UNIVERSITÄT PADERBORN
Die Universität der Informationsgesellschaft

Faculty of Business Administration
and Economics
Chair of Personnel Economics

How corporate architecture affects job seekers. Experimental evidence of signal-based mechanisms

Der Fakultät für Wirtschaftswissenschaften der
Universität Paderborn
zur Erlangung des akademischen Grades
Doktor der Wirtschaftswissenschaften
- Doctor rerum politicarum -
vorgelegte Dissertation
von

Katharina Radermacher, M.A.
geboren am 19.07.1982 in 32756 Detmold

Erscheinungsjahr: 2019

Executive Summary

Corporate architecture and the way it is presented have been changing rapidly. At the same time, there is a resurging interest in the buildings and workspaces of companies in research. In light of these developments, this dissertation examines the impact of architecture on job seekers. Architecture could play an important role in communicating to job seekers and thus in the struggle for scarce talent. It could help employers to distinguish themselves from other employers and consequently yield a competitive advantage. Notwithstanding the high relevance of this relationship, neither profound theoretical reasoning nor empirical evidence exist on how and why architecture might affect job seekers. Against this backdrop, this thesis tests the relationship between corporate architecture and recruitment outcomes theoretically and empirically. The line of argument draws on Signaling Theory as an overarching framework and integrates further insights from recruitment literature and research on information processing and evaluation. Further, it comprises different strands of literature on the effects of architecture. This multidisciplinary perspective is then used to develop a model to answer the main research question, how corporate architecture influences job seekers' perception of employer attributes, and whether this, in turn, impacts perceived employer attractiveness.

The empirical part of the thesis is based on two studies. In a first study, a typology of contemporary architecture is developed based on a cluster analysis and results in four different architectural types. Taking up these architectural types, the second study employs an online scenario experiment resulting in over 1,800 data sets used to test the theoretical model. Structural equation modeling provides robust support for the theoretical idea that architecture functions as an economic signal for employer attributes which then completely mediate the impact of architecture on employer attractiveness. More precisely, the results show that perceived *Innovation & Flexibility* of the employer as well as *Adequacy for Work* are the mediators that drive the effects most strongly. The analysis further reveals that of the four architectural types, the *Balanced Type* emerges as a kind of "superior type", as it is the most preferred over all groups of participants. The *Solid Open Type*, on the contrary, is the least preferred type. The results also imply that personal characteristics, in particular gender, status and performance level, and work values such as achievement orientation, have a moderating impact on the perception and evaluation of architectural signals. Overall, the thesis targets an important, unexplored field of research and makes a case for a new interdisciplinary study of corporate architecture in the context of recruitment. In this way, it resonates with the high relevance of corporate architecture for both managers and researchers alike.

Table of contents

List of figures

List of tables

List of abbreviations

AVE – Average variance extracted

CFA – Confirmatory Factor Analysis

CFI – Comparative fit index

D.F. – Degrees of freedom

GPA – Grade point average

KMO – Kaiser-Meyer-Olkin criterion

MI – Modification indices

ML – Maximum likelihood estimation method

OCM – Organizational Climate Measure

PO-Fit – Person-Organization Fit

QML – Quasi-maximum likelihood estimation method

RMSEA – Root mean squared error of approximation

SB – Satorra Bentler

SEM – Structural Equation Model

SMC – Squared multiple correlation

SRMR – Standardized root mean squared residual

SWVI-r – Super's Work Value Inventory – revised

WVI – Work Value Inventory

1 Introduction

1.1 Background and relevance of the topic

The architectonic landscape for knowledge-intensive companies is changing. Offices and work environments are in a radical process of change. This trend is not limited to global players such as Adidas, Facebook or Google, who are on their ways to design their buildings and workspaces in line with the requirements of a highly competitive, international and digitalized business environment. Small and medium sized companies have also identified the modernization of work environments as an essential topic (Klaffke, 2016a). This work puts forward that exactly these are the trends that reflect the enormous relevance of corporate architecture in the context of employer branding - the potential in attracting talent sought after so much.

The following chapter of the introduction aims at pointing out the background and the arguments which lead to this proposition. Afterwards, the research question and objective of this work are put in concrete terms, which is followed by explaining the approach and structure of this work.

Considering the social, technical and economic developments over the last decades, the emphasis on architecture seems paradoxical. Properties, buildings and workspaces have become less important in many respects: Technology allows us to communicate, share knowledge and work together from all over the world. Having a workplace in a company building is in organizational and technical respects no longer necessary (van Meel & Vos, 2001). Communication and network solutions allow the exchange of data and information from all over the world (Müller, 2013: 189). Management concepts such as *agile work* or *workplace 4.0* or recent trends such as coworking houses underline which minor role a company's real estate might play in terms of working. Moreover, industry has become less production intensive and the knowledge industry is growing. For this reason, being bound to production sites is also becoming less relevant. However, much of the work is still being done in company offices and office buildings are not likely to disappear in the near future (van Meel & Vos, 2001: 325). On the contrary, what can be observed is a resurgence of offices and workplaces and firms investing heavily in their corporate architecture. For example, Apple has invested an alleged sum of 5 billion US Dollar (Levy, 2017) in their recently inaugurated Campus 2.0 in Cupertino (California). Newspapers almost daily report on impressive corporate real estate projects. Observing this trend it becomes clear that this new boom of corporate architecture produces

new, hip, playful kinds of workspaces such as presented by Google and Facebook. However, not all new office worlds look like playgrounds or living rooms. In fact, a variety of different kinds of corporate architecture seem to be taking shape.

Given this paradox, the reasons for this obvious interest in corporate architecture seem to be more complex. Offices used to be a place of work in the past. Against the background of the developments described above, this seems to be no longer the main reason for the existence of office buildings. What constitutes this revived emphasis on office buildings and concepts?

First, looking at the growing sector of the knowledge industry, the production process of knowledge work is different from that of traditional production processes. It requires high levels of communication, networking, and exchange of ideas, whereby still enabling concentrated work. Moreover, it requires the integration of new technologies and the possibilities of applying them efficiently. This requires a higher variety of and more flexibility in terms of workspace settings. In other words, what makes a workspace foster productivity today differs from what made a productive workspace thirty years ago.

Another important point is that production processes and products have become less tangible. Thus, employees do no longer have the possibility of identifying with a strong product image and therefore need other identity anchors. Such a reference point of identity can be seen in the physical work environment, when companies use the design of offices and buildings to communicate meaning in terms of corporate values and culture (Müller, 2013). Thus, the office building can increasingly be considered as a place where people do not only work, but also feel a sense of belonging to the organization. The office building enables them to identify with their colleagues and their tasks.

Another important point can be seen in an increasingly competitive economy, so that companies are under high pressure to distinguish themselves from their competitors. Again, particularly companies in the knowledge industry cannot refer to strong product-based brand images to differentiate themselves, but have to turn to further means of differentiations. Thus, companies use their architecture to communicate their corporate image – something not new in the history of architecture, but today used more than ever before.

To sum up, the reasons for the renewed interest in corporate architecture seem to be two-fold: On the one hand, new forms of architecture are needed to support and shape new forms of work. On the other hand, architecture is used as a means to communicate values, culture and brand images.

These reasons imply that corporate architecture also affects job seekers, who are on searching for information on the employers they are considering to apply for. Job seekers are interested in getting information on what it might be like to work in a particular organization and finding out the values and image this organization stands for. Thus, it is likely that job seekers consciously or unconsciously, use corporate architecture to infer the desired information. It is likely that they form associations with employer attributes and attractiveness.

Notwithstanding this obvious conclusion and its high relevance, research has hitherto largely neglected office buildings and settings as a crucial factor for employees in their choice of employer. Consequently, we have no understanding of if and how office buildings and work spaces have an effect on job seekers. This, however, is of paramount importance for companies, as corporate architecture could prove as instrument to gain a competitive advantage in the struggle for recruiting highly talented employees. On the other hand, corporate architecture could also turn out to be a factor reducing the perceived attractiveness as employer. This might be the case, for example, when candidates form negative associations about employer attributes, which have been triggered by corporate architecture.

Employees and their potentials are increasingly identified as the decisive success factor for generating sustainable competitive advantages (Greening & Turban, 2000), as they are the foundation for creating knowledge and innovation (Sommer et al., 2017). At the same time, the competition for qualified candidates has risen steadily over the last years. Hence, many companies already face difficulties in recruiting high potentials (Sommer et al., 2017). As a result, companies have to try to be perceived as attractive employers on the labor market (Ewerlin et al., 2016: 7) and have to take measures which enable them to obtain a competitive advantage in the struggle for qualified applicants. They need to aim to generate a high intention to apply among the suitable applicants. Given this objective, recruiting organizations aim at attracting workers by distinguishing themselves from other employers (Rynes et al., 1991).
Research shows that recruitment outcome relevant attitudes and behaviors are influenced by job and organizational characteristics such as pay, type of work, organization image, and location (Chapman et al., 2005). However, there seems to be limited variability in such attributes among organizations rivaling for the same talents (Jones et al., 2014: 384). Thus, the measures taken are not always effective for distinguishing one employer from another (Lievens & Highhouse, 2003).

Lievens and Slaughter (2016: 415) point out that perceptions about employer image can come from virtually any contact and experience (direct or indirect) a person has had with an organization. In this context, Cable and Turban (2001: 132) note that recruitment researchers should look beyond purposefully targeted recruitment interventions and instead consider any information source that could have the potential to affect job seekers' employer knowledge.
Corporate architecture can reflect highly organization specific decisions about how work is performed, which values and which image an organization stands for and how it allocates its resources. Therefore, corporate architecture has a high potential to differentiate one organization from another.
In this study, corporate architecture is analyzed as a source of employer knowledge, which can be used purposefully, but can never be prevented from being used as source of information by job seekers. Job seekers can easily access information on an organization's architecture, even if unintended by the company; e.g. by personal sight, through employer rating portals, by word of mouth or during a job interview. At the same time, companies can easily increase and steer access to information on its architecture; for instance through its company and career websites, publications of 360°-tours, employer rating portals, company brochures, or specifically chosen places for job interviews and tours through the company building. Moreover, the literature suggests that job seekers, who find themselves exposed to an information deficit on employer attributes, search for information surrogates in the form of visible organizational characteristics. Candidates then interpret these observable characteristics in terms of a signal for otherwise hard to observe organizational attributes, such as company values, culture, and the way work is performed (Backes-Gellner & Tuor, 2010; Celani & Singh, 2011; Connelly et al., 2011). Hence, knowing if and how corporate architecture influences job seekers' perceptions and attitudes enables employers to purposefully handle corporate architecture with regard to integrating it in their employer branding and communication strategy or even in terms of the design of their office buildings and settings. This in turn may help generate a competitive recruitment advantage for companies and yield an additional and so far unexploited return on the investment in corporate architecture.

As already mentioned, research has not explicitly approached the relation between architecture and recruitment outcomes so far, but nevertheless provides important indications which show that architecture influences people's perceptions, attitudes, and behavior (McElroy & Morrow, 2010) and thus strongly supports a key proposition of this thesis: That corporate architecture

influences job seekers' perceptions about organizational attributes and attractiveness.

Firstly, some authors have already argued that corporate architecture is supposed to appeal to job applicants (Earle, 2003; Hauser et al., 2016; Klaffke, 2016a; Müller, 2013), but have not provided systematic evidence on this claim. To the best knowledge of the author, only one empirical study in the human resource literature has provided evidence that corporate architecture indeed matters for job choice. In their conjoint study, Radermacher et al. (2017) reveal that corporate architecture is ascribed a similar utility value as career opportunities, and even considered more important than training offers. Moreover, they can show that students were prepared to forgo on average of 10% of their annual starting salary in order to work in the type of architecture they preferred. Thus, this study provides strong support for the proposition of this work, however does not empirically disentangle why and how corporate architecture influences applicants.

Secondly, further previous research has shown that architecture impacts what people think about and do in organizations: Corporate architecture can lead to strong brand image-related associations about a company (Khanna et al., 2013; Kirby & Kent, 2010; Raffelt et al., 2013) and influence people's perceptions of particular organizational values and culture (McElroy & Morrow, 2010). Architecture influences worker behavior and attitudes such as communication and interaction (Boutellier et al., 2008; Stryker et al., 2012), satisfaction (De Been & Beijer, 2014; Newsham et al., 2009; van der Voordt, 2004), and creativity (Dul et al., 2011; Moultrie et al., 2007). Other strands of literature have focused the effects of architecture in the process of organizational change (van Marrewijk, 2009). Environmental and architectural psychologists, in particular, emphasize the role of architecture in influencing emotions and aesthetical perceptions (Devlin & Nasar, 1989; Gifford et al., 2000). According to Vilnai-Yavetz et al. (2005), these influences reflect three different functions of architecture. Firstly, architecture has a strong symbolic function, in terms of leading to subjective interpretations which affect task performance and perceptions, rather than objective attributes, as some authors argue (Gagliardi, 1990; Rafaeli & Pratt, 2006; Schein, 1990). Moreover, architecture exercises instrumental influences on performance and task (Parker, 1994). Lastly, it is the perceptions of the work environment rather than objective features or facilitation of task performance, which influence people (Oldham et al., 1995).

These empirical findings provide strong evidence that architecture also plays an important role for job seekers and thus influences their perceptions and attitudes.

1.2 Research question and objective

The goal of this study is to extend previous research insights as expounded above and explore why and how job seekers' perceptions and attitudes are influenced by different kinds of corporate architecture. Against this background, this study addresses the following main research question:

Does corporate architecture influence job seekers perception of employer attributes, which in turn influences their perceived employer attractiveness?

As this study aims at disentangling the mechanisms which constitute the proposed effect of architecture, it wants to identify those employer attributes, which **mediate** the effect between architecture and employer attractiveness. Therefore, the first subquestion, corresponding to the first part of the main research question, is: *Which employer associations does corporate architecture trigger?* Moreover, the study wants to discover, whether there are **moderators** of the proposed relationship, such as personality traits and individual values. Therefore, the second subquestion refers to the point whether different kinds of corporate architecture impact all job seekers likewise or if there is a selection effect in the sense that certain kinds of architecture appeal to or deter particular types of job seekers. Thus, the question raised here is: *Is there a selection effect of corporate architecture pertaining to particular personal characteristics of job seekers?*

Working on these research questions, this study aims at providing both a theoretical and empirical underpinning. On the one hand, the theoretical part of this work is based on extensive insights from the recruitment literature. On the other hand, it comprises literature on the effects of architecture. These two strands of literature are then used to develop a new comprehension on the effects of architecture in the recruitment context. The empirical part of the study is based on two studies. The first study explores which types of corporate architecture job seekers in general can encounter. The second study, a large scale online survey, provides over 1,800 data sets on the variables of the research question raised above.

On this basis, the objective of the present work is to contribute to different strands of literature. First, this study aims at developing theory and identifying architecture, specifically certain kinds of architecture, as important organizational characteristic in terms of job choice. In doing so, it wants to contribute to the literature dealing with job preferences and organizational attractiveness (Boswell et al., 2003; Chapman et al., 2005; Kabst & Baum, 2013). Second, this

study aims at identifying architecture as an economic signal for particular organizational attributes and therefore wants to contribute to the recruitment literature based on signaling theory (Backes-Gellner & Tuor, 2010; Celani & Singh, 2011; Connelly et al., 2011). In this context, the present study aims to especially follow the call by Lievens and Slaughter (2016: 421), to put a stronger focus on the *how* and *why* when examining signal based relationships. In this light, the present work does not only empirically explore *if* corporate architecture has an influence on employer attractiveness, but also why and how. Moreover, it contributes to the recruitment literature looking beyond purposefully targeted recruitment activities (Cable & Turban, 2001: 132) and identifies architecture as an important source of information in this sense. Furthermore, it makes a contribution to the literature of how architecture impacts aspects relevant to human resource management (Dul et al., 2011; McElroy & Morrow, 2010; van Marrewijk, 2009). Moreover, the study illuminates how knowledge work and the professional organization of today are mirrored in four widespread types of corporate architecture, thus shedding light on the specific types of work settings that job seekers are likely to prefer. Finally, the study contributes to the re-established interest in materiality and buildings in human resource management and organization theory more generally (D'Adderio, 2011).

With regard to implications for management, this study provides a variety of implications for organizations on how to purposefully integrate corporate architecture in employer branding strategies and handle it reasonably in the recruitment process.

Overall, this study targets an unexplored field of research and makes a case for a new interdisciplinary study of corporate architecture in the context of recruitment. In this way, it complies with the high relevance of corporate architecture for both managers and researchers as highlighted above.

1.3 Approach and structure

In order to follow the research objective as explained above, the scope of the study is defined. This study focuses on the **early application process**, in which applicants have little or no personal contact to the organization of interest. In this phase, applicants are faced with a high level of uncertainty, due to lacking information on the relevant attributes of the employer. Literature has identified this phase of the recruitment process as crucial for further recruitment outcomes and therefore ascribes particular importance to it (Chapman & Webster, 2006; Lievens & Highhouse, 2003). With regard to the group of job seeker being considered, this

study concentrates on the field of **knowledge work**, for its major importance with regard to the development of jobs and requirements in terms of current economic and technical developments.

Finally, **corporate architecture** is understood as business or company architecture and applies to the **architecture of company buildings**, primarily referring to industrial and business buildings. Other definitions of corporate architecture conceive the term in connection with the field of corporate identity (Messedat, 2005: 25). This, however, implies a conscious and purposeful management of architectural concepts. For this reason, this work applies a broader understanding of corporate architecture and therefore refers to the definition previously mentioned.

The argument proceeds as follows. The second chapter of this work provides the theoretical background. It explores firstly the special challenges and characteristics of the early recruitment phase from an applicant's and organization's perspective. It then enlightens the Signaling Theory (Spence, 1973) and its meaning as a mechanism for explaining how job seekers perceive and interpret observable organizational characteristics as an information surrogate for otherwise non-observable but relevant employer attributes. This perspective is extended by considering the Instrumental Symbolic Framework (Lievens & Highhouse, 2003), introducing a classification for different employer attributes and their meaning to applicants. In a next step, the Social Identity Theory (Ashforth & Mael, 1989), literature on job preferences as well as the Person-Organization Fit perspective (Kristof, 1996) are applied to explain how different inferred employer attributes are interpreted by job seekers and affect employer attractiveness. Next, these theoretical insights are applied to argue that corporate architecture represents an effective signal for symbolic and instrumental inferences about employer attributes.

The third chapter aims at examining which concrete inferences on employer attributes applicants will potentially make and how these are related to particular architectural characteristics. For this purpose, it first provides a short historic overview of the development of buildings and office settings. Thereafter, an empirical study with the objective of identifying architectural types is conducted, defined by combinations of particular architectural features. For this purpose, a set of eight architectural variables is deduced on the basis of the previous literature on architecture. Afterwards, these variables are applied to a sample of architectural settings of 41 national and multinational companies. The resulting data set is analyzed applying a cluster analysis, which leads to four different architectural types. In the next section of the

third chapter, an analysis framework for architectural objects (Taylor & Spicer, 2007) is introduced and afterwards used to identify potential effects of the four architectural types.

In the fourth chapter, the theoretical insights elaborated in chapter 2 and the results on the potential effects of the four architectural types derived in chapter 3 are brought together in one research model. Subsequently, hypotheses on the effects of the four architectural types on job seekers are derived.

The fifth chapter deals with the operationalization of the variables and the methods and design used for the data collection. In a first step, it describes the operationalization of the endogenous variables, which are employer attractiveness as the central outcome variable, and different employer attributes as mediating variables. Further, the operationalization of the assumed moderator variables, i.e. different work values and personal characteristics, are explained. Hereafter, the method of the study, which is an online scenario experiment, as well as the collection procedure, the sample, and the pre-test, are set out.

The sixth chapter covers structural equation models, the data analysis method applied to the more than 1,800 data sets from the online survey. After a short introduction, it enlightens the components, different kinds of effects which can be analyzed, and methods of model estimation and assessment with a particular focus on the application of the method using the Software Stata.

The seventh chapter comprises the main analysis of this study and the presentation of the findings. Firstly, the descriptive statistics and the factor analyses of the latent variables are presented. Afterwards, the complete structural equation model is analyzed and interpreted in terms of the hypotheses derived before, so that this subchapter builds the central part of the empirical section. Hereafter, several additional analyses follow which enrich the findings from the main model. Among these are a more detailed analysis of the architectural types as well as various group comparisons covering the proposed moderators.

The study closes with the identification of implications for theory and practice as well as limitations and avenues for future research.

2 Theoretical background – applicants and the application process

By reviewing the main theories of the recruitment process, this chapter argues that architecture functions as a signal about employer attributes to job seekers. It firstly draws on recruitment literature focusing the particular features of the early recruitment process. It then introduces fundamental theories and empirical findings of the recruitment literature, explaining the perception of organizational antecedents as signals for further organizational attributes, the different categories of these attributes, as well as their evaluation in terms of employer attractiveness. Among these theories are the Signaling Theory (Spence, 1973), the Social Identity Theory (Ashforth & Mael, 1989), literature on job preferences, and the Person-Organization Fit approach (Kristof, 1996). Afterwards, these theories and findings are applied to the special context of architecture as a signal in the early recruitment process. The chapter closes with the assessment that architecture is highly suitable and likely to function as an effective signal to job seekers.

2.1 Recruiting and application process

The research field on recruitment and organizational attraction has grown considerably over the last years. Important reasons for this development can be seen in factors such as globalization, technological innovation, and increasing demographic and cultural diversity on the labor market and in the workplace. These developments involve greater demands on the knowledge, skills, abilities, and other personal attributes that organizations require from current and future employees (Celani & Singh, 2011: 222). At the same time, there seems to be a change in the job preferences of young labor market participants. Whilst for earlier generations, salary and advancement opportunities seemed to be important aspects for applicants, there are recently recurring discussions about work-life balance and the reconciliation of work and family gaining more importance for Generation Y[1] (Boswell et al., 2003; Guillot-Soulez & Soulez, 2014). Against the background of these changes, it is becoming increasingly difficult for organization to recruit highly qualified employees (Greening & Turban, 2000). For this reason, organizations have to direct their HR strategies towards these new conditions and hence have to investigate the determinants affecting the job choice decisions of applicants (Falk et al., 2013: 296). Organizations having the deepest understanding of these critical determinants thus can best

[1] The most common definition of Generation Y involves people born between 1982 and early 1990s (Guillot-Soulez & Soulez, 2014)

adapt their recruiting strategies, differentiate themselves from competitors and gain a competitive advantage in positioning themselves at the tough market for the best talents (Kabst & Baum, 2013). Recruiting is defined as organizational activities that affect the number and quality of applicants that apply for an open position (Gatewood et al., 2011). Recruiting thus involves a critical review of organizational and job characteristics, and, if necessary, the adaptation of these attributes. Moreover, it involves providing prospective applicants with the information they desire to make decisions about their job choices (Uggerslev et al., 2012: 598). In addition to the specific recruitment activities an organization takes, applicants will also be affected by organizational attributes and actions not communicated or performed purposefully (Uggerslev et al., 2012: 599).

Research on employee recruitment has shed light on numerous factors that affect people's attraction to an organization (Celani & Singh, 2011; Chapman et al., 2005; Jones et al., 2014; Kabst & Baum, 2013; Uggerslev et al., 2012). Among these are for instance (Uggerslev et al., 2012: 598) job and organizational characteristics (e.g. Chapman et al., 2005), recruiting practices (Baum & Kabst, 2012; Dineen et al., 2007), fit (e.g. Cable & Judge, 1996), alternative employment opportunities (Aiman-Smith et al., 2001; Bauer et al., 1998), and hiring expectancy (Rynes & Lawler, 1983). Architecture, comprising the nature of the outer appearance as well as the interior features of an organization's building, has not been considered as a factor influencing people during the recruitment process at all; neither as a factor having been integrated purposefully nor as an organizational attribute observed and interpreted by applicants unregulated by the organization.

For this reason, the following chapters address those theories describing and explaining how applicants perceive different organizational actions and attributes, how they interpret these and how and why organizational attraction outcomes are affected by the process. The Signaling Theory (Spence, 1973), the Social Identity Theory (Ashforth & Mael, 1989), the Person-Organization Fit approach (Kristof-Brown et al., 2005) and the Instrumental-Symbolic Framework (Lievens & Highhouse, 2003) are discussed and brought into context in the following. The theoretical debate will show that architecture has the potential to be perceived and interpreted as signal about critical organizational attributes and impact organizational attractiveness in turn.

Before discussing the theoretical backgrounds named afore, the following paragraphs shortly summarize the importance as well as the challenges of the early recruitment process.

The early recruitment process

Research points out that lacking knowledge about how and why recruitment practices affect job seekers is particularly striking in the initial phase of recruitment, in which organizations seek to attract prospective applicants (Collins & Stevens, 2002: 1121). According to Barber (1998), the early recruitment phase is marked by the identification and generation of applicants (from the organization's perspective) and by the identification and generation of job opportunities (from the individual's perspective). Further, this early stage is characterized by (a) intensive search and screening, (b) vestigial information about a variety of opportunities, and (c) little or no personal contact between the parties involved (Lievens & Highhouse, 2003: 83). Chapman and Webster (2006) stress that applicant reactions in this early stage have been predicted to have considerable behavioral consequences, such as a premature withdrawal from selection, negative public relations, potential loss of best applicants, and refusal to accept job offers. Moreover, evidence has been found that particularly applicants' initial impressions of organizations as an employer are strong predictors of applicants' attractions in later recruitment stages, which in turn is related to applicants' job acceptance decisions (Lievens & Highhouse, 2003: 76; Lievens & Slaughter, 2016: 414). Thus, early recruitment practices impact the utility of later practices and selection systems are more effective when more people apply (Jones et al., 2014: 384).

The initial phase of recruitment thus plays a key role in attracting qualified applicants. Architecture is observable for prospective applicants or can be made observable in an early stage. For this reason, the context of the present study is to understand applicants' reactions in the initial recruitment phase.

