only the loss of the business relationship but also the loss of a personal relationship and a religious connection.[401] In a similar vein, Granovetter (1985) argues that personal relationships *"make behaviors more predictable and thus close off some of the fears that create difficulties among strangers."*[402]

Empirically, personal relationships have been shown to have positive effects on trust. Doney and Cannon (1997) evaluate *likeability*, which is a necessary condition for a personal relationship, to be relevant for trust building.[403] Nicholson et al. (2001) identify *liking* as a highly relevant predictor of trust.[404] A look at the indicators used to measure liking shows a large conceptual overlap with the understanding of a personal relationship in this research.

With regard to an entrepreneurial context, Jarillo (1988) highlights the competitive advantage of personal *networks* for entrepreneurs. Sanner (1997a) refers to person-based pre-trust, highlighting the advantages in building trust in a new venture of an established personal relationship of the entrepreneur with potential customers at start-up time.[405] Howorth and Moro (2006) underline the positive role of *closeness* of the relationship in an entrepreneur-bank context.[406] Similarly, Shane and Cable (2002) argue that *direct ties*, i.e., personal relationships, positively influence investment decisions of venture capitalists and find evidence for that hypothesis in their analysis of a survey among US seed-stage venture capitalists.[407]

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however, it is seen as a characteristics-based driver. This way, the relationship becomes independent of the context of the past interaction: it is hypothesized that a personal relationship will drive the perception of trustworthiness also if the previous interaction has nothing to do with the exchange context in focus. Process-based trust building would only work based on previous experience in a similar context. Cf. Zucker (1986), p. 62.

[401] Cf. Coleman (1988), pp. S98-S99.
[402] Granovetter (1985), p. 490.
[403] Cf. Doney and Cannon (1997), p. 44.
[404] Cf. Nicholson et al. (2001), p. 11.
[405] Cf. Sanner (1997a), p. 360.
[406] Cf. Howorth and Moro (2006), pp. 508-509.
[407] Cf. Shane and Cable (2002), pp. 364ff.

Taking all the above into consideration, the following proposition seems justified:

> Hypothesis HCH3: *A personal relationship between the trustor and supplier personnel will positively influence the supplier's trustworthiness.*

4.1.3.3 Institution-based drivers

The third mode of trust production according to Zucker is *institution-based*. The idea of *institutions* goes back to North (1996) who understands them as *"the rules of the game in society or […] constraints that shape human actions"*[408]. Zucker, in her elaboration on the third mode of trust production, identifies the key aspect of institutionalization with regard to trust: generalization *"beyond a given transaction and beyond a specific set of exchange partners."*[409] This way, trust can be produced in a way independent of previous exchange history and person or firm characteristics.

Applied to the present research setting, the person-/firm-specific type of institution-based trust production seems specifically relevant. Institutions of the other type, intermediary mechanisms[410], are primarily characterizing the market, in which the transaction takes place. Therefore, they are not expected to explain significant variation in trustworthiness levels *within* one particular market. Person-/firm-specific institutional trust building, in contrast, should explain intra-market variations and, moreover, provide the action-orientation demanded in the introduction to this thesis.[411]

The fundamental mechanism of this type of trust building is similar to the characteristics-based mode: *"the person- or firm-specific type rests on membership in a subculture, within which carefully delineated specific expectations are expected to hold"*[412] However, as opposed to characteristics-based trust production, the actor can choose to become a member of institutional sub cultures, depending on his willingness to invest time, effort, and funds.

Other theoretical approaches similarly underline the relevance of institutions with respect to relationships, especially within the theories related to the new

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[408] North (1996), p. 3.
[409] Zucker (1986), p. 64.
[410] Refer back to section 3.1.2.4 for a description of the two types.
[411] It would still be insightful to evaluate market-specific institutions and their impact on trust building. In an international research setting, it would even be critical to include such measures in order to fully explain differences in trust levels. Refer to section 8.2.2 for a broader discussion of this issue with regard to the directions for further research.
[412] Zucker (1986), p. 63.

institutionalism. While Williamson (1993), as mentioned earlier, denies the existence of trust as a construct involved in economic transactions[413], his theory of transaction cost economics does view *institutional safeguards* as central to economic transactions and leading to *calculative trust*, a form of calculus based re-assessment of the risk involved in a specific transaction, thus compatible with the view of trust followed in this work.[414, 415] From the perspective of the economics of information, institution-based trust building is a form of signaling: if information is asymmetrically distributed, the trustee's investments in institutional backing through such efforts as education, certifications, association membership, or – more indirectly – external credentials signal the transaction partner trustworthiness. This perspective has been assumed by several authors researching trust in economic exchange relationships.[416] Finally, Grewal and Dharwadkar (2002) propose a framework of different variables of an institutional environment and their influence on an actor's *legitimacy*, which is closely related to trustworthiness.[417]

Key elements of institution-based trust production in the sense explained above are *institutional embeddedness* and the *external references*, which will be elaborated on in the following paragraphs.

A supplier's *institutional embeddedness* shall be understood in the present research context as the *reference to professional institutions.* Key examples of such institutions are *professional associations*, *educational institutions* (an MBA from a renowned business school), but also *certifications* according to, e.g., ISO9001 or relevant *industry standards*. *Product awards* from relevant industry-specific institutions can have a similar effect. These institutions are at the core of the trust building mode as described by Zucker.[418] As mentioned earlier, the second type of institutional trust drivers, intermediary mechanisms are viewed as outside of this conceptualization. As

[413] Refer back to section 2.2.2.2.
[414] Cf. Williamson (1993), p. 460.
[415] Note that Williamson argues with a re-assessment of the risk involved in a transaction with a specific transaction partner. This is a form of trust development within the concept of Mayer et al.: they argue that trust is transaction-specific and will be compared by the trustor to a level of perceived risk *generally* present in such a transaction. Refer back to section 2.2.2.5.
[416] Cf., e.g., Ripperger (2005), p. 68, Stewart (2003), pp. 11-12.
[417] Cf. Grewal and Dharwadkar (2002), p. 84. The authors define legitimacy as *"a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions."*
[418] Cf. Zucker (1986), pp. 63ff.

determinants of the market environment rather than firm-specific perceptions, they are not expected to contribute to answering the research questions underlying this analysis.

Empirically, the relevance of this construct has been analyzed in several works, however with mixed results. On the one hand, Reuber and Fischer (2007) highlight the positive reputational effects of product awards.[419] Aiken and Boush (2006) find that a third-party certification ("trust mark") has strong positive effects on the perceived trustworthiness of an internet computer retailer.[420] And in a cross-national study, Paxton (2007) finds that association membership does promote trustworthiness.[421] On the other hand, Stewart (2003) proposes similar effects of an institutional background and does not find her proposition supported.[422] McKnight and colleagues analyze this relationship twice, reporting no support in their 2002 paper, but positive results in their 2004 article.[423] Finally, McAllister (1995) tests the relevance of professional standing, measured by a classification of the trustees educational qualifications, for trust and his findings lead to the rejection of their positive hypothesis.[424]

Analyzing the specific environment of entrepreneurial firms, Qu and Cardozo (1997) propose formal and informal ties to influence trustworthiness perceptions, building their argument on Zucker's rationale.[425] Sanner (1997a) discusses different sources of trust in new ventures based on a case study analysis. His results point to a positive effect of institutional ties of an entrepreneur.[426]

The sound theoretical basis and some empirical evidence lead to the following hypothesis:

> Hypothesis HIN1: *Institutional embeddedness of the supplier firm will positively influence the supplier's trustworthiness.*

External references have a similar effect. In this work, external references are viewed as references to external parties that are not formal institutions in a strict sense, but do, however, allow the institution-based trust building mechanism to take effect. Zucker

[419] Cf. Reuber and Fischer (2007), p. 363.
[420] Cf. Aiken and Boush (2006), p. 315.
[421] Cf. Paxton (2007), p. 65.
[422] Cf. Stewart (2003), p. 12.
[423] Cf. McKnight et al. (2002), p. 350, and McKnight et al. (2004), p. 260.
[424] Cf. McAllister (1995), p. 49.
[425] Cf. Qu and Cardozo (1997), p. 696.
[426] Cf. Sanner (1997a), p. 349.

underlines the importance of such credentials by assuming that credentials can be a means of substitutions for informal reputation.[427]

The use of *external references* can, therefore, foster trustworthiness by the same rationale as *institutional embeddedness*. In this case, institutional signals take the form of references to *well-reputed customers*, *business partners*, or *previous employers of key personnel* of the supplier. Grayson et al. (2008) highlight the relevance of such more informal trust drivers.[428] Grewal and Dharwadkar (2002) describe the related process of legitimizing through associating the success of a third party (the external reference) with a certain action (in this case the cooperation with the trustee).[429] The external references, as well, trigger a *trust transfer* from the third party to the trustee.[430] Rousseau et al. (1998) describe the same effect in their paper comparing the different perspectives on trust from various disciplines. [431]

On the side of empirical research, the review of the related literature only highlights few works explicitly examining the concept of *external references* or related constructs such as *professional credentials*, moreover, results seem mixed. Shek, Sia, and Lim (2003) cite from their interviews conducted in an experimental environment, in which participants did express more positive perceptions of trustworthiness due to the use of credentials.[432] Meyerson, Weick, and Kramer (1996) see one of the reasons for the swift trust in their "Dallas Organization" example to be the selection of anyone in the group by one central trusted "contractor" – clearly a case of trust transfer involving an external reference.[433] Yousafzai, Pallister, and Foxall (2005), in contrast, test the relevance of customer testimonials finding no significant effect.[434]

Specifically in the context of new ventures, Deutsch and Ross (2003) argue for the positive trust building effect of well-reputed directors associated with new ventures,

[427] Cf. Zucker (1986), p. 55.
[428] Cf. Grayson et al. (2008), p. 253.
[429] Cf. Grewal and Dharwadkar (2002), p. 87.
[430] Cf., e.g., Stewart (2003), pp. 6ff.
[431] Cf. Rousseau et al. (1998), p. 396.
[432] Cf. Shek et al. (2003), pp. 5ff.
[433] Cf. Meyerson et al. (1996), p. 167. The "Dallas Organization" refers to the get-together of a group of professional employees – who do not know each other and will most likely never work together again – for the purpose of fulfilling a joint task.
[434] Cf. Yousafzai et al. (2005), p. 195.

introducing the notion of *renting a reputation*.[435] Wilson sees one of the two main advantages of a large network for an entrepreneur in the provision of credibility.[436]

While empirical research on the role of external references seems sparse so far and results seem to point in different directions, the theoretical relevance of the construct is clearly justified based on Zucker's argument. Furthermore, researchers in the field of entrepreneurship seem to acknowledge the positive effects. Therefore, the last hypothesis on the level of trust drivers is formulated:

> Hypothesis HIN2: *A supplier's use of external references will positively influence the supplier's trustworthiness.*

4.2 Hypotheses on the moderating effect of product/service qualities

Building on the basic model developed in the previous section, this section is concerned with hypotheses on the moderating effect of product qualities, which corresponds to the second research objective of this dissertation.

The relevance of trust in buyer-seller relationships as well as the effectiveness of trust drivers seem to be dependent on contextual factors of the selling situation. Palmatier et al. (2006) report on a meta analysis of studies regarding factors that influence the effectiveness of marketing relationships. Their synthesis contains a section on potentially moderating factors, e.g., service vs. product-based exchange, business vs. consumer markets.[437] Doney and Cannon (1997) come to the conclusion that the deviation in the results of their study from previous empirical findings might be in part due to the fact that the industrial purchasing setting of their study differed from the channel management environment of most of the previous studies.[438] Nijssen et al. (2003), as well, find the influence of industry-specific factors on the role of trust under-researched.[439] Finally, Singh and Sirdeshmukh (2000) note that an empirical study on trust in buyer-seller relationships should span more than one industry in order to capture the context-specific variability in the relevance of trust.[440]

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[435] Cf. Deutsch and Ross (2003), pp. 1004ff.
[436] Cf. Wilson, p. 8.
[437] Cf. Palmatier et al. (2006), p. 137.
[438] Cf. Doney and Cannon (1997), pp. 46-47.
[439] Cf. Nijssen et al. (2003), p. 46.
[440] Cf. Singh and Sirdeshmukh (2000), p. 165.

As explained earlier, this study approaches such differences from an analysis of *risk* as the quintessential reason for the relevance of trust, independent of the disciplinary perspective applied.[441] Specifically, Mayer et al. (1995) argue that "risk is an essential component of a model of trust."[442] Following information economists, risk in a purchasing relationship is here seen as being to a large degree a consequence of the uncertainty regarding product or service quality. Accordingly, the product qualities framework within the theory of the economics of information seems to provide a suitable basis to explain some variability between industry contexts. Berry (2002) highlights the special relevance of trust for service firms, underlining the credence qualities of the services offered: *"low trust organizations are barred from relationship marketing."*[443]

Due to the difference in inherent information asymmetry, a) the importance of trust for a purchase intention should be dependent on the type of product or service in question and b) the relevance of individual trust-building measures could be affected. As stated in section 2.4, the present analysis is focused on differences between two types of industries, an *experience industry* and a *credence industry*. The key difference between the two types is that a buyer will be able to know the quality of an experience good after purchase. That is, assuming a buyer is involved in more than one purchasing event, the risk of a purchase will generally be lower for an experience good than for a credence good. The first hypothesis with regard to product/service qualities is a direct result of the combination of the difference in the levels of risk and the impact of risk on the relevance of trust. While a review of the relevant literature has not led to any insights from existing empirical analysis, there seems to be a sufficient theoretical foundation to formulate:

> Hypothesis HGR1: *The positive effect of trust on purchase intention will be stronger for suppliers in a credence industry than for a supplier in an experience industry.*

On the level of the trust-drivers, as well, dominant product qualities should have an impact on the hypothesized relationships. As it has become clear in the previous sections, one theoretical rationale for the relevance of several trust drivers is the

[441] Refer to section 2.2.
[442] Mayer et al. (1995), p. 724.
[443] Berry (2002), p. 73.

reference to information economics concepts such as signaling.[444] Consequently, in these cases, the strength of the effect should differ depending on the degree of information asymmetry and, thus, on the product qualities dominating the industry. Specifically, this issue seems to be relevant for the offering of *risk mitigation instruments*.

Offering risk mitigation instruments such as guarantees will be a blunt instrument for companies offering credence goods, because the condition upon which these promises need to hold are by definition at best difficult, at worst impossible to identify. A potential customer should be able to realize that and thus discount the trust building effect of such measures. This leads to the last hypothesis in the proposed model:

> Hypothesis HGR2: *The effect of risk mitigation instruments on trustworthiness will be weaker for suppliers in a credence industry than for suppliers in an experience industry.*

4.3 Overview of the hypothesized model

In the previous two sections, the research hypotheses have been derived from the theoretical foundation of this work. Figure 6 gives an overview of the resulting research model, which will be tested in an empirical analysis as described in the following chapters.

[444] Refer to section 4.1.

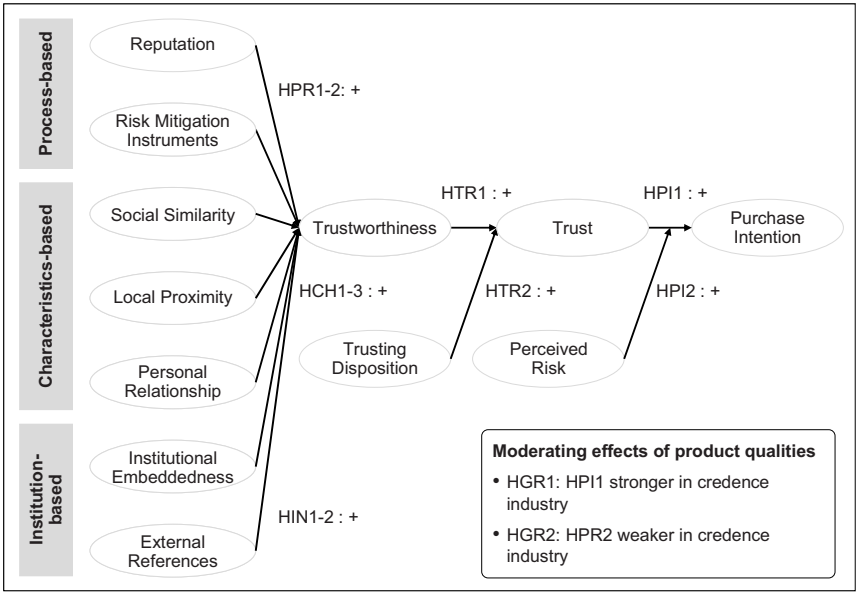

Figure 6: Overview of the proposed research model[445]

[445] Own illustration.

5 Preparation of the empirical analysis

In order to test the research model, several preparatory steps are required. The purpose of this chapter is to guide the reader through the most important prerequisites of the empirical analysis. As a first step, a suitable method of statistical analysis of the model is selected and described (section 5.1). Based on the selected method, section 5.2 presents the methodology of assessment of the statistical quality of the measurement and the model estimations. Finally, in section 5.3, a measurement instrument is developed to operationalize the hypothesized model.

5.1 Selection of the method of statistical analysis

As described in the introduction to this dissertation, the study shall be based on a confirmatory empirical approach that will be specified here. First, section 5.1.1 argues for the use of a confirmatory approach to this research rather than a more exploratory one. Next, section 5.1.2 introduces structural equation modeling as a confirmatory statistical method suitable in the present context. In the following section, section 5.1.3, the method for the estimation of the structural equation model is selected based on a thorough consideration of the respective advantages and disadvantages of available algorithms. Finally, section 5.1.4 provides an introduction to the functionality of the *partial least squares* (PLS) algorithm used to evaluate the model underlying this study.

5.1.1 Application of a confirmatory approach in this research

A general decision to be made for every empirical research project is whether to use an exploratory or a confirmatory approach. While exploratory analysis is an approach typically chosen in early phases of research on a given topic, a confirmatory approach requires a certain amount of theoretical knowledge on the phenomenon in question to propose research hypotheses that can subsequently be tested.

For the present research, the definition of the research objectives implies the need to evaluate the model using confirmatory analysis. Such an approach seems to be appropriate for two specific reasons. As described in the first chapter, research on trust in new ventures has so far focused on non-empirical or exploratory research

approaches.[446] Despite the relative newness of the research field, such works have produced a substantial amount of research results, which the present study can build on. Second, the body of literature on trust in buyer-seller relationships in non-entrepreneurial settings is large, as discussed in the third chapter of this thesis. An adaptation of well-understood concepts to the specific environment of NEVs, accordingly, seems to allow for the proposition of testable research hypotheses.

For such confirmatory studies, the literature offers several different types of statistical methods. The following section presents structural equation modeling as one of the more advanced techniques.

5.1.2 Structural equation modeling as a second-generation confirmatory statistical method

5.1.2.1 Two generations of multivariate analysis

In order to analyze the effects of several constructs on a dependent variable, a method of multivariate statistical analysis needs to be applied. According to Fornell (1982), such methods can be classified into a first and a second generation.[447] Methods of the first generation are, for example, multiple regression, multidimensional scaling, and factor analysis.[448]

The analysis of structural equation models (SEM), in contrast, is a second-generation method, which is characterized by several advantages over methods of the first generation.[449] While first-generation procedures are well-suited only for the analysis of directly observable variables (also named *manifest variables*), SEM analysis is capable of handling latent variables, i.e., variables that are not directly observable but can be measured using observable indicators. Furthermore, in contrast to first-generation procedures, structural equation modeling explicitly acknowledges errors due to measurement limitations, i.e., the assumption of perfectly error-free measurement is abandoned. Finally, the limitation of first-generation instruments to very simple model structures is eased, since structural equation models can be designed in a much more

[446] Refer to section 1.2.
[447] Cf. Fornell (1982), p. 1.
[448] Cf. Chin (1998), p. 296, Hulland (1999), p. 195.
[449] For the following paragraph, cf. Chin (1998), p. 296, Haenlein and Kaplan (2004), p. 284, Hulland (1999), p. 195, Bagozzi (1981b), p. 39.

complex manner, including several dependent and independent variables linked in different ways.

Due to these advantages over alternative statistical instruments, the present study uses structural equation modeling for the empirical analysis. The following section will introduce the two types of latent variable specification to provide the basis for the subsequent description of the components of a structural equation model.

5.1.2.2 Construct specification in structural equation modeling

Construct specification is concerned with the relationship between a *construct*, i.e., a *latent variable*, and a set of *indicators* or *measures*, i.e., *observable* variables used to measure the latent construct.[450] There are two fundamental ways of construct specification that can be distinguished by the direction of the causal relationship between a construct and its associated indicators. In the case of a *reflective specification*, the indicator values are functions of the construct value. By contrast, in a *formative specification*, the construct value is a function of the indicator values.[451]

Correct construct specification is of high importance in structural equation modeling. The key issue is that the assessment of measurement quality and the treatment of less well-performing measures highly depend on the specification type.[452] Consequently, if construct specification and quality assessment procedure do not match, the measurement results can be seriously impaired. As several authors have repeatedly noted, this is not a theoretical threat but one of the central issues in empirical research.[453] Podsakoff et al. (2006) find in a recent review that even in top journal publications, researchers often do not discuss the specification of their measures and, thus, *"implicitly treated them as reflective measures of the construct"*[454]. It has long been known that a misspecification can not only lead to wrong estimation results and that such misspecifications are difficult to detect using the generally recommended goodness-of-fit indices.[455]

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[450] Cf. Podsakoff, Shen, and Podsakoff (2006), p. 202.
[451] Cf. Jarvis, Mackenzie, Podsakoff, Mick, and Bearden (2003), pp. 200ff.
[452] Refer to section 5.2.2.
[453] Cf., e.g., Jarvis et al. (2003), pp. 199ff., MacKenzie, Podsakoff, and Jarvis (2005), pp. 710ff., Podsakoff et al. (2006), pp. 197ff., Fassott and Eggert (2005), pp. 42-43, Fassott (2006), pp. 67ff.
[454] Podsakoff et al. (2006), p. 200.
[455] Cf. Jarvis et al. (2003), p. 212.

Thus, an important question is how to determine the specification of a given operationalization of a construct. Here Jarvis et al. (2003) suggest four sets of questions to ask in unclear cases. The answers to these questions should help determine the relationship between construct and indicators and, thus, the construct specification.[456] Table 6 shows the resulting decision rules. The first criterion directly addresses the core of the distinction between the two types of specifications, that is, the direction of the causal relationship. The second criterion, indicator interchangeability, also relates to the causality. As reflective indicators reflect construct value, they should be interchangeable. By contrast, a construct specified in a formative manner may be viewed as a composite of different aspects of its conceptual domain.[457] Consequently, indicators might reflect different aspects, so that they are not generally interchangeable. This has an important consequence for the quality assessment procedure, since it implies that indicators generally cannot be eliminated from formative measurement models without altering the construct's conceptual domain.[458] By the same rationale, indicator covariation should be expected for reflective measurement models, but is not necessary in formative models. Finally, Jarvis and colleagues recommend analyzing the nomological net of the indicators: in reflective models, the indicators should have the same antecedents and consequences. In contrast, elements in formative measurement models can exhibit different nomological nets if they represent different dimensions or facets of the construct domain.

	Reflective model	**Formative model**
Direction of causality	From construct to item	From item to construct
Indicator interchangeability	Indicators should be interchangeable	Indicators not necessarily interchangeable
	Dropping items should not alter the conceptual domain	Dropping items may alter the conceptual domain
Indicator covariation	Indicators are expected to covary with each other	Covariation between indicators not necessary
Indicator nomological net	Indicators should have the same antecedents and consequences	Same antecedents and consequences not necessary

Table 6: Construct specification decision rules[459]

[456] Cf. Jarvis et al. (2003), pp. 202-203.
[457] Cf. Podsakoff et al. (2006), p. 210.
[458] Refer to section 5.2.2.2 for more details.
[459] Simplified from Jarvis et al. (2003), p. 203.

In this work, the criteria brought forth by Jarvis and colleagues will be applied during the operationalization of the research model to ensure sound measurement and avoid misspecifications. The requirement of strict application of these criteria even in the case of the adoption of previously published scales has recently been underlined by Fassott (2006).[460]

5.1.2.3 Components of a structural equation model

The core objective of the analysis of a structural equation model is to identify causal relationships between variables that are mostly latent, that is, unobservable.[461] To achieve that objective, a structural equation model contains two different components: a) a structural model, making statements about the interrelationship of the latent variables, and b) a measurement model, making statements about the interrelationship of the latent variables and their associated manifest indicators.[462]

Figure 7 gives an overview of the formal structure of a structural equation model with its two types of components.[463] As evident, the model is essentially a formal combination of formative (x_{1-n}) and reflective (y_{1-n}) indicators that represent latent independent (ξ) and dependent (η) constructs. Relationships within the model are estimated through the application of regression techniques.

Specifically, relationships on the construct level are described by the path coefficients (γ for relationships between exogenous and endogenous constructs, β for relationships between endogenous constructs), that indicate the degree of correlation between independent and dependent constructs in a regression. As, in most realistic applications, a regression cannot explain the full variability in a dependent variable, the model contains an error term ζ capturing the unexplained deviations in the dependent variable.

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[460] Cf. Fassott (2006), p. 71.

[461] It is worth noting that the use of the term causal analysis found in the literature is not fully precise. As Homburg and Pflesser (2000b), p. 635, note, a causal relationship can not be proven or rejected using multivariate statistical analysis. While the statistical analysis can reveal correlations, the theory needs to provide the rationale for causality. Refer to Ringle (2004), p. 7, for further discussion of this issue.

[462] Cf., e.g., Götz and Liehr-Gobbers (2004), p. 716, Homburg and Pflesser (2000b), pp. 635ff., Homburg and Baumgartner (1995), p. 1098.

[463] Sources of the description in the following paragraphs are Diamantopoulos (1994), pp. 109ff., Homburg and Pflesser (2000a), pp. 423ff, Haenlein and Kaplan (2004), pp. 286ff., Ringle (2004), pp. 7ff., Götz and Liehr-Gobbers (2004), pp. 716ff., Backhaus, Erichson, Plinke, and Weiber (2006), pp. 337ff.

On the measurement model level, two different cases need to be distinguished: the modeling of formative and reflective constructs. In a formative operationalization, the construct value is the result of a multiple regression on its indicators. Accordingly, the relationship between the construct and its indicators is expressed by the regression coefficients π, leaving a residual error term δ. In the case of reflective operationalization, the causal relationship is turned around: the indicator value is a function of the construct value.[464] Accordingly, the relationship between construct and indicators is expressed by regression coefficients λ resulting from a simple regression of each indicator on the corresponding construct. Consequently, there is an error term (δ for exogenous, ε for endogenous constructs) associated with each reflective indicator capturing the variability not explained by the construct variability.

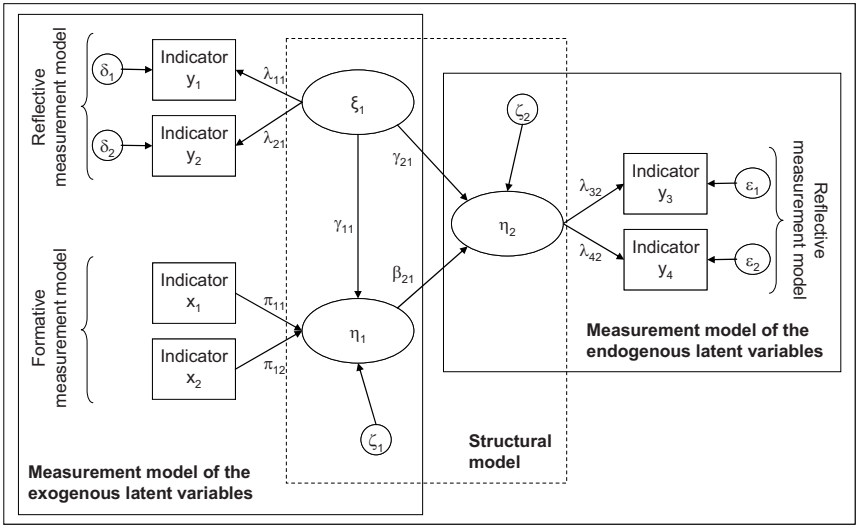

Figure 7: Formal structure of a structural equation model[465]

5.1.3 Selection of the estimation methodology

Based on the basic structure of an SEM described in the previous section, there are several different approaches to the estimation of the model parameters. The literature

[464] Refer to section 5.1.2.2 for a broader discussion of the causal relationships between constructs and its indicators.
[465] Götz and Liehr-Gobbers (2004), p. 716, and Backhaus et al. (2006), p. 355.

generally distinguishes covariance- and variance-based approaches.[466] The fundamental difference between the two classes of algorithms is the core objective of the estimation. Covariance-based approaches aim at a minimization of the differences between covariances empirically observed in the sample and those theoretically predicted.[467] By contrast, variance-based approaches *"focus on maximizing the variance of the dependent variables explained by the independent ones instead of reproducing the empirical covariance matrix."*[468] Among the variance-based approaches, the PLS algorithm originally developed by Wold (1975) is the most well-known procedure.[469]

Clearly, covariance-based estimation is the most commonly used approach to SEM estimation.[470] According to Chin (1998), this predominance is largely due to the early and wide availability of associated software packages, first and foremost LISREL.[471]

Several authors have noted the large number of advantages PLS has over covariance-based approaches, mainly with regard to the strict requirements for the data sample implied by the assumptions underlying covariance-based algorithms such as LISREL.[472] However, the use of PLS also has some drawbacks, so that a careful decision has to be made with regard to which approach to use. In the following paragraphs, the key differences in this respect will be explained.

Chin and Newsted (1999) provide a comprehensive comparison of PLS with covariance-based procedures. Table 7 depicts the characteristics given by Chin and Newsted (1999). Among the numerous differences, four seem to be specifically relevant in the present research setting: consistency, basic assumptions, epistemic relationships, and sample sizes.

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[466] Cf. Bliemel, Eggert, Fassott, and Henseler (2005), p. 10.
[467] Cf., e.g., Diamantopoulos (1994), p. 116, Haenlein and Kaplan (2004), p. 290.
[468] Haenlein and Kaplan (2004), p. 290.
[469] Cf. Wold (1975) or Wold (1985), pp. 581ff.; for the relevance of the PLS algorithm cf. Hulland (1999), p. 195, or Haenlein and Kaplan (2004), p. 283.
[470] Cf., e.g., Homburg and Baumgartner (1995), p. 1098.
[471] Cf. Chin (1998), p. 297.
[472] Cf. Fornell and Bookstein (1982), p. 440, Götz and Liehr-Gobbers (2004), pp. 714ff., Chin and Newsted (1999), p. 309, Haenlein and Kaplan (2004), pp. 292ff., Ringle (2004), p. 37, Hulland (1999), p. 195.

Criterion	Structural Equation Modeling with Partial Least Squares	Covariance-based Structural Equation Modeling
Objective:	Prediction oriented	Parameter oriented
Approach:	Variance based	Covariance based
Assumptions:	Predictor specification (nonparametric)	Typically multivariate normal distribution and independent observations (parametric)
Parameter estimates:	Consistent as indicators and sample size increases (i.e., consistency at large)	Consistent
Latent variable scores:	Explicitly estimated	Indeterminate
Epistemic relationship between a latent variable and its measures:	Can be modeled in either formative or reflective mode	Typically only with reflective indicators
Implications:	Optimal for prediction accuracy	Optimal for parameter accuracy
Model complexity:	Large complexity (e.g., 100 constructs and 1000 indicators)	Small to moderate complexity (e.g., less than 100 indicators)
Sample size:	Power analysis based on the portion of the model with the largest number of predictors. Minimal recommendations range from 30 to 100 cases.	Ideally based on power analysis of specific model – minimal recommendations range from 200 to 800.

Table 7: Key differences between PLS and covariance-based modeling[473]

Consistency. While covariance-based approaches – provided the strict assumptions on the distribution of the underlying data generating processes are met by the data set – yield consistent estimators, PLS suffers from a lack of consistency under certain conditions. The algorithm tends to overestimate indicator loadings at the expense of path coefficient magnitude.[474] This problem is rooted in the fact that the latent variable scores estimated by the algorithm are aggregates of the observed measures that include measurement errors.[475] Generally, Haenlein and Kaplan (2004) argue that consistency is a *"key feature of any statistical model"*[476] and, consequently, question the use of a methodology that fails to ensure this prerequisite. However, they also acknowledge the value of PLS in situations in which *"covariance-based SEM tools reach their limits"*.[477] The literature refers to this issue as *"consistency at large"*, since the problem can be minimized through increasing both sample size and the number of indicators

[473] Chin and Newsted (1999), p. 314.
[474] Cf. Chin and Newsted (1999), pp. 328-329.
[475] Cf. Chin and Newsted (1999), p. 328.
[476] Haenlein and Kaplan (2004), p. 292.
[477] Haenlein and Kaplan (2004), p. 292.

per latent variable.[478] In summary, the lack of consistency can be improved to a large degree through survey design parameters; the remaining minimal lack of consistency seems to be a fair price if other specific requirements of the research design make the use of covariance-based approaches imprudent.

Basic assumptions. Most covariance-based algorithms, especially the most widely used LISREL algorithm, use the maximum likelihood method for parameter estimation.[479] This method, however, implies comparably strict requirements for the statistical distribution underlying the sample data. Most importantly, the estimation is based on the assumption of multivariate normal distributions on interval scales. As Fornell and Bookstein (1982) note, real-life data, especially in the marketing context, often fails to fulfill this assumption.[480] Chin and Newsted (1999) argue that the use of covariance-based approaches can therefore lead to misleading parameter estimates in cases, in which the strict assumptions are not met by the data sample.[481]

Epistemic relationships. There are two fundamental types of measurement of latent variables: *reflective* and *formative* (also known as *causal*) measures. The key difference between the two is the causal relationship between indicators and construct.[482] In the case of reflectively specified constructs, the indicator values are a function of the construct value, i.e., indicators will typically exhibit high correlations. In the second case of formative specification, the construct value is a linear combination of its indicators, i.e., high correlations are not a necessary condition for a reliable measure. Specifications of a construct are to some degree exchangeable, however, these depend largely on the construct in question. For several constructs, both formative and reflective measures can be found.[483] In contrast, some constructs only seem to allow for one means of specification. Fassott and Eggert (2005), for example, argue that several constructs in the field of marketing such as the *use of marketing instruments* or *customer satisfaction* do not allow for a reflective specification.[484]

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[478] Cf. Chin and Newsted (1999), p. 329.
[479] Cf. Wold (1985), p. 581, Chin and Newsted (1999), p. 309, Götz and Liehr-Gobbers (2004), p. 714.
[480] Cf. Fornell and Bookstein (1982), p. 440, and all of the sources above.
[481] Cf. Chin and Newsted (1999), p. 309.
[482] Refer to section 5.1.2.2 for an exhaustive discussion of construct specifications.
[483] For example, Ringle (2004) present very illustrative formative and reflective operationalizations of the construct of *insobriety* (p. 22).
[484] Cf. Fassott and Eggert (2005), p. 46-47. Also refer to Fornell and Bookstein (1982), p. 442.

Construct specification is another critical factor to be considered in the selection of an estimation methodology. Several authors have noted the difficulties caused by the inclusion of formative construct specifications in models to be tested using covariance-based methodologies.[485] While Scholderer and Balderjahn (2006) make clear that it is under certain circumstances possible to analyze models containing causal measures, it seems to be widely accepted that serious issues can arise.[486] MacCallum and Browne (1993) name the most important concerns and underline that resolving these issues typically requires substantial modifications of the model originally intended.[487] PLS, in contrast, can handle formative measures without any associated issues.[488] Consequently, it has been repeatedly recommended to use PLS as a powerful alternative to covariance-based approaches in cases, in which the model contains formative construct specifications.[489]

Sample sizes. The final important factor to be considered in the selection of an estimation algorithm is the required sample size.[490] Here, as well, variance- and covariance-based approaches differ fundamentally in their requirements. While covariance-based approaches estimate the full model at once, the PLS algorithm iteratively estimates only parts of the model at the same time.[491] Consequently, the sample size requirements are comparably lower.[492] With regard to specific sample size threshold levels, the literature gives variable recommendations. Backhaus et al. (2006) identifies recommended levels of 200 data items or 5 times the number of parameters to be estimated, if covariance-based algorithms are to be used.[493] For PLS, in contrast, comparably small sample sizes are sufficient due to the partial estimation approach.[494] Based on a heuristic used in regression analysis, Chin and Newsted (1999) recommend a minimum sample size of ten times the number of predictors in the largest regression equation. Specifically, the sample should be larger than ten times a) the number of

[485] Cf., e.g., Diamantopoulos (1994), p. 108, Chin (1998), p. 306, Ringle (2004), p. 32, Temme and Kreis (2005), p. 195.
[486] Cf. Scholderer and Balderjahn (2006), p. 65.
[487] Cf. MacCallum and Browne (1993), p. 540.
[488] Cf., e.g., Diamantopoulos and Winklhofer (2001), p. 274, Ringle (2004), p. 32.
[489] Cf. Götz and Liehr-Gobbers (2004), p. 731, Ringle (2004), p. 32, Temme and Kreis (2005), p. 195, Herrmann, Huber, and Kressmann (2006), p. 34.
[490] Cf. Backhaus et al. (2006), p. 370.
[491] Cf., e.g., Chin, Marcolin, and Newsted (2003), p. 197, or refer to the next section for details on the PLS algorithm.
[492] Cf., e.g., Amoroso and Cheney (1991), p. 78, Chin et al. (2003), p. 197, or Götz and Liehr-Gobbers (2004), p. 714.
[493] Cf. Backhaus et al. (2006), p. 370. Also refer to Homburg and Baumgartner (1995), pp. 1103ff.
[494] Cf. Chin and Newsted (1999), p. 336.

indicators of the largest formative construct or b) the number of paths leading to a construct in the structural model, whichever is larger.[495] Simple models can be estimated using the PLS algorithm with as little as 30 data points.[496]

Taking all the above considerations into account, PLS seems to be the most appropriate estimation methodology in the present research setting and is therefore selected for the estimation of the SEM analyzed here.[497] While the use of PLS departs from the most dominantly used estimation approach, characteristics of the present research project along the dimensions described above clearly point to the suitability of the PLS algorithm. Most importantly, the strict sample size and distribution requirements are not likely to be met in the setting of this work[498]. Moreover, operationalization of core constructs of the research model requires the use of formative measures in several cases. In the decision to use PLS, a large group of researchers is followed who have identified PLS as a well-suited approach especially in the field of marketing research, mainly due to the strong effect of the limitations of covariance-based approaches in this area.[499]

5.1.4 Description of the PLS algorithm

This section gives a brief overview of the functionality of the PLS algorithm. In addition to the general description of the algorithm steps, two specific concepts are addressed that are relevant in this work: the modeling of multi-dimensional constructs as well as moderating effects.

5.1.4.1 General description of the algorithm

As mentioned earlier, the core idea of the PLS algorithm is the minimization of the unexplained variance of dependent variables in the SEM. This objective is pursued in the iterative application of four algorithm steps. After an initialization, these four steps are repeated until a termination condition is met. As the estimation results are expected

[495] Cf. Chin (1998), p. 311, or Chin and Newsted (1999), p. 326.
[496] Cf. Chin and Newsted (1999), p. 314.
[497] There are several software implementations of the PLS algorithm available. Cf. Temme and Kreis (2005), pp. 195ff., for a description of the key products. In the present project, the program SmartPLS is used due to its good usability at comparably low cost. Cf. Ringle, Wende, and Will (2005).
[498] Refer to sections 2.3 and 6.2.1 for further details.
[499] Cf. Ringle (2004), p. 28, Fassott and Eggert (2005), pp. 46-47, or Albers and Hildebrandt (2006), pp. 2ff.

to converge, the algorithm terminates once the differences between two subsequent iterations become very small.[500]

Initialization. The algorithm needs initial values for the indicator weights in order to start. Such values are assigned arbitrarily, typically to the value of "1".[501]

Estimation of outer weights. In this first step, the weights of the indicators of each construct are estimated. In the case of a reflective operationalization, this is achieved through a simple regression of each indicator on its latent variable. In the case of a formative operationalization, a multiple regression is applied with the latent variable being the dependent and its indicators being the independent variables.[502] This step is applied to each block of indicators.

Outer approximation. Next, scores can be calculated for each latent variable, applying the weights of the individual indicators estimated in the previous steps. Consequently, new latent variable scores are available for each data case, each being a linear combination of its indicators.[503]

Estimation of inner weights. Now, the core principle of minimization of residual variance in the latent variables is applied. Building on the latent variable scores estimated in the previous step, the algorithm estimates the relationships between individual latent variables. For each construct, PLS estimates the weights of adjacent latent variables.[504] There are three alternative weighting approaches: *centroid*, *factor*, and *path* weighting. The differences in the estimation results, however, are only very small. In this research, the path weighting scheme as the only one of the three considering the direction of relationships between the latent variables, is applied. Under this scheme, the weights of neighboring independent variables are obtained through multiple regression, while the weights for dependent variables are simply the correlation coefficients between the dependent variables and the variable in focus.

Inner approximation. Finally, using the weights obtained in the estimation step above, each latent variable is expressed as a function of its neighboring latent variables. These inner approximation results provide the input data for a further iteration beginning

[500] Cf. Chin and Newsted (1999), pp. 316 and 320.
[501] Cf. Fornell and Cha (1994), p. 64.
[502] Cf. Chin and Newsted (1999), p. 320.
[503] Cf. Chin and Newsted (1999), p. 320.
[504] The source of the information in this paragraph is Chin (1998), p. 309.

with the estimation of new outer weights. As mentioned earlier, the PLS loop terminates once differences in the weights become very small, precisely less than 0.001.[505]

Once the iteration has terminated, PLS calculates weights and loadings for the measurement model, as well as path coefficients and an R^2 value (coefficient of determination) on the structural model level, each based on the output of the last iteration.

The central results of the PLS execution are the path coefficients between the latent variables on the level of the structural model as well as indicator loadings for reflective indicators and weights for formative indicators on the measurement model level. Criteria for the assessment of these results are the subject of section 5.2.

5.1.4.2 Multidimensional constructs in PLS

The special case of multi-dimensional constructs deserves a special mention, since its modeling and treatment in the PLS estimation is not straightforward.

Multi-dimensional constructs are latent variables that are not directly measured through manifest variables but through other latent variables. Accordingly, such variables are termed *second-order constructs* that are based on *first-order* sub constructs. Based on the specification of the constructs involved, different types of second-order constructs can be distinguished. In a *molar* or *aggregate* second-order construct, the causal relationship points from the first-order constructs to the second-order construct. In other words, the second-order construct is specified in a formative way. In the opposite case, in which the second-order construct determines the first-order constructs, i.e., exhibits a reflective specification, it is called *molecular* or *superordinate*. Taking into account the two different specification options for the first order constructs, four resulting types of multi-dimensional construct specifications can be identified, as shown in Figure 8.

The modeling of such constructs in a structural equation model, and thus in PLS, depends on the type of the construct in question. There are two approaches to the analysis of multi-dimensional constructs: a two-step approach using latent variable scores of the first-order variables as indicators of the second-order model and the

[505] Cf. Chin and Newsted (1999), p. 316.

somewhat simpler application of a *hierarchical component model*.[506] In the former case, two iterations of PLS estimations are required. In the first iteration, the model is estimated without the inclusion of the second-order variable. This means that the sub constructs replace the second-order construct and directly relate to its consequence variables. As one core output of the estimation, latent variable scores for all first-order constructs are calculated. Now, in a second step, the second-order variable is included in the model, using the latent variable scores of step one as indicators.[507] In the latter case of the hierarchical component model, the second-order construct is directly represented using the indicators of the first-order variables. This more straightforward approach, however, can only be applied in cases where all sub constructs are reflective (type I and type II in Figure 8).[508]

In the research model of the present work, there is only one multi-dimensional construct: as section 5.3.3.1 will show, the construct *trustworthiness* is specified as a second-order construct of *ability*, *integrity*, and *benevolence*. All three sub constructs are specified as reflective constructs, so that the hierarchical component model can be applied in the present research setting.[509]

[506] Cf. Lohmöller (1989), pp. 128ff, Chin (2002), pp. 85ff., Heinemann (2007), p. 254, Sánchez-Franco and Roldán (2005), p. 33.
[507] Cf., e.g., Sánchez-Franco and Roldán (2005), p. 33.
[508] Cf. Lohmöller (1989), pp. 128ff, or Chin (2002), pp. 85ff.
[509] To test the stability of the estimation results, the alternative approach has also been used fort he estimation of the main model. Results in terms of path coefficients are to a large degree congruent with the solution using the hierarchical component model. Most importantly, signifance levels are not affected.

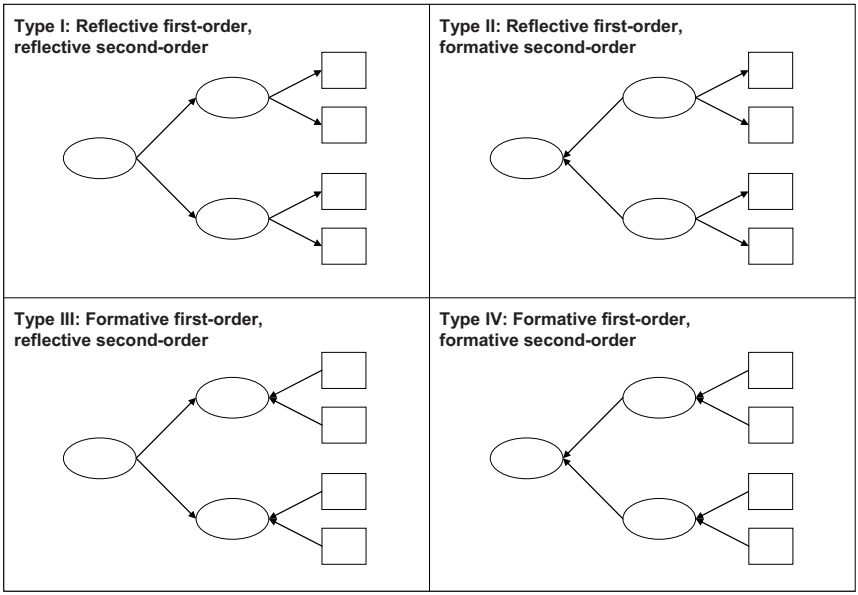

Figure 8: Types of multi-dimensional constructs[510]

5.1.4.3 Moderating effects in PLS

Another important issue with regard to special relationships in the structural equation models is the treatment of moderating effects. In their often-cited paper, Baron and Kenny (1986) define a moderating effect, also referred to as an *interaction effect*, as follows: *"In general terms, a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable."*[511] As Götz and Liehr-Gobbers (2004) note, such effects are often ignored in empirical research despite their undoubted importance.[512]

In the present research context, as well, moderating effects play an important role. Specifically, there are two types of moderating effects relevant in the present work. First, the relationship between trust and purchase intention is hypothesized to depend on the level of perceived risk involved, i.e., the relationship is moderated by the

[510] Adapted from Jarvis et al. (2003), p. 205.
[511] Baron and Kenny (1986), p. 1174.
[512] Cf. Götz and Liehr-Gobbers (2004), p. 724.

variable perceived risk. Other moderating effects are to be analyzed outside of the main model: the objectives of this dissertation include an assessment of differences in the hypothesized relationships in the main model depending on the type buyer-seller setting in question. Specifically, the impact of industry type and firm life cycle stage is to be analyzed.

PLS offers two different approaches to the modeling of such interaction effects: *interaction terms* and *group comparison*.[513]

Interaction terms. The interaction term method is a very natural way of modeling moderating effects, since it incorporates the interaction of the two variables as another exogenous variable in the structural model. If a subsequent model estimation yields a significant path coefficient for the path from the interaction variable to the dependent variable, the existence of a moderating effect is confirmed.[514, 515] A further comparison of the coefficients of determination (R^2) of the research model excluding and including the interaction variable can be used to assess the strength of the moderating effect.[516]

The calculation of the interaction terms depends on the specification of the respective exogenous and moderating constructs.[517] If both operationalizations are reflective, the following two steps need to be followed. In the first step, all indicators are standardized (i.e., adjusted to a mean of zero and a variance of one).[518] In a second step, the standardized indicators of both constructs are multiplied pairwise with the results of these multiplications acting as the indicators for the newly formed interaction construct. Consequently, the interaction construct contains more items than the predictor and the moderator variables together. For example, assuming a predictor variable represented by three indicators and a moderator represented by four

[513] Cf., e.g., Chin (1998), p. 198, Avolio, Howell, and Sosik (1999), pp. 219ff., Eggert, Fassott, and Helm (2005), pp. 108ff., Keil, Tan, Wei, Saarinen, Tunnainen, and Wassenaar (2000), pp. 299ff.
[514] Cf. Eggert et al. (2005), p. 109. Refer to section 5.2.3 for a description of the quality assessment aspects of moderating effects.
[515] However, from the mere analysis of the data, it is unclear which of the two independent constructs is the moderator variable. I.e., variable c could moderate the relationship of a and b or variable a could moderate the relationship of c and b. Logical reasoning based on the theoretical foundation of the analysis is required to interpret the results. Cf. Eggert et al. (2005), p. 109.
[516] Cf. Götz and Liehr-Gobbers (2004), p. 727.
[517] The following description is based on Eggert et al. (2005), pp. 108-109, as well as Chin et al. (2003), pp. 198-199 and Appendix D.
[518] Under certain circumstances, the variables may be centered rather than standardized. Refer to Chin et al. (2003), p. 199, for a broader discussion.

indicators, the resulting interaction term will contain three times four, i.e., twelve indicators.

In the case of at least one formative operationalization being involved, either as predictor or as moderator variable, the above approach is not feasible. Here, Chin et al. (2003) propose a different approach. In a first step, the construct scores are calculated in a PLS run excluding the moderating effect. Afterwards, the interaction variable is included in the object with only one indicator: the multiplied construct scores of predictor and moderator variable.

Group comparisons. The second approach to the modeling of moderating effects is a group comparison. Here, the fundamental idea is to estimate the research model separately for sub groups of the full sample and to compare the results. The group separation is made along the dimension of the moderator variable. If the two estimations show significant differences, a moderating effect of the group-defining variable can be assumed.[519] It is worth noting, however, that the group comparison approach requires comparability of the constructs in both groups with regard to indicator weights and loadings. Section 5.2.4 will discuss this issue in further detail.

With regard to the decision on which approach to use, the respective advantages and disadvantages need to be considered. Generally, the interaction term approach is more easily applicable, as it does not require an analysis of construct congruence between sub groups. Furthermore, available software packages offer easy-to-use interaction term functionality. However, interaction term analysis can only discover linear interaction effects. Group comparisons, in contrast, allow the detection of various types of moderating effects.

Both approaches are applied in this work. The moderating effect of perceived risk on the relationship between trust and purchase intention is modeled using interaction term analysis. Here, the moderator variable is measured on the same scale as the predictor and the dependent variable. Moreover, the relationship is a central component of the basic model. For the analysis of the moderating effects of product qualities and firm life cycle stage, the group comparison seems to be the more natural choice, since, in both cases, there are two clearly differentiated groups to be compared. Furthermore, as opposed to the case of perceived risk, the moderating effects of product qualities and

[519] Cf. Carte and Russell (2003), p. 493.

life cycle stage are not to be considered core elements of the basic model and their effects on more than one relationship need to be analyzed.

5.2 Quality assessment methodology

After the description of the estimation algorithm, this section discusses the criteria of statistical quality that shall be applied to assess the results of the empirical analysis in this study. One of the core elements of statistical assessment is the critical level of significance used to test hypotheses. Section 5.2.1 will introduce the significance level applied in this study. In the two subsequent sections, different quality criteria are presented for the assessment of the two types of measurement models as well as the structural model results. Finally, section 5.2.4 describes the quality assessment procedure for the moderating effects analyzed in this thesis.

5.2.1 Definition of a critical level of significance

The purpose of this thesis is the assessment of hypotheses based on the analysis of quantitative data. Eventually, the identification of statistically significant effects is pursued. This is usually achieved through a statistical test of a null hypothesis stating that there is no effect. If this null hypothesis can be rejected, the opposite hypothesis consequently has to be true.

In such a test scenario, two types of errors can occur. The α error refers to the case, in which the null hypothesis is rejected despite being true. In other words, a hypothesized effect is proven that does not exist. The opposite case, in which a wrong null hypothesis is not rejected, i.e., an existing and hypothesized effect is not identified, is called β error. While both types of errors are undesirable, the literature generally focuses on minimizing the probability of α errors in order not to confirm effects that are merely statistical artifacts.[520] Accordingly, significance levels of α=0.1, α=0.05, and α=0.01 can frequently be found in published statistical tests. This work follows the majority of authors by reporting these three significance levels, while a hypothesis will be accepted if it is significant at the α=0.05 level.[521, 522]

[520] Cf. Baroudi and Orlikowski (1989), p. 88.
[521] Cf., e.g., Myers and Melcher (1969), p. B-32.
[522] This level is used unless otherwise specified, e.g., in the calculation of sub sample comparability. Refer to section 5.2.4.2.

However, there has been criticism regarding the sole focus on α errors in statistical tests.[523] In situations of small sample sizes and small strength of the expected effects, statistical power can suffer from α limits set to very conservative levels. In other words, in such settings, a researcher may risk leaving some effects unidentified due to his strict emphasis on avoidance of α errors.[524]

In order to assess this risk, the literature suggests the application of *power analysis*.[525] Power analysis describes the interrelationship of four variables: the sample size n, the significance level α, the statistical power defined as (1-β)[526], and the strength of the hypothesized effect. Each of the four variables can be expressed as a function of the other three.

Applied to the situation of this research project, the core question for a power analysis is what types of effects in terms of effect size can be identified under given sample sizes, the chosen α level of 0.05, and a desired statistical power of 0.80 as a widely accepted target level.[527] In the present study, the power analysis is conducted using the free software tool GPower.[528] Results show that the empirical tests applied in the present study are able to identify effects of small to medium size in the full sample and all sub groups as well as group comparisons.[529] Consequently, the threat of lack of statistical power is not existent in the present study based on the chosen significance level of 0.05.

5.2.2 Quality criteria for the assessment of the measurement model

As mentioned earlier, constructs can be specified in two ways: with reflective and formative measurement models. This difference has implications for the assessment of

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[523] Cf., e.g., Myers and Melcher (1969), pp. B-31ff., Baroudi and Orlikowski (1989), pp. 87ff., or Cohen (1992), pp. 155ff.
[524] Cf. Baroudi and Orlikowski (1989), p. 89.
[525] Cf., e.g., Cohen (1992), p. 155.
[526] The statistical power of an analysis (1-β) describes the probability that an existing and hypothesized effect will be identified.
[527] Cf. Baroudi and Orlikowski (1989), p. 89.
[528] Cf. Faul, Erdfelder, Lang, and Buchner (2007), pp. 175ff. Specifically, the *Sensitivity Analysis* function of the program was used (p. 177).
[529] Specifically, resulting required effect sizes (applying a 1-tailed t-test) are 0.13 in the full sample and 0.28 in the smallest sub sample (NEVs in the experience industry). In the comparison of the two smallest groups (the former and the group of NEVs in the credence industry) the critical effect size is 0.38. According to Cohen (1992), p. 157, a small effect size would be around 0.20 in the given test, while a medium effect size would be around 0.50.

measurement quality. Most of the quality criteria used for the evaluation of reflective constructs are not suited for an assessment of formative constructs. Therefore, this section contains two parts, one to introduce the more advanced quality assessment methodology for reflective measurement models and one for the assessment of formative measurement quality.

5.2.2.1 Quality criteria for reflective constructs

5.2.2.1.1 Quality assessment based on the PLS estimation

The PLS estimation yields a set of output data that can be used to compute quality assessment criteria. Generally, reflective constructs are assessed along the two concepts of *reliability* and *validity*. The two concepts refer to the degree of existence of errors in the measurement. Measurement errors can be classified into two groups, a random error and a systematic error. The random error is due to random influences on the measurement as opposed to the systematic measurement. The latter error should be similarly strong in different measurements, since it relates to conceptual correctness of the construct specification.[530] A measurement is considered fully reliable if the random error is reduced to zero. If, in addition, the systematic error is zero, the measurement is considered fully valid.[531] While fully reliable and valid measurement is an ideal situation rarely found in empirical research, a set of criteria exists to assess whether a measurement has achieved sufficient levels of reliability and validity for a meaningful interpretation of the data.

Reliability. Reliability can be assessed both on the indicator and on the construct level. On the indicator level, the core criterion is the factor loading λ. It is defined as the correlation between an indicator and its associated construct. The literature generally agrees that indicators with low loadings should be removed from the measurement instrument. However, authors give different recommendations for the threshold level of factor loadings for a measure to be reliable. The most prominent recommendation of a minimum factor loading of 0.707 is rooted in the idea that at least 50% of the indicator variance should be explained by the underlying construct.[532] Other authors

[530] Cf. Homburg and Hildebrandt (1998), pp. 24-25.
[531] Cf. Homburg and Pflesser (2000a), p. 421.
[532] Cf. Carmines and Zeller (1979), p. 27.

underline that – depending on the research subject and the availability of knowledge in the discipline, loadings of 0.5[533] or even 0.4[534] can be accepted.