Information deficit

Job search is defined as the behavior through which effort and time are dedicated to attain information about labor market alternatives and to create employment opportunities (Boswell et al., 2012). For applicants, numerous job and organizational attributes (e.g. compensation and advancement, location) as well as organizational actions (e.g. recruitment process) play an important role with regard to their attitudes and decisions (Chapman et al., 2005). It can be assumed that these characteristics gain importance the higher the demands an organization makes on the skills and abilities of applicants (Falk et al., 2013). Some of these relevant characteristics, however, are not observable for applicants during the application process. They do not turn out before applicants have become employees of an organization and have gained

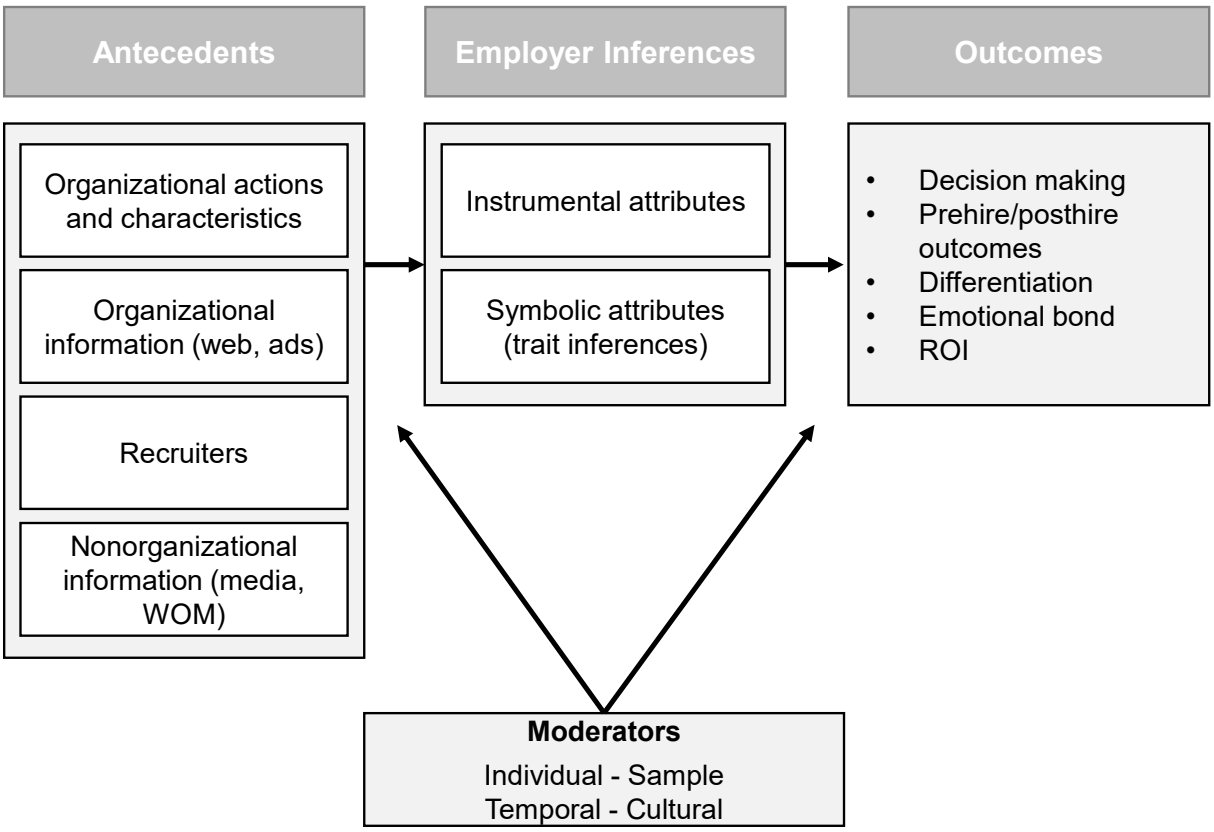
some experience with the unobservable characteristics, such as work-life balance or organizational culture, for instance. This poses a particular challenge for applicants, as they face different risks when making a job decision for one employer, about which they only have limited information. They possibly have to deny offers of other employers before they have the chance to gain a true picture of the employer characteristics of the employer decided for. To withdraw from such a job decision can be costly for applicants, as other employment offers may have become void. Moreover, applicants might have invested in firm specific human capital or in a private relocation, for instance (Backes-Gellner & Tuor, 2010). For this reason, applicants already try to infer information through different ways in early stages of the application process (Eberz et al., 2012). Due to their limited prior knowledge, applicants acting on the labor market for the first time are notably affected by a higher degree of uncertainty regarding job and organizational attributes, which makes them particularly receptive for specific sources of information. Therefore, it is pivotal for organizations to gain knowledge about which sources of information applicants use and interpret. However, so far research has revealed "little about what information applicants use to make decisions, and how this information is processed" (Chapman & Webster, 2006: 1033). Moreover, it is of high importance for organizations to send out signals about organizational characteristics which are decision relevant to applicants but not observable (Ewerlin et al., 2016: 12). Thus, organizations should also know to what extent applicants perceive and interpret architecture in order to infer employer information and if they should integrate it into their recruitment strategies. Architecture pertains to an organization as a whole. For this reason, it seems obvious that architecture conveys information about organizational attributes rather than about job attributes, so that the latter are left aside in the following.

2.2 Theoretical perspectives on signal-based mechanisms

In the current recruitment research, a broad spectrum of contributions deals with how different organizational antecedents (e.g. organizational characteristics and actions) are perceived and interpreted by prospective applicants, seeking information about employing organizations. Lievens and Slaughter (2016) provide a heuristics model, based on an extensive review about employer image and employer image management. This model helps to disentangle the relationships between organizational antecedents, the inferences about organizational attributes made by applicants as well as the recruitment outcomes. Moreover, it allows for integrating

moderating mechanisms and provides starting points for the theories explaining the different stages of the model. An adapted version of the model can be found in Figure 1.

Figure 1: Heuristic model of organizational antecedents, employer inferences and recruitment outcomes



Source: Own representation following Lievens & Slaughter, 2016: 408.

2.2.1 Mechanisms of organizational antecedents: Signaling Theory

One common theory to explain how individuals interpret characteristics of the actual environment, which are the organizational antecedents in the model, is Signaling Theory (Ehrhart & Ziegert, 2005: 903) of Spence (1973). It is one of the theories invoked most often to explain how applicants seek and interpret information under uncertainty. Generally, it deals with information asymmetries on the labor market. In the original context addressed by Spence (1973), it is about uncertainties employers are confronted with when searching for new employees. Employers lack information about qualities of prospective job candidates. The applicant has this private information about his true qualities, which gives him an information advantage and leads to the employer being faced with a selection problem. He cannot observe many of the critical qualities an applicant should possess. As a solution to this problem of

asymmetric information, Spence proposes the Signaling approach. Qualified applicants can send particular information about their qualities through signals, such as qualification certificates or university degrees. As lower quality candidates would probably not be able to acquire such education, the signal in form of an educational certificate seems reliable (Connelly et al., 2011: 43). The signals sent by the applicants are then interpreted by the employer. Under certain circumstances, these signals enable employers to distinguish between suited and non-suited applicants. Thus, education can be understood as signal or information surrogate for otherwise non-observable candidate qualities and compensate for incomplete information.

Spence' seminal work on labor market signaling gave rise to a substantial volume of literature applying signaling theory to selection scenarios in a wide array of disciplines (Connelly et al., 2011: 40)[2]. Likewise, recruitment researchers have argued that job seekers often have little information about recruiting organizations. To compensate for this lack of information, they also rely on signals that they receive from various sources of information to make inferences about working conditions and other organizational characteristics which are not directly observable for them (Rynes, 1991). Due to the changes on the labor market, recruitment literature has increasingly applied the Signaling Theory to this reversed situation, in which the uncertainty is on the side of applicants. Also known as the concept of reversed signaling or employer signaling, Backes-Gellner and Tuor (2010) are the first to also show formally that the model can be applied for interpreting applicants behavior in terms of compensating information deficits by construing signals. They can show that employer signaling as well can lead to a separating equilibrium in which applicants can distinguish between employers being of high or low attractiveness to them. The signaling mechanism is based on the assumption that employers can credibly transfer information about job and organizational attributes, which cannot be observed by applicants otherwise, through observable characteristics and behaviors. At the same time, applicants are in search of and thus open to such signals, as they strive to reduce their risks resulting from the information asymmetry. Research has shown that applicants interpret various recruitment-related information and activities, organization reputation, and recruiter behavior as signals for unknown organizational characteristics (Collins & Stevens, 2002; Rynes, 1991; Turban et al., 1998). Thus, applicants may by flooded by organizational signals.

Connelly et al. (2011: 45 ff.) point out which information and actions are useful and effective

[2] Connelly et al. (2011) give an overview of the application of Signaling Theory in different management literatures. Celani and Singh (2011) review the application of Signaling Theory in the human resource research.

(in terms of leading to a separating equilibrium) as signals. These conditions are dealt with in the following section.

2.2.1.1 Conditions for the effectiveness of signals

According to Connelly et al. (2011), firstly, a signal must be **observable**, referring to the extent to which the information seeking party is able to notice the signal. A second crucial characteristic is signal **costs**. The costs of a signal must be structured in a way that the cost associated with acquiring the signal can be better absorbed by organizations of high employer qualities than by organizations with low employer qualities. The costs associated with obtaining an "Employer of Choice Award"[3], for example, might be quite high as the certification process, involving broad-based employee surveys and inspections of organizational facilities and offers, is time consuming. However, the costs are lower for companies living a truly employee-oriented culture and offering employees amenities already than for companies not having such qualities. The latter ones would be required to establish considerable changes before they had the chance to be awarded. Thus, in order to keep low quality employers from investing in a signal, the costs of an effective signal have to be negatively correlated with the underlying quality. Alternatively, in the case of cost equivalence, a considerable difference in the revenues resulting from the signal, for example in the form of increased productivity can constitute an effective signal (Backes-Gellner & Tuor, 2010: 274–275). A further characteristic of a useful signal is what Connelly et al. (2011: 52) refer to as **signal reliability**. Signal reliability involves two important aspects: On the one hand, it reflects the extent to which a signal corresponds with the sought-after quality of the signaler; thus, to what extent the signal is correlated with the underlying unobservable quality. This degree of congruence can also be referred to as **signal fit**. Moreover, the usefulness of a signal to the receiver depends on the extent to which a signaler is **honest** and does not attempt to deceive. Honesty in this context means the extent to which a signaler actually has the underlying quality associated with the signal. As signalers put themselves at a favorable position when signaling a particular quality, e.g. because they get more applications of good candidates, they possibly have an incentive to acquire the signal despite of not having the employer quality. Thus, signal reliability describes the combination of signal fit and signaler honesty. Signaling effectiveness can be enhanced by sending more observable signals or

[3] E.g. Aaon Best Employer Award (www.humancapital.aon.com); Great Place to Work Award (www.greatplacetowork.com), LinkedIn Top Company Award (www.linkedin.com), Forbes' America's Best Employers Award (www.forbes.com)

increasing the number of signals send, which can be called **signal frequency.** If signalers want to remain differentiated, they will signal repetitively to constantly reduce information asymmetry (Connelly et al., 2011: 53).

Whilst the afore-mentioned characteristics constituting an effective signal refer to the signal or the signaler, the following section takes up characteristics of the receiver which can impact the effectiveness of the signaling process: A signal can only work if it is detected by its supposed receiver. For this reason, the extent to which a receiver is aware of and consciously looks out for signals plays a vital role in the process and is referred to as **receiver attention** (Connelly et al., 2011: 54). Generally, the literature indicates that job seekers are highly attentive and interpret information available from multiple sources in order to compensate for their lack of information about the potential employer. Cohen and Dean (2005) find that once receivers identified a signal and successfully applied it to the decision situation they are more likely to take notice of similar signals in the future. Moreover, the interpretation of signals can vary between different receivers. **Receiver interpretation** means the process how receivers infer information about the quality sought-after from the observed signal. In this context, receivers can give different meaning or different weight to signals. Thus, the receivers' perspective along with their previous knowledge and concerns affect how signals are interpreted (Highhouse et al., 2007). Lastly, the effectiveness of signaling processes can be impacted by the **signaling environment**, for example characterized by the number of senders or distortions.

Drover et al. (2018) study the individual mechanisms explaining under which circumstances individuals attend to a signal and those mechanisms applying for the individual interpretation of signals more closely. They draw on the heuristic-systematic model (Chaiken et al., 1989; Chen & Chaiken, 1999) as a dual process framework. This model distinguishes between two modes of processing: The first mode is based on memory-based cognitive processes of association, which are characterized by the application of heuristics, schemata and stereotypes. The second mode requires a stronger conscious effort and comprises deeper, critical and more systematic processing, which sets the arguments of an information in relation to prior knowledge (Chen & Chaiken, 1999). Both modes coact in an either additive or interactional way. The heuristic-systematic model posits that people prefer using low-effort-decision rules when making judgements and decisions. If, however, these rules are not sufficient in order to come to a reasonable decision, they switch to more effortful and systematic mental decision processes. Thus, this model integrates two qualitatively different ways of information processing. According to Drover et al. (2018), these two different ways of cognitive processing

can influence both an individual's initial attention to a signal as well as an individual's interpretation of it.

In terms of interpretation, individuals generally seek accurate and valid information in order to come to a sound decision. Thus, they aspire a particular level of judgmental confidence, which varies between individuals. Judgmental confidence can be interpreted as a decision threshold that must be passed before making a decision (Drover et al., 2018: 214). This threshold then determines, which means of decision processing an individual takes. If a sufficient level of judgmental confidence is reached, the receiver will rely on the faster heuristic mode of processing. If heuristic processing alone does not lead to a sufficient level of judgmental confidence, systematic processing is activated. Further analyzing how people become attentive to a signal at all, Drover et al. (2018: 215) draw on further cognitive science research to posit that attention to a signal is a function of either a top-down goal-driven or a bottom-up stimulus-driven process. A top-down goal-driven process occurs when people have a particular goal in mind and is therefore endogenous. It leads to people systematically engaging in effortful search and selection of information, which are thought to be critical and useful to reach the aspired goal. The bottom-up process, in contrast, is steered by an external stimulus and is thus exogenous. The individual, who is not consciously searching for information, comes across a signal which catches his or her attention and involves in the more automatic and less effortful mode of heuristic processing. Thus, a bottom-up process is only triggered if the signal is obvious enough to automatically gain one's attention, whilst a top-down process can also lead to the attention of more discreet signals.

Applied to the recruitment context, the heuristic-systematic model seems to have the following implications: Job seekers generally have the goal in mind to screen the market for potential employers and come to a judgement to what extent a particular employer constitutes an attractive option. Thus, as already mentioned above, they are expected to be highly attentive to any kind of organizational signals and thus likely to directly involve in systematic mental processes. Systematic processes are such as described above: Applicants rationally weigh to which extent a signal might provide reliable information about an employer quality being sought after. Attention of other individuals, not consciously searching for a job, might also be caught by organizational signals, if these are noticeable enough. Such individuals, however, will primarily apply heuristic processes, which provide them with information on an associative level.

To sum up, Signaling Theory sketches an effective approach for explaining, how information asymmetries between two parties can be reduced. It has been largely applied to explain behaviors of applicants on the labor market. To make signaling work effectively, i.e. to reach a separating equilibrium, however, different conditions with regard to the signal itself, the sender and receiver have to be fulfilled. The heuristic-systematic framework helps to understand in more depth under which circumstances individuals pay attention to signals. The following chapter takes up the different elements decisive for the signaling process (characteristics of signals, senders, receivers, and the environment) and reviews which results empirical studies provide about these characteristics.

2.2.1.2 Results of signaling-based empirical studies

Results about signal characteristics

Early studies applying Signaling Theory to the recruitment context mainly focused on recruiters and recruitment activities as signals to prospective candidates. Rynes et al. (1991) for instance analyzed how recruiter competence, delays between different stages of the recruitment process as well as sex composition of the interview panel were, consistent with Signaling Theory, interpreted as symbolic of broader organizational characteristics and influenced applicant job choices. In a similar vein, later studies analyzed recruiter behavior and activities such as competence and friendliness (Eberz et al., 2012). While these studies refer to signals that directly refer to the recruitment process and are of rather unstable nature (as behavior and processes can change easily), other studies focus on signals constituting organizational characteristics not directly linked to the recruitment process. Among these are the study of Backes-Gellner and Tuor (2010) who can show that the existence of a works council, an apprenticeship training program and a high-quality incumbent work force are interpreted as signals for appealing workplaces. Similarly, other studies show how organizational size, level of internationalization, level of centralization (Lievens et al., 2001), and pay mix (Cable & Judge, 1994; Turban & Keon, 1993) operate as signals and affect organizational attraction. These signals can be described as observable and objective. More recent studies also take signaling mechanisms, i.e. the process through which signals impact recruitment outcomes, into account. Jones et al. (2014) show how corporate social performance as a signal affects employer attractiveness, Iseke and Pull (2017) demonstrate how the signal of female executives impacts organizational attractiveness.

To conclude, research has analyzed recruitment-related and non-recruitment-related signals,

signals that are stable as well as relatively unstable signals. Against the background of what constitutes an effective signal, it can be assumed that stable and non-recruitment related signals might be less prone to dishonest behavior of organizations and allow a better signal fit due to their stability. Thus, such signals seem to be reliable to applicants. Moreover, those signals that are well observable and salient will more likely attract applicants' attention.

Results about the point of time of receiving the signal

Research shows that signals influence prospective applicants' behavior at different points in time. Studies analyzing recruiter behavior and recruitment processes analyze the impact of signals at a point in time where the application decision has already been made. Barber and Roehling (1993) examine how applicants make inferences based on different job posting contents and how these influence applicants' decisions to apply. Thus, they set up their study at the stage of the initial application decisions, arguing that it seems more likely that applicants make more inferences at early stages of decisions, when information is most scarce.

Results about receiver characteristics

Various studies have also dealt with the characteristics of the receiver impacting the signal interpretation process. Different studies show that the sex of applicants plays a role in how applicants perceive and interpret signals (Chapman et al., 2005; Iseke & Pull, 2017; Rynes, 1991). Other studies reveal that it is especially attitudes and personality traits that have an influence on the process of signal perception and decoding. Lievens et al. (2001) find, for example, that the personality characteristic openness moderates the relationship of level of internationalization on organizational attractiveness and the trait conscientiousness moderates the relationship between organizational size and attractiveness. Turban and Keon (1993) reveal that level of self-esteem influences how individuals perceive the signals organizational size and decentralization. Moreover, they find that need for achievement moderates the effect of an organizations performance system and size on attractiveness. Eberz et al. (2012) come to the result that the effects of recruiter competence and friendliness on applicant behavior are mediated by the subjective norm, i.e. the subjective expectation of how the relevant environment (persons and groups) would evaluate a job acceptance decision for a particular organization.

Another factor discussed in the recruitment literature is prior experience and level of information during the application process. Collins and Stevens draw, based on the Brand

Equity Approach, parallels between unexperienced customers and applicants, the latter ones „…who may be unsure of what attributes to seek or how to search for and evaluate product or service information" (2002: 122). Similarly, Rynes et al. (1991) show that the efficiency of the signal recruiter behavior is stronger the less information applicants have available about an employer. Likewise, Chapman and Webster (2006) indicate that less pre-interview knowledge about an organization leads to stronger effects of different signals on applicant intentions and job choice. Falk et al. (2013) come to similar results with regard to the influence of the degree of information asymmetry and can show that different organizational attributes are of relevance for job seekers depending on the level of information deficit. The researchers also indicate that signals should lose importance as soon as applicants have obtained credible information about the non-observable job characteristics through other sources, so that at this point the non-observable characteristics themselves (and not the signals for them) gain direct impact on further applicant decisions (Falk et al., 2013: 296–297).

Moreover, various studies have considered the influence of applicants' job alternatives or applicants' expected success on the job market. Chapman and Webster (2006) show that the signal recruiter friendliness shows the highest impact on those applicants, who have the choice between different job offers, as the applicants conduct a more thorough comparison between different employers. Similarly, Rynes et al. (1991) find a stronger negative effect of delays in the recruitment process on those applicants with higher grade point average and greater job search success. Albinger and Freeman (2000) come to similar results and figure out that a positive effect of the signal corporate social performance on employer attractiveness can only be identified for candidates with high levels of job choice, who exhibit a higher level of skills and education.

To sum up the review about receiver characteristics influencing the signaling process the following points can be made: receiver sex, personality traits, work values such as need for achievement, level of experience and information as well as level of job choice coming along with higher qualifications all have been shown to exert a significant impact. All characteristics either influence receiver attention for signals and / or receiver interpretation and thus have to be taken into consideration for the later discussion of architecture as a potential signal.

Overall, the examination of Signaling Theory and its main determining factors helped to shed light on the first stage of the model presented in Figure 1, which is the perception and interpretation of observable characteristics of the actual environment as signals for rather

unobservable employer attributes. In the next section, the employer attributes inferred are to be further examined.

2.2.2 Employer inferences: Symbolic and instrumental attributes

Understanding the effect of signals makes the understanding of inferences drawn by candidates indispensable (Highhouse et al., 2007: 136). For this reason, Lievens and Highhouse (2003) introduced the instrumental-symbolic framework as an integrative theoretical framework for delineating the different associations applicants have based on market signals (van Hoye et al., 2013: 544). Lievens and Highhouse (2003) propose that applicants associate both instrumental functions and symbolic meanings with organizational signals, both of which impact employer attractiveness (Theurer et al., 2018: 9). Up to now, the instrumental-symbolic framework as a means of categorizing employer inferences has been applied in various contexts and has been shown to be a valuable marketing-based framework. Three of the most recent literature reviews in the field of recruiting and employer attractiveness apply this framework as well (Celani & Singh, 2011; Lievens & Slaughter, 2016; Theurer et al., 2018). Thus, instrumental and symbolic attributes have received the most attention in the recruitment field (Lievens & Slaughter, 2016: 411)

Introducing the instrumental-symbolic framework, Lievens and Highhouse (2003) draw on the correspondent framework from the marketing literature dealing with brand image (Katz, 1960; Keller, 1993). The brand image approach rests upon the assumption that consumers associate instrumental functions and symbolic meanings with a brand. **Instrumental functions** refer to product-related attributes and describe the product as to objective, physical, and tangible attributes that a product either has or does not have. According to Katz (1960), instrumental attributes are connected with people's need to maximize rewards and minimize punishments (e.g. in form of costs). In the recruitment context, instrumental functions refer to objective, concrete, and factual attributes that a job or organization either has or does not have. These attributes, such as pay, bonuses, benefits, flexible working hours, or location, are of interest to applicants due to their direct utility (Lievens & Highhouse, 2003: 80). Thus, they describe elements of employment with the organization that are desirable in rather objective terms (Backhaus & Tikoo, 2004: 505).

Symbolic meanings in the marketing context pertain to non-product-related attributes and describe the product according to subjective and intangible attributes that arise from people's

perception of the product and the inferences they make about it. According to Aaker (1997) people form different band personality impressions about organizations, which resemble human traits. These symbolic inferences are linked to people's need to maintain self-identity, to improve their self-image or to express themselves (Aaker, 1997; Katz, 1960). Likewise, as Lievens and Highhouse (2003) can show, applicants' initial attraction to an organization is based on symbolic meanings, which can be understood in terms of inferred traits that applicants associate with an employing organization. Studies show that applicants ascribe traits to organizations in early stages of the recruitment process already (Slaughter et al., 2004). Accordingly, symbolic attributes in the recruitment context describe a job or organization in terms of subjective and intangible attributes, which in particular communicate symbolic company information in the form of imagery and trait inferences that candidates associate with the organization (Lievens & Highhouse, 2003: 81). These can for instance be inferences such as innovative, old-fashioned, powerful, achievement-oriented or stimulating (e.g. Cable & Yu, 2006). These symbolic attributes have also been referred to as organizational personality perceptions (Slaughter et al., 2004). Importantly, even if companies may not particularly try to manipulate personality perceptions with the explicit objective of attracting applicants, such personality perception may also have unintended effects of making an organization more or less attractive to candidates (Slaughter et al., 2004: 87).

A variety of studies apply the instrumental-symbolic framework in order to analyze organizations' image as an employer, which, according to van Hoye et al. (2013: 545) come to the following main results. First, all studies find relations of symbolic and instrumental attributes with organizational attraction as well as other recruitment relevant outcomes such as organizational identification and recommendation intentions. Second, symbolic attributes explain incremental variance over instrumental functions in job seekers attraction to organizations. Third, van Hoye et al. (2013) reference that symbolic attributes seem to account for more variance in organizational attraction as compared to instrumental attributes. This point seems to be controversial, as Lievens and Slaughter (2016) conclude that instrumental attributes explain most of the variance of job seeker organization attraction (Lievens & Highhouse, 2003; Slaughter & Greguras, 2009). Fourth, symbolic attributes seem to better differentiate organizations from one another than instrumental attributes. As jobs and organizations in the same industry are often similar in terms of instrumental attributes, symbolic attributes become more important in this context as they discriminate between firms.

In addition to these points, research has found that candidates' own personality characteristics

influence the relationship between symbolic attributes or organizational personality perceptions and organizational attraction (Judge & Cable, 1997; Slaughter & Greguras, 2009). Lievens and Slaughter (2016: 411) further refer to research showing that symbolic trait inferences seem to be more generalizable than instrumental attributes, referring to different samples such as potential applicants, actual applicants, and employees, as well as with regard to different industries and cultures (Lievens, 2007; van Hoye et al., 2013). For this reason, researchers have developed various rather generic scales for conceptualizing and measuring symbolic inferences, which serve as points of differentiation among various organizations (for a compilation of these conceptualizations see Table 1). Two of the best known conceptualizations (Lievens & Slaughter, 2016: 411) are those by Lievens and Highhouse (2003) as well as by Slaughter et al. (2004). Lievens and Highhouse (2003) used an adapted version of Aaker's (1997) dimensions of brand personality, stemming from the marketing literature. These brand personalities are based on a comprehensive list of person-descriptive trait adjectives, which was adapted for the particular recruitment context and finally composed of 23 adjectives. These lead to the following five factors: Innovativeness, competence, sincerity, prestige, and ruggedness.

Slaughter et al. (2004) also apply the brand personality approach according to Aaker (1997) to map trait inferences across personality and marketing domains and develop a multidimensional measure. Based on their inductive procedure, they also retrieve a scale based on five dimensions: Boy scout, innovativeness, dominance, thrift, and style. Cable and Yu (2006) chose a basis different than that from brand equity approaches. They develop an organizational image scale that is based on Schwartz's (1992) circumplex model of values. The model by Schwartz (1992) is deemed as particularly appropriate by the researchers, as it offers a wide spectrum of descriptors that are arranged in a conceptual framework (Cable & Yu, 2006: 831). This scale was adapted by Cable and Yu (2006) in terms of applying it to employing organizations from the perspective of job seekers. The scale contains the following dimensions: Powerful, achievement-oriented, stimulating, self-directed, universal, benevolent, traditional, and comforting.

Another rather culture and value focused approach for capturing personality trait inferences is developed by Judge and Cable (1997). In their study the researchers examine the interaction between individual culture preferences and the culture of the employing organization. They use an adapted version of the Organizational Culture Profile by O'Reilly et al. (1991). Their model comprises the following dimensions: Innovation, attention to detail, outcome orientation, aggressiveness, supportiveness, emphasis on rewards, team orientation, and decisiveness.

A compilation of the inferences comprised by the different concepts introduced above is presented in Table 1. Comparing the concepts, there seem to be conceptualization rather referring to "the outside" of an organization (Lievens & Highhouse, 2003; Slaughter et al., 2004) and conceptualizations more concentrating on "the inside", on cultural and value based inferences (Cable & Yu, 2006; Judge & Cable, 1997). However, there seems to be at least overlap with regard to an innovation-oriented dimension (e.g. stimulating, innovation, innovativeness), an achievement-oriented dimension (e.g. achievement-oriented, outcome orientation, competence), a dimension focusing on people (e.g. benevolent, supportiveness, boy scout, sincerity) and an dimension referring to power (e.g. powerful, aggressiveness, dominance).

Table 1: Compilation of symbolic organizational inferences

Study	Symbolic Inference
Cable & Yu, 2006	Powerful Achievement-oriented Stimulating Self-Directed Universal Benevolent Traditional Comforting
Judge & Cable, 1997	Innovation Attention to detail Outcome orientation Aggressiveness Supportiveness Emphasis on rewards Team orientation Decisiveness

Study	Symbolic inference
Lievens & High-house, 2003	Innovativeness Competence Sincerity Prestige Ruggedness
Slaughter et al., 2004	Boy Scout Innovativeness Dominance Thrift Style

Source: Own compilation

Whilst the scales examined find a general relationship between the symbolic inferences and employer attractiveness, one current study (Sommer et al., 2017) deals with the impact of the perception of an innovative organization. As innovativeness is one of the dimensions with the highest overlap between all conceptualizations described above and for this reason seems to be

of high generalizability, the results of the study are of particular importance. Sommer et al. (2017) reveal that organizations with an innovative product portfolio and a strong innovation culture turn out to be more attractive to potential employees in general and to those with an innovative personality specifically.

After having explored instrumental and symbolic organizational attributes (an overview of instrumental attributes is provided in chapter 2.2.3.2), it is important to mention that people can make instrumental and symbolic inferences from one and the same signal at the same time. Highhouse et al. (2007: 136) consider the following example: An employer offering high salaries can lead to candidates' instrumental inference that working for this company allows a comfortable lifestyle. At the same time, job seekers can make the symbolic inference that this company is aggressive and dominant.
Finally, it can be concluded that both instrumental and symbolic attributes play a pivotal role with regard to employer attractiveness. Thus, both types of attributes should be taken into consideration for the empirical study following the theoretical chapters of this work. In a next step, the path from inferred employer attributes to recruitment outcomes (compare Figure 1) is analyzed more closely.

2.2.3 Evaluation of employer attributes by job seekers

Having explained first how organizational antecedents can function as signals in the sense of Spence (1973) for rather unobservable organizational attributes and second, what kind of different attributes candidates perceive, it is now to focus on the mechanisms explaining how organizational attributes are evaluated by job seekers and thus influence organizational attraction. For explaining this process, the Social Identity Theory and the PO-Fit approach are the theoretical concepts mainly used in the recruitment literature. Furthermore, the discussion about job preferences yields helpful insights. All three approaches are explained in the following.

2.2.3.1 Social Identity Theory

According to the Social Identity Theory (Tajfel & Turner, 1986), a person's self-concept is made up of a personal identity (e.g. perceptions of one's own abilities and traits) and a social identity (e.g. organizational or political affiliations). According to the theory, people derive part of their self-concept from the membership to particular social groups. The reputation of the

group with which they identify contributes to their own self-concept. Ashforth and Mael (1989) have transferred this approach to organizational studies. They argue that the organization can be regarded as social group, that organizational identity is analogous to group identity, and that organizational identification arises, when people incorporate organizational identity into their self-concept. This means that if people perceive positive aspects of the employer, the more likely they identify with the employer brand and the more likely they strive the membership to this organization, as a membership promises them an enhanced self-perception. Thus, the social identity resulting from the perceived membership in a social group becomes part of the individual self-concept. Social Identity Theory thus provides a basis to consider the self-presentation goals of an individual with regard to perceived organizational attractiveness. Highhouse et al. (2007) analyze how symbolic attributes are "processed" on the basis of Social Identity Theory. They put forward that the attraction of symbolic inferences is functional, as they allow applicants and employees to communicate to others, how they want to be perceived. This means that the interest for symbolic attributes is triggered by the desire to regulate the impression of others about the own person. Further, Highhouse et al. (2007) find evidence that it is the symbolic inferences which enable job seekers to assess, to which degree an organization can serve the personal goals of self-expression. Accordingly, they can show that social-identity consciousness regulates the relation between symbolic inferences and attraction to an organization. They can distinguish between two dimensions of social-consciousness (see Figure 2): The social-adjustment need and the value-expressive need (Highhouse et al., 2007: 137).

Figure 2: Relationship between market signals, symbolic inferences, and social identity function

Market Signal	Symbolic Inference		Function of Attraction
Compensation Leader *Fortune* Ranking Progressive Technology	Aggressive Dominant Innovative	→ Impressive Company	Social Adjustment
Socially Responsible Family-Friendly Policies Principled Leader	Sincere Empathic Fair & Ethical	→ Respectable Company	Value Expression

Source: Highhouse et al., 2007: 137

The need for social adjustment focusses on impressing others and gaining social status. Central

to the need for value expression is to express socially approved or good values. Thus, value expression is linked to the desire of applicants to feel honor or pride through the membership to an organization. Such socially approved values can, for example, refer to financial, social, environmental, or health related aspects. Social-identity consciousness is about individual differences in the extent to which these self-presentation concerns prevail. Figure 2 illustrates on the basis of some examples how market signals can lead to symbolic inferences about organizations and how these serve one of the two functions of attraction (as analogous to the two dimension of social-identity consciousness).

Looking again at the model depicted in Figure 1 it can be concluded that Social Identity Theory constitutes one foundation to explain why and how people evaluate the inferences made based on organizational signals. Furthermore, it has to be pointed out that the social-identity consciousness, which is determined by which values are assessed to be valuable in terms of the social adjustment and values expression function, acts as moderator on the evaluation of symbolic inferences.

2.2.3.2 Job preferences

Whilst the Social Identity Theory deals with candidates' evaluations of symbolic inferences, the Objective Factor Theory (Behling et al., 1968) is an approach to explain how applicants assess perceived instrumental attributes of organizations. According to this approach, organizational choice is a process of weighing and evaluating a set of measurable characteristics of employment offers. Among these are pay, benefits, location, opportunity for advancement, nature of work to be performed, or educational opportunities. Although the importance of these factors may vary between individuals it is presumed that there is a relatively consistent structure of employment characteristics which generally increases the recruitment success of an organization (Tom, 1971: 574 ff.). Hence, job and organization attributes refer to what specific attributes applicants seek (Chapman et al., 2005: 929), as they derive utility in a direct way. Beginning with Jurgensen (1978), a broad strand of literature has begun to deal with the question, which employment characteristics applicants or particular groups of applicants prefer (Cable & Judge, 1994; Kabst & Baum, 2013; Rasmus & Montgomery, 2011; Trank et al., 2002). Especially the new generation of labor market entrants, the Generation Y, has triggered a broad discussion about which preferences characterize this generation of labor market participants (Cogin, 2012; Guillot-Soulez & Soulez, 2014), deemed especially important with regard to

companies' effort for scarce talent. However, the findings regarding generational differences in job choice have been partly contradictory and equivocal (Guillot-Soulez & Soulez, 2014: 321). Guillot-Soulez and Soulez (2014), referring to further literature (Jurgensen, 1978; Rasmus & Montgomery, 2011), conclude that type of contract, atmosphere at work, distance, career path, salary, type of work, hours, reputation, status, and bonuses, correspond to the attributes referred to most often in the literature. Their study seems to constitute one of the most recent and extensive contributions to the literature analyzing job preferences of Generation Y. Moreover, they apply a conjoint analysis and thus can reveal the relative importance of attributes examined. They conclude that the attributes type of contract and atmosphere at work are deemed most important by the participants. In this connection, the high importance put on permanent contracts as opposed to short term contracts reflects participants' preference for security. The high importance assigned to atmosphere at work is consistent with the assumption that members of Generation Y prefer to work in a positive work environment.
Kabst and Baum (2013), analyzing a similar set of 10 attributes, also apply a conjoint analysis. However, they come to the result that salary matters most for participants, followed by advancement opportunities and climate, whilst job security is seen on the last position with regard to relative importance. Chapman et al. (2005) can show in their meta-analysis about predictors of recruiting outcomes that the perceived work environment is the most important among all job and organizational characteristics in predicting job-organizational attraction.
As this short review shows, studies so far have not come to a conclusive result about what the main characteristics of employment driving attraction to organization are. One reason for these inconsistencies can be seen in the variety of situational and personal characteristics, which impact the process of job choice. For the present study it is of importance that job seekers integrate an apparently relatively stable set of instrumental attributes into their evaluation processes.

In order to sum up the considerations on job seekers preferences for instrumental attributes, the following table (Table 2) shows an overview of the organizational attributes considered most in the literature in terms of their relation to recruitment relevant outcomes.

Table 2: Compilation of instrumental organizational attributes

Study	Attributes
Chapman et al., 2005	Compensation and advancement Familiarity Hours Location Pay Organization image Person-Job-Fit Person-Organisation-Fit Size Type of Work Work environment
Boswell et al., 2003	Advancement opportunities Benefits Company culture Industry International assignments Level of job security Location Monetary compensation Nature of work (e.g., challenging) Reputation of the company Size of company Training provided Vacation time Work/non-work balance
van der Voordt et al., 2002	Appreciation Atmosphere workspace Autonomy Career Perspectives Colleagues Corporate Culture Image of the building Job satisfaction Layout of workspace Location Participation Salary Self Expression Secondary conditions of employment Type of work
Kabst & Baum, 2013	Advancement Opportunities Atmosphere Climate Flexible Working Hours Job Security Location Person-Organisation-Fit Salary Task Attractiveness Training Working Schedule
Guillot-Soulez & Soulez, 2014	Type of contract Distance Career Path Salary Type of work Hours Reputation Status Bonuses

Source: Own compilation

Looking at the table it needs to be taken into consideration that the results of the studies are derived through different methodic approaches (e.g. meta-analysis, conjoint study, interviews). Moreover, it has to be taken into account that most researchers have followed an inductive

strategy for determining and measuring instrumental attributes, because these attributes themselves and / or their importance seem to differ across jobs, organizations, and industries (Lievens & Slaughter, 2016: 411). However, there seems to be a considerable overlap with regard to the attributes identified, neglecting the order of preferences the studies reveal.

The study by van der Voordt (2004) is an exception in that it is the only study taking elements of office design and architecture into consideration. Their case study in the web design industry indicates that workspace atmosphere is ranked in a middle position of all attributes inquired to be important for job selection, whilst layout of workspace and image of building are deemed least important. This result can be a hint on two aspects: First, this could indicate that the architectural work environment matters in its overall effect, meaning the interaction of all architectural elements which then lead to a particular workplace atmosphere. Second, this study suggests that architecture itself has a direct utility for employees. Employees retrieve direct utility, for instance, because they feel more comfortable in a certain work environment or can fulfill their tasks better.

Overall, especially those attributes, which are not easy to observe for job seekers, are of interest to the present study, as candidates look out for information surrogates, for signals, providing information on these attributes. Among the unobservable attributes, the following ones are named most often: Advancement opportunities, atmosphere or climate, image or reputation, PO-Fit, job security, type of work or task attractiveness and work / non-work balance respectively hours. Thus, these and the architecture itself should be the instrumental attributes, the following study pays most attention to.

2.2.3.3 Person-Organization Fit

Another theoretical approach analyzing the relation between (perceived) organizational attributes and recruitment outcomes is Person-Organization Fit (PO-Fit). Whilst the two afore mentioned theoretical approaches focused either on the evaluation of symbolic inferences or of perceived instrumental attributes, the scope of PO-Fit is wider in the sense that it considers interpretations of symbolic and instrumental inferences alike.

P-O-Fit plays an important role in the recruitment literature (Ewerlin et al., 2016: 14), focusing on the question whether applicants feel more attracted to organizations for the culture or values of which they feel a higher fit. This question has been analyzed in various empirical studies (Judge & Bretz, 1992; Judge & Cable, 1997; Kristof-Brown et al., 2005). Uggerslev et al. (2012) have revealed PO-Fit as the largest predictor of applicant attraction across recruitment

stages. Research on PO-Fit addresses the compatibility between people and entire organizations (Kristof-Brown et al., 2005: 285). It has been conceptualized in a variety of ways: as similarity, need–satisfaction, and demand–ability match. Accordingly, numerous different operationalizations can be found, including a variety of content dimensions: for instance, skills, needs, preferences, values, personality traits, goals, and attitudes (Kristof-Brown et al., 2005: 282). One of the seminal studies in the field of PO-Fit by Judge and Bretz (1992) operationalize the applicant characteristics on the basis of work values (following Ravlin & Meglino, 1987). Moreover, sources for measuring PO-Fit vary: Some use individuals for directly reporting their perceived fit, other uses separate sources for assessing the characteristics of a person and that of the organization. This study focuses on the subjective PO-Fit, which captures applicant's direct perception of fit to an organization (Cable & Judge, 1996; Judge & Cable, 1997). Judge and Bretz (1992) for instance found that the perceived fit between the values of an organization and its applicant is a better indicator for the acceptance of a job offer than particular organizational values alone. A high PO-Fit is desirable for organizations as well as for individuals, as it increases for example job satisfaction, and organizational commitment and reduces turnover (e.g. Chatman, 1991; O'Reilly et al., 1991). As individuals need information in order to assess PO-Fit, PO-Fit depends on the information an individual finds during the recruitment process. This information is central, as it influences the degree of perceived fit which in turn influences the decision process of applicants (Uggerslev et al., 2012: 637). Accordingly, Celani and Singh (2011: 230) put forward that applicants exposed to recruitment advertising featuring an employer brand communicating personality traits such as honesty, trustworthiness, and innovativeness, will likely become attracted to that organization if they believe that they share those traits with that organization. In a similar vein, Backhaus and Tikoo (2004: 508) argue that research on organizational culture provides further support for the assertion that messages about the employer and the employer brand can convey important pre-employment information. They explain that organizational culture is important to applicants in making a job choice. Thus, candidates' beliefs about the organization's culture affect the validity of self-selection decisions (Cable & Judge, 1996). Hence, it is pivotal that employers communicate accurate information about their culture.

To summarize, it can be pointed out that PO-Fit emphasizes the compatibility between individual and organizational characteristics. For this reason, the following study needs to take individual as well as organizational values into account. Fit can refer to symbolic and instrumental attributes alike, with most operationalizations underlining an understanding of PO-

Fit as congruence of values and culture (Kristof-Brown et al., 2005: 285).

The preceding theoretical analysis has concentrated on the questions, how and why organizational signals are perceived, interpreted and evaluated by job seekers. Signaling Theory has been used as overarching framework to explain job seekers interpretation of signals in terms of organizational attributes. Social Identity Theory, Objective Factor Theory and PO-Fit have been drawn upon in order to explain how and why applicants use the inferred information in terms of evaluating the attractiveness of an employing organization. Using these considerations, the following chapter addresses the question, why and how corporate architecture could function as a signal to job seekers.

2.3 Architecture as a signal

The question, to what extent architecture functions as a signal for organizational attributes to job seekers has been largely ignored in the recruitment literature so far. However, one study reveals the considerable importance of architecture for job decisions. The empirical study by Radermacher et al. (2017) approaches architecture as a signal for important job and organizational characteristics. This study can be considered as a preliminary study to the research project at hand. In their conjoint study, Radermacher et al. (2017) show that first, corporate architecture is of considerable importance as compared to the attributes salary, career opportunities, and training offers. In this connection architecture is assigned the same importance as career opportunities, whilst salary is deemed the most important attribute of the four. Second, the study shows a clear preference of job seekers for an architectural style named new functionalist architecture, which is characterized by flat, transparent facades with semi-open office layouts including areas for social interaction. This architectural style is clearly preferred over the so named traditional functionalist type, which features closed and intransparent facades and cell office structures. Third, the study finds that on average, participants are prepared to forego 10% of their annual starting salary in order to work in the architectural environment they prefer. Consequently, the study clearly demonstrates that architecture plays a pivotal role in job decision processes and hence different architectural styles influence attraction to organizations. The study also draws on Signaling Theory, Social Identity Theory and PO-Fit in order to explain the revealed effects. However, it does not provide empirical evidence for these mechanisms. Against this background, the following theoretical

analysis elaborates in more detail why and how architecture can act as a signal, so that this chapter serves as a basis for the later empirical analysis on the mechanisms of architecture as a signal.

Looking back at the theoretical model presented in Figure 1, the first stage of the model focuses the relation between organizational signals and the inferences about organizational attributes made by candidates. Thus, the first question to analyze is to what extent architecture can function as organizational signal in the sense of Spence (1973). For this purpose, the heuristic-systematic model is applied in order to assess the extent to which applicants would notice architecture as a signal and how they would interpret it. With regard to observability, it can be stated that architecture by its very nature is highly visible. The outer appearance is visible for everyone who passes the building. Moreover, the outer appearance as well as the interior can often be accessed by applicants through employer rating portals or other blogs. If the employer actively integrates architecture into its communication strategies, architecture can be communicated via brochures, pictures or even 360° tours on websites. At the latest when a candidate is invited for a job interview he or she will definitely be confronted with the architecture of the organization. Thus, it is highly probable that candidates come into contact with an organization's architecture in the precontractual stage – intended or unintended by the employer. Thus, it can be assumed that individuals actively searching for a job (top-down goal-driven) as well as individuals not actively looking for job (bottom-up stimulus-driven) could realize architecture as a signal and process it in terms of heuristic, association driven processing or in terms of systematic high effort cognitive processing. If the individual processes the information systematically making it subject to critical evaluation of its reliability, it can be assumed that the individual examines it more or less according to the criteria of an effective signal in the sense of Spence (1973). The following considerations exemplarily show how architecture as a signal can be analyzed in such a way: In the first example, an exclusive and costly building façade is considered as a signal for financial soundness and job security. A façade is exposed to the public and therefore highly visible. Moreover, an expensive façade is connected with high investments in the building, so that an organization has to raise capital to realize such a project. It can be assumed that organizations which are financially well positioned and can offer potential capital providers corresponding securities can raise capital for the construction of a building more cost-efficient than organizations whose financial basis can offer little securities at the capital market. The employer quality job security is thus negatively

correlated with the costs for the signal exclusive building façade. Furthermore, the signal seems to be highly reliable. It can be presumed that the capital market scrutinizes a company's financial situation very critically in terms of its future sustainability. Hence, it can be concluded that sender honesty is assessed as being high. Additionally, the signaled quality job security seems a pivotal factor for job seekers, as the studies reviewed in chapter 2.2.3.2 (see Table 2) have shown. Consequently, the reliability of the signal can be classified as high, too.

As a second example, the setup of lounge areas next to the work areas as a signal for good work atmosphere is considered. As already mentioned above, such a part of the interior architecture is not that exposed to the public, however can be highly visible via several ways (websites, brochures, portals, personal sight). Generally, employers with and without the quality good work atmosphere could establish lounge areas, as the costs are comparably manageable and do not seem to be negatively correlated with the employer quality. However, it seems plausible that employees in an organization with a generally good work atmosphere would use such lounge areas intensively in order to interact with colleagues and teams and also meet informally. As research shows, informal conversations are indispensable to foster creativity, networking and finally innovation (Martens, 2011), it can be assumed that organizations with a good work atmosphere can increase their productivity through such lounge areas. In contrast, working for an organization not living a good and open work atmosphere, employees will probably feel unwell in such open lounge areas and for this reason will hardly use these facilities. An increased productivity will therefore fail to appear in such organizations. Hence, the signal lounge areas is positively correlated with the productivity or revenues resulting from it. With regard to sender honesty, it can be assumed that employers living a formal and hierarchical work atmosphere do not want employees to come together informally during work and for this reason would not set up lounge areas. Thus, it can be concluded that the signal actually corresponds with the good work atmosphere and therefore has a good fit. Moreover, it can be said that work atmosphere also has proven to be of major importance for job seekers in various studies (see chapter 2.2.3.2, Table 2). Thus, lounge areas seem to be a reliable signal for good work atmosphere.

Whilst these considerations on architecture primarily referred to the rational, systematic way of processing signals, the following passage concentrates on the heuristic associative way of processing. As already mentioned, this fast and low-effort way of processing mainly involves simple rules, cognitive heuristics and associations. In a similar vein, Raffelt and Meyer (2012: 211) explore the communicative power of architecture in a marketing context, which they call

architectural branding. In this connection they explain that the perception of architecture is always linked to personal experiences. Further, they elaborate that the expressiveness of architecture is dependent on the existence of a common repertoire of signs or a common symbolic language area of architect and observer. As the study at hand considers office buildings and for this reason organizations, who contract architects with the realization of their projects, as senders and not architects themselves, this statement can likewise be transferred to organizations and job seekers. Further, the symbolic of colors, forms and materials is determined by the cultural context. Against this background, architectural branding is composed of an aesthetic-evaluative level and a semantic-symbolic level, which is in the focus of attention here and has the potential to shape relevant brand messages. Similarly, Rafaeli and Vilnai-Yavetz (2004) identify a symbolic dimension[4] of artifacts, which leads to an associative process, referring to the meaning or associations an artifact elicits. In this connection, even isolated and small objects such as chairs or tables have meaning. Importantly, the associations triggered by an artifact are not necessarily those intended or similar among different observers because the process of interpretation depends on the observer and the complexity of attribution and associative process (Rafaeli & Vilnai-Yavetz, 2004: 95). As an example for the different interpretations, depending on personal, contextual and cultural factors, Rafaeli and Vilnai-Yavetz (2004) find clear evidence in their empirical study on the perception of a green colored bus. The bus company intended the green busses to convey quality of life and environmental friendliness by the green color. Environmental values, however, are only one set of associations the green color evokes. As the respondents of the study lived in Israel, where people are constantly confronted with conflicts, many of them had associations with a local terrorist group, who use this color as a symbol.

To sum up, these theoretical considerations on heuristic-associative processing of signals show the following: First, architecture has been shown to trigger such a means of processing. Second, associations depend on a common cultural and contextual background. The study at hand focuses on people searching for a job and seeking information on potential employers. Moreover, the empirical study conducted (see chapter 6 and 7) took place in Germany, so that a similar cultural background can be assumed for the participants. Third, however, personal backgrounds and characteristics play a role in the process of interpretation.

After having shed light on how architecture as a signal can be processed by both systematic and

[4] In addition to the symbolic dimension Rafaeli and Vilnai-Yavetz (2004) also identify an instrumental and aesthetic dimension, which is, however, not relevant for the relations to be analysed in this study.

heuristic processing, the following architectural characteristics are of importance to both ways of processing: Architectural characteristics in general can be classified as a stable signal, offering various possibilities to sending the signal and reaching a high signal frequency. Looking at the signaling environment, it becomes obvious that architecture is in general a topic paid a lot of attention to in the public. The media frequently report about new building and office projects, often adopting innovative and surprising forms. Two of the most prominent examples are certainly the googleplex, headquarter of the US company Google in Mountain View, California, and the Apple Park, headquarter of the US technology company Apple, also situated in Silicon Valley. The media attention to such projects can be assumed to generally catch peoples' attention for architecture and let them discover architecture as a source of information, as a signal. Thus, it seems that the environment currently sensitizes for the subject architecture making it an even more salient signal.

Instrumental and symbolic architectural signals and their interpretation

In the preceding chapter it has been argued that architecture seems to function as a signal. The following discussion aims at showing that architectural signals can be interpreted as instrumental and symbolic attributes, alike.

There is scholarly evidence indicating that architecture functions as a signal for work atmosphere and organizational culture, both of which can be classified as rather instrumental attributes, as they are of interest to job seekers due to their direct utility.

The office setting, for example, has long been considered as a physical representation of an organization's culture (Davis, 1984). Similarly, in three seminal contributions to the theory of organizational culture, Schein (1990), Trice and Beyer (1993) and Hofstede (1991) posit that artifacts as symbols represent the values of organizational culture. Alvesson and Berg (1992) and Rafaeli and Pratt (2006), for instance, interpret architecture as the physical representation of culture. An empirical case study by McElroy and Morrow (2010), dealing with the effect of office redesign on the perception of cultural attributes, reveals that a redesign of the office environment leads to employees perceiving more favorable attributes of the organizational culture. More precisely, they find that office redesign affects employees' perception in terms of bureaucracy (formalization, professional control), innovation, and collaboration. Thus, they conclude that "changes in office design may signal changes in an organization's culture" (McElroy & Morrow, 2010: 614). On the basis of another case study, van der Voordt et al. (2002) conclude that office design can be seen as visible expression of new workplace culture,

as reflection of norms and values. For this reason, it is likely that job seekers interpret architecture as a signal for organizational culture.

Studies in the marketing literature provide at least indirect evidence that architecture also elicits symbolic inferences respectively organizational personality perceptions. Corresponding studies show that architecture influences customers' perception of brand personality and corporate identity (Khanna et al., 2013; Kirby & Kent, 2010; Raffelt & Meyer, 2012; Raffelt et al., 2013). Khanna et al. (2013) for instance, show that brand values can be reflected on the location, building and workplace level. Raffelt et al. (2013) examine the relation between architecture and brand personality, with brand personality being defined as an array of human characteristics, which are associated with a brand and capture "trait-like associations and inferences about commercial symbols" (Raffelt et al., 2013: 202). With their study they show how the design of buildings leads to the perception of distinct corporate brand personalities. If architecture leads to such perceptions for customers, it seems most likely that job seekers will as well interpret architecture in a similar symbolic way.