On the level of the full construct, the question is how well the set of indicators reflects their underlying construct. Based on the central fact that indicators of reflective constructs are a function of an underlying construct[535], reliability tests focus on the analysis of inter-item correlations. Three test indices can be used in this respect: *Cronbach's alpha*, *composite reliability*, and *average variance extracted* (AVE).[536, 537]

Cronbach's alpha expresses the average inter-item correlation between the indicators of a construct. It can assume values between zero and one, with higher values indicating better reliability. Authors generally find a level of 0.7 acceptable for the coefficient alpha to assign reliability.[538] While this coefficient is clearly widely accepted in the literature[539], it has been exposed to ample criticism, especially because its value is positively correlated to the number of indicators in a measurement instrument.[540]

Composite reliability, also known as *modified Cronbach's alpha*, is a similar index. However, it addresses the latter issue and respects different indicator loadings as opposed to the coefficient alpha.[541] The critical threshold for the assessment is, as above, a level of 0.7 (in a theoretical range from zero to one) for the composite reliability.[542]

Finally, the average variance extracted assesses the amount of indicator variance explained by the associated construct based on a comparison with the variance of the measurement error of the respective indicator. This index can theoretically exhibit values between zero and one. Applying the same logic as for the indicator reliability

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[533] Cf. Chin (1998), p. 325.
[534] Cf. Hulland (1999), p. 198.
[535] Refer to section 5.1.2.2.
[536] Cf., e.g., Heinemann (2007), pp. 248-249.
[537] The following paragraphs will be restricted to a description of the quality criteria and a discussion of critical threshold levels. For an introduction to the formal calculations and mathematical background, the literature provides a vast number of overviews and introductory works. For example, Krafft, Götz, and Liehr-Gobbers (2005) can be a good starting point.
[538] Cf., e.g., Homburg and Giering (1996), p. 5.
[539] Cf., e.g., Hildebrandt and Temme (2006), p. 624.
[540] Cf., e.g., Homburg and Giering (1996), p. 5, Cortina (1993), p. 101.
[541] Cf. Krafft et al. (2005), p. 74.
[542] Cf. Götz and Liehr-Gobbers (2004), p. 727, or Krafft et al. (2005), p. 74. The authors note that, sometimes, levels of 0.6 are assumed to suffice.

on the previous page, a level of 0.5 implies that 50% of the variance of the average indicator is explained by the construct and is thus assumed sufficient.[543]

Validity. Three general types of construct validity are considered relevant for the present research: *content validity*, *convergent validity*, and *discriminant validity*.[544]

Content validity refers to the degree, to which the measurement instrument reflects the content domain of the construct to be measured.[545] This important type of validity is difficult to assess based on statistical tests. Parasuraman, Zeithaml, and Berry (1988) note that *"assessing a scales content validity is necessarily qualitative rather than quantitative."*[546] Consequently, content validity is addressed during the scale development process rather than ex-post quality assessment in the course of this work.[547]

Convergent validity is defined as *"the degree to which two or more attempts to measure the same concept [...] are in agreement."*[548] Since reflective indicators are different measures for the same underlying concept, the definition of convergent validity implies that a measurement is valid in this sense, if it performs sufficiently with regard to the reliability indices introduced above. Specifically, Giering (2000) notes that composite reliability and AVE are suitable indices for measuring convergent validity.[549]

Discriminant validity describes the degree, to which the indicators of an associated construct measure exactly that one construct and not others. Hulland (1999) state that discriminant validity *"represents the extent to which measures of a given construct differ from measures of other constructs in the same model."*[550] The literature suggests two tests for discriminant validity – one on the item and one on the construct level. On the item level, it is demanded that each indicator used in a model should exhibit a stronger loading on its associated latent variable than on other variables in the

[543] Cf. Fornell and Larcker (1981), pp. 45-46.
[544] Cf., e.g., Bagozzi, Yi, and Phillips (1991), pp. 421ff, Churchill Jr. (1979), pp. 64ff., Homburg and Giering (1996), pp. 5ff.
[545] Cf. Bohrnstedt (1970), p. 92.
[546] Parasuraman et al. (1988), p. 28.
[547] Refer to section 5.3.1.2. This approach is in line with the recommendations of several authors, e.g., Parasuraman et al. (1988), p. 28, Rossiter (2002), p. 308.
[548] Bagozzi and Phillips (1982), p. 468.
[549] Cf. Giering (2000), p. 85.
[550] Hulland (1999), p. 199.

model.[551] This criterion can be tested applying an exploratory factor analysis among the reflective constructs used. On the construct level, the same logic applies. Fornell and Larcker (1981) suggest that the AVE of a construct should be greater than the squared correlation of that construct with all other constructs.[552]

The previous paragraphs have described the set of quality criteria typically evaluated for reflective indicators in PLS-based empirical studies.[553] However, one drawback of the PLS algorithm is that it is not possible to calculate global goodness-of-fit indices to assess overall model fit. This disadvantage shall be mitigated in this work as far as possible. For that purpose, in addition to the typically reported quality criteria listed above, reflective constructs used here will be tested in a confirmatory factor analysis (CFA) using the AMOS software package. The next section will introduce associated further quality criteria.

5.2.2.1.2 Global criteria from confirmatory factor analysis

In order to further assess the quality of the reflective measures, isolated models for each of the reflective constructs are specified and estimated in AMOS. As the resulting model contains only one construct, the global goodness-of-fit indices can be drawn on to assess the quality of construct measurement.[554] Homburg and Pflesser (2000a) suggest evaluating the stand-alone indices χ^2/df, *RMSEA* (root mean squared error of approximization), *GFI* (goodness-of-fit index), *AGFI* (adjusted goodness-of-fit index), as well as the incremental indices *NFI* (normed fit index) and *CFI* (comparative fit index).[555]

χ^2/df. One central test for model fit is the χ^2 test. This test evaluates the null hypothesis that the covariance matrix derived from the empirical data is equal to the theoretically expected covariance matrix based on the model.[556] As the test statistic is positively related to the number of degrees of freedom (df), it is recommended to evaluate the

[551] Cf., e.g., Chin (1998), p. 321.
[552] Cf. Fornell and Larcker (1981), pp. 45-46.
[553] Cf., e.g., Hiddemann (2007), p. 102.
[554] Cf. Giering (2000), p. 89.
[555] Cf. Homburg and Pflesser (2000a), p. 426.
[556] Cf. Homburg and Pflesser (2000a), pp. 426ff. for the description of all following quality criteria.

quotient of χ^2 and the degrees of freedom. Recommended critical levels range from three to five. [557]

Root mean squared error of approximation (RMSEA). As opposed to the χ^2 test, the RMSEA assesses the goodness of the approximation of the model rather than its correctness. Consequently, this measure resolves some of the criticism associated with the use of the χ^2 test.[558] The measure is bounded on the lower end by zero and lower values represent better approximation. Values below 0.08 are considered good, while values beyond 0.10 do not seem to be acceptable.[559]

Goodness-of-fit index (GFI)/adjusted goodness-of-fit index (AGFI). As opposed to the two criteria above, which are based on statistical tests, the GFI is a descriptive quality measure. It compares the actual differences between the theoretically expected and the empirically observed covariance matrices. The GFI can reach scores between zero and one, with one corresponding with a perfectly fitting model. Typically, values of 0.9 and above are accepted as indicating good fit.[560] Similar to the χ^2 test, the GFI does not take into account degrees of freedom, which leads to better scores for models with lower degrees of freedom. This has brought up an adjusted form: the AGFI. Here, lower degrees of freedom are penalized, so that the score becomes independent of degrees of freedom and thus the number of parameters in the model.[561]

Normed fit index (NFI)/comparative fit index (CFI). In contrast to all criteria above, the following two measures do not judge the fit of a model on a stand-alone basis but compare it to the fit of an alternative model. Usually, the reference model is an independence or null model, in which all correlations are assumed to be zero. The NFI then compares the χ^2 test statistic of the research model with that of the null model. The greater the NFI score, the better the gain in model fit compared with the null model. The CFI adjusts the NFI by taking into account degrees of freedom. For both measures, values above 0.9 are desirable.[562]

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[557] Homburg and Giering (1996), p. 13, recommends a cut-off level of three, while other authors find values of as much as five still acceptable, e.g., Fritz (1992), p. 140, or Balderjahn (1986), p. 109.
[558] Cf. Homburg and Pflesser (2000a), p. 427.
[559] Cf. Homburg and Pflesser (2000a), p. 430, Schermelleh-Engel, Moosbrugger, and Müller (2003), p. 36.
[560] Cf. Homburg and Giering (1996), p. 13.
[561] Cf. Giering (2000), p. 83.
[562] Cf. Homburg and Pflesser (2000a), p. 430.

It is worth noting that the quality criteria mentioned here can only be calculated in cases, in which the model contains at least one degree of freedom.[563] In consequence, only those reflective measurement models in the research model analyzed in this study with four or more indicators can be assessed using these additional measures.

Table 8 summarizes the quantitative quality criteria for the assessment of reflective measurement model quality discussed in this section as well as the critical quality requirements applied in the study.

	Criterion	Requirement
Reliability	Indicator loading	≥ 0.5
	Cronbach's alpha	≥ 0.7
	Composite reliability	≥ 0.7
	Average variance extracted (AVE)	≥ 0.5
Discriminant validity	Item discriminant validity	Correlation of items within one construct larger than with external items
	Construct discriminant validity	Square root of AVE larger than correlation with other constructs
CFA global fit criteria	χ^2/df	≤ 3 (≤ 5)
	RMSEA	≤ 0.08 (≤ 0.10)
	GFI	≥ 0.9
	AGFI	≥ 0.9
	NFI	≥ 0.9
	CFI	≥ 0.9

Table 8: Quality assessment criteria – reflective measurement models

5.2.2.2 Quality criteria for formative constructs

As discussed earlier, the quality criteria for the assessment of reliability and validity of reflective measures are mainly focused on the correlation between indicators of one construct. Since such correlations are not a necessary requirement for formative measures, the tests described above are not applicable for the assessment of formative constructs.[564]

[563] Cf. Homburg (1992), p. 503, or Becker (1999), p. 100.
[564] Cf., e.g., Fassott and Eggert (2005), pp. 38ff.

The literature suggests assessing formative measurement quality by the *weights* and *significance* of the indicators.[565] However, as several authors note, it is not advisable to eliminate indicators based on low weights or insignificance, since such elimination would alter the domain of the formative construct.[566] Moreover, there are no generally accepted critical levels for indicator weights and significances.[567] In the present study, indicator weights are an output of the PLS estimation, while significance can be assessed using the t-values generated by the PLS bootstrapping procedure.[568]

Furthermore, it is recommended to rule out multicollinearity between the indicators of a construct. Multicollinearity is undesirable in formative constructs, since the construct value is determined in a multiple regression, in which standard errors increase with increasing multicollinearity. This can be tested using the *variance inflation factor* (VIF) on the indicator level and the *condition index* (CI) on the construct level.[569] The VIF measures how severely the regression analysis is affected by multicollinearity.[570] While a VIF of one means linear independence, it seems to be generally accepted to accept indicators with a VIF of ten or below.[571] The evaluation of the condition index is further recommended, since low values of VIF do not rule out multicollinearity with certainty.[572] The CI is based on an evaluation of pairwise dependencies between the indicators of a construct, the final CI output represents the highest dependency between two of the indicators within the construct. Belsley (1984) finds high multicollinearity to be present beyond values of 30 for the CI, Krafft et al. (2005), as well, recommend this critical limit for the assessment of mulitcollinearity.[573] Since high degrees of multicollinearity imply difficulties for the model estimation, it may lead to the elimination of the most severely affected indicators despite the negative implications for the coverage of the construct domain.[574]

With regard to construct validity, two means of assessment can be identified. First, *content validity* can be judged as for reflective constructs, during a pre-test phase

[565] Cf. Götz and Liehr-Gobbers (2004), p. 728, Herrmann et al. (2006), p. 57.
[566] Cf., e.g., Götz and Liehr-Gobbers (2004), p. 729, or Jarvis et al. (2003), p. 202.
[567] Cf. Heinemann (2007), p. 250.
[568] Refer to section 5.2.3 for details on this procedure.
[569] Cf. Götz and Liehr-Gobbers (2004), p. 729.
[570] Cf. Gujarati (1995), p. 328.
[571] Cf., e.g., Krafft et al. (2005), p. 79.
[572] Cf., e.g., Belsley (1984), p. 184.
[573] Cf. Belsley (1984), p. 184, and Krafft et al. (2005), p. 79.
[574] Refer to Grewal, Cote, and Baumgartner (2004) for suggestions on alternative treatments that are not relevant here, since all formative constructs seem to be largely free of multicollinearity.

based on qualitative rather than quantitative information.[575] Finally, as discriminant validity can not be tested due to the mentioned lack of (necessarily) high indicator correlation in formative operationalizations, Reinartz, Krafft, and Hoyer (2004) suggest focusing on nomological validity.[576] This analysis will be part of the assessment of the research model.

Table 9 summarizes the quantitative quality assessment criteria used in this study.

	Criterion	Requirement
Indicator reliability	Indicator weight	Ideally positive
	Significance of the indicator weight	Ideally not insignificant
Multicollinearity	Variance inflation factor (VIF)	≤ 10
	Condition index (CI)	≤ 30

Table 9: Quality assessment criteria – formative measurement models

5.2.3 Criteria for the assessment of the structural model

Due to the fact that PLS has only comparably recently begun to receive the attention of empirical researchers, the development of global quality criteria is less advanced than for covariance-based methodologies.[577] Moreover, several of the criteria used for the evaluation of covariance-based SEM estimations can not be applied to a PLS-estimated model due to the lack of the normality assumption.[578] In combination with PLS, the literature suggests the analysis of local quality criteria of each dependent construct in the model. Specifically, the *coefficient of determination* (R^2) as well as the *Stone-Geisser criterion* (Q^2) are recommended.[579] For the test of the proposed relationships between individual constructs in the model, the *significance of path coefficients* needs to be evaluated.[580]

Coefficient of determination (R^2). Just as in a traditional regression analysis, the R^2 is used to assess the share of a dependent variable's variance that is explained by the exogenous variables linked to it. The R^2 can assume values between zero and one.[581] With regard to the assessment of model quality, the question is, what levels of R^2 can

[575] Refer to sections 5.2.2.1.1 and 5.3.1.2.
[576] Cf. Reinartz et al. (2004), p. 298.
[577] Refer to section 5.1.
[578] Cf. Hulland (1999), p. 202.
[579] Cf., e.g., Krafft et al. (2005), pp. 83ff, Fornell and Bookstein (1982), pp. 447-448, Chin (1998), pp. 316-318.
[580] Cf. Chin (1998), p. 318.
[581] Cf. Götz and Liehr-Gobbers (2004), p. 730.

be considered to be satisfactory. The literature agrees that there is no general critical level, on the contrary, the R^2 should be evaluated in the light of the scope of the research model and the research subject.[582] For the present study, the order of magnitude given by Amoroso and Cheney (1991) shall be used as a guideline: the authors consider values in a range of 0.37 and 0.45 to indicate strong explanatory power.[583] The R^2 can be calculated for each dependent variable in the model and thus allows for a comprehensive assessment of the fit between the hypothesized model and the empirical data.

Stone-Geisser criterion (Q^2). The second important quality criterion is the Stone-Geisser Q^2.[584] This measure is used to assess predictive relevance of the hypothesized model. It is generated through a *blindfolding* procedure, in which a number of data points from the indicator by case matrix is removed and replaced through the application of a missing value algorithm. Now the model is estimated and the prediction of the removed data points is assessed. A Q^2 value of zero or less indicates that the model's predictive power is as good as random or worse, while positive Q^2 values attest predictive relevance of the model.[585] It is worth noting that the Stone-Geisser criterion can only be applied in cases, in which the dependent variable is specified with reflective measures, which is fulfilled for all dependent variables in the present study. Finally, it is required to set an omission distance parameter that should be a prime integer between the number of indicators and the number of cases to ensure proper execution of the algorithm.[586]

Significance of the path coefficients. In addition to the local quality criteria for dependent variables in the model, the hypothesized path relationships within the research model need to be assessed. The recommended procedure here is to test for a) the sign and b) the significance of the path coefficient.[587] While the congruence of the hypothesized and the empirically derived sign is a necessary condition, significance of the path coefficient is a sufficient condition for the support of a path hypothesis. While the sign of the path coefficient is part of the estimation output of the PLS algorithm, the determination of path coefficient significance is a little more complicated. In

[582] Cf., e.g., Backhaus et al. (2006), p. 96.
[583] Cf. Amoroso and Cheney (1991), p. 81.
[584] For details on this criterion, refer to Stone (1974), pp. 111ff., Geisser (1975), pp. 320ff., Chin (1998), pp. 317-318.
[585] Cf. Chin (1998), pp. 317-318, or Götz and Liehr-Gobbers (2004), p. 730.
[586] Cf. Chin (1998), p. 318. In the present study, the omission distance is set to 73.
[587] Cf. Krafft et al. (2005), pp. 83-84.

contrast to a traditional regression analysis, in PLS, t-values for the assessment of path coefficients can not be calculated analytically, so that a non-parametric approach needs to be used to derive t statistics for significance assessment.[588] Here, two possible approaches are available: *jackknifing* and *bootstrapping*. As jackknifing results can be seen as an imperfect approximation of the slightly more time-consuming bootstrapping results, this study applies the bootstrapping procedure for the generation of t-statistics.[589] The bootstrapping procedure generates multiple samples by drawing from the original sample with replacement. Parameters are estimated for each of the samples, so that a distribution of each parameter is available for the "sample of samples". Eventually, a t-statistic testing the hypothesis that the parameter is equal to zero can be calculated. This parameter is then used for the assessment of parameters in the PLS output: in this case, path coefficients, but also for the tests of weight and loading significances.[590, 591]

Table 10 summarizes the quantitative criteria for the assessment of structural model quality applied in this study.

	Criterion	**Requirement**
Indicator reliability	Coefficient of determination (R^2)	> 0
	Stone-Geisser criterion (Q^2)	> 0
Path coefficients	Direction of the path coefficient	Sign as hypothesized
	Significance of the path coefficient	$p \leq 0.05$[592]

Table 10: Quality assessment criteria – structural model

5.2.4 Quality criteria for the assessment of moderating effects

The assessment of tests for moderating effects differs depending on the chosen modeling approach. As described in section 5.1.4.3, PLS offers two different types of moderator models: the interaction term method and group comparison. Accordingly,

[588] Cf. Krafft et al. (2005), p. 83, Chin (1998), pp. 319ff.
[589] Cf. Krafft et al. (2005), p. 83.
[590] Cf. Chin (1998), pp. 319ff.
[591] For the bootstrapping procedure, the number of cases per sample and the number of samples needs to be specified. In the present study, following Brown and Chin (2004), p. 538, 500 samples are generated in every bootstrapping procedure to ensure stable results. The number of cases per sample is varied depending on the original sample size n: following standard practice, it is set to n-1.
[592] In a 1-tailed t-test based on the bootstrapping results.

the following two sections present quality assessment procedures associated with the two different approaches.

5.2.4.1 Interaction term method

As mentioned earlier, in case of the interaction term method, the moderator variable becomes an integral part of the structural model, as Eggert et al. (2005) note, in addition to a direct effect of the moderator variable.[593] The authors find that the hypothesis of a moderating effect is supported if – independent of the path coefficients associated with the direct effects – the path coefficient of the interaction effect is significant.[594] In addition, the strength of a moderating effect can be identified. Chin et al. (2003) recommend evaluating the effect strength f^2.[595] The effect strength expresses the gain in R^2 through adding the moderating effect to the main-effect model in relation to the unexplained variance in the main-effect model.[596] Weak effects are associated with f^2 scores around 0.02, moderate effects with scores around 0.15, and strong effects with scores around 0.35.[597] Table 11 summarizes the criteria for the assessment of moderating effects modeled as interaction terms.

	Criterion	**Requirement**
Existence of a moderating effect	Significance of the interaction path coefficient	$p \leq 0.05$[598]
Strength of the moderating effect	Effect strength (f^2)	≥ 0.02

Table 11: Quality assessment criteria – interaction terms

5.2.4.2 Group comparisons

Quality assessment for group comparison results needs to start at the preconditions that need to be met in order to apply the method. According to Carte and Russell (2003), a necessary condition for applicability of group comparison procedure is comparability of the groups.[599] The authors recommend two measures to assess comparability: a limited difference in construct score weighting as well as a sufficient congruence of

[593] Cf. Eggert et al. (2005), p. 107.
[594] Cf. Eggert et al. (2005), p. 107. The significance is assessed as described in the previous section.
[595] Cf. Chin et al. (2003), pp. 195-196.
[596] Cf. Eggert et al. (2005), p. 109.
[597] Cf. Eggert et al. (2005), p. 110.
[598] In a 2-tailed t-test based on the bootstrapping results.
[599] Cf. Carte and Russell (2003), pp. 493-494.

item correlations. With regard to the first criterion, it is difficult to find recommendations for a critical level of significant differences in construct weights that should not be surpassed. Hiddemann (2007) and Heinemann (2007) provide a quantitative requirement: according to the authors, the groups can be considered to be comparable in terms of indicator weights if no more than 30% of the indicators exhibit significant differences between the groups.[600] With regard to congruence of indicator loadings, Carte and Russell (2003) recommend calculating the coefficient of congruence described in Harman (1976).[601] This measure assesses the degree of agreement between the factor loading structure among two groups. It can assume values between -1 and one, where one indicates perfect agreement, zero indicates no agreement whatsoever, and -1 indicates perfect inverse agreement.[602] There is no generally accepted critical level for this measure, however, an indication is given by Teel and Verran (1991) whereby 0.9 is considered to be a sufficient level of congruence.[603]

If the precondition of group comparability is met, the path coefficient difference can be analyzed for the evaluation of a moderating effect of the group-defining variable. The criterion for the assessment of such an effect is the significance of a difference between the path coefficients obtained for the two groups. Required t-statistics can be generated using the formula provided by Keil et al. (2000) based on the PLS estimation output.[604] Table 12 gives an overview of the criteria discussed for the assessment of group comparison quality.

	Criterion	**Requirement**
Group comparability	Share of significant indicator weight differences	$\leq 30\%$
	Coefficient of congruence (on construct level)	≥ 0.90
Path coefficient difference	Significance of the path coefficient difference	$p \leq 0.05$

Table 12: Quality assessment criteria – group comparisons

[600] Cf. Hiddemann (2007), p. 150, and Heinemann (2007), p. 276. In both studies, a significance level of 10% has been applied. This level is also used in the present study.
[601] Carte and Russell (2003), p. 494, Harman (1976), p. 344.
[602] Cf. Harman (1976), p. 344.
[603] Cf. Teel and Verran (1991), p. 70.
[604] Cf. Keil et al. (2000), p. 315.

5.3 Development of a measurement instrument

In order to test the hypothesized research model using structural equation modeling, the model variables need to be operationalized, as explained earlier. This section describes the scale development process followed in this study (section 5.3.1), the selection of appropriate response options (section 5.3.2), the actual measures used to operationalize individual constructs (section 5.3.3), and finally some additional elements included in the survey instrument (section 5.3.4).

5.3.1 Development process

5.3.1.1 General scale development considerations

Following through on the fundamental idea of structural equation modeling, the constructs that are hypothesized to interact in the structural model need to be complemented with associated measurement models. Most of the variables considered in the research model presented in the previous section are latent in nature, that is, they cannot be measured directly. Accordingly, an associated measurement instrument needs to be adopted or developed for each of the latent constructs. This process of operationalization is critical, because proper operationalization is an essential prerequisite of correct measurement and thus a necessary condition for conclusions to be drawn from the empirical analysis. Homburg and Giering (1996) explicitly note the importance of diligent operationalization in the context of marketing, specifically with regard to such complex constructs as trust.[605] The often limited effort in scale development in current research publications is understandably a target of criticism.[606]

Nevertheless, guides to a "correct" approach to scale development can be found in the literature. Churchill Jr. (1979) and Rossiter (2002) are among the more often-cited papers. In the German-speaking community, the seminal paper by Homburg and Giering (1996) has found wide acceptance, and, specific to the development of formative operationalizations, Diamantopoulos and Winklhofer (2001) should be mentioned.[607]

[605] Cf. Homburg and Giering (1996), p. 5.
[606] Cf., e.g., Homburg and Giering (1996), p. 5, Fassott and Eggert (2005), p. 47.
[607] Cf. Churchill Jr. (1979), Rossiter (2002), Homburg and Giering (1996), Diamantopoulos and Winklhofer (2001).

Despite differences in phraseology and distinction of development steps, there are several commonalities in the various approaches.[608] The scale development for the present research project was conducted based on a four-step approach similar to those suggested in the literature. This approach will be presented in the next section.

5.3.1.2 Scale development process followed in this research

The number of steps involved in scale development differs between the approaches found in the literature. However, based on a review of key recommendations, four steps seem to form the core of the process prior to the application of the scale for actual measurement. Therefore, the scale development process in the present research is conducted along the following four steps: precise definition and conceptualization of the construct under research, development of a preliminary operationalization based on a literature review and open expert interviews, pre-test (qualitative and quantitative) of the preliminary measures, and, finally, modification of the measures based on pre-test results. Figure 9 shows the process steps, their respective purposes as well as the activities involved.

[608] Cf. Hungeling (2007), p. 120, for a comprehensive review of the most common approaches.

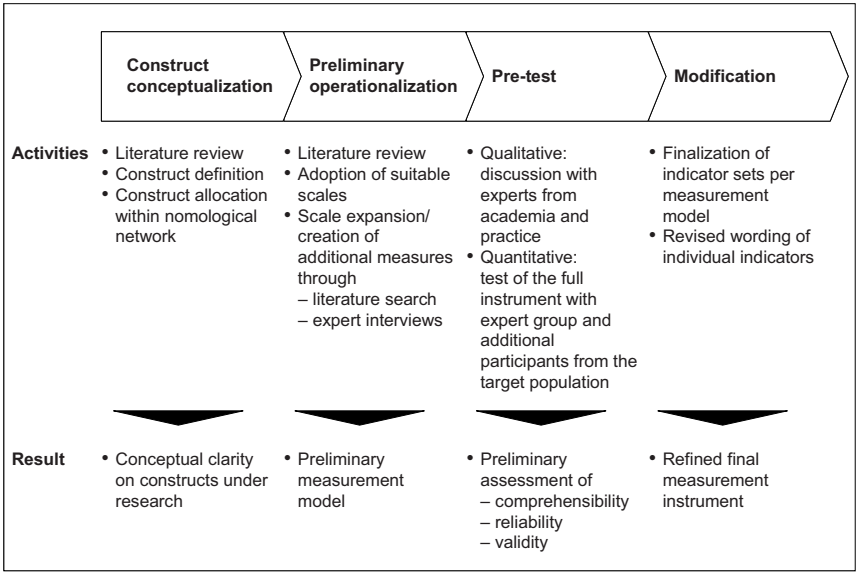

Figure 9: Scale development steps[609]

Construct definition and conceptualization. Authors agree that the first step of an operationalization should be the precise definition of the construct under research.[610] The purpose of this step is to provide clarity as to what exactly is being researched, delineating the constructs from related aspects. Rossiter (2002) sees three parts of a valid construct definition: an object, an attribute, and a rater type. As an example from the present research project itself, a definition of a purchase intention would include the specific supplier as the object, the intention to make a purchase from that supplier as an attribute, and a buyer in the respective market, i.e., a potential customer as the rater type. The conceptualization should be based on a thorough literature review in order to ensure the consistency and comparability of research findings between studies and also to improve the quality of the planned measurement. Churchill Jr. (1979) highlights the imperative of sticking to existing conceptualizations where feasible: *"The researcher […] should present a detailed statement of the reasons and evidence as to why the new measure is better."*[611] In the present research project, this first step

[609] Own illustration on the basis of Churchill Jr. (1979), Homburg and Giering (1996), and Rossiter (2002).
[610] Cf., e.g., Churchill Jr. (1979), p. 66, Bohrnstedt (1970), p. 92.
[611] Churchill Jr. (1979), p. 67.

has been accomplished during the introduction of conceptual basics, the development of the theoretical foundation, and the development of the research hypotheses in chapters 2 to 4.

Development of a preliminary operationalization. The next step aims at creating a first draft set of indicators to measure the defined construct. Depending on the availability of existing scales, the process can differ at this stage. As mentioned above, it is, in general, preferable to adopt scales that have been used in previous studies and proven to be reliable and valid if they fit the research context.[612] If such scales exist, it is advisable to utilize them, potentially with necessary adaptations to better match the requirements of the research context. If such scales cannot be found, a completely new instrument needs to be created. In this case, Churchill Jr. (1979) recommends the application of exploratory research techniques such as literature searches and expert interviews.[613]

In the present research, the preliminary operationalizations of three constructs – *risk mitigation instruments*, *institutional embeddedness*, and *external references* – had to be developed. The items were generated based on the definition of the constructs and their theoretical foundations. Expert interviews with both practitioners from the respective domains and academics were conducted to ensure that the identified set of items was in conformity with the underlying construct. For the remaining constructs, the literature offers scales that are either perfectly suitable for measurement in the present context or that could be adapted with minor changes, either by including additional items or by slight rewordings.

With regard to the number of items in the measurement model of a construct, there is a discussion about the use of single-item vs. multiple-item operationalizations. Clearly, due to limitations in capacity and motivation of survey respondents, there is a trade-off between depth and breadth of a survey instrument. In a broad survey, using too many indicators per construct could harm the response rate, simply because respondents are not willing to spare the time required to fill out the questionnaire. At the same time, complex constructs frequently encountered in the field of marketing, tend to be better measured with multi-item measurement models. Diamantopoulos (1994) explicitly states: *"one should opt for multiple indicators when operationalizing the latent*

[612] Cf. Homburg and Klarmann (2006), p. 732.
[613] Cf. Churchill Jr. (1979), p. 67.

variables."[614] Marsh, Kit-Tai, Balla, and Grayson (1998) quantify their view, demanding six to ten indicators per construct for small samples and three to four for sample sizes larger than 100.[615] For comparably simple, easy-to-capture constructs – referred to by Rossiter (2002) as constructs with concrete, single objects and concrete attributes – measurement based on multiple indicators does not seem appropriate.[616] In the present research project, the construct of local proximity exhibits these characteristics and is consequently operationalized with a single item.

Pre-test. The next step in the scale development process is a pre-test of the measurement instrument. The purpose of the pre-test is fourfold.

- It should confirm the methodological soundness and face validity of the constructs.[617]
- Test participants should assess the completeness and relevance of the indicator set with regard to content.[618]
- The test should confirm the comprehensibility of the items in the target group of the survey.[619]
- A preliminary statistical analysis should be conducted to assess reliability and validity measures in order to prevent measurement problems in the main study.

In the present study, the pre-test was conducted in two steps. First, the preliminary measurement instruments were discussed with several groups of experts from academia as well as practitioners from the relevant industries. The latter belonged to either of three groups: (1) buyers, i.e., they represented the rater type targeted in this research, (2) marketers on the supplier side, who possess broad knowledge of the constructs under research and their practical implications, (3) independent experts, such as representatives of leading industry associations or industry-specific media. Second, after the qualitative assessment of the measurement instrument, a slightly adapted version reflecting pre-test input was provided to additional raters for quantitative testing. This test yielded first insights on the reliability and validity of the

[614] Diamantopoulos (1994), p. 109.
[615] Marsh et al. (1998), pp. 213-214.
[616] Cf. Rossiter (2002), pp. 309ff.
[617] Cf.Rossiter (2002), pp. 321f, also, refer to the comprehensive elaboration in Bohrnstedt (1970).
[618] Cf., e.g., Homburg and Giering (1996), p. 12.
[619] Cf. Homburg and Giering (1996), p. 11.

measures developed and gave important hints leading to adaptations of the measurement models to achieve greater discriminant validity in the main study.

Modification based on pre-test results. The last step before the launch of the main survey is the modification of the preliminary measures based on the findings from qualitative and quantitative pre-tests. Most of the adaptations pertained to the comprehensibility of the items. Here, the wording was altered for several items in order to cater to the specific views of the target group. With regard to the formative measure of the construct *institutional embeddedness*, the feedback was that, while all items were deemed relevant, some of the individual items were seen either to be more or to be less important to particular industries. The most important insight from the pre-test was the expected challenge with respect to discriminant validity among the closely-related trust constructs, especially between trust and the factors of perceived trustworthiness. Here, the items were reviewed and partly rephrased in order to more clearly highlight the differentiating factors according to the theoretical foundation: mere rating of trustee attributes (trustworthiness) versus a willingness to depend.[620]

5.3.2 Selection of appropriate response options

In addition to the process of the development of the measures, key decisions need to be made regarding response options. Primarily, it has to be decided a) what type of scale should be used, b) how many response options the rater should be presented with, c) how the scales should be labeled, and d) how to handle the case where a rater might not know a non-random answer to a question. Generally, model estimation considerations make homogeneous scales desirable, so that ideally, the decision about scale types is made once for most or all of the items.

a) With regard to the type of scale, this research is based on Likert scales[621], because, herein, the design follows the vast majority of empirical research in social sciences.[622] A few exemptions will be highlighted in the next section, during the detailed descriptions of individual operationalizations on a construct-by-construct basis.

[620] Refer to section 2.2.2.5.
[621] Cf. Likert (1970).
[622] Cf. Stier (1999), p. 80.

b) Generally, a large number of options is desirable to give the rater the scope for response differentiation[623] and cater to the requirements of structural equation modeling techniques that usually assume continuous variables[624]. However, the marginal benefit of offering more than 9 categories seems to become negligible.[625] Moreover, the question is whether to offer an odd or an even number of responses. Rossiter (2002) makes it clear that the "natural" approach would be an odd number to provide a *"valid psychological zero."*[626] Thus, an even number should only be used in research contexts, in which a rater should be deliberately forced to make a tendency statement in any case. In this research, the survey participants are offered seven response categories, which appears to fulfill all requirements mentioned.

c) For labeling the scales, there are three typical schemes frequently found in empirical studies: labeling all response options, labeling only the extreme values, or labeling the extreme values and the neutral center value. Recommendations point in different directions. Peterson (1994) finds that labeling does not have a significant effect on the measurement reliability.[627] In contrast, Krosnick (1999) finds that labeling all options has a significantly positive effect on both reliability and validity.[628] However, the author also mentions the requirement of precisely equal step sizes between the different scale point labels, which are difficult to ensure in reality. Based on these findings, in the present study, the extreme value anchors "Do not agree at all" and "Fully agree" are labeled.

d) The last decision concerns the inclusion of a "don't know" response option. The fundamental trade-off is between either forcing a response that is totally random or losing the rater, in case he actually does not have an answer, or forfeiting additional valid responses in case a rater has an opinion but uses – for some reason such as tiredness or lack of motivation – the "don't know" option. Both extreme solutions have been criticized in the literature, with *"a number of prominent survey researchers"*[629] arguing for the inclusion of a *no-opinion* option. On the other hand, Krosnick et al.

[623] Cf. Cox III (1980), p. 407.
[624] Cf. Bagozzi (1981a), p. 200.
[625] Cf. Cox III (1980), p. 407.
[626] Rossiter (2002), p. 323.
[627] Cf. Peterson (1994), p. 386.
[628] Cf. Krosnick (1999), p. 544.
[629] Krosnick, Holbrook, Berent, Carson, Hanemann, Kopp, Mitchell, Presser, Ruud, Smith, Moody, Green, and Conaway (2002), p. 373. The authors also provide a long list of other researchers recommending the inclusion of a no-opinion option.

find that *"inclusion of no-opinion options in attitude measures may not enhance data quality and instead may preclude measurement of some meaningful opinions."*[630] In this research, the recommendation of Christian (2003) is followed, whereby the treatment of such cases should depend on whether all participants can be expected to have an opinion regarding every question.[631] Consequently, the items in the survey instrument have been classified into two groups: those that every rater should have an opinion on and those that depend on knowledge the rater might not have. For both types, no "don't know" option was offered, however, for the latter type, answering the question was not mandatory. In addition, it has been made very clear at the beginning of the questionnaire that questions that cannot be answered should simply be skipped.

Following on these general considerations, the next sections will discuss the individual measures on a construct-by-construct basis.

5.3.3 Individual measures

5.3.3.1 Trust, its direct antecedents, and purchase intention

Purchase intention. The Marketing Scales Handbook lists numerous scales for measuring *behavioral intentions*[632] and, more specifically, *purchase intention.*[633] For this study, the 3-item *behavioral intention* scale is selected that has been used in various surveys. Bruner et al. (2001) list several successful applications, specifically testing purchase intentions. With values for internal consistency and coefficient alpha above 0.80 and excellent validity reported in previous studies, this scale is suitable for the present research.[634] An initial version of the scale with five items has been cut down to three items after negative feedback from the pre-test, questioning the usefulness of so many similar items. This feedback further underlines the reflective specification of the measures. The scale is – as opposed to the majority of the scales used in this instrument – a semantic differential scale with seven steps (refer to Table 13).[635]

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[630] Krosnick et al. (2002), p. 371.
[631] Christian, pp. 14-15.
[632] Cf. Bruner, Hensel, and James (2001), pp. 103ff.
[633] Cf. Bruner et al. (2001), pp. 453ff,
[634] Cf. Bruner et al. (2001), pp. 103-104.
[635] Note that all measures need to be applicable to two different industry settings. Even though attempts were made to limit differences between the indicators as far as possible, some items require two versions worded slightly differently. Refer to section 6.1. Moreover, during the

Construct:		Purchase intention
Specification:		Reflective
Sources:		*Behavioral Intention Scale* as described in Bruner et al. (2001)
Indicators:		
Will you make purchases from x in the future?		
	PIN1	Impossible – Possible
	PIN2	Rather not – Definitely
	PIN3	Unlikely – Likely

Table 13: Operationalization of *purchase intention*[636]

Trust. A 6-item reflective measure is used for *trust*, a combination of items available in the relevant literature on the basis of a measure used by Andaleeb and Anwar (1996).[637] The key challenge in this respect is to find items that correctly measure trust to cater to the precise definition presented in section 2.2.2.5 and to clearly delineate the measurement from the related construct of perceived trustworthiness. Pre-test feedback pointed out that the items from the study by Andaleeb and Anwar (1996) alone did not yield that result. Consequently, three additional indicators were included that had been used in related studies published in top-quality journals and appeared suited to underline the specific aspects of trust based on the chosen conceptualization (Mayer and Gavin (2005), Ferrin and Dirks (2003), and Doney and Cannon (1997)).[638] Table 14 shows the final measurement model for trust.

Perceived risk. As Mayer et al. (1995) note, the conceptualization of perceived risk in their model of trust implies a departure from the understanding of risk in most other contexts.[639] Consequently, only few operationalizations can be found in the literature that match the context. The scale used in this research builds on an instrument developed by Schlosser et al. (2006). However, the items used in that scale are basically applications of the same statement to different elements of online shopping. Therefore, the two items were rephrased to match the present research context. In addition, two further items were added to adequately capture risk perceptions in the

execution of the survey, the items will refer to different, exactly specified firms. The specific firm is replaced here by the placeholder "x".

[636] The source of the data in this table as well as in the following tables depicting measurement models is an own illustration based on the item descriptions found in the publications listed in the "source" column.

[637] Cf. Andaleeb and Anwar (1996), p. 52.

[638] Cf. Mayer and Gavin (2005), p. 887, Ferrin and Dirks (2003), p. 29, and Doney and Cannon (1997), p. 49.

[639] Cf. Mayer et al. (1995), p. 726.

current setting. This adapted scale (Table 15) received supporting feedback during the pre-test. According to the specification rules described in section 5.1.2.2, this scale is a reflective operationalization.

Construct:	Trust
Specification:	Reflective
Sources:	Andaleeb and Anwar (1996), Mayer and Gavin (2005), Ferrin and Dirks (2003), Doney and Cannon (1997)
Indicators:	
TRU1	I would consider x's suggestions when making important decisions
TRU2	I would be cautious with x*
TRU3	I trust x
TRU4	If someone questioned x's motives, I would give x the benefit of the doubt
TRU5	I believe the information that this vendor provides us, even if I cannot double check it
TRU6	I can rely on x
*	Item is reverse-coded

Table 14: Operationalization of *trust*

Construct:	Perceived risk
Specification:	Reflective
Sources:	Schlosser et al. (2006)
Indicators:	
RIS1	[Hiring a PR agency/Purchasing PV modules] is risky
RIS2	There are higher risks associated with purchasing [PR services/PV modules] than with most other products and services
RIS3	A wrong decision regarding supplier selection can have severe consequences for my company
RIS4	The quality of [PR services/PV modules] is highly uncertain

Table 15: Operationalization of *perceived risk*

Trustworthiness. Following the precise conceptualization proposed by Mayer et al. (1995) presented in section 2.2.2.5, trustworthiness was operationalized as a second-order construct of *benevolence*, *integrity*, and *ability*. As this concept has already found wide acceptance in empirical trust research, there are a number of operationalizations of the first-order constructs available. Only slight modifications of the measures used by McKnight et al. (2002)[640] were necessary, for example, the item *"... is competent and effective"* was split into two items as a reaction to pre-test

[640] Cf. McKnight et al. (2002), p. 355.

discussions, and the wording of all items was slightly changed to match the present research context. According to the guidelines by Jarvis et al. (2003) in section 5.1.2.2, all sub-constructs are specified as reflective and the second order construct is specified as formative. The following four tables give an overview of the operationalization of trustworthiness based on its second-order constructs.

Construct:	Trustworthiness
Specification:	Formative
Sources:	Mayer et al. (1995), McKnight et al. (2002)
Indicators:	
ABIT	Ability (latent variable score of the first-order construct)
BENT	Benevolence (latent variable score of the first-order construct)
INTT	Integrity (latent variable score of the first-order construct)

Table 16: Operationalization of *trustworthiness*

Construct:	Benevolence
Specification:	Reflective
Sources:	McKnight et al. (2002)
Indicators:	
BEN1	x would act in our best interest
BEN2	x is interested in the well-being of my company, not just its own
BEN3	x would surely do its best to help us as their customers

Table 17: Operationalization of *benevolence*

Construct:	Integrity
Specification:	Reflective
Sources:	McKnight et al. (2002)
Indicators:	
INT1	x is truthful in its dealings
INT2	I would characterize x as an honest company
INT3	x would always keep its commitments
INT4	x is in my opinion a sincere company

Table 18: Operationalization of *integrity*

Construct:	Ability
Specification:	Reflective
Sources:	McKnight et al. (2002)
Indicators:	
ABI1	x is effective in its area of business
ABI2	x performs its role [as a PR agency/…] very well.
ABI3	x is a capable supplier of [PR services/PV modules]
ABI4	x is very knowledgeable about [PR services/PV modules]
ABI5	In general, x is a very professional supplier of [PR services/PV modules]

Table 19: Operationalization of *ability*

Trusting disposition. As described in section 2.2.2.5, *trusting disposition* is a sort of generalized trust towards people. In this research, trusting disposition was measured using the reflective *Trust in People* scale originally developed by the Survey Research Center of the University of Michigan at Ann-Arbor, as quoted in Wrightsman (1991).[641] This scale has exhibited *"impressive inter-item correlations"* and sufficient validity in the past.[642] The original measure is a forced-choice scale with only two extreme responses. For consistency reasons, in the present study, the scale was adapted to a 7-point semantic differential scale as opposed to the forced-choice scale in the original version. Also, pre-test input from participants highlighted confusion with regard to the direction of question and answer options, as one of the items of the original scale was "implicitly" reverse coded through providing the response option in an opposite order compared with the corresponding terms in the question phrase. This apparent mis-coding was changed accordingly to ensure comprehensibility of the questionnaire. The resulting scale is presented in Table 20.

Construct:	Trusting disposition
Specification:	Reflective
Sources:	*Trust in People Scale* as described in Wrightsman (1991)
Indicators:	
DIS1	Generally speaking, would you say that most people can be trusted or that you can't be too careful?
DIS2	Would you say that people try to be helpful or that they are mostly just looking out for themselves?
DIS3	Do you think that most people would try to take advantage of you if they got the chance or would they try to be fair?

Table 20: Operationalization of *trusting disposition*

[641] Cf. Wrightsman (1991), pp. 406-407.
[642] Wrightsman (1991), p. 407.

5.3.3.2 Drivers of perceived trustworthiness

On the level of trust drivers, operationalizations for the constructs influencing the perceived trustworthiness of a counterpart according to the theory of Zucker (1986) needed to be identified. Here, a literature review did not reveal existing scales for some of the constructs less extensively researched than the central trust-related constructs in the previous section. Accordingly, the process described in section 5.3.1.2 was thoroughly applied with a focus on intensive discussions with industry experts.

Reputation is a construct frequently found in empirical works, mainly from the field of relationship marketing. Among the available operationalizations found in the literature, the two 4-item reflective scales developed by Ganesan (1994) seemed best-suited, with reported Cronbach's alphas of beyond 0.75 in their study and for a similar measure used by Anderson and Weitz (1992).[643] A comparison of the two scales and subsequent pre-test discussions led to a 5-item reflective scale for the present study, including one reverse-coded item (Table 21).

Construct:	Reputation
Specification:	Reflective
Sources:	Ganesan (1994)
Indicators:	
REP1	x has a reputation for being honest
REP2	x has a reputation for being concerned about its customers
REP3	x has a bad reputation in the market*
REP4	Most of our competitors would say that x has a reputation for being fair
REP5	Most of our competitors would like to deal with x
*	Item is reverse-coded

Table 21: Operationalization of *reputation*

Risk mitigation instruments. Despite the wide acknowledgment of the relevance of such instruments in purchasing relationships[644], a literature review did not reveal a suitable measurement model for the construct. To measure the degree of the use of *risk mitigation instruments*, a formative scale spanning the range of individual risk-mitigation levers was drafted, based on the conceptual description given by Zucker

[643] Cf. Ganesan (1994), p. 18, and Anderson and Weitz (1992), p. 33.
[644] Refer to section 4.1.3.3.

(1986).[645] The resulting 5-item scale was refined during the pre-test to ensure coverage of relevant aspects of purchasing risk mitigation efforts across industries. Table 22 provides an overview of the final operationalization.

Construct:	Risk mitigation instruments
Specification:	Formative
Sources:	Own operationalization based on Zucker (1986)
Indicators:	
RMI1	x provides warranties for the [services/products] offered
RMI2	x allows me to test the [services/products] offered before purchase
RMI3	x offers me the right to withdraw from a contract if I am not satisfied with the [service/product]
RMI4	x's business model includes [performance-related/quality-related] prices
RMI5	x is using insurances in order to protect business partners in transactions

Table 22: Operationalization of *risk mitigation instruments*

Social similarity. Among the trust driver constructs, social similarity was found to be frequently analyzed in related empirical research. In the present study, it was measured as in Doney and Cannon (1997), with a 3-item reflective scale.[646] The authors report excellent reliability (alpha of 0.90) and no validity issues. The construct has been transferred from the context of similarity with a salesperson to the context of similarity of people in the supplier firm in general, following the specific requirements of NEVs as research objects, in which an explicit sales organization is rare in early stages.[647] Table 23 summarizes the measurement model.

Construct:	Social similarity
Specification:	Reflective
Sources:	Doney and Cannon (1997)
Indicators:	
SIM1	People at x share similar interests with people in our firm
SIM2	People at x have values similar to people in our firm
SIM3	People at x are very similar to people in our firm

Table 23: Operationalization of *social similarity*

[645] Cf. Zucker (1986), p. 62.
[646] Cf. Doney and Cannon (1997), p. 49.
[647] Refer to section 2.1.1.1.

Local proximity is the only construct among the trust drivers that was measured with a single item because discussions during the instrument development phase showed that the construct was sufficiently specific along the definition of object and attribute.[648] In other words, the local proximity between vendor and potential buyer is not a latent variable, it is manifest in itself. The single indicator is shown in Table 24.

Construct:	Local proximity
Specification:	Manifest variable
Sources:	*Own wording*
Indicator:	
LOC	x is a firm from our region

Table 24: Operationalization of *local proximity*

Personal relationship. For the measurement of the degree of *personal relationship*, a concept similarly comprehensible, this work draws on Armstrong and Yee (2001), who successfully used a simple 2-item reflective scale. This scale was adapted with slight modifications to the present context (Table 25).[649]

Construct:	Personal relationship
Specification:	Reflective
Sources:	Armstrong and Yee (2001)
Indicators:	
REL1	With some employees at x I have a personal relationship beyond the business relationship
REL2	I have friends at x

Table 25: Operationalization of *personal relationship*

Institutional embeddedness. Despite the frequent references to institutions, a thorough literature review did not reveal any well-matching scales related to *institutional embeddedness*. The reason might be in the diversity of institutions, with only specific aspects being relevant in specific contexts. The closest available measurement instrument is the professional credentials measure used by McAllister (1995). However, focusing on only one dimension, backing from educational institutions, this measure is hardly suited for adoption in this study.[650] Therefore, a new measure had to

[648] Cf., e.g., Rossiter (2002), p. 310.
[649] Cf. Armstrong and Yee (2001), p. 83.
[650] Cf. McAllister (1995), p. 38.

be created following the process described in the previous section. Based on an analysis of the theory by Zucker (1986), *professional associations*, *educational institutions,* and *certifications* were identified. Subsequent interviews with expert practitioners revealed *product awards* as another relevant factor following the same logic. Despite differing perceptions of the relevance of particular factors in two different industry settings obvious from the findings in the pre-test phase[651], all factors were retained in the measurement instrument for the sake of comparability and to fulfill the requirement of comprehensiveness especially relevant for formative operationalizations.[652] All experts agreed eventually that the four items depicted in Table 26 sufficiently covered the entire scope of institutional embeddedness with regard to the industry settings.

Construct:	Institutional embeddedness
Specification:	Formative
Sources:	Own operationalization based on Zucker (1986)
Indicators:	
INS1	x's management has an excellent education track
INS2	x can provide certifications of its (services/products) and processes (e.g., ISO9001, [CMS/TÜV-Siegel])
INS3	x is a member of important (industry) associations (e.g., [GPRA, DPRG/DGS, BSW, EPIA])
INS4	x has received considerable awards (e.g., [PR Report Awards, Deutscher PR-Preis/Testurteile])

Table 26: Operationalization of *institutional embeddedness*

External references. As was the case for the previous construct, a literature search did not lead to a suitable measurement instrument for the present survey. The few operationalizations of similar constructs from existing empirical studies proved to be too different from the latent variable in question.[653] Consequently, a new scale was developed following the described process. In this case, the experts consulted found the preliminary set of indicators to be precisely describing the types of external, non-institutional references to be expected in the market. The result was a formative measure with 3 items, as presented in the following table.

[651] Experts from the public relations industry, for example, found membership in professional or industry associations much more important than did experts from the photovoltaic industry. In contrast, product or process certification seems to be seen as highly relevant in the latter industry, but not in the former.
[652] Cf. Diamantopoulos and Winklhofer (2001), p. 271.
[653] Cf., McAllister (1995), Yousafzai et al. (2005).

Construct:	External references
Specification:	Formative
Sources:	Own operationalization based on Zucker (1986)
Indicators:	
EXR1	x can refer to renowned customers
EXR2	x has renowned partners in the business community
EXR3	x's management has experience from previous positions with renowned companies

Table 27: Operationalization of *external references*

5.3.3.3 Control variables

In order to control for effects of other external variables not related to trust, three additional measures enter the present analysis. Despite the hypothesized strong effects of the interdependences in the research model, controlling for additional variables can strengthen the contribution of the analysis. While one could come up with numerous variables potentially influencing a purchase intention, some seem to be more important in a buyer-seller context. Doney and Cannon (1997) review literature on organizational buying and find that relative price/cost, product/service performance, and delivery performance are the most relevant variables.[654] The present analysis follows Doney and Cannon in controlling for these three variables, building on the operationalizations presented in their publication.[655]

Price/costs. For the measurement of the buyer's assessment of the supplier's relative position regarding *price/costs*, the formative scale developed by Doney and Cannon (1997) is adopted, with small modifications to reflect the research context (Table 28).

Construct:	Relative price/cost
Specification:	Formative
Sources:	Doney and Cannon (1997)
Indicators:	
How would you assess x compared with their competitors regarding …	
PRI1	… the price of the [services/products] offered?
PRI2	… the terms of sale?
PRI3	… the total costs?

Table 28: Operationalization of *relative price/cost*

[654] Cf. Doney and Cannon (1997), p. 42.
[655] Cf. Doney and Cannon (1997), pp. 48-49.

Product/service quality. As a preliminary measure for the product/service performance, the scale developed by Doney and Cannon (1997) was pre-tested. The feedback was that quality was the key issue relevant in the present context, so the decision was made to include only product/service quality in the final survey instrument. This was also paying tribute to the fact that the questionnaire was already relatively long due to the need to include a section on the participant's familiarity with individual suppliers.[656] In the trade-off between completeness of the questionnaire versus expected participation, reducing the number of items in the area of control variables seemed to be the dominant option. Table 29 shows the single-item measure for product/service quality.

Construct:	Product/service quality
Specification:	Manifest variable
Sources:	Doney and Cannon (1997)
Indicators:	
QUAL	How does x compare with its competitors with regard to the quality of the [services/products] offered?

Table 29: Operationalization of *product/service quality*

Delivery reliability. The same argument as for the product/service quality applies to the construct of delivery performance. After the pre-test, the multi-item scale for delivery performance was replaced with a single-item measure focusing on *delivery reliability* (Table 30). While this is clearly only one facet of delivery performance, it seems to be an appropriate compromise based on the trade-off consideration explained above.

Construct:	Delivery reliability
Specification:	Manifest variable
Sources:	Doney and Cannon (1997)
Indicators:	
TERT	How does x compare with its competitors with regard to their delivery reliability?

Table 30: Operationalization of *delivery reliability*

[656] Refer to section 6.2.

5.3.4 Additional components of the survey instrument

In addition to the measures required to analyze the research model, the survey also includes several other questions that are not part of the research model, thus have not been discussed in the previous sections. However, those questions are required for the assessment of data quality and to generate additional insights on the structure of the sample.

The additional data surveyed contains the following items:

- *Demographical information on the participant*: the participants are asked to provide their age and gender as well as their tenure with their current employer.
- *Information on the buying firm*: the survey contains questions regarding the size of the respondent's firm, both in terms of employees and revenue, the firm's age, the state in Germany, where the firm is based, as well as a classification of the primary industry the firm is active in (PR) or the firm type (PV), respectively.
- *Self-assessment* as belonging to the target group of this research: each participant is asked whether he is significantly involved in the decision making process with respect to the product or service in question in his professional role.[657]
- *Information on previous purchasing experience with the supplier:* previous purchasing experience is tested along with the satisfaction with that earlier interaction.
- *Assessment of size and age* of the supplier: in order to test in how far the classification of supplier firms as NEVs or established firms parallels the perception of buyers in the sample, participants are asked to assess the size and age of the supplier they are rating.

A comprehensive list of all questions in two different forms for the two industries surveyed can be found in the appendix.

[657] Refer to section 2.3 for a discussion of the type of relationship in the focus of this analysis.

6 Survey design and data sample

This chapter introduces the data sample applied to test the hypothesized research model. Due to the specific research setting of this dissertation, a sample is required that allows the different group comparisons addressed in the research agenda to be made. Therefore, section 6.1 will first clarify the focus of the empirical study. Based on that focus, section 6.2 describes the process of data collection, and, finally, section 6.3 completes the chapter with an assessment of the resulting data sample.

6.1 Focus of the empirical study

A closer look at the research objectives of this work as well as the specific focus developed in the individual sections of chapter 2 reveals that a data sample as a basis for an empirical test of the model needs to fulfill several specific requirements.

First, one research objective is to empirically examine the influence of industry-specific product/service qualities. As defined in section 2.4.3, the sample needs to contain responses from a credence industry and an experience industry. This industry focus will be substantiated in this section. Second, this work aims at the deduction of insights for the management of NEVs, both in general terms and in comparison with established firms. Therefore, the sample must contain a sufficient number of responses about both NEVs and established firms on the supply side. However, the distinction between the two is not trivial as discussed in section 2.1.1, so that the research design needs to ensure correct classification in this central issue. Third, the focus of this research on professional buyer-seller relationships including the first uni-lateral relationship stage makes it necessary to also include such responses in the sample that are provided by buyers who have not made purchases from the supplier in focus. The following paragraphs will specify the focus of the empirical analysis along these three issues in more detail.