With regard to the interpretation of architectural signals, literature has made first attempts to adopt the theoretical perspectives of the recruitment literature, which particularly refers to the Social Identity Theory and the PO-Fit approach.

The perspective of the Social Identity Theory, for instance, has been adopted in various earlier studies in the context of analyzing the effects of office design. Among these were studies examining the effects of office design with regard to organizational identification, physical comfort, and job satisfaction (Baldry et al., 1998; Baldry & Hallier, 2010, Knight & Haslam, 2010a, 2010b, Millward et al., 2007). Also the PO-Fit approach has been adopted in connection with architecture. Kristof (1996), for instance, posits that site visits in an early recruitment phase might promote higher fit levels, as they illustrate an organization's specific goals and values. This, in turn, may lead to candidates with different compilations of goals and values to self-select out of the recruitment process (Uggerslev et al., 2012: 637). Thus, it seems reasonable that architecture can act as an instrument to provide candidates with an additional source of information, which they can use to evaluate their cultural fit to an organization. As mentioned above, the evaluation of PO-Fit heavily depends on the information made available to job seekers.

The objective of chapter 2.3 was to find evidence indicating architecture's potential to function as a signal for organizational attributes to job seekers. Theoretical considerations as well as the

analysis of empirical studies could demonstrate that it is very likely that architecture is perceived as a signal for particular organizational attributes by job seekers. Moreover, the discussion above could show that architecture can stand for instrumental and symbolic organizational attributes, alike. Furthermore, evidence was found indicating that the evaluation of architectural signals seems to be analogous to the mechanisms considered in the recruitment literature so far.

Against this background, the preceding chapter has built the basis for the overarching objective of this study to analyze, whether and how (i.e. through which mechanisms) architecture functions as a signal to job seekers and how this, in turn, relates to perceived organizational attractiveness. In this context, it is of particular interest to find out which organizational attributes architecture can stand for as a signal. In this, the study complies with the call of various recruitment researchers (e.g. Jones et al., 2014; Lievens & Slaughter, 2016) to further analyze the mechanisms, the "why", when examining individual responses on the basis of Signaling Theory.

In order to explore the mediating mechanisms, the inferences candidates make from architecture, different architectural types need to be distinguished. For this reason, the following chapter focuses on two main questions:

- Which different architectural styles, that job seekers typically encounter, can be distinguished?
- Which organizational attributes do these different architectural styles presumably stand for?

3 Architecture – history, typology, and analysis

The objective of the following chapter is to identify architectural types that job seekers typically encounter and to deduce their potential effects as signals on applicants on the basis of existing literature. For this purpose, this chapter first gives a short introduction into the development of different forms of buildings and offices. This background helps to understand which architectural forms shape our architectural landscape today. In a next step, architectural variables are developed, which allow for capturing different architectural characteristics. Afterwards, an empirical study follows. For the study, data of the architectural settings of 55 companies are collected. On the basis of the data, a cluster analysis is conducted which reveals four typical architectural types. In the last subchapter, these architectural types are examined in terms of their potential signaling effects on job seekers, based on different strands of literature.

3.1 Historic overview: Buildings and offices

Corporate Architecture has experienced significant changes within the last centuries and decades. Towards the end of the Middle Ages, the first forms of office space developed with the Kontor and the chancellery. With these office forms, mental work and manual labor as well as private and work life had been separated for the first time. Work was not allowed to be done in private spaces, as work could not be controlled there. Workers had to be visible to be controlled and to live hierarchies. They did their work in proximity, in smaller spatial connections. Workspace was not spread over different buildings, so that workers had an overview of all steps of production and perceived their work as part of a whole. The pre-industrial office was the precursor of the cell office, the prevalence of which began in the 16th century, and the process of bureaucratization (Petendra, 2015).

In the preindustrial stages, the emerging industrial dynasties used the architecture of their factories to express power and richness. Elements of the traditional autocratic architecture were combined with new production methods to demonstrate equality with the governmental power (Messedat, 2004). The inventor of the typewriter, Camillo Olivetti and his son, for example, stood for innovative and groundbreaking ideas, which also had been conveyed by the architecture of their factory buildings. The architecture became part of the organizational culture. For this reason, Olivetti is reckoned as one of the pioneers of corporate architecture.

During the industrial revolution, the prevailing architectural style can be characterized as functional and followed the principle „form follows function“. With the ongoing

bureaucratization, the cell office was *the* organization form of the first administrative buildings (Petendra, 2015). With the progress of industrialization, the rise of tayloristic principles and high levels of rationalization, mass work rooms, which were usually integrated into the factories, became widely spread, first in the USA. With the growth of the tertiary sector a number of new office jobs developed, characterized by writing and calculating tasks and led in many places to the separation of office room from production spaces. Office space was partly privatised and a new form of office space, the office work room (Büroarbeitssaal) developed. In the office work room, different functions and departments were established on one spatial area. Based on tayloristic principles, there was an increased demand for order and clearness in arrangement. People were seated in rows on small spaces, the manager as supervisor was positioned in a central place. Even desks were arranged scientifically. The principle *Efficiency via visibility* prevailed and the work room was reduced to gripping area (Greifraum). The rationalization of office work and the standardization of processes led to the development of two groups: Middle management and routine workers, so that work of the big group of routine workers was being de-qualified. Along with this development, a feminization of office work took place (Petendra, 2015).

The pre-industrial and industrial office spaces ended in two basic office forms: the work room (Bürosaal) and the cell office. In Europe, the Human Relations Movement had strong influence on improved work conditions and led, among other developments, to the rediscovery of the cell office and later its advancement. Furthermore, another type of open plan office developed in the 1960s in Germany: The office landscape (Knirsch, 2002: 17; Petendra, 2015: 68). Based on democratic principles, the office landscape can be characterized by the absence of separate manager offices, no dividing walls and instead plants, shelves and similar devices as structuring elements. Thus, all symbolic aspects of hierarchy were abandoned from the office space (Knittel-Ammerschuber, 2006: 43). The office landscape was thought to create optimal conditions for up to 200 employees with regard to organizational aspects and also in terms of occupational medicine and psychology (Knirsch, 2002: 17). Objective of this new form of office were the promotion of communication and interpersonal relationships as well as the transparency of work processes. Until the 1970s, this type of office was favored. Later, however, it was recognized that the office landscape was still afflicted by many disadvantages of the typical mass working rooms, so that it was mostly displaced in Europe and replaced by the group office (Knirsch, 2002: 19). In Scandinavia, particularly, a further new form of office developed at the same time: The combi office (Hessisches Immobilienmanagement, 2010). In

America, new trends to avoid the negative features of the mass work rooms led to the development of cubicles / open plan offices. Today, the open plan office is still one of the dominant office types in America. In Europe, because of a growing need for flexible use of office space, a variety of 'mixed' office concepts emerged beside the cell office. The most prominent mixed office concepts today are the combi office and the business club. To consider different office types, it is helpful to take Danielsson and Bodin's view, who define office type as "multifactorial variable manifesting a combination of architectural and functional features that, additively or symbiotically, defines the unique office type" (2008: 639). Using combinations of architectural features (e.g. spatial organization) and functional features (based on the actual work taking place in the office), Danielsson and Bodin (2008) identify seven different office types, which can be encountered today: The cell office, the shared room office, small open plan office, medium-sized open plan office, large open plan office, flex office, and combi office.

The *cell offices* can be defined as rooms along the façade of the building each equipped with a window; the plan layout is characterized by long corridors that connect the office rooms to each other. Functional areas such as tea kitchens, meeting rooms and the copying rooms are also integrated into this structure. With regard to functional features, cell offices are equipped with most of the amenities needed, which enables an independent and concentrated work. Whilst Danielsson and Bodin (2008) define cell offices as one person offices, other definitions include occupancy from one to five persons, thus also categorizing small group offices as cell offices (Knirsch, 2002: 19). Danielsson and Bodin (2008), for instance, define single rooms shared by 2 or 3 people as shared room office. Depending on space and number of occupants, *group offices* tend to be categorized as cell offices or small open plan offices. Mostly, group offices with more than 20 or 25 employees are categorized as open plan offices (Hessisches Immobilienmanagement, 2010; Knirsch, 2002). Workplaces in the group office are arranged freely on the space, in an open structure with little partitioning, e.g. through screens or partition walls. Group rooms have at least one window façade. Group rooms for team-based work are normally equipped with work facilities in the room. The *large open plan office* with 25 workplaces or more (Danielsson and Bodin (2008) already categorize offices with 4-9 persons and 10-24 persons as small respectively medium-sized open plan) is characterized by workstations that are freely arranged in groups, so that there are no individual windows. Often screens are used to reduce noise and provide some privacy. Another version of the open plan office are cubicles. Here, a wall system of usually medium height is installed around every

workplace on the open plan. The *combi office* combines elements of cell offices and group offices (Petendra, 2015: 71). It combines rather closed work areas, which are often arranged at the edges, with open areas for common amenities. Moreover, it offers backup spaces for team and project work, which are usually placed in the middle. The *business club* constitutes a very topical variant of the combi office and accommodates less standard and more group workplaces and alternative areas such as meeting rooms, lounges, read areas etc. Leading principle in business clubs is flexibility (Petendra, 2015: 71–72). Because of the availability and flexible use of different kinds of work places, the business club is predestined for non-territorial work places without individual workstations. This is one example for the blending and new forms of office types. New office variants, differentiation and margins will have to develop, which leave room for individual design, for change of traditional office worlds, margins for spontaneity, dynamics, and action (Knirsch, 2002: 27). One of these new trends can be seen in the integration of fun and leisure amenities into the business world. Especially in America, the importing of home signifiers to the workplace (Baldry & Hallier, 2010) seems to be a growing trend, aiming to catch the employee as 'a whole': As the business person as well as the private person.

With regard to the outer architecture of office buildings, since the 1950s, first in America, later also in Germany, high rise office blocks with shiny façades, glass, steel, and concrete have become the typical business architecture. From the outside these towers aimed at impressing customers and passers-by, from the inside these buildings were dominated by the objective of reaching flexibility, efficiency and functionality – principles, which often manifested themselves in open-plan and cubicle office structures (Sieverts, 1980). The outer appearance of these buildings was mostly compact, rectangular and little differentiated. This architectural style was shaped by an economic system that believed in the progress of industry, technology and economic growth (van Meel & Vos, 2001). With the change of the economy from production to consumption and the rise of the "Experience Economy" by the end of the 90s, a new aesthetic, expressionistic and symbolic language of architecture developed – the focus shifted from function to form (Raffelt et al., 2013). With the experiential architecture, being increasingly used for the design of new corporate buildings today, corporate architecture is viewed and used as a special means of communication – both to outsiders of organizations and employees alike. The landscape of today's business world is characterized by a multitude of architectural styles. Buildings today incorporate architectural elements being rooted in the history of architecture and at the same time being shaped by the demands of today's working

tasks.

With regard to the outer appearance of contemporary office buildings, Raffelt et al. (2013) identify four architectural design types, taking into account office buildings from different architectural movements and decades. They define the design types on a continuum from extremely experiential architecture, using buildings to communicate symbolically, to extremely functionalist architecture, which centers the primary utilitarian function of a building. The four design types identified by Raffelt et al. (2013) are the disruptive (extremely experiential), the expressive, the balanced and the solid type (extremely functionalist).

As this short overview shows, today's business scape is shaped by a variety of different office buildings and office settings, which have their roots in history and are at the same time shaped by new trends and requirements.

3.2 Empirical study to derive contemporary architectural types

The objective of the following chapters is to analyze how real office buildings and settings can be categorized into different types that reflect typical contemporary business architecture styles. For this purpose, the first step of the following chapter aims at deducing variables that help to characterize different company architectures. In a second step, a data set of office buildings is generated. This data sets includes pictures and descriptions of German and multinational office buildings and settings. In order to examine whether these office buildings group into distinct types of architecture, the data set is analyzed by applying a cluster analysis. Thus, the approach of this chapter is theoretically driven in terms of developing the architectural variables and empirically driven in terms of the cluster analysis. The aim of the study is to derive distinct types of architecture, which represent a majority of actually occurring business architectures. With this objective, this study reflects the perspective that organizational attributes tend to fall into coherent patterns, as they are often interdependent and thus only a small share of theoretically possible combinations of attributes actually exists (Meyer et al., 1993: 1176). Hence, a distinct set of configurations, which has to be determined here, should be able to cover a large fraction of the target population of organizations. In this context, this study uses the term *types* or *typology*. The discussion about the difference between types, which are developed on a conceptual basis, or taxonomies, which are derived empirically (Meyer et al., 1993: 1175),

shall be neglected here[5]. In a final step, the architectural types resulting from the cluster analysis are explored in terms of the potential meaning and associations related to each of the architecture types identified.

3.2.1 Deduction of architectural variables

As the historic overview about offices and buildings revealed, different types of architecture developed referring to different dimensions. For offices, for example, Danielsson and Bodin (2008) proposed the analysis of architectural features and functional features. This classification of features could also apply for the outer appearance, which can vary in terms of architectural features (e.g. a high-rise building vs. a low-rise building) or in terms of functionality (purely functional design vs. integration of design elements). In order to describe architecture with the help of particular variables, the following two questions need to be addressed:

- Which architectural dimensions have to be considered in order to capture architectural characteristics potentially relevant for job seekers?
- Which variables have to be considered within the different dimensions in order to capture architectural characteristics potentially relevant for job seekers?

Accessing existing frameworks or variables to answer these questions is difficult, as Davis (1984) already stated that there have been few attempts to organize elements that might be used to classify the physical environment within organizations. McElroy and Morrow assert that since then, there has been little work on elaborating such frameworks (2010: 611). Likewise, there are few insights on such frameworks with regard to the classification of the outer appearance of corporate buildings. For this reason, the literature dealing with the analysis of buildings and offices is reviewed with the objective to figure out such characteristics that discriminate between different forms of buildings and offices.

Messedat (2005: 25) identifies three areas of corporate architecture: Building concepts, e.g. administration buildings, spatial concepts in interiors that are to be found within larger buildings and presentation concepts with temporary and mobile character, such as conference stands

[5] For further discussion on typologies and taxonomies refer to Meyer et al. (1993) or Bailey (1994) for instance.

(Messedat, 2005: 25). Khanna et al. (2013), in their conceptual framework on connecting corporate real estate with brand management, identify three levels of corporate real estate: the location, building and workplace strategy. Appel-Meulenbroek et al. (2010) figure out the following dimensions of corporate real estate to have crucial influence on a company's branding process: The location dimension, including aspects such as accessibility typology, reputation, visibility, and landscaping and the building dimension, referring to aspects such as quality finishing, main entrance, recognisability, façade, accessibility, lighting, architectural style, thermal comfort, floor plan (horizontally & vertically), visibility of sustainability, and restaurant facilities.

On the basis of the approaches mentioned afore, the following dimensions of analysis are figured out: The building dimension and the interior dimension. The location dimension, also identified as important by several studies, is excluded in this work for two reasons. On the one hand, companies often have limited influence on the location and the surroundings. On the other hand, job seekers in an early process stage will have difficulties in grasping the surroundings of a company building as compared to evaluating the building and interiors, which can be easily communicated to them. Moreover, architectural objects with mobile and temporary character are neglected, as the focus here is on administrative buildings, which presumably are of highest importance for job seekers.

Looking at the *interior dimension*, one important area is the workplace, as for instance identified by Khanna et al. (2013). Earlier in this chapter it has been described that the workplace has undergone drastic changes in the last decades and is still in the process of steadily taking new forms. These new forms are particularly shaped by the trend to integrate more alternative workspaces such as gathering areas and lounges into the workspace and thus enable maximal flexibility to work in different modes and interact with one another (e.g. concentrated work, project work) (Knirsch, 2002; Petendra, 2015). Another trend heavily influencing new forms of offices is the integration of fun amenities such as pool tables and coffee bars into the office (van Meel & Vos, 2001). For this reason, the interior concept is split up into two dimensions: First, the direct workplace and second, the interaction areas which can comprise any place established with the objective to make people interact with one another. Further, the ambient conditions have been indicated to play a role within the interior dimension (Appel-Meulenbroek et al., 2010). These can refer to quantity of light, temperature, sound and smell, for example (Dul et al., 2011). As it once again seems difficult for job seekers to gain a picture of such ambient conditions and employers face difficulties to communicate these (especially visually)

in an early recruitment phase, these aspects are excluded from the following study.
Thus, the following deduction of architectural variables is based on three architectural dimensions: *building*, *interaction areas*, and *workplace*. In a next step, the particular variables of importance within each of the three dimensions are elaborated. Table 3 gives an overview of the dimensions and variables identified. The literature-based deduction of these variables is described in the subsequent section.

Table 3: Architectural dimensions and variables

Architectural dimension	Variable
Building	Functionality Orientation Permeability
Interaction Areas	Openness Functionality Workplace Affiliation
Workplace	Layout Functionality

Regarding the **building dimension**, the composition of the façade seems to be one important factor (Appel-Meulenbroek et al., 2010). In their work on how the design of buildings create meaning and project a corporate image and personality, Raffelt et al. (2013) use so-called primary design attributes, which are linked to physical attributes of architecture, for the description of corporate buildings. Their study reveals that particularly the following design attributes were relevant in discriminating different types of buildings: Color (e.g. warm vs. cold), material (e.g. natural, organic, transparent), form (e.g. technological, organic, free flowing, proportional, open), and façade (e.g. simple, complex, nonfunctional). On the basis of these primary design attributes, they can identify two different architectural styles at the two ends of a continuum: a functional and an experiential style. For the functional style, the form of a building is based solely on its intended function or purpose. The experiential style, on the contrary, emphasizes expression, symbolism, the plurality of form and experience (Raffelt et al., 2013: 202). Yanow (2006), in her approach to develop a framework to study physical artifacts, defines four levels of analysis. The first level, called *design vocabularies*, is about the shape, height, width, mass, scale, and material of a building. The second level, *design gestures*, refers to the relation of a building to surrounding spaces (e.g. a marked height differential). This

relation can, for example, refer to the building under analysis as compared to other buildings in the neighborhood, but also to one floor, e.g. the top floor within a building, as compared to the ground floor. *Design proxemics*, the third level of analysis, is about the social and personal space between people, and or perceptions of those spaces, that shape human behavior and interaction. Design proxemics can refer to the building and its relation to the people outside the building; e.g. to what extent the forms and materials allow outsiders to easily enter the organization. Likewise, proxemics can relate to parts of a building, e.g. to the position of workplaces to one another or the design of other spaces within the building. The last analysis level, called *décor*, applies to elements such as furniture, artwork, statues, and photographs. This approach of analysis is also applied by van Marrewijk (2009), who analyzes the interdependence of corporate architecture of headquarters and organizational cultural change.
Based on these studies, the following variables are defined on building level: *Functionality of the Outer Appearance*, the *Orientation of the Building*, and the *Permeability of the Building*. The first variable, Functionality of the Building, is supposed to comprehensively capture what the primary design attributes describe. This means, whether color, material, form and façade rather compose a purely functional appearance, whether the appearance is functional but with certain design elements, or whether the outer appearance features an expressive style. The second variable, Orientation of the Building, refers to the structures of the building, i.e. horizontal and vertical lines, as well as what Yanow (2006) refers to as design vocabularies and partly design gestures. Thus, this variable captures whether the building is clearly vertically oriented, like for instance a tower, whether the orientation is rather balanced, or if the building is horizontally oriented. Permeability of the Building, the third variable, tries to capture the accessibility of a building, which can for example be shaped by transparent or non-transparent materials or by the form of the building or parts of the building. This variable thus also includes what design proxemics refer to.

With regard to the second dimension, the **interaction areas**, design proxemics also play a central role, as they particularly influence human interaction (Yanow, 2006) – a main objective of interaction areas. A variety of studies has dealt with how interaction areas have to be shaped in terms of layout, functionality and geography of the dedicated space within a plan in order to enhance interaction, informal communication and exchange of ideas (Boutellier et al., 2008; Fayard & Weeks, 2007; Hua et al., 2010a; Stryker et al., 2012). These studies stress the importance of the layout of communication areas (open vs. closed layouts), as well as their

proximity to workplaces and other facilities, which impact for example the aspects of visibility and frequency of traffic. Likewise, the U.S. Workplace Survey 2016 conducted by Gensler Architects (2016) [6] show that the accessibilities of such socialization areas play a pivotal role for fostering the use of such areas and innovation. Moreover, this survey reveals that the design (look and feel) of all spaces is crucial for employees' positive perceptions and behavior. For this reason, the following three variables are identified within the dimension of interaction areas: The *Layout of the Interaction Areas*, the *Workplace Affiliation* and the *Functionality*. The Layout variable describes whether the area dedicated for interaction is accommodated in a closed room, if it is open to the floor and accessible for everyone passing by, or if it is partly open. The variable Workplace Affiliation captures the proximity of the interaction area to the workplaces, distinguishing between a complete separation of workplaces and interaction areas, a partly integration or a full integration of interaction areas to the workplaces (the interaction zone is between the workplaces). Lastly, the variable Functionality reflects whether the area is arranged in a purely functional way, if it has been purposefully designed (with regard to materials, colors, forms, furniture, and light), or if it integrates fun and leisure amenities.

Pertaining to the **workplace dimension**, two further variables are derived. As with regard to the interaction areas, Gensler Architects (2016) have identified the meaning of design likewise for workplaces. Thus, the variable *Workplace Functionality* captures characteristic analogues to those on interaction area level. In addition to the design, the workplace layout has turned out to be a major research object throughout the last decades. No issue in the design of physical environments has received more attention than the effects of enclosures and barriers, which includes for instance partitions, walls, doors, cubicles, and open spaces (Elsbach & Pratt, 2007: 184). Research on this subject has revealed considerable impact of workplace layout, for instance on employee satisfaction, productivity or communication behavior, albeit studies have come to contradicting results, reflecting the complexity of this subject. Hence, the variable *Workplace Layout* is identified to capture if workplaces are accommodated in closed rooms (cell offices), if they are arranged in a semi open way or if they are completely open (open space).

[6] Gensler is a global design and architecture firm in the United States (www.gensler.com). The Gensler Research Institue has conducted Workplace Surveys in several waves and countries. The most recent one in 2016 surveyed ober 4,000 U.S. office workers in 11 industries.

To sum up the preceding chapter, the review of literature dealing with the analysis of architecture and space as well as studies dealing with the effects of particular aspects of the design of physical environments has led to the identification of three dimensions of analysis and the deduction of eight architectural variables. These are summarized in Table 3.

3.2.2 Sample of corporate architecture and rating procedure

The main objective of the third chapter is to identify the most common types of company architecture. To follow this objective, this subchapter deals with the application of the architectural variables to a data set of contemporary company office buildings and settings. In a first step, this serves the identification of real types on the basis of the sample. The real types, in turn, serve the derivation of architectural ideal types in the sense of Weber (1963). Ideal types, according to Weber (1963), accentuate key characteristics from the social reality of objects, which are unified in one analytical unit. Thus, the study aims at identifying architectural ideal types that highlight particular architectural characteristics that occur together in one architectural object. Such an accentuation is helpful for the differentiation and evaluation of different objects. At the same time, it needs to be taken into account that it does not reflect the averagely empirically occurring type, which is the real type. For the overall objective of the research project at hand, namely to examine the influence of corporate architecture on job seekers, the derivation of ideal types is recommendable, as it supports the development of hypotheses.

Data basis for the analysis of real type architecture are the building descriptions of the DAX 30 companies and the 25 Great Place to Work Companies 2014 (a list of companies can be found in Table 38, Appendix 1). These companies were found to be appropriate for the analyses as: The companies are all big groups with a corresponding budget for architecture and a professional internet communication (internet communication is important for data availability); they present the actual status quo with regard to company architecture – real types, and national and international architecture is taken into account. For the collection of architectural material, it was irrelevant whether the material referred to the company's headquarter or to another company building. Decisive criterion was that the building was an administrative building, as these are of primary interest for the kind of job seekers considered in this study.

In order to find pictures and descriptions of the architecture of these companies, a systematic

search was conducted via the search engine Google. After trying different keywords, those yielding the highest number of hits were determined. Keywords were defined in English and German in order to find all available descriptions. The key words comprised for example the terms corporate architecture, Unternehmensarchitektur, Gebäude, corporate building, headquarter, office space, office design, and Bürolandschaft – each combined with the name of the corresponding company. Material was found for instance on the companies' own websites, on websites of architecture firms, on architecture portals or blogs and on employer rating websites. Thus, the sources of the material were corporate and private. This wide-ranging consideration of material reflects a realistic situation with regard to the context of the study, as job seekers likewise might encounter this variety of sources.

Resulting hits were analyzed for textual descriptions of architecture as well as pictures. In addition to the text search, the function "pictures" of the search engine Google was used for each search term in order to retrieve further pictures corresponding to the respective architecture. The results (textual descriptions and pictures) were collected on company level in order to collect information on the eight architectural variables derived before for each company. As there was not information for all three architectural dimensions for all companies, the data collection led to 41 full data sets. In the process of allocating a value to each variable for each company it became clear that the variable scales had to be defined more closely. Thus, in an iterative process, the scales were reviewed and the material was analyzed again. For example, if a case occurred during the rating process that could not be clearly allocated to one of the three categories of the nominal scales, the scale was defined more closely. Afterwards, all cases that already had been rated before, were again reviewed in terms of their accordance with the redefined scale. For example, the scale for the variable Orientation of the Building was defined as follows:

Table 4: Scale for the variable Building Orientation

	1	2	3	
Outer Appearance: Orientation	vertical	balanced	horizontal	**1 vertical:** The orientation is clearly vertical, e.g. a tower. **2 balanced oriented:** The orientation is balanced in both directions (horizontal and vertical), for example in form of a cube. **3 horizontal:** The orientation shows a clear horizontal direction.

After the rating of a couple of architectures it became clear that the three categories were not objectively selective. For this reason, the scale was amended by the definitions marked red in the table below:

Table 5: Adapted scale for the variable Building Orientation

	1	2	3	
Outer Appearance: Orientation	vertical	balanced	horizontal	**1 vertical:** The orientation is clearly vertical, e.g. a tower (more than 5 storeys). **2 balanced oriented:** The orientation is balanced in both directions (horizontal and vertical), for example in form of a cube. **3 horizontal:** The orientation shows a clear horizontal direction (no more than two storeys).

The final three-stage nominal scales for the eight variables are presented in Table 39 in Appendix 1. Table 40 in the Appendix presents the final data set, which builds the basis for the cluster analysis described in the next chapter.

3.2.3 Cluster analysis to empirically derive architectural types

The cluster analysis aims at consolidating objects into groups (clusters), which are as similar as possible with regard to the characteristics of interest. At the same time, the objective is to reach a high heterogeneity between the groups derived. For the formation of the groups, the cluster analysis includes all specified characteristics simultaneously, which allows to depict complex structures. The cluster analysis can be classified as an explorative procedure of multivariate data analysis, as the researcher has no knowledge about the composition of the groups in advance but only identifies the groups in the data with the cluster analysis (Backhaus et al., 2018: 437). As the analysis is explorative, it does not provide a 'p-value' and is particularly intended for generating hypotheses rather than testing them (Rabe-Hesketh & Everitt, 2003: 271). Against this background, the cluster analysis is well suited for identifying different architectural types. The aim of this study is to identify different architectural types on the basis of the different values the architectural variables derived in chapter 3.2.1 can adopt. Afterwards, the results gained from the cluster analysis are supposed to be used to derive hypotheses on the different effects of the architectural types, which will then be tested.

The cluster analysis follows three steps (Backhaus et al., 2018: 438 ff.): In a first step, the researcher has to decide about how the similarities and dissimilarities between the individual objects studied have to be determined. This will be measured by a proximity measure. In a second step, the amalgamation algorithm has to be determined. This algorithm determines how the objects with the highest similarities in the values of the variables studied are grouped together in one cluster. In a third step, the optimal number of clusters has to be determined. This

step always poses a trade off between manageability, which is rather granted by a small number of clusters, and the requirement of homogeneity within the clusters, which is best given with a higher number of clusters.

To begin with, the proximity measure has to be considered. As the data on the architectural variables are nominal, they have to be transformed into binary data. A commonly used proximity measure for binary data is the Jaccard Index. This measure is particularly suited in case the presence of a characteristic does not have the same meaning as its absence. The Jaccard coefficient measures the relative share of common values. For example, if an architectural object shows the characteristics “semi open workplace layout”, this does not have the same meaning as the absence of “semi open workplace layout”, because the absence means that the architectural object either shows the characteristics “closed workplace layout” or “open workplace layout”. The Jacard Index only puts weight on the presence of a common characteristic when comparing objects and is therefore chosen for the following analysis. Other measures, which also weigh the common absence of characteristics, should be avoided when analyzing nominal scaled variables with more than two characteristics (Backhaus et al., 2018: 447). The Jaccard index has values between 0 - independent clustering tree and 1 - identical clustering tree (Coroiu et al., 2016: 90).

In a next step, the amalgamation algorithm has to be chosen, which aims at aggregating the objects into groups. The procedures most used are the hierarchical and the partitioning procedures. The latter are based on a given number of clusters (start partition). On the basis of an exchange algorithm, the objects are then rearranged between the groups until a given target function reaches an optimum. The second group of amalgamation algorithms, the hierarchical procedures, can be split up into agglomerative and divisive procedures. Agglomerative procedures do not start with a given number of clusters but with considering each observation as a single group. Afterwards, the closest two groups are combined; the process continues until all observations are combined in one group. Thus, a hierarchy of clusters is created. The divisive procedures begin with one group which is then split until each observation is in one separate group. Due to the time consuming process of this algorithm, it is hardly used. For this reason, the following cluster analysis starts with an agglomerative algorithm, as there is no prior knowledge on the potential number of clusters which would be needed for a partitioning procedure. Among the most spread agglomerative algorithms suited for binary data are single linkage, complete linkage, and average linkage. These algorithms basically can be distinguished on how they measure the distance between clusters. Whilst the single linkage method measures

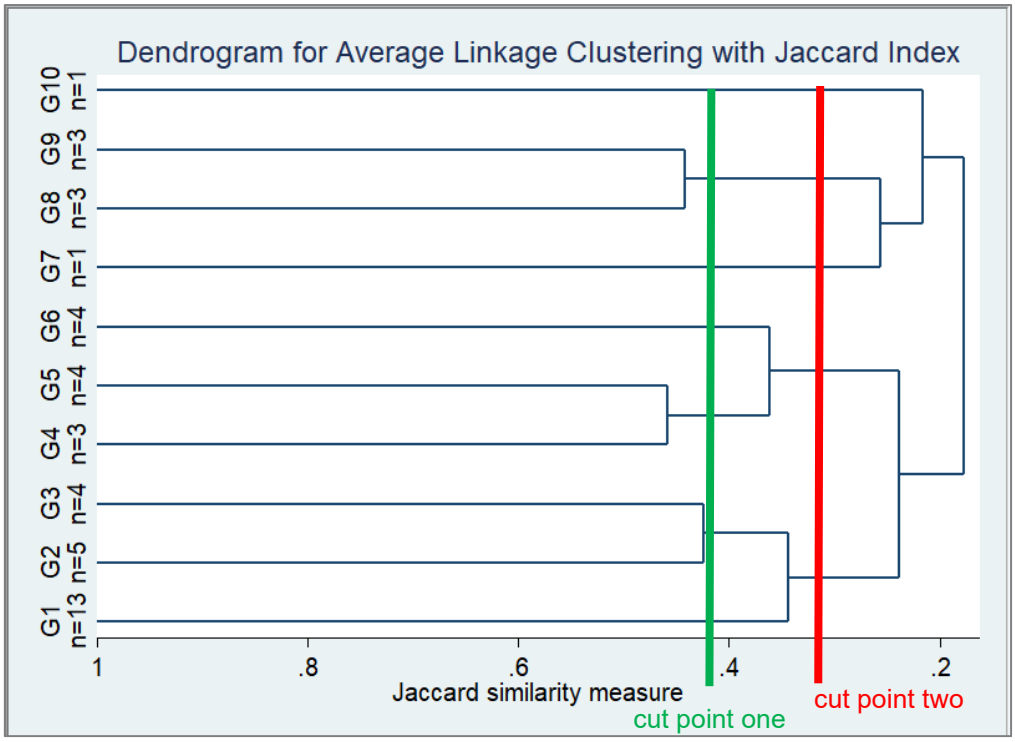
this distance based on the distance between the two points, each stemming from one of the two clusters which are closest to one another, the complete linkage takes the distance between the two points with the maximum distance. Average linkage clustering lies between the other two methods: it measures the distance between two clusters as the mean value of the distances between all pairs of objects. By this, it balances the potential disadvantages of the other two methods (building clusters that are stringed together vs. building very small clusters) (Wiedenbeck & Züll, 2001: 8). Moreover, the average linkage algorithm can be combined with the Jaccard Index. For this reason, average linkage is chosen as clustering algorithm for the following analysis.

Applying the average linkage method in combination with the Jaccard index provided several unclear cluster solutions. For this reason, an explorative approach is applied to test different combinations of variable sets. The explorative approach showed that for the five variables Outer Appearance Functionality, Outer Appearance Structure, Interaction Areas Layout, Interaction Areas Functionality, and Workplace Layout workable cluster solutions were generated. This explorative approach of variable reduction reflects the typical trade-off of organizational configurations: When more dimensions or variables are added to enhance the match with reality, configurations grow more complex. In order to generalize and abstract, a certain degree of specificity has to be given up (Meyer et al., 1993: 1182). Thus, accepting that the five variable approach does not perfectly replicate reality, it is deemed as a reasonable level of abstraction. After the reduction of variables, the average linkage method is applied again. Figure 3 shows the dendrogram of the cluster analysis. Dendrograms are a central instrument for presenting the results of a cluster analysis (Wiedenbeck & Züll, 2001: 3).

The following step aims at finding the optimal number of clusters representing the data. A common procedure for identifying this optimal number is interpreting the dendrogramm visualizing the results of the analysis. In accordance with the procedure of the average linkage method, the dendrogram shows clusters including one object on the left side, so that the Jaccard similarity measure, presenting the common values of the objects in one cluster, is at its maximum of one. (For simplification purposes the dendrogramm does not show the one-object-clusters at the left hand side, but begins with small groups). At the right hand side, the dendrogram combines all objects in one group, so that the Jaccard index is reduced to 0.2. As the procedure is based on a monotonicity property, it can be stated that the clusters become more heterogenic in their course from the left side to the right side of the dendrogram

(Wiedenbeck & Züll, 2001: 6). For identifying a possible cut point for the number of clusters, the dendrogram is typically scanned for horizontal lines on which no new cluster combinations arise.

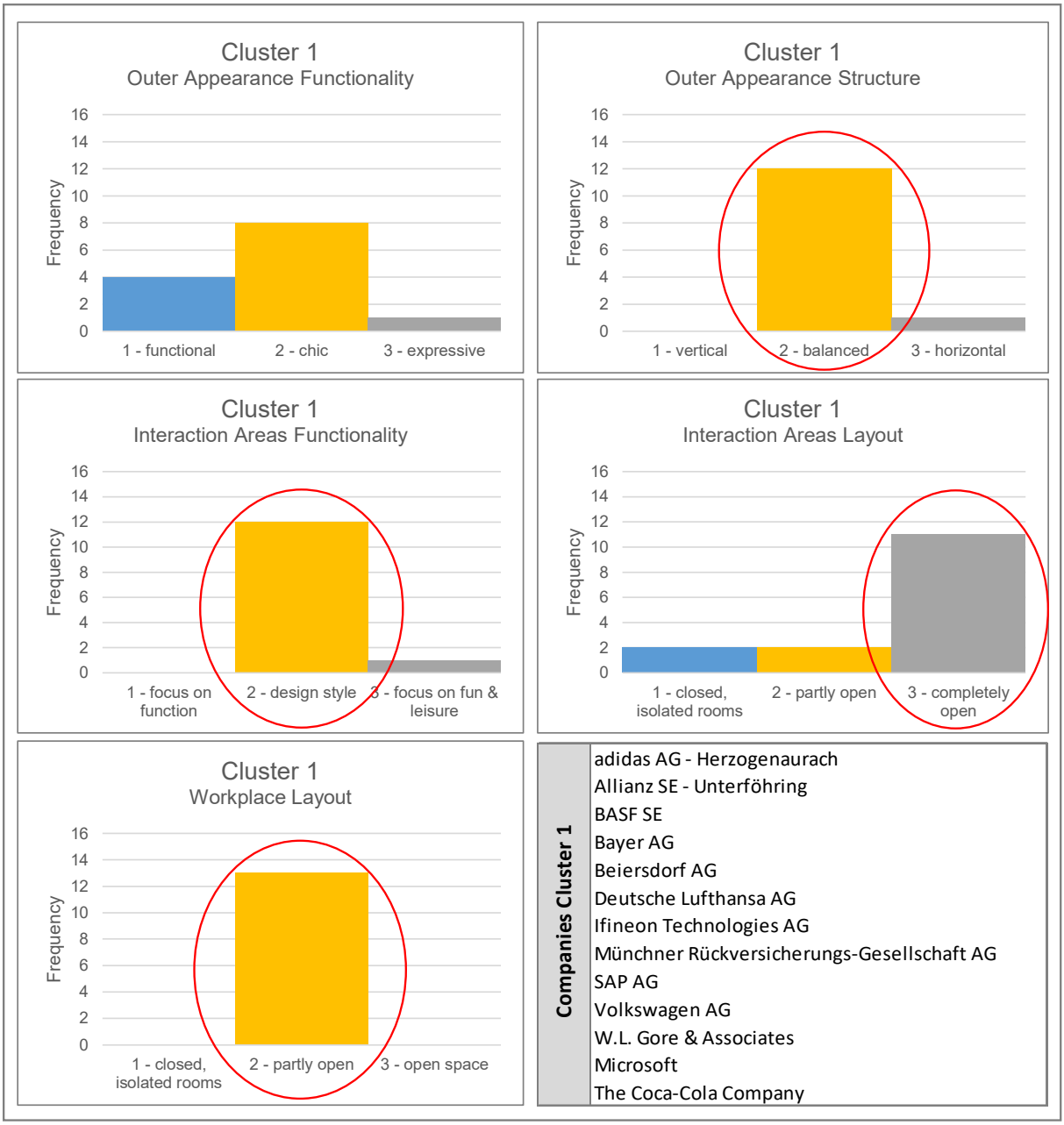
Figure 3: Dendrogram for average linkage clustering with Jaccard Index



The present dendrogram is not very unambiguous. However, two potential cut points could be identified, marked with the green and red lines in Figure 3. The first cut point (green line) would suggest a seven cluster solution (represented by the groups G10, G9/G8, G7, G6, G5/G4, G3/G2 and G1). The second cut point (redline) would suggest a five cluster solution (represented by the groups G10, G9/G8, G7, G6/G5/G4 and G3/G2/G1). In order to further examine the proposed cluster solutions, the objects joined in the separate clusters are analyzed with regard to the values they adopt for each of the five variables. The seven cluster solution, as indicated by the first cut point, leads to the clearer cluster structure. In particular, it shows very clear values for two clusters, as will be demonstrated in the following paragraphs.

Figure 4 and Figure 7 present the companies assigned to the two clusters as well as the values adopted for each of the five variables in the form of histograms.

Figure 4: Results for Cluster 1 (average linkage, 7 cluster solution)



Note: Cluster markers (values adopted by at least two thirds of the cluster companies) are highlighted with red ovals

Looking at the first clusters, it becomes clear that objects in this cluster are particularly characterized by a balanced orientation of the building, by Interaction Areas focusing function and design, by open Interaction Areas and semi open Workplace Layouts. Values, which are adopted by at least two thirds of the companies in the cluster are categorized as *cluster markers* and highlighted with red ovals. With regard to the Functionality of the Outer Appearance, the objectives tend to show a focus on function and design, though this variable is not as

unequivocal as the other four. From the data set, the architecture of the companies Allianz in Unterföhring (Germany) and Coca Cola in Toronto (Canada) are two examples which represent the features of this first cluster and are presented in Figure 5 and Figure 6.

Figure 5: Architecture of Allianz Unterföhring (Germany)[7]

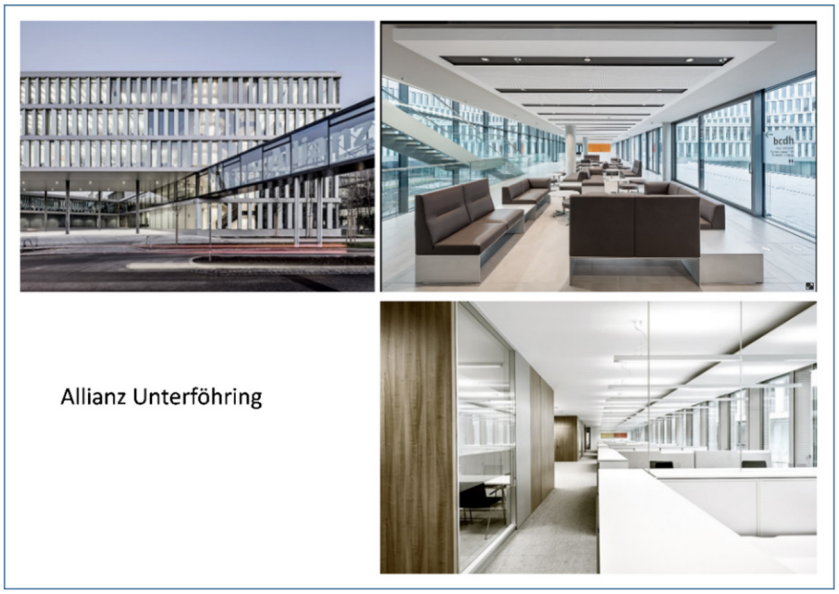
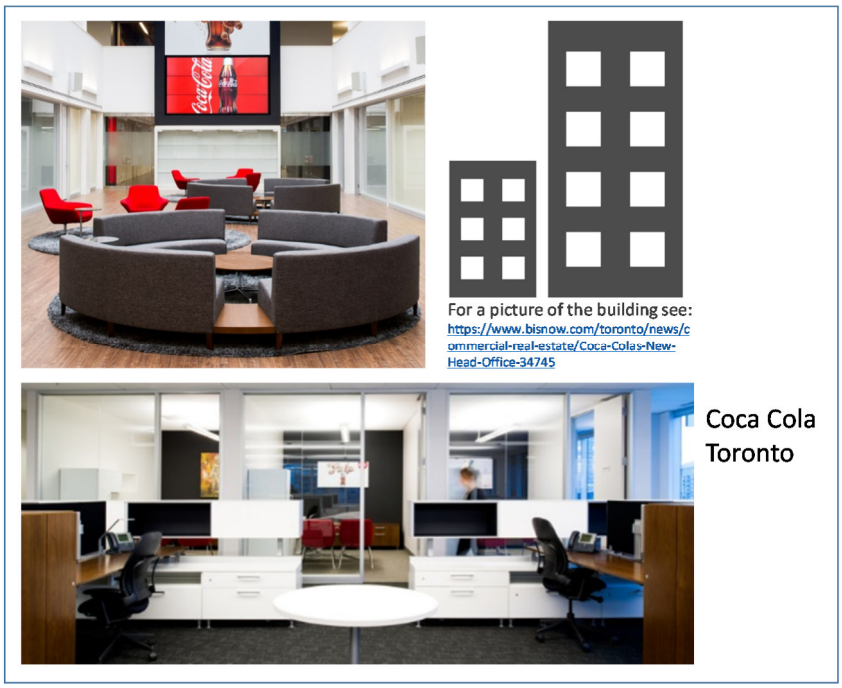


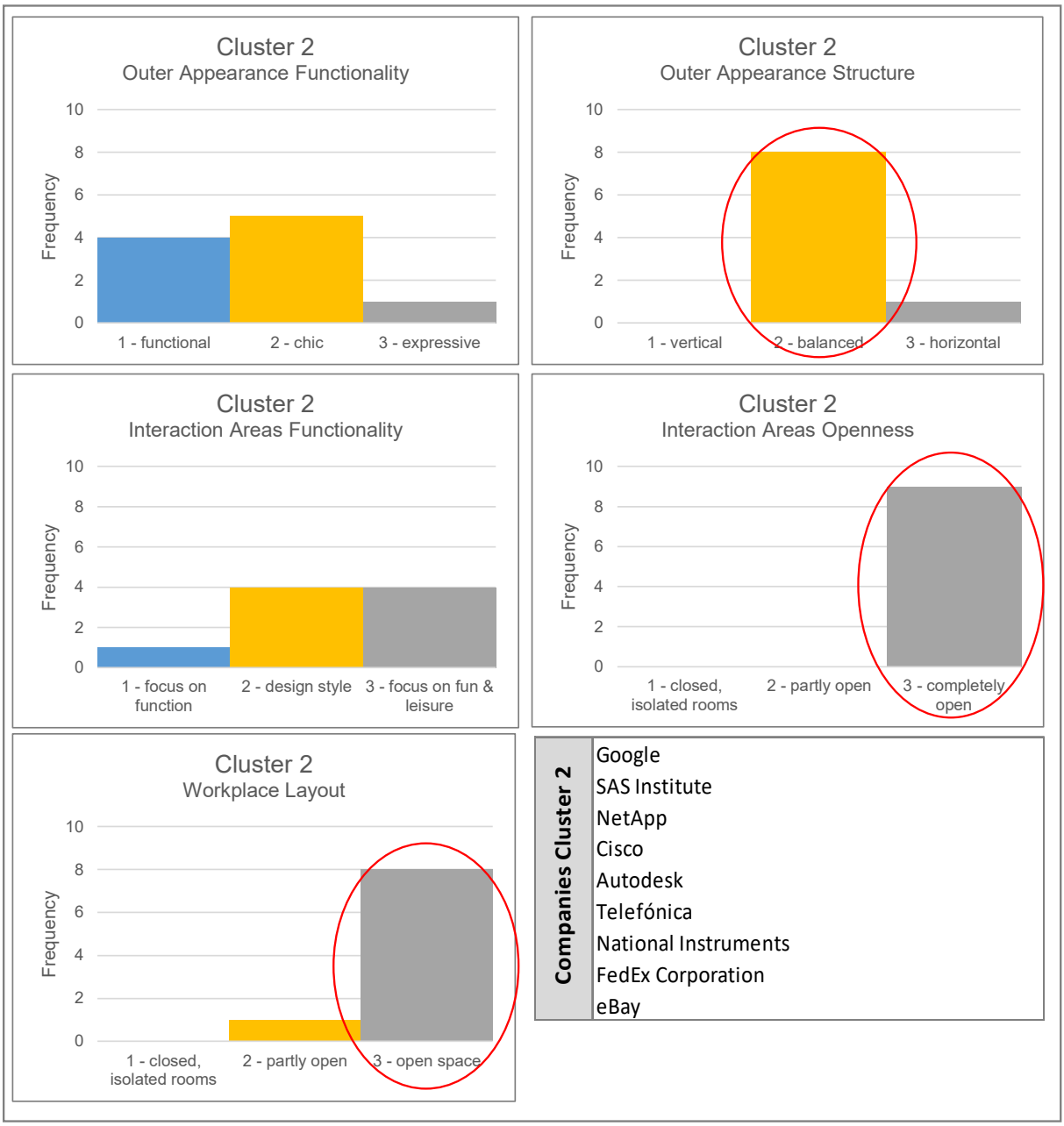
Figure 6: Architecture of Coca Cola Toronto (Canada)[8]



[7] For a list of picture credits for all pictures used in this work please see Appendix 10
[8] Due to restricted rights of picture use, some architectural examples to not include the pictures themselves but only the link to the pictures

The second cluster reveals other object features. Most clearly, objects in this cluster show a balanced orientation of the Outer Appearance, openly laid out Interaction Areas as well as Work Places. The majority of objects reveal Interaction Areas to either feature fun elements or focus style and function. With regard to the Functionality of the building, either a focus on design and function (for the majority) or a pure functional focus can be found.

Figure 7: Results for Cluster 2 (Average Linkage, 7 Cluster Solution)



Note: Cluster markers (values adopted by at least two thirds of the cluster companies) are highlighted with red ovals

Two companies representing an architecture with the features of the second cluster are Google in Mountain View (USA) as well as Télefonica in London (UK). The architecture is presented in Figure 8 and Figure 9. As the pictures show, the workplaces at Google are characterized by cubicle-like workplaces, whilst Télefonica has installed completely open workplaces.

Figure 8: Architecture of Google in Mountain View (USA)[9]

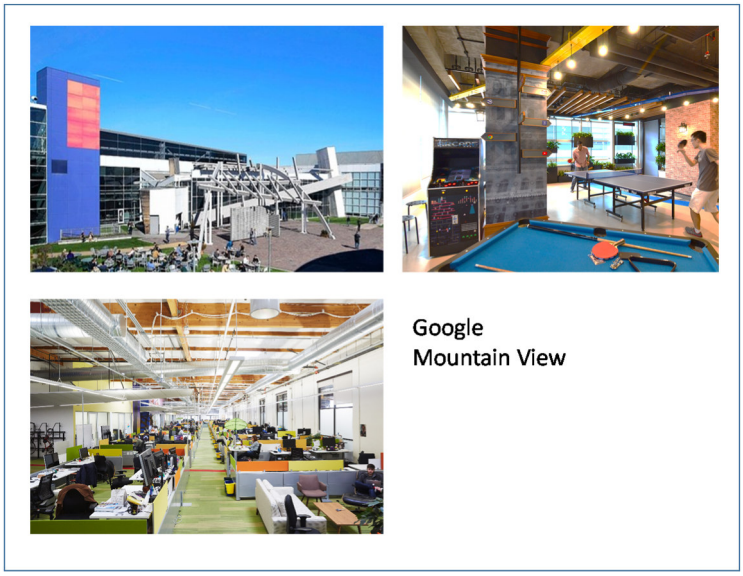
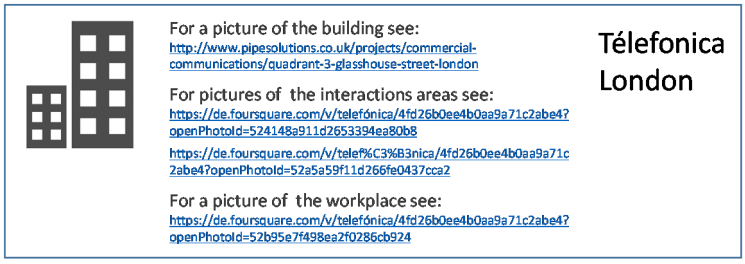


Figure 9: Architecture of Télefonica in London (UK)



The hierarchical clustering procedures conducted yielded clear results with regard to two clusters so far. With regard to the other clusters, the cluster markers introduced here as variable values adopted by at least two thirds of the objects in one cluster, are not that unequivocal so that a further validation seems recommendable. Drawing from the cluster analytical procedures introduced at the beginning of this subchapter (see p. 53), a partitioning procedure provides an alternative method for a broader validation. As already mentioned, partitioning procedures are based on a given number of clusters that build the start partition. The results from the

[9] For a list of picture credits for all pictures used in this work please see Appendix 10

hierarchical clustering give an indication for the number of start clusters, now. Amongst the partitioning procedures, the k-means method constitutes one of the most common ones used (Stein & Vollnhals, 2011: 39).

Comparable with the hierarchical methods, k-means clustering is based on the representation of objects in a room of variables with a metric. On the basis of this metric, a measure for the within heterogeneity of cluster is calculated. Then, a set of clusters is searched for that minimizes this heterogeneity. For this, a number of clusters has to be determined in advance, as already mentioned above. Thus, this procedure identifies clusters of "medium" heterogeneity, and thus represents an approach different from the hierarchical methods, which construct clusters of high homogeneity on the cost of a high heterogeneity of other clusters (Wiedenbeck & Züll, 2001: 13). Stata allows the use of the k-means algorithm for continuous and binary data. If k-means clustering is used to examine various numbers of clusters, it is necessary to execute several analysis, each with another predetermined number of clusters (Stata Corporation, 2017). Again, the Jacard index is applied. Since the hierarchical analysis indicated cluster solutions with five or seven clusters, the k-means method is executed for five, six and seven cluster solutions. The start partition was chosen at random. As with hierarchical clustering, the seven cluster solution delivers the most comprehensible results. Again, the two clusters mentioned above emerge as clusters with very obvious features.