Focal industries. In order to fulfill the requirements set out in chapter 2, two sample industries need to be identified that can be clearly classified based on the predominant product or service qualities, i.e., a credence and an experience industry. However, not only do the two industries need to exhibit those characteristics, they also have to offer

a sufficient number of players in early and late development phases in the market to allow for a comparison between NEVs and established firms.[658]

For the present research, the following two industries have been selected as the basis for the empirical analysis: *public relations and communications consulting*[659] – for the remainder of this document referred to as *PR* – and *manufacturers of photovoltaic modules*[660] – henceforth called *PV*. According to the definition brought forward by Darby and Karni (1973)[661], PR services are clearly dominated by credence qualities. The condition holds that they are *"utilized either in combination with other goods of uncertain properties to produce measurable output or in a production process in which output, at least in a subjective sense, is stochastic, or where both occur"*[662]. This is even more so if one considers that the typical end product, a certain corporate reputation or image, is influenced by a multitude of other factors in addition to PR services. Photovoltaic modules, in contrast, feature experience qualities, as a buyer will be able to judge power generation, structural strength, handling, and other qualities *"costlessly only after purchase"*[663], in fact, shortly after purchase.

Based on the above selection of focus industries, one could ask whether the core difference between the two industries is regarding the uncertainty of product qualities, i.e., information asymmetries, as intended here, or regarding the fact that one industry offers products, while the other one offers services. However, the selection of such two industries seems to be adequate to capture the differences with regard to information asymmetries. First of all, credence qualities are often associated with services rather than products; the core examples given by Darby and Karni (1973) for offerings with credence qualities are repair service and the choice of a taxi cab route – both clearly

[658] Refer to section 2.1.1.1.
[659] According to the definition of the Gesellschaft für Public Relations (Society for Public Relations, GPRA), one of the leading German industry associations for Public Relations and Corporate Communications.
[660] A *photovoltaic module* is a product in the photovoltaic (solar electricity) value chain. It is a packaged unit of a number of photovoltaic cells that can be assembled with additional electronic components to build a *photovoltaic system*. A photovoltaic system is then installed, in an open field or, as is mostly the case in the German market, on rooftops. It is noteworthy that, while photovoltaic systems are sold to institutional investors as well as residential customers, the decision makers involved in purchasing photovoltaic modules are typically professional buyers representing installation firms, wholesalers, engineering firms, and the like.
[661] Refer to the discussion of product qualities in section 2.4.2.
[662] Darby and Karni (1973), p. 69.
[663] Darby and Karni (1973), p. 69.

services rather than products.[664] Moreover, Murray (1991), as well, discusses several differences between products and services that are essentially differences between offerings with search or experience vs. credence qualities.[665] Taking this into consideration, the two industries selected for analysis here seem to capture the key differences between credence and experience qualities very well.

In summary, the survey will be conducted in the PV industry as an experience industry and the PR industry as a typical credence industry.

Classification of NEVs and established firms. This critical point implies a particular challenge for an empirical analysis in this research setting. There are two fundamental ways to determine the development stage of the focal firms rated by the survey participants: have the raters classify a firm they know based on a description of criteria to be applied or ask the participants about a specific set of firms that can be classified by the researcher. Clearly, the discussions in section 2.1.1.1 and 2.1.1.2 have underlined that the classification is not straightforward, so that it would be risky to let the determination happen at the discretion of the survey participants. In the worst case, the data would be useless because there is no reliable information on the trustees rated within the survey. A survey based on *"a specific purchase situation in which you have recently been involved"*[666] is a feasible approach for a research setting such as that published by Doney and Cannon (1997), in which a differentiation between different types of supplier firms is not pursued. However, in the present case it is not a suitable solution.

Nevertheless, limiting the responses to those that refer to one out of a specified list of supplier firms presents an additional challenge.

The resulting issue is in the limited awareness levels of NEVs in the market. Assuming that respondents choose a firm they know from a list of firms offered in the questionnaire, in a fully random sample and assuming no sampling or coverage error, the sample would contain a very small share of responses concerning one of the NEVs on the supply side. Consequently, the sample size would need to be unrealistically large to allow for group comparisons involving a distinction between NEVs and established firms.

[664] Cf. Darby and Karni (1973), p. 67.
[665] Cf. Murray (1991), pp. 10ff.
[666] Doney and Cannon (1997), p. 42.

A feasible solution could be to depart from the goal of gathering a fully representative, random sample. If the probability of an NEV being in the focus of a response could be increased, a sufficient sub sample could be generated. This can be achieved by programming the electronic questionnaire to question participants who are familiar with one of the NEVs in the list about that NEV rather than one of the established firms.[667] A drawback of this procedure is that the resulting sample structure will, accordingly, not reflect the familiarity and awareness situation in the real population any longer, with more respondents rating NEVs than statistically expected.

As evident, this situation implies a trade-off. One option is generating a random sample that allows widely generalized findings but leaves the classification of the core research object, NEVs, out of control. The other option forfeits generalization from the whole sample to the benefit of certainty with regard to the focal firm classification.

For the survey in this project, the latter option will be pursued for two reasons. First, the bias induced in the sample will be comparably simple to control for; as a matter of fact, group comparisons between the over- and underrepresented groups are part of the research objectives of this work. Second, the purpose of this sample is not to draw conclusions from its descriptive statistics but to test a structural model in a given context. This latter argument parallels that brought forward by Morgan and Hunt (1994).[668] Eventually, this is a compromise solution.

A second drawback of the focus on a specific set of supplier firms is that the net response rate of valid responses will be negatively affected, as some respondents who are willing to participate might not be familiar with either of the firms offered for selection.

The decision to include specific firms in the questionnaire rather than asking for the rating of an unspecified seller leads to the need to select the focal firms. Clearly, the focus of the questionnaire on a set of specific companies limits the breadth of the survey. Consequently, the selection of the focal firms aimed at spanning as broad a range across the respective industry as possible with a limited number of players. In a first step, the number of focal firms to be included was determined. This decision involves a trade-off. On the one hand, more firms imply better net response rates and a broader coverage of the industry. On the other hand, the technical implementation of

[667] Refer to section 6.2.3.1 for details on the technical implementation.
[668] Morgan and Hunt (1994), p. 28.

the list of firms substantially affects the delay in the delivery of online questionnaire pages due to algorithm run times.[669] Initial tests during the development phase of the online questionnaire have shown that a number of thirteen firms in the lists marks a limit of feasibility. Accordingly, the number of firms is set to thirteen for the experience industry survey. In the credence industry survey, twelve firms are included.[670]

With regard to the selection of specific firms, the approach differs between the two industries. In the PV industry, the number of players in the market is relatively small, so that, after a few interviews with industry experts, a long list of candidates was available. In-depth interviews with senior representatives of the firms ensured both their buy-in for the study as well as the correct classification as NEVs or established firms in the sense of this study. The final selection includes six established players as well as seven NEVs. Altogether, the selected firms are assumed to cover a substantial portion of the total market.

In the PR industry, the selection process is more complicated due to a much more fragmented market. A leading directory for the PR industry in the German-speaking area, the *PR-Report Compendium*, lists more than 1300 professional service firms in this industry.[671] Again, a long list was generated including self-owned German partnerships as well as subsidiaries of international networks, national as well as regional players, firms of different ages, and different industry specializations as well as generalists. This long list was discussed with industry experts from several industry media as well as practitioners both from the buyer and the supplier side. Again, in-depth interviews with firm representatives have led to the final list of five established firms and seven NEVs in the sample.

All firms were assured confidential treatment of the response data on the individual firm level. Furthermore, every firm was promised a dedicated analysis of their respective sub sample. A list of the firms included in the two surveys can be found in the appendix.

[669] Refer to section 6.2.3 for details on the technical implementation of the survey.
[670] The reason for the difference is that one firm that was to be included in the PR questionnaire, did revoke its permission to be listed in the online survey in a last-minute decision.
[671] Cf. Bogs (2006), pp. 1ff.

Customers and non-customers as participants. Researching trust building for NEVs implies including early stages of buyer-seller relationships, as argued in section 2.3. As explained, in such early stages, a buyer has typically not yet made a purchase with the respective supplier. Consequently, in order to analyze such relationships, the present survey cannot be limited to customer relationships but must also include responses from *potential* buyers. The implication of this research parameter for the design of the survey is substantial, as it turns around the approach of addressing the participants: instead of asking the focal firms to spread the questionnaire based on their customer contact data, a large number of market participants on the buy side have to be contacted with the aim of finding sufficient respondents familiar with at least one of the firms in focus.[672]

Based on these specifications of the frame of the empirical survey, the following section will describe the process of data collection.

6.2 Data collection

This section describes the process of data collection in five steps. In the first step, the selection of survey participants according to the target group definition developed above is described. How the survey methodology was selected is then detailed. The third section elaborates on the design of the questionnaire. The last two steps focus on the execution of the survey and on the treatment of the data to form the final sample.

6.2.1 Survey participants

Due to the challenge of identifying potential buyers in the two focus industries and the additional complication that a buyer willing to participate in the survey also has to know one of twelve resp. thirteen firms, a comparably low ratio of valid responses vs. contacted participants can be expected.[673] Consequently, the study needs to build on a large initial number of contacts through a combination of multiple sources. The approach of collecting the contact data chosen in this project differs between the two industries due to different industry characteristics.

PR industry. The buyers of PR services are – across industries – press spokespersons of leading personnel in the public relations or corporate communications departments.

[672] Refer to section 06.2.3.1 for details on the technical implementation.
[673] Refer to the previous section.

The present study uses three direct sources of contact data of such professional PR buyers.

1. The core data source for the PR contacts is the "Kroll Taschenbuch Wirtschaftspresse"[674], a comprehensive guide of press contacts of German companies. The guide lists key PR personnel along with the respective contact information for German firms from industrial, trade, and services sectors. However, in order to increase the number of initial contacts (see above), additional data sources were utilized.

2. A second source is a list of press contact data gathered during the course of several fairs that took place in 2006. This is a particularly practical data source because the data is highly accurate and up to date due to the sales purpose of these fairs. Furthermore, key contacts provided exactly match the type of rater required for this survey. Among these fairs were Hannover-Messe[675] (leading German industrial goods trade fair), CeBIT[676] (leading German IT trade fair), LIGNA[677] (forestry and wood processing fair), ITB[678] (leading German tourism fair), and Biotechnica[679] (leading German bio technology fair).

3. To further increase the number of potential participants, a third source of contact data was used: a non-public database containing company profiles as filed to the German Chamber for Industry and Commerce. The disadvantage of this data source is clearly the type of contact address: in contrast to the sources above, these records do not contain the contact data of a press or communications responsible but those of the managing directors. This implies a potential hurdle to the execution of the survey, since another action step – forwarding the questionnaire to the expert – is required. On the other hand, this database provided access to a random selection of a large number of German firms.

The data from the three sources described above was validated thoroughly to avoid potential errors with regard to person and company names, e-mail addresses, etc. that

[674] Cf. Kroll (2006).
[675] Cf. N.N. (2005a), p. 68.
[676] Cf. N.N. (2005a), p. 23.
[677] Cf. N.N. (2005a), p. 23.
[678] Cf. N.N. (2005a), p. 23.
[679] Cf. N.N. (2005a), p. 25.

could potentially have a negative impact on the response rate. Moreover, the combined data base contained several duplicate entries that were eliminated. The final gross sample contains 4,922 valid contact entries.

In order not to exclude potentially valuable answers from other relevant professionals and to give customers of the firms listed a chance to participate, even though their contact data was not known to the author, these direct contacts were supplemented with some indirect participant contacts. For this purpose, the questionnaire was promoted on several industry-specific online resources. Most importantly, on the PR-Journal.de portal, a link to the survey was posted and this was framed by a note in the electronic newsletter. Furthermore, openPR.de, another leading PR portal prominently positioned a link to the survey on its starting page. Interested in this research project, the German Society of Public Relations Agencies (GPRA), referred to the ongoing research project in their weekly newsletter as well. Finally, a note was made in a blog at mediacoffee.de, another important web resource for practitioners in the PR arena.[680]

PV industry. For the PV industry, the first step is to identify the types of firms that resemble the group of potential decision makers with respect to the purchasing of PV modules. For this purpose, several expert interviews were conducted with industry insiders both from the supplier and the buyer side as well as from independent media. Generally, the decision will be made by the installation firms that either buy the modules themselves or heavily influence their own customers as to what modules to select. However, a large influence is also attributed to trading firms who decide which modules to include in their product range, both on the wholesale and retail level. Finally, it turns out that another group with significant influence on such decisions are professional service firms in the field of engineering and architecture. Table 31 gives an overview of the most important types of firms according to the expert interviews. Clearly, not every firm operating in one of the areas listed below will be concerned with purchasing decisions for PV modules. As mentioned earlier, respondents are asked for their involvement in such decisions during the survey.

[680] In addition, *Sozioland* (www.sozioland.de), an online opinion polling resource offered to make panel participants aware of the survey. However, as expected, the consumer-focused panel did not contain the PR experts required as raters in the present survey.

In a second step, several industry-specific media were screened for such firms that appeared in directories with a focus on solar electricity. Specifically, the following resources were browsed:[681]

- www.dgs.de, the website of the "Deutsche Gesellschaft für Solarenergie" (German Society for Solar Energy, DGS), the German section of the International Solar Energy Society.
- www.solarenergie.com, an online resource operated by a publishing house specializing in renewable energy.
- www.solarserver.de, an independent industry portal.
- www.cylex.de, the online presence of a yellow pages provider.
- www.solarfoerderung.de, an information website operated by the "Bundesverband Solarwirtschaft" (German Solar Industry Association, BSW).
- Finally, www.photon.de, the internet presence of a photovoltaic print magazine.

Category	Firm types
Dealers	Wholesale – heating and air-conditioning
	Wholesale – electric
	Retail – electric
Installation firms	Photovoltaic installations
	General electrical installations
	Heating and air conditioning
	Roofing firms
	Construction firms
Professional service firms	Engineering firms
	Architecture firms

Table 31: Decision makers in PV module purchasing[682]

All of these resources contain directories, from which firms with entries related to photovoltaic energy are selected. The resulting gross sample contains valid contact data for 1,965 firms according to the above definition.

[681] All of the following sources were browsed between March 15, 2007 and May 15, 2007.
[682] Own analysis based on industry expert interviews.

As in the PR industry, the survey was also made public to other professionals, in this case through a posting on the website www.solarserver.de and through a note in the associated weekly newsletter.

The different gross sample sizes for the two industries are chosen due to an expected difference in the response rates. As described in section 6.1, the firms covered in the PV questionnaire span a broader share of the PV module market than the PR firms in their much more fragmented industry. Consequently, the expected share of participants sufficiently familiar with one of the firms provided to answer all the questions in the survey should be much higher in the PV industry, so that a smaller initial population seems sufficient.[683]

6.2.2 Survey methodology

As regards the survey methodology, there are three basic types suitable for the present research project: mail survey, personal (telephone-based) interviews, and online survey. In a mail survey, a questionnaire is mailed to the participants together with a cover letter presenting the research project and background information. In a personal interview, the responses are collected though personal interaction between an interviewer and the participant, either in person or by telephone. Finally, in an online survey, the respondent enters his answers through a web interface without interaction with an interviewer or without filling out a paper questionnaire. There are several recommendations on how to select a suitable survey methodology.[684] The selection logic applied to this research follows Weible and Wallace (1998), who suggest that in addition to quality of the collected data, efficiency needs to be considered.[685]

Data quality. Dillman, Tortora, and Bowker (1998) list four common quality issues in surveys, out of which three are partly influenced by the selection of a survey methodology: *coverage*, *measurement*, and *non-response errors*.[686] The coverage error refers to the *"requirement of giving each member of a defined population a known*

[683] Refer to the discussion of response rates in section 6.2.4.2.
[684] Cf., e.g., Weible and Wallace (1998), Schnell, Hill, and Esser (2005), Schonlau, Fricker, and Elliott (2002), Yun and Trumbo (2000).
[685] Cf. Weible and Wallace (1998), p. 20.
[686] Cf. Dillman et al. (1998), p. 2. The fourth error type, *sampling error*, seems to yield no additional aspects with regard to the selection of the survey mode that are not addressed by the coverage and the non-response errors. Cf. Dördrechter (2006), p. 185.

chance of being surveyed."[687] With regard to the survey methodology, the key question is whether parts of the basic population are systematically excluded from the survey. This risk is comparably low in mail surveys, since most people have a business address where they can be reached, so that a mailing does not systematically exclude potential participants. Personal interviews seem similarly suited with hardly anyone active in a business environment today not having access to a telephone. However, the personal interview limits the respondent with regard to the timing of his response. Especially for surveys among business executives, timing may become a critical factor inducing a coverage issue. Internet-based surveys can lead to coverage errors, if the target population does not exhibit a high internet penetration. Accordingly, the issue is most prevalent in residential or consumer surveys, with a German residential internet penetration estimated at approx. 67% in 2007.[688] In contrast, as Dördrechter (2006) notes, online surveys can be used largely without problems in settings that involve the Internet, computers, or new technologies.[689] Thus, with regard to the present research, a coverage error through online surveying seems unlikely, since internet and e-mail usage can be seen as a quasi standard in business environments, especially in the PR industry that is specialized in all means of communications and in the PV industry, in which the adoption of new technology is at the core of the business.

Couper (2000) claims that the non-response error *"arises through the fact that not all people included are willing or able to complete the survey."*[690] The literature sees two main reasons for non-response: lack of motivation and technical difficulties.[691] With regard to the motivational aspects, it is agreed that – among other factors such as interest in the topic or privacy concerns – survey design can drive the response rate.[692] For mail-based surveys, there is a large body of literature containing empirical insights on how to design the questionnaire and cover letters, based on experience from years of research.[693] Consequently, studies prove that response rates in mail surveys typically exceed those of online surveys.[694] Similarly, a personal interaction should yield good motivational results. With regard to technical issues, it seems reasonable to assume that there is no technical influence on surveys in the mail and personal modes.

[687] Cf. Dillman et al. (1998), p. 2.
[688] Cf. N.N. (2007d).
[689] Cf. Dördrechter (2006), p. 183.
[690] Couper (2000), p. 473.
[691] Cf. Grandcolas, Rettie, and Marusenko (2003), p. 545.
[692] Cf. Couper (2000), p. 474.
[693] Cf. Couper (2000), p. 474.
[694] Cf. Weible and Wallace (1998), p. 23.

In online surveys, technical issues seem relevant, which can, however, be mitigated through extensive pre-testing.[695]

The measurement error refers to a deviation of the respondent's stated answer from his actual score on the measure and typically results from misunderstanding of poorly phrased survey items.[696] Generally, such issues can be avoided through a clear and precise questionnaire design as well as extensive pre-testing. However, the survey mode does have an influence. In a mail survey, the author of the study has no chance of clarifying potentially unclear questions that the respondent does not understand. In contrast, a personal interview allows an immediate reaction to resolve such ambiguities. An online survey seems to be a compromise: while interaction with the author is not feasible, modern technical platforms allow a questionnaire design that includes several consistency checks, which can help reduce the number of "wrong" answers. Another source of measurement error is related to the transcription of survey results. Here, online instruments seem to be the safest form. As modern online survey tools typically provide a web interface that is directly linked to a database, the rater can enter the values once and they are never transcribed afterwards. Mail and personal surveys usually require entering the data into an electronic resource after the initial written processing of the questionnaire.

Efficiency. While efficiency is certainly of lower importance compared with the requirement of superior data quality, it should not be fully ignored. Weible and Wallace (1998) see two main components of efficiency: cost efficiency and time efficiency.[697] With regard to the former, the mail mode is certainly the least-favorable alternative. A mail-based survey implies several costly components. First, printouts of the questionnaire and cover letter as well as an envelope are required for each member of the sample. Depending on the length of the survey instrument, this can be several pages of paper requiring large-size envelopes. Moreover, each envelope needs postage and an additional stamp is required for the return envelope. In contrast, a personal interview can be conducted with limited investments, even if executed via telephone. An online survey is equally cost efficient, typically requiring the purchase of a (subsidized) academic software license.[698]

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[695] Cf. Rothe (Forthcoming), p. 176.
[696] Cf. Couper (2000), p. 475.
[697] Cf. Weible and Wallace (1998), p. 20.
[698] E.g., an academic Unipark license for the period of six months can be purchased for EUR 50.

The second aspect of efficiency is time. Time is affected both with regard to the preparation, execution, and evaluation of the survey and with regard to the participants' response times. The performance of the three modes regarding preparation time is similar to their cost performance. While the mail option requires a lot of time for printing, enveloping, and stamping, the telephone option requires minimal time, and the time investment required for the online option is restricted to the development of an online version of the questionnaire in a polling software tool. However, the response time can differ substantially. Weible and Wallace (1998), for example, report substantially reduced response times for their e-mail and web-form-based survey compared with mail and fax versions.[699] Granello and Wheaton (2004) even note that one of the advantages of online surveys is that they *"dramatically decrease response times."*[700]

In summary, it can be seen that a mail survey would allow the use of the most elaborate and well-tested approaches to encourage a high response rate leading to a high quality level of the collected data, only impaired by the sensitivity towards measurement errors. However, the mail survey yields by far the worst results in terms of efficiency, incurring substantial costs and leading to above-average response times. Telephone-based personal interviews seem to provide the highest-quality data but are simply not practical since the effort to collect a sample of, e.g., 400 valid responses, would be enormous. Finally, in the present research context, a web-based survey seems to yield high-quality data in a short time with limited costs incurred. Therefore, the online survey mode forms the basic mode in this research. To further improve the expected response rate, a printable version of the questionnaire is attached to the notification e-mail, so that respondents can choose to fill in a paper sheet instead of using the web interface. Such a multi-mode survey design has been recommended by several researchers.[701]

6.2.3 Survey design

The design of the survey is critical with regard to the minimization of survey errors as introduced in the previous section.[702] The first of the following sections will deal with

[699] Cf. Weible and Wallace (1998), p. 23. Cobanoglu, Warde, and Moreo (2001) come to the same conclusion based on their survey (p. 441).
[700] Granello and Wheaton (2004), p. 388.
[701] Refer to Rothe (Forthcoming), p. 177.
[702] Refer to section 6.2.2.

resulting design parameters for the survey instrument as derived from the types of survey errors to be avoided (section 6.2.3.1). Moreover, in this particular research, several more specific requirements follow from the research objectives. Section 6.2.3.2 will then describe the design of the "cover letter" e-mails.

6.2.3.1 Design of the survey instrument

Among the errors commonly discussed in the context of empirical surveys, two seem to be of particular relevance with respect to the design of the questionnaire: the *non-response error* and the *measurement error*. The literature contains several recommendations on how to handle survey instruments in order to minimize such errors.[703] Nevertheless, while empirical findings on "best practice" for the design of print surveys are numerous, only limited insights are available concerning online surveys.[704] In the present research, the following framework is applied, based on a review of the available literature. To minimize the non-response error, the researcher needs to *enable* participation of his test persons, *attract* them to participate, and *retain* them during their processing of the questionnaire. As far as the measurement error is concerned, a researcher can *minimize his own mistakes* in phrasing the items and *guide the rater* in situations of difficulty. These objectives will be elaborated in the following paragraphs.

Enable. A first necessary precondition for a valid response of a participant is his access to the survey.[705] In the literature, the key limitation discussed in this context is technical accessibility.[706] According to Dillman and Bowker (2001), such a technical non-response error can be the result of platform (software or hardware) incompatibilities.[707] Other authors recommend limiting the use of graphical elements in this respect.[708] Both facets are addressed in this research. The survey instrument is implemented based on a well-tested and widely used online surveying platform.[709]

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[703] Cf., e.g., Tomaskovic-Devey, Leiter, and Thompson (1994), p. 439, Neller (2005), p. 9, Granello and Wheaton (2004), p. 387.

[704] For example, for an overview of recommendations regarding the design of mail surveys, see Diamantopoulos and Schlegelmilch (1996). Cobanoglu et al. (2001), state the relative lack of insights for web-based surveys.

[705] This is not concerning the general access in terms of a non-zero probability to be surveyed as discussed in section 6.2.2, which leads to a coverage error. Here, the key question is whether a participant included in the survey can access the survey instrument.

[706] Cf. Healey, Macpherson, and Kuijten (2005), p. 1, Couper (2000), p. 476.

[707] Cf. Dillman and Bowker (2001), p. 166.

[708] Cf. Schonlau et al. (2002), p. 42.

[709] Unipark, refer to www.unipark.de for further information.

Moreover, it has been tested across different internet browsers by several participants during the course of the pre-test. Furthermore, the questionnaire does not use graphical elements except for the logos of the university and the chair supervising the project, a logo of an online resource supporting the survey, and a picture of the researcher on the starting page of the web survey. This way, technical accessibility seems to be sufficiently ensured.

Attract. With regard to attracting potential raters to take part in the survey, two major issues are frequently identified: interest and trust in the research project. Tomaskovic-Devey et al. (1994) note that confidentiality concerns with regard to internal information are the most important reason for the refusal of business people to participate in surveys.[710] Dillman et al. (1998) highlight the importance of interest-attracting features especially in the beginning of the survey.[711] Accordingly, both issues can be addressed through a high-quality design of the survey instrument.[712] As raising the participants' interest must be achieved during the first interaction, it is advisable to pay attention to the layout and content of the starting page of the survey. In this research, the initial page features a teaser question underlining the relevance of the topic through a benchmarking idea: how do others in my position decide?[713] This interest is then further reinforced through the incentive of receiving a practice-oriented evaluation of the study. The same opening page also supports trust building with the participant: it provides backup information on the purpose and process of the study, a reference to the university, the logo, a picture of the author, and signatures of both the author and Prof. Malte Brettel, the supervising professor. Esser (1986) underlines the importance of such information as an aid to the decision to participate, specifically noting that it is common knowledge that references to academic or public institutions have a stronger motivational power than references to profit-oriented firms.[714] With regard to names, the picture, and background information on the researchers involved, Diamantopoulos and Schlegelmilch (1996) found in their analysis of mail survey response rates that respondents seem to *"place more importance on knowing something about the individual conducting the survey, possibly because the inclusion of such details confers greater legitimacy/credibility to the survey than a name*

[710] Cf. Tomaskovic-Devey et al. (1994), p. 445.
[711] Cf. Dillman et al. (1998), p. 8.
[712] Another important lever in this context is the design of the e-mail correspondence, see section 6.2.3.2.
[713] Refer to the questionnaire screen shots provided in the appendix.
[714] Cf. Esser (1986), p. 43.

only."[715] Finally, to address the privacy concern mentioned above, the starting page explicitly guarantees the confidential treatment of all data gathered, clarifying that all results will only be published on an aggregate level. Screen shots of the starting page can be found in the appendix of this document.

Retain. Retention focuses on the prevention of drop-out reasons for participants who have started filling in the questionnaire. Specifically, the questionnaire design must aim at reducing the risk of confusing, boring, or even annoying the contributor. Several measures seem appropriate to facilitate such rater retention. With regard to confusion, Smyth, Dillman, Christian, and Stern (2004) acknowledge the positive effect of grouping items in web-based surveys to help the respondent navigate through the questionnaire.[716] At the same time, they highlight a potential influence of the grouping on participants' response behavior, an issue that will be addressed below (guiding participants). Closely related to the question of grouping is the discussion about whether to design a questionnaire that requires scrolling though few but long pages or one with several compact pages that does not require scrolling. Peytchev, Couper, McCabe, and Crawford (2006) come to the conclusion that both designs lead to fine results.[717] However, two of their arguments seem to favor the paging version: the time required to complete the survey was slightly lower in their experiment, and, due to more frequent interactions between the web browser and the server-based software, data crosschecks seem more practical compared with the scrolling version.[718] Consequently, the questionnaire used in this study follows the paging design pattern.

A further issue is the length of the questionnaire. It is widely accepted that longer questionnaires lead to higher unit non-response, i.e., increased drop-out rates during the process.[719] Based on experiences from related research projects and pre-test feedback, the questionnaire used in the present study was designed to require approximately 10 to 15 minutes from the rater. Furthermore, the recommendation brought forward by Dillman et al. (1998) is followed to provide the rater with a simple graphical representation of his progress through the questionnaire.[720] Unit non-response also alludes to another trade-off to make: forced answers can decrease the

[715] Diamantopoulos and Schlegelmilch (1996), p. 521.
[716] Cf. Smyth et al. (2004), p. 2.
[717] Cf. Peytchev et al. (2006), p. 604.
[718] Cf. Peytchev et al. (2006), p. 604 and p. 597.
[719] Cf., e.g., Diamantopoulos and Schlegelmilch (1996), p. 520, or Peytchev et al. (2006), p. 598.
[720] Cf. Dillman et al. (1998), p. 12.

number of missing values[721] by requiring an answer for particular questions from the rater. However, this might annoy participants in cases, in which they actually do not want to answer or do not know a (non-random) answer. Consequently, the present survey refrains from mandatory questions with the exception of the items of the central constructs of trustworthiness, trust, and purchase intention, all of which solely pertain to perceptions, attitudes, or intentions of the rater and do not require specific knowledge about the object rated. In this limitation of forced answers to few and uncritical items, the advice by Schonlau et al. (2002) is incorporated that *"the advantage of forcing answers [...] is more than offset by the increased unit non-response."*[722]

Avoid own mistakes. Couper (2000) underlines the fact that poor wording can be seen as one of the key sources of measurement error and demands that *"in order to minimize respondent error, the survey instrument must be easy to understand and to complete."*[723] Christian, Dillman, and Smyth (2007) highlight the importance of correct wording and usable and comprehensible scale points in order to help the rater *"get it right the first time"*[724], knowing the negative motivational effects of error messages. Following that recommendation, all survey items were thoroughly pre-tested in order to rule out ambiguity or incomprehensibility.

Guide participants. Finally, measurement errors can also be caused by mistakes on the rater side. Consistency checks on the transmitted data can help avoid them. In contrast to mail surveys, online surveys allow the incorporation of various procedures that assess the data entered by the respondent through comparison with data type requirements or logical rules. The present study makes use of such consistency checks in order to maximize data quality, while it is assumed that clear item wording limits the number of cases, in which these cross checks take effect. A second source of rater error is related to the phenomena called *primacy* or *recency effects*. These effects refer to higher probabilities of response options to be selected if they are placed very high or very low in a list.[725] The best reaction to this issue is a design that incorporates item rotation, so that respondents face an individual, random order of items.[726] The present

[721] Refer to the discussions in section 5.3.1.2 and 6.2.2.
[722] Schonlau et al. (2002), p. 45.
[723] Cf. Couper (2000), p. 475.
[724] Christian et al. (2007), p. 115.
[725] Cf. Krosnick and Alwin (1987), p. 202.
[726] Cf. Krosnick and Alwin (1987), p. 216.

research follows this recommendation, even though it seems clear that these context effects are limited if rating scales rather than ranking scales are used as is the case in this study.

Clearly, the measures described above cannot prevent non-response and measurement errors in total. However, they resemble a best-effort approach in the striving for superior data quality. Figure 10 shows the questionnaire design principles that were applied in this research project in a structured overview.

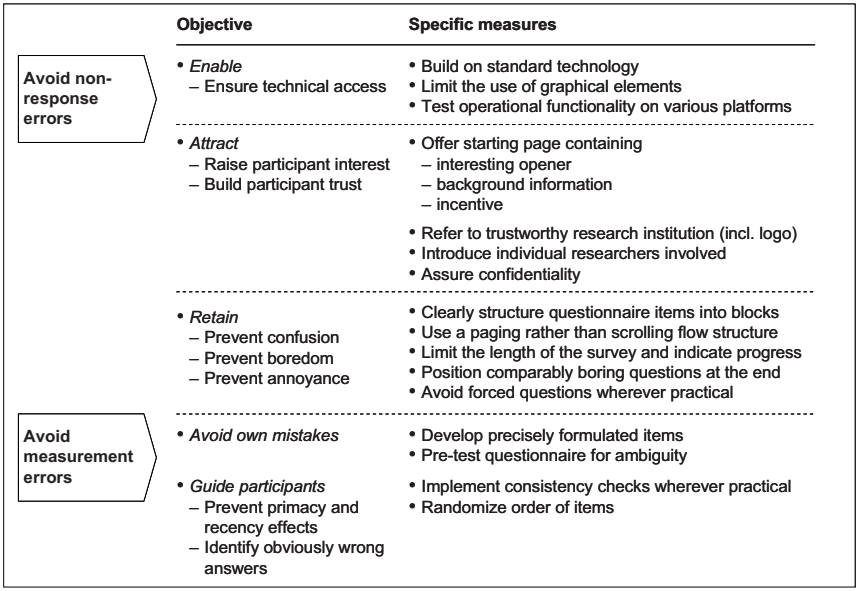

Figure 10: Overview of the questionnaire design principles applied[727]

The remainder of this section will elaborate on two specific requirements of the present research project: the implementation of a prioritization logic during the survey execution and the distinction between the two different sets of questionnaires for the two different industries.

In section 6.1, it was argued that the research setting required a prioritization logic embedded in the survey that leads to a higher chance of raters familiar with one of the NEVs to actually rate an NEV rather than an established firm.

[727] Own illustration based on a literature review.

Technically, the respondent was offered the list of companies (PR firms or solar module manufacturers, respectively) and could rate his familiarity with each of them. For that purpose, a scale was provided ranging from "Don't know that supplier" to "This provider has already served us". Table 32 shows the PR example of that list.[728]

Provided the respondent claimed to be familiar with at least one of the suppliers, an algorithm selected the focal company that the remainder of the questionnaire dealt with, i.e., all following questions were reformulated to refer to exactly that one supplier in question. The algorithm optimized the sample, first for familiarity with the focal company and subsequently for an equal number of responses for each company. This means that if a respondent was familiar with one of the NEVs, he would be questioned with regard to that firm rather than any other.

How well do you **know** this provider?	Don't know this provider	Know this provider, with limited detailed knowledge	Know this provider, with detailed knowledge	This provider is a relevant option for us in the provider selection	This provider has already served us
Johanssen + Kretschmer	☐	☐	☐	☐	☐
FLUTLICHT	☐	☐	☐	☐	☐
Trademark Public Relations	☐	☐	☐	☐	☐
Burson-Marsteller	☐	☐	☐	☐	☐
fischerAppelt	☐	☐	☐	☐	☐
Fink & Fuchs	☐	☐	☐	☐	☐
Molthan van Loon	☐	☐	☐	☐	☐
Trimedia	☐	☐	☐	☐	☐
Crossrelations	☐	☐	☐	☐	☐
PLEON KohtesKlewes	☐	☐	☐	☐	☐
Adpublica	☐	☐	☐	☐	☐
plümer)communications	☐	☐	☐	☐	☐

Table 32: Familiarity rating scale at the beginning of the survey[729]

[728] The PV version of the questionnaire contains slightly differently worded response options. Refer to the appendix for details.
[729] Own illustration.

Finally, due to the inclusion of two different industries in the survey, two different sets of questionnaires had to be developed. Scale development insights and pre-test result have clearly highlighted the differences between the two industries with effects on the questionnaire design. Parts of particular items had to be industry-specific, e.g., refer to products vs. services. Moreover, some of the items that provided examples for clarity and comprehensibility purposes needed to be adapted to the specific context. This was particularly important in the question regarding relevant industry associations.[730] However, adaptations to items leading to differences between the two questionnaires were made thoroughly and minimally in order not to impair the comparability of the two sub studies.[731]

In addition to the online version of the questionnaire, a paper version in portable document format (pdf) was produced. To avoid systematic distortions with regard to the answering channel, the structure of this paper-based questionnaire parallels that of the online version with a few exceptions. Specifically, interactive elements such as sanity checks and item rotation are not feasible in a print survey instrument.

6.2.3.2 Design of the e-mail correspondence

The design of the e-mail correspondence inviting the survey participants follows the same logic as the questionnaire design, with a focus on reducing non-response especially with regard to *enabling* and *attraction*[732].

With regard to *enabling*, the e-mail contained a personalized link to the online survey instrument that has been tested previously for proper functionality in different e-mail software environments. For users who prefer paper-based work to using a web interface, the e-mail contains an attached pdf file as described above. This paper version is introduced in the e-mail as a last sentence below the central text body[733].

To attract the interest of the participant, the same principles as described in the questionnaire design section are applied. As such, the e-mail begins with a personal greeting including the name of the participant.[734] This approach follows

[730] Refer to the appendix of this document.
[731] As mentioned in section 5.2.4, statistical procedures are applied to assess comparability of the sub samples used in group comparisons.
[732] Refer to the previous section.
[733] Refer to the e-mail correspondence provided in the appendix of this document.
[734] For some of the participants, this information is missing, so that an impersonal greeting has to be chosen.

Diamantopoulos and Schlegelmilch (1996), who report the highly significant positive effect of a personal greeting.[735] In order to build participant trust, as in the questionnaire starting page, confidential treatment of the data is assured and the scientific institution behind the research project is introduced. Following this, the letter is signed by both the researcher responsible and the supervising professor sign the letter. The body of the invitation text is designed to address all three types of motivation found important by Diamantopoulos and Schlegelmilch (1996): *egoistic appeal*, e.g., through the emphasis of the respondent's expertise and through offering an evaluation of the results, *social utility appeal* through underlining the scientific importance of the research project. The *altruistic appeal* becomes important in subsequent reminder e-mails. Here, a personal statement is made highlighting the need for support in order to achieve a personal research degree.[736] Finally, as elaborated in the previous section, the length of a questionnaire seems to be an obstacle for respondents. Hence, a statement is made in the body of the e-mail that the questionnaire will be manageable within approximately ten minutes.

According to the structure of this research, two different sets of cover letters are required, one for the PV and one for the PR industries. With respect to the content, the letters are equal. The appendix lists all correspondence used in this research.

6.2.4 Survey execution

6.2.4.1 Survey process

As a first step in the survey process, a pre-test was conducted.[737] Following Hunt, Sparkman Jr., and Wilcox (1982), this pre-test not only contained the scales to be used in the main study, but rather resembled a test run of the full survey, i.e., the full questionnaire was tested against all aspects discussed above.[738] The pre-test was executed as described in section 5.3.1.2, partly based on face-to-face interviews, partly via telephone. It included both the completion of the questionnaire and verbal feedback on the layout, phrasing, etc. The pre-test took place in February, 2007 before the beginning of the main survey.

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[735] Diamantopoulos and Schlegelmilch (1996), p. 515.
[736] For the relevance of the appeal types, refer to Diamantopoulos and Schlegelmilch (1996), p. 519. Refer to the appendix for the different types of e-mail correspondence.
[737] Refer to section 5.3.1.2.
[738] Cf. Hunt et al. (1982), p. 270.

The main survey was conducted during the period from March 2 to June 27, 2007. As a first step, the PR questionnaire was made available and promoted in the PR community through the online resources listed in section 6.2.1. In a second wave, the personalized e-mails were sent out to the decision makers described earlier. As the literature unequivocally underlines the positive effects of reminder correspondence, two reminder e-mails were sent out after two weeks and after another five weeks.[739] On June 27, 2007, the web interface was closed with a remark posted that the survey had ended.

6.2.4.2 Responses

In total, 6,887 invitations had been sent out to potential survey participants, 1,965 to PV and 4,922 to PR purchasing decision makers. Thereof, 1,178 participants responded to the survey, yielding an average response rate of 17.1%.[740] This gross response rate is very similar across the two industries, with 16.7% (328 responses) in the PV industry and 17.3% (850 responses) in the PR industry. Such a response rate seems to be well in the range of other surveys focusing on new ventures.[741]

However, a large portion of the participants did not produce valid responses: as mentioned in section 6.1, a participant had to be familiar with at least one of 12 resp. 13 firms offered in the list at the beginning of the survey. Moreover, to be able to furnish all the data requested, the rater needed some detailed knowledge of the firm in question. Accordingly, a large proportion of the responses could not be evaluated. The sample has therefore been further adjusted based on three considerations: drop-out (unit non-response), missing values (item non-response), and assessment of the rater type with regard to his or her role as a decision maker.

Drop-out (unit non-response). Due to the requirement of familiarity with the rated firm to answer the survey, several participants either quit after the page listing the firms in the focus of this research or continued but quit at a later stage. In accordance with the limit for missing values per response identified in the following paragraph, responses were excluded that resulted from a rater dropping out before having provided a valid

[739] Cf., e.g., Diamantopoulos and Schlegelmilch (1996), p. 521, or, more specifically for online surveys, Porter and Whitcomb (2003), p. 587, Granello and Wheaton (2004), p. 390, Grandcolas et al. (2003), p. 545, or Dillman, Smyth, Christian, and Stern (2003), pp. 13-14.

[740] This figure does not include participants that visited the starting page but never started the survey.

[741] For example, Rothe (Forthcoming) reports 22% in her sample (p. 207), Brinckmann (Forthcoming) reports 18% (p. 194), Wolff (2008) reports 13% (p. 223).

answer for at least 60% of the relevant items. In the PV sub sample, this applied to 139 responses and in the PR sub sample to 683. The large difference between the two industry sub samples confirms the expectation expressed in section 6.1, since the firms offered in the PV questionnaire covered a much larger share of the total market than the PR firms in their industry. While the drop-out rate in the present study is certainly high, especially compared with other studies, this is not surprising due to the focus of the survey on only a limited set of vendors and the comparably specific survey questions.

Missing values. For the same reasons as mentioned above, some respondents could not provide answers for more than 60% of the items, even though they completed the questionnaire. The literature suggests several different approaches to deal with such responses.[742] The simplest way to deal with missing values is called *list wise deletion*, i.e., the exclusion of any response containing at least one missing value from the analysis. Roth and Switzer III (1995) note that this approach is not advisable, because it substantially reduces the size of the realized sample and at the same time leads to the greatest dispersion among all approaches tested, based on their simulation.[743] In this research, the compromise solution developed in Hiddemann (2007) is applied.[744] Missing values are, hence, handled in two steps. First, all responses with missing values for a share of 40% or more of the relevant items are excluded from the analysis.[745] Second, for the remaining missing values in the sample – less than two percent of all data points –, the *expectation maximization* (EM) algorithm is applied.[746] The EM algorithm, an iterative two-step algorithm for the estimation of missing values, was first presented by Dempster, Laird, and Rubin (1977).[747] Due to the simplicity of its underlying theory and its broad applicability, the algorithm has found wide acceptance since its first publication.[748]

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[742] Cf., e.g., Roth and Switzer III (1995) for a comprehensive list and explanation of such approaches.
[743] Cf. Roth and Switzer III (1995), p. 1005.
[744] Cf. Hiddemann (2007), p. 91.
[745] In the sample underlying this work, this approach led to further exclusion of two responses from the PV sub sample and three from the PR sub sample. Other authors argue for stricter limits, e.g., Roth and Switzer III (1995), who propose to cut off at a 30% threshold (pp. 1009-1010). The sample discussed here contains only 6 responses with more than 30 and less than 40% missing values.
[746] Refer to the relevant literature for a comprehensive review of possible approaches, e.g., Roth and Switzer III (1995). In the present study, the EM algorithm was applied using the Missing Value Analysis Module of the Statistical Package for Social Sciences (SPSS), version 15.0, using default settings.
[747] Cf. Dempster et al. (1977), pp. 1ff.
[748] Cf. Decker, Wagner, and Temme (2000), p. 93, Dempster et al. (1977), pp. 1ff.

Decision maker as rater. It was argued earlier that this research is focused on professional buyers in the sense that the rater should have significant influence on a purchasing decision in the relevant industry with regard to the product offered by the supplier. Despite the fact that the participants were selected based on that rationale, the questionnaire contained an item asking each rater for a self-assessment with respect to that classification. 17 respondents from the PV and 27 from the PR sub sample did not explicitly specify their compliance with that prerequisite, so their responses were excluded from the analysis.

After these corrective steps, the resulting sample of valid responses from the personalized e-mail survey contains 307 entries in total, 170 from the PV and 137 from the PR industry.

This sample is complemented by an additional 85 valid responses contributed by users of the respective industry portals, 79 from PR portals and 6 from PV portals. These valid responses remained after applying the same correction procedure as explained above. Next to the broader promotion, the difference between the numbers of additional responses for the two industries seems to be to a large degree driven by the more active internet usage of PR professionals compared with PV buyers.

In summary, a total sample of 392 valid responses builds the foundation of the empirical analysis of this work. Table 33 gives an overview of the structure of the resulting sample.

	PV industry	**PR industry**	**Total**
NEVs	82	88	**170**
Established firms	94	128	**222**
Total	**176**	**216**	**392**

Table 33: Structure of the final data sample[749]

With regard to the timing of the responses, it is evident that sending out the two reminder e-mails was an effective and necessary means of improving the response rate. As obvious from Figure 11, each of the mailings yielded a slightly lower contribution than the previous one, with the initial invitation leading to 44% of the valid responses, the first reminder e-mail yielding 32%, and the second and final reminder contributing the remaining 24%.

[749] Own analysis.

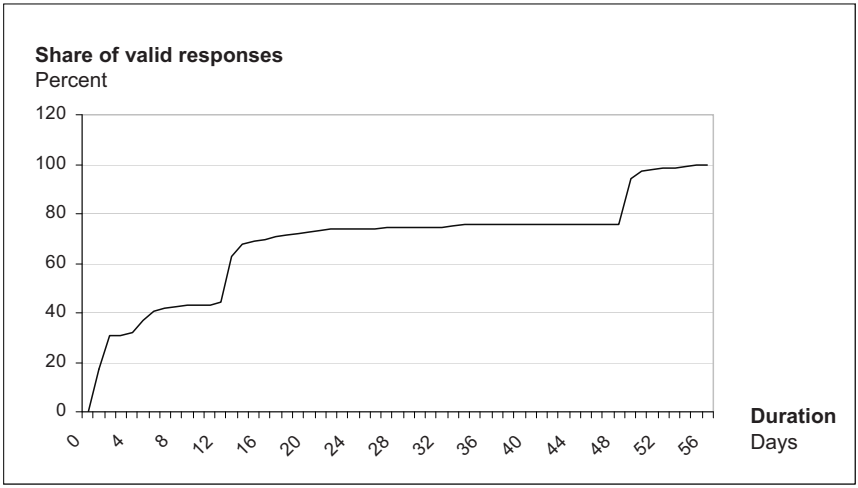

Figure 11: Response inflow after initial e-mail and subsequent reminders[750]

6.3 Assessment of the data sample

In order to draw conclusions from the sample used, it is necessary to assess its representativeness with regard to the universe described in section 6.1. For that purpose, the industry sub samples are analyzed for systematic distortions along several dimensions. In the following paragraphs, tests for *non-response*, *common-method*, *informant*, and *channel biases* are explained followed by a presentation of the results in this research. Finally, the samples are analyzed with regard to the congruency of their internal *distributions of key attributes* with known data describing the two industries.

Non-response bias. A non-response bias refers to a systematic distortion of the realized sample due to the exclusion of the responses from non-responding participants. According to Couper (2000), the error due to non-response is *"a function of both the rate of nonresponse and of the differences between respondents and nonrespondents on the variables of interest."*[751] Section 6.2.4.2 has shown that the response rate and, thus, the rate of non-response are within the range typical for similar

[750] Own analysis.
[751] Couper (2000), p. 473.

research settings. The second influencing factor of a non-response bias, however, is difficult to assess, as the characteristics of the missing responses are unknown. Armstrong and Overton (1977), therefore, suggest comparing early and late responses available in the sample, building on the assumptions that late respondents exhibit a similar response pattern as non-respondents (would).[752] To apply such a test to the sample used in this research, accordingly, both industry sub samples are split into early and late responses.[753] A comparison of the early and late response groups gives no indication of a non-response bias. Based on a Mann-Whitney-U[754] test at 5% significance level[755], both in the PR and in the PV sub samples, only 2% of the indicators relevant for the empirical analysis proved to be significantly different in their distributions.

Common-method bias. The common-method bias refers to *"variance that is attributable to the measurement method rather than to the constructs the measures represent."*[756] The underlying issue is that responses could be influenced by contextual factors and, as a result, fail to represent the respondents' true opinions. To test for such a common-method bias, this research follows Podsakoff and Organ (1986) who note that a common-method bias in a sample can be examined using Harman's one-factor test. This test is based on an exploratory factor analysis across the indicators of a survey. If the analysis finds more than one factor with an Eigen value greater than 1.0 and the first factor does not account for the majority of the inter-item covariance, the presence of a common-method bias is unlikely.[757] Both conditions hold in the present study, so that a common-method bias does not seem to be an issue in this context.[758]

Informant bias. An informant bias can occur, if different types of raters also differ in their response pattern. This could be the case, for example, due to the influence of a rater's hierarchical position on his perceptions with regard to the survey topic.[759] Again, such a bias would be a function of the difference in the response pattern and the

[752] Cf. Armstrong and Overton (1977), p. 401.
[753] The differentiating value is the median of the response date. Due to the nature of the non-response error, this test can only be applied to the part of the sample that is based on an e-mail invitation. Cf. Grandcolas et al. (2003), p. 545.
[754] This test, as well as the following bias tests are conducted using SPSS 15.0.
[755] This threshold level of significance is also applied to all subsequent tests.
[756] Podsakoff, MacKenzie, Jeong-Yeon, and Podsakoff (2003), p. 879.
[757] Podsakoff and Organ (1986), p. 536.
[758] The analysis leads to ten factors with Eigen values greater than 1.0. The first two factors account for less than half of the total variance.
[759] Bagozzi et al. (1991), pp. 423-424.

degree, to which the sample is skewed towards either type of rater. The ideal test for an informant bias is to compare answers from different groups of informants. For the present sample, such a direct test is not feasible, as it would require responses from raters of different hierarchical levels within one firm.[760] However, it is possible to apply a similar group comparison. Hiddemann (2007) compares responses across the sample given by respondents from different hierarchical levels.[761] In the present research, information on the raters' tenure in their respective firms is available. Paralleling Hiddemann's approach, a Mann-Whitney-U test is conducted comparing the responses from high-tenured raters with those of low-tenured ones. The test indicates significant differences for only 4% (PV) resp. 6% (PR) of the indicators of interest. Accordingly, it is assumed that no informant bias is present in the sample.

Channel bias. Another potential source of distortions could be the response mode. The main error source one could expect is between responses based on the invitation e-mail and those based on the less formal invitation in the environment of an online portal. Therefore, the same analysis is conducted with the data of this sample, differentiating between responses gathered through either of the two channels. While the test leads to excellent results for the PV sub sample (2% significant differences), it indicates that 21% of the indicators in the PR sub sample exhibit significantly different distributions. While there is no generally accepted threshold for these differences to be critical, Kessell (2007) finds differences for as much as 30% of the indicators acceptable. Accordingly, a potential channel bias can be ruled out for the present sample.[762]

Other potential sources of a bias. With respect to representativeness, other sources of errors could be rooted in systematic structural distortions between the basic population and the final sample. However, as von der Lippe and Kladroba (2002) note, the distribution of relevant attributes is often not known for the basic population. The authors therefore suggest finding alternative proxies.[763] With regard to the present study, a sound description of the basic population of purchasing decision makers in the two industries analyzed here is not available to the author's knowledge. However, some related data allows comparison with the sample structure and can serve as a best-effort assessment of representativeness. The following paragraphs will lead through the different comparisons conducted for the two industry sub samples.

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[760] Cf. Ernst (2003), pp. 1251-1252.
[761] Cf. Hiddemann (2007), p. 89.
[762] Cf. Kessell (2007), p. 122.
[763] Cf. von der Lippe and Kladroba (2002), p. 139.

Distribution of the PR sample. Key aspects of the respondent structure of the PR sample are the distribution across *industries* and across *regions* as well as *personal characteristics* of the decision makers. As mentioned above, there is no data source providing certainty on the description of the basic population. However, three comparisons can function as proxies:

1. *Regional distribution*. The "Taschenbuch Wirtschaftspresse" as the most comprehensive directory of press and corporate communications contacts that also served as the basis for the sample generation in this research contains information about the regional distribution of the firms listed.[764] By courtesy of the publisher, most up-to-date data is available for comparison. That way, the regional distribution of the sample data can be compared with the Kroll data as a proxy. A second source can be the web database of the Berlin-based "Bundesverband Deutscher Pressesprecher" (German association of Press Spokespersons, BdP). It offers information on the regional distribution of its members. A comparison of the present sample with the two sets of data enables the confident assertion to be made that there is no region bias present in the sample. Comparison shows that the largest deviation from the Kroll data is approximately three percentage points. With regard to the data on press spokespeople, there is a larger deviation; however, this is most likely driven by the (capital) Berlin focus that one would expect for an association pursuing representation of interests.

[764] Cf. Kroll (2006).

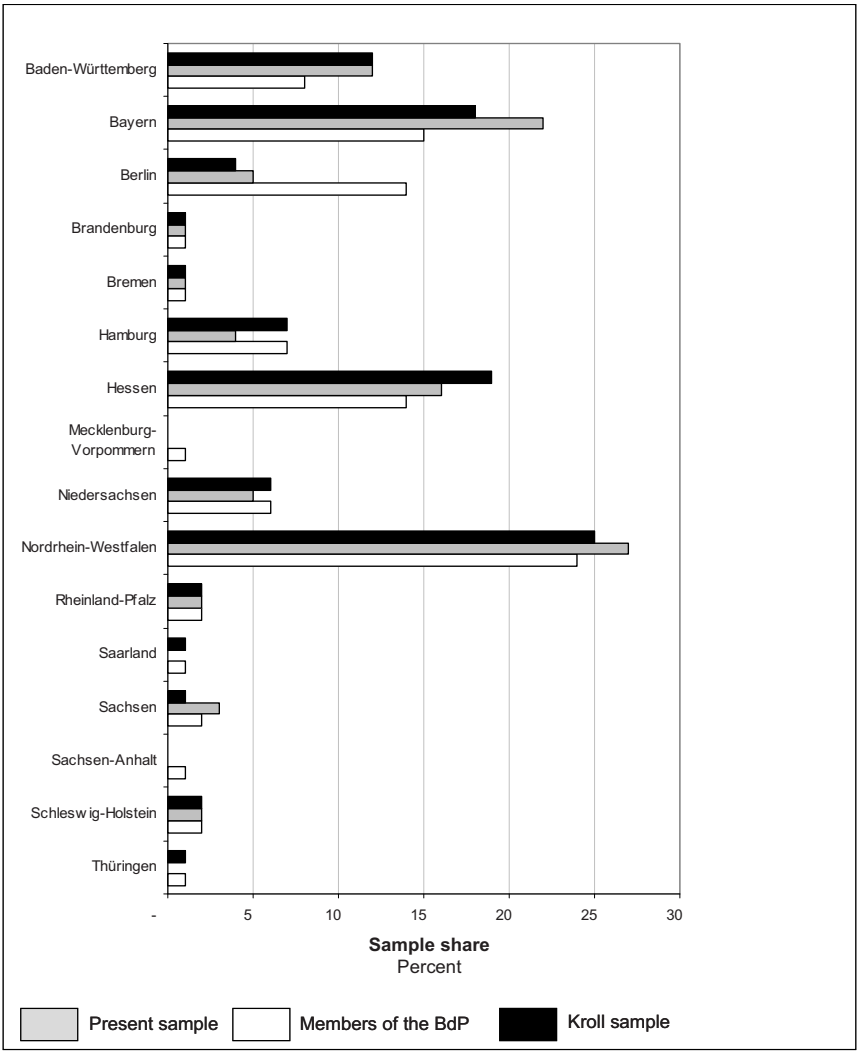


Figure 12: PR sample – regional distribution compared with basic population[765]

2. *Size of the respondent firms*. Bentele, Großkurth, and Seidenglanz (2005) have conducted some large-scale research among press spokespersons and other

[765] Own illustration based on own analysis as well as data from Kroll (2006) and N.N. (2007f).

personnel with corporate communications responsibilities. While not describing the universe of this population, the data can serve as a benchmark for the assessment of the sample used in this research. As evident from Figure 13, the data in the present sample exhibits a high degree of congruency with the data published by Bentele et al. (2005). As such, a bias in that respect is highly unlikely.

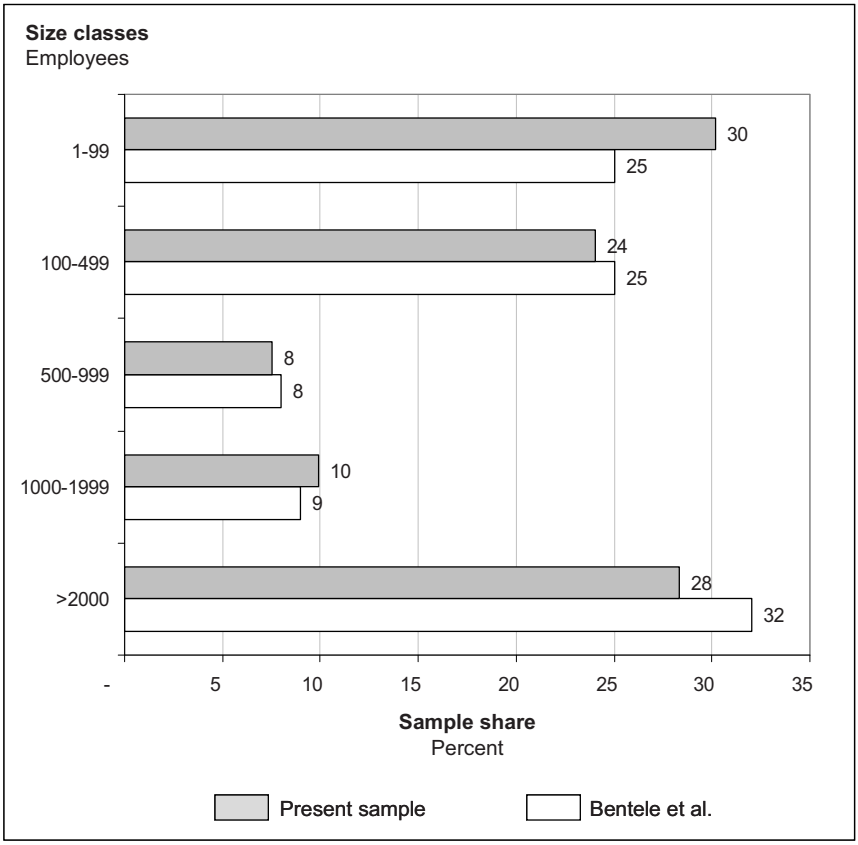


Figure 13: PR sample – firm size distribution compared with Bentele et al.[766]

3. *Age of the respondents*. The same data source also reports an average age of the respondents of approximately 40 years.[767] Both mean and median respondent

[766] Own illustration based on own analysis as well as data fromBentele et al. (2005), p. 27.

age in the present survey are 40 years as well, which gives further confidence in the sample representativeness.