In the following, the clusters resulting from the k-means seven cluster solution are examined in more detail. The first cluster from hierarchical clustering, as presented above, is now named the **Balanced Type.** It shows even clearer results for the characteristic values revealed when applying k-means clustering. The k-means analysis shows unambiguous values (for at least two thirds of the companies) for all of the five variables: An Outer Appearance featuring functionality & design as well as a balanced Orientation, open Interaction Areas with focus on function & design and semi open Workplace Layouts. (The histograms for each cluster resulting from k-means clustering are presented in Appendix 2, Figures 38-43). The summarized results of the k-means cluster analysis are presented in Table 6.

Table 6: Results of k-means clustering

Cluster	Outer Appearance Functionality	Outer Appearance Structure	Interaction Areas Layout	Interaction Areas Functionality	Workplace Layout	Companies
Balanced	chic (1)	balanced (2)	completely open (3)	design style (2)	partly open (2)	Allianz (Unterföhring), BASF (Florham Park), Deutsche Lufthansa (Frankfurt), Muenchener Rückversicherungs-Gesellschaft (München), SAS Institute (Cary), The Coca Cola Company (Toronto), W. L. Gore & Associates (Livingston), adidas (Herzogenaurach)
Fun	chic (2)	balanced (2)	completely open (3)	focus on fun & leisure (3)	open space (3)	Google (Mountain View), Microsoft (Washington), SC Johnson (Wisconsin), Telefónica (London)
Solid Open	functional (1)	vertical (1)	closed (1)	focus on function (1)	open space (3)	American Express (New York), Bayerische Motorenwerke (Leipzig) , Deutsche Boerse (Eschborn), Hyatt (Chcago), Scotiabank (Montreal)
Solid Closed	functional (1)	balanced (2)	closed (1)	focus on function (1)	closed (1)	Deutsche Telekom (Bonn), Lanxess (Cologne), Linde (Munich), Merck (Darmstadt), Siemens (Munich)

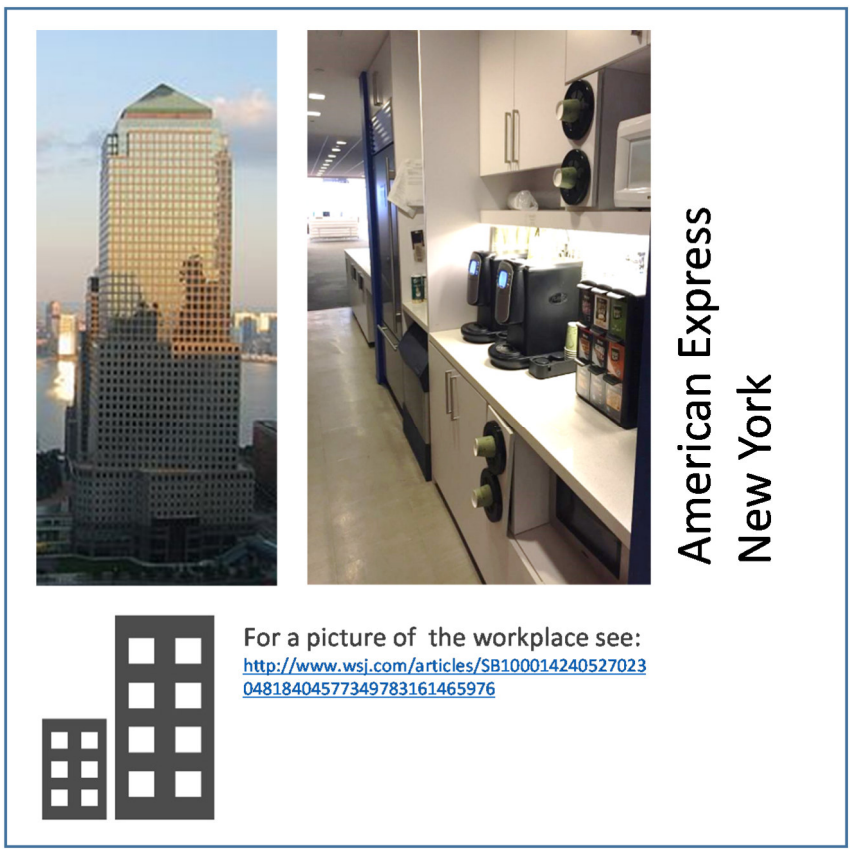
Note: The numbers in brackets stand for the coding assigned to the different categories of the nominal scales, as they have also been presented in Figure 4 and Figure 7. They do not have any numerical significance.

The second cluster from the hierarchical cluster analysis, now named the **Fun Type**, also appears with similar but clearer features from k-means clustering. The Fun Type is characterized by an Outer Appearance focusing function & design or by an expressive façade, featuring extraordinary forms, such as free flowing or three dimensional forms, extraordinary colors or materials. The Orientation is balanced, the open Interaction Areas feature fun and leisure elements. The Workplace Layout is open. Thus, this cluster particularly stands out for its Interaction Areas in the fun style as well as for its expressive façades. It needs to be mentioned that the Fun Type and the Balanced Type, emerging as clusters with clear characteristics, are smaller (i.e. they comprise fewer companies each) than the comparable clusters resulting from the hierarchical analysis. Because of their smaller sizes, the observed cluster features are more unequivocal. As a consequence, there are two other clusters emerging from k-means clustering, which resemble the Fun Type and the Balanced Type in the majority of values adapted, and thus can be marked as “Fun like” and “Balanced like” Types (see Figures 42 and 43 in Appendix 2). Drawing upon Weber’s work on ideal types (Weber, 1963), again, these results reflect the following: An ideal type aims to accentuate key characteristics from social reality of objects. Because of this accentuation, the ideal type differs from real type. The ideal type, reflected in the small clusters here, is therefore selective in terms of its features and

helps to distinguish organizations and evaluate effects of the different types. Ideal types are therefore helpful for the further analysis and for hypotheses building. Real types, which can be seen as being reflected in the "Fun like" and "Balanced like" Type, for instance, are helpful to set the insights derived from the ideal types into context. Table 6 can thus be understood as presenting the features of *ideal types*.

In addition to the Balanced and the Fun Type, two other clusters with clear values emerge. The cluster named **Solid Open** represents company buildings with a functional and vertically oriented Outer Appearance, closed and functional Interaction Areas as well as Open Workplaces. This architectural Type is for example represented by the company building of American Express in New York (USA), which can be seen in Figure 10.

Figure 10: Architecture of American Express (New York)[10]



The fourth cluster, the **Solid Closed** Type, resembles the Type mentioned afore with regard to its obvious focus on functionality. A clear distinctive feature between the two, however, is the

[10] For a list of picture credits for all pictures used in this work please see Appendix 10

layout of the workplaces, which is closed for the Solid Closed Type. Moreover, the Solid Closed Type shows a tendency for a balanced rather than purely vertical orientation. A last cluster emerged from the analysis which did not show a clear structure of features and is therefore not explained at this point.

To conclude, the cluster analysis has revealed four distinct architectural types which represent common corporate architecture job seekers might encounter today.

3.3 Analysis of the Balanced, the Fun, the Solid Open and Solid Closed Type

The following chapter aims at identifying the four architectural types' potential signaling effects on job seekers in terms of associated employer attributes. Thus, this chapter closely takes up the proposition developed in chapter 2.3, namely that corporate architecture acts as a signal about employer attributes to job seekers, which are hard to observe. It was further found that architecture can stand for symbolic and instrumental organizational attributes, alike. Having identified the four distinct architectural types in the preceding chapter, the following chapter goes one step further to the extent as it raises the question: *Which particular and distinct employer attributes does each of the four types signal?*

As the preceding analyses have shown, architectural stimuli are complex and consist of various dimensions. Against this background, the analysis of architectural objects and their meaning has to follow form different perspectives. For this reason, this chapter firstly deals with an analysis framework developed by Taylor and Spicer (2007), which can be applied to different dimensions of corporate architecture and ensures an integrated view of different perspectives. Afterwards, the three-perspectives-framework is used to analyze the four architectural types. Thereby, this study follows the authors appeal to analyze built space holistically. The following analysis considers the three architectural dimensions identified before (see chapter 3.2.1). 1. The outer appearance of the building, which is the first impression people get, without entering the building. Therefore, associations with the building are presumably mainly symbolic. 2. The interaction areas of a building: A place of high relevance to employees, as these might be one of the main places to stay when not being in the office. Moreover, interaction areas can be heavily loaded with meaning, as they tell a lot on how the employer wants people to work (together), how informal communication is valued, etc. 3. The workplace itself. The place,

where employees likely spend most of their work time. The workplace has a high direct use for employees, as it determines heavily, how and under which conditions they work. At the same time, it is also strongly afflicted with meaning, as the appearance of the workplace conveys a lot on employers' expectations on how to work. Thus, Taylor and Spicer's (2007) three-perspective analysis framework appears well suited for the analysis of the architectural types under consideration here.

The analysis results in an overview of potential effects for each architectural type.

3.3.1 Analysis framework

The study of space, physical artifacts and architecture can be approached with different modes of interpretive analysis. Studies can be based on ethnomethodology, semiotics, symbolic interactionism or some other focused method, or can take place from a more general social constructionist perspective seeking to establish the ways in which spatial elements communicate organizational and other meanings (Yanow, 2006: 20). Concentrating on the latter strand of analysis in their review on organizational spaces, Taylor and Spicer (2007) develop an integrated framework for studying organizational places. Apart from the holistic character of this framework, also the level of analysis, which can be described as an intermediate level, appears appropriate to describe architectural elements with the aim to shed light on their meaning. Intermediate analysis levels avoid the extremes of either overly detailed descriptions, such as the pitch of a roof, or extremely abstract descriptions, as for instance a particular area (Raffelt et al., 2013: 204).

In their work, Taylor and Spicer (2007) distinguish three concepts on the basis of which space has been analyzed so far. They differentiate between (1) space as a distance, (2) space as the materialization of power relations, and (3) space as experience. From the perspective ***space as a distance*** space is understood as a measurable relation between two points. The focus of analysis is sites where distance and proximity can be measured (Taylor & Spicer, 2007: 327). Thereby, the two points can be anything having a geographical relation; e.g. the copier on the office floor, the customer, the competitor, industry belts etc. As the scope of the study at hand is building architecture, distance is only considered to the extent as it can refer to buildings (inner and outer dimension). Most prominent studies in this category are studies of workplace layout (e.g. Hua et al., 2010b; McElroy & Morrow, 2010; Värlander, 2012). Research in this area focuses on how the layout of workplaces influences behaviors, interaction and attitudes;

e.g. information sharing and creativity (Duffy, 1997; Fayard & Weeks, 2007; Martens, 2011; Stryker et al., 2012), satisfaction with the workplace and the job (De Been & Beijer, 2014; Sundstrom et al., 1980), and employee motivation (Oldham & Brass, 1979).

The second concept, ***space as the materialization of power relations***, refers to how the configuration of space has its roots in deeply anchored power relations. This approach is often influenced by Marxian analytical categories. Marx considers factories as spaces where workers are concentrated to be surveilled and controlled most effectively by entrepreneurs. Accordingly, researchers today study the emergence and objectives of company towns as an attempt to bring employees under the absolute rule of the industrialist. A situation which makes them and their families subject to social and cultural discipline, even in non-work space (Taylor & Spicer, 2007: 330). Later, as workspaces and workforces grew and a visual surveillance of workforces became much more cost intensive and hardly feasible, less visually reliant techniques came into being. These involve the internalization of discipline, as described for example by Michel Foucault, on the basis of the Panopticon (Foucault, 1977). Following this approach, workplace layout and work environment are used to establish and maintain power.

Another perspective within this second approach refers to the relation between work and non-work. Today, a significant blurring of boundaries between the space of work and the private space at home can be observed (Baldry & Hallier, 2010). Extending organizational boundaries, activities associated with the workplace are pushed home and non-organizational life is pulled into the organizational building. Workers are expected to show sentiments and behavior normally shown in private life in the organization. This trend is also reflected in employers using the built work environment to support a range of fun activities at work. This finds its visual expression for example in the use of unusual décor and interior spatial arrangement, which resemble playgrounds rather than offices and particularly are a trend in the creative knowledge based employment (e.g. multimedia, PR and marketing, architecture and design and legal services) (Baldry & Hallier, 2010). Another, much more simplistic aim is to get employees to stay in the office long hours rather than going to alternative sites of pleasure and relaxation. Apart from this, employers follow the objective to influence the formation and maintenance of workers social identity. Seeking to capture the worker as a whole, employers are striving to subsume the employees' social identity within an overarching organizational identity. They try to bring in line what constituted informal self-expression in the workplace with management's objectives for work behavior (Baldry & Hallier, 2010).

From the third perspective, ***space as lived experience,*** space is "understood as our experience and understanding of distance and the meaning which we give to walls" (Taylor & Spicer, 2007: 333). Thus, this perspective goes beyond the physical dimension of space and especially depends on people's experiences with space. Thus, research focuses on the symbolic orderings that surround and infuse organizing and managing. The perspective is about how we experience the spaces around us (including decoration, furniture, clothing, artefacts, etc.) through our "cultural and sensory apparatus" (Taylor & Spicer, 2007: 333). Thereby, internal office design as well as buildings can be heavily loaded with symbolic meaning. Organizational symbolism (Gagliardi, 1990) and organizational aesthetics (Bagozzi & Phillips, 1982; Strati, 1999) are two approaches which shed light on these processes. Khanna et al. (2013) demonstrate that multinational companies intentionally incorporate their brand core values in their location, building and workplace strategy. Raffelt et al. (2013) can demonstrate a relationship between architectural style and brand personality inferences.

3.3.2 Analysis of the potential signaling effects of the four architectural types

The analysis of the four architectural types is conducted as follows: Firstly, each of the four architectural types is described shortly on the basis of the architectural variables within each of the three architectural dimensions (Outer Appearance, Interaction Areas, Workplace). Then, for each architectural dimension, Taylor & Spicer's (2007) three perspectives are applied and used to elaborate the meaning of and associations with the particular architectural type. In case not all of the three perspectives led to results, only those leading to constructive findings in terms of associated meanings with the corresponding architectural dimension are reported. For this purpose, studies on the effects of particular architectural characteristics are also consulted.

With regard to the description and analysis of the meaning of the *outer appearance*, this study closely follows the work of Raffelt et al. (2013). They identify different types of building architecture (only referring to the outer appearance of the buildings) on the basis of different architectural design dimensions[11]. They find a significant relation between these architectural types and the brand personalities, customers associate with the types. Moreover, they find strong evidence that different architectural types (they distinguish a disruptive, an expressive,

[11] Raffelt et al. (2013) identify the design dimensions elaborateness, harmony, natural feel, transparency and colorfulness. The distinct architectural types are defined depending on the exact values on each dimension.

a balanced and a solid building type) with their architectural design dimensions lead to *clearly different associations* built by customers. Therefore, these results are consulted for the following analysis. The following chapter comprises the detailed analysis and results in an overview of the expected associations about employer attributes job seekers have with each of the four architectural types. The overview is presented in Table 7. The results are developed in the subsequent analysis.

Table 7: Employer associations with the four architectural types

	Associations with the four architectural types
Balanced Type	• **Innovation & Flexibility:** efficient and modern, transparent and open, support for creativity • **Collaboration & Teamwork:** support for collaboration, leadership culture focusing on employees and interpersonal relationships, exchange of ideas, teamwork, less formal and more collaborative culture, 'high speed communication' and networking • **Pressure to Produce:** visibility and potential for surveillance, possibly interference with employee personality and identity formation, blurred boundaries between leisure and work, uniformity and threat of losing personal distinctiveness • **Effort:** support for individual learning and flexibility • **Autonomy:** self-responsibility • **Other:** friendly and broad-minded atmosphere, natural, down-to-earth, honest, and real, reputable and reliable
Solid Closed Type	• **Innovation & Flexibility:** uninspiring and unoriginal, closed and non-transparent • **Collaboration & Teamwork:** culture focusing on individual performance, efficiency, and privacy rather than teamwork and collaboration, task focus rather than person focus • **Pressure to Produce:** clear boundary between work and private life, high value on efficiency and strong task focus • **Effort: -** • **Autonomy:** high value on hierarchies and status, standardization, systematization, and bureaucracy • **Other:** strongly reputable, competent, and reliable, clear boundary between the corporate from the outside world, corporate power and size, reliable and stable, distinguishable non-work self-definition

Solid Open Type	• **Innovation & Flexibility:** uninspiring and unoriginal, closed and non-transparent, uniformity, little inspiring, low creativity potential • **Collaboration & Teamwork:** culture focusing on individual performance and efficiency rather than teamwork, task focus rather than person focus • **Pressure to Produce:** efficiency driven and task focused, little caring, visibility and control, interference in employee personality and identity formation, clear boundary between work and private life • **Effort:** stressful atmosphere due to disturbances, little inspiring and motivating • **Autonomy:** high value on hierarchies, standardization, and systematization, bureaucratic, flat hierarchies • **Other:** strongly reputable, competent, and reliable, clear boundary between the corporate from the outside world, corporate power and size, reliable and stable, threat of losing personal distinctiveness, little privacy
Fun Type	• **Innovation & Flexibility:** forward-looking and revolutionary, stylishness, originality, fostering change, innovation and creativity • **Collaboration & Teamwork:** supportive of collaboration, employee-oriented leadership style, fostering communication, networking and exchange of ideas • **Pressure to Produce:** heavily blurred boundaries between leisure and work, work long hours, 'captured' worker, visibility and potential for surveillance, strong inference with self-definitions and identity formation, competitive • **Effort:** playfulness, "knowledge work is fun", youthful and daring, strong support for learning & flexibility, high motivation and performance • **Autonomy:** rebellious, high autonomy, control and self-responsibility for employees • **Other:** little competent & reliable, casual, friendly and open atmosphere

3.3.2.1 The Balanced Type

The Outer Appearance

Looking at the outer appearance of the Balanced Type (e.g. Adidas, Allianz Unterföhring), these buildings correspond to what Raffelt et al. (2013) refer to as 'balanced architecture'. Regarding the forms, these buildings exhibit geometric forms and flat façades. The façades seem transparent through the use of the material glass. Different materials or colors are used to set discreet courses. Thus, the Functionality can be described as chic or in design style. With regard to their height, the buildings can be described as having a balanced orientation, meaning neither towers nor flat roof constructions. Generally, the architecture of these buildings has its focus on functionality. With regard to the corresponding design dimensions (Raffelt et al., 2013: 206), these buildings score high on the dimensions natural feel, transparency, elaborateness and even higher for the dimension harmony. The feeling of harmony is described as comforting, and coherent and is clear, elegant, planned, timeless, and protective. Furthermore, it conveys naturalness with regard to the materials used and its forms are proportional. In relation to transparency, these buildings seem open, transparent, weightless, and graceful.

In a next step the balanced building is to be looked at from Taylor and Spicer's (2007) experience perspective, thus asking for the symbolic meanings related to it. First, the strong relationship between the balanced design and the brand personality dimension naturalness needs to be mentioned. Naturalness expresses the perception of attributes such as down-to-earth, natural, honest, and real (Raffelt et al., 2013: 205–206). Furthermore, the balanced design shows a, albeit small, relation to the brand personality dimension competence. Competence elicits associations such as reputable, competent, technical, responsible, and reliable. More generally, a glass façade can evoke the impression that a company is efficient, modern, transparent, and open (Khanna et al., 2013; van Marrewijk, 2009; van Meel & Vos, 2001). In addition to openness, the transparent façades can also symbolize blurred boundaries between inside and outside.

The Interaction Areas

The Interaction Areas of the Balanced Type are characterized by elements not stemming from business architecture originally, but through their design nevertheless evoke a business atmosphere. These can be elements such as lounge, restaurant or cafe like arrangements with an open character to the rest of the floor/building. These areas are often held in natural and warm colors with linear and geometric forms. Materials can be ‘hard’ materials like glass or concrete but also natural ones like wood. Another typical manifestation of Interaction Areas in the Balanced Architecture can be seen in the use of atriums, in some instances including park like parts (e.g. Adidas, Allianz), often surrounded by glass walls.

From a symbolic perspective, such Interaction Areas can stand for openness, communication and vitality (e.g. Berg & Kreiner, 1990: 46–47). From the perspective ‘space as the materialization of power relations’, several inferences can be made. Firstly, the potential visibility of employees in such areas can be associated with the ideas of Michele Foucault, because an open area exhibits who is working when with whom. Through the casual, albeit rather business like atmosphere such areas create, it can also be associated that employers want to keep their people in the office building beyond working time. This could convey blurred boundaries between leisure and work. Rather than going to a bar with some colleagues after work, employees could then prefer to stay in the internal lounge and, as a side effect, continue generating ideas in the interest of the employer. However, because the “business mode” still dominates in the Balanced Type, such “blurring of boundaries”-effects can be assumed to be not very strong.

Further insights can be gained from the perspective ‘space as a distance’. Considering the layouts, floor space (as percentage) dedicated to collaborative areas is critical for perceived support for collaboration (Hua et al., 2010a). Further, it has been found that the arrangement of an office and its furniture can send particular messages (Campbell, 1980; McElroy et al., 1983a; McElroy et al., 1983b). Open desk and seating arrangements as compared to rather closed settings are associated with friendlier and more extroverted occupants as well as with a high interpersonal competency. Furthermore, open desk and seating arrangements are related to a person-oriented leadership style, to higher degrees of extroversion and higher internal control orientation (McElroy et al., 1983a). Hence, it can be assumed that open furniture arrangements in organizational contexts are related to a friendly and broad-minded atmosphere and a leadership culture focusing on employees and interpersonal relationships. Moreover, open, sociopteal arrangements of furniture, spatial complexity, visual details, a view of natural environment and the use of natural material have been found to foster creativity (McCoy & Evans, 2002). Additionally, the absence of strong verticality relating to the layouts reflect a way of free communication and can stand for an organization fostering teamwork and exchange of ideas.

The Workplace

In terms of Workplace Layout, Balanced Architecture features semi-open layouts for corridors and workplaces, such as the combi-office or the business club, which often connect rather closed working zones and shared working zones with glass partitions instead of walls and thus convey an open and visible spatial structure with daylight in all zones (Petendra, 2015). Moreover, these office concepts integrate various alternative working areas such as the above mentioned social zones, team and desk workplaces, offering a higher diversity of places to work at (Boutellier, Ullman, Schreiber, & Naef, 2008). Thus, these multi space concepts are at the same time multi-functional spaces and yield a high degree of flexibility. Generally, colors used are bright and often loosened with colorful accents, for example reflecting the company colors. Such workplaces seem modern and bright, and at the same time have a clear focus on functionality.

Symbolically speaking, the use of glass can stand for transparency, openness and democracy in an organizational sense (Värlander, 2012: 45). Furthermore, it can be associated with a less formal and more collaborative culture (McElroy & Morrow, 2010).

From the perspective ‘space as the materialization of power relations’ again the idea of visibility

and the Foucauldian concept of power needs to be considered. This concept can be described by the three following points (see e.g. Nienhüser, 2002; Weiskopf, 2005): First, the open and transparent workplace structures lead to a permanent possibility of being watched, comparable to the panoptic model (with the difference that the panopticon ensures the overseer remains undiscovered). This leads to an automatic functioning of power, without the overseer having to exert his/her control. Second, normative organizational standards, values and expected behavior can be exemplified more easily in an open environment and can be understood as processes of objectification. This enables one to classify behavior into good and bad behavior and to record this classification in the form of a behavioral evaluation. Third, in the process of subjectification, the norms and categories of the objectification develop their productive and manipulative effects. People start to watch themselves against the organizational categories and discipline themselves. Consequently, the work environment can be understood as an instrument to influence behavior and identity formation. Though this Foucault-related considerations of power might not be perceived in such detail by potential observers, the workplaces might nevertheless be perceived as a means of subtle exertion of power and interference with the formation of identity.

Furthermore, in multi-space environments employees are normally expected to choose an adequate workplace self-accountably, depending on their current work task. Thereby, the desk is no longer seen as territory with personal items. Rather, the project is the territory and the desk becomes a project oriented desk. As a consequence, employees no longer identify with themselves, but with the project and the organization (FAZ 2003: 34 in Petendra, 2015: 76). Generally, the overall identification, comprising team and organization, and the team identification are higher than the organization identification with assigned desks. With non-assigned desks, the organization identification is higher than the team organization, but the overall identification is lower. As a result of increasing flexible workplaces, their open and identical design, employees are also given less space and possibility for personalization. Workplaces may thus convey a sense of uniformity and may threaten individuals' sense of personal distinctiveness (Elsbach, 2003). To conclude, the more open, uniform and flexible work places seem, the more does the identity focus move from the person to the task and the organization.

From the perspective "space as a distance", further insights on the balanced workplace can be gained. Comparing communication structures in a multi-space office and a classical cell office setting within one organization, Boutellier et al. (2008) find events of informal face to face

communication being three times as high, involving more participants per event, events being shorter in duration and total time spend on communication being lower in the multiple-space office. This means that multi-space offices foster a high number of contacts which in turn lead to larger and faster growing networks and more effective communication (presumably due to group pressure resulting from higher visibility). Värlander (2012) shows that an open spatial design is perceived as fostering a learning and responsive organization by means of enabling employees to physically move and interact spontaneously. Thus, employees experience open space structures to support individual flexibility. Table 8 gives an overview of the potential associations with the Balanced Type elaborated in the preceding paragraphs.

Table 8: Employer associations with the Balanced Type

	Outer Appearance	Interaction Areas	Workplace
Balanced Type	• natural, down-to-earth, honest, and real • reputable and reliable • efficient and modern • transparent and open	• openness • visibility and potential for surveillance • possibly blurred boundaries between leisure and work • support for collaboration and creativity • friendly and broad-minded atmosphere • leadership culture focusing on employees and interpersonal relationships • free communications, exchange of ideas, teamwork	• transparency, openness and democracy • less formal and more collaborative culture • visibility & potential for surveillance • interference in employee personality and identity formation • self-responsibility • uniformity and threat of losing personal distinctiveness • 'high speed communication', networking • support for individual learning and flexibility

3.3.2.2 The Solid Open and Solid Closed Type

As the Solid Open and Solid Closed Architecture are mainly distinguished by their workplace layout, these two architectural types are analyzed in one section.