Unfortunately, there is no data source specifying a distribution of PR-buying firms across industries. Figure 14 shows the distribution of this work's sample across industries. It is evident from the chart that IT and telecommunications are by far the largest category. However, this is not surprising, because, according to a survey about the distribution of PR service *revenues* recently published by the German Public Relations Society (Deutsche Public Relations Gesellschaft, DPRG), IT/telecommunications is also by far the largest customer industry for PR services.[768]

Nevertheless, it cannot be said with certainty that the sample is not distorted by an extraordinarily high share of IT and telecommunications firms among the respondents. If survey participants belonging to this industry exhibited a significantly different response pattern than respondents from other industries, the sample would be biased. To test for such a bias, a Mann-Whitney-U test is applied as for the previous bias tests described above. This test yields significant distributional differences for 23% of the indicators tested. Applying the threshold of 30% discussed earlier, a bias can thus be ruled out.

[767] Cf. Bentele et al. (2005), p. 27.
[768] Cf. N.N. (2005b), p. 4.

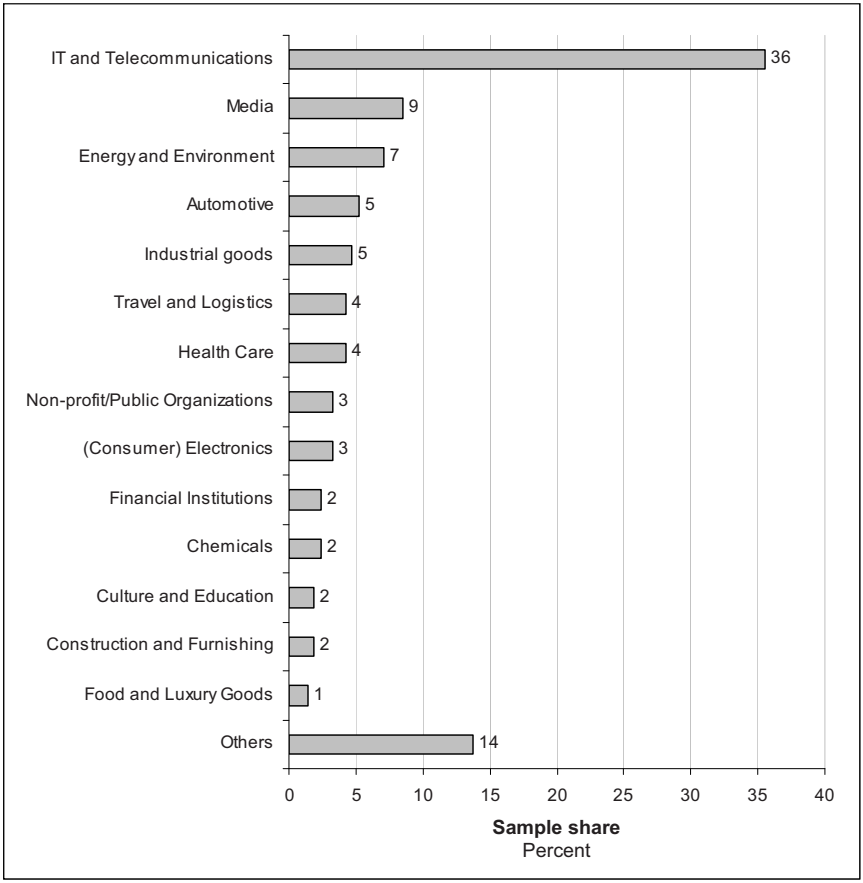


Figure 14: PR sample – distribution across industries[769]

Distribution of the PV sample. With regard to the PV sub sample, the assessment of distribution biases is more difficult. An additional complication is the necessary inclusion of different types of buying firms in the sample. According to one of the leading information services in the industry, the required data is nonexistent and could only be generated through an enormous effort.[770] The best available proxy is data on firms classified as construction installation firms ("Bauinstallationsbetriebe") by the

[769] Own illustration based on sample data.
[770] This insight is based on an interview with a representative of the respective information service.

German Federal Statistical Office[771], since such firms resemble the majority of the respondents in the present study (Figure 15).

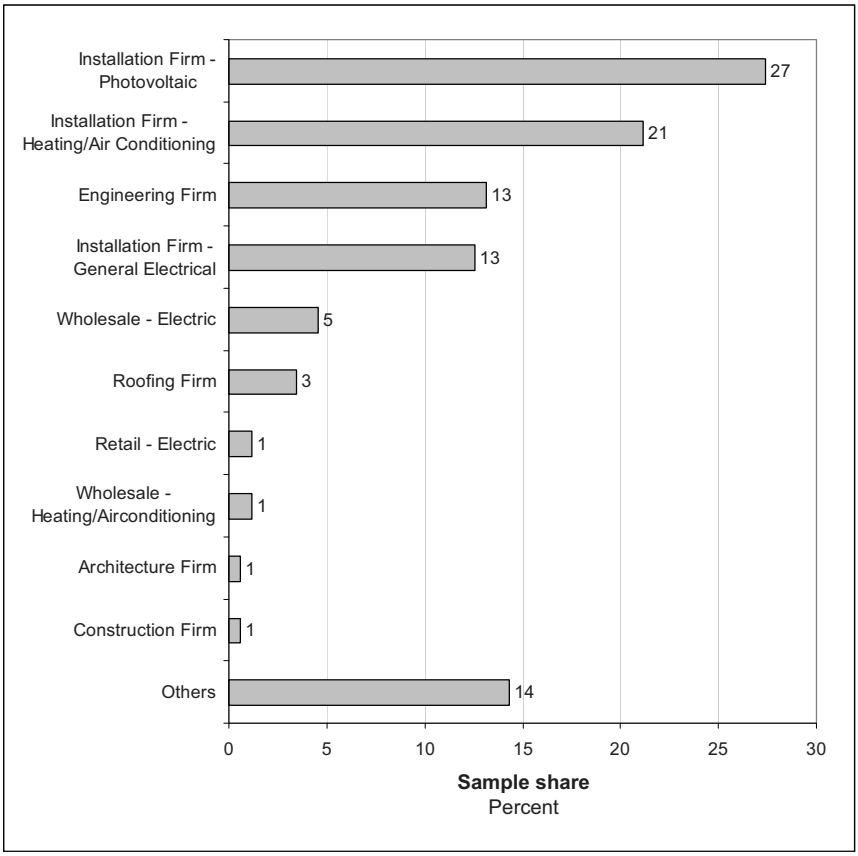


Figure 15: PV sample – firm type distribution[772]

The official statistical report contains data on the regional distribution across Germany. Based on the minimal differences between the sample distribution and the official statistical data, a systematic distortion seems highly unlikely.

[771] Cf. N.N. (2007e).
[772] Own illustration based on sample data.

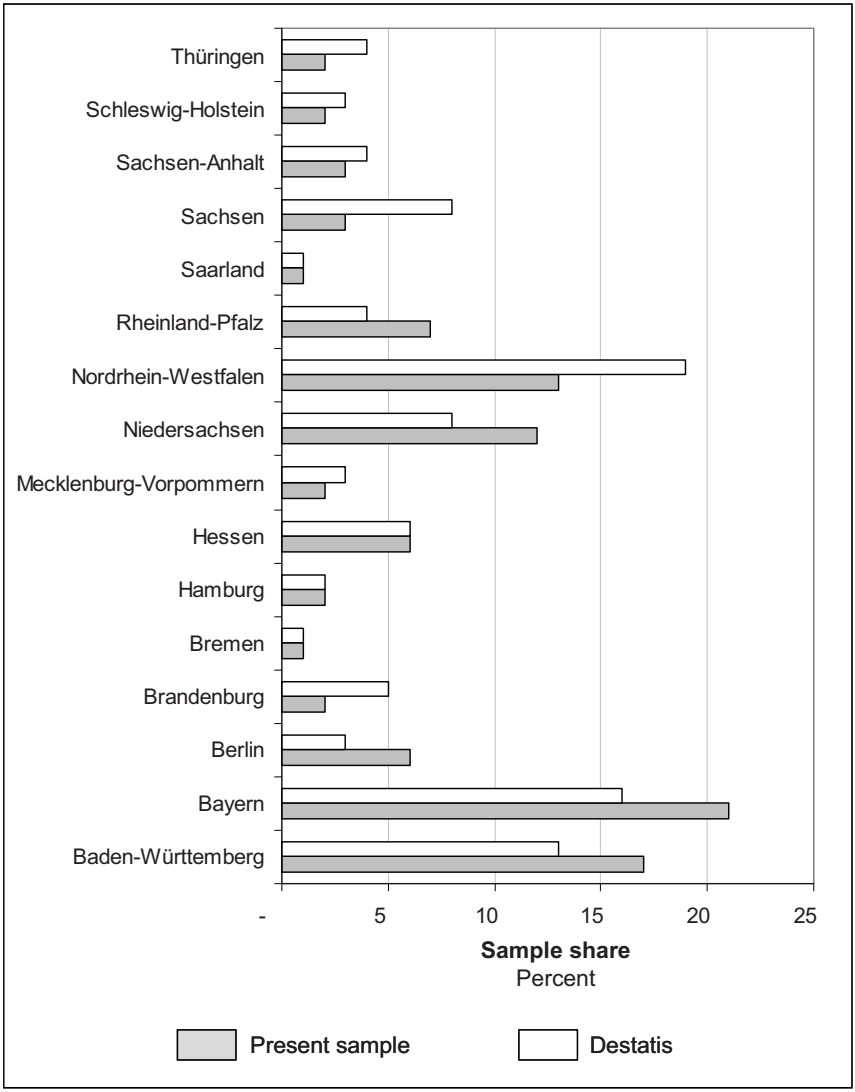


Figure 16: PV sample – regional distribution of respondent firms compared with Destatis data[773]

To summarize, the previous paragraphs have shown that the threat of systematic biases in the data used in this research seems to be very limited, which allows broad generalization of the findings from this specific research setting. However, as already

[773] Own illustration based on sample data and data N.N. (2007c), p. 5/4.

mentioned earlier, the sampling method applied does lead to a structural distortion with regard to the share of responses on NEVs versus established firms. Moreover, the sample contains arbitrary shares of responses from the two industries included. These distortions, however, are anticipated since they are direct consequences of the research design[774] and can be addressed during the group comparisons to be conducted in section 0.

In addition, the appendix contains further secondary descriptive statistics and charts on the research sample for the interested reader.

[774] Refer to section 6.1.

7 Empirical analysis

After the necessary description of preparatory decisions and the collection and characteristics, the present chapter deals with the actual empirical analysis of the research model defined and operationalized in chapter 4, the core of this dissertation.

The chapter begins with an assessment of the statistical quality (section 7.1), a necessary precondition for the evaluation of the hypothesis tests in section 0.

7.1 Assessment of the measurement models

The assessment of statistical quality is conducted on two levels: assessment of the individual measurement models in the main model and the assessment of the comparability of the measures across sub samples, which is a necessary precondition for group comparisons to be conducted later in this chapter.

7.1.1 Main model

As a first step in the quality assessment, the adequacy of the scale ranges used in the survey is analyzed. Table 34 gives an overview of the scales, the means and standard deviations of the variable values and the scale ranges used by the respondents. As evident from the overview, the scales have allowed for sufficient differentiation and the full breadth of response options has been deployed. Two scales, however, local proximity and personal relationship, are characterized by relatively low arithmetic means and high standard deviations compared with the other scales.

Next, reliability and validity of the measurement models need to be assessed. As described in section 5.2, the required analyses differ substantially between reflective and formative constructs. Therefore, the analysis will be conducted in two steps, beginning with an assessment of the reflective constructs, followed by the formative measures.

Variables	Number of items	Mean	Standard deviation	Minimum	Maximum
Purchase intention	3	4.24	1.84	1	7
Trust	6	4.51	1.30	1	7
Perceived risk	4	4.08	1.71	1	7
Benevolence	3	4.59	1.52	1	7
Integrity	4	4.90	1.39	1	7
Ability	5	5.18	1.30	1	7
Trusting disposition	2	3.89	1.36	1	7
Reputation	4	4.47	1.22	1	7
Risk mitigation instruments	5	3.81	1.12	1	7
Social similarity	3	3.71	1.42	1	7
Local proximity	1	2.54	2.10	1	7
Personal relationship	2	1.80	1.53	1	7
Institutional embeddedness	4	4.72	1.19	1	7
External references	3	5.00	1.36	1	7

Table 34: Descriptive statistics of the measurement scales[775]

7.1.1.1 Assessment of reflective construct quality

According to the approach described in section 5.2.2.1, the assessment will be made along the criteria of the *factor loading*, *Cronbach's alpha*, *internal consistency*, and the *average variance extracted* to ensure reliability and *discriminant validity on the item level* and *on the construct level* for sufficient validity.

One construct deserves special attention with regard to quality assessment: trustworthiness. It was specified as a molar second-order construct of ability, benevolence, and integrity. With the first-order constructs all specified as reflective constructs, the preconditions for the application of the hierarchical component model as described in section 5.1.4.2 are met. Accordingly, the measurement model of trustworthiness consists of the twelve indicators of its sub constructs and is treated as a reflective construct.

Reliability assessment. With regard to the factor loadings on the respective constructs, the critical threshold level of 0.5 is applied as argued in section 5.2.2.1. Two out of the 37 reflective indicators fail to meet that requirement and are consequently eliminated to ensure sufficient item reliability; they are: the fourth indicator of the risk construct (RIS4) as well as the third item of the trusting disposition scale (DIS3). All other

[775] Own analysis.

indicators yield satisfactory correlations with their respective constructs. Refer to Table 35 for more detailed information on the indicator loadings.

Reflective constructs	Indicators	Loadings
Purchase intention	PIN1	0.91
	PIN2	0.95
	PIN3	0.96
Trust	TRU1	0.86
	TRU2	0.70
	TRU3	0.94
	TRU4	0.87
	TRU5	0.90
	TRU6	0.91
Perceived risk	RIS1	0.56
	RIS2	0.99
	RIS3	Eliminated
	RIS4	Eliminated
Trustworthiness	INT1	0.90
	INT2	0.88
	INT3	0.86
	INT4	0.89
	ABI1	0.83
	ABI2	0.87
	ABI3	0.89
	ABI4	0.83
	ABI5	0.85
	BEN1	0.84
	BEN2	0.78
	BEN3	0.83
Trusting disposition	DIS1	0.93
	DIS2	0.86
	DIS3	Eliminated
Reputation	REP1	0.89
	REP2	0.87
	REP3	Eliminated
	REP4	0.91
	REP5	0.73
Social similarity	SIM1	0.92
	SIM2	0.94
	SIM3	0.93
Personal relationship	REL1	0.95
	REL2	0.93

Table 35: Overview of indicator loadings – reflective measures[776, 777]

[776] Own analysis.

[777] Two additional items are eliminated from their respective measurement models, due to lack of discriminant validity. Refer to the discussion below for details.

The values for Cronbach's alpha, composite reliability, and average variance extracted indicate a high degree of reliability also on the construct level. As evident from Table 36, all respective figures are well beyond the threshold levels of 0.7 for coefficient alpha and internal consistency as well as 0.5 for AVE, respectively. The constructs trusting disposition and perceived risk achieve the lowest scores with regard to the above quality criteria, these are also the constructs most severely affected by indicator elimination during.

Reflective constructs	Cronbach's alpha	Composite reliability	AVE
Purchase intention	0.93	0.96	0.88
Trust	0.93	0.95	0.75
Perceived risk	0.75	0.78	0.66
Trustworthiness	0.97	0.97	0.73
Trusting disposition	0.76	0.89	0.80
Reputation	0.87	0.91	0.73
Social similarity	0.92	0.95	0.87
Personal relationship	0.87	0.94	0.88

Table 36: Construct-level reliability assessment – reflective measures[778]

Validity assessment. For that assessment, the Fornell-Larcker criterion is applied. Comparing the AVEs of each reflective construct with the squared correlation with all other constructs shows that – despite some strong correlations between the closely related trust constructs – discriminant validity is not an issue in the present study. Table 37 gives an overview of the data and shows that the square root of AVE is larger than the correlation with all other constructs for each of the reflective constructs. It is noteworthy that the comparably high levels of correlation between trust and its direct antecedents resemble a typical pattern, which is due to the close conceptual relation between the constructs. Refer to Mayer and Davis (1999), who find similar correlations, for a broader discussion.[779]

[778] Own analysis.
[779] Cf. Mayer and Davis (1999), p. 134.

Construct		1	2	3	4	5	6	7	8	9	10	11	12
1	**External references**	N/a											
2	**Institutional embeddedness**	0.70	N/a										
3	**Local proximity**	0.23	0.26	N/a									
4	**Perceived risk**	-0.03	-0.01	-0.03	0.81								
5	**Purchase intention**	0.26	0.30	0.03	0.08	0.94							
6	**Personal relationship**	0.24	0.26	0.16	-0.04	0.23	0.94						
7	**Reputation**	0.56	0.56	0.14	-0.04	0.48	0.29	0.85					
8	**Risk mitigation instruments**	0.27	0.36	0.15	-0.07	0.29	0.13	0.46	N/a				
9	**Similarity**	0.24	0.31	0.16	-0.03	0.44	0.31	0.46	0.47	0.93			
10	**Trust**	0.52	0.54	0.22	-0.01	0.60	0.35	0.71	0.42	0.51	0.87		
11	**Trusting disposition**	-0.02	-0.06	0.01	0.24	0.07	-0.06	-0.11	-0.06	-0.06	-0.07	0.90	
12	**Trust-worthiness**	0.69	0.67	0.21	-0.03	0.51	0.31	0.74	0.46	0.47	0.84	-0.10	0.85

Table 37: Construct-level correlations and square root of AVE[780, 781]

To analyze item discriminant validity, an exploratory factor analysis is conducted. As described in section 5.2.2.1, it is safe to assume sufficient discriminant validity on the item level when each item exhibits higher correlation with its intended associated factor than with any other factor. In the present sample, two indicators (RIS3 and REP3) are excluded from further analysis since they fail to meet this requirement. However, a remaining potential issue is evident from the results depicted in Table 38. The items of the factors of trustworthiness load on two factors instead of three, with the *integrity* indicators loading on the *benevolence* or *ability* constructs.

[780] Own analysis.

[781] For reflective constructs, the correlation table depicts the square root of AVE on the diagonal. "N/a" indicates that this criterion is not applicable for formative or single-item constructs.

Constructs		Items	Factor loadings								
			1	2	3	5	6	7	8	9	10
1	Reputation	REP1	**0.71**	0.18	0.04	0.33	0.23	0.19	0.13	-0.15	-0.02
		REP2	**0.67**	0.05	0.17	0.34	0.38	0.10	0.11	-0.12	-0.03
		REP4	**0.75**	0.18	0.06	0.30	0.29	0.16	0.16	-0.06	-0.05
		REP5	**0.66**	0.18	0.04	0.27	0.06	0.21	0.19	0.16	-0.04
2	Social similarity	SIM1	0.12	**0.86**	0.13	0.18	0.09	0.12	0.17	-0.01	-0.02
		SIM2	0.16	**0.85**	0.13	0.15	0.21	0.10	0.17	0.00	-0.01
		SIM3	0.13	**0.88**	0.05	0.14	0.16	0.13	0.15	-0.01	-0.03
3	Personal relationship	REL1	0.06	0.12	**0.89**	0.12	0.13	0.12	0.10	0.01	-0.01
		REL2	0.09	0.14	**0.91**	0.12	0.07	0.04	0.04	-0.05	-0.03
4	Integrity	INT1	0.28	0.16	0.06	**0.57**	0.55	0.21	0.17	-0.01	-0.06
		INT2	0.27	0.17	0.06	**0.64**	0.42	0.16	0.22	-0.07	-0.12
		INT3	0.28	0.23	0.05	0.50	**0.58**	0.17	0.16	0.01	-0.10
		INT4	0.27	0.14	0.04	**0.65**	0.44	0.17	0.23	-0.06	-0.09
5	Ability	ABI1	0.19	0.17	0.07	**0.77**	0.25	0.19	0.09	0.03	0.02
		ABI2	0.23	0.13	0.04	**0.79**	0.24	0.20	0.15	-0.05	0.01
		ABI3	0.18	0.12	0.08	**0.84**	0.23	0.21	0.18	-0.03	0.01
		ABI4	0.16	0.05	0.12	**0.86**	0.16	0.13	0.14	0.01	-0.01
		ABI5	0.16	0.10	0.09	**0.86**	0.16	0.16	0.17	-0.03	-0.01
6	Benevolence	BEN1	0.17	0.15	0.06	0.37	**0.79**	0.27	0.08	-0.06	-0.01
		BEN2	0.19	0.15	0.15	0.29	**0.78**	0.23	0.09	-0.02	-0.01
		BEN3	0.19	0.14	0.09	0.35	**0.81**	0.23	0.10	-0.01	-0.03
7	Trust	TRU1	0.23	0.13	0.14	0.49	0.26	**0.57**	0.21	-0.01	0.06
		TRU2	0.05	0.07	-0.09	0.35	0.26	**0.51**	0.34	-0.12	-0.02
		TRU3	0.28	0.21	0.14	0.39	0.40	**0.60**	0.23	0.00	-0.06
		TRU4	0.25	0.25	0.15	0.30	0.35	**0.60**	0.25	0.04	-0.07
		TRU5	0.28	0.16	0.14	0.34	0.35	**0.66**	0.20	0.01	-0.02
		TRU6	0.28	0.19	0.12	0.37	0.48	**0.55**	0.21	0.01	-0.03
8	Purchase intention	PIN1	0.12	0.16	0.02	0.28	0.09	0.18	**0.82**	0.03	0.04
		PIN2	0.21	0.18	0.12	0.19	0.15	0.17	**0.85**	0.04	0.03
		PIN3	0.12	0.19	0.06	0.20	0.11	0.16	**0.89**	0.03	0.06
9	Perceived risk	RIS1	-0.09	0.04	0.00	-0.06	-0.06	0.01	-0.02	**0.88**	0.11
		RIS2	0.02	-0.05	-0.03	0.00	0.00	-0.03	0.07	**0.88**	0.12
10	Trusting disposition	DIS1	-0.04	-0.02	-0.06	-0.06	0.05	-0.10	0.10	0.17	**0.87**
		DIS2	-0.03	-0.02	0.01	0.01	-0.12	0.06	-0.01	0.08	**0.90**
		Results of a principal-component-analysis with Varimax rotation and 9 factors									

Table 38: Item discriminant validity – results of the exploratory factor analysis[782]

It has been decided to keep all affected indicators in the analysis for three reasons. First, during the model estimation, the affected subcontract items are treated as items of the *trustworthiness* construct due to the application of the hierarchical component

[782] Own analysis.

model. The interest here is regarding the trustworthiness construct rather than the sub-constructs. Second, this decision follows several other authors, who apply the same logic in excellent publications.[783] Third, in the present analysis, as in the case of McKnight et al. (2002), the discriminant validity can be confirmed if other constructs are excluded from the analysis.

As described in section 5.2.2.1.2, a confirmatory factor analysis using AMOS is included in the quality assessment of the reflective constructs used in this study. The calculation of the associated fit quality measures was feasible for three of the reflective constructs, among them the two central constructs of this work. Table 39 summarizes the evaluation of the reflective constructs tested in AMOS. As evident from the table, the evaluation leads to very satisfactory results. The central construct of trust is conform with even the strictest critical levels set forth in section 5.2.2.1.2. The construct of reputation performs almost as well, however, the χ^2/df score fails to meet the conservative limit, while still being far from the less conservative threshold level of five. Also for reputation, all other criteria are well within the defined limits. Only the multidimensional construct of trustworthiness exhibits some difficulties. Three measures, χ^2/df, RMSEA, and AGFI yield imperfect but acceptable results. Overall, these results provide additional confidence in the quality of the measurements used in this study.

	Requirement	Trust	Trustworthiness	Reputation
χ^2/df	≤ 3 (≤ 5)	2,17	3,84	3,18
RMSEA	≤ 0.08 (≤ 0.10)	0,06	0,09	0,08
GFI	≥ 0.9	0,98	0,91	0,99
AGFI	≥ 0.9	0,96	*0,87*	0,96
NFI	≥ 0.9	0,99	0,97	0,99
CFI	≥ 0.9	1,00	0,98	1,00

Table 39: Quality assessment for reflective measures based on CFA

[783] Cf., e.g., McKnight et al. (2002), p. 346, and Doney and Cannon (1997), p. 43, who find their two hypothesized trust dimensions unconfirmed, but keep all items as indicators of one overarching trust construct. Schoorman et al. (2007), as well, discuss the distinction between benevolence and integrity in the review of the concept and suggest further research on the effect of time on the prevalence of individual dimensions (p. 346).

7.1.1.2 Assessment of formative construct quality

As specified in section 5.2.2.2, formative constructs are assessed by their indicator weights and the respective levels of significance, furthermore, they are tested for multicollinearity using VIFs on the item level and condition indices on the construct level. As evident from the information in the following four tables, multicollinearity does not seem to be an issue. With regard to individual indicators, it can be seen that the VIF scores are all within the range of 1.23 to 2.44, that is, well below the critical limit of 10. On the construct level, condition indices between 10.51 and 15.22, which are also clearly below the limit of 30, dispel any further doubts concerning multicollinearity. Furthermore, the highest condition index is associated with the relative price/cost construct, which is a control variable rather than a construct central to the main model.

With regard to the item weights and their significance, overall results are very satisfying. However, the constructs exhibit some noticeable differences. While in the *external references* and the *relative price/costs* constructs all indicators have highly significant and substantial weights, the results are slightly different in the remaining two cases: the institutional embeddedness construct is mainly determined by two highly significant items, with the other two items being of lower importance, expressed in smaller weights that are not significant. Similarly, the *risk mitigation instruments* construct is determined by four highly significant items with comparable weights, with a fifth – insignificant – item of negative weight. All three indicators discussed are kept within their respective measurement models, since, due to their theoretical and practical relevance identified during the scale development phase, elimination would narrow the domain of the formative constructs.

Information concerning the construct *external references*		
Condition index		13,08
Information concerning the indicators of the construct		
Indicators	*Weights*	*VIFs*
x can refer to renowned customers	0,45***	2,21
x has renowned partners in the business community	0,5***	2,44
x's management has experience from previous positions with renowned companies	0,17***	1,70
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test		

Table 40: Information on the construct *external references*[784]

Information concerning the construct *institutional embeddedness*		
Condition index		12,93
Information concerning the indicators of the construct		
Indicators	*Weights*	*VIFs*
x's management has an excellent education track	0,72***	1,65
x can provide certifications of its (services/products) and processes (e.g., ISO9001, [CMS/TÜV-Siegel])	0,00	1,23
x is a member of important (industry) associations (e.g., [GPRA, DPRG/DGS, BSW, EPIA])	0,08	1,89
x has received considerable awards (e.g., [PR Report Awards, Deutscher PR-Preis/Testurteile])	0,35***	1,73
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test		

Table 41: Information on the construct *institutional embeddedness*[785]

Information concerning the construct *risk mitigation instruments*		
Condition index		10,51
Information concerning the indicators of the construct		
Indicators	*Weights*	*VIFs*
x provides warranties for the [services/products] offered	0,34***	1,27
x allows me to test the [services/products] offered before purchase	0,5***	1,52
x offers me the right to withdraw from a contract if I am not satisfied with the [service/product]	0,32***	1,66
x's business model includes [performance-related/quality-related] prices	0,35***	1,27
x is using insurances in order to protect business partners in transactions	-0,07	1,42
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test		

Table 42: Information on the construct *risk mitigation instruments*[786]

[784] Own analysis.
[785] Own analysis.

Information concerning the construct *relative price/cost*		
Condition index		15,22
Information concerning the indicators of the construct		
Indicators	*Weights*	VIFs
How would you assess x compared with their competitors regarding …		
… the price of the [services/products] offered?	0,31**	2,25
… the terms of sale?	0,28**	1,68
… the total costs?	0,55***	2,38
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test		

Table 43: Information on the construct *relative price/cost*[787]

7.1.2 Inter-group construct comparability

To answer the research questions at the core of this work, group comparisons of several sub samples are required. As outlined in section 5.2.4, such comparisons are only feasible, if 1) the number of indicator weights differing significantly between the groups is below 30%[788] and 2) the coefficients of congruence scores are at or above 0.90.

In the present study, these figures will be necessary for several group comparisons. The key comparisons are between the two industries and between the two groups of supplier firms with regard to their development stage. Finally, even though no hypotheses have been postulated in this respect, the sample also allows for comparing responses from customers, i.e., raters with purchasing experience with the rated supplier, with those from non-customers, i.e., raters assessing a firm without prior purchasing experience. The following paragraphs report the results of the comparability tests. Detailed tables on the indicator level can be found in the appendix.

Credence vs. experience industry. To be able to analyze the effects of industry-characteristics in detail, the present analysis will build on three group comparisons: responses from the PR industry will be compared with those from the PV industry for the full sample and for the NEV and established firms sub samples. A comparison of the indicator weights yields differences in 24% of the indicators used for the full sample, 15% in the NEV, and 22% in the established firms sub sample. All of these

[786] Own analysis.
[787] Own analysis.
[788] At a 10% level of significance, refer to section 5.2.4.

values are sufficiently below the critical level of 30% defined in section 5.2.4. Table 44 shows the results of the coefficient of congruence analysis. As evident from the table, trusting disposition and perceived risk need to be excluded from the full sample group comparison, since their coefficients of congruence are below the critical level of 0.9. Institutional embeddedness, as well, exhibits a coefficient of congruence slightly below 0.9 between the two industries in the NEV sub sample. However, the construct is kept in the analysis, because such differences have been anticipated due to the different relevance of institutional means in the two industries.[789]

	Coefficients of congruence for group comparisons						
	NEV vs. established firms			**PV vs. PR**			**Customers vs. non-customers**
Constructs	**Full sample**	**PV**	**PR**	**Full sample**	**NEVs**	**Established firms**	**Full sample**
Purchase intention	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Trust	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Perceived risk	*0.59*	0.97	0.99	*0.81*	0.94	1.00	*0.12*
Trustworthiness	1.00	0.99	1.00	1.00	1.00	1.00	1.00
Trusting disposition	0.95	1.00	0.99	*0.51*	0.99	0.99	1.00
Reputation	1.00	1.00	1.00	1.00	0.99	1.00	1.00
Risk mitigation instruments	0.97	0.99	0.97	0.93	0.93	0.94	0.99
Social similarity	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Local proximity	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Personal relationship	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Institutional Embeddedness	0.98	0.99	*0.86*	0.98	*0.84*	0.99	0.92
External References	1.00	1.00	1.00	1.00	1.00	1.00	0.99

Table 44: Group comparability – coefficients of congruence[790]

NEVs vs. established firms. Likewise, the comparison between NEVs and established firms will be made for the whole sample as well as for the two industry sub samples. The indicator weight comparison reveals 2% significant differences in the full sample,

[789] From a methodological point of view, this is also justified, since other authors find coefficient of congruence scores of much less than 0.9 acceptable. Cf. Teel and Verran (1991), p. 70. For the expected differences in the item loadings, refer to section 5.3.3.2.

[790] Own analysis.

22% percent for the credence industry sub sample, and 9% for the experience industry responses. Again, these results yield a high degree of comparability on the item level. With regard to the coefficient of congruence, perceived risk cannot be included in the full sample comparison and institutional embeddedness needs to be excluded from the analysis based on the PR sub sample, while the PV sub sample allows the inclusion of all constructs in the model.

Customers vs. non-customers. Due to the relatively small number of customer responses in the sample, the analysis for differences between responses of customers and non-customers can be done only in the full sample. Here, the share of indicators with significantly different weights is 24%, which is not a problem. However, the low coefficient of congruence excludes perceived risk from this analysis.

7.2 Assessment of the structural model

In this chapter, the sample data is analyzed using the PLS algorithm as described in section 5.1. First, the results for the main model are presented in section 7.2.1. Subsequently, section 7.2.2 evaluates potential moderating effects (credence vs. experience industry) and explores differences in the samples with regard to the development stages of the rated firms. Finally, in section 7.2.2.3, an opportunistic analysis of the available data evaluates potential differences between customers and non-customers.

7.2.1 Results of the main model estimation

For the evaluation of the main model, this section is structured as follows. First, the results for general criteria of model quality are reported and assessed. Then the research hypotheses are discussed along the model structure, beginning with the trust effect on purchase intentions, followed by the direct antecedents of trust and finally the drivers of trustworthiness. Subsequently, the model robustness is assessed through the inclusion of the control variables surveyed. Finally, the section closes with a summary of the empirical findings in the main model.

7.2.1.1 Determination and predictive relevance

To evaluate the determination and the model's predictive relevance, the coefficient of determination R^2 and the Stone-Geisser-Criterion Q^2 are estimated. Table 45 gives an overview of the results of the model estimation. As evident from the table, the model

achieves highly satisfying results. For the interpretation of these figures, one needs to keep in mind the fact that the model is only analyzing trust as one potential influencing factor of a purchase intention. Other factors such as the control variables price/cost, quality etc., and also factors not included in this analysis can be expected to have a substantial effect on a purchase decision. Based on these thoughts, the explanatory power of the model, as expressed in the R^2 score of 0.37 for the dependent variable purchase intention, can be considered to be very high.

With regard to the predictive relevance, the Q^2 value is the relevant test criterion. The score of 0.33 is well beyond the critical requirement to be non-negative. This justifies the conclusion that the hypothesized model has a strong predictive relevance (Table 45).

As evident from the table, the other two dependent variables, trust and trustworthiness, achieve equally strong R^2 and Q^2 scores.

Hypothesis	**Path**	**Full Sample (n=392)**	**Assessment**
HPI1	Trust --> Purchase intention	0.60 ***	Accept
HPI2	Perceived Risk --> (Trust --> Purchase intention)	-0.06	Reject
HTR1	Trustworthiness --> Trust	0.84 ***	Accept
HTR2	Trusting disposition --> Trust	0.01	Reject
HPR1	Reputation --> Trustworthiness	0.36 ***	Accept
HPR2	Risk mitigation instruments --> Trustworthiness	0.08 **	Accept
HCH1	Social similarity --> Trustworthiness	0.13 ***	Accept
HCH2	Local proximity --> Trustworthiness	0.01	Reject
HCH3	Personal relationship --> Trustworthiness	0.04 *	Reject
HIN1	Institutional embeddedness --> Trustworthiness	0.16 ***	Accept
HIN2	External references --> Trustworthiness	0.31 ***	Accept
Construct		**R^2**	**Q^2**
Trustworthiness		0.71	0.51
Trust		0.70	0.52
Purchase intention		0.36	0.32
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test			

Table 45: Results of the structural model estimation[791]

[791] Own analysis.

7.2.1.2 Results of the hypothesis tests

The core of the empirical analysis is the test of the hypotheses formulated in chapter 4. As described earlier, the results will be assessed based on the sign and the significance of the estimated path coefficients. The results of the hypothesis tests are summarized in Figure 17, which shows the model estimation results in graphical form.

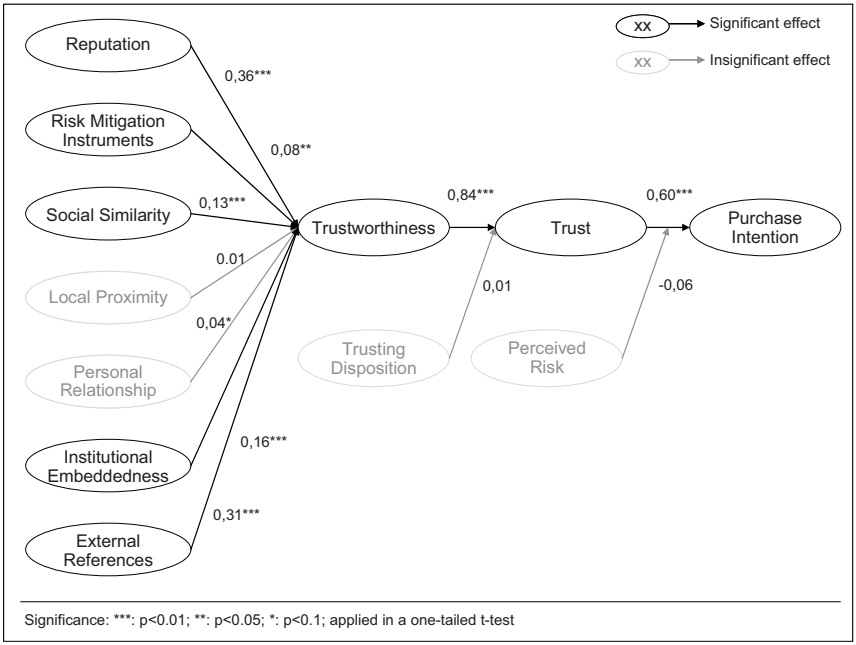


Figure 17: Graphical overview of the model estimation – full sample[792]

In addition, Table 45 gives an overview of these test results, listing the hypotheses, the respective path coefficients and the associated level of significance. As mentioned earlier, the assessment of significance in this work will assume a critical threshold of 5%.[793] As evident from the table, applying this significance criterion leads to the rejection of four out of the eleven hypotheses in the main model, while seven hypotheses receive substantial support from the data analyzed.

[792] Own illustration.
[793] Refer to section 5.2.3.

Two of the eleven research hypotheses in the main model proposed in this dissertation are concerned with the effect of trust on the purchase intention of a potential buyer. [794] As evident from the results table, only one of these is supported by the data in the sample. With a path coefficient of 0.6, trust seems to be an extremely relevant driver of a purchase intention, so that hypothesis HPI1 can be accepted. This result is supported by a high degree of significance. However, based on the estimation made here, the effect is not moderated by the perceived risk associated with such a purchase as hypothesized. The path coefficient of the interaction term of trust and perceived risk on purchase intention is not significant, moreover, the path coefficient is negative, further ruling out the hypothesized effect, so that hypothesis HPI2 is rejected.

With regard to the direct antecedents of trust, the analysis again yields a positive (HTR1) and a negative (HTR2) answer. The perception of trustworthiness, indeed, seems to be a highly important predictor of trust in a supplier: a path coefficient of 0.84 at a high degree of significance leaves no doubts. In contrast, the second expected antecedent of trust, trusting disposition, seems to have no influence on trust at all in the present analysis, with an insignificant path coefficient close to zero.

Turning to the drivers of trustworthiness, there are two hypotheses on process-based drivers. It is proposed in hypothesis HPR1 that a better reputation of a supplier led to greater levels of trustworthiness. Further, HPR2 formulates that suppliers who were perceived as offering risk mitigation instruments induced a perception of greater trustworthiness. The present analysis supports both hypotheses. As a matter of fact, reputation exhibits the largest path coefficient of all drivers analyzed (0.36), which is also highly significant at a level of 1%. The effect of risk mitigation instruments is smaller (0.08) but cannot be rejected based on the available data at the defined 5% level of critical significance.

Further, there are three hypotheses based on characteristics-based trust building. HCH1, HCH2, and HCH3 state positive effects of social similarity, local proximity, and a personal relationship, respectively. Of these hypotheses, HCH1 is supported by the present analysis, with a highly significant path coefficient of 0.13. The other two hypotheses have to be rejected, both exhibiting comparably small path coefficients (0.01 and 0.04, respectively). Furthermore, both path coefficients are insignificant at the critical level of 5%.

[794] Refer to section 4.1.1.

The two remaining hypotheses are based on institution-based trust building mechanisms. HIN1 describes a positive effect of institutional embeddedness on trustworthiness perceptions; HIN2 focuses on the less formal form of institutional background: external references. As Table 45 shows, both hypotheses can be accepted based on the results of the empirical analysis. HIN2 is supported through a strong path coefficient (0.31) at highest significance; the path coefficient associated with HIN1 is slightly lower (0.16) but equally significant.

7.2.1.3 Control variables

The positive results of the model estimation have to be seen in the light of other variables potentially contributing to the explanation of a purchase intention. As explained earlier, this study includes three variables commonly associated with professional purchasing decisions: the relative price/cost associated with the respective supplier, perceived quality, and delivery reliability. In order to control for the effect of these important variables, an alternative model is estimated incorporating these as control variables.

Such an alternative model contains three additional paths from the three control variables to the dependent variable of purchase intention. The PLS output for this rival controlled model yields the following results: the only significant positive effect on purchase intention in addition to the trust effect can be attributed to the relative price/cost. Here, the path coefficient is 0.23 and highly significant. The effect of quality is small (0.09) and insignificant; delivery reliability even seems to have a significant negative impact on purchase intentions (-0.25). Through controlling for these additional variables, the still highly significant path coefficient between trust and purchase intention is lowered marginally to 0.59 compared with 0.60 in the basic model without control variables. At the same time, R^2 and Q^2 are slightly improved to 0.43 and 0.38, respectively, underlining the additional explanatory and predictive power of the inclusion of further variables.

7.2.1.4 Interim summary

In summary, the hypothesized model receives support from the survey data on a broad basis:

- The R^2 and Q^2 values attest high explanatory and predictive power of the model on the level of all three dependent variables.

- With seven out of eleven hypotheses, the majority of the propositions made in this work are supported by the sample at a high degree of significance.
- Trust is confirmed as a primary driver of purchase intentions. Even controlling for other typical variables still points to trust as the most important factor.
- With regard to the trust building modes, influencing factors from all three modes are found relevant.

While these results achieve the first research objective of this work, additional analyses are required, comparing sub samples of the database. The purpose of such analyses is threefold. First, the second research objective implies the need to evaluate the influence of product/service qualities through a comparison of the credence and the experience industry sub samples. Second, to derive recommendations concerning the specific situation of NEVs, a comparison between the NEV and the established firms sub samples is required. Finally, as discussed in chapter 6, the non-random sample structure requires comparisons between the industries and development stage classes to ensure robustness of the model, a critical prerequisite if results are meant to be generalized from this analysis.

The following section will lead through these group comparisons.

7.2.2 Group comparisons

7.2.2.1 Influence of dominant product/service qualities

This section presents the result of three group comparisons. The first analysis examines the data for differences between all responses regarding the industry dominated by credence qualities (PR) and those regarding the experience industry (PV). Based on this test, the hypotheses HGR1 and HGR2 on industry influences can be assessed. Also, these sub sample results help assess the general applicability of the main model as explained above. Subsequently, the same analysis is conducted for the sub sample of NEVs in order to test the robustness of the model and the influence of product/service qualities specifically for NEVs. Finally, the sub sample of established firms is analyzed in the same manner.

Table 46 gives an overview over the PLS estimation results for the sub samples described above, the path coefficient differences and respective significance levels.

As discussed in section 7.1.2, three constructs cannot be included in individual group comparisons due to limited congruence. However, this applies mainly to the perceived risk and trusting disposition constructs found irrelevant in the main analysis. Unfortunately, the industry effect analysis for the sub sample of NEVs cannot include the construct of institutional embeddedness.

It can be seen that the sub samples achieve equally satisfactory scores on R^2 and Q^2 as the main model in the full sample. Table 46, Table 47, and Table 48 depict the group comparison results between the two industries in the sample. The first table is associated with the comparison based on the full sample, while the latter two only incorporate the NEVs and the established firms sub sample, respectively. Apparently, the model is especially well suited for NEVs in the PR industry, explaining more than 50% of the variance in the respective purchase intention, at a Q^2 of 0.46.

With regard to the hypotheses stated earlier, the results depend on the sub sample. HGR1 states that the positive effect of trust is moderated by the dominance of credence qualities in a purchasing setting. Here the group comparison leads to differing results. While, in the full sample and in the established firms sub sample, this effect is visible with a highly significant difference in the path coefficients (-0.10/-0.16), the hypothesis cannot be confirmed in the NEV sub sample. Accordingly, hypothesis HGR1 is only partly supported. The second hypothesis in this context predicts a higher importance of risk mitigation instruments in the industry dominated by experience qualities (HGR2). The analysis supports this hypothesis with highly significant path coefficient differences in the full sample and the established firms sample (0.18/0.29). Also the NEV sub sample exhibits a large difference in the path coefficients (0.10); however, this difference does not meet the significance criterion. Based on the fact that there is a strong and very significant effect of risk mitigation instruments visible in the experience industry sub sample and no significant effect in the credence industry sub sample across both development stage classes, hypothesis HGR2 should still be accepted. Interestingly, all three group comparisons reveal a significant difference in the relevance of external references: based on the present data sample, external references, while of significant importance in both industries, seem to be much more relevant for suppliers in the credence industry.

Path	Experience industry (n=176)		Credence industry (n=216)		Delta	
Trust --> Purchase intention	0.60	***	0.70	***	-0.10	**
Perceived risk --> (Trust --> Purchase intention)	0.10		0.02		Not congruent	
Trustworthiness --> Trust	0.84	***	0.84	***	0.01	
Trusting disposition --> Trust	0.01		-0.04		Not congruent	
Reputation --> Trustworthiness	0.33	***	0.37	***	-0.04	
Risk mitigation instruments --> Trustworthiness	0.20	***	0.03		0.18	**
Social similarity --> Trustworthiness	0.15	***	0.12	***	0.03	
Local proximity --> Trustworthiness	0.03		-0.01		0.04	
Personal relationship --> Trustworthiness	0.03		0.04		-0.02	
Institutional embeddedness --> Trustworthiness	0.17	**	0.16	***	0.01	
External references --> Trustworthiness	0.17	***	0.37	***	-0.20	**
Construct	**R^2**	**Q^2**	**R^2**	**Q^2**		
Trustworthiness	0.68	0.46	0.75	0.59		
Trust	0.71	0.53	0.70	0.53		
Purchase intention	0.36	0.32	0.49	0.42		
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test						

Table 46: Cross-industry sub sample and group comparison results – full sample[795]

Path	Experience industry (n=82)		Credence industry (n=88)		Delta	
Trust --> Purchase intention	0.62	***	0.66	***	-0.04	
Perceived risk --> (Trust --> Purchase intention)	-0.08		-0.20		0.12	
Trustworthiness --> Trust	0.87	**	0.82	**	0.05	
Trusting disposition --> Trust	0.04		0.03		0.01	
Reputation --> Trustworthiness	0.39	**	0.33	**	0.06	
Risk mitigation instruments --> Trustworthiness	0.15	**	0.06		0.10	
Social similarity --> Trustworthiness	0.01		0.13	**	-0.12	
Local proximity --> Trustworthiness	0.05		0.01		0.04	
Personal relationship --> Trustworthiness	0.04		-0.03		0.06	
Institutional embeddedness --> Trustworthiness	0.28	**	0.21	**	0.07	
External references --> Trustworthiness	0.20	**	0.37	**	-0.17	*
Construct	**R^2**	**Q^2**	**R^2**	**Q^2**		
Trustworthiness	0.74	0.51	0.70	0.52		
Trust	0.74	0.55	0.67	0.50		
Purchase intention	0.41	0.37	0.51	0.46		
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test						

Table 47: Cross-industry sub sample and group comparison results – NEV sample[796]

[795] Own analysis.
[796] Own analysis.

Path	Experience industry (n=94)		Credence industry (n=128)		Delta	
Trust --> Purchase intention	0.56	***	0.72	***	-0.16	**
Perceived risk --> (Trust --> Purchase intention)	0.08		0.00		0.09	
Trustworthiness --> Trust	0.83	**	0.85	**	-0.02	
Trusting disposition --> Trust	-0.01		0.00		0.00	
Reputation --> Trustworthiness	0.26	**	0.38	**	-0.12	
Risk mitigation instruments --> Trustworthiness	0.36	**	0.07		0.29	***
Social similarity --> Trustworthiness	0.23	**	0.07	*	0.16	**
Local proximity --> Trustworthiness	0.02		-0.01		0.03	
Personal relationship --> Trustworthiness	-0.02		0.05		-0.07	
Institutional embeddedness --> Trustworthiness	0.08		0.19	***	-0.11	
External references --> Trustworthiness	0.12		0.34	**	-0.22	**
Construct	**R^2**	**Q^2**	**R^2**	**Q^2**		
Trustworthiness	0.68	0.45	0.79	0.65		
Trust	0.69	0.52	0.72	0.55		
Purchase intention	0.35	0.30	0.51	0.43		
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test						

Table 48: Cross-industry sub sample and group comparison results – established firms sample[797]

With regard to the comparison of the model in industry-specific sub samples, the following summarizing conclusions can be drawn.

- The hypothesized stronger effect of trust on purchase intentions in an industry dominated by credence qualities can only be accepted in part. For NEVs on the supply side, trust is equally important in both industry contexts.

- The hypothesized higher importance of risk mitigation instruments in an industry dominated by experience qualities is supported in the full sample and the established sample group comparisons as well as in the fact that risk mitigation instruments are not found significant for NEVs as suppliers in the credence industry.

- Finally, robustness of the model across the two industry contexts is given with the exception of the hypothesized insignificance of risk mitigation instruments in the credence industry. Especially with regard to the high and stable

[797] Own analysis.

explanatory and predictive relevance, the model provides a sound description of trust building and the influence of trust across the two industries analyzed.

7.2.2.2 Differences between NEVs and established firms as suppliers

The subjects of this section are group comparisons differentiating between the types of supplier firms: NEVs versus established firms. Three comparisons will be made, each on a different sub sample. The first analysis is based on the full sample, that is, across industries, the second analysis uses the experience industry sub sample, and finally, the credence industry sample is evaluated. Again, two constructs need to be excluded from individual analyses: perceived risk is not congruent between the two groups in the full sample and institutional embeddedness exhibits a lack of congruence between the two groups based on the PR sub sample.[798]

The three tables below display the results of the respective analyses. Again, very satisfactory results for R^2 and Q^2 on the sub sample level indicate the explanatory and predictive relevance of the hypothesized model for individual groups within the full sample.

With regard to potential differences associated with development stages, it is evident from the results table that there are no significant path coefficient differences, i.e., the model's robustness across this dimension is confirmed. However, despite the insignificance in the group comparison, the positive effect of risk mitigation instruments is not significant in the NEV sub sample including both industries.

Looking at the sample including only responses from the PR industry, no significant differences can be found either. However, social similarity – while of lower importance for both groups – does not have a significant effect for established firms as opposed to NEVs.

The most obvious group differences between new and established firms can be found within the PV industry. Here, the analysis identifies three significant differences: institutional embeddedness is substantially more important for NEVs, whereas, in contrast, social similarity and offering of risk mitigation instruments yield better trustworthiness scores for established firms.

[798] Refer to section 7.1.2.

Path	NEVs (n=170)		Established firms (n=210)		Delta
Trust --> Purchase intention	0.61	***	0.59	***	0.02
Perceived risk --> (Trust --> Purchase intention)	-0.13		-0.025		Not congruent
Trustworthiness --> Trust	0.84	***	0.84	***	0.00
Trusting disposition --> Trust	0.00		0.00		0.00
Reputation --> Trustworthiness	0.39	***	0.35	***	0.04
Risk mitigation instruments --> Trustworthiness	0.05		0.13	***	-0.08
Social similarity --> Trustworthiness	0.10	**	0.13	***	-0.03
Local proximity --> Trustworthiness	0.03		0.00		0.02
Personal relationship --> Trustworthiness	0.01		0.04		-0.03
Institutional embeddedness --> Trustworthiness	0.18	***	0.14	**	0.04
External references --> Trustworthiness	0.32	***	0.31	***	0.02
Construct	**R²**	**Q²**	**R²**	**Q²**	
Trustworthiness	0.70	0.50	0.71	0.53	
Trust	0.70	0.52	0.70	0.53	
Purchase intention	0.37	0.34	0.36	0.31	
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test					

Table 49: Development stage sub sample and group comparison results – full sample[799]

Path	NEVs (n=82)		Established firms (n=94)		Delta	
Trust --> Purchase intention	0.62	***	0.56	***	0.06	
Perceived risk --> (Trust --> Purchase intention)	-0.08		0.08		-0.16	
Trustworthiness --> Trust	0.87	**	0.83	**	0.03	
Trusting disposition --> Trust	0.04		-0.01		0.05	
Reputation --> Trustworthiness	0.39	**	0.26	**	0.13	
Risk mitigation instruments --> Trustworthiness	0.15	**	0.36	**	-0.20	**
Social similarity --> Trustworthiness	0.01		0.23	**	-0.23	**
Local proximity --> Trustworthiness	0.05		0.02		0.04	
Personal relationship --> Trustworthiness	0.04		-0.02		0.06	
Institutional embeddedness --> Trustworthiness	0.28	**	0.08		0.20	*
External references --> Trustworthiness	0.20	**	0.12		0.08	
Construct	**R²**	**Q²**	**R²**	**Q²**		
Trustworthiness	0.74	0.51	0.68	0.45		
Trust	0.74	0.55	0.69	0.52		
Purchase intention	0.41	0.37	0.35	0.30		
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test						

Table 50: Development stage sub sample and group comparison results – experience industry[800]

[799] Own analysis.
[800] Own analysis.

Path	NEVs (n=88)		Established firms (n=128)		Delta
Trust --> Purchase intention	0.66	***	0.72	***	-0.06
Perceived risk --> (Trust --> Purchase intention)	-0.20		0.00		-0.20
Trustworthiness --> Trust	0.82	**	0.85	**	-0.03
Trusting disposition --> Trust	0.03		0.00		0.03
Reputation --> Trustworthiness	0.33	**	0.38	**	-0.05
Risk mitigation instruments --> Trustworthiness	0.06		0.07		-0.01
Social similarity --> Trustworthiness	0.13	**	0.07	*	0.06
Local proximity --> Trustworthiness	0.01		-0.01		0.02
Personal relationship --> Trustworthiness	-0.03		0.05		-0.08
Institutional embeddedness --> Trustworthiness	0.21	**	0.19	***	Not congruent
External references --> Trustworthiness	0.37	**	0.34	**	0.02
Construct	**R^2**	**Q^2**	**R^2**	**Q^2**	
Trustworthiness	0.70	0.52	0.79	0.65	
Trust	0.67	0.50	0.72	0.55	
Purchase intention	0.51	0.46	0.51	0.43	
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test					

Table 51: Development stage sub sample and group comparison results – credence industry[801]

Summarizing the findings above, one can come to the following conclusion:

- The model is robust in that it provides a sound explanation of trust building and the positive effect of trust on purchase intentions, yielding high explanatory and predictive relevance both with regard to NEVs and established firms on the supply side, with no significant differences between the two groups.

- Nevertheless, the detailed analysis of the model based on industry specific sub samples does indicate some tendency information about the relative importance of individual trust drivers. Risk mitigation instruments seem to be a more effective tool for established firms, while NEVs seem to depend to a larger degree on institutional sources of trust, such as institutional embeddedness, and, in part, external references.

[801] Own analysis.

7.2.2.3 Exploratory comparison between customers and non-customers

Finally, although not at the core of this research, a comparison can be made to explore potential differences between customers on the one hand, i.e., respondents with purchase experience with the rated supplier, and, on the other hand, non-customers, who rate a supplier they have never made purchases from. Here, construct congruency considerations, again, exclude the construct of perceived risk from the analysis. Also, the small number of responses from customers does not allow the analysis to be further broken down to the specific industry or life cycle level. Table 52 shows the group comparison results in an overview. The analysis reveals three especially interesting insights. First of all, the impact of trust on the purchase intention is substantially stronger in the customer sub sample than among the non-customers. Second, on the driver level, institutional embeddedness seems to lose relevance once a purchase has been made, even though the difference between the two groups is not significant. Third, customers' trust is almost completely explained by their perception of the supplier's trustworthiness, with a path coefficient of 0.91, which is significantly higher than in the non-customer sub sample. This variation is also reflected in the respective R^2 and Q^2 values: while both indicate a very good model fit across the two sub samples, it is evident, that the proposed trust model explains purchase intentions better for customers than for non-customers.

Path	Customers (n=106)		Non-customers (n=286)		Delta	
Trust --> Purchase intention	0.65	***	0.53	***	0.12	*
Perceived risk --> (Trust --> Purchase intention)	0.01	***	-0.04	***	Not congruent	
Trustworthiness --> Trust	0.91	**	0.80	**	0.11	***
Trusting disposition --> Trust	-0.05		0.02		-0.07	
Reputation --> Trustworthiness	0.32	**	0.37	**	-0.05	
Risk mitigation instruments --> Trustworthiness	0.13	**	0.07	*	0.06	
Social similarity --> Trustworthiness	0.19	**	0.10	**	0.09	
Local proximity --> Trustworthiness	-0.04		0.02		-0.06	
Personal relationship --> Trustworthiness	0.03		0.04	*	-0.01	
Institutional embeddedness --> Trustworthiness	0.11		0.22	**	-0.11	
External references --> Trustworthiness	0.32	**	0.29	**	0.02	
Construct	**R^2**	**Q^2**	**R^2**	**Q^2**		
Trustworthiness	0.67	0.49	0.72	0.52		
Trust	0.84	0.67	0.63	0.45		
Purchase intention	0.44	0.39	0.29	0.24		
***: p<0.01; **: p<0.05; *: p<0.10; one-tailed t-test						

Table 52: Sub sample and group comparison results – customers and non-customers[802]

[802] Own analysis.

8 Discussion and conclusion

In this final chapter, the results of the empirical analysis are discussed and interpreted (section 8.1), taking into account the theoretical considerations presented in the first part of this dissertation. Drawing on this interpretation of the empirical findings, theoretical implications will be derived in section 8.2. This section will follow the framework of research objectives introduced in the first chapter of this study to critically evaluate this project's contribution to the academic literature. In a next step, the results of this work are screened for relevant implications for the managerial practice with regard to the topic of trust building, with a special focus on insights for practitioners managing NEVs (section 8.3). The last section closes this chapter and this document with a synthesizing conclusion.

8.1 Interpretation of the empirical results

Overall, the empirical analysis based on the full data sample supports the relevance of the hypothesized model to a very large degree. The scores evaluated to assess explanatory and predictive relevance are highly satisfactory, especially if one recalls that the model only examines one out of several factors that can influence a purchase intention. Moreover, the significance of the majority of the propositions with regard to the effects of individual constructs provides assurance that the model resembles a precise projection of the relevant mechanisms of trust building in a buyer-seller context. The following paragraphs will lead through the detailed discussion of the empirical results following the structure of the research model.

8.1.1 Trust and its effect on purchase intentions

Trust, in the present analysis, has a highly important positive effect on purchase intentions. Thus, this study confirms the various propositions made in the relevant literature and is in line with the findings in the majority of previous studies. This result is stable across all contexts analyzed in this study, so that it seems appropriate to generalize this positive effect beyond the given research context. The hypothesized moderating effect of credence qualities dominating a purchasing context is supported by the full data sample. However, a detailed examination leads to the rejection of the same hypothesis for the sub sample of NEVs. A likely explanation for that effect can be found in the data. Apparently, the most important determinant for the relevance of

trust in these new ventures is their newness – as previously stated in the entrepreneurial marketing literature.[803] In the combination of the two effects of newness and dominance of credence qualities, the latter does not seem to add to the explanation of the relevance of trust. Accordingly, there is a difference in path coefficients also in the NEV sub sample, though the difference is not significant.

Another interesting finding is that perceived risk as expressed by the trustor does not seem to have any impact on the relevance of trust; moreover, this finding is stable across all sub sample contexts. Apparently, this part of the model proposed by Mayer et al. (1995) cannot be confirmed based on the present data sample. There are several possible explanations for this finding. Obviously, there could be a reliability issue in the measurement of the risk construct. As a matter of fact, as seen in section 7.1.1.1, two of the four indicators were eliminated to ensure item reliability, also, the construct exhibits some congruence issues between sub groups. However, statistical quality assessment and discussions with academic and industry experts serve to increase confidence in the reliability and validity of the measure. Nonetheless, a certain probability of a measurement issue cannot be ruled out completely. The second potential explanation is that the conceptualization proposed by Mayer et al. is simply not realistic. In this regard, it is interesting to note that among the multitude of publications referring to the trust model proposed by the authors, hardly any report perceived risk to have an effect. Nevertheless, conceptually, the theory is certainly convincing and widely accepted. Therefore, as a third possible explanation, the use of purchase intention as a proxy to actual trusting behavior in the form of making a purchase could be the reason for the irrelevance of risk. Possibly, perceived risk becomes effective *right before* the behavioral manifestation rather than before forming the intention to behave trustingly. A fourth reason could be the assumption of a linear effect. Provided the moderating effect of perceived risk was non-linear, the PLS algorithms would not necessarily be able to identify the effect at all.[804] However, the scatter plot of the indicator data does not suggest an obvious non-linear relationship, as evident from Figure 18. Finally, the variability in the risk perception in the present context could be too small to reveal a significant effect. The theory was originally developed by Mayer et al. (1995) in an organizational research setting. It may well be that the risk generally associated with purchasing decisions in buyer-supplier relationships is below the level that applies in critical organizational relationships. It

[803] Refer to section 4.1.1.
[804] Refer to section 5.1.4.

could clearly be argued that, for example, the appointment of leading executives involves substantially more risk than particular purchase decisions, unless a high-volume, long-term commitment is involved, which is not the case in the present study. At the end of the day, further research will be required to shed more light on this interesting issue.

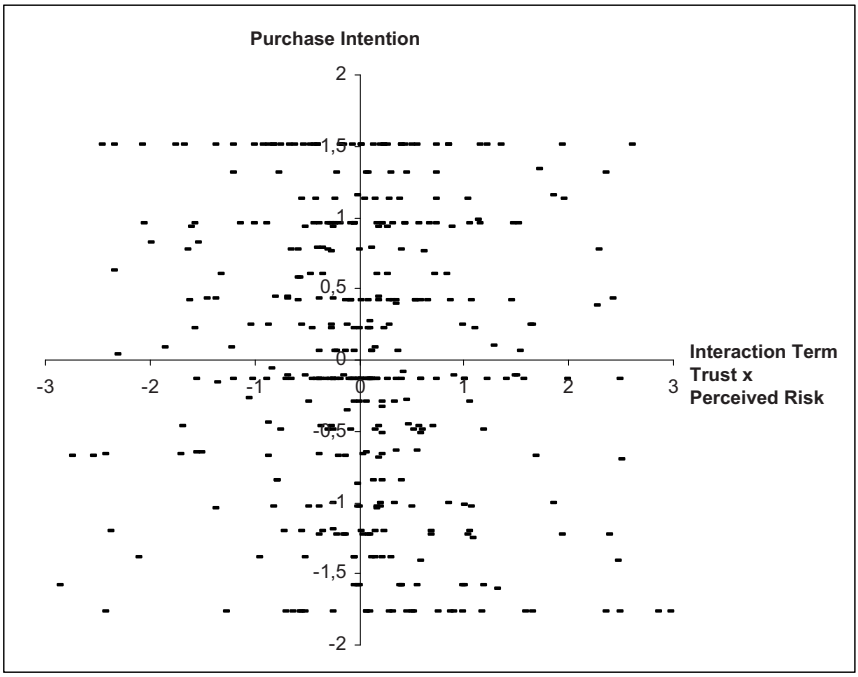


Figure 18: Scatter plot of the trust-perceived risk interaction term in relation to purchase intention[805, 806]

8.1.2 Direct antecedents of trust

With regard to the direct antecedents of trust, two results are obvious. First, perceived trustworthiness can be identified as the key antecedent of trust in the environment of this research project. The effect of trustworthiness is highly positive and extremely significant; furthermore, it is stable across all group comparisons. In this respect the

[805] Own analysis.
[806] The scatter plot displays standardized latent variable scores of the two constructs compared. The data is part of the PLS output. The same applies for the three following scatter plot figures.

model proposed by Mayer et al. (1995) seems well-suited for the context in focus. Trusting disposition, on the other hand, does not appear to exert significant influence on a buyer's level of trust, again a result that is highly stable across different contexts. Here, as well, there are several possible explanations. The most logical one seems to be the impact of timing on the trust development mechanism. Mayer et al. already highlight in their original publication that the effect of a trusting disposition will be most salient in the very early stages of a relationship, even prior to the availability of actual trustee-specific information.[807] Based on their findings, Gill et al. (2005) conclude that a trusting disposition is relevant in situations where information on the trustee is absent or ambiguous.[808] In the sample underlying the present research, the irrelevance of trusting disposition is stable across group comparisons, especially between NEVs and established firms as well as customers and non-customers. Here, one would assume different levels of ambiguity regarding the trustee-specific information and, consequently, expect differences in the relevance (or, better, irrelevance) of trusting disposition, which is not the case. Possibly, the level of familiarity with the suppliers in the present sample is so high that the range, in which trusting disposition plays a role, is simply not covered by the responses in the sample. The timing impact on the relevance of direct antecedents of trust is further supported by another sub group comparison: the path coefficient from trustworthiness to trust is significantly stronger in the customer sub sample than for non-customers. Apparently, the better availability and higher certainty of trustee-specific information increases the importance of trustworthiness perceptions in the formation of trust.

Again, another explanation could be a non-linear relationship. However, the scatter plot in Figure 19 does not appear to support the assumption of such a relationship.

Yet another reason could be the focus of the trusting disposition construct on people in general rather than business people. Potentially, a decision maker distinguishes his propensity to trust even further, so that trust in general people is not a relevant parameter in a business setting. Again, further detailed research seems to be required to finally resolve this question.

[807] Cf. Mayer et al. (1995), pp. 715-716.
[808] Refer to section 4.1.2, or Gill et al. (2005), p. 292.

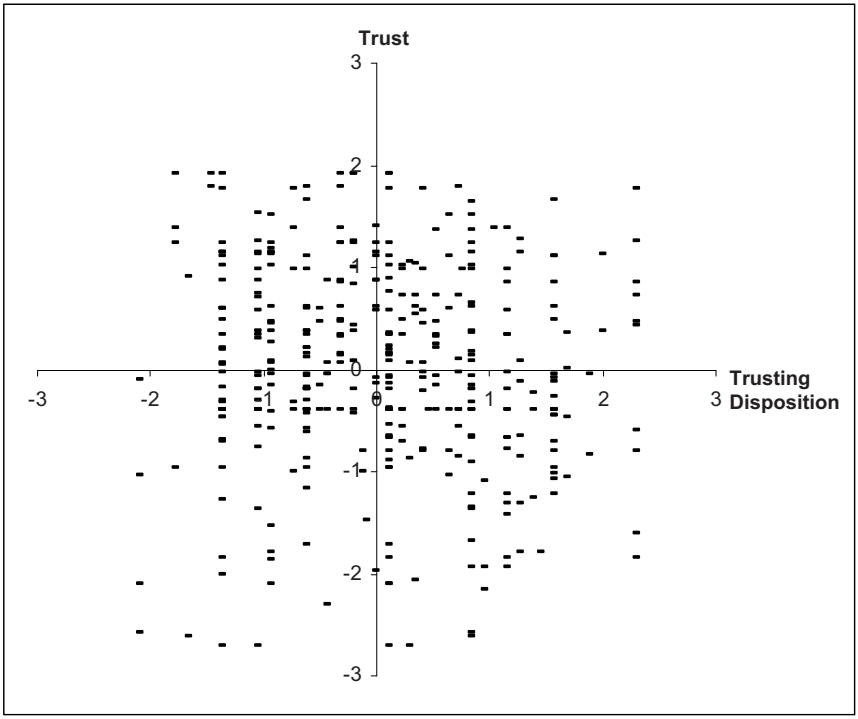


Figure 19: Scatter plot of trusting disposition scores in relation to trust[809]

8.1.3 Trust drivers

On the driver level, there is one dominant influencing factor: *reputation*. Reputation is the one factor that is highly significant and is the strongest driver of trustworthiness in almost all sub samples analyzed. From a theoretical perspective, this result gives strong confidence in the framework suggested by Zucker (1986). She claims that *"the prevailing model is that persons and firms make investments in process-based trust by creating positive 'reputations' or name brands."*[810] Reputation, in that sense, is the most genuine proxy for trustworthy behavior available to anyone who cannot draw on his or her own experience from past dealings with the trustee. Another interesting finding on the topic of reputation is that there are no significant differences in the importance of reputation across industry and life cycle sub samples. Specifically,

[809] Own analysis.
[810] Zucker (1986), p. 61.

reverting to the discussion in section 4.1.3.1, reputation seems to be as relevant for an NEV as for an established firm, the fact that this reputation has been built up over a longer period of time in the latter case does not seem to be accounted for.

The second process-based driver of trustworthiness tested in this work, the offering of risk mitigation instruments, exhibits a more complex pattern of influences. While a moderately strong yet highly significant effect can be shown in the full sample analysis, the influence of this driver differs significantly across sub samples, with insignificant path coefficients in the NEV and in the PR sub samples. The latter finding confirms one of the initial hypotheses on product quality effects. In the PR industry that is dominated by credence qualities, a positive effect of guarantees cannot be expected due to the fact that the condition, upon which the guarantee must hold, cannot be identified. However, another requirement for such guarantees to take effect seems to surface from the present analysis: the party offering such measures must be perceived as being able to deliver on the guarantees. Apparently, buyers do not take this ability for granted if NEVs offer risk mitigation instruments, potentially due to a perception of limited financial stamina. Zucker (1986) described reliability of such measures as a critical prerequisite for these to take effect in trust building: *"produce warranties operate as signals, seldom used, but if tested, must support trust (at least, most of the time), or it will be undermined."*[811] The results of this study seem to extend that requirement in two dimensions: first, these warranties must be *testable* in the first place, which is not the case in a credence industry. Second, they must not only hold if tested in order to produce trust, they must also be credible before being tested, which apparently is not the case if offered by new ventures. In the light of these findings, Qu and Cardozo (1997) are right in demanding such process-based guarantees to take the form of *"hostages"*, backed by an ex-ante investment, especially for new ventures – that way the credibility requirement is met.[812]

In terms of characteristics-based trust drivers, the results are strikingly surprising at first sight. As described in chapter 4.1.3.2, there is a broad theoretical consensus on the relevance of all three constructs of *social similarity*, *local proximity*, and *personal relationship*.[813] However, the PLS estimation only supports the first hypothesis, that of social similarity. For local proximity, any significant influence on trustworthiness

[811] Zucker (1986), p. 62.
[812] Cf. Qu and Cardozo (1997), pp. 693-694.
[813] Refer to section 4.1.3.2.

perceptions is rejected, while the hypothesis regarding personal relationship is rejected only at the conservative critical level of significance of 5%. Even though Zucker already argues in her 1986 paper that characteristics-based trust building is a comparably archaic mode that is partly replaced by institution-based drivers in modern economies, the rejection of these two hypotheses is astonishing. Again, one could find and discuss several reasons for this result. However, a look at the scatter plots comparing the two drivers with the respective level of trustworthiness sketches a different image (Figure 20 and Figure 21). As evident from the plots, there does indeed seem to be a positive relationship between the two variables and trustworthiness. The distribution of the data sets could, for example, point at a sort of a step function: having no personal relationship can lead to any level of trustworthiness perception; however, any positive degree of personal relationship seems to set a lower boundary to the perceived trustworthiness. Specifically, looking at the scatter plot, there seems to be very limited variation to the right of the initial step.

The same seems to apply to the effect of local proximity. The scatter plots further indicate the – scarcely surprising – fact that a large share of the respondents have responded with the lowest possible score for the two constructs, reflecting the low probability of reaching people in the sample with a beyond-business relationship with representatives of one of the firms offered. Based on the graphical representation, there seems to be a step from the lowest score to any other, higher score.

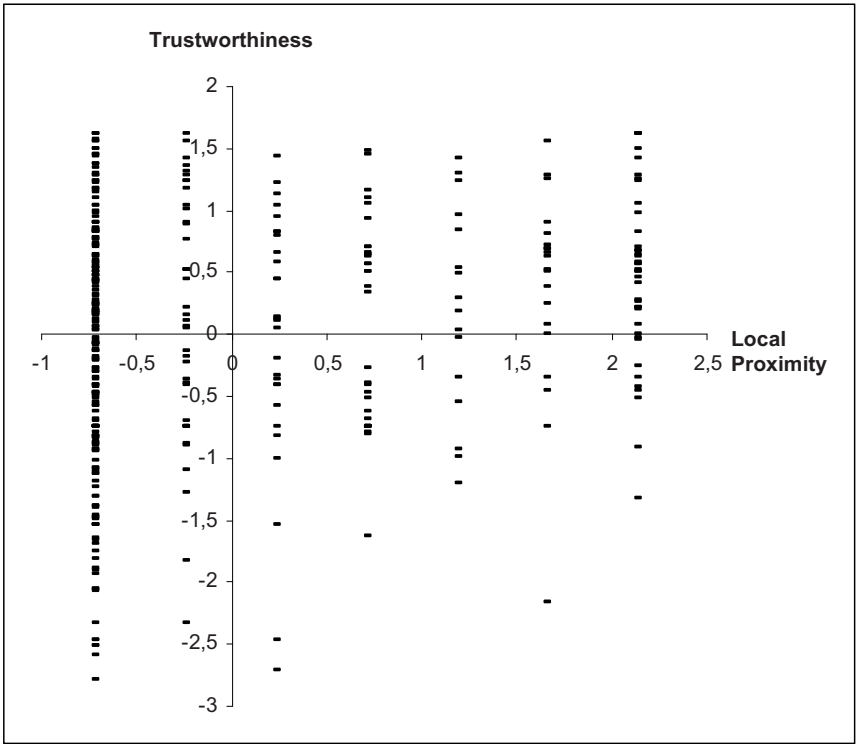


Figure 20: Scatter plot of local proximity scores in relation to trustworthiness[814]

A t-test comparing the average trustworthiness scores of responses scoring greater than or equal to the second lowest category with those scoring less allows further insight: the mean differences are highly significant, both for the relationship and the proximity constructs. Table 53 displays the results.

[814] Own analysis. The comparison displayed in the table is based on unstandardized latent variable scores.

		Mean trustworthiness	Difference	t value	Significance
Local proximity	>=2	5.22	0.48	3.90	0.00
	<2	4.73			
Personal relationship	>=2	5.49	0.71	4.83	0.00
	<2	4.78			

Table 53: Trustworthiness mean differences between low and high local proximity and personal relationship groups[815]

Apparently, there is a relationship between these two characteristics-based drivers and trustworthiness that cannot be detected by the PLS algorithm seeking linear approximations. In the light of such findings, the selection of an estimation methodology becomes a much more critical decision: in the present case, the method of estimation does not seem to explain all relevant effects present in the data sample. Considering that structural equation modeling is one of the most advanced techniques of data analysis available in present-day research, these findings certainly yield methodological implications. With regard to the relevance of characteristics-based drivers, it can be concluded that there is one significant driver, *social similarity*, and that the data indicates a non-negligible effect of the two other drivers. It also implies that the latter effects cannot be analyzed using structural equation modeling techniques.

The outcome of the analysis of institution-based trust drivers is more straightforward. The two constructs are highly significant in their importance for trustworthiness perceptions. This result is comparably stable across groups in the sample and, thus, confirms the strong effects hypothesized and supported by a wide and sound theoretical basis. However, there seems to be one tendency: both constructs are less relevant for established firms compared with NEVs – at least in the experience industry sub sample. Also, for the interaction with customers, institutional embeddedness seems to be less relevant compared with the interaction with new leads. This might revert to the view expressed by Zucker (1986) of institutional trust drivers serving as a tradable substitute of absent person- or firm-specific trust. Consequently, in situations, in which more testable process-based or characteristics-based information is available, institution-based trust building becomes less relevant. This is the case for the customer sub sample, and, apparently, also for the sub sample of responses regarding established suppliers in an experience industry.

[815] Own analysis.

There is another interesting insight that can be found in the analysis of institution-based trust building. While significant in both sub-samples, the effect of external references is significantly stronger in the credence industry. Where process-based trust development is difficult, the use of third-party assessments in a trust transfer seems to become more important. As Stewart (2003) puts it, the decision maker has a tendency towards cognitive consistency: deciding to trust someone who is apparently trusted by well-reputed externals reduces the risk of cognitive dissonance after the decision.[816] It is obvious that this effect should be stronger in greater uncertainty, as present in a credence industry.

Figure 21: Scatter plot of personal relationship scores in relation to trustworthiness[817]

It can be concluded that the model developed in this research is a valid representation of the trust building mechanisms at work in buyer-seller relationships and of the

[816] Cognitive dissonance is defined as *"a psychologically uncomfortable state that motivates a person to reduce that dissonance."* Cf. Sweeney, Hausknecht, and Soutar (2000), p. 369.
[817] Own analysis.

positive effect of trust in such a setting. Trust is a very important driver of purchase intentions, across a range of specific settings with regard to industry, supplier age, purchasing experience, in high- and low-risk situations. The trust expressed by the professionals surveyed is not a result of a general trust in people or even blind trust, it is to a large extent built on a perception of the supplier's trustworthiness. On the level of trust drivers, it seems that Zucker's trust production modes provide a well-suited framework for the analysis of trust building. With regard to individual trust drivers, however, some differences occur depending on contextual factors. Reputation as the most genuine proxy for trustworthy behavior in the past, has the strongest influence of all drivers in the model, robust across all sub samples analyzed, i.e., independent of the industry context, the age of the supplier or the question whether the rater has purchasing experience with the supplier or not. Of similar importance are institutional means of trust building in the form of external references or institutional embeddedness. The strong effect of such means of trust transfer is also visible across the board with very few exceptions: findings especially from the experience industry seem to suggest that the importance of institutional trust building might decline as the supplier becomes established. This seems to hold true both in the market and in specific relationships: for customers, institutional trust building seems less relevant than for a supplier's leads without purchasing experience. One effective trust driver seems to be highly context specific: offering risk mitigation instruments. Apparently, to truly function as a signal of trustworthiness, such offerings must be both verifiable and credible. That means they only make sense, when the buyer has a realistic chance of identifying the conditions materializing, on which such measures are making promises, and when he believes that the supplier will be able to deliver on his promises in a critical case. Finally, the measures associated with characteristics-based trust building yield the least obvious impact on trustworthiness of all trust production modes. While two constructs, personal relationship and local proximity, cannot be proven to be relevant in any sub sample analysis, social similarity does have an impact across most settings analyzed, however, of lower magnitude. This result could provide support for Zucker's theorized development away from characteristics-based trust building towards a more formal, institution-based set of drivers in modern economies. However, there is also evidence that these results are related to limitations of the estimation method applied.

8.2 Theoretical implications

Based on the discussion above, the next section will summarize the theoretical implications of this work. For that purpose, it will be analyzed, in how far the research objectives of this dissertation have been met and what the achievement of these objectives contributes to the academic literature (section 8.2.1). Like any research projects, the present thesis is subject to several limitations. Section 8.2.2 will describe the limitations of this study and derive directions for further research.

8.2.1 Research contribution

Along with the achievement of its research objectives, this work contributes to the existing body of literature on trust in buyer-seller relationships in several aspects.

The first research objective was phrased as follows:

1. *Basic model: Develop and empirically test a theory-driven end-to-end model of trust building and the effect of trust on the purchase intentions of a potential buyer.*

As the previous chapters have shown, this study has accomplished this objective. In this respect, several factors form the specific contribution.

First of all, the model developed here is characterized by a rare conceptual clarity of the trust concept. The discussion in chapters 2 and 3 has shown that trust is a concept with multiple facets and several interrelationships with other constructs in various scientific disciplines. Accordingly, one key issue is the clear definition of trust and the conceptual delineation of trust from its related constructs. Especially, with regard to the research of buyer-seller relationships, the conceptualizations of trust often do not clearly differentiate trust from trustworthiness, reliability, etc.[818] The model developed by Mayer et al. (1995) is one of the most often-cited conceptualizations that provides a sound theoretical concept of trust, its direct antecedents, and outcomes.[819] By applying this well-accepted concept of trust to the context of buyer-seller relationships, this research offers a valuable contribution to the relationship marketing literature.

[818] Cf., e.g., Schoorman et al. (2007), p. 344, Welter and Smallbone (2006), p. 472.
[819] Cf. Schoorman et al. (2007), p. 244.

Second, the original combination of the trust production modes according to Zucker (1986) with the trust conceptualization according to Mayer et al. (1995) proves to be especially insightful, as evident from this research. While the trust concept applied ensures conceptual rigor with regard to the trust construct (see above), the trust production modes suggested by Zucker provide a comprehensive description of the drivers of trustworthiness. Most of the hypotheses on trust drivers can be assumed to be correct, based on the large data sample analyzed. Moreover, there is evidence that the two hypotheses rejected on the basis of the results of the PLS analysis may still be correct. As discussed in the previous section, there seems to be a positive influence on trustworthiness for *personal relationships* and *local proximity*, however, an influence of a non-linear nature that cannot be detected using structural equation modeling. Assuming a positive influence in the form of a step function for these two constructs, which the data seems to point at, all drivers of trustworthiness seem to exhibit the hypothesized effect in the data sample. As a result, R^2 values in the range of 0.68 to 0.79[820] for the construct of trustworthiness underline the success of this combination: the trust driver constructs derived from Zucker's framework explain more than two thirds of the variance in the buyers' trustworthiness perceptions. Zucker's framework is supported by the empirical analysis as a highly relevant predictor of trustworthiness.

Third, through the combination of the two theoretical concepts, the research model developed and tested here covers the full logical chain from the characteristics and activities level to the actual purchase intention. This way, the study is able not only to yield academic insights but also to derive highly actionable recommendations from the results of the scientific analysis – a valuable benefit for interested practitioners.

Fourth, the positive results of the model test are even more important in the light of the measurement models used. Before this project, several key variables in the Zucker framework had not been operationalized yet, so that empirical measurement models were missing. Accordingly, another contribution of this work is the successful development of such measures. In a four-step approach consisting of qualitative and quantitative process steps, three new measurement instruments have been designed and successfully applied in a large-scale empirical analysis: *risk mitigation instruments*, *institutional embeddedness*, and *external references*. As evident from the quality assessment in section 7.1.1, the new measures exhibit very satisfactory

[820] Depending on the respective sample analyzed. Refer to section 0.

statistical quality, so that they will be a good choice for future empirical research on trust building.

Finally, the empirical data deserves to be mentioned. The survey data used in this analysis is special in several aspects. With respect to sample size, it is worth noting that the data sample used here contains 392 valid responses, which is almost twice the size of the samples used in the studies by Morgan and Hunt or Doney and Cannon. This large sample size provides confidence both with regard to potential sampling errors[821] and with regard to the statistical power of the analysis: the sample size is large enough to apply the conservative 5% level of significance while still achieving substantial statistical power well beyond the 80% threshold recommended in the literature.[822] Furthermore, the sample contains several types of firms: players from two industries characterized by trust-related attributes, as well as NEVs and established firms. Most importantly and in contrast to other research on trust in buyer-seller relationships, the sample includes responses both from customers of the firms in question as well as from potential buyers that have never made a purchase with the respective firm. Considering that trust is viewed in the relevant literature as a precondition of purchases to be made, the latter type of responses must be of specific relevance. Eventually, this research setup addresses an issue stated by Singh and Sirdeshmukh (2000), who note that the *"voice of the customer is absent from much relationship marketing"*[823], since research has clearly been focused on the supply side perspective.

The second research objective is concerned with the analysis of moderating effects of one of the most important context factors with regard to the study of trust in buyer-seller relationships: risk resulting from information asymmetry between buyer and seller. In chapter 1, the second research objective was stated as follows:

2. *Moderation: Propose and empirically test hypotheses regarding the effect of different product qualities according to the economics of information on the proposed model of the role of trust.*

With regard to this second objective, it can be concluded that the study has led to valuable results. First and most importantly, this dissertation directly responds to

[821] Refer to section 5.3.
[822] Refer to section 5.2.1.
[823] Singh and Sirdeshmukh (2000), p. 150.

several calls for additional research on the context variability of the effect of trust. While Doney and Cannon (1997) note that the deviation of their results from earlier findings might revert to differences in the industrial context, other authors have explicitly highlighted the need for research incorporating such different settings.[824] For example, Singh and Sirdeshmukh (2000) and Nijssen et al. (2003) note that few studies have presented models that tried to explain context variability.[825] Nijssen and colleagues further suggest accounting for such variability by developing models that actively incorporate the key sources of relevant variability.[826] As argued earlier, difference in the degree of information asymmetry is one of the core sources of variability in the context of trust building. Consequently, the approach pursued here, to explicitly incorporate the framework of product qualities according to the economics of information, advances the body of literature on trust in buyer-seller relationships in a very valuable way. Hopefully, the results of the present study will be helpful in the interpretation of future findings regarding the relevance of trust in such relationships.

The empirical test of the hypotheses stated in this thesis with regard to the effect of dominant product or service qualities have been largely confirmed with one exception (in the NEV sub sample). This result underlines that the application of the theory of the economics of information to the research of trust is very promising. At the end of the day, while the concept of trust itself is not a central variable in economic theory, even in the theory of the economics of information, the combination of this theory with a main model rooted in a more psychological way of thinking yields positive results. This combination is certainly a valuable contribution to the literature on trust.

While the interim objective of developing a basic model of trust in buyer-seller relationships and the influence of product qualities, as described in the previous paragraphs, offers several valuable contributions, it is mainly a prerequisite for the achievement of the final research objective. This third objective contains the main purpose of this work: the analysis of trust in buyer-seller relationships involving NEVs on the supplier side. Chapter 1 defined the following last research objective:

3. *NEV context: Empirically test the proposed model in a large quantitative data sample of relationships of NEVs with potential buyers and compare the results*

[824] Cf. Doney and Cannon (1997), p. 46-47.
[825] Cf. Singh and Sirdeshmukh (2000), p. 165, and Nijssen et al. (2003), p. 46.
[826] Cf. Nijssen et al. (2003), p. 47.

with data for established firms to derive specific and actionable recommendations for the management of NEVs.

As evident from the previous chapters, this core objective of the present thesis has been achieved. It has been shown that trust in a supplier is highly relevant for purchase intentions of potential buyers. Moreover, the general toolkit of trust drivers defined along the framework proposed by Zucker has been proven to be relevant for NEVs as well. This positive outcome of the analysis conducted here, certainly adds to the literature on entrepreneurial marketing.

First of all, the present study, for the first time, offers quantitative empirical insights on trust building between NEVs and their potential customers based on a large data sample. As discussed in chapter 1, the existing research is largely focused on theoretical reasoning and case study-based empirical works. The present study builds on the findings of those publications and expands the knowledge on the issue through empirical results. The large size of the data sample, which includes 170 responses associated with buyer-seller relationships with NEVs on the supply side, provides a sound basis for the conclusions drawn from the empirical analysis.

At the same time, this study responds to three specific calls for research in the respective field: in a recent paper, Welter and Smallbone (2006) have demanded both a) more conceptual clarity on the construct of trust in entrepreneurial relationships as a basis for b) an effective operationalization of trust-related constructs and c) an actual proof of the relevance of trust in such settings. The authors note that *"... it appears that there is a need for greater conceptual clarity with respect to the various forms of trust and the interrelationships between them. It may be argued that an effective operationalization of trust through empirical investigation requires it."*[827] Also, they claim a *"need for studies that are able to convincingly demonstrate the importance of trust in entrepreneurship and business development [...] rather than just its existence."*[828] The analysis conducted in this research project contributes to all three points. Through the adoption of the precise and conceptually rigorous trust model developed by Mayer and colleagues in the entrepreneurship context, the first issue is certainly addressed. Mayer's distinction between trustor- and trustee specific trust antecedents and their relationship with trust itself can be considered the state of the art

[827] Welter and Smallbone (2006), p. 472.
[828] Welter and Smallbone (2006), p. 472.

in trust conceptualizations. Through the application of this concept to the context of this research, a large degree of conceptual clarity as demanded by Welter and Smallbone (2006) has been achieved. Moreover, the scales used to measure the constructs have been proven to be applicable to the context of NEVs: not only is the measurement quality highly satisfactory overall, the congruence of the measures between the NEV and the established firm sub samples is very high.[829] Thus, based on the present study, a set of differentiated trust-related scales that is reliable and valid in an entrepreneurial setting is made available. Finally, Welter and Smallbone (2006) have demanded a proof of the relevance of trust in entrepreneurial settings. According to the large-scale empirical analysis conducted here, trust explains 37% of the variance in a buyer's purchase intention. It can therefore be considered a highly relevant parameter for NEV marketing, especially if one considers that trust is only one out of a multitude of constructs involved in building customer relationships.

With regard to individual trust drivers, this work offers another important contribution. Gruber (2004) reviews three models of entrepreneurial marketing in his paper, each differentiated based on development stages. As he notes, the marketing efforts of new firms in early stages are to a large extent targeted at *"friends and contacts"*[830] and *"founders rely on a network of personal relationships"*[831]. The models reviewed by Gruber are all based on interviews with entrepreneurs and marketing managers in entrepreneurial companies, i.e., of a case-study nature. The results in the present study with regard to the relevance of characteristics-based trust drivers could be seen as adding some empirical support to the descriptive classification of marketing in the first stages of firm life. It has been shown here that social similarity, and to some extent also personal relationships and local proximity[832], act as trust enablers through positive effects on a buyer's perception of trustworthiness. Accordingly, targeting the firm's first marketing activities at buyers who are familiar with the firm or the management team or share similar values or interests, seems to be a promising strategy in the sense that it makes best use of the scarcely available resources.

[829] Refer to section 7.1 and the appendix.
[830] Gruber (2004), p. 173.
[831] Tyebjee et al. (1983), p. 62.
[832] Refer to the discussion on the effect of local proximity and personal relationships in section 8.1.3.

8.2.2 Limitations and directions for further research

The previous section has described several contributions made by this study. However, every research design is a compromise. The following paragraphs will discuss the limitations of this study and seek to derive directions for further research on the topic to help resolve the limitations faced here.

A key limiting issue of this work is the collection of the data sample. One of the objectives was to compare responses regarding NEVs on the supply side with those regarding established firms. In order not to rely on the respondents' assessment in the crucial decision of whether a supplier in mind is an NEV, it was necessary to refer to specific firms in the questionnaire that could be classified beforehand. This had three important effects on the structure of the resulting data. First, only two industries were included, one per industry class according to the information economics theory, to keep the survey manageable. Here, it would be an interesting avenue to test the results of this study with additional credence and experience industries.

Second, the analysis is restricted to the German market; any expansion would have added to the difficulties of handling the survey. Again, a re-test in a different country could provide valuable insights regarding the general applicability of the findings across cultural or market specifics.[833] Moreover, in such an international context, an interesting extension of the model developed here could be to include the second type of institution-based trust sources, intermediary mechanisms and legal norms, that were not included in the present study because, as market characteristics are equal for all firms in question, one would not expect any variance explanation from those constructs in a sample from one specific market.

Third, through the self selection of buyers who are familiar with at least one of the suppliers in the questionnaire, the sample is further restricted, since all buyers, who do not know any of the firms listed at all, are excluded. Eventually, the analysis performed here does not necessarily start at the very beginning of a potential buyer-supplier relationship. As mentioned earlier, this might be one of the reasons for the fact that the data does not support the widely accepted hypothesis on a positive effect of trusting disposition. Potentially, the sample used here only contains data on relationships in stages, in which the effect of trusting disposition has been concealed

[833] Based on Hofstede (2001), it may well be expected that cultural differences are also mirrored in the role and the development of trust in different national contexts.

by the dominant effect of trustworthiness.[834] Unfortunately, though, a quantitative empirical study on trust in buyer-seller relationships based on buyers that are absolutely unfamiliar with the respective vendors appears to be difficult to conduct and to yield limited additional insight.

Another limitation of this study is the use of cross-sectional data. Especially for a better understanding of the *process* of trust development rather than the static *drivers*, a more dynamic analysis based on longitudinal data would be highly promising. It may well be the case that several effects depend on the stage of the relationship in question. As mentioned earlier, the relative influence of trustor- and trustee-specific trust antecedents may be depending on timing. Similar effects may also exist on the level of the trust drivers. The use of longitudinal data for the research of trust in buyer-seller relationship seems to be an especially promising path for future research.

Fifth, the method of analysis seems to be a limitation of this study. While the chosen approach of structural equation modeling is certainly one of the most advanced techniques for the analysis of causal relationships in quantitative empirical research, it does not seem to be sufficient for the analysis of the relationships in the focus of this research. As discussed in the previous chapter, the non-linear positive relationships between local proximity and trustworthiness as well as between personal relationships and trustworthiness are not detected by the PLS estimation, while a look at the scatter plots and two mean comparisons clearly confirm the existence of non-random patterns. Future advances in confirmatory statistical methods should lead to more intuitive and consistent research results and may provide opportunities to revisit some research questions that have found negative answers in earlier studies.

Finally, on the measurement side, it is worth noting that this study is relying in part on formative constructs. As mentioned before, the quality assessment procedures for formative constructs are much less advanced than for reflective constructs (Diamantopoulos and Winklhofer (2001)). Here, future researchers are encouraged, to follow any advances regarding the treatment of formative measures.

[834] This explanation is in line with the argument of Mayer et al. (1995), p. 716, who expect trusting disposition to be the more important the less information is available on the trustee.

8.3 Managerial implications

The previous section has discussed the academic contribution of the present study, based on the research objectives set in the first chapter. However, the analysis also yields several insights than can be valuable for the managerial practice. The following paragraphs will provide action-oriented recommendations mainly targeted at the management of NEVs. Moreover, as evident from the discussion in previous chapters, many of the findings from the analysis are independent of the development stage of the firms in question, so that most of the recommendations should also prove to be relevant for the marketing management of established firms.

Trust matters: keep it on the agenda. This study clearly underlines the large importance of trust as a predictor of purchase intentions. While the general importance is in line with the findings of previous research[835], the analysis in the present study even supports an effect of trust that is stronger than the effect of low costs, high quality, or high delivery reliability.[836] In the full data sample examined here, trust explains 37% of the variability in buyers' purchase intentions. In the sub sample of relationships in the credence industry, trust is even more important, explaining around 50% of the purchase intention variability.

As also evident from this research, the significance of the impact of trust is stable across a wide range of different settings. Not only is trust important in both types of industries analyzed, it also proves relevant both for NEVs and established firms as well as for relationships with existing customers and potential future buyers.

Consequently, trust of potential buyers should be on the agenda of any marketing manager in addition to topics such as awareness generation, pricing, or promotion campaigns.

Love is blind, trust is not: create trust. The trust model by Mayer et al. identifies two sources of trust, a trustor-specific trusting disposition that is largely independent of the trustee ("blind") as well as a trustee-specific perception of trustworthiness. The detailed analysis of these antecedents performed in this study reveals that, in the context of professional buyer-seller relationships, the former does not seem relevant.

[835] Refer to section 4.1.1.
[836] Refer to section 7.2.1.3.

This means that buyer trust is not blind but is almost completely derived from a perception of the supplier's trustworthiness.

While this result is not very surprising in a professional context, it does have practical implications. From a practical perspective, this means that an effort to drive potential buyers' perception of trustworthiness is well spent, since its impact is not overlaid by a stronger or weaker trusting disposition of the counterpart.

This is good news for marketing management, because there is a range of levers available that can be pulled to foster trustworthiness perceptions. It seems important to be aware of these levers and use them; this study suggests a strong end-to-end chain of effects from trust building efforts to a buyer's purchase intention. At the same time, trust is built on *perceived* trustworthiness. Accordingly, one major prerequisite of successful trust building is to *communicate* the trust drivers to potential customers.

Reputation is the key: keep your track record clean. With regard to individual drivers of trustworthiness, reputation seems to be the most powerful one. Not only has reputation the strongest effect of all trust drivers based on the full sample analysis, this result is also very stable across most special contexts analyzed in individual sub samples.

Reputation is a trust driver that seems to be comparably passive from the supplier's perspective, since it largely deals with opinions of third parties in the market. Moreover, it certainly takes time to build, since it can be seen as a synthesis from past exchange history.[837] At the same time, this view of a reputation is also the starting point for active reputation management. A firm that treats its customers with fairness and honesty and takes its customers' interests seriously from the very beginning should have a large chance of developing a good reputation.[838] Especially for the management of NEVs, such a flawless customer interaction seems to be crucial, since individual bad customer experiences becoming public weigh much stronger on a smaller experience base in the market.

Trust can be transferred: leverage trusted third parties. The most powerful trust driver, reputation, takes some time to build. In order to build trust fast, firms can leverage existing trust in third parties through the use of trust transfer. In this case,

[837] Cf., e.g., Zucker (1986), p. 62, or Ganesan (1994), p. 5.
[838] Cf. Ganesan (1994), p. 18.

trust is built based on the association of the supplier with trusted third parties, without the need for any first-hand experience with the supplier. Specifically, the signaling of institutional embeddedness and the use of external references prove to be effective tools.

In the former case, widely accepted *institutions* are used for the trust transfer. Such institutions can be, for example, *educational institutions*, such as *universities*, signaling a high standard of management education, *industry associations*, expressing acceptance of the respective firm through its peer group, or *certification agencies*, attesting compliance with professional standards. Consequently, managers should strive for such institutional seals and highlight these at the interface to potential buyers. Based on the present analysis, two types of institutional seals seem most promising: an excellent education track of the top management and industry-specific important product awards.

External references are a less formal type of institution-based trust drivers. By the same mechanism, the reference to non-formal external parties can drive trustworthiness. Such references can originate from the full scope of business activity. For example, underlining partnerships or transactions in the business community, both with customers and peer companies, can have a positive effect on trustworthiness perceptions – provided the third parties referred to are well-known and trusted. Somewhat less effectively, a firm might also communicate managers' experience from previous positions with other well-reputed firms.

These institution-based trust drivers seem to be specifically relevant for the management of NEVs. In the situation of a lack of first-hand experience on the buyer side, measures such as process certifications and membership in industry or professional associations can act as substitutes that can be acquired comparably quickly. Consequently, managers of NEVs should strive for institutional references early on in order to generate their first stream of sales that is a requirement for firm survival and a prerequisite for the building of process-based trust in the market.

Social characteristics make it easier: begin with your close environment. The analysis has shown that trustworthiness is perceived higher in cases in which a buyer senses a social similarity with the supplier. More specifically, shared values and interests seem to be helpful. While social similarity is not an actionable lever for trust building, this insight does have a practical implication for the management of new firms. In the early stage of a firm's life, marketing is often driven by opportunities and sales to *"friends*

and contacts"[839] rather than by a detailed and structured marketing plan. The results of this study support that approach. Given the usually strict constraints on financial and personnel resources, a focus on such socially similar buyers seems advisable, since the social similarity makes trust building easier. The same applies for potential buyers out of the local environment as well as such buyers, with whom some form of a personal relationship exists.[840]

Context is (not) relevant: know your industry context. One of the core objectives of this work was to analyze the effect of the industry context on the mechanics of trust in buyer-seller relationships. More specifically, the effects of product qualities have been evaluated. As evident from the previous chapter, the results in this respect are slightly mixed. Apparently, the predominance of credence versus experience qualities in an industry seems to be highly relevant in cases, in which the supplier is an established firm, while being less important in the case of an NEV on the supply side.

For the management of established firms, the importance of trust itself and several trust building levers depends on the type of industry. In the credence industry, trust has a much stronger effect on purchase intentions than in the experience industry. Consequently, marketing practitioners in a credence industry should take the topic of trust specifically seriously. On the driver level, it has been shown that the use of risk mitigation instruments such as guarantees, trial periods, cancellation rights, etc. seems to be a blunt instrument in a credence industry. Due to the comparably high costs of these measures, their use should be restricted to settings in experience industries, where they prove to be powerful trust drivers. By contrast, institution-based trust building is very promising in the credence industry, while exhibiting a negligible effect in the experience industry. In summary, the choice of the right trust-building strategy for an *established* firm requires careful consideration of the predominant qualities of the product or service in question.

In the case of NEVs on the supply side, the situation is different. There does not seem to be a difference in the relevance of trust between the two types of industries – potentially because the newness of the supplier rather than the product qualities

[839] Gruber (2004), p. 173.

[840] While the hypotheses of positive effects of personal relationships and local proximity are rejected based on the results of the PLS model estimation, there is clearly a positive effect of both constructs in the sense that perceived trustworthiness is higher in cases, in which a certain minimal level of proximity or personal relationship is stated. Refer to section 8.1.3.

dominates the risk inherent in a purchase. On the level of trust drivers, a similar pattern appears as for established firms, however, the differences are smaller and insignificant. The data therefore suggests pursuing a good reputation, getting an institutional background, and using external references – independent of the type of industry. Of course, it may be advisable to keep the industry context in mind, since it will become relevant once the firm is beginning to be considered established.

8.4 Summarizing conclusion

The main objective of this study has been to analyze the role of trust and the relevance of different trust drivers in relationships of NEVs with their potential customers. Herein, the study has aimed to close a research gap pointed out by several authors.[841]

This objective has been pursued through the theory-driven design and operationalization of a research model, the collection of a large data sample covering a broad range of buyer-seller relationships, and, finally, the application of a state-of-the-art method of statistical analysis, structural equation modeling with the PLS algorithm.

As evident from this last chapter, the objective of this study has been achieved. The model of trust, its direct antecedents and the drivers of trustworthiness is widely supported by the data and the empirical analysis. Trust is underlined by the results of this study as a highly relevant central construct in buyer-seller relationships of NEVs. Moreover, the project contributes to the literature beyond the immediate context of entrepreneurial marketing. The combination of two well-accepted models of trust and trust building as well as the integration of the theory of the economics of information in the form of a moderating effect provide a valuable extension of the existing literature on trust. Finally, action-oriented recommendations for the managerial practice in NEVs have been derived from the research results.

[841] Refer to chapter 1.2.

Appendix

Appendix A: List of participating firms

	PV industry	PR industry
NEVs	csg solar	Adpublica
	Johanna Solar	crossrelations
	Scheuten Solar	FLUTLICHT
	Schüco Solar	Johanssen + Kretschmer
	SULFURCELL	Molthan van Loon
	Suntech	plümer)communications
	WÜRTH SOLAR	Trademark Public Relations
Established firms	BP Solar	Burson-Marsteller
	Conergy	Fink & Fuchs
	KYOCERA	fischerAppelt
	SCHOTT Solar	PLEON KohtesKlewes
	Sharp	Trimedia
	Sunways/MHH	

Appendix B: Questionnaires used for the survey

PV industry survey

The following pages show the questionnaire version used for the survey in the PV industry. The first part presents the paper version of the questionnaire (Figure 22 to Figure 28), the second part presents screen shots of the web-based survey instrument (Figure 29 to Figure 51)

Vertrauen in junge Unternehmen am Beispiel von Herstellern von Solarmodulen

Was wird erforscht?

Mit Ihrer Teilnahme unterstützen Sie ein wissenschaftliches Forschungsprojekt des Lehrstuhls von **Prof. Dr. Malte Brettel** an der **Rheinisch-Westfälischen Technischen Hochschule Aachen** (RWTH Aachen).

Diese Befragung richtet sich an Entscheider, die sich mit der **Beschaffung von Solarmodulen** befassen, und untersucht die **Einflussfaktoren auf das Vertrauen** sowie die **Bedeutung von Vertrauen** in der Entscheidung für einen bestimmten Hersteller.

Was haben Sie davon?

Sie profitieren von einer **praxisorientierten Auswertung der Studienergebnisse**:

- Was sind die maßgeblichen Einflussfaktoren auf das Vertrauen in einen Hersteller?
- **Wie entscheiden andere in Ihrer Position?**

Was ist zu beachten?

- Die Befragung erfordert **ca. 10 Minuten**.
- Alle Angaben dienen ausschließlich dem wissenschaftlichen Forschungsprojekt und werden **streng vertraulich** behandelt.
- In der Befragung treten aus methodischen Gründen **ähnlich klingende Fragen** auf. Wir bitten dafür um Ihr Verständnis.
- Bitte versuchen Sie, **alle Fragen zu beantworten**, auch wenn die Antwort einmal schwer fällt. Ein guter Schätzwert ist wertvoller als ein unvollständiger Fragebogen.
- Bitte schicken Sie den **ausgefüllten Fragebogen per Fax** oder **per Post** an die rechts aufgeführte Nummer / Adresse.

Wen kann ich ansprechen?

Bei **Rückfragen** können Sie sich gern jederzeit an den zuständigen Doktoranden wenden:

Dipl.-Wi.-Inf. Gunnar Wiedenfels

Email:
wiedenfels@win.rwth-aachen.de

Internet:
www.win.rwth-aachen.de/

Telefon: 0175 / 318 1396

Telefax: 0241 / 80 92371

Postanschrift: RWTH Aachen
Lehrstuhl WIN
Gunnar Wiedenfels
Templergraben 64
52056 Aachen

Vielen Dank im Voraus für Ihre Unterstützung!

Wenn Sie Interesse an den Auswertungen der Untersuchung haben, machen Sie bitte die folgenden Angaben:

Anrede: ☐ Herr ☐ Frau

Name: _____

Email: _____

(**Anmerkung:** Dieser Abschnitt wird von uns vor der Auswertung der Daten vom Fragebogen abgetrennt.)

Figure 22: Offline questionnaire PV industry – cover page

Teil I: Hersteller von Solarmodulen

I. 1. Vertrautheit mit ausgewählten Herstellern

Wie gut **kennen** Sie die folgenden Hersteller?	Kenne ich gar nicht	Kenne ich dem Namen nach, ohne nähere Vorstellungen davon	Kenne ich, habe auch nähere Vorstellungen davon	Ist für mich bei der Herstellerauswahl eine relevante Option	Wir haben bereits Module dieses Herstellers gekauft/ verwendet
SULFURCELL	☐	☐	☐	☐	☐
Scheuten Solar	☐	☐	☐	☐	☐
Schüco Solar	☐	☐	☐	☐	☐
Suntech	☐	☐	☐	☐	☐
Johanna Solar	☐	☐	☐	☐	☐
csg solar	☐	☐	☐	☐	☐
Conergy	☐	☐	☐	☐	☐
WÜRTH SOLAR	☐	☐	☐	☐	☐
SCHOTT Solar	☐	☐	☐	☐	☐
BP Solar	☐	☐	☐	☐	☐
Sunways/MHH	☐	☐	☐	☐	☐
Sharp	☐	☐	☐	☐	☐
KYOCERA	☐	☐	☐	☐	☐

Anmerkung:

Sollten Sie **keinen der Hersteller** in dieser Liste **kennen**, so können Sie die **folgenden vier Seiten** überspringen, da sich die Fragen im folgenden Teil des Fragebogens auf einen der Hersteller aus dieser Liste beziehen. Bitte machen Sie dennoch die Angaben, die auf der **letzten Seite des Fragebogens** abgefragt werden. Vielen Dank!

Figure 23: Offline questionnaire PV industry – page 1

Teil II: Herstellerbezogene Fragen

II.1. Referenzhersteller (wichtig!)

Die Fragen in diesem Teil des Fragebogens beziehen sich **auf einen konkreten Hersteller**. Bitte **wählen Sie** dazu einen der **Hersteller aus der Liste** auf der vorhergehenden Seite aus und beantworten Sie die **folgenden Fragen im Hinblick auf diesen Hersteller**. Wenn im Folgenden von **"Hersteller x"** die Rede ist, denken Sie bitte an den **Hersteller, den Sie ausgewählt haben**.