The Outer Appearance

The Solid Architecture is characterized by a functional and flat façade. The design is geometrically bound and technical in its form. The materials used can be described as “hard” materials such as concrete, steel and glass, which also determine these buildings’ appearance

in terms of color. Typically, these buildings are rather high and often appear as towers. Solid Architecture exhibits a lack of elaborateness, which means it can be described as impersonal, common, unimaginative, banal, ordinary, and monotonous. Further, low scores on the dimension colorfulness represent a bland, discreet, and monochrome color scheme. Finally, low scores on the transparency dimension mean that the architecture can be described as closed, opaque, weighty, and firm. The harmony dimension shows slightly positive values (Raffelt et al., 2013: 206). The architecture of Solid office buildings has a clear focus on functionality.

To begin with, insights on the Solid Type should be gained from the "space as experience perspective". With regard to brand personality dimensions, the Solid office building is strongly negatively associated with the dimension excitement, which means a lack of arousal and change related ideas. A further negative relation appears pertaining to the dimension naturalness, meaning negative associations in matters of down-to-earth, natural, honest, and real. A considerable positive relation can be found with regard to the competence dimension, inducing positive notions in terms of reputation (reputable, competent), and reliability (technical, responsible, reliable) (Raffelt et al., 2013: 205). The latter point is also supported by van der Voordt et al. (2002: 27), who find that a 'hard' business-like style, characterized by the use of concrete, steel and glass, can express stability and reliability. The closed façade indicates a clear boundary between the corporate and the outside world.

Thinking about space as the materialization of power, a solid building, particularly a tower, also reflects a management philosophy setting high value on hierarchies. A good example for this is the West German insurance company, Allgemeine Rechtsschutz AG (ARAG), in Düsseldorf (Berg & Kreiner, 1990). The building was constructed in 1966 and had the form of a staircase.

Figure 11: ARAG Buildings from 1966 and 1999

Source: Gleim (2012)

In an interview in 1966 with DER SPIEGEL (o.V.), Heinz Kreinberg, the former director of the company, explained that the building was representing the steps to success and was reflecting the hierarchy of the company. Employees were supposed to be cantoned on the floor levels according to position and salary. Accordingly, a tower could symbolize steep hierarchies and a large distance between bottom and top. The most obvious association with a tower is probably a statement of corporate power and size (Yanow, 2006: 29). An example reflecting this is the headquarters of the Commerzbank in Frankfurt. This bank building is the tallest office building in Europe and "in that sense still a classic symbol of corporate fallocracy" (van Meel & Vos, 2001: 327).

The Interaction Areas

As to the interior design and the layout of Interaction Areas, Solid Architecture is characterized by closed layouts and functional designs. The design can be modern, but purely functional: few colors or special materials. Examples for this are conventional meeting rooms and kitchenettes. The furniture in these areas is a typical office furniture.

Analyzing Interaction Areas from the symbolic perspective, the clear and conventional structure evokes images of a reliable and stable organization (van der Voordt et al., 2002) based on bureaucratic principles. From a 'space as the materialization of power relations' perspective, the explicit functional and business style demonstrates a clear boundary between work and private life.

Looking from a "space as a distance" perspective, the separated interaction areas create a low proximity between people and little visibility. As these two factors have been identified as essential for enhancing communication and information sharing (Sundstrom et al., 1986), their absence indicates a culture not focusing on teamwork and communication, but rather building on the performance and efficiency of each individual and thereby focusing more on the task than on the person.

The Closed Workplace

With regard to the workplaces, the Solid Closed Type in this study is characterized by individual and small group cell offices. It can be a single office, a double office or a multi person office with typical up to four or five work places (Ehlers et al., 2003). In Germany, the cell office is still the predominant office type (Britzke, 2010: 124; Gondring & Wagner, 2012: 239). In 2007, still two thirds of German offices were cell offices (Muschiol, 2007). The conventional cell

office has a functional interior, windows to the outside and closed walls to the adjacent offices as well as to the floor. Thus, such layouts are often characterized by long tubular corridors, with a lack of daylight and non-transparent structures. Figure 12 represents two examples of typical cell offices.

Figure 12: Examples of typical cell offices

Source: Wittig-Goetz, 2018 (left picture), riro-gmbh.de (right picture)

Symbolically speaking, the vertical lines and closed offices resemble a large filing system, eliciting associations of standardization, systematization and efficiency (Bell, 2008: 92–93). The clear and conventional structure also evokes images of a reliable and stable organization (van der Voordt et al., 2002) based on bureaucratic principles. The walls between the offices virtually seem to cut off the communication flow between the offices. This indicates that teamwork, communication and informal exchange of ideas are not fostered in this organization, as work task are standardized and formalized and therefore do not depend on team work. The amount of space, capacity for personalization and ability to control access to the workspace by others has been shown to demarcate status in an office environment (Konar et al., 1982). Thus, cell office structure can be assumed to be reflective of an organization valuing status and hierarchies.

From the perspective ‘space as the materialization of power relations’, the cell office again reflects a clear separation of work and private life. Non-work self-definitions and commitment to the organization are clearly distinguishable.

From the perspective ‘space as a distance’, the issues communication and creativity need to be considered. As already mentioned, according to Sundstrom et al. (1986), the physical proximity and visual accessibility is crucial for facilitating information sharing and enhancing communication among employees. Physical proximity in an office environment refers to the distance between employees working in a company. In cellular offices, physical proximity and

visibility are low, which indicates low levels of communication and interaction. However, a cell office allows for "individual chosen" conversation within the offices. Boutellier et al. (2008) reveal that communication in cell offices is considerably longer (each conversation) and takes places with fewer persons. Lack of visibility and peer pressure enable more intensive personal contacts but are counterproductive to network building. Cell offices are also related to privacy issues, as they provide the highest levels of architectural privacy (Elsbach & Pratt, 2007), which gives room for individuality and personalization.

The Open Workplace

The Solid Open Type features open workplaces on open plan areas. These are characterized by the complete absence of walls. However, they are often shaped by cubicle structures or screens being installed at the individual workplaces. The workplaces are designed in a standardized and purely functional way.

From the symbolical perspective, the absence of walls and personal offices might signal a company's emphasis on establishing an organizational climate that is characterized by an overall flat hierarchy. The absence of private offices removes the possibility of demarcating status and privileges with the help of the physical workplace (Konar et al., 1982). This demonstrates a reduced psychological distance between employees, regardless of rank and position. However, the uniform design of the workplaces and their relatively close and space-saving arrangement could also stand for an efficiency driven, little caring organization.

From the perspective 'space as the materialization of power relations' the open workplaces are related to the possibility of permanent visibility and thus being monitored and controlled by the management. This enables measures of exerting direct power and control over behavior and work performance as well as indirect power, as described by Foucault (1977)[12].

The perspective "space as a distance" plays an important role for the analysis of open office structures. Missing walls and partitions have been revealed to increase distraction by noise and visual distraction. Brunia and Hartjes-Gosselink (2009) discovered that this can lead to a feeling of not having control over ones workplace environment, for example, when the possibility of avoiding disturbance and reducing noise by closing ones office door is not given. This, in turn, produces negative effects regarding well-being, job satisfaction, motivation, and job performance (Banbury & Berry, 2005).

[12] Please see chapter 3.3.2.1, *The Workplace* (p. 70 ff.), for a detailed description of Foucault's understanding of power and its meaning in the context of workplace layout.

Table 9: Employer associations with the Solid Closed and Solid Open Type

	Outer Appearance	Interaction Areas	Workplace
Solid Type	• uninspiring and unoriginal • strongly reputable, competent, and reliable • closed / non-transparent: clear boundary between the corporate from the outside world • high value on hierarchies • corporate power and size	• reliable and stable • standardization, systematization and efficiency • bureaucratic • clear boundary between work and private life • culture focusing individual performance and efficiency rather than teamwork • task focus rather than person focus	**Closed workplace** • standardization and formalization • reliable and stable • focus on individuality and privacy rather than teamwork and collaboration • distinguishable non-work self-definition / clear boundary between work and private life • status and hierarchies **Open workplace** • flat hierarchies • efficiency driven and task focused, little caring • uniformity • visibility and control • interference with employee personality and identity formation • threat of losing personal distinctiveness • stressful atmosphere due to disturbances • little privacy • little inspiring and motivating • low creativity potential

As indicated by Sundstrom et al. (1986), employees also experience privacy issues in such an open environment. Lastly, the uniform and functional design as well as the missing windows for the majority of workplaces are related to a low creativity potential (McCoy & Evans, 2002). To sum up, Table 9 presents the potential associations with the Solid Closed and the Solid Open Type, as identified before. As the overview illustrates, the associations for one architectural type can also be contradictive. For example, the outer appearance of the Solid Open Type signals a high value on hierarchies, whilst the open workplace layout stands for flat hierarchies.

3.3.2.3 The Fun Type

The Outer Appearance

Typically, the Fun Type represents expressive buildings, which exhibit unconventional façades and forms and evoke an inimitable building character. Often, the façades seem three dimensional, the building form is free flowing, and rather non-technical, which makes the

buildings appear highly elaborated and less natural and harmonic. Expressive buildings evoke a personal, unique, and imaginative impression and are perceived as intriguing, exclusive, and lively (Raffelt et al., 2013: 206). The buildings clearly appear nonfunctional.

Looking at "space as lived experience", an expressive architectural style is particularly related to excitement, which means for example forward-looking, revolutionary, unique, imaginative, and lively. Moreover, expressive buildings stand for stylishness, referring to attraction and appeal from an aesthetic and high-end point of view (glamorous, elegant, charming, good-looking, upper class). Expressive buildings also symbolize creativity and originality (van der Voordt et al., 2002), but are negatively associated with competence related characteristics (Raffelt et al., 2013: 205).

Figure 13: Examples for the Outer Appearance of the Fun Type

Source: www.afr.com (left picture), www.under30ceo.com (right picture)

The Interaction Areas

In Fun Types, Interaction Areas and Workplaces are often integrated. Interaction Areas can appear in very different fashions, but all have one in common: Their elements and design aim at integrating fun and leisure into the organization setting. In this sense "the workspace has morphed from cubical maze of drudgery to virtual playground, complete with bean bags, pinball machines, slushee dispensers and all other kinds of carnivalesque fun" (Architizer Editors, 2013). Fun buildings therefore opt for unusual office design and interior spatial arrangements, being redolent of places clearly belonging to the world of leisure. Moreover, Fun Types feature openly laid out Interaction Areas.

Examining these kinds of fun settings from a symbolical perspective, fun organizations want to symbolize playfulness, differentiate themselves from the old economy and its boring multinationals and show that knowledge work is fun (Baldry & Hallier, 2010). The message is

to be youthful, daring and avant-garde, fostering change, innovation and creativity. At the same time, high value is put on collaboration and autonomy (Baldry & Hallier, 2010: 156; van Meel & Vos, 2001). With their often casual and rebellious image they want to appeal to playful free spirits (van Meel & Vos, 2001: 327). Moreover, such environments stand for flat hierarchies, which internet giant Google shows very well: “Because we believe that each Googler is an equally important part of our success, no one hesitates to pose questions directly to Larry or Sergey in their weekly all-hands ("TGIF") meetings – or spike a volleyball across the net at a corporate officer” (cited in Jandt, 2013: 376).

Looking at space as the materialization of power relations, fun work environments do heavily impact the boundary between leisure and work. First, and perhaps the most obvious association with such a fun work environment, is that employers want to see their employees to stay in the office long hours rather than swarm out to alternative sites of amusement. With their ‘work can be as much fun as leisure’-concept employers try to control, where the worker wants to be.

A second, more hidden aspect, refers to employees’ self-identities. Formerly, workers used their non-work behaviors and group memberships to differentiate from the world of work. Now, in that employers encourage behaviors normally associated with home and leisure at work, they foster the fusion of established non-work self-definitions with employees’ commitment to the organization. They infuse work commitment with other non-work aspects of employees’ self-definition. What employers seek at is to get the best out of people. Thus, they want to subsume employees’ social identity within an overarching organizational identity and bring informal self-expression in the workplace into line with management’s objectives for work behavior. With this, companies capture the worker as a whole (Baldry & Hallier, 2010).

A further thought again refers to the Foucauldian idea of power in terms of self-disciplining (see analysis of the Interaction Areas of the Balanced Type). In fun buildings, this effect is much more powerful as compared to balanced office buildings, as behavior is shown much more intensively. For example, many companies with fun architecture organize sports activities and competitions for table football competitions and the like. With this, the management clearly exemplifies a competitive behavior, which is the ‘expected, good’ behavior. Employees begin to evaluate themselves against this normative behavior and discipline themselves.

Considering space as a distance, again parallels to the Interaction Areas of the Balanced Type can be drawn. Layouts of Fun Types are open and for this reason the same associations can be expected: The open layouts and arrangements evoke a high perceived support for collaboration, evoke a friendly, open atmosphere and stand for an employee-oriented leadership style.

Furthermore, open layouts convey a high value on networking, communication exchange of ideas as well as a strong support for individual learning and flexibility. Moreover, the free choice of where to work, which these kind of settings foster strongly, lead to a higher autonomy for employees.

The Workplace

It is difficult to analyze workplaces of Fun Types separately from the Interaction Areas, as the concept of such office buildings deliberately integrates the workplaces into the fun environment. In principle, it is similar to the concept of the Balanced Workplace with its various alternative working areas and the high diversity of places to work at. However, workplaces of Fun Types are completely open, so that in principle all effects illuminated for the open workplaces of the Solid Open Type should apply likewise. Nevertheless, there are two important differences: First, such fun environments encourage the flexible use of different places to work, so that employees have autonomy and control, which they do not have in the solid settings. Second, all work zones in Fun Types are infused by the thought of fun or leisure. At Google, for example, the employees can choose between a hammock, if they want to work individually, and a conference room resembling a typical New York apartment, if they need some quiet to exchange ideas in a group. At Coca Cola, people can sit down at a large table resembling a dining table in a cozy home to discuss their ideas. The standard workplaces are open plan areas, which exist besides these alternative working zones,

Because of the pervasive emphasis on fun and the integrative concepts, the Workplace analysis leads to the same results as the analysis of the Interaction Areas. However, the following points should be mentioned additionally: Considering the Workplace from a symbolic perspective, the fact that employees are given the decision to choose their workplace from various alternatives on their own, could especially highlight the impression of a high degree of autonomy and self-responsibility given to the employees. The playful competitive character of some fun elements evokes associations of high motivation and performance. As to the Workplace Layout, the absence of walls and the highly integrative concept emphasize a permanent exchange of ideas and a cooperative atmosphere (Sundstrom et al., 1980).

Table 10 provides an overview of the potential employer associations with the Fun Type.

Table 10: Employer associations with the Fun Type

	Outer Appearance	Interaction Areas	Workplace
Fun Type	• excitement: forward-looking, revolutionary, unique, imaginative, and lively • stylishness • creativity and originality • little competent & reliable	• playfulness, "knowledge work is fun" • youthful and daring • fostering change, innovation and creativity • supportive of collaboration and autonomy • casual and rebellious • heavily blurred boundaries between leisure and work • work long hours, 'captured' worker • visibility and potential for surveillance • strong inference with self-definitions and identity formation • competitive • friendly and open atmosphere • employee-oriented leadership style • fostering communication, networking and exchange of ideas • strong support for learning & flexibility	• high autonomy, control and self-responsibility for employees • high motivation and performance • supportive of exchange of ideas and communication • cooperative atmosphere • visibility and potential for surveillance

As the overview shows, the associations are again not free from potential contradictions. As the Fun Type on the one hand can stand for high autonomy and self-responsibility, it can be associated with a high potential for visibility and surveillance, likewise.

The preceding analysis on the basis of Taylor and Spicer's (2007) three-perspective analysis framework shows that existing research on the effects of architecture provides strong support for the proposition that the four architectural types lead to clearly distinguishable associations in form of a signal about employer attributes job seekers might have. As already mentioned, these assumed associations are summarized in Table 7.

In addition to these architecture based associations, it is expected that job seekers also retrieve direct information on how it is to work in a particular physical environment, as has been indicated by van der Voordt et al. (2002). As suggested by the analysis above already, a variety

of studies have shown that the physical work environment influences employees' satisfaction, wellbeing and health related aspects which is regarded as evidence for job seekers experiencing direct utility from the physical work environment, which can be described with perceived adequacy for work.

As a result of the analysis of the architectural types it can be noted that the four architectural types assumedly lead to clearly distinguishable signals about employer attributes. Thus, the associations summarized in Table 7 are drawn upon in order to deduce hypotheses about which associations job seekers have with each of the four architectural types and how these influence employer attractiveness.

4 The effects of architecture – the research model and hypotheses

In the previous chapters of this study literature in the field of Employer Branding has been reviewed, which focuses particularly on the early application process. The Signaling Theory has been applied to explain architecture's potential to communicate information on unobservable employer attributes to job seekers. The Social Identity Theory, the Objective Factor Theory as well as the PO-Fit approach have been invoked to explain how job seekers evaluate the information inferred. Moreover, the theoretical debate has shown that architecture is likely to be an effective signal for symbolic and instrumental employer attributes alike, involving rational, systematic ways of processing as well as heuristic, associative ways. Lastly, the four architectural types deduced have been analyzed in terms of their potential associations and inferences about employer attributes. In the face of this preliminary work it is now possible to shed light on the empirical relationships between architecture, inferred employer attributes and employers attractiveness. In short, the following main propositions are made on these relationships:

- Architecture is related to the expected employer attributes.
- Architecture influences employer attractiveness.
- Value related personality traits have an influence on how the expected employer attributes affect employer attractiveness.
- Personal characteristics have an influence on the expected employer attributes and on how these attributes influence employer attractiveness.

In the following, these propositions are substantiated by the theoretical findings elaborated in this work. Based on the analysis of the different architectural types, it is hypothesized that the different architectural types communicate information on different employer attributes to job seekers in terms of a **signal** in the sense of Spence (1973). One of the essential criteria for an effective signal has been identified as the signal's correspondence with the sought after quality. Based on empirical evidence, the analysis of the architectural types in chapter 3 has revealed that various architectural features are actually related to particular employer attributes. For instance, the absence of walls and partitions in office environments has been proven to foster communication and interaction. Moreover, an effective signal has to stand for decision-relevant attributes. The analysis of the four architectural types has shown (see Table 7) that the types differ in particular on their potential inferences about

- innovation and flexibility (e.g. forward-looking and revolutionary, support for innovation and creativity, uninspiring and unoriginal),
- effort and motivation (e.g. youthful, "work is fun"),
- pressure to produce (e.g. efficiency driven, long hours, competitive),
- autonomy (e.g. rebellious, high autonomy, control and self-responsibility, steep hierarchies, standardization, bureaucracy), and
- teamwork and collaboration / integration [13] (e.g. support for collaboration, culture focusing on employees and interpersonal relationships, culture valuing individuality and privacy).

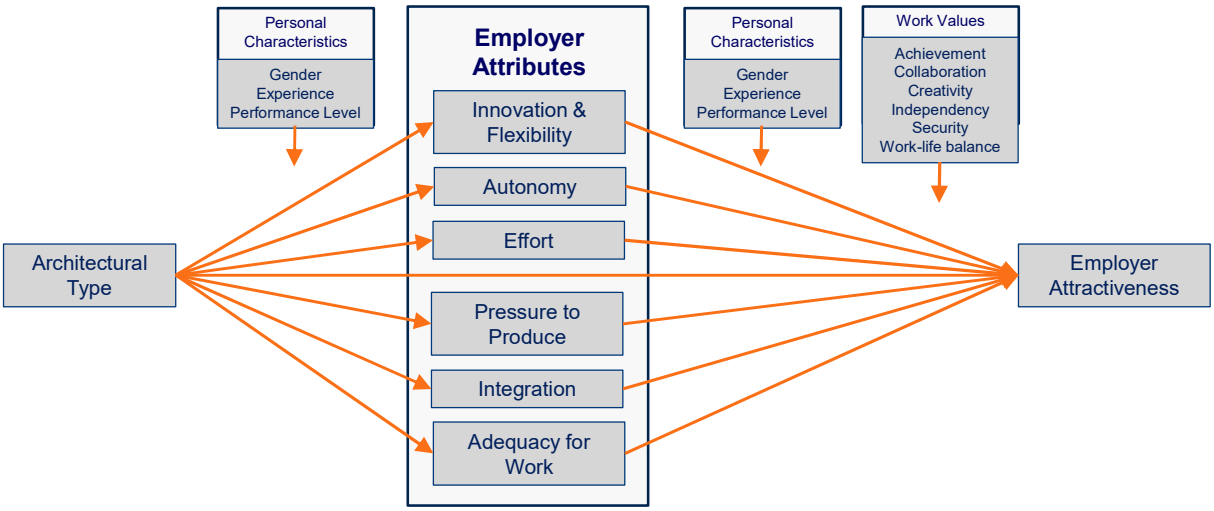
The analysis of which symbolic and instrumental attributes are of importance for job seekers in terms of influencing recruitment relevant attitudes (compare Table 1 and Table 2 in chapter 2.2) has shown that (amongst others) symbolic attribute dimensions such as innovation, achievement and focus on people are of high relevance. As to instrumental attributes, advancement opportunities, atmosphere/climate, type of work, work-/nonwork-balance respectively the number of hours worked and particularly innovation play an important role. As these attributes highly related to job seekers interests show a high overlap with the attributes based on the analysis of the architectural types, it can be assumed that potential architecture based signals are decision relevant for job seekers. Moreover, the architecture based associations can represent symbolic and instrumental inferences alike. For example, the attribute innovation can be interpreted in terms of an innovative and modern company with which job seekers would like to identify and which serves the personal goal of self-presentation. At the same time, innovation can stand for novel and innovative ways of working and tasks, which yields job seekers a direct utility and can therefore be categorized as instrumental. Representing instrumental and symbolic employer attributes at the same time, it can be assumed that the attributes related to the four architectural types are of particular high relevance for job seekers' evaluation of an employer's attractiveness. Aside from the instrumental and symbolic attributes mentioned before, it has been figured out that architecture itself in terms of its perceived adequacy for work represents an instrumental attribute for job seekers.

From **a PO-Fit perspective**, it has been figured out that individuals try to achieve a high

[13] *Teamwork & collaboration* is henceforth termed *integration* in accordance with the scale used for its operationalization, which will be introduced in chapter 5.

congruence between their individual values and organizational values, which in turn leads to a high perceived organizational attractiveness. Based on the potential signals about employer attributes the four architectural types send, it is assumed that especially individual values related to performance and achievement, collaboration, creativity, independency in work, security and work-life balance are of importance with regard to the evaluation of inferred employer attributes in terms of employer attractiveness. These values are supposed to correspond to the values being represented by the different architectural types. Moreover, empirical studies in the field of employer signaling have indicated that, amongst others, gender, experience, and performance level (e.g. grade point averages) have an impact on job seekers' perception and evaluation of employer attributes. It is assumed that these personal characteristics have an influence on both: a) how people perceive the architectural signal and infer meaning in terms of employer attributes of it and b) how people evaluate these perceived employer attributes as to employer attractiveness. For example, people with a high performance level might have better employment opportunities and therefore are more sensitive in terms of perceiving signals and process them more critically (systematic processing). Furthermore, they might have different preferences from people with low performance levels and thus evaluate the perceived attributes differently. Accordingly, Schreurs et al. (2009: 36) have identified a need for research between applicants' characteristics and their perceptions of organizational attributes.
The overall theoretical assumptions are illustrated in the following model (Figure 14).

Figure 14: The research model



Against the background of these theoretical ties, an integrated hypotheses system is put forward.

Based on the analysis of the four architectural types (compare Table 7), it is assumed that the Solid Open Type is least attractive to job seekers. For this reason, this architectural type is taken as the reference category. This means that all hypotheses on the effects of the architectural types have to be interpreted in relation to the Solid Open Type.

The research model includes a large number of specific, testable hypotheses, which are presented in Table 11.

Table 11: List of hypotheses

No.	Hypothesis
H1	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Adequacy for Work**, such that Balanced Architecture increases the perceived Adequacy for Work of the employer which in turn increases perceived Employer Attractiveness.
H2	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Adequacy for Work**, such that Fun Architecture increases the perceived Adequacy for Work of the employer which in turn increases perceived Employer Attractiveness.
H3	The relationship between **Solid Closed Architecture** and Employer Attractiveness is mediated by **Adequacy for Work**, such that Solid Closed Architecture increases the perceived Adequacy for Work of the employer which in turn increases perceived Employer Attractiveness.
H4	Balanced Architecture has a stronger positive effect on **Adequacy for Work** compared to Fun Architecture, the latter one having a stronger positive effect on Adequacy for Work compared to Solid Closed Architecture, having a stronger positive effect than Solid Open Architecture.
H5	H5: The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by I**nnovation and Flexibility**, such that Balanced Architecture increases the perceived Innovation and Flexibility of the employer which in turn increases perceived Employer Attractiveness.
H6	H6: The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Innovation and Flexibility**, such that Fun Architecture increases the perceived Innovation and Flexibility of the employer which in turn increases perceived Employer Attractiveness.
H7	H7: Fun Architecture has a stronger positive effect on **Innovation & Flexibility** compared to Balanced Architecture. Note: The relationship between Solid Closed Architecture and Employer Attractiveness is not expected to be mediated by Innovation and Flexibility, because Solid Closed Architecture is not expected to influence the perceived Innovation and Flexibility and thus has no influence on perceived Employer Attractiveness.
H8	H8: The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Autonomy,** such that Balanced Architecture increases the perceived Autonomy granted by an employer which in turn increases perceived Employer Attractiveness.
H9	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Autonomy**, such that Fun Architecture increases the perceived Autonomy granted by an employer which in turn increases perceived Employer Attractiveness.
H10	The relationship between **Solid Closed Architecture** and Employer Attractiveness is mediated by **Autonomy,** such that Solid Closed Architecture increases the perceived Autonomy granted by an employer which in turn increases perceived Employer Attractiveness.
H11	Fun Architecture has a stronger positive effect on **Autonomy** compared to Balanced Architecture, the latter one having a stronger positive effect on Autonomy compared to Solid Closed Architecture, having a stronger positive effect than Solid Open Architecture.
H12	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Effort,** such that Balanced Architecture increases the perceived Effort made by employees working for the employer which in turn increases perceived Employer Attractiveness.