Gewählter Hersteller: _____

II.2. Maßnahmen der Risikobegrenzung durch Hersteller x

Inwieweit treffen die folgenden Aussagen über Hersteller x zu? Bitte versuchen Sie, die Aussagen zu bewerten, auch wenn Sie sich nicht ganz sicher sind.	Trifft gar nicht zu						Trifft voll zu
Das Geschäftsmodell von Hersteller x beinhaltet qualitätsabhängige Preise	☐	☐	☐	☐	☐	☐	☐
Hersteller x bietet mir Garantien auf die angebotenen Produkte	☐	☐	☐	☐	☐	☐	☐
Hersteller x nutzt Versicherungen, um Geschäftspartner gegen Schadensfälle abzusichern	☐	☐	☐	☐	☐	☐	☐
Hersteller x räumt mir ein Rücktrittsrecht ein, sollte ich mit dem Produkt nicht zufrieden sein	☐	☐	☐	☐	☐	☐	☐
Hersteller x ermöglicht mir, die angebotenen Produkte vor Vertragsabschluss zu testen	☐	☐	☐	☐	☐	☐	☐
Insgesamt bietet Hersteller x weitreichende Maßnahmen zur Begrenzung von Risiken für den Kunden	☐	☐	☐	☐	☐	☐	☐

II.3. Reputation von Hersteller x

Inwieweit treffen die Aussagen über die **Reputation** von Hersteller x zu? Bitte denken Sie daran, was **andere** über Hersteller x denken und sagen würden.	Trifft gar nicht zu						Trifft voll zu
Hersteller x hat allgemein den Ruf ehrlich zu sein	☐	☐	☐	☐	☐	☐	☐
Die meisten unserer Wettbewerber würden gern mit Hersteller x Geschäfte machen	☐	☐	☐	☐	☐	☐	☐
Die meisten unserer Wettbewerber würden sagen, dass Hersteller x den Ruf hat fair zu sein	☐	☐	☐	☐	☐	☐	☐
Hersteller x hat den Ruf, die Interessen seiner Kunden ernst zu nehmen	☐	☐	☐	☐	☐	☐	☐
Hersteller x hat einen *schlechten Ruf* im Markt	☐	☐	☐	☐	☐	☐	☐

II.4. Alter und Größe von Hersteller x

Inwieweit treffen die folgenden Aussagen über **Alter und Größe** von Hersteller x zu?	Trifft gar nicht zu						Trifft voll zu
Hersteller x existiert im Branchenvergleich schon sehr lange	☐	☐	☐	☐	☐	☐	☐
Hersteller x ist im Branchenvergleich ein sehr großes Unternehmen	☐	☐	☐	☐	☐	☐	☐

II.5. Ähnlichkeit

Inwieweit treffen die folgenden Aussagen über Ähnlichkeiten **zwischen Hersteller x und Ihrem Unternehmen** zu?	Trifft gar nicht zu						Trifft voll zu
Die Menschen bei Hersteller x haben ähnliche *Werte* wie die Menschen in unserem Unternehmen	☐	☐	☐	☐	☐	☐	☐
Die Menschen bei Hersteller x haben ähnliche *Interessen* wie die Menschen in unserem Unternehmen	☐	☐	☐	☐	☐	☐	☐
Die Menschen bei Hersteller x sind den Menschen in unserem Unternehmen *insgesamt sehr ähnlich*	☐	☐	☐	☐	☐	☐	☐

II.6. Persönliche Verbindungen

Gibt es persönliche Verbindungen **zwischen Ihnen und Mitarbeitern von Hersteller x**? Bitte geben Sie an, wie zutreffend die folgenden Aussagen sind.	Trifft gar nicht zu						Trifft voll zu
Zu einigen Mitarbeitern von Hersteller x habe ich ein sehr gutes Verhältnis auch über das Geschäftliche hinaus	☐	☐	☐	☐	☐	☐	☐
Ich habe Freunde bei Hersteller x	☐	☐	☐	☐	☐	☐	☐

Figure 24: Offline questionnaire PV industry – page 2

WIN gründer kolleg RWTH AACHEN

Teil II: Herstellerbezogene Fragen (Fortsetzung)

II.7. Räumliche Nähe

Inwieweit trifft die folgende Aussage auf Hersteller x zu?	Trifft gar nicht zu						Trifft voll zu
Hersteller x ist ein Unternehmen aus unserer Region	☐	☐	☐	☐	☐	☐	☐

II.8. Nutzung externer Referenzen

Inwieweit treffen die folgenden Aussagen auf Hersteller x zu?	Trifft gar nicht zu						Trifft voll zu
Hersteller x verfügt über Referenzen renommierter Kunden	☐	☐	☐	☐	☐	☐	☐
Das Management von Hersteller x hat Erfahrungen aus früheren Positionen bei renommierten Unternehmen	☐	☐	☐	☐	☐	☐	☐
Hersteller x verfügt über renommierte Partner in der Geschäftswelt	☐	☐	☐	☐	☐	☐	☐
Insgesamt kann Hersteller x auf weitreichende externe Referenzen verweisen	☐	☐	☐	☐	☐	☐	☐

II.9. Bezug zu professionellen Institutionen

Inwieweit treffen die folgenden Aussagen auf Hersteller x zu?	Trifft gar nicht zu						Trifft voll zu
Das Management von Hersteller x weist eine ausgezeichnete Ausbildung auf	☐	☐	☐	☐	☐	☐	☐
Hersteller x ist in wichtigen (Branchen-)Verbänden und Organisationen (z.B. DGS, BSW, EPIA) vertreten	☐	☐	☐	☐	☐	☐	☐
Hersteller x kann Zertifizierungen seiner Produkte und Prozesse vorweisen (z.B. ISO 9001, TÜV-Siegel)	☐	☐	☐	☐	☐	☐	☐
Hersteller x hat bereits bedeutende Auszeichnungen erhalten	☐	☐	☐	☐	☐	☐	☐
Insgesamt zeigt sich bei Hersteller x ein starker Bezug zu professionellen Institutionen	☐	☐	☐	☐	☐	☐	☐

II.10. Integrität von Hersteller x

Für wie **integer** halten Sie Hersteller x? Bitte antworten Sie nach **Ihrem** Gefühl, unabhängig davon, was andere sagen würden.	Trifft gar nicht zu						Trifft voll zu
Hersteller x ist ehrlich in seinen Geschäftsbeziehungen	☐	☐	☐	☐	☐	☐	☐
Hersteller x würde seine Versprechungen immer einhalten	☐	☐	☐	☐	☐	☐	☐
Ich würde Hersteller x als ein integres Unternehmen charakterisieren	☐	☐	☐	☐	☐	☐	☐
Hersteller x ist in meinen Augen ein seriöses Unternehmen	☐	☐	☐	☐	☐	☐	☐

II.11. Kompetenz von Hersteller x

Für wie **kompetent** halten Sie Hersteller x? Bitte antworten Sie wieder nach **Ihrem** Gefühl bzw. **Ihrer Erfahrung**, unabhängig davon, was andere sagen würden.	Trifft gar nicht zu						Trifft voll zu
Insgesamt ist Hersteller x ein professioneller Anbieter von Solarmodulen	☐	☐	☐	☐	☐	☐	☐
Hersteller x erfüllt seine Rolle als Hersteller von Solarmodulen sehr gut	☐	☐	☐	☐	☐	☐	☐
Hersteller x ist effektiv in seinem Geschäftsfeld	☐	☐	☐	☐	☐	☐	☐
Insgesamt ist Hersteller x ein fähiger Anbieter von Solarmodulen	☐	☐	☐	☐	☐	☐	☐
Hersteller x verfügt über sehr viel Wissen auf dem Gebiet der Photovoltaik	☐	☐	☐	☐	☐	☐	☐

II.12. Wohlwollen von Hersteller x

Wie **wohlwollend**, glauben Sie, wäre Hersteller x Ihrem Unternehmen als **Kunden gegenüber**? Bitte antworten Sie wieder nach **Ihrem** Gefühl, unabhängig davon, was andere sagen würden.	Trifft gar nicht zu						Trifft voll zu
Hersteller x würde in unserem besten Interesse handeln	☐	☐	☐	☐	☐	☐	☐
Hersteller x hätte Interesse auch am Erfolg meines Unternehmens, nicht nur des eigenen	☐	☐	☐	☐	☐	☐	☐
Hersteller x würde sicher sein Möglichstes tun für uns als Kunden	☐	☐	☐	☐	☐	☐	☐

Figure 25: Offline questionnaire PV industry – page 3

WIN gründer kolleg RWTH AACHEN

Teil II: Herstellerbezogene Fragen (Fortsetzung)

II.13. Wettbewerbsvergleich

Wie beurteilen Sie Hersteller x **verglichen mit seinen Wettbewerbern** im Hinblick auf...	Sehr schlecht			Durchschnitt-lich			Sehr gut
... den Preis der angebotenen Produkte	☐	☐	☐	☐	☐	☐	☐
... die Zahlungsbedingungen	☐	☐	☐	☐	☐	☐	☐
... die gesamten Kosten der Zusammenarbeit	☐	☐	☐	☐	☐	☐	☐
... die Qualität der angebotenen Produkte	☐	☐	☐	☐	☐	☐	☐
... die Termintreue	☐	☐	☐	☐	☐	☐	☐

II.14. Vertrauen in Hersteller x

Bitte beurteilen Sie, wie sehr Sie Hersteller x **vertrauen** oder nicht.	Trifft gar nicht zu						Trifft voll zu
Sollte jemand die guten Absichten von Hersteller x in Frage stellen, würde ich eher Hersteller x glauben	☐	☐	☐	☐	☐	☐	☐
Ich kann mich auf Hersteller x verlassen	☐	☐	☐	☐	☐	☐	☐
Ich schenke den Informationen von Hersteller x Glauben, auch wenn ich sie nicht überprüfen kann	☐	☐	☐	☐	☐	☐	☐
Ich vertraue Hersteller x	☐	☐	☐	☐	☐	☐	☐
Ich würde Empfehlungen von Hersteller x bei wichtigen Entscheidungen berücksichtigen	☐	☐	☐	☐	☐	☐	☐
Mit Hersteller x wäre ich *vorsichtig*	☐	☐	☐	☐	☐	☐	☐

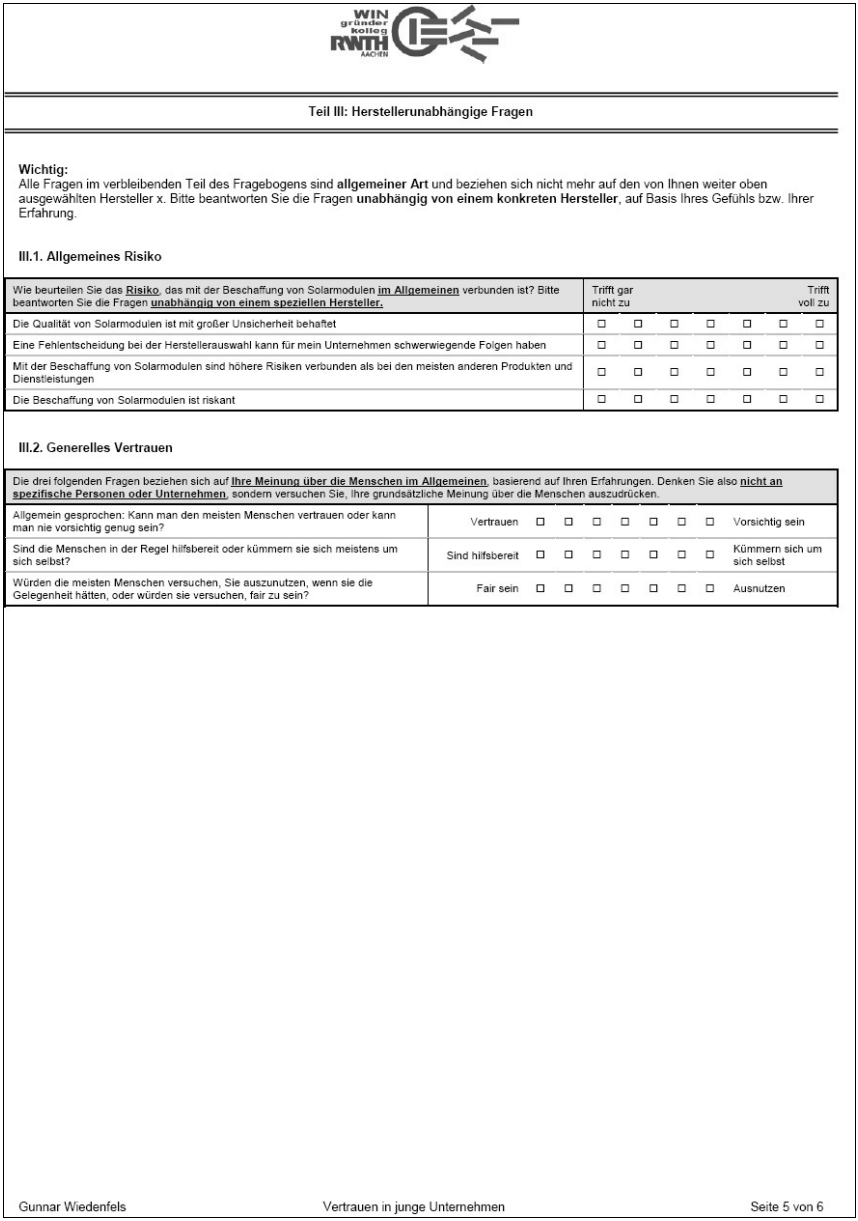
II.15. Zukünftige Zusammenarbeit

Werden Sie **zukünftig Produkte von Hersteller x beziehen**?								
Eher nicht	☐	☐	☐	☐	☐	☐	☐	Auf jeden Fall
Unwahrscheinlich	☐	☐	☐	☐	☐	☐	☐	Wahrscheinlich
Unmöglich	☐	☐	☐	☐	☐	☐	☐	Möglich

II.16. Für Kunden und ehemalige Kunden von Hersteller x: Zufriedenheit

Wie beurteilen Sie **Ihre Geschäftsbeziehung** mit Hersteller x? Sollten Sie **keine Erfahrung als Kunde von Hersteller x** haben, so kreuzen Sie bitte hier an (☐ **Keine Erfahrung**) und überspringen Sie die Frage	Trifft gar nicht zu						Trifft voll zu
Wir sind zufrieden mit den Ergebnissen unserer Geschäftsbeziehung	☐	☐	☐	☐	☐	☐	☐
Unsere Geschäftsbeziehung hat unsere Erwartungen übererfüllt	☐	☐	☐	☐	☐	☐	☐
Unsere Geschäftsbeziehung mit Hersteller x ist (war) insgesamt erfolgreich	☐	☐	☐	☐	☐	☐	☐

Figure 26: Offline questionnaire PV industry – page 4



Teil III: Herstellerunabhängige Fragen

Wichtig:
Alle Fragen im verbleibenden Teil des Fragebogens sind **allgemeiner Art** und beziehen sich nicht mehr auf den von Ihnen weiter oben ausgewählten Hersteller x. Bitte beantworten Sie die Fragen **unabhängig von einem konkreten Hersteller**, auf Basis Ihres Gefühls bzw. Ihrer Erfahrung.

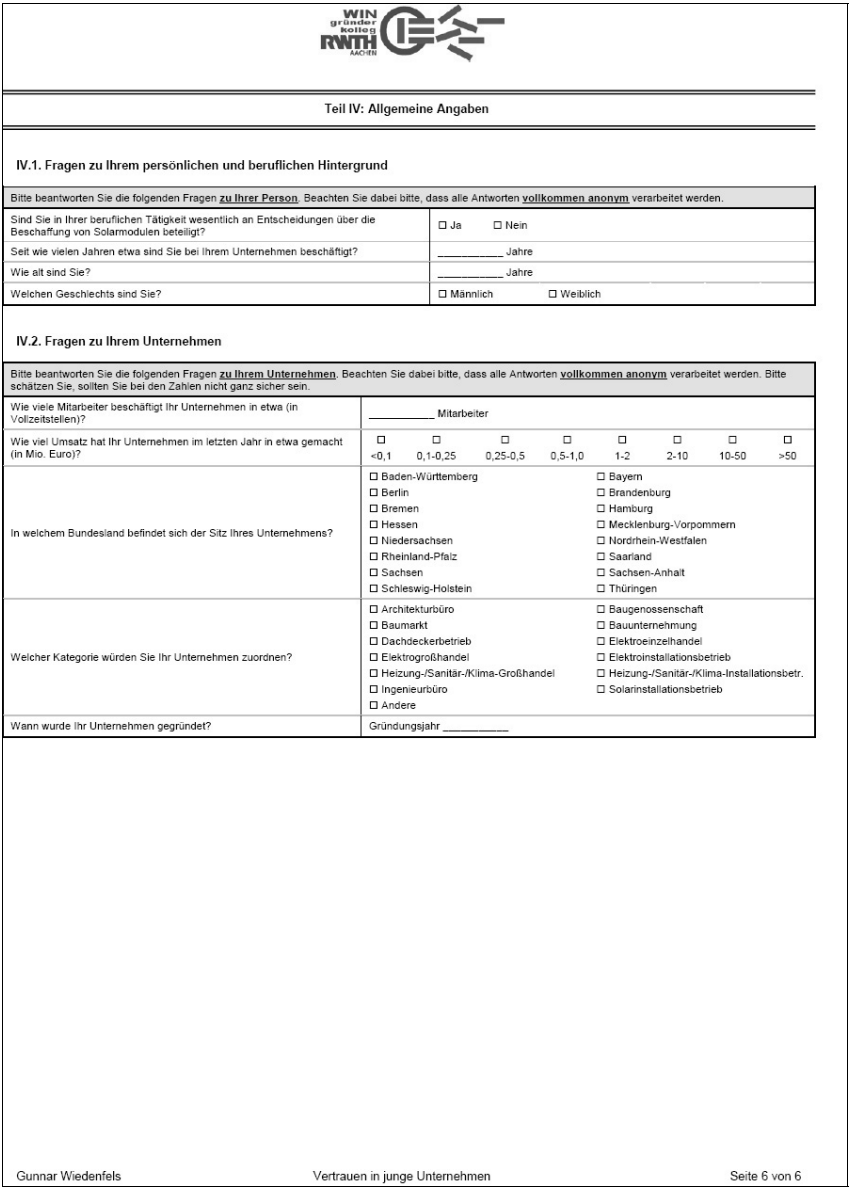
III.1. Allgemeines Risiko

Wie beurteilen Sie das **Risiko**, das mit der Beschaffung von Solarmodulen **im Allgemeinen** verbunden ist? Bitte beantworten Sie die Fragen **unabhängig von einem speziellen Hersteller.**	Trifft gar nicht zu						Trifft voll zu
Die Qualität von Solarmodulen ist mit großer Unsicherheit behaftet	☐	☐	☐	☐	☐	☐	☐
Eine Fehlentscheidung bei der Herstellerauswahl kann für mein Unternehmen schwerwiegende Folgen haben	☐	☐	☐	☐	☐	☐	☐
Mit der Beschaffung von Solarmodulen sind höhere Risiken verbunden als bei den meisten anderen Produkten und Dienstleistungen	☐	☐	☐	☐	☐	☐	☐
Die Beschaffung von Solarmodulen ist riskant	☐	☐	☐	☐	☐	☐	☐

III.2. Generelles Vertrauen

Die drei folgenden Fragen beziehen sich auf **Ihre Meinung über die Menschen im Allgemeinen**, basierend auf Ihren Erfahrungen. Denken Sie also **nicht an spezifische Personen oder Unternehmen**, sondern versuchen Sie, Ihre grundsätzliche Meinung über die Menschen auszudrücken.									
Allgemein gesprochen: Kann man den meisten Menschen vertrauen oder kann man nie vorsichtig genug sein?	Vertrauen	☐	☐	☐	☐	☐	☐	☐	Vorsichtig sein
Sind die Menschen in der Regel hilfsbereit oder kümmern sie sich meistens um sich selbst?	Sind hilfsbereit	☐	☐	☐	☐	☐	☐	☐	Kümmern sich um sich selbst
Würden die meisten Menschen versuchen, Sie auszunutzen, wenn sie die Gelegenheit hätten, oder würden sie versuchen, fair zu sein?	Fair sein	☐	☐	☐	☐	☐	☐	☐	Ausnutzen

Figure 27: Offline questionnaire PV industry – page 5



Teil IV: Allgemeine Angaben

IV.1. Fragen zu Ihrem persönlichen und beruflichen Hintergrund

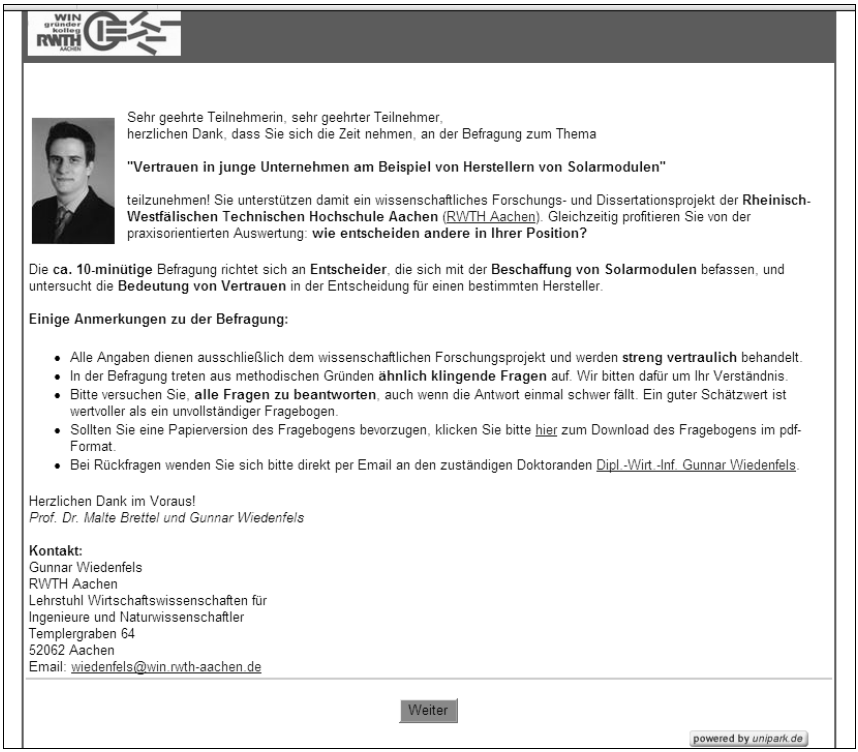
Bitte beantworten Sie die folgenden Fragen **zu Ihrer Person**. Beachten Sie dabei bitte, dass alle Antworten **vollkommen anonym** verarbeitet werden.	
Sind Sie in Ihrer beruflichen Tätigkeit wesentlich an Entscheidungen über die Beschaffung von Solarmodulen beteiligt?	☐ Ja ☐ Nein
Seit wie vielen Jahren etwa sind Sie bei Ihrem Unternehmen beschäftigt?	_____ Jahre
Wie alt sind Sie?	_____ Jahre
Welchen Geschlechts sind Sie?	☐ Männlich ☐ Weiblich

IV.2. Fragen zu Ihrem Unternehmen

Bitte beantworten Sie die folgenden Fragen **zu Ihrem Unternehmen**. Beachten Sie dabei bitte, dass alle Antworten **vollkommen anonym** verarbeitet werden. Bitte schätzen Sie, sollten Sie bei den Zahlen nicht ganz sicher sein.								
Wie viele Mitarbeiter beschäftigt Ihr Unternehmen in etwa (in Vollzeitstellen)?	_____ Mitarbeiter							
Wie viel Umsatz hat Ihr Unternehmen im letzten Jahr in etwa gemacht (in Mio. Euro)?	☐ <0,1	☐ 0,1-0,25	☐ 0,25-0,5	☐ 0,5-1,0	☐ 1-2	☐ 2-10	☐ 10-50	☐ >50
In welchem Bundesland befindet sich der Sitz Ihres Unternehmens?	☐ Baden-Württemberg ☐ Berlin ☐ Bremen ☐ Hessen ☐ Niedersachsen ☐ Rheinland-Pfalz ☐ Sachsen ☐ Schleswig-Holstein				☐ Bayern ☐ Brandenburg ☐ Hamburg ☐ Mecklenburg-Vorpommern ☐ Nordrhein-Westfalen ☐ Saarland ☐ Sachsen-Anhalt ☐ Thüringen			
Welcher Kategorie würden Sie Ihr Unternehmen zuordnen?	☐ Architekturbüro ☐ Baumarkt ☐ Dachdeckerbetrieb ☐ Elektrogroßhandel ☐ Heizung-/Sanitär-/Klima-Großhandel ☐ Ingenieurbüro ☐ Andere				☐ Baugenossenschaft ☐ Bauunternehmung ☐ Elektroeinzelhandel ☐ Elektroinstallationsbetrieb ☐ Heizung-/Sanitär-/Klima-Installationsbetr. ☐ Solarinstallationsbetrieb			
Wann wurde Ihr Unternehmen gegründet?	Gründungsjahr _____							

Gunnar Wiedenfels Vertrauen in junge Unternehmen Seite 6 von 6

Figure 28: Offline questionnaire PV industry – page 6



Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer,
herzlichen Dank, dass Sie sich die Zeit nehmen, an der Befragung zum Thema

"Vertrauen in junge Unternehmen am Beispiel von Herstellern von Solarmodulen"

teilzunehmen! Sie unterstützen damit ein wissenschaftliches Forschungs- und Dissertationsprojekt der **Rheinisch-Westfälischen Technischen Hochschule Aachen** (RWTH Aachen). Gleichzeitig profitieren Sie von der praxisorientierten Auswertung: **wie entscheiden andere in Ihrer Position?**

Die **ca. 10-minütige** Befragung richtet sich an **Entscheider**, die sich mit der **Beschaffung von Solarmodulen** befassen, und untersucht die **Bedeutung von Vertrauen** in der Entscheidung für einen bestimmten Hersteller.

Einige Anmerkungen zu der Befragung:

- Alle Angaben dienen ausschließlich dem wissenschaftlichen Forschungsprojekt und werden **streng vertraulich** behandelt.
- In der Befragung treten aus methodischen Gründen **ähnlich klingende Fragen** auf. Wir bitten dafür um Ihr Verständnis.
- Bitte versuchen Sie, **alle Fragen zu beantworten**, auch wenn die Antwort einmal schwer fällt. Ein guter Schätzwert ist wertvoller als ein unvollständiger Fragebogen.
- Sollten Sie eine Papierversion des Fragebogens bevorzugen, klicken Sie bitte hier zum Download des Fragebogens im pdf-Format.
- Bei Rückfragen wenden Sie sich bitte direkt per Email an den zuständigen Doktoranden Dipl.-Wirt.-Inf. Gunnar Wiedenfels.

Herzlichen Dank im Voraus!
Prof. Dr. Malte Brettel und Gunnar Wiedenfels

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Weiter

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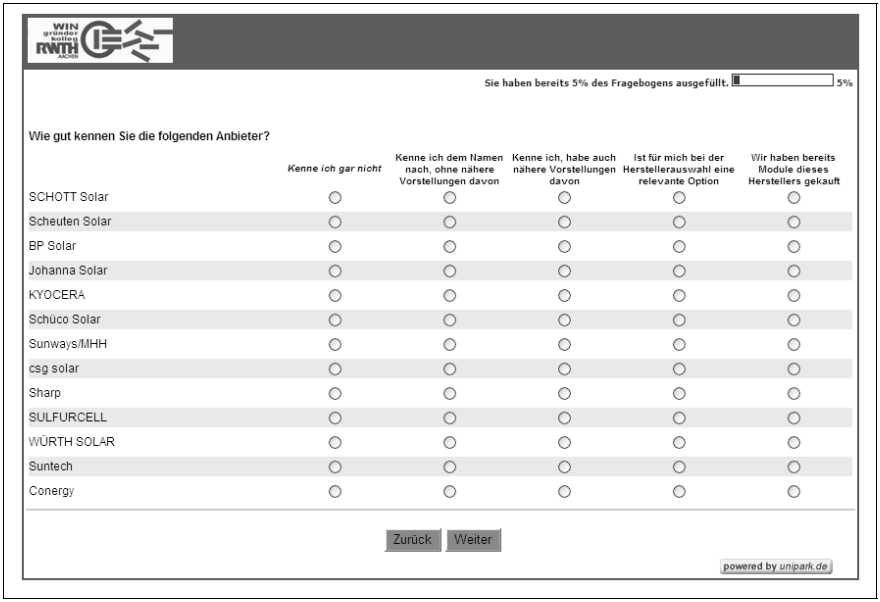
Figure 29: Online questionnaire PV industry – welcome screen



Sie haben bereits 5% des Fragebogens ausgefüllt. 5%

Wie gut kennen Sie die folgenden Anbieter?

	Kenne ich gar nicht	Kenne ich dem Namen nach, ohne nähere Vorstellungen davon	Kenne ich, habe auch nähere Vorstellungen davon	Ist für mich bei der Herstellerauswahl eine relevante Option	Wir haben bereits Module dieses Herstellers gekauft
SCHOTT Solar	○	○	○	○	○
Scheuten Solar	○	○	○	○	○
BP Solar	○	○	○	○	○
Johanna Solar	○	○	○	○	○
KYOCERA	○	○	○	○	○
Schüco Solar	○	○	○	○	○
Sunways/MHH	○	○	○	○	○
csg solar	○	○	○	○	○
Sharp	○	○	○	○	○
SULFURCELL	○	○	○	○	○
WÜRTH SOLAR	○	○	○	○	○
Suntech	○	○	○	○	○
Conergy	○	○	○	○	○

Zurück Weiter

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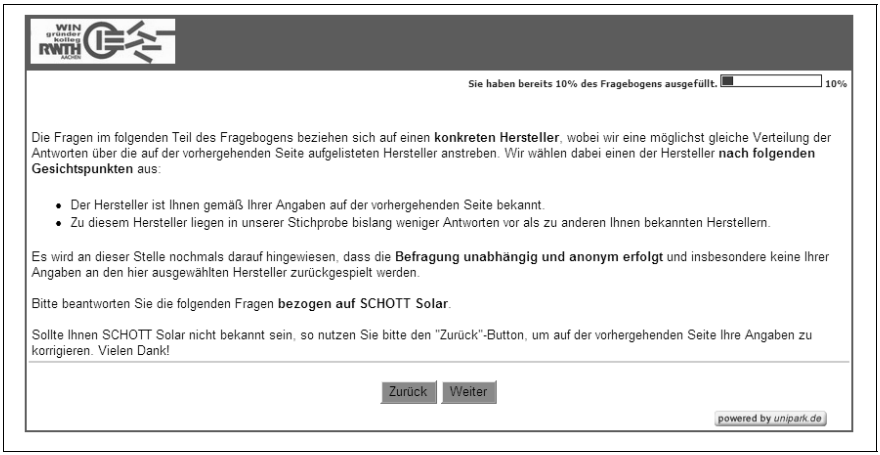
Figure 30: Online questionnaire PV industry – screen 1



Sie haben bereits 10% des Fragebogens ausgefüllt. 10%

Die Fragen im folgenden Teil des Fragebogens beziehen sich auf einen **konkreten Hersteller**, wobei wir eine möglichst gleiche Verteilung der Antworten über die auf der vorhergehenden Seite aufgelisteten Hersteller anstreben. Wir wählen dabei einen der Hersteller **nach folgenden Gesichtspunkten** aus:

- Der Hersteller ist Ihnen gemäß Ihrer Angaben auf der vorhergehenden Seite bekannt.
- Zu diesem Hersteller liegen in unserer Stichprobe bislang weniger Antworten vor als zu anderen Ihnen bekannten Herstellern.

Es wird an dieser Stelle nochmals darauf hingewiesen, dass die **Befragung unabhängig und anonym erfolgt** und insbesondere keine Ihrer Angaben an den hier ausgewählten Hersteller zurückgespielt werden.

Bitte beantworten Sie die folgenden Fragen **bezogen auf SCHOTT Solar**.

Sollte Ihnen SCHOTT Solar nicht bekannt sein, so nutzen Sie bitte den "Zurück"-Button, um auf der vorhergehenden Seite Ihre Angaben zu korrigieren. Vielen Dank!

Zurück Weiter

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Figure 31: Online questionnaire PV industry – screen 2

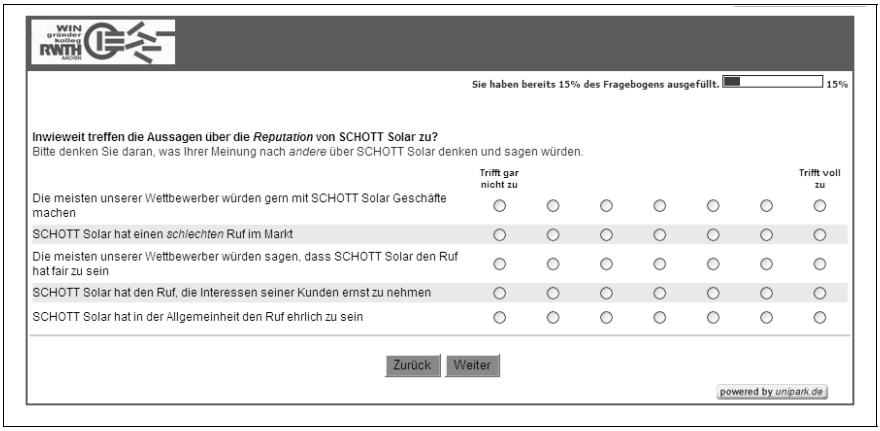


Figure 32: Online questionnaire PV industry – screen 3

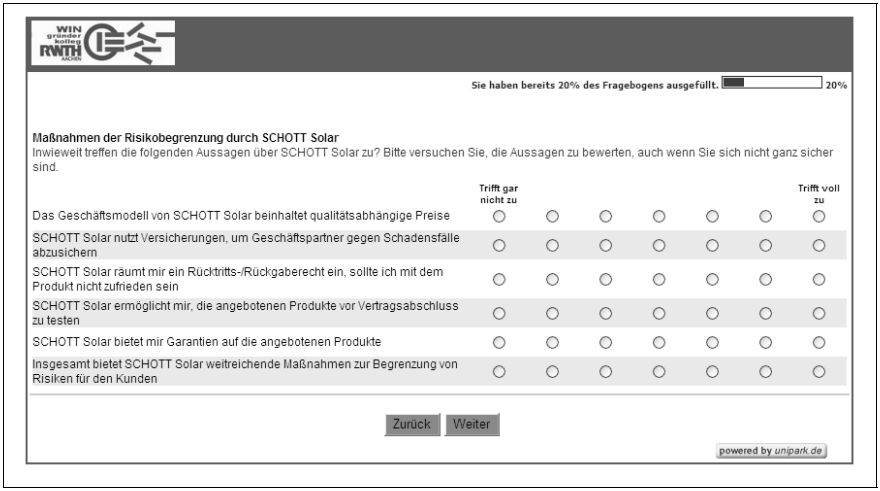


Figure 33: Online questionnaire PV industry – screen 4

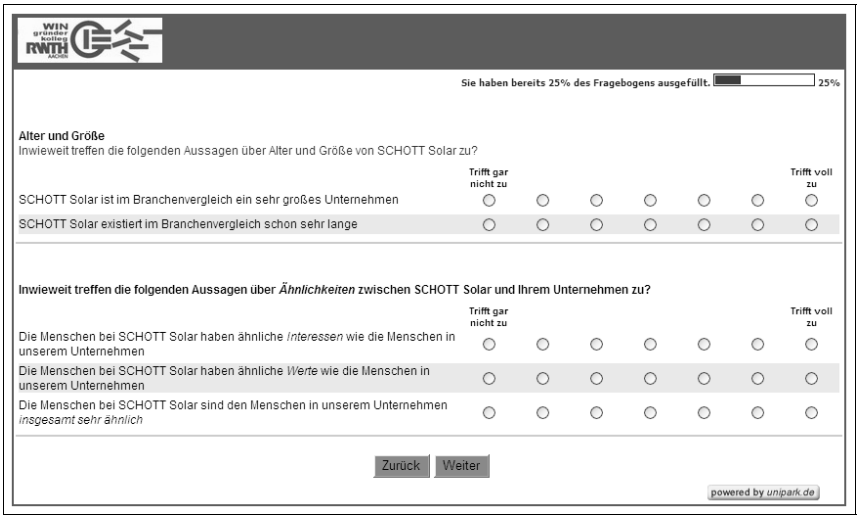


Figure 34: Online questionnaire PV industry – screen 5

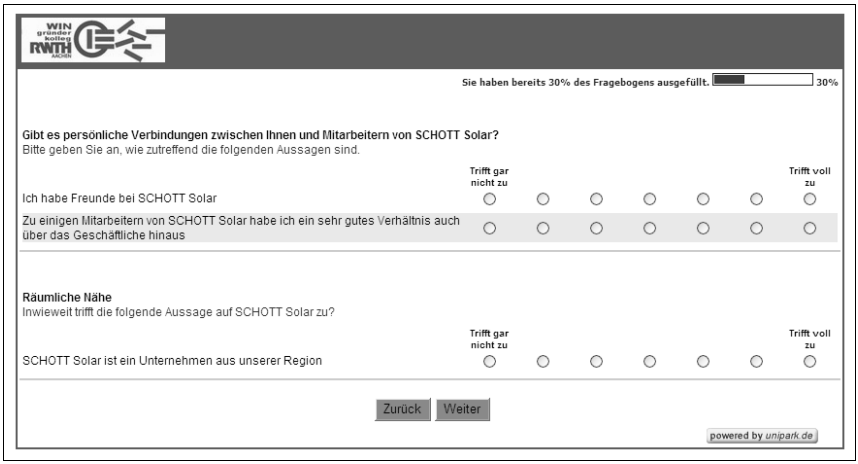
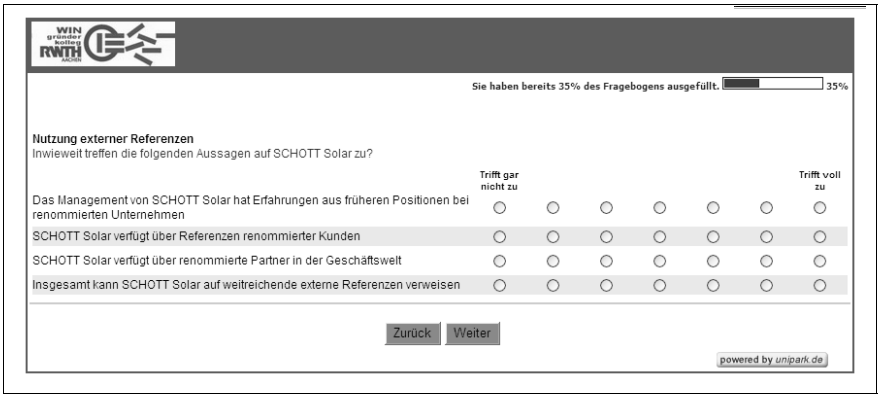


Figure 35: Online questionnaire PV industry – screen 6



Sie haben bereits 35% des Fragebogens ausgefüllt. 35%

Nutzung externer Referenzen
Inwieweit treffen die folgenden Aussagen auf SCHOTT Solar zu?

	Trifft gar nicht zu						Trifft voll zu
Das Management von SCHOTT Solar hat Erfahrungen aus früheren Positionen bei renommierten Unternehmen	○	○	○	○	○	○	○
SCHOTT Solar verfügt über Referenzen renommierter Kunden	○	○	○	○	○	○	○
SCHOTT Solar verfügt über renommierte Partner in der Geschäftswelt	○	○	○	○	○	○	○
Insgesamt kann SCHOTT Solar auf weitreichende externe Referenzen verweisen	○	○	○	○	○	○	○

Zurück Weiter

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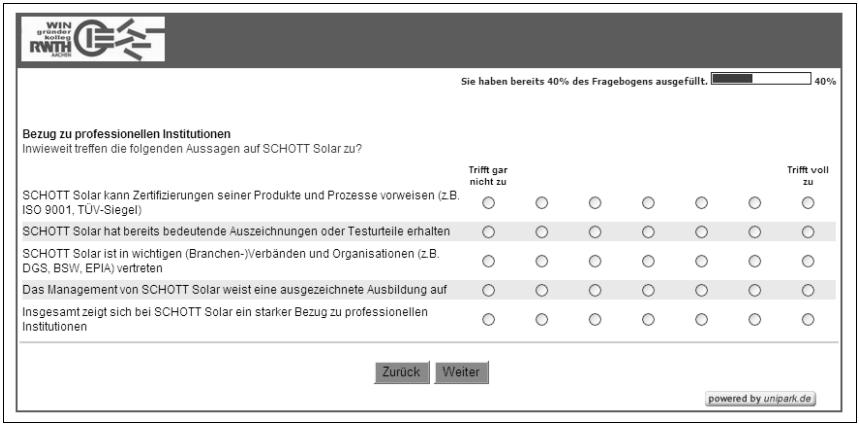
Figure 36: Online questionnaire PV industry – screen 7



Sie haben bereits 40% des Fragebogens ausgefüllt. 40%

Bezug zu professionellen Institutionen
Inwieweit treffen die folgenden Aussagen auf SCHOTT Solar zu?

	Trifft gar nicht zu						Trifft voll zu
SCHOTT Solar kann Zertifizierungen seiner Produkte und Prozesse vorweisen (z.B. ISO 9001, TÜV-Siegel)	○	○	○	○	○	○	○
SCHOTT Solar hat bereits bedeutende Auszeichnungen oder Testurteile erhalten	○	○	○	○	○	○	○
SCHOTT Solar ist in wichtigen (Branchen-)Verbänden und Organisationen (z.B. DGS, BSW, EPIA) vertreten	○	○	○	○	○	○	○
Das Management von SCHOTT Solar weist eine ausgezeichnete Ausbildung auf	○	○	○	○	○	○	○
Insgesamt zeigt sich bei SCHOTT Solar ein starker Bezug zu professionellen Institutionen	○	○	○	○	○	○	○

Zurück Weiter

powered by unipark.de

Figure 37: Online questionnaire PV industry – screen 8

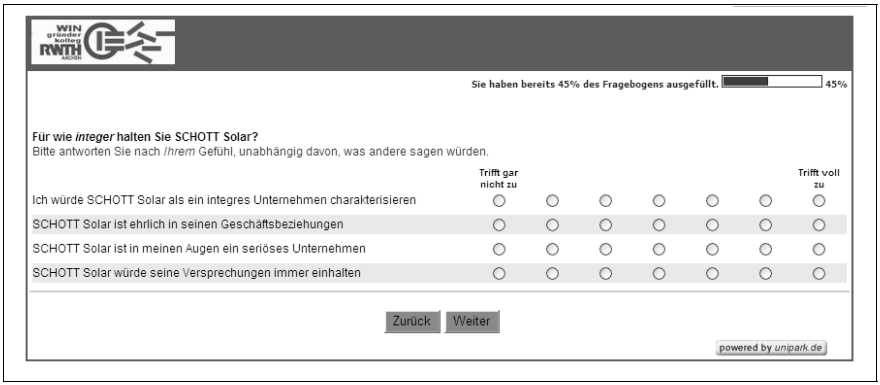


Figure 38: Online questionnaire PV industry – screen 9

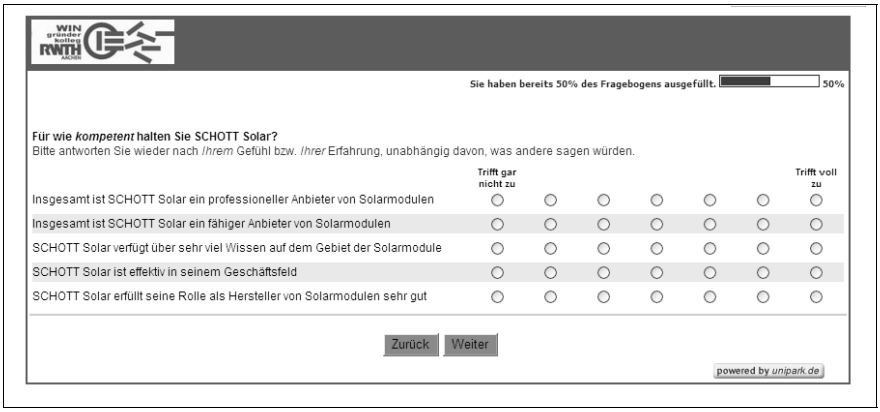


Figure 39: Online questionnaire PV industry – screen 10

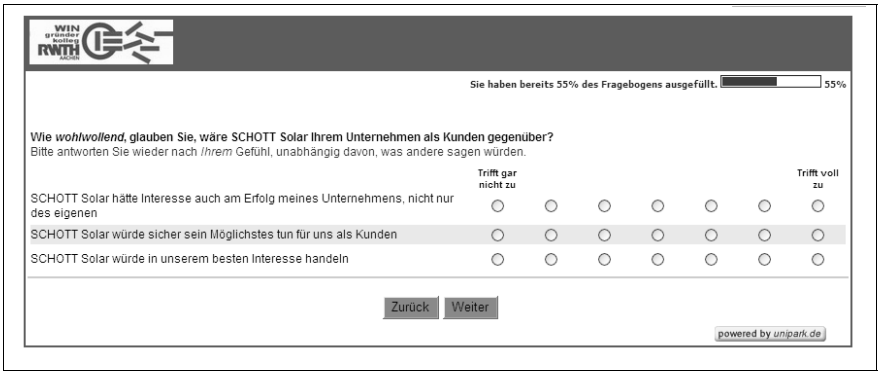


Figure 40: Online questionnaire PV industry – screen 11

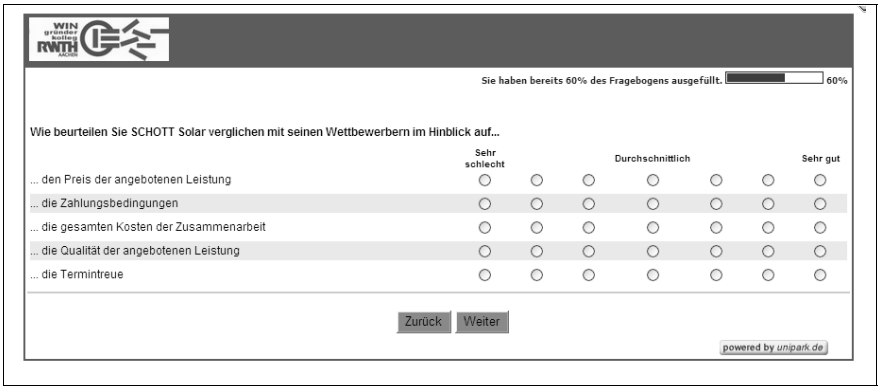


Figure 41: Online questionnaire PV industry – screen 12

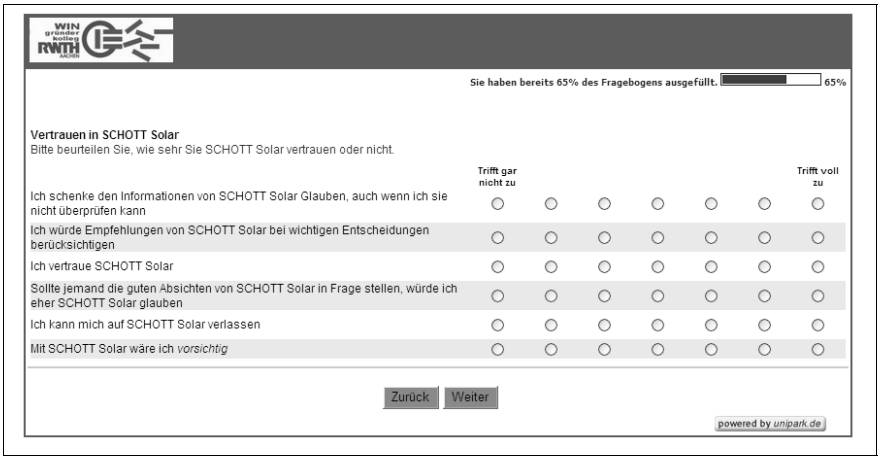


Figure 42: Online questionnaire PV industry – screen 13

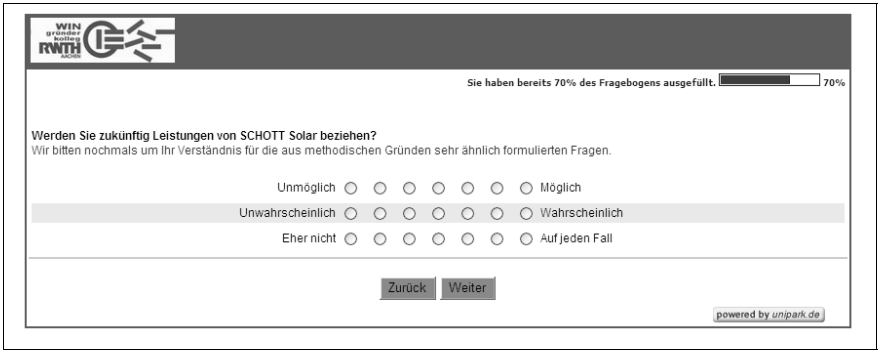


Figure 43: Online questionnaire PV industry – screen 14

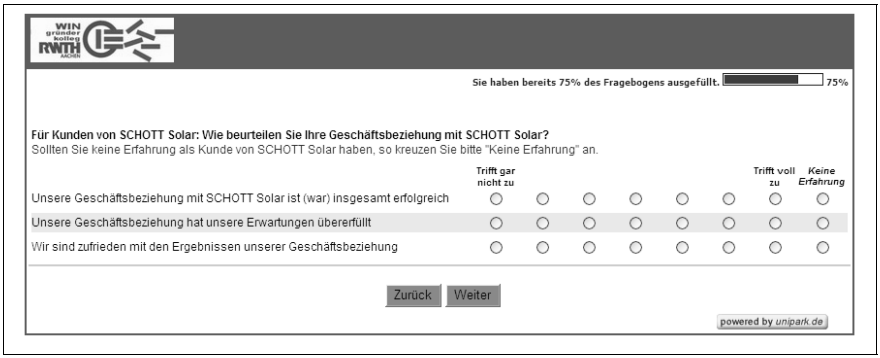


Figure 44: Online questionnaire PV industry – screen 15

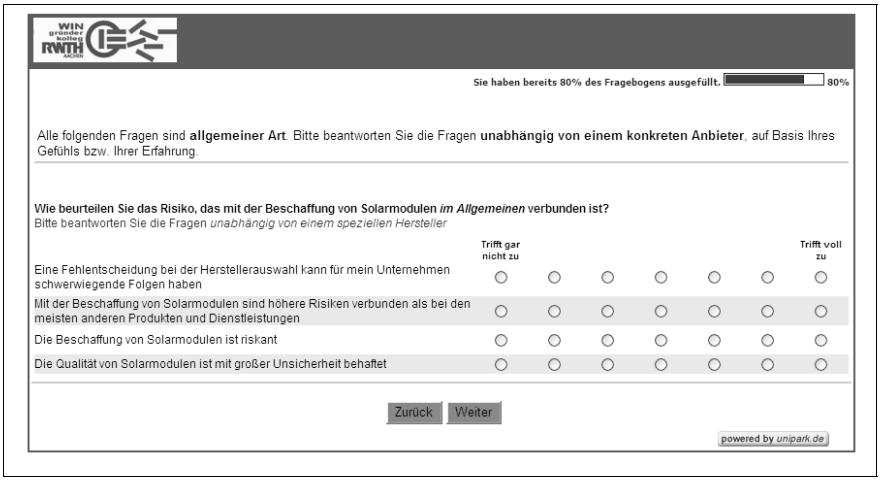


Figure 45: Online questionnaire PV industry – screen 16

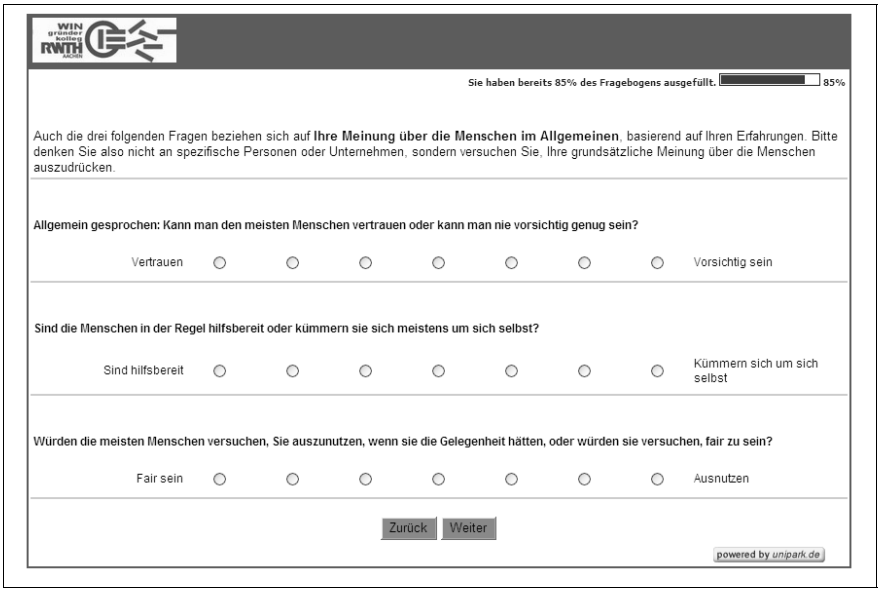


Figure 46: Online questionnaire PV industry – screen 17

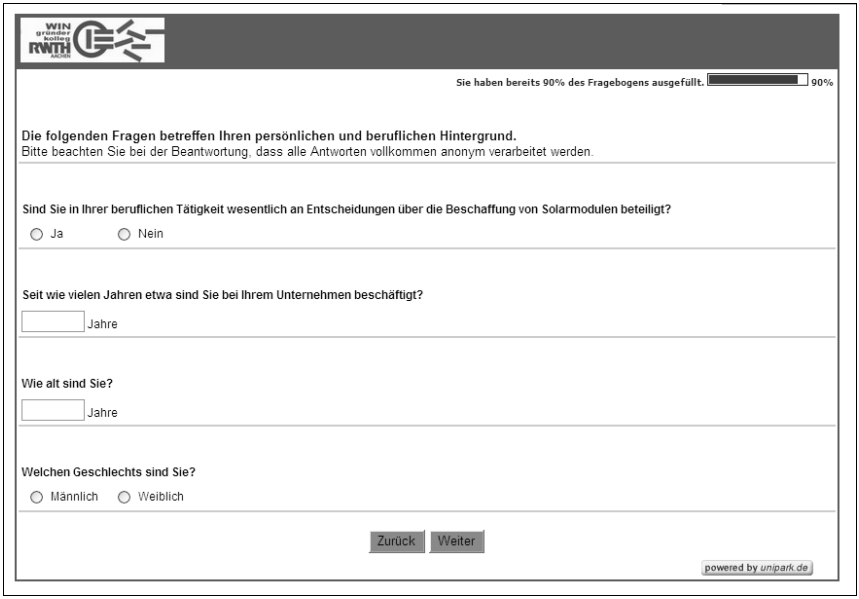


Figure 47: Online questionnaire PV industry – screen 18

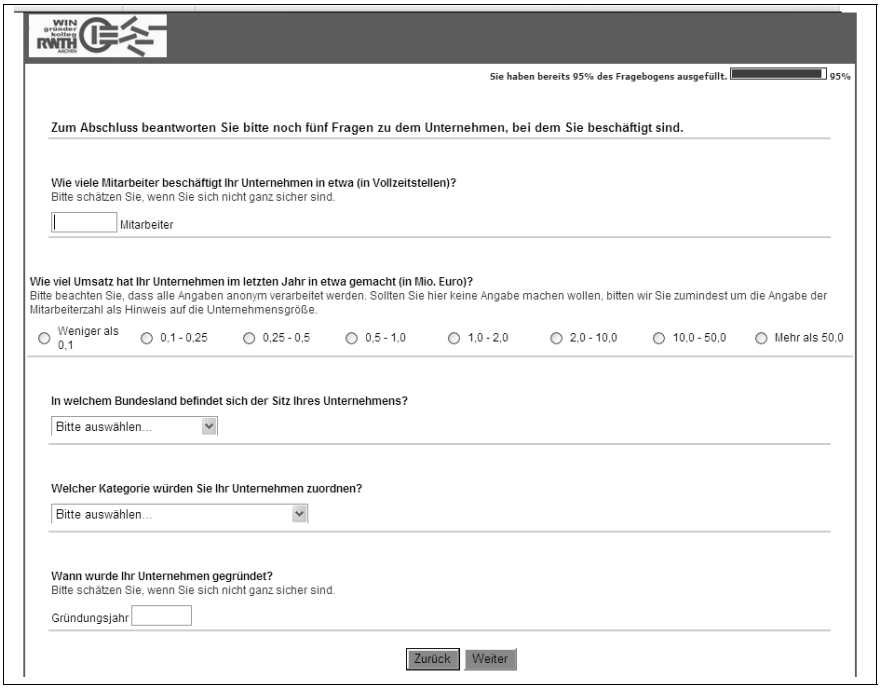


Figure 48: Online questionnaire PV industry – screen 19

Figure 49: Online questionnaire PV industry – screen 20

Figure 50: Online questionnaire PV industry – screen 21

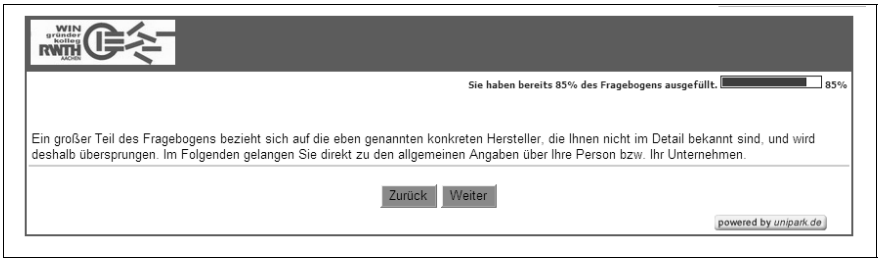


Figure 51: Online questionnaire PV industry – exit screen[842]

[842] This screen was shown in cases, in which the participant did not know any of the firms offered. The participant was informed that the main part of the questionnaire was skipped to take him to the final section on sociodemographic information.

PR industry survey

The following pages show the questionnaire version used for the survey in the PR industry. The first part presents the paper version of the questionnaire (Figure 52 to Figure 58), the second part presents screen shots of the web-based survey instrument (Figure 59 to Figure 81)

Vertrauen in junge Unternehmen am Beispiel von PR-Agenturen und Kommunikationsberatungen

Was wird erforscht?

Mit Ihrer Teilnahme unterstützen Sie ein wissenschaftliches Forschungsprojekt des Lehrstuhls von **Prof. Dr. Malte Brettel** an der **Rheinisch-Westfälischen Technischen Hochschule Aachen** (RWTH Aachen).

Diese Befragung richtet sich an Entscheider, die sich mit dem **Einkauf von PR-Dienstleistungen** befassen, und untersucht die **Einflussfaktoren auf das Vertrauen** sowie die **Bedeutung von Vertrauen** in der Entscheidung für die Beauftragung eines bestimmten Anbieters.

Was haben Sie davon?

Sie profitieren von einer **praxisorientierten Auswertung der Studienergebnisse**:

- Was sind die maßgeblichen Einflussfaktoren auf das Vertrauen in einen Anbieter?
- **Wie entscheiden andere in Ihrer Position?**

Was ist zu beachten?

- Die Befragung erfordert **ca. 15 Minuten**.
- Alle Angaben dienen ausschließlich dem wissenschaftlichen Forschungsprojekt und werden **streng vertraulich** behandelt.
- In der Befragung treten aus methodischen Gründen **ähnlich klingende Fragen** auf. Wir bitten dafür um Ihr Verständnis.
- Bitte versuchen Sie, **alle Fragen zu beantworten**, auch wenn die Antwort einmal schwer fällt. Ein guter Schätzwert ist wertvoller als ein unvollständiger Fragebogen.
- Bitte schicken Sie den **ausgefüllten Fragebogen per Fax** oder **per Post** an die rechts aufgeführte Nummer / Adresse.

Wen kann ich ansprechen?

Bei **Rückfragen** können Sie sich gern jederzeit an den zuständigen Doktoranden wenden:

Dipl.-Wi.-Inf. Gunnar Wiedenfels

Email:
wiedenfels@win.rwth-aachen.de

Internet:
www.win.rwth-aachen.de/

Telefon: 0175 / 318 1396

Telefax: 0241 / 80 92371

Postanschrift: RWTH Aachen
Lehrstuhl WIN
Gunnar Wiedenfels
Templergraben 64
52056 Aachen

Vielen Dank im Voraus für Ihre Unterstützung!

Wenn Sie Interesse an den Auswertungen der Untersuchung haben, machen Sie bitte die folgenden Angaben:

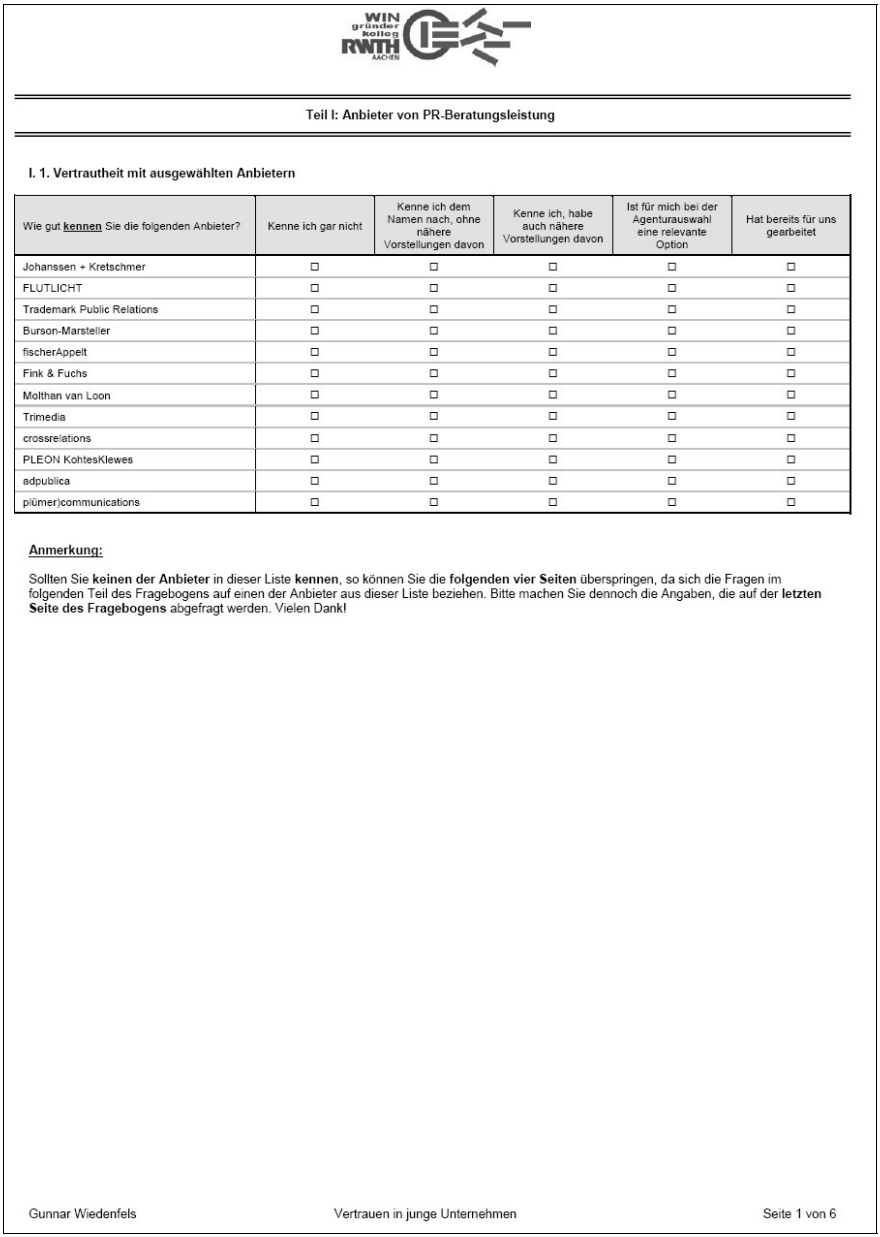
Anrede: ☐ Herr ☐ Frau

Name: _____

Email: _____

(**Anmerkung:** Dieser Abschnitt wird von uns vor der Auswertung der Daten vom Fragebogen abgetrennt.)

Figure 52: Offline questionnaire for PR industry – cover page



Teil I: Anbieter von PR-Beratungsleistung

I. 1. Vertrautheit mit ausgewählten Anbietern

Wie gut **kennen** Sie die folgenden Anbieter?	Kenne ich gar nicht	Kenne ich dem Namen nach, ohne nähere Vorstellungen davon	Kenne ich, habe auch nähere Vorstellungen davon	Ist für mich bei der Agenturauswahl eine relevante Option	Hat bereits für uns gearbeitet
Johanssen + Kretschmer	☐	☐	☐	☐	☐
FLUTLICHT	☐	☐	☐	☐	☐
Trademark Public Relations	☐	☐	☐	☐	☐
Burson-Marsteller	☐	☐	☐	☐	☐
fischerAppelt	☐	☐	☐	☐	☐
Fink & Fuchs	☐	☐	☐	☐	☐
Molthan van Loon	☐	☐	☐	☐	☐
Trimedia	☐	☐	☐	☐	☐
crossrelations	☐	☐	☐	☐	☐
PLEON KohtesKlewes	☐	☐	☐	☐	☐
adpublica	☐	☐	☐	☐	☐
pl(mer)communications	☐	☐	☐	☐	☐

Anmerkung:

Sollten Sie **keinen der Anbieter** in dieser Liste **kennen**, so können Sie die **folgenden vier Seiten** überspringen, da sich die Fragen im folgenden Teil des Fragebogens auf einen der Anbieter aus dieser Liste beziehen. Bitte machen Sie dennoch die Angaben, die auf der **letzten Seite des Fragebogens** abgefragt werden. Vielen Dank!

Gunnar Wiedenfels Vertrauen in junge Unternehmen Seite 1 von 6

Figure 53: Offline questionnaire for PR industry – page 1

Teil II: Anbieterbezogene Fragen

II.1. Referenzanbieter (wichtig!)

Die Fragen in diesem Teil des Fragebogens beziehen sich **auf einen konkreten Anbieter**. Bitte **wählen Sie** dazu einen der **Anbieter aus der Liste** auf der vorhergehenden Seite aus und beantworten Sie die **folgenden Fragen im Hinblick auf diesen Anbieter**. Wenn im Folgenden von **"Anbieter x"** die Rede ist, denken Sie bitte an den **Anbieter, den Sie ausgewählt haben**.

Gewählter Anbieter: _____

II.2. Maßnahmen der Risikobegrenzung durch Anbieter x

Inwieweit treffen die folgenden Aussagen über Anbieter x zu? Bitte versuchen Sie, die Aussagen zu bewerten, auch wenn Sie sich nicht ganz sicher sind.	Trifft gar nicht zu						Trifft voll zu
Das Geschäftsmodell von Anbieter x beinhaltet erfolgsabhängige Honorare	☐	☐	☐	☐	☐	☐	☐
Anbieter x bietet mir Garantien auf die angebotenen Leistungen	☐	☐	☐	☐	☐	☐	☐
Anbieter x nutzt Versicherungen, um Geschäftspartner gegen Schadensfälle abzusichern	☐	☐	☐	☐	☐	☐	☐
Anbieter x räumt mir ein Rücktrittsrecht ein, sollte ich mit der Leistung nicht zufrieden sein	☐	☐	☐	☐	☐	☐	☐
Anbieter x ermöglicht mir, die angebotenen Leistungen vor Vertragsabschluss zu testen	☐	☐	☐	☐	☐	☐	☐
Insgesamt bietet Anbieter x weitreichende Maßnahmen zur Begrenzung von Risiken für den Kunden	☐	☐	☐	☐	☐	☐	☐

II.3. Reputation von Anbieter x

Inwieweit treffen die Aussagen über die **Reputation** von Anbieter x zu? Bitte denken Sie daran, was **andere** über Anbieter x denken und sagen würden.	Trifft gar nicht zu						Trifft voll zu
Anbieter x hat allgemein den Ruf ehrlich zu sein	☐	☐	☐	☐	☐	☐	☐
Die meisten unserer Wettbewerber würden gern mit Anbieter x Geschäfte machen	☐	☐	☐	☐	☐	☐	☐
Die meisten unserer Wettbewerber würden sagen, dass Anbieter x den Ruf hat fair zu sein	☐	☐	☐	☐	☐	☐	☐
Anbieter x hat den Ruf, die Interessen seiner Kunden ernst zu nehmen	☐	☐	☐	☐	☐	☐	☐
Anbieter x hat einen *schlechten Ruf* im Markt	☐	☐	☐	☐	☐	☐	☐

II.4. Alter und Größe von Anbieter x

Inwieweit treffen die folgenden Aussagen über **Alter und Größe** von Anbieter x zu?	Trifft gar nicht zu						Trifft voll zu
Anbieter x existiert im Branchenvergleich schon sehr lange	☐	☐	☐	☐	☐	☐	☐
Anbieter x ist im Branchenvergleich ein sehr großes Unternehmen	☐	☐	☐	☐	☐	☐	☐

II.5. Ähnlichkeit

Inwieweit treffen die folgenden Aussagen über Ähnlichkeiten **zwischen Anbieter x und Ihrem Unternehmen** zu?	Trifft gar nicht zu						Trifft voll zu
Die Menschen bei Anbieter x haben ähnliche *Werte* wie die Menschen in unserem Unternehmen	☐	☐	☐	☐	☐	☐	☐
Die Menschen bei Anbieter x haben ähnliche *Interessen* wie die Menschen in unserem Unternehmen	☐	☐	☐	☐	☐	☐	☐
Die Menschen bei Anbieter x sind den Menschen in unserem Unternehmen *insgesamt sehr ähnlich*	☐	☐	☐	☐	☐	☐	☐

II.6. Persönliche Verbindungen

Gibt es persönliche Verbindungen **zwischen Ihnen und Mitarbeitern von Anbieter x**? Bitte geben Sie an, wie zutreffend die folgenden Aussagen sind.	Trifft gar nicht zu						Trifft voll zu
Zu einigen Mitarbeitern von Anbieter x habe ich ein sehr gutes Verhältnis auch über das Geschäftliche hinaus	☐	☐	☐	☐	☐	☐	☐
Ich habe Freunde bei Anbieter x	☐	☐	☐	☐	☐	☐	☐

Figure 54: Offline questionnaire for PR industry – page 2

Teil II: Anbieterbezogene Fragen (Fortsetzung)

II.7. Räumliche Nähe

Inwieweit trifft die folgende Aussage auf Anbieter x zu?	Trifft gar nicht zu						Trifft voll zu
Anbieter x ist ein Unternehmen aus unserer Region	☐	☐	☐	☐	☐	☐	☐

II.8. Nutzung externer Referenzen

Inwieweit treffen die folgenden Aussagen auf Anbieter x zu?	Trifft gar nicht zu						Trifft voll zu
Anbieter x verfügt über Referenzen renommierter Kunden	☐	☐	☐	☐	☐	☐	☐
Das Management von Anbieter x hat Erfahrungen aus früheren Positionen bei renommierten Unternehmen	☐	☐	☐	☐	☐	☐	☐
Anbieter x verfügt über renommierte Partner in der Geschäftswelt	☐	☐	☐	☐	☐	☐	☐
Insgesamt kann Anbieter x auf weitreichende externe Referenzen verweisen	☐	☐	☐	☐	☐	☐	☐

II.9. Bezug zu professionellen Institutionen

Inwieweit treffen die folgenden Aussagen auf Anbieter x zu?	Trifft gar nicht zu						Trifft voll zu
Das Management von Anbieter x weist eine ausgezeichnete Ausbildung auf	☐	☐	☐	☐	☐	☐	☐
Anbieter x ist in wichtigen (Branchen-)Verbänden und Organisationen (z.B. GPRA, DPRG) vertreten	☐	☐	☐	☐	☐	☐	☐
Anbieter x kann Zertifizierungen seiner Leistungen und Prozesse vorweisen (z.B. ISO 9001, CMS)	☐	☐	☐	☐	☐	☐	☐
Anbieter x hat bereits bedeutende Auszeichnungen (z.B. PR Report Awards, Deutscher PR-Preis) erhalten	☐	☐	☐	☐	☐	☐	☐
Insgesamt zeigt sich bei Anbieter x ein starker Bezug zu professionellen Institutionen	☐	☐	☐	☐	☐	☐	☐

II.10. Integrität von Anbieter x

Für wie **integer** halten Sie Anbieter x? Bitte antworten Sie nach **Ihrem** Gefühl, unabhängig davon, was andere sagen würden.	Trifft gar nicht zu						Trifft voll zu
Anbieter x ist ehrlich in seinen Geschäftsbeziehungen	☐	☐	☐	☐	☐	☐	☐
Anbieter x würde seine Versprechungen immer einhalten	☐	☐	☐	☐	☐	☐	☐
Ich würde Anbieter x als ein integres Unternehmen charakterisieren	☐	☐	☐	☐	☐	☐	☐
Anbieter x ist in meinen Augen ein seriöses Unternehmen	☐	☐	☐	☐	☐	☐	☐

II.11. Kompetenz von Anbieter x

Für wie **kompetent** halten Sie Anbieter x? Bitte antworten Sie wieder nach **Ihrem** Gefühl bzw. **Ihrer Erfahrung**, unabhängig davon, was andere sagen würden.	Trifft gar nicht zu						Trifft voll zu
Insgesamt ist Anbieter x ein professioneller Anbieter von PR-Beratungsleistung	☐	☐	☐	☐	☐	☐	☐
Anbieter x erfüllt seine Rolle als PR-Agentur / Kommunikationsberatung sehr gut	☐	☐	☐	☐	☐	☐	☐
Anbieter x ist effektiv in seinem Geschäftsfeld	☐	☐	☐	☐	☐	☐	☐
Insgesamt ist Anbieter x ein fähiger Anbieter von PR-Beratungsleistung	☐	☐	☐	☐	☐	☐	☐
Anbieter x verfügt über sehr viel Wissen auf dem Gebiet der PR	☐	☐	☐	☐	☐	☐	☐

II.12. Wohlwollen von Anbieter x

Wie **wohlwollend**, glauben Sie, wäre Anbieter x Ihrem Unternehmen als **Kunden gegenüber**? Bitte antworten Sie wieder nach **Ihrem** Gefühl, unabhängig davon, was andere sagen würden.	Trifft gar nicht zu						Trifft voll zu
Anbieter x würde in unserem besten Interesse handeln	☐	☐	☐	☐	☐	☐	☐
Anbieter x hätte Interesse auch am Erfolg meines Unternehmens, nicht nur des eigenen	☐	☐	☐	☐	☐	☐	☐
Anbieter x würde sicher sein Möglichstes tun für uns als Kunden	☐	☐	☐	☐	☐	☐	☐

Figure 55: Offline questionnaire for PR industry – page 3

Teil II: Anbieterbezogene Fragen (Fortsetzung)

II.13. Wettbewerbsvergleich

Wie beurteilen Sie Anbieter x **verglichen mit seinen Wettbewerbern** im Hinblick auf...	Sehr schlecht			Durchschnitt-lich			Sehr gut
... den Preis der angebotenen Leistung	☐	☐	☐	☐	☐	☐	☐
... die Zahlungsbedingungen	☐	☐	☐	☐	☐	☐	☐
... die gesamten Kosten der Zusammenarbeit	☐	☐	☐	☐	☐	☐	☐
... die Qualität der angebotenen Leistung	☐	☐	☐	☐	☐	☐	☐
... die Termintreue	☐	☐	☐	☐	☐	☐	☐

II.14. Vertrauen in Anbieter x

Bitte beurteilen Sie, wie sehr Sie Anbieter x **vertrauen** oder nicht.	Trifft gar nicht zu						Trifft voll zu
Sollte jemand die guten Absichten von Anbieter x in Frage stellen, würde ich eher Anbieter x glauben	☐	☐	☐	☐	☐	☐	☐
Ich kann mich auf Anbieter x verlassen	☐	☐	☐	☐	☐	☐	☐
Ich schenke den Informationen von Anbieter x Glauben, auch wenn ich sie nicht überprüfen kann	☐	☐	☐	☐	☐	☐	☐
Ich vertraue Anbieter x	☐	☐	☐	☐	☐	☐	☐
Ich würde Empfehlungen von Anbieter x bei wichtigen Entscheidungen berücksichtigen	☐	☐	☐	☐	☐	☐	☐
Mit Anbieter x wäre ich *vorsichtig*	☐	☐	☐	☐	☐	☐	☐

II.15. Zukünftige Zusammenarbeit

Werden Sie **zukünftig Leistungen von Anbieter x beziehen**?								
Eher nicht	☐	☐	☐	☐	☐	☐	☐	Auf jeden Fall
Unwahrscheinlich	☐	☐	☐	☐	☐	☐	☐	Wahrscheinlich
Unmöglich	☐	☐	☐	☐	☐	☐	☐	Möglich

II.16. Für Kunden und ehemalige Kunden von Anbieter x: Zufriedenheit

Wie beurteilen Sie **Ihre Geschäftsbeziehung** mit Anbieter x? Sollten Sie **keine Erfahrung als Kunde von Anbieter x** haben, so kreuzen Sie bitte hier an (☐ **Keine Erfahrung**) und überspringen Sie die Frage	Trifft gar nicht zu						Trifft voll zu
Wir sind zufrieden mit den Ergebnissen unserer Geschäftsbeziehung	☐	☐	☐	☐	☐	☐	☐
Unsere Geschäftsbeziehung hat unsere Erwartungen übererfüllt	☐	☐	☐	☐	☐	☐	☐
Unsere Geschäftsbeziehung mit Anbieter x ist (war) insgesamt erfolgreich	☐	☐	☐	☐	☐	☐	☐

Figure 56: Offline questionnaire for PR industry – page 4

Teil III: Anbieterunabhängige Fragen

Wichtig:
Alle Fragen im verbleibenden Teil des Fragebogens sind **allgemeiner Art** und beziehen sich nicht mehr auf den von Ihnen weiter oben ausgewählten Anbieter x. Bitte beantworten Sie die Fragen **unabhängig von einem konkreten Anbieter**, auf Basis Ihres Gefühls bzw. Ihrer Erfahrung.

III.1. Allgemeines Risiko

Wie beurteilen Sie das **Risiko**, das mit der Beauftragung einer PR-Agentur / Kommunikationsberatung **im Allgemeinen** verbunden ist? Bitte beantworten Sie die Fragen **unabhängig von einem speziellen Anbieter.**	Trifft gar nicht zu						Trifft voll zu
Die Qualität von PR-Dienstleistungen ist mit großer Unsicherheit behaftet	☐	☐	☐	☐	☐	☐	☐
Eine Fehlentscheidung bei der Anbieterauswahl kann für mein Unternehmen schwerwiegende Folgen haben	☐	☐	☐	☐	☐	☐	☐
Mit der Beschaffung von PR-Leistungen sind höhere Risiken verbunden als bei den meisten anderen Produkten und Dienstleistungen	☐	☐	☐	☐	☐	☐	☐
Die Beauftragung einer PR-Agentur / Kommunikationsberatung ist riskant	☐	☐	☐	☐	☐	☐	☐

III.2. Generelles Vertrauen

Die drei folgenden Fragen beziehen sich auf **Ihre Meinung über die Menschen im Allgemeinen**, basierend auf Ihren Erfahrungen. Denken Sie also **nicht an spezifische Personen oder Unternehmen**, sondern versuchen Sie, Ihre grundsätzliche Meinung über die Menschen auszudrücken.									
Allgemein gesprochen: Kann man den meisten Menschen vertrauen oder kann man nie vorsichtig genug sein?	Vertrauen	☐	☐	☐	☐	☐	☐	☐	Vorsichtig sein
Sind die Menschen in der Regel hilfsbereit oder kümmern sie sich meistens um sich selbst?	Sind hilfsbereit	☐	☐	☐	☐	☐	☐	☐	Kümmern sich um sich selbst
Würden die meisten Menschen versuchen, Sie auszunutzen, wenn sie die Gelegenheit hätten, oder würden sie versuchen, fair zu sein?	Fair sein	☐	☐	☐	☐	☐	☐	☐	Ausnutzen

Figure 57: Offline questionnaire for PR industry – page 5

Teil IV: Allgemeine Angaben

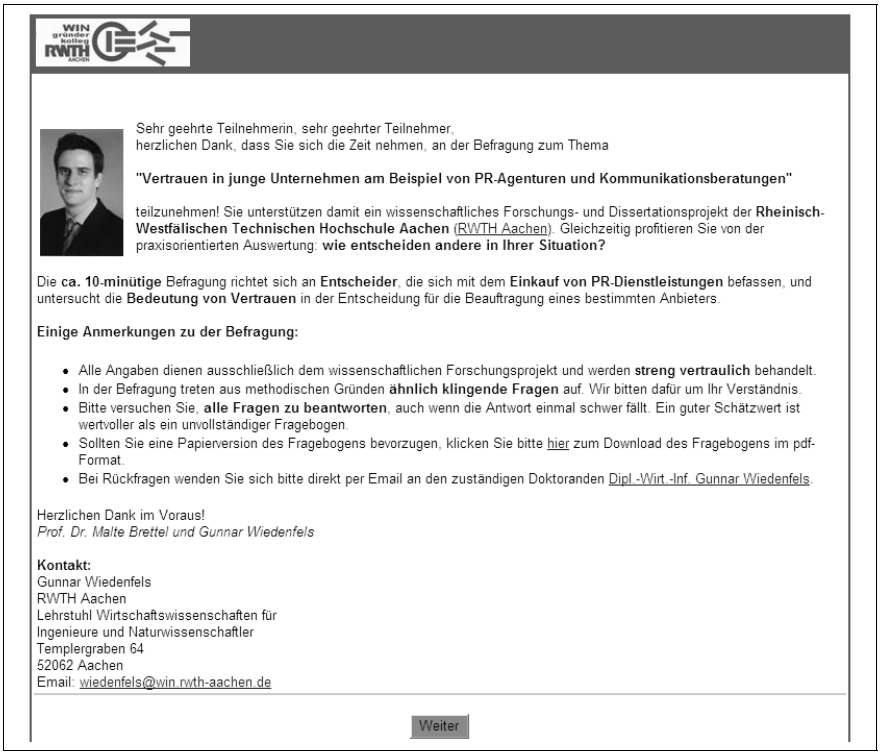
IV.1. Fragen zu Ihrem persönlichen und beruflichen Hintergrund

Bitte beantworten Sie die folgenden Fragen **zu Ihrer Person**. Beachten Sie dabei bitte, dass alle Antworten **vollkommen anonym** verarbeitet werden.	
Sind Sie in Ihrer beruflichen Tätigkeit wesentlich an der Beauftragung von PR-Agenturen / Kommunikationsberatungen beteiligt?	☐ Ja ☐ Nein
Seit wie vielen Jahren etwa sind Sie bei Ihrem Unternehmen beschäftigt?	_____ Jahre
Wie alt sind Sie?	_____ Jahre
Welchen Geschlechts sind Sie?	☐ Männlich ☐ Weiblich

IV.2. Fragen zu Ihrem Unternehmen

Bitte beantworten Sie die folgenden Fragen **zu Ihrem Unternehmen**. Beachten Sie dabei bitte, dass alle Antworten **vollkommen anonym** verarbeitet werden. Bitte schätzen Sie, sollten Sie bei den Zahlen nicht ganz sicher sein.	
Wie viele Mitarbeiter beschäftigt Ihr Unternehmen in etwa (in Vollzeitstellen)?	_____ Mitarbeiter
Wie viel Umsatz hat Ihr Unternehmen im letzten Jahr in etwa gemacht (in Mio. Euro)?	☐ <0,1 ☐ 0,1-0,25 ☐ 0,25-0,5 ☐ 0,5-1,0 ☐ 1-2 ☐ 2-10 ☐ 10-50 ☐ >50
In welchem Bundesland befindet sich der Sitz Ihres Unternehmens?	☐ Baden-Württemberg ☐ Bayern ☐ Berlin ☐ Brandenburg ☐ Bremen ☐ Hamburg ☐ Hessen ☐ Mecklenburg-Vorpommern ☐ Niedersachsen ☐ Nordrhein-Westfalen ☐ Rheinland-Pfalz ☐ Saarland ☐ Sachsen ☐ Sachsen-Anhalt ☐ Schleswig-Holstein ☐ Thüringen
Welcher Branche würden Sie Ihr Unternehmen zuordnen?	☐ Auto / Motor / Verkehr ☐ Banken / Versicherungen / Finanzen ☐ Bauen / Wohnen / Einrichten ☐ Chemie ☐ Elektronik / Unterhaltungselektronik ☐ Energiewirtschaft ☐ Gesundheit / Medizin / Pharma ☐ Handel ☐ Handwerk ☐ Investitionsgüter ☐ IT / Computer / Telekommunikation ☐ Kultur / Bildung ☐ Lifestyle / Mode / Kosmetik ☐ Medien / Rundfunk / Verlage ☐ Nahrungs- und Genussmittel ☐ Non-Profit / Verbände ☐ Parteien / Behörden ☐ Tourismus / Reisen / Hotels ☐ Transport / Logistik ☐ Umwelt ☐ Andere
Wann wurde Ihr Unternehmen gegründet?	Gründungsjahr _____

Figure 58: Offline questionnaire for PR industry – page 6



Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer,
herzlichen Dank, dass Sie sich die Zeit nehmen, an der Befragung zum Thema

"Vertrauen in junge Unternehmen am Beispiel von PR-Agenturen und Kommunikationsberatungen"

teilzunehmen! Sie unterstützen damit ein wissenschaftliches Forschungs- und Dissertationsprojekt der **Rheinisch-Westfälischen Technischen Hochschule Aachen** (RWTH Aachen). Gleichzeitig profitieren Sie von der praxisorientierten Auswertung: **wie entscheiden andere in Ihrer Situation?**

Die **ca. 10-minütige** Befragung richtet sich an **Entscheider**, die sich mit dem **Einkauf von PR-Dienstleistungen** befassen, und untersucht die **Bedeutung von Vertrauen** in der Entscheidung für die Beauftragung eines bestimmten Anbieters.

Einige Anmerkungen zu der Befragung:

- Alle Angaben dienen ausschließlich dem wissenschaftlichen Forschungsprojekt und werden **streng vertraulich** behandelt.
- In der Befragung treten aus methodischen Gründen **ähnlich klingende Fragen** auf. Wir bitten dafür um Ihr Verständnis.
- Bitte versuchen Sie, **alle Fragen zu beantworten**, auch wenn die Antwort einmal schwer fällt. Ein guter Schätzwert ist wertvoller als ein unvollständiger Fragebogen.
- Sollten Sie eine Papierversion des Fragebogens bevorzugen, klicken Sie bitte hier zum Download des Fragebogens im pdf-Format.
- Bei Rückfragen wenden Sie sich bitte direkt per Email an den zuständigen Doktoranden Dipl.-Wirt.-Inf. Gunnar Wiedenfels.

Herzlichen Dank im Voraus!
Prof. Dr. Malte Brettel und Gunnar Wiedenfels

Kontakt:
Gunnar Wiedenfels
RWTH Aachen
Lehrstuhl Wirtschaftswissenschaften für
Ingenieure und Naturwissenschaftler
Templergraben 64
52062 Aachen
Email: wiedenfels@win.rwth-aachen.de

Weiter

Figure 59: Online questionnaire for PR industry – welcome screen

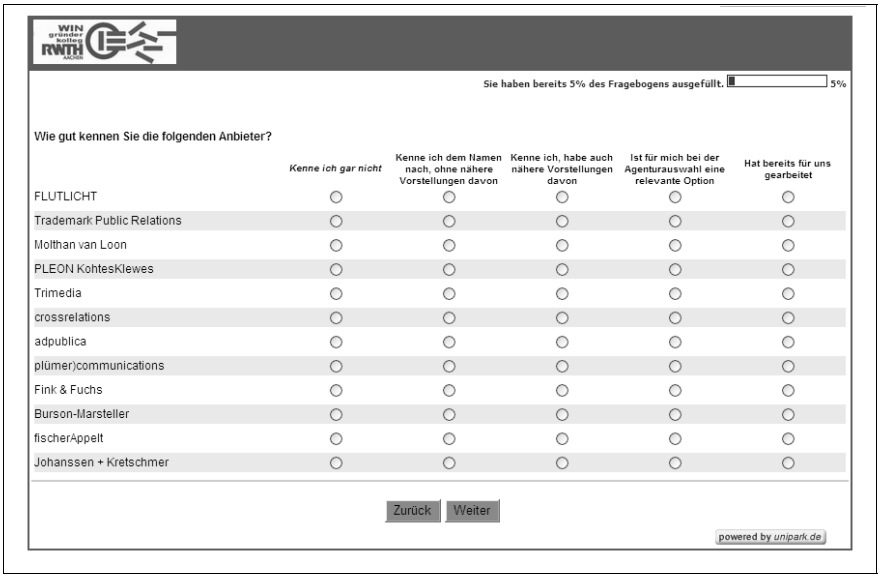


Figure 60: Online questionnaire PR industry – screen 1

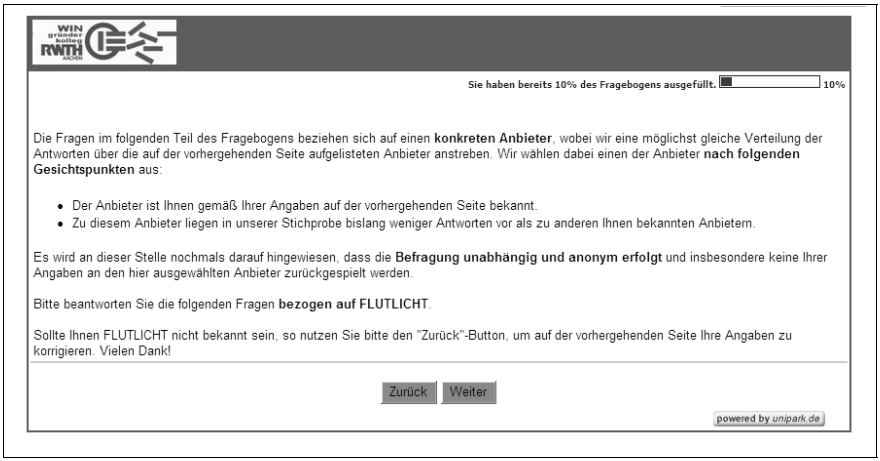


Figure 61: Online questionnaire PR industry – screen 2

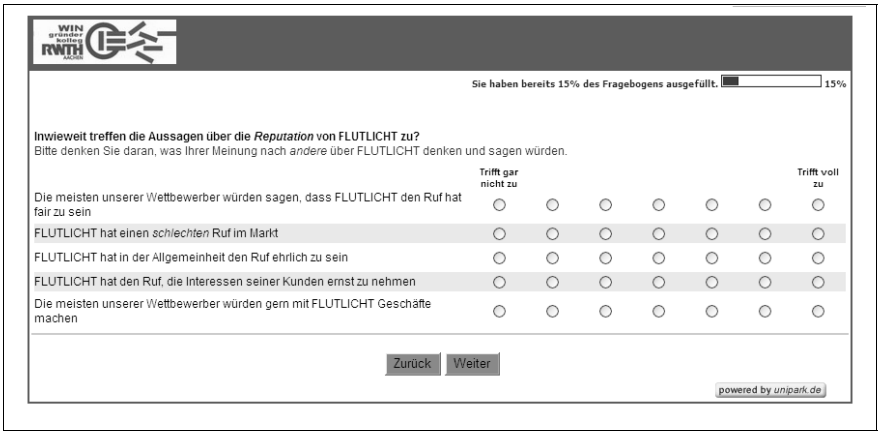


Figure 62: Online questionnaire PR industry – screen 3

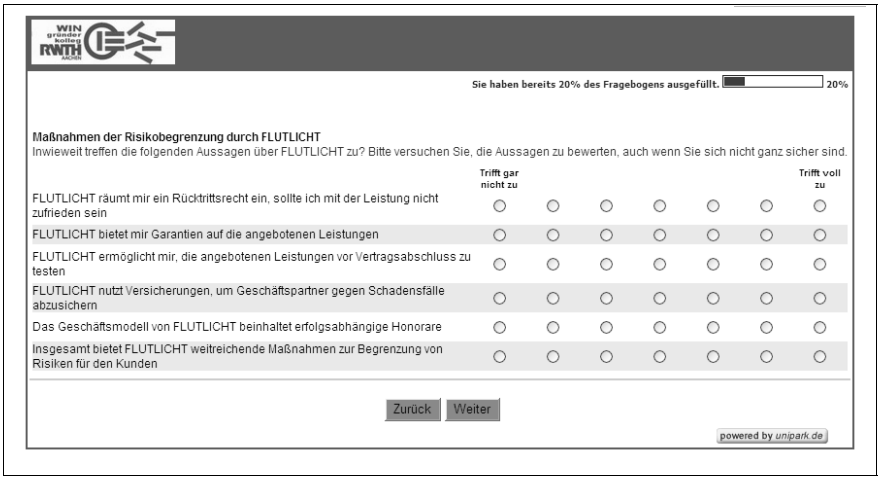
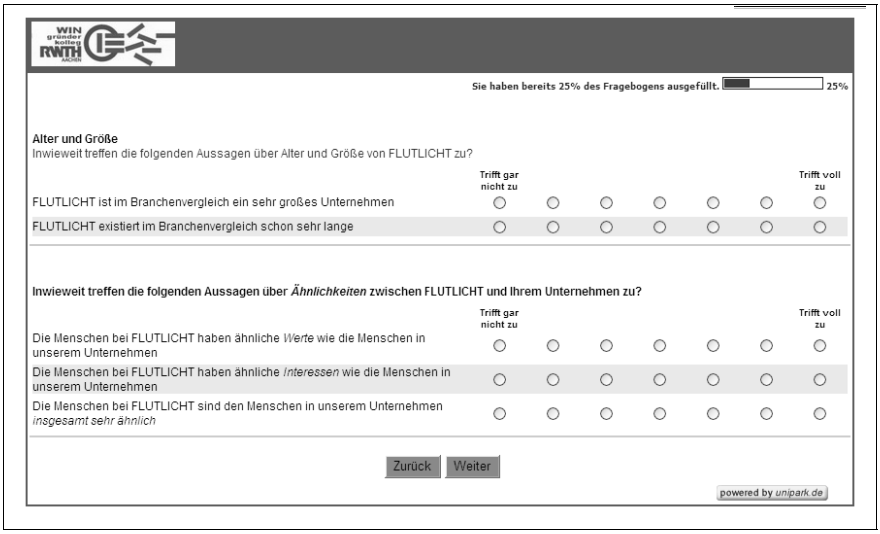


Figure 63: Online questionnaire PR industry – screen 4



Sie haben bereits 25% des Fragebogens ausgefüllt. 25%

Alter und Größe
Inwieweit treffen die folgenden Aussagen über Alter und Größe von FLUTLICHT zu?

	Trifft gar nicht zu						Trifft voll zu
FLUTLICHT ist im Branchenvergleich ein sehr großes Unternehmen	○	○	○	○	○	○	○
FLUTLICHT existiert im Branchenvergleich schon sehr lange	○	○	○	○	○	○	○

Inwieweit treffen die folgenden Aussagen über *Ähnlichkeiten* zwischen FLUTLICHT und Ihrem Unternehmen zu?

	Trifft gar nicht zu						Trifft voll zu
Die Menschen bei FLUTLICHT haben ähnliche *Werte* wie die Menschen in unserem Unternehmen	○	○	○	○	○	○	○
Die Menschen bei FLUTLICHT haben ähnliche *Interessen* wie die Menschen in unserem Unternehmen	○	○	○	○	○	○	○
Die Menschen bei FLUTLICHT sind den Menschen in unserem Unternehmen *insgesamt sehr ähnlich*	○	○	○	○	○	○	○

Zurück Weiter

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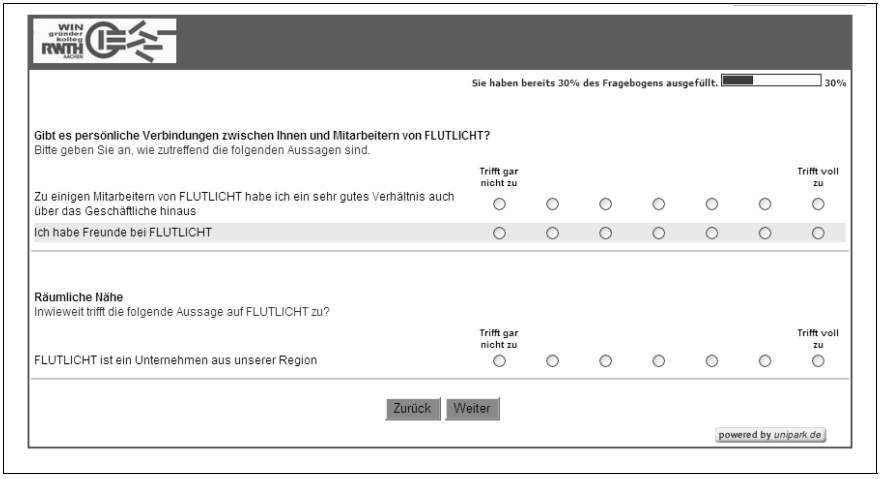
Figure 64: Online questionnaire PR industry – screen 5



Sie haben bereits 30% des Fragebogens ausgefüllt. 30%

Gibt es persönliche Verbindungen zwischen Ihnen und Mitarbeitern von FLUTLICHT?
Bitte geben Sie an, wie zutreffend die folgenden Aussagen sind.

	Trifft gar nicht zu						Trifft voll zu
Zu einigen Mitarbeitern von FLUTLICHT habe ich ein sehr gutes Verhältnis auch über das Geschäftliche hinaus	○	○	○	○	○	○	○
Ich habe Freunde bei FLUTLICHT	○	○	○	○	○	○	○

Räumliche Nähe
Inwieweit trifft die folgende Aussage auf FLUTLICHT zu?

	Trifft gar nicht zu						Trifft voll zu
FLUTLICHT ist ein Unternehmen aus unserer Region	○	○	○	○	○	○	○

Zurück Weiter

powered by unipark.de

Figure 65: Online questionnaire PR industry – screen 6

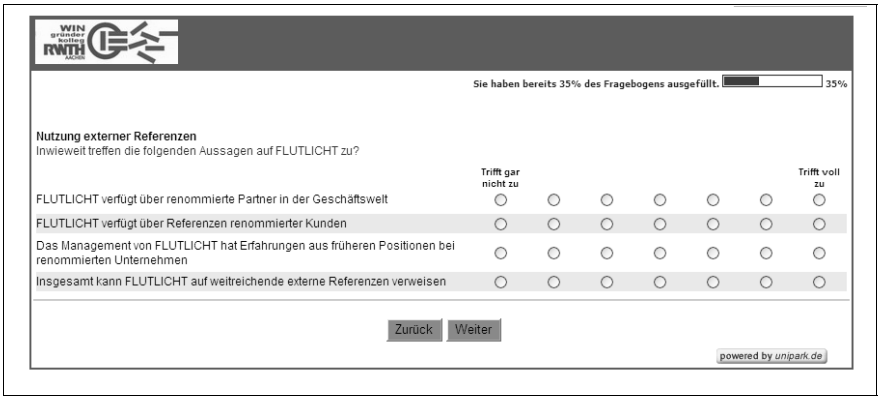


Figure 66: Online questionnaire PR industry – screen 7

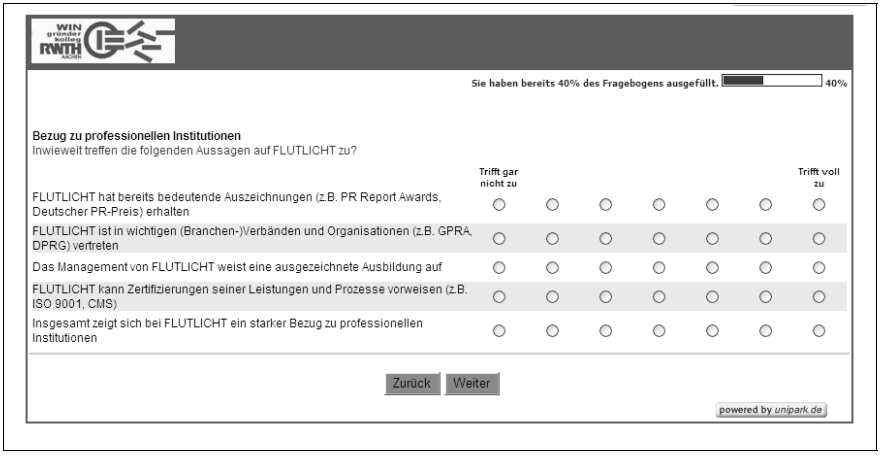


Figure 67: Online questionnaire PR industry – screen 8

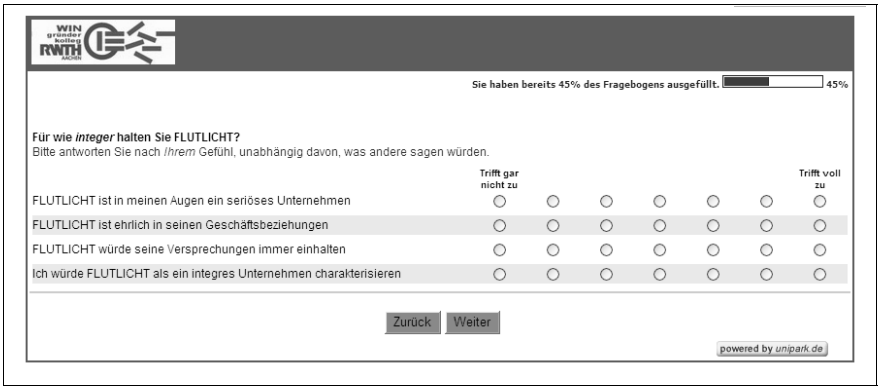


Figure 68: Online questionnaire PR industry – screen 9

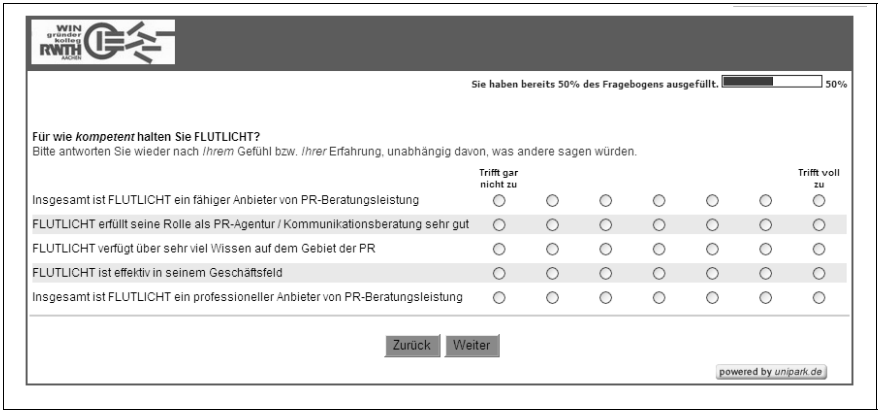


Figure 69: Online questionnaire PR industry – screen 10

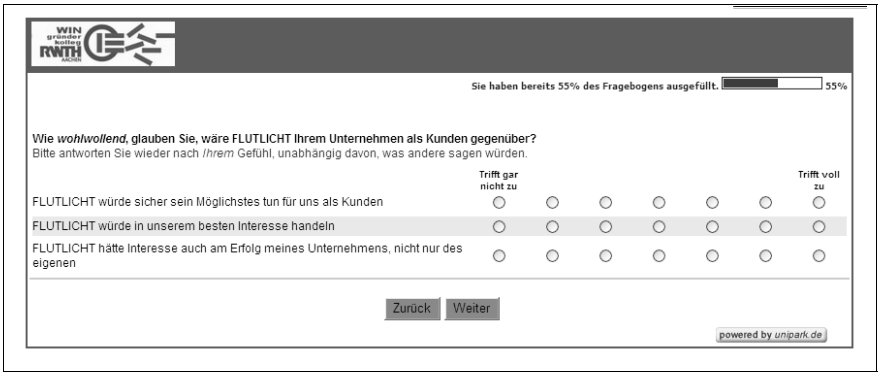


Figure 70: Online questionnaire PR industry – screen 11

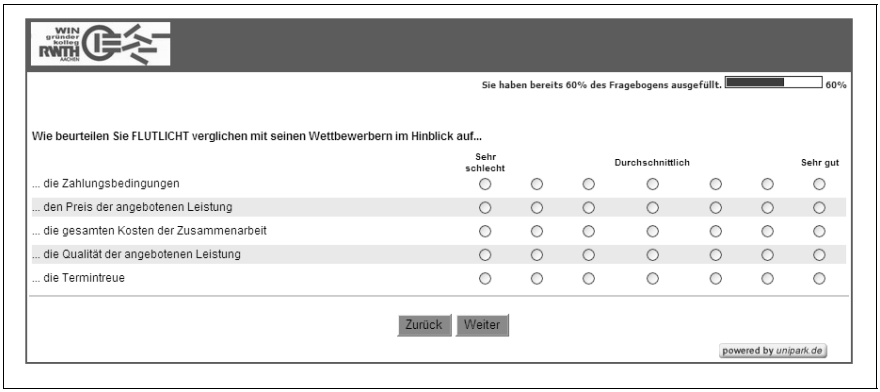


Figure 71: Online questionnaire PR industry – screen 12

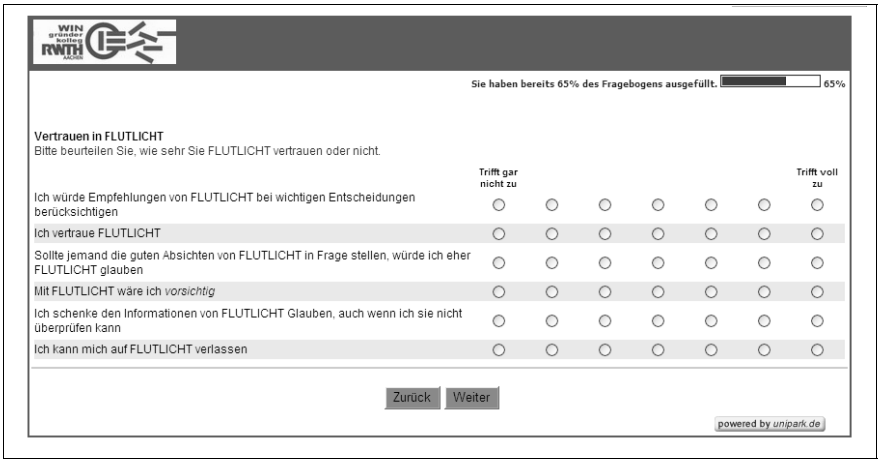


Figure 72: Online questionnaire PR industry – screen 13

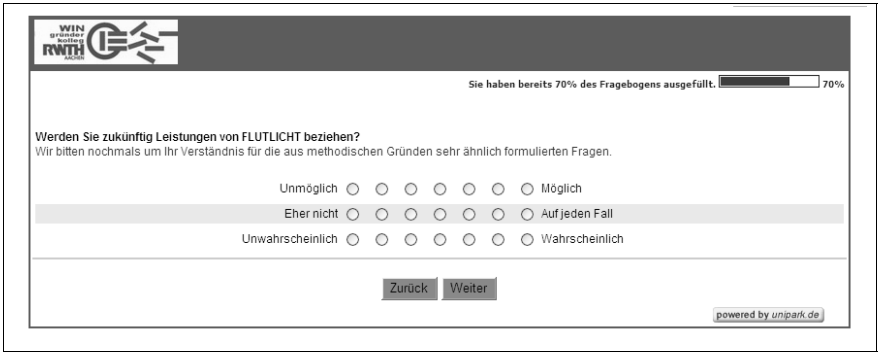


Figure 73: Online questionnaire PR industry – screen 14

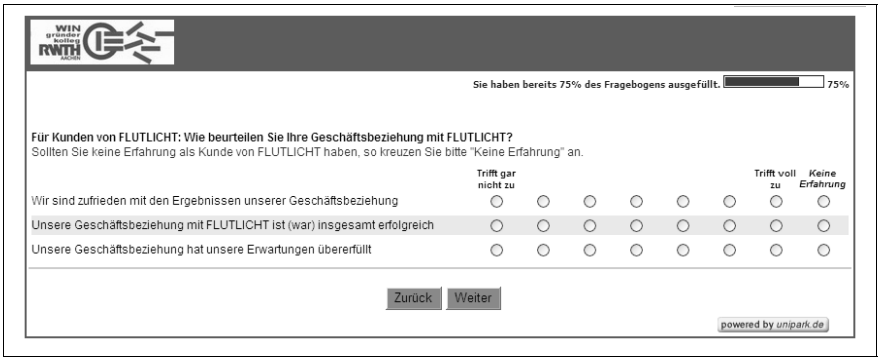


Figure 74: Online questionnaire PR industry – screen 15

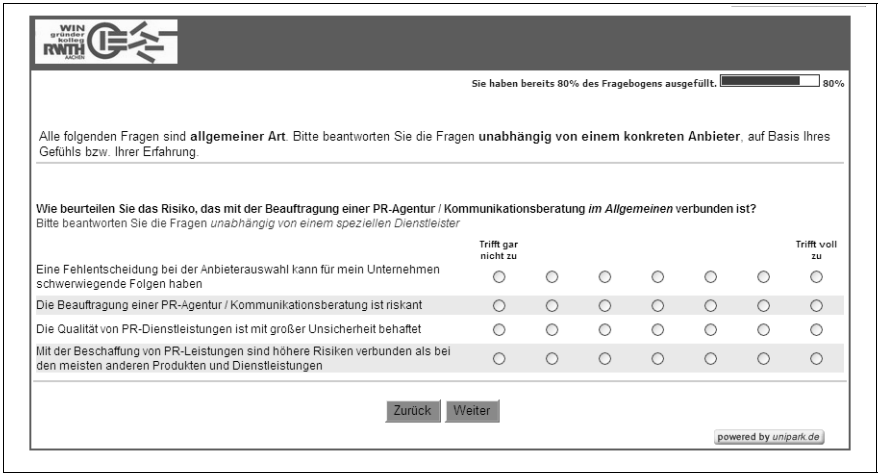


Figure 75: Online questionnaire PR industry – screen 16

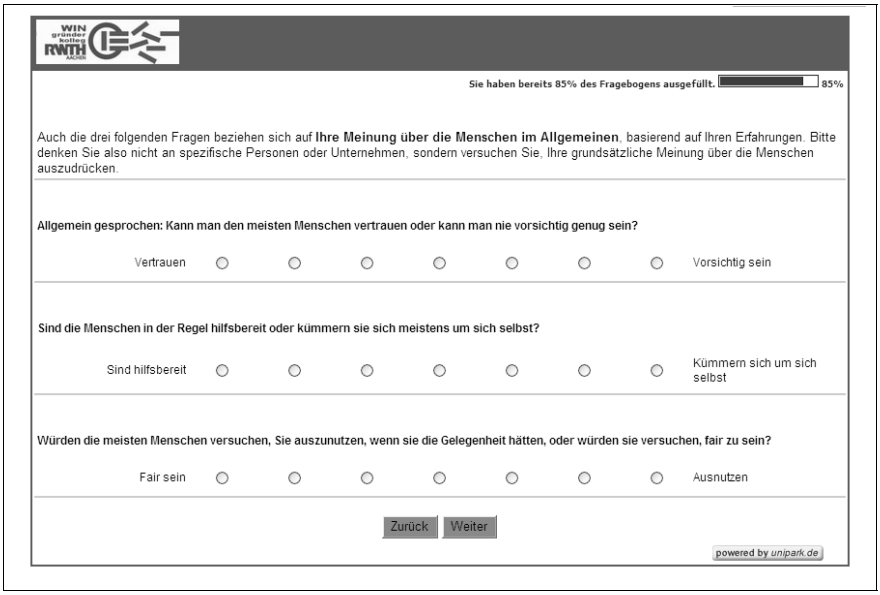


Figure 76: Online questionnaire PR industry – screen 17

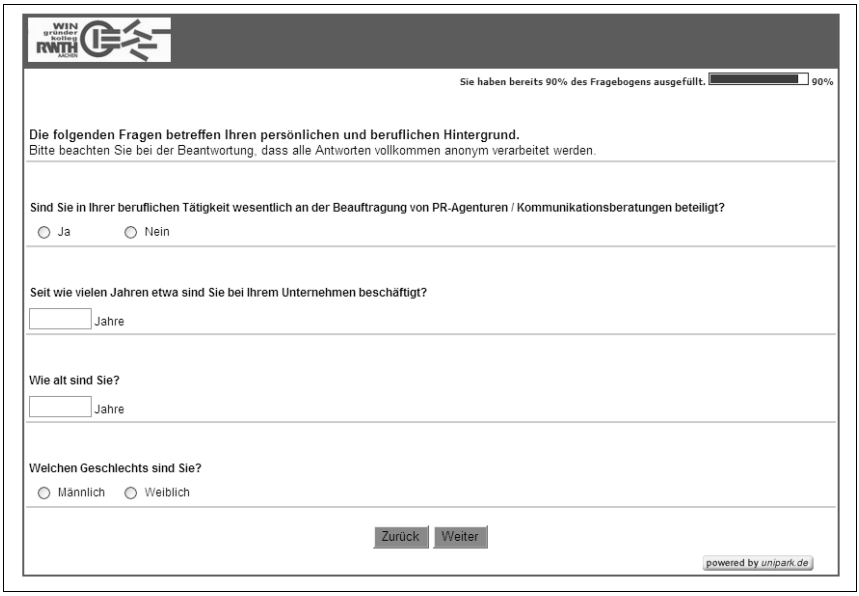


Figure 77: Online questionnaire PR industry – screen 18

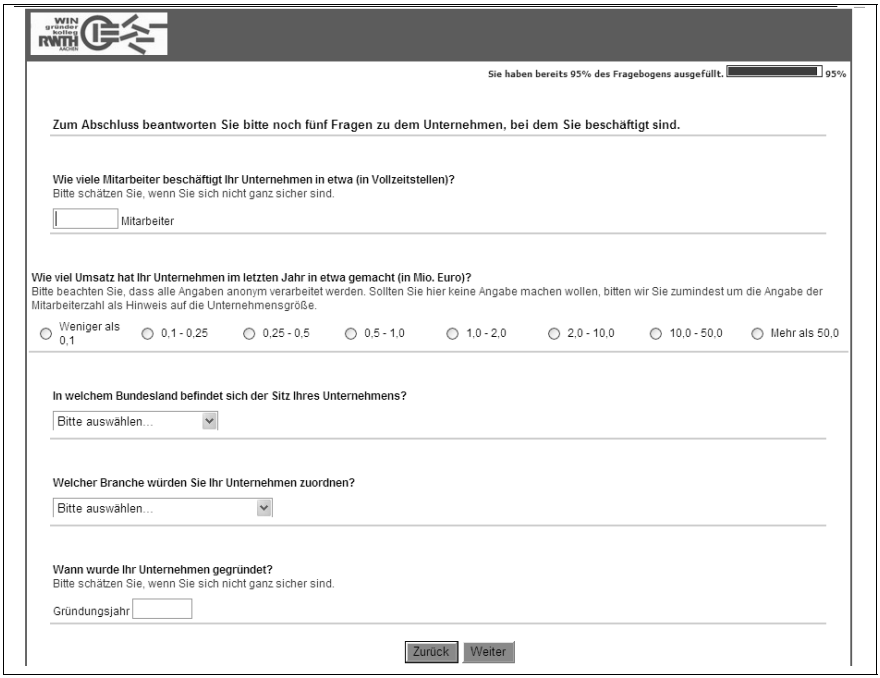


Figure 78: Online questionnaire PR industry – screen 19

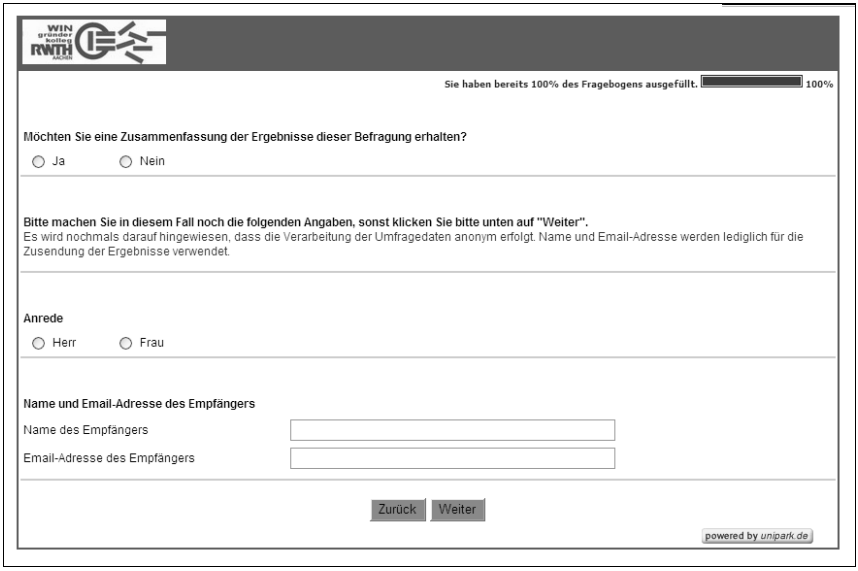


Figure 79: Online questionnaire PR industry – screen 20

Figure 80: Online questionnaire PR industry – screen 21

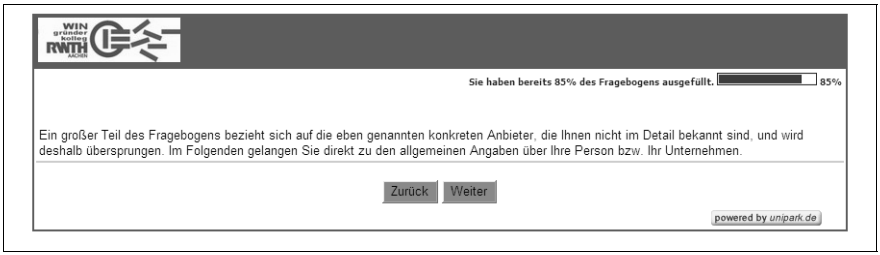


Figure 81: Online questionnaire PR industry – exit screen[843]

[843] This screen was shown in cases, in which the participant did not know any of the firms offered. The participant was informed that the main part of the questionnaire was skipped to take him to the final section on sociodemographic information.

Appendix C: E-mail correspondence

The following pages present the e-mail messages sent to the participants of the two surveys. Expressions surrounded by hash symbols (#) indicate references to database fields. During the execution of the mass mailing, such expressions are replaced with specific details associated with individual survey participants. Curly braces indicate program code that is interpreted during the execution of the mass mailing. Such code is used to customize the greeting depending on the participant's gender.

E-mails to participants of the survey in the PV industry

An die Unternehmensleitung

{ if #u_gender# ="1" }Herr { /if }{ if #u_gender# ="2" }Frau { /if }#u_na_c#

#u_firm#

{ if #u_gender# ="1" }Sehr geehrter Herr #u_name#,{ /if }{ if #u_gender# ="2" }Sehr geehrte Frau #u_name#,{ /if }{ if #u_gender# ="0" }Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer, { /if }

im Rahmen eines wissenschaftlichen Forschungsprojekts untersuchen wir die Entstehung von Vertrauen in Hersteller von Solar-Modulen und die Bedeutung des Vertrauens beim Einkauf von Solar-Modulen.