No.	Hypothesis
H13	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Effort,** such that Fun Architecture increases the perceived Effort made by employees working for the employer which in turn increases perceived Employer Attractiveness.
H14	Fun Architecture has a stronger positive effect on **Effort** compared to Balanced Architecture. Note: The relationship between Solid Closed Architecture and Employer Attractiveness is not expected to be mediated by Effort, because Solid Closed Architecture is not expected to influence the perceived Effort and thus has no influence on perceived Employer Attractiveness.
H15	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Pressure to Produce**, such that Balanced Architecture reduces the perceived Pressure to Produce which in turn increases perceived Employer Attractiveness.
H16	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Pressure to Produce**, such that Fun Architecture reduces the perceived Pressure to Produce which in turn increases perceived Employer Attractiveness.
H17	The relationship between **Solid Closed Architecture** and Employer Attractiveness is mediated by **Pressure to Produce**, such that Solid Closed Architecture reduces the perceived Pressure to Produce which in turn increases perceived Employer Attractiveness.
H18	Solid Closed Architecture has a stronger negative effect on **Pressure to Produce** compared to Balanced Architecture, the latter one having a stronger negative effect on Pressure to Produce compared to Fun Architecture, having a stronger negative effect than Solid Open Architecture.
H19	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Integration,** such that Balanced Architecture increases the perceived Integration which in turn increases perceived Employer Attractiveness.
H20	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Integration,** such that Fun Architecture increases the perceived Integration which in turn increases perceived Employer Attractiveness.
H21	Fun Architecture and Balanced Architecture have a similar positive effect on **Integration.** Note: The relationship between Solid Closed Architecture and Employer Attractiveness is not expected to be mediated by Integration, because Solid Closed Architecture is not expected to influence the perceived Integration and thus has no influence on perceived Employer Attractiveness.
H22	The mediated relationship between the architectural types and Employer Attractiveness is moderated by the individual **work values** a) achievement, b) collaboration, c) creativity, d) independency in work, e) security, f) work-life balance of job seekers, such that the work values have an influence on the relation between perceived employer attributes and Employer Attractiveness.
H23	The mediated relationship between the architectural types and Employer Attractiveness is moderated by **status (experience)**, such that status has an influence on the relation between the architectural styles and the perceived employer attributes as well as on the relation between the perceived employer attributes and Employer Attractiveness.
H24	The mediated relationship between the architectural types and Employer Attractiveness is moderated by **gender,** such that gender has an influence on the relation between the architectural styles and the perceived employer attributes as well as on the relation between the perceived employer attributes and Employer Attractiveness.
H25	The mediated relationship between the architectural types and Employer Attractiveness is moderated by **performance level**, such that performance level has an influence on the relation between the architectural styles and the perceived employer attributes as well as on the relation between the perceived employer attributes and Employer Attractiveness.

In addition to the hypotheses explicitly formulated, it is expected that the architectural types can also have a direct effect on job seekers. This direct effect is assumed to be something like an unconscious affective reaction, involving feelings of dislike or pleasure, which impacts perceived employer attractiveness. This direct effect is illustrated with the direct path from architecture to employer attractiveness in Figure 14.

5 Operationalization of variables, survey method and design

The following chapter deals with the operationalization of the variables as illustrated in the research model in Figure 14. For this purpose, the first section deals with the operationalization of the endogenous variables, which are the employer attributes and employer attractiveness. In a next step, the operationalization of the moderator variables, the value related personality traits and personal characteristics, are described. Afterwards, the control variables are shortly explained. In the next subchapter, the survey method, which is a scenario experiment, and its design are introduced. This includes the description of the operationalization of architecture, the independent variable of the model. This section is followed by the description of the sample and concrete procedure for conducting the online scenario experiment. Finally, the results of a pre-test and the corresponding modifications resulting from it are presented.

5.1 Operationalization of employer attributes and employer attractiveness

The employer attributes as well as employer attractiveness constitute the dependent, the endogenous variables of the model. Their operationalization is substantiated and described in the following.

For the assessment of **organizational attributes**, different conceptualizations and scales have been developed, which have their focus on organizational image, culture or climate (Cable & Yu, 2006; Judge & Cable, 1997; Lievens & Highhouse, 2003; O'Reilly et al., 1991; Slaughter et al., 2004). These concepts have also been described in Chapter 2.2.2 of this study. As the preceding chapter has shown, those organizational attributes of relevance for the study are innovation and flexibility, effort and motivation, pressure to produce, autonomy, and integration. As has been mentioned already, some of these attributes (Innovation, Effort) can represent symbolic and instrumental attributes at the same time, whilst the others can be rather classified as instrumental attributes. They yield job seekers direct utility as they directly influence how people fulfill their tasks (e.g. in a collaborative manner with others or individually). At the symbolic level, perceptions of the organization from the outside are captured on a rather superficial level. As to the instrumental attributes of relevance here, job seekers will ask themselves, what it is like to work in a particular organization. They are interested in ‘what happens to them’ as an employee in the organization and for which values the organization stands. The answer to these question can be given on two different abstraction levels: The first level involves concrete patterns of behavior that play an important role within

an organization. These behaviors can be understood as the surface manifestation of underlying cultural assumptions and correspond to the concept of organizational climate (Patterson et al., 2005). For instance, a climate for collaboration can be reflected in procedures such as management living an open-door policy. The second level comprises the values, which lead to distinct patterns of behavior, corresponding to the concept of organizational culture. For example, a climate for collaboration is rooted in the value of collectivism. Among the measures capturing organizational culture and climate, the Competing Values Framework (Quinn & Rohrbaugh, 1981; Campbell, 1977), and the Organizational Culture Profile (O'Reilly et al., 1991) belong to the most prominent quantitative measurement approaches (Chatman & O'Reilly, 2016). Since their origins, both approaches have been revised several times and have been converted into comprehensive instruments to measures value or climate related perceptions[14]. Both measurement instruments for climate and culture, have been used for the respective other construct, as the discrimination between both concepts has always been blurred (Patterson et al., 2005; Schneider et al., 2013). Since the value related approach can be classified as more abstract, it seems more appropriate to apply the climate related approach in this study. This approach makes employer attributes more tangible, as it translates into concrete behavior, and is therefore followed in this study.

The Competing Values Framework is based on a series of research by Quinn and colleagues (e.g., Quinn & Rohrbaugh, 1981, 1983; Quinn & McGrath, 1985) and organizes indices of organizational effectiveness along two dimensions: flexibility versus control and internal versus external orientation. These two dimensions lead to four quadrants, reflecting four organizational types which have their focus on different measures to reach organizational effectiveness. The four organizational types can have their focus on a) human relations, setting value on the wellbeing, growth and commitment of employees, b) internal processes, emphasizing internal control and the efficient use of resources, c) open systems, stressing the interaction with and adaption to the environment of the organization (esp. innovation) or d) rational goals, which means rational economic principles that lead to productivity and goal achievement (Patterson et al., 2005: 384–385). With these four quadrants / dimensions, the model integrates different managerial ideologies and thus "encapsulates into one framework the major approaches to organizational values and effectiveness over the last 100 years" (Patterson et al., 2005: 384). Patterson et al. (2005) used this model as a basis for their Organizational Climate Measure

[14] The distinction between the two concepts of organizational climate and culture will not be discussed in this study. For further details on this discussion see for example Schneider et al., 2013.

(OCM), which is comprised of 17 dimension (based on the four quadrants) of employee reactions over their work environment on an organizational level. The multitude of scales of the OCM enables the researcher to use the instrument in a more refined way, selecting only those scales which are of interest for the corresponding research question. The instrument uses a four-point Likert scale and is applicable to large scale samples. Selected scales of the OCM have already been used in a context of evaluating effects of architecture by McElroy and Morrow (2010), who examined the impact of office re-design on perceptions of organizational culture and work related attitudes.

Against this background, selected scales from the OCM by Patterson et al. (2005) are applied for the operationalization of the employer attributes in this study. (All scales and items applied can be found in Appendix 3, Tables 38-40).

The attribute autonomy is operationalized with the scale *Autonomy*. It contains five items such as "Management trust people to take work-related decisions without getting permission first".

The dimension referring to performance and aspiration is operationalized with the five items of the scale *Effort*. Items included are such as "People here always want to perform to the best of their ability".

For the operationalization of the innovation and flexibility related dimension the scale *Innovation & Flexibility* has been selected. This comprises items such as "This organization is very flexible; it can quickly change procedures to meet new conditions and solve problems as they arise" or "People in this organization are always searching for new ways of looking at problems". This scale enables the representation of a symbolic and instrumental dimension of the construct, alike. Attributes referring to collaboration and exchange of ideas are summarized with the scale *Integration*, including items like "People in different departments are prepared to share information".

For the operationalization of the group of attributes pertaining to pressure to produce (performance and efficiency), items such as "Management require people to work extremely hard" from the *Pressure to Produce* scale are taken.

The last employer attribute of relevance identified before, referring to the direct utility of architecture, is named *Adequacy for Work* and operationalized with the item "To what extent do you perceive the building and work environment as comfortable for doing your job?".

In the following, the names of the scales are used likewise as variable names.

Employer attractiveness, the outcome variable of the research model, can be defined as the benefits that a potential employee expects in working for a specific company (Berthon et al., 2005: 151). Empirically, it can be captured as an attitude towards a potential employer. Most studies assessing employer attractiveness have focused on two dimensions of the construct (Altmann & Suess, 2015: 285): Firstly, general attractiveness, applying to an individual's affective and attitudinal thoughts about a company as potential employer. Being passive in nature, applicants can be generally attracted by many companies simultaneously. Secondly, the intention to pursue / apply is a more active construct and involves active pursuit of a job. It focuses on the behavioral intentions of individuals and thus is a direct predictor for an actual application. As the information individuals receive on the fictitious company of the study (see next chapter) is limited in order to make the experiment carried out less complex for the participants, it is expected that individuals will not feel able to answer items referring to such an active construct. For this reason, the study at hand focuses on the more passive construct of employer attractiveness. Employer attractiveness can be captured with a scale developed by Highhouse et al. (2003). This scale (four-point Likert-scale) is well established and has been applied in a multitude of studies (e.g. Altmann & Suess, 2015, 2015, Eberz et al., 2012; Ewerlin et al., 2016; Kausel & Slaughter, 2011). Exemplary items are „For me, this company would be a good place to work." or "I am interested in learning more about this company."

5.2 Operationalization of value related personality traits and personal characteristics

With the value related personality traits and the personal characteristics, this section deals with the operationalizations of the moderator variables of the model.

As already explicated above, **value related personality** traits have an impact on how organizational attributes are evaluated in terms of employer attractiveness. Work values, a particular value construct, describe the important and valuable outcomes that individuals derive from work (Chu, 2008: 321) and feel they should attain through work (Twenge et al., 2010: 77). One of the best known approaches to work values is the Work Value Inventory (WVI) by Super (1970). He further defines work values as goals that one seeks to attain to satisfy needs which are intrinsically desirable. They are a refinement of personal needs through interaction with ones' environment (Super, 1995). Seifert and Bergmann (1983), applying the Work Value Inventory for a German study, built on Super's definition and define work values as objectives

or qualities that people consider as important or desirable with regard to their work and that people try to reach or realize through work (p. 160). Work values need to be distinguished from other constructs capturing personality based preference and behavior structures, as work values are more general and more comprehensive than attitudes and interests and at the same time more constant than most attitudes, as they are more deeply anchored in the personality structure (Seifert & Bergmann, 1983: 160). Interests are the activities undertaken or the behavior shown by people to reach their values and thus satisfy their needs. Hence, values are related to interests but are a unique and separate construct (Super 1995). Within a given situation, the influence should theoretically operate from values to attitudes to specific behaviors (Homer & Kahle, 1988: 638). Despite their relative stability over a life span, new studies indicate that work values are least stable during one's post-secondary education and stabilize more strongly as people enter the workforce (Kuron et al., 2015: 992).

Research on work value measurement has largely stagnated over the last decades (Leuty, 2013), so that most of the diverse approaches reach back to the 1970s or 80s. Among these approaches, the most popular instrument to measure work values is the Work Value Inventory by Super (1970) (Chu, 2008; Robinson & Betz, 2008), which captures work values on a 45-item scale measuring 15 subscales of work values. Over the last decades, the original WVI has been revised and validated several times (e.g. Hammond et al., 2010; Leuty, 2013; Robinson & Betz, 2008; Seifert & Bergmann, 1983). The most up-to-date version of the WVI is the Super's Work Value Inventory-revised (SWVI-r), which has been developed by Zytowski. A fundamental modification of this version was the inclusion of three additional items to each of the subscales, so that the final inventory consists of 12 subscales with 6 items each (Robinson & Betz, 2008: 457). Responses are rated on a 5-point scale (1 = not important at all/not a factor in my job selection to 5 = crucial/I would not consider a job without it).

Evaluations of the SWVI-r (e.g. Hammond et al., 2010; Robinson & Betz, 2008; Zytowski, 2006) show acceptable evidence of convergent and discriminant validity.

For this reason, the work values *Achievement*, *Coworkers*, *Creativity*, *Independence*, *Security*, and *Lifestyle* are operationalized based on the scales of the SWVI-r in this study. All items of the six work values can be found in Appendix 3.

As to **personal characteristics**, research suggests that there is a relation between the ability / achievement level of individuals and their preferences for job and organizational attributes (Trank et al., 2002). A commonly used measure for academic achievement is operationalized

by participants' self-reported grade point averages (GPA). Trank et al. (2002), for instance, show that the self-reported GPA hardly diverges from the actual GPA. For this reason, participants are asked for the GPA of their last degree correspondingly their current GPA, if they are still in education.

Experience, referring to professional experience, is operationalized by assigning participants a status: professional or student. This simplified measure is applied as it is assumed that there no linear relationship between experience and perception and evaluation of employer attributes. Rather it is suggested that once entered the work life and having experienced working in an organization for a distinct while, people know what is of importance for them, so that their evaluation and perception modus is shaped.

Respondents are also asked to indicate their gender.

All latent constructs (employer attributes, employer attractiveness and work values) are captured on five-point Liker scales for reasons of simplicity and uniformity.

5.3 Operationalization of control variables

In addition to the explaining variables as expounded in the two subchapter above, a variety of control variables have been collected.

All participants had to answer questions on age, months of work experience, as well as the question if they knew the company presented on the pictures. One part of the information asked for was differentiated for students and professionals.

Professionals were asked for information on the federal state of their workplace, kind of job (e.g. administrative, entry level management position, etc.), highest educational attainment, course of studies (if applicable), and current career path (e.g. specialist career, management career).

Students were asked for university, federal state of university, course of studies, current semester, aspired degree, former degrees and grade point average, aspired career path (e.g. specialist career, management career), preferred industry, expected completion of studies, and current job search status.

With the objective of being able to evaluate, whether the participants of the study have noticed the variations in the different scenarios, three control variables in terms of a manipulation check have been added to the questionnaire. As each scenario respectively each architectural style was

based on three architectural pictures, each of the control variables referred to one of the pictures. The following table represents the items of the three variables, each of which had to be answered to on a five-point Likert scale.

Table 12: Overview of variables for manipulation check

Picture representing:	**Item**	**Variable Name**
Building	The orientation of the building is rather vertical.	Building manipulation
Workplace	The workplace layout is rather open.	Workplace manipulation
Interaction Area	The interaction area is colorful / lively.	Interaction area manipulation

5.4 The Design: A Scenario experiment

In order to test the proposed effects of architecture on perceived employer attractiveness, a scenario experiment is employed. This method allows to measure the influence of an independent variable, which is represented by the different architectural styles, on the dependent variables (the different employer attributes and employer attractiveness) (Sedlmeier & Renkewitz, 2008: 125). In such an experiment, participants are confronted with hypothetical descriptions of an object or situation (in this case the career website of a fictitious company), which vary along one or more attributes of the independent variable and constitute the different scenarios. The values of the different attribute(s) (here the different architectural types) are randomly varied across participants (Hainmueller et al., 2015: 1). After the presentation of the scenarios, participants are asked to assess the dependent variables, e.g. intentions, attitudes, and behaviors. In this study an extract of a career website of a fictitious high-tech company was presented. Whilst in the first two sections general information about the company and their target applicant group was given, the potential applicants' future workplace was presented in a third section. In this section, participants were presented three photos: One of the outer appearance of the building, one of the interaction area and one of the workplace itself. Thus, each participant saw a set of three photos, each set corresponding to one of the four architectural styles. In order to avoid artefacts, for each of the architectural types two sets of photos were chosen, which lead to eight scenarios (4 x 2) in total. Whilst all participants were confronted with the same baseline information (first two sections), the treatment took place in the third

section. Here participants were randomly assigned to one of the eight scenarios presenting the different architectural styles.

Scenario experiments[15] are commonly applied in management and especially recruiting research (e.g. Baum & Kabst, 2014; Ewerlin et al., 2016; Iseke & Pull, 2017; Wagner et al., 2009) and are particularly well suited for gaining an understanding of people's attitudes, perceptions and beliefs (Hughes & Huby, 2002). They combine the advantages of survey research and experimental designs (Auspurg et al., 2009: 59) and yield decisive advantages in identifying causal relationships, which is one of the main concerns of this study.

To establish causality, it needs to be ensured that firstly, the antecedent occurs temporally before the effect and, secondly, alternative explanations for the covariation between variables are ruled out (Aguinis & Bradley, 2014: 352). Thus, searching for evidence of causal relationships requires the use of experimental or quasi-experimental design. Thinking of an experimental design, researchers face two problems: On the one hand, implementing an experimental design leads to high internal validity at the expense of external validity, as participants are often taken out of their usual environment. Thus, the question arises, to which extent the results are generalizable. On the other hand, nonexperimental designs can often be implemented in natural settings, thereby increasing external validity, however, making inferences about the direction and nature of causal relationships remain vague (Aguinis & Bradley, 2014: 352). Scenario experiments can constitute a solution to this dilemma, provided they are thoroughly planned and implemented, strictly focusing on the objectives of the research project. This study follows the best practice recommendations by Aguinis and Bradley (2014) for the design and implementation of the scenario experiment, which are set out in the following.

Why was a scenario experiment decided for? The objective of the study is to consider the effect from architecture on the dependent variables. The scenario experiment allows to manipulate the architectural types by presenting a different type in each scenario, whilst keeping everything else constant, which is the remaining extract from the career website. Moreover, this study focuses on the *explicit outcomes*, i.e. the effect of each architectural style on the outcome variable. This qualifies a scenario experiment as the most suited method, as opposed to conjoint analysis, for instance. The study was designed as a between-subject design. This means that

[15] Scenario experiments are also referred to as factorial survey designs, experimental vignette methodology studies, and paper people studies. For a deeper understanding of the different descriptions turn to Auspurg et al. (2009) or Hughes and Huby (2002), for instance.

each participant is confronted with only one scenario and comparisons are made between participants. Thus, it was decided not to give participants any reference point in form of a second scenario (mixed-design option). In such a way, it would have been revealed for participants that the manipulation took place with regard to the architectural pictures. Thus, they would have been influenced whilst otherwise, they possibly would not have paid exceptional attention to the pictures at all. Moreover, the pure between-subject design reduces the risk of social desirability and learning effects (Auspurg et al., 2009). However, such designs require sufficient information in order to give participants as much context as possible, which can be met by providing all participants with baseline information before the manipulation takes place (Aguinis & Bradley, 2014).

In order to meet the criteria described before, the scenario experiment was structured as follows: All participants were presented the same extract from the career website, including a heading *Who we are* presenting general information about the company, its industry, its size, locations and number of employees. Pertaining to industry, the technology industry has been chosen for several reasons: First, it is quite neutral with regard to the evaluation of male and female students; second, it offers a broad variety of jobs for knowledge workers (e.g. rather creative task; task requiring typical commercial skills, etc.); third, all four architectural types can fit to a technology company, considering the broad spectrum of activities. Thus, a broad generalizability is attained with regard to the target group of the website.

This information about the company section was followed by a section *Whom we are looking for*, describing generally that the company is looking for a variety of characters and educational backgrounds. In order to enhance external validity and the level of realism, the content and formulations of the website texts were adopted to those of real career websites. Moreover, the extract was designed as a real career website.

After this baseline information, the third section *Your new workplace* followed. Under this section, the treatment took place by integrating three photos of the architectural environment, i.e. the outer appearance of the building, the workplace itself and the interaction area. This set of three photos was changed for each scenario. Using photos instead of only textual descriptions increases participants' level of immersion - the subjective feeling of being personally immersed in the situation described - which in turn increases external validity. With regard to the number of scenarios, the four architectural types derived by the theoretical analysis as well as by the cluster analysis was referred to. The photos representing the architectural types were taken from real buildings and workplace environments. When selecting the photos, a variety of aspects had

to be taken into account, in order to ensure the comparability of the pictures and avoid artifacts. Regarding the outer appearance of the buildings, the weather and light conditions as well as the surrounding environment with regard to nature and surrounding buildings had to be comparable. With regard to the workplace and interaction areas, the equipment of the desks (e.g. screens, telephones) and interaction areas (e.g. coffee machines, food) needed to be comparable, the view needed to be taken into account and extreme colors to be avoided. Furthermore, none of the pictures had to include people or display the name of the company. In a first step, the research of the pictures was conducted on websites for stock pictures (e.g. fotalia.com; shutterstock.com). In a second step, the missing pictures were researched on websites presenting architecture / office projects (e.g. officesnapshots.com). In case a picture was matching the characteristics of the architectural type, the owners were contacted to request allowance to use the pictures. Considering the sources used, it can be assumed that all of the pictures used were taken by professional or at least "semi-professional" photographers and thus fulfil a certain degree referring to aesthetic quality standards, such as proportions on the pictures and exposure. This is important, as studies show that picture quality can have a considerable influence on quality perceptions and willingness to pay on consumers under uncertainty, i.e. lack of information on true quality aspects (Zhang et al., 2016). Hence, it can be expected that job seekers under uncertainty would also be influenced by picture quality. Finally, responses to color photographs correlate highly with responses to the real environment (Groat, 1982: 9). Thus, a high degree of external validity and the generalizability of the results can be assumed. All eight scenarios including the corresponding pictures can be found in Appendix 4.

5.5 Sample and procedure

The quality of the data as well as the generalizability of the results depend upon the respondents. Thus, the sample needs to be matched to the larger population of interest (Aguinis & Bradley, 2014: 363). University graduates represent a prime target group for organizations (Iseke & Pull, 2017). Particularly, many employer branding campaigns aim at addressing students for them being freshmen at the labor market and looking for orientation and information given by companies. For this reason, students were also surveyed for this study. Moreover, professionals were targeted. The survey took place in January and February 2018 using an online questionnaire in German, the link of which was distributed via different mailing lists to the target groups. Students were addressed via large, partially university-wide, partially course-

specific mailing lists. Large mailing lists were especially used for two German universities (University of Tübingen and University of Paderborn). Professionals were also contacted via the university mailing lists (university staff) as well as via private networks. In general, convenience sampling is common among such studies (Baum & Kabst, 2011; Ewerlin et al., 2016; Iseke & Pull, 2017). For filling out the questionnaire, which took around 15 minutes, participants were invited to take part in a draw for 30 gift cards from a prominent online retailer worth € 50 each.

By using an online survey, participants were given the possibility of choosing the setting and time for answering the questionnaire. This reflects a natural situation, as online sources have become the main source of information for job seekers and thus are very familiar to the participants.

Overall, it can be assumed that the design of the experiment, the procedure to approach the participants as well as the setting for the participation adequately simulate reality. Thus, it is likely that the stated attitudes in this experiment capture real-world attitudes and behavior.

5.6 The pre-test

Before the actual survey was started, a pre-test had been conducted. The pre-test comprised the full completion of the online questionnaire and had three main objectives: First of all, it was aimed at ensuring the comprehensibility of all items and instructions. Second, the time horizon for completing the questionnaire was to be assessed and third, the scales applied had to be tested in terms of their factor loadings.

The participants had been recruited by convenience sampling, which led to 28 responses. Among these were 19 students and 9 professionals. Additionally, five doctoral students and two professors had been asked to answer the questionnaire and comment on peculiarities and problems. On the basis of this feedback, several modifications have been made.

First of all, the introduction to the questionnaire was modified, so that it was split up into different paragraphs with sub-titles, which facilitated reading and understanding the introduction. With regard to the items, it needs to be taken into consideration that the scales for the employer attributes, the work values and employer attractiveness had to be translated from their original English to German (see Appendix 3). Hence, particularly problems of comprehension resulting from the translation had to be accounted for. Analyzing the results of the pre-test, five items have been rephrased in order to enhance their comprehensibility.

Moreover, participants gave the feedback that it was partly difficult to answer the items on the employer attributes, as one had the feeling not to have sufficient information in order to answer the items reasonably. For this reason, for all items, adverbs such as „probably“, „I think / assume“… have been added in order to make clear that the items refer to a first idea or association with the employer presented and do not require a concrete assessment. Finally, factor analyses did not give a hint to exclude particular items.

6 Method: Structural equation modeling

In the following section, structural equation models are introduced, which are applied as the central method of data analysis in this study. For this purpose, the first chapter provides a general overview of structural equation models (SEM) and their applications. Afterwards, the components of SEM are explained before focusing on how SEM integrate direct and indirect effects, both of which are elementary to this study. Finally, the estimation and assessment of SEM in Stata, the software used for the empirical study, are expounded on. In this context, the explanations focus on the estimation methods, model goodness criteria and strategies for model modification applied in the study. Detailed descriptions of the different procedures and indices for model estimation and assessment can be found in Appendix 5.

6.1 Introduction to structural equation models

The research model set up in chapter 4 constitutes a complex network of causal paths. This complexity is further increased by the main variables being latent constructs. For this reason, SEM are chosen for the evaluation of the data, which enables to analyze intricate causal networks and therefore characterize real-world processes better than simple correlation-based models. SEM are suited for the mathematical modeling of complex processes and serve both theory and practice (Gefen et al., 2000: 4). SEM integrate the measurement models of latent constructs and the hypothesized causal paths into a simultaneous assessment. Amongst further characteristics of SEM, this process allows a better estimation of both the measurement model and the structural relationships, making "SEM a priori the methods of choice in analyzing path diagrams when these involve latent variables with multiple indicators" (Gefen et al., 2011: IV). In the following, the characteristics of SEM are described in more detail.

Generally, two different forms of SEM can be distinguished: *Covariance based SEM* and *variance based SEM* (also named partial least square approach). The decision which approach to follow mainly depends on the objective of the analysis: If the analysis aims