Basierend auf einer bundesweiten Umfrage unter **Entscheidern**, die mit der Beschaffung von Solar-Modulen befasst sind, möchten wir

- die **relevanten Einflussfaktoren von Vertrauen** in einen Hersteller von Solar-Modulen und
- die **Bedeutung des Vertrauens** für die Auswahl eines Herstellers

messen und daraus konkrete **Handlungsempfehlungen** ableiten.

Aufgrund Ihrer Erfahrung in der Unternehmensleitung bzw. dem Einkauf von #u_firm# bitten wir Sie, an der **ca. 10-minütigen Online-Umfrage teilzunehmen** und zum Gelingen dieser Studie beizutragen.

Als Dankeschön für Ihre Teilnahme erhalten Sie auf Wunsch eine praxisorientierte Auswertung dieser Studie. Erfahren Sie, wie andere in Ihrer Position entscheiden.

Für die Teilnahme an der Befragung sowie weiterführende Informationen folgen Sie bitte diesem Link:

#code_complete#

Wir sichern Ihnen eine vertrauliche Behandlung aller Angaben zu und stehen Ihnen bei Rückfragen gerne jederzeit zur Verfügung.

Mit freundlichen Grüßen

Gunnar Wiedenfels Prof. Dr. Malte Brettel

PS: Unter der Adresse www.win.rwth-aachen.de/Solar-Vertrauen.pdf können Sie den Fragebogen auch als PDF-Dokument herunterladen und uns dann ausgefüllt per Fax zurücksenden.

RWTH Aachen
Lehrstuhl Wirtschaftswissenschaften für
Ingenieure und Naturwissenschaftler
Templergraben 64
52056 Aachen
Telefax: 0241/80 92371
Web: www.win.rwth-aachen.de

Figure 82: Survey invitation e-mail PV industry

An die Unternehmensleitung

{ if #u_gender# ="1" }Herr { /if }{ if #u_gender# ="2" }Frau { /if }#u_na_c#

#u_firm#

{ if #u_gender# ="1" }Sehr geehrter Herr #u_name#, { /if }{ if #u_gender# ="2" }Sehr geehrte Frau #u_name#,{ /if }{ if #u_gender# ="0" }Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer, { /if }

im März habe ich Sie um Unterstützung des Forschungsprojekts zum Thema **"Entstehung und Bedeutung von Vertrauen in Hersteller von Solar-Modulen"** gebeten.

Bisher haben bereits **zahlreiche Entscheider**, die sich mit der Beschaffung von Solar-Modulen befassen, an unserer Umfrage **teilgenommen**, so dass ich Ihnen als Dankeschön für Ihre Teilnahme eine **praxisrelevante Auswertung** der Studienergebnisse in Aussicht stellen kann. Es gilt dennoch: Je größer der Teilnehmerkreis, desto wertvoller und aussagekräftiger die Ergebnisse.

Vor diesem Hintergrund bitte ich Sie erneut, an unserer Umfrage teilzunehmen. Auch **persönlich** bin ich **für Ihre Unterstützung sehr dankbar**, da die Befragung ein zentraler Bestandteil meiner Doktorarbeit ist.

Zur komfortablen und schnellen Online-Umfrage gelangen Sie über folgenden Link:

#code_complete#

Falls Sie eine Papier-Version des Fragebogens bevorzugen, können Sie diese unter www.win.rwth-aachen.de/Solar-Vertrauen.pdf erhalten. Bitte senden Sie in diesem Falle den ausgefüllten Fragebogen an die Faxnummer 0241/80 92371 zurück.

Ich sichere Ihnen ausdrücklich eine strikt vertrauliche Behandlung Ihrer Daten zu. Für Rückfragen stehe ich Ihnen gerne jederzeit zur Verfügung. Vielen Dank im Voraus für Ihre Unterstützung!

Mit freundlichen Grüßen

Gunnar Wiedenfels

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Figure 83: First reminder e-mail PV industry

An die Unternehmensleitung

{ if #u_gender# ="1" }Herr { /if }{ if #u_gender# ="2" }Frau { /if }#u_na_c#

#u_firm#

{ if #u_gender# ="1" }Sehr geehrter Herr #u_name#, { /if }{ if #u_gender# ="2" }Sehr geehrte Frau #u_name#, { /if }{ if #u_gender# ="0" }Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer, { /if }

im März habe ich Sie um Unterstützung des Forschungsprojekts zum Thema **"Entstehung und Bedeutung von Vertrauen in Hersteller von Solar-Modulen"** gebeten.

Unsere Umfrage endet zum 27. Juni 2007. Über Ihre Teilnahme (Dauer ca. 10 Minuten) würde ich mich sehr freuen, da die Befragung nicht nur ein **wesentliches Forschungsprojekt** der RWTH Aachen unterstützt, sondern auch **der Kern meiner Doktorarbeit** ist. Als Dankeschön für Ihre Teilnahme erhalten Sie auf Wunsch eine praxisorientierte Auswertung dieser Studie.

Sollten Sie nicht teilnehmen wollen, bitte ich höflich, die erneute Anfrage zu entschuldigen. Weitere Zuschriften erhalten Sie nicht mehr.

Herzlichen Dank für Ihr Verständnis und ganz besonders für Ihre Unterstützung.

Zur komfortablen und schnellen Online-Umfrage gelangen Sie über folgenden Link:

#code_complete#

Falls Sie eine Papier-Version des Fragebogens bevorzugen, erhalten Sie diese unter www.win.rwth-aachen.de/Solar-Vertrauen.pdf .

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Figure 84: Final reminder e-mail PV industry

E-mails to participants of the survey in the PR industry

An den Verantwortlichen für Unternehmenskommunikation

{ if #u_gender# ="1" }Herr { /if }{ if #u_gender# ="2" }Frau { /if }#u_na_c#

#u_firm#

{ if #u_gender# ="1" }Sehr geehrter Herr #u_name#, { /if }{ if #u_gender# ="2" }Sehr geehrte Frau #u_name#, { /if }{ if #u_gender# ="0" }Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer, { /if }

im Rahmen eines wissenschaftlichen Forschungsprojekts untersuchen wir die Entstehung und Bedeutung von Vertrauen bei der Beauftragung von PR-Agenturen/Kommunikationsberatungen.

Basierend auf einer bundesweiten Umfrage unter **Entscheidern**, die mit der Beauftragung von PR-Agenturen befasst sind, möchten wir

- die **relevanten Einflussfaktoren von Vertrauen** in einen Anbieter von PR-Dienstleistungen und
- die **Bedeutung des Vertrauens** für die Beauftragungsabsicht

messen und daraus konkrete **Handlungsempfehlungen** ableiten.

Aufgrund Ihrer Erfahrung in der Unternehmenskommunikation von #u_firm# bitten wir Sie, an der **ca. 10-minütigen Online-Umfrage teilzunehmen** und zum Gelingen dieser Studie beizutragen.

Als Dankeschön für Ihre Teilnahme erhalten Sie auf Wunsch eine praxisorientierte Auswertung dieser Studie. Erfahren Sie, wie andere in Ihrer Position entscheiden.

Für die Teilnahme an der Befragung sowie weiterführende Informationen folgen Sie bitte diesem Link:

#code_complete#

Wir sichern Ihnen eine vertrauliche Behandlung aller Angaben zu und stehen Ihnen bei Rückfragen gerne jederzeit zur Verfügung.

Mit freundlichen Grüßen

Gunnar Wiedenfels Prof. Dr. Malte Brettel

PS: Unter der Adresse www.win.rwth-aachen.de/Vertrauen.pdf können Sie den Fragebogen auch als PDF-Dokument herunterladen und uns dann ausgefüllt per Fax zurücksenden.

RWTH Aachen

Lehrstuhl Wirtschaftswissenschaften für

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Telefax: 0241/80 92371

Web: www.win.rwth-aachen.de

Figure 85: Survey invitation e-mail PR industry

An den Verantwortlichen für Unternehmenskommunikation

{ if #u_gender# ="1" }Herr { /if }{ if #u_gender# ="2" }Frau { /if }#u_na_c#

#u_firm#

{ if #u_gender# ="1" }Sehr geehrter Herr #u_name#, { /if }{ if #u_gender# ="2" }Sehr geehrte Frau #u_name#, { /if }{ if #u_gender# ="0" }Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer, { /if }

im März habe ich Sie um Unterstützung des Forschungsprojekts zum Thema **"Entstehung und Bedeutung von Vertrauen in PR-Agenturen/Kommunikationsberatungen"** gebeten.

Bisher haben bereits **zahlreiche Pressesprecher** und **andere Entscheider**, die sich mit der Beauftragung von PR-Agenturen befassen, an unserer Umfrage **teilgenommen**, so dass ich Ihnen als Dankeschön für Ihre Teilnahme eine **praxisrelevante Auswertung** der Studienergebnisse in Aussicht stellen kann. Es gilt dennoch: Je größer der Teilnehmerkreis, desto wertvoller und aussagekräftiger die Ergebnisse.

Vor diesem Hintergrund bitte ich Sie erneut, an unserer Umfrage teilzunehmen. Auch **persönlich** bin ich **für Ihre Unterstützung sehr dankbar**, da die Befragung ein zentraler Bestandteil meiner Doktorarbeit ist.

Zur komfortablen und schnellen Online-Umfrage gelangen Sie über folgenden Link:

#code_complete#

Falls Sie eine Papier-Version des Fragebogens bevorzugen, können Sie diese unter www.win.rwth-aachen.de/Vertrauen.pdf erhalten. Bitte senden Sie in diesem Falle den ausgefüllten Fragebogen an die Faxnummer 0241/80 92371 zurück.

Ich sichere Ihnen ausdrücklich eine strikt vertrauliche Behandlung Ihrer Daten zu. Für Rückfragen stehe ich Ihnen gerne jederzeit zur Verfügung. Vielen Dank im Voraus für Ihre Unterstützung!

Mit freundlichen Grüßen

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Figure 86: First reminder e-mail PR industry

An den Verantwortlichen für Unternehmenskommunikation

{ if #u_gender# ="1" }Herr { /if }{ if #u_gender# ="2" }Frau { /if }#u_na_c#

#u_firm#

{ if #u_gender# ="1" }Sehr geehrter Herr #u_name#, { /if }{ if #u_gender# ="2" }Sehr geehrte Frau #u_name#, { /if }{ if #u_gender# ="0" }Sehr geehrte Teilnehmerin, sehr geehrter Teilnehmer, { /if }

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Unsere Umfrage endet zum 27. Juni 2007. Über Ihre Teilnahme (Dauer ca. 10 Minuten) würde ich mich sehr freuen, da die Befragung nicht nur ein **wesentliches Forschungsprojekt** der RWTH Aachen unterstützt, sondern auch **der Kern meiner Doktorarbeit** ist. Als Dankeschön für Ihre Teilnahme erhalten Sie auf Wunsch eine praxisorientierte Auswertung dieser Studie.

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www.win.rwth-aachen.de/Vertrauen.pdf .

Mit freundlichen Grüßen

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Figure 87: Final reminder e-mail PR industry

Appendix D: Further descriptive statistics of the data sample

This section presents further descriptive information on the two industry sub samples used for this study.

PV industry sample

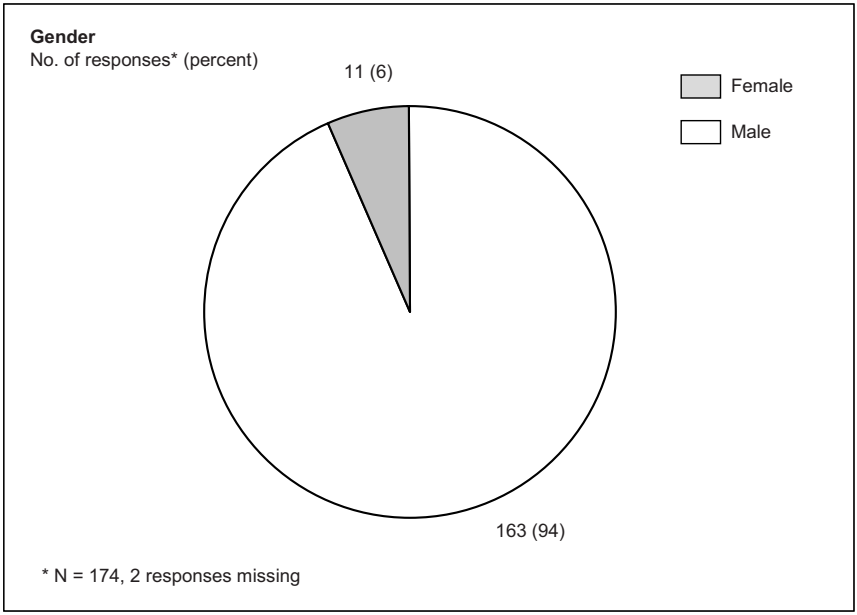

Figure 88: PV industry sample – respondent gender distribution

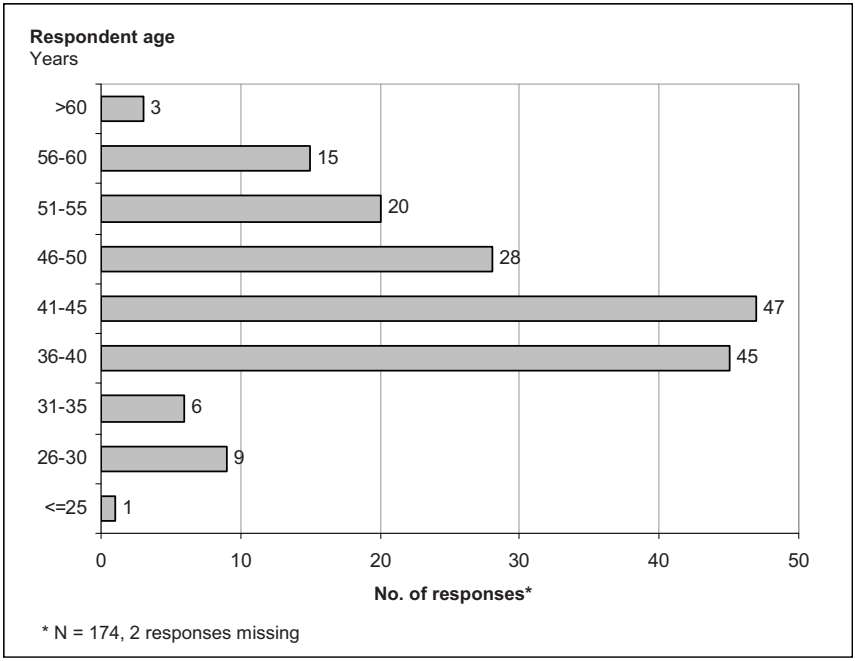

Figure 89: PV industry sample – respondent age distribution

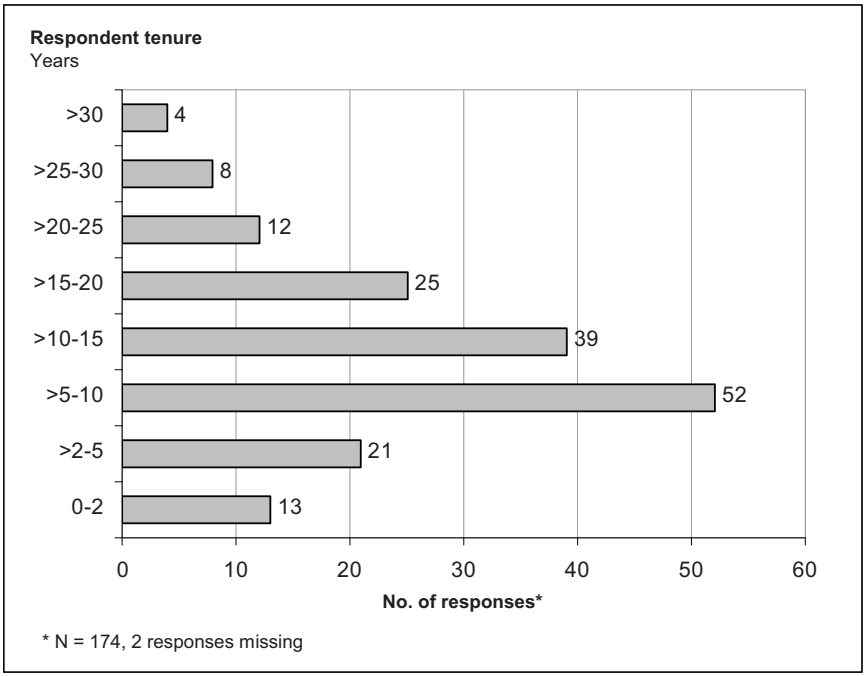

Figure 90: PV industry sample – respondent tenure distribution

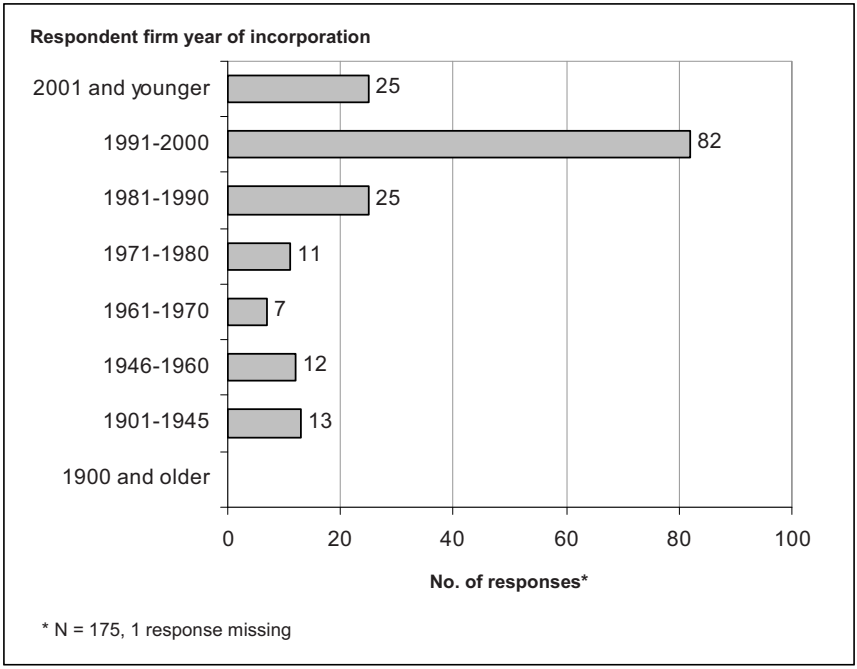

Figure 91: PV industry sample – respondent firm age distribution

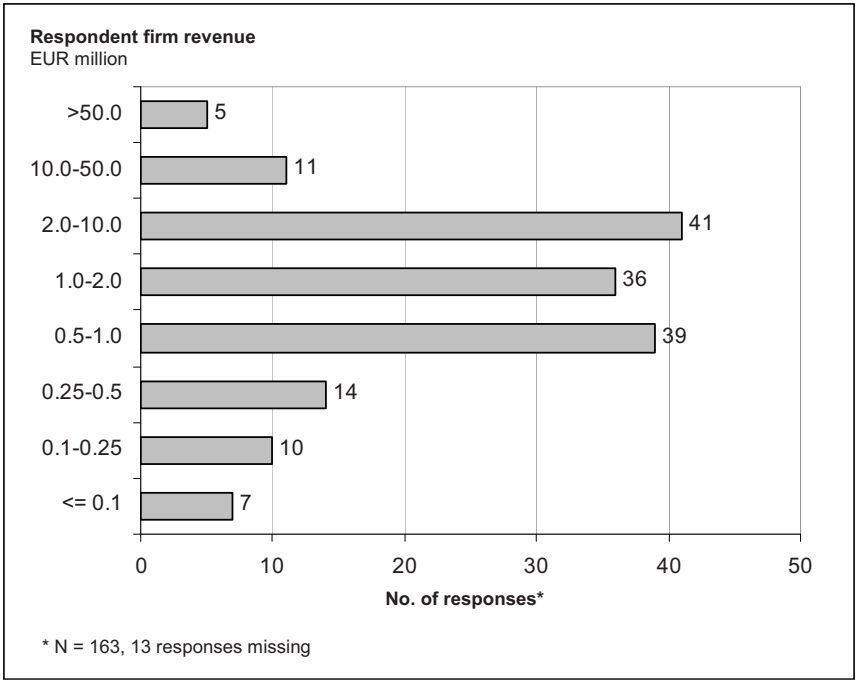

Figure 92: PV industry sample – respondent firm revenue distribution

PR industry sample

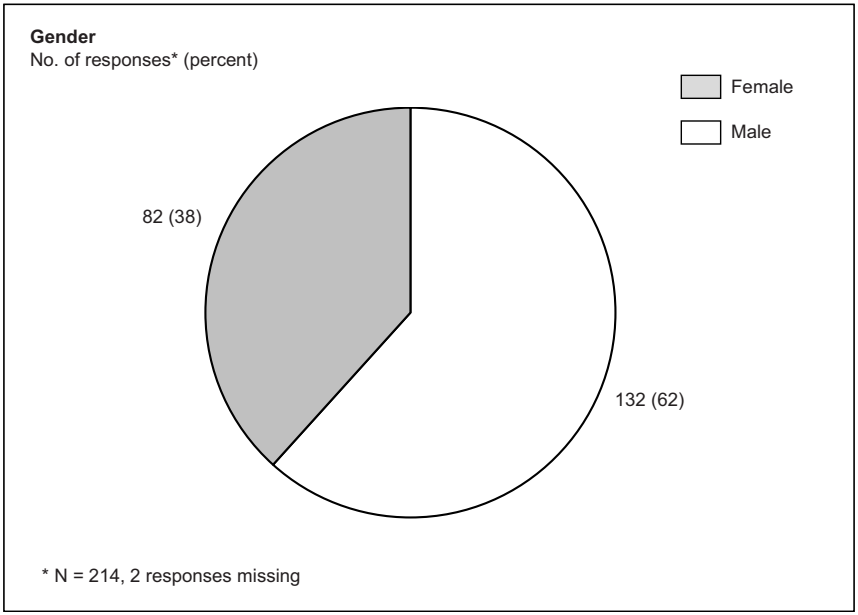

Figure 93: PR industry sample – respondent gender distribution

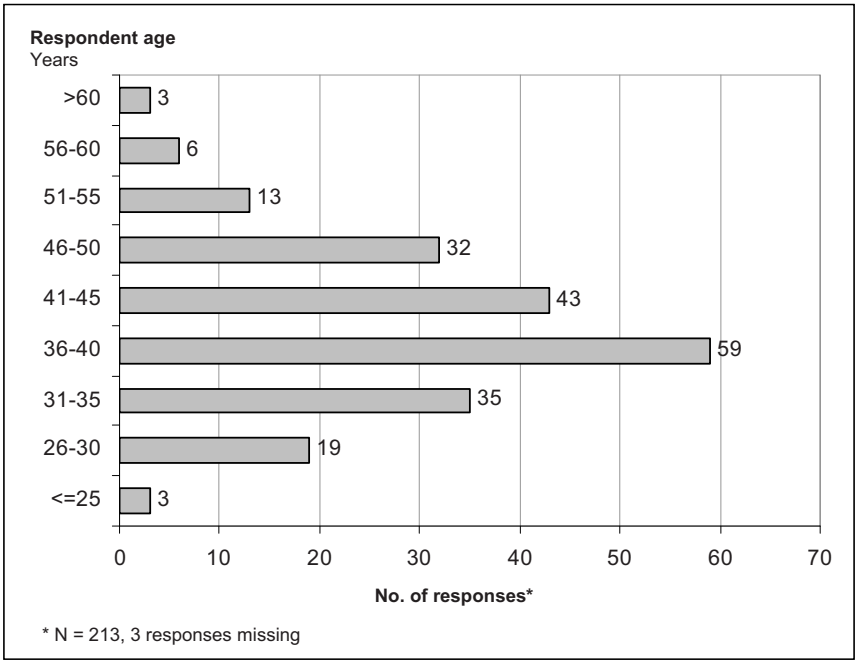

Figure 94: PR industry sample – respondent age distribution

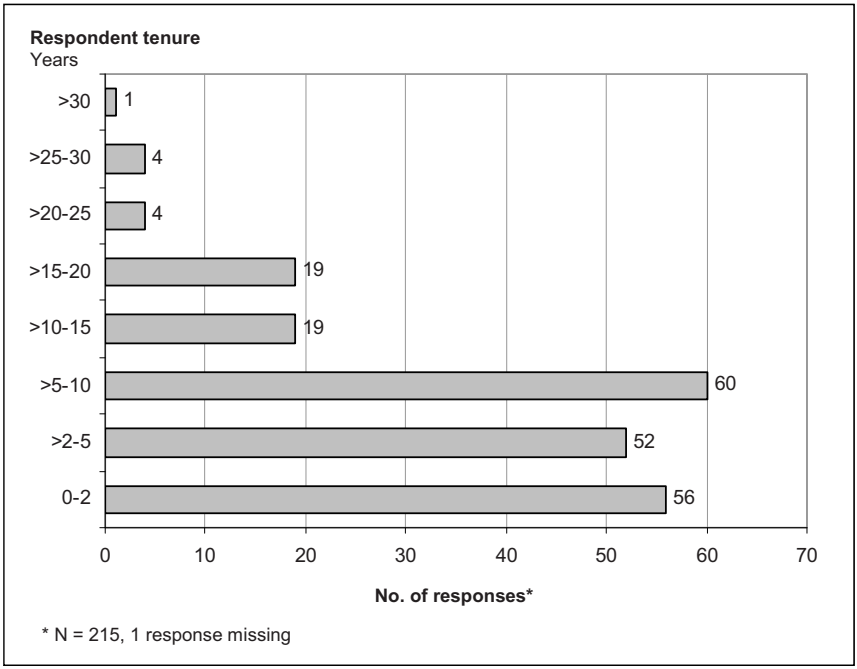

Figure 95: PR industry sample – respondent tenure distribution

Figure 96: PR industry sample – respondent firm age distribution

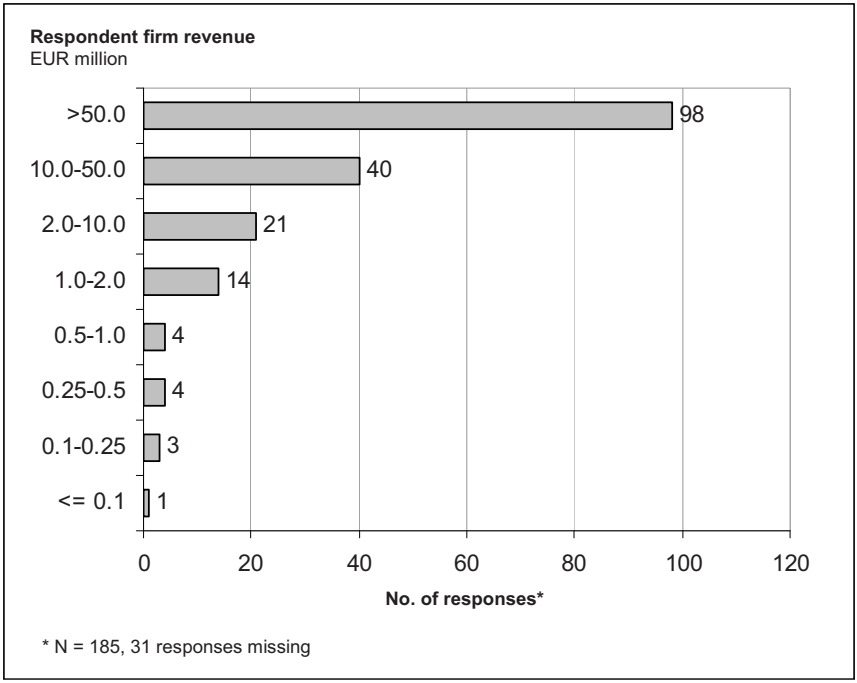

Figure 97: PR industry sample – respondent firm revenue distribution

Appendix E: Congruence of indicator weights

In chapter 7.1.2, the comparability of sub samples is assessed. The following pages provide more detail on the differences in indicator weights across different sub groups analyzed. The tables present indicator weights for the respective sub samples, the pooled variance, and t values. Finally, the last columns indicates significance of weight differences between the two groups in question, based on a 2-tailed t-test at a significance level of 10%.[844]

[844] Refer to section 7.1.2.

Comparison of credence and experience industry sub samples

Indicator	Weight (PV)	Std. error (PV)	Weight (PR)	Std. error (PR)	Pooled variance	t value	Significance
BEN1	0,102	0,005	0,094	0,002	0,050	1,549	n. sign.
BEN2	0,096	0,005	0,090	0,003	0,053	0,955	n. sign.
BEN3	0,098	0,005	0,093	0,002	0,051	0,836	n. sign.
ABI1	0,090	0,007	0,095	0,002	0,065	0,830	n. sign.
ABI2	0,101	0,004	0,095	0,002	0,042	1,409	n. sign.
ABI3	0,105	0,004	0,096	0,002	0,041	2,137	*sign.*
ABI4	0,094	0,006	0,090	0,003	0,057	0,707	n. sign.
ABI5	0,095	0,005	0,093	0,002	0,052	0,283	n. sign.
INT1	0,112	0,004	0,098	0,003	0,048	2,964	*sign.*
INT2	0,108	0,005	0,096	0,003	0,052	2,312	*sign.*
INT3	0,104	0,005	0,093	0,003	0,055	2,057	*sign.*
INT4	0,113	0,004	0,096	0,003	0,048	3,372	*sign.*
DIS1	0,516	0,287	1,247	0,532	6,320	1,139	n. sign.
DIS2	0,596	0,280	-0,921	0,521	6,188	2,414	*sign.*
EXR1	0,532	0,163	0,407	0,107	1,858	0,661	n. sign.
EXR2	0,441	0,202	0,529	0,104	2,117	0,408	n. sign.
EXR3	0,156	0,125	0,188	0,082	1,424	0,220	n. sign.
INS1	0,502	0,103	0,836	0,085	1,300	2,528	*sign.*
INS2	0,244	0,119	-0,100	0,077	1,344	2,520	*sign.*
INS3	0,030	0,130	0,080	0,107	1,639	0,304	n. sign.
INS4	0,455	0,111	0,245	0,096	1,432	1,442	n. sign.
PIN1	0,321	0,013	0,364	0,014	0,196	2,165	*sign.*
PIN2	0,378	0,015	0,361	0,010	0,172	0,951	n. sign.
PIN3	0,357	0,011	0,352	0,011	0,154	0,288	n. sign.
REL1	0,566	0,058	0,568	0,037	0,654	0,036	n. sign.
REL2	0,470	0,056	0,513	0,037	0,638	0,659	n. sign.
REP1	0,285	0,018	0,314	0,015	0,227	1,236	n. sign.
REP2	0,316	0,016	0,306	0,016	0,226	0,431	n. sign.
REP4	0,315	0,017	0,309	0,013	0,207	0,280	n. sign.
REP5	0,241	0,022	0,249	0,018	0,276	0,271	n. sign.
RIS1	-0,223	0,601	1,036	0,553	8,042	1,542	n. sign.
RIS2	1,138	0,540	-0,072	0,582	7,937	1,502	n. sign.
RMI1	0,626	0,083	0,424	0,214	2,442	0,815	n. sign.
RMI2	0,178	0,111	0,603	0,148	1,892	2,214	*sign.*
RMI3	0,279	0,098	0,096	0,209	2,439	0,738	n. sign.
RMI4	0,400	0,105	0,091	0,180	2,171	1,404	n. sign.
RMI5	0,009	0,112	-0,023	0,162	2,024	0,159	n. sign.
SIM1	0,368	0,023	0,333	0,019	0,286	1,229	n. sign.
SIM2	0,341	0,019	0,398	0,019	0,262	2,147	*sign.*
SIM3	0,366	0,019	0,343	0,018	0,256	0,886	n. sign.
TRU1	0,197	0,007	0,193	0,008	0,106	0,420	n. sign.
TRU2	0,170	0,014	0,153	0,013	0,188	0,892	n. sign.
TRU3	0,200	0,007	0,213	0,006	0,090	1,446	n. sign.
TRU4	0,194	0,007	0,188	0,007	0,096	0,582	n. sign.
TRU5	0,190	0,007	0,194	0,007	0,097	0,447	n. sign.
TRU6	0,203	0,007	0,206	0,007	0,092	0,321	n. sign.

Table 54: Industry-specific indicator weights – full sample

Indicator	Weight (PV)	Std. error (PV)	Weight (PR)	Std. error (PR)	Pooled variance	t value	Significance
BEN1	0,092	0,007	0,101	0,005	0,058	1,060	n. sign.
BEN2	0,084	0,007	0,098	0,006	0,058	1,469	n. sign.
BEN3	0,086	0,007	0,104	0,006	0,061	1,987	*sign.*
ABI1	0,099	0,006	0,100	0,004	0,047	0,151	n. sign.
ABI2	0,106	0,005	0,093	0,006	0,051	1,625	n. sign.
ABI3	0,106	0,006	0,099	0,005	0,050	0,928	n. sign.
ABI4	0,100	0,007	0,082	0,007	0,063	1,832	*sign.*
ABI5	0,101	0,005	0,087	0,005	0,049	1,834	*sign.*
INT1	0,107	0,006	0,104	0,006	0,052	0,440	n. sign.
INT2	0,102	0,006	0,096	0,007	0,059	0,613	n. sign.
INT3	0,106	0,005	0,098	0,006	0,052	0,999	n. sign.
INT4	0,111	0,006	0,101	0,005	0,050	1,268	n. sign.
DIS1	0,647	0,352	0,319	0,518	4,117	0,520	n. sign.
DIS2	0,480	0,380	0,764	0,507	4,152	0,446	n. sign.
EXR1	0,502	0,181	0,373	0,186	1,685	0,498	n. sign.
EXR2	0,488	0,257	0,582	0,171	1,974	0,310	n. sign.
EXR3	0,193	0,200	0,221	0,200	1,834	0,098	n. sign.
INS1	0,470	0,125	1,024	0,089	0,984	3,674	*sign.*
INS2	0,196	0,129	-0,180	0,130	1,184	2,064	*sign.*
INS3	0,034	0,137	0,077	0,153	1,339	0,206	n. sign.
INS4	0,549	0,142	-0,103	0,116	1,181	3,592	*sign.*
PIN1	0,326	0,014	0,346	0,028	0,204	0,627	n. sign.
PIN2	0,375	0,017	0,351	0,011	0,129	1,238	n. sign.
PIN3	0,344	0,015	0,357	0,024	0,187	0,455	n. sign.
REL1	0,554	0,069	0,540	0,055	0,565	0,163	n. sign.
REL2	0,477	0,069	0,540	0,054	0,563	0,729	n. sign.
REP1	0,276	0,030	0,370	0,035	0,300	2,053	*sign.*
REP2	0,311	0,029	0,253	0,042	0,335	1,131	n. sign.
REP4	0,313	0,025	0,346	0,027	0,240	0,888	n. sign.
REP5	0,253	0,022	0,241	0,040	0,299	0,262	n. sign.
RIS1	0,757	0,525	1,126	0,565	5,014	0,479	n. sign.
RIS2	0,325	0,529	-0,265	0,542	4,917	0,781	n. sign.
RMI1	0,705	0,119	0,256	0,353	2,479	1,182	n. sign.
RMI2	0,482	0,183	0,591	0,229	1,915	0,372	n. sign.
RMI3	0,265	0,137	0,200	0,284	2,087	0,201	n. sign.
RMI4	0,317	0,185	-0,101	0,244	2,006	1,356	n. sign.
RMI5	-0,188	0,170	0,208	0,259	2,038	1,266	n. sign.
SIM1	0,363	0,052	0,326	0,050	0,464	0,524	n. sign.
SIM2	0,398	0,048	0,413	0,042	0,408	0,241	n. sign.
SIM3	0,352	0,050	0,350	0,037	0,395	0,041	n. sign.
TRU1	0,196	0,009	0,178	0,014	0,109	1,078	n. sign.
TRU2	0,155	0,022	0,164	0,019	0,185	0,307	n. sign.
TRU3	0,204	0,009	0,215	0,011	0,091	0,729	n. sign.
TRU4	0,202	0,011	0,195	0,011	0,100	0,442	n. sign.
TRU5	0,192	0,010	0,200	0,011	0,095	0,513	n. sign.
TRU6	0,201	0,010	0,204	0,011	0,096	0,258	n. sign.

Table 55: Industry-specific indicator weights – NEV sample

Indicator	Weight (PV)	Std. error (PV)	Weight (PR)	Std. error (PR)	Pooled variance	t value	Significance
BEN1	0,114	0,006	0,091	0,002	0,044	3,884	*sign.*
BEN2	0,108	0,007	0,087	0,002	0,045	3,416	*sign.*
BEN3	0,110	0,006	0,087	0,002	0,045	3,786	*sign.*
ABI1	0,077	0,011	0,092	0,003	0,075	1,426	n. sign.
ABI2	0,095	0,006	0,095	0,002	0,042	0,088	n. sign.
ABI3	0,103	0,005	0,094	0,003	0,038	1,684	n. sign.
ABI4	0,082	0,010	0,092	0,002	0,066	1,110	n. sign.
ABI5	0,085	0,009	0,095	0,003	0,061	1,238	n. sign.
INT1	0,117	0,006	0,093	0,003	0,044	4,000	*sign.*
INT2	0,113	0,006	0,096	0,003	0,045	2,745	*sign.*
INT3	0,104	0,007	0,090	0,003	0,050	2,140	*sign.*
INT4	0,113	0,005	0,093	0,003	0,041	3,567	*sign.*
DIS1	0,406	0,385	0,670	0,470	4,693	0,414	n. sign.
DIS2	0,688	0,375	0,448	0,474	4,687	0,376	n. sign.
EXR1	0,734	0,267	0,455	0,173	2,231	0,919	n. sign.
EXR2	0,258	0,293	0,481	0,161	2,299	0,714	n. sign.
EXR3	0,074	0,161	0,150	0,082	1,233	0,453	n. sign.
INS1	0,551	0,199	0,599	0,142	1,741	0,202	n. sign.
INS2	0,310	0,189	-0,001	0,084	1,387	1,651	n. sign.
INS3	0,107	0,267	-0,133	0,140	2,061	0,858	n. sign.
INS4	0,254	0,184	0,613	0,150	1,729	1,528	n. sign.
PIN1	0,321	0,024	0,374	0,018	0,216	1,795	*sign.*
PIN2	0,384	0,026	0,369	0,015	0,208	0,532	n. sign.
PIN3	0,360	0,017	0,349	0,013	0,156	0,514	n. sign.
REL1	0,551	0,381	0,596	0,049	2,426	0,139	n. sign.
REL2	0,488	0,307	0,480	0,047	1,969	0,027	n. sign.
REP1	0,291	0,025	0,285	0,012	0,189	0,249	n. sign.
REP2	0,325	0,024	0,327	0,018	0,211	0,077	n. sign.
REP4	0,319	0,021	0,289	0,012	0,169	1,302	n. sign.
REP5	0,226	0,040	0,250	0,020	0,303	0,573	n. sign.
RIS1	1,246	0,697	0,987	0,579	6,610	0,288	n. sign.
RIS2	-0,417	0,693	0,026	0,592	6,679	0,488	n. sign.
RMI1	0,493	0,126	0,448	0,254	2,311	0,143	n. sign.
RMI2	-0,047	0,113	0,531	0,215	1,971	2,158	*sign.*
RMI3	0,298	0,125	0,105	0,250	2,278	0,624	n. sign.
RMI4	0,469	0,136	0,249	0,255	2,343	0,691	n. sign.
RMI5	0,177	0,149	-0,152	0,198	1,934	1,253	n. sign.
SIM1	0,368	0,026	0,335	0,022	0,247	0,958	n. sign.
SIM2	0,317	0,023	0,389	0,020	0,221	2,402	*sign.*
SIM3	0,371	0,018	0,339	0,022	0,217	1,090	n. sign.
TRU1	0,194	0,011	0,199	0,009	0,102	0,375	n. sign.
TRU2	0,182	0,016	0,148	0,018	0,180	1,410	n. sign.
TRU3	0,198	0,009	0,212	0,007	0,083	1,206	n. sign.
TRU4	0,188	0,011	0,184	0,008	0,098	0,279	n. sign.
TRU5	0,185	0,010	0,190	0,009	0,098	0,400	n. sign.
TRU6	0,207	0,009	0,207	0,007	0,082	0,054	n. sign.

Table 56: Industry-specific indicator weights – established firms sample

Comparison of NEV and established firms sub samples

Indicator	Weight (NEVs)	Std. error (NEVs)	Weight (estd. firms)	Std. error (estd. firms)	Pooled variance	t value	Significance
BEN1	0,097	0,005	0,097	0,003	0,052	0,151	n. sign.
BEN2	0,094	0,004	0,093	0,003	0,050	0,272	n. sign.
BEN3	0,097	0,005	0,094	0,003	0,052	0,645	n. sign.
ABI1	0,101	0,004	0,090	0,004	0,057	1,871	*sign.*
ABI2	0,099	0,004	0,097	0,003	0,048	0,474	n. sign.
ABI3	0,103	0,004	0,098	0,003	0,045	0,934	n. sign.
ABI4	0,092	0,005	0,092	0,004	0,062	0,016	n. sign.
ABI5	0,095	0,004	0,093	0,004	0,055	0,321	n. sign.
INT1	0,105	0,004	0,103	0,003	0,048	0,431	n. sign.
INT2	0,099	0,004	0,104	0,003	0,051	0,920	n. sign.
INT3	0,101	0,004	0,096	0,004	0,053	0,952	n. sign.
INT4	0,102	0,004	0,102	0,003	0,048	0,021	n. sign.
DIS1	1,065	0,597	0,512	0,334	6,332	0,856	n. sign.
DIS2	-0,115	0,585	0,596	0,348	6,344	1,100	n. sign.
EXR1	0,432	0,115	0,551	0,133	1,784	0,654	n. sign.
EXR2	0,549	0,135	0,400	0,134	1,894	0,767	n. sign.
EXR3	0,179	0,123	0,132	0,080	1,382	0,331	n. sign.
INS1	0,829	0,078	0,629	0,106	1,357	1,445	n. sign.
INS2	-0,065	0,084	0,051	0,081	1,156	0,987	n. sign.
INS3	0,126	0,103	-0,010	0,131	1,714	0,777	n. sign.
INS4	0,219	0,106	0,461	0,109	1,514	1,566	n. sign.
PIN1	0,337	0,017	0,359	0,015	0,220	0,967	n. sign.
PIN2	0,364	0,012	0,368	0,015	0,200	0,177	n. sign.
PIN3	0,347	0,014	0,347	0,012	0,179	0,022	n. sign.
REL1	0,553	0,033	0,589	0,047	0,594	0,593	n. sign.
REL2	0,508	0,032	0,475	0,046	0,584	0,557	n. sign.
REP1	0,320	0,021	0,289	0,012	0,221	1,354	n. sign.
REP2	0,291	0,021	0,331	0,014	0,238	1,637	n. sign.
REP4	0,326	0,018	0,301	0,011	0,192	1,260	n. sign.
REP5	0,246	0,021	0,238	0,019	0,280	0,305	n. sign.
RIS1	0,744	0,470	-0,791	0,776	9,570	1,574	n. sign.
RIS2	0,353	0,444	1,245	0,814	9,873	0,886	n. sign.
RMI1	0,363	0,163	0,275	0,136	2,066	0,418	n. sign.
RMI2	0,601	0,158	0,390	0,129	1,976	1,047	n. sign.
RMI3	0,390	0,156	0,300	0,148	2,123	0,413	n. sign.
RMI4	0,125	0,185	0,484	0,136	2,193	1,605	n. sign.
RMI5	-0,079	0,154	-0,025	0,134	2,000	0,266	n. sign.
SIM1	0,336	0,034	0,346	0,017	0,343	0,295	n. sign.
SIM2	0,408	0,034	0,363	0,014	0,329	1,332	n. sign.
SIM3	0,351	0,033	0,351	0,015	0,326	0,021	n. sign.
TRU1	0,186	0,008	0,202	0,007	0,108	1,445	n. sign.
TRU2	0,161	0,015	0,161	0,014	0,197	0,040	n. sign.
TRU3	0,210	0,007	0,206	0,006	0,089	0,430	n. sign.
TRU4	0,199	0,008	0,185	0,007	0,100	1,323	n. sign.
TRU5	0,196	0,007	0,189	0,007	0,096	0,694	n. sign.
TRU6	0,203	0,008	0,204	0,006	0,092	0,170	n. sign.

Table 57: Development stage-specific indicator weights – full sample

Indicator	Weight (NEVs)	Std. error (NEVs)	Weight (estd. firms)	Std. error (estd. firms)	Pooled variance	t value	Significance
BEN1	0,101	0,005	0,091	0,002	0,037	2,053	*sign.*
BEN2	0,098	0,006	0,087	0,002	0,039	1,996	*sign.*
BEN3	0,104	0,006	0,087	0,002	0,041	3,076	*sign.*
ABI1	0,100	0,004	0,092	0,003	0,034	1,823	*sign.*
ABI2	0,093	0,006	0,095	0,002	0,039	0,386	n. sign.
ABI3	0,099	0,005	0,094	0,003	0,038	1,032	n. sign.
ABI4	0,082	0,007	0,092	0,002	0,046	1,564	n. sign.
ABI5	0,087	0,005	0,095	0,003	0,039	1,453	n. sign.
INT1	0,104	0,006	0,093	0,003	0,041	1,840	*sign.*
INT2	0,096	0,007	0,096	0,003	0,050	0,000	n. sign.
INT3	0,098	0,006	0,090	0,003	0,043	1,353	n. sign.
INT4	0,101	0,005	0,093	0,003	0,038	1,429	n. sign.
DIS1	0,319	0,518	0,670	0,470	5,115	0,495	n. sign.
DIS2	0,764	0,507	0,448	0,474	5,101	0,447	n. sign.
EXR1	0,373	0,186	0,455	0,173	1,862	0,317	n. sign.
EXR2	0,582	0,171	0,481	0,161	1,732	0,424	n. sign.
EXR3	0,221	0,200	0,150	0,082	1,389	0,367	n. sign.
INS1	1,024	0,089	0,599	0,142	1,339	2,297	*sign.*
INS2	-0,180	0,130	-0,001	0,084	1,062	1,215	n. sign.
INS3	0,077	0,153	-0,133	0,140	1,521	0,997	n. sign.
INS4	-0,103	0,116	0,613	0,150	1,475	3,503	*sign.*
PIN1	0,346	0,028	0,374	0,018	0,227	0,902	n. sign.
PIN2	0,351	0,011	0,369	0,015	0,148	0,905	n. sign.
PIN3	0,357	0,024	0,349	0,013	0,186	0,326	n. sign.
REL1	0,540	0,055	0,596	0,049	0,531	0,771	n. sign.
REL2	0,540	0,054	0,480	0,047	0,520	0,824	n. sign.
REP1	0,370	0,035	0,285	0,012	0,236	2,615	*sign.*
REP2	0,253	0,042	0,327	0,018	0,293	1,817	*sign.*
REP4	0,346	0,027	0,289	0,012	0,193	2,130	*sign.*
REP5	0,241	0,040	0,250	0,020	0,294	0,216	n. sign.
RIS1	1,126	0,565	0,987	0,579	6,046	0,165	n. sign.
RIS2	-0,265	0,542	0,026	0,592	6,069	0,345	n. sign.
RMI1	0,256	0,353	0,448	0,254	3,041	0,457	n. sign.
RMI2	0,591	0,229	0,531	0,215	2,309	0,190	n. sign.
RMI3	0,200	0,284	0,105	0,250	2,748	0,250	n. sign.
RMI4	-0,101	0,244	0,249	0,255	2,648	0,954	n. sign.
RMI5	0,208	0,259	-0,152	0,198	2,308	1,124	n. sign.
SIM1	0,326	0,050	0,335	0,022	0,350	0,200	n. sign.
SIM2	0,413	0,042	0,389	0,020	0,301	0,587	n. sign.
SIM3	0,350	0,037	0,339	0,022	0,288	0,283	n. sign.
TRU1	0,178	0,014	0,199	0,009	0,112	1,372	n. sign.
TRU2	0,164	0,019	0,148	0,018	0,188	0,614	n. sign.
TRU3	0,215	0,011	0,212	0,007	0,088	0,213	n. sign.
TRU4	0,195	0,011	0,184	0,008	0,098	0,789	n. sign.
TRU5	0,200	0,011	0,190	0,009	0,098	0,726	n. sign.
TRU6	0,204	0,011	0,207	0,007	0,092	0,189	n. sign.

Table 58: Development stage-specific indicator weights – credence industry sample

Indicator	Weight (NEVs)	Std. error (NEVs)	Weight (estd. firms)	Std. error (estd. firms)	Pooled variance	t value	Significance
BEN1	0,092	0,007	0,114	0,006	0,063	2,315	*sign.*
BEN2	0,084	0,007	0,108	0,007	0,063	2,450	*sign.*
BEN3	0,086	0,007	0,110	0,006	0,064	2,500	*sign.*
ABI1	0,099	0,006	0,077	0,011	0,089	1,634	n. sign.
ABI2	0,106	0,005	0,095	0,006	0,053	1,383	n. sign.
ABI3	0,106	0,006	0,103	0,005	0,050	0,488	n. sign.
ABI4	0,100	0,007	0,082	0,010	0,082	1,424	n. sign.
ABI5	0,101	0,005	0,085	0,009	0,072	1,497	n. sign.
INT1	0,107	0,006	0,117	0,006	0,054	1,189	n. sign.
INT2	0,102	0,006	0,113	0,006	0,054	1,352	n. sign.
INT3	0,106	0,005	0,104	0,007	0,059	0,157	n. sign.
INT4	0,111	0,006	0,113	0,005	0,053	0,353	n. sign.
DIS1	0,647	0,352	0,406	0,385	3,469	0,461	n. sign.
DIS2	0,480	0,380	0,688	0,375	3,524	0,391	n. sign.
EXR1	0,502	0,181	0,734	0,267	2,184	0,701	n. sign.
EXR2	0,488	0,257	0,258	0,293	2,599	0,587	n. sign.
EXR3	0,193	0,200	0,074	0,161	1,672	0,471	n. sign.
INS1	0,470	0,125	0,551	0,199	1,600	0,335	n. sign.
INS2	0,196	0,129	0,310	0,189	1,549	0,490	n. sign.
INS3	0,034	0,137	0,107	0,267	2,063	0,233	n. sign.
INS4	0,549	0,142	0,254	0,184	1,565	1,246	n. sign.
PIN1	0,326	0,014	0,321	0,024	0,189	0,165	n. sign.
PIN2	0,375	0,017	0,384	0,026	0,209	0,285	n. sign.
PIN3	0,344	0,015	0,360	0,017	0,149	0,692	n. sign.
REL1	0,554	0,069	0,551	0,381	2,721	0,008	n. sign.
REL2	0,477	0,069	0,488	0,307	2,208	0,032	n. sign.
REP1	0,276	0,030	0,291	0,025	0,253	0,411	n. sign.
REP2	0,311	0,029	0,325	0,024	0,242	0,366	n. sign.
REP4	0,313	0,025	0,319	0,021	0,214	0,173	n. sign.
REP5	0,253	0,022	0,226	0,040	0,310	0,573	n. sign.
RIS1	0,757	0,525	1,246	0,697	5,879	0,550	n. sign.
RIS2	0,325	0,529	-0,417	0,693	5,868	0,836	n. sign.
RMI1	0,705	0,119	0,493	0,126	1,147	1,226	n. sign.
RMI2	0,482	0,183	-0,047	0,113	1,377	2,546	*sign.*
RMI3	0,265	0,137	0,298	0,125	1,215	0,183	n. sign.
RMI4	0,317	0,185	0,469	0,136	1,486	0,678	n. sign.
RMI5	-0,188	0,170	0,177	0,149	1,479	1,637	n. sign.
SIM1	0,363	0,052	0,368	0,026	0,367	0,081	n. sign.
SIM2	0,398	0,048	0,317	0,023	0,332	1,623	n. sign.
SIM3	0,352	0,050	0,371	0,018	0,329	0,370	n. sign.
TRU1	0,196	0,009	0,194	0,011	0,096	0,137	n. sign.
TRU2	0,155	0,022	0,182	0,016	0,174	1,033	n. sign.
TRU3	0,204	0,009	0,198	0,009	0,085	0,469	n. sign.
TRU4	0,202	0,011	0,188	0,011	0,100	0,915	n. sign.
TRU5	0,192	0,010	0,185	0,010	0,094	0,541	n. sign.
TRU6	0,201	0,010	0,207	0,009	0,084	0,538	n. sign.

Table 59: Development stage-specific indicator weights – experience industry sample

Comparison of customer and non-customer sub samples

Indicator	Weight (Customers)	Std. error (Customers)	Weight (Non-customers)	Std. error (Non-customers)	Pooled variance	t value	Significance
BEN1	0,099	0,005	0,100	0,003	0,051	0,156	n. sign.
BEN2	0,101	0,005	0,092	0,003	0,052	1,600	n. sign.
BEN3	0,097	0,006	0,098	0,003	0,053	0,115	n. sign.
ABI1	0,083	0,008	0,100	0,003	0,060	2,459	*sign.*
ABI2	0,093	0,004	0,098	0,003	0,044	1,149	n. sign.
ABI3	0,097	0,004	0,100	0,003	0,046	0,555	n. sign.
ABI4	0,091	0,006	0,091	0,004	0,063	0,042	n. sign.
ABI5	0,085	0,007	0,096	0,003	0,055	1,789	*sign.*
INT1	0,111	0,005	0,100	0,003	0,049	1,902	*sign.*
INT2	0,103	0,004	0,100	0,003	0,053	0,516	n. sign.
INT3	0,101	0,005	0,097	0,003	0,053	0,726	n. sign.
INT4	0,105	0,005	0,101	0,003	0,048	0,780	n. sign.
DIS1	0,467	0,368	0,680	0,380	5,816	0,323	n. sign.
DIS2	0,605	0,392	0,442	0,424	6,463	0,222	n. sign.
EXR1	0,739	0,170	0,384	0,102	1,721	1,814	*sign.*
EXR2	0,123	0,162	0,596	0,113	1,840	2,260	*sign.*
EXR3	0,244	0,122	0,135	0,081	1,341	0,715	n. sign.
INS1	0,912	0,117	0,562	0,077	1,276	2,412	*sign.*
INS2	-0,044	0,128	-0,001	0,065	1,156	0,332	n. sign.
INS3	0,088	0,179	0,081	0,089	1,598	0,037	n. sign.
INS4	0,086	0,134	0,493	0,087	1,449	2,471	*sign.*
PIN1	0,326	0,015	0,373	0,020	0,301	1,387	n. sign.
PIN2	0,380	0,020	0,365	0,014	0,230	0,561	n. sign.
PIN3	0,350	0,013	0,343	0,016	0,246	0,222	n. sign.
REL1	0,579	0,034	0,559	0,054	0,804	0,228	n. sign.
REL2	0,466	0,032	0,521	0,054	0,791	0,617	n. sign.
REP1	0,300	0,027	0,307	0,014	0,244	0,252	n. sign.
REP2	0,338	0,022	0,310	0,016	0,259	0,953	n. sign.
REP4	0,300	0,020	0,320	0,013	0,210	0,832	n. sign.
REP5	0,233	0,037	0,243	0,017	0,312	0,288	n. sign.
RIS1	1,216	0,700	-0,151	0,529	8,491	1,415	n. sign.
RIS2	-0,958	0,689	1,083	0,552	8,767	2,048	*sign.*
RMI1	0,185	0,244	0,256	0,107	2,017	0,310	n. sign.
RMI2	0,466	0,179	0,514	0,120	1,980	0,214	n. sign.
RMI3	0,363	0,203	0,328	0,113	1,949	0,156	n. sign.
RMI4	0,277	0,228	0,423	0,116	2,068	0,619	n. sign.
RMI5	0,118	0,201	-0,127	0,110	1,906	1,133	n. sign.
SIM1	0,358	0,026	0,330	0,024	0,370	0,652	n. sign.
SIM2	0,368	0,024	0,384	0,020	0,312	0,445	n. sign.
SIM3	0,342	0,019	0,364	0,022	0,335	0,573	n. sign.
TRU1	0,181	0,008	0,207	0,008	0,122	1,886	*sign.*
TRU2	0,172	0,014	0,154	0,015	0,230	0,724	n. sign.
TRU3	0,195	0,008	0,218	0,006	0,097	2,073	*sign.*
TRU4	0,187	0,008	0,193	0,008	0,122	0,433	n. sign.
TRU5	0,184	0,006	0,198	0,007	0,109	1,129	n. sign.
TRU6	0,194	0,007	0,214	0,007	0,102	1,738	*sign.*

Table 60: Indicator weights for customer and non-customer responses – full sample

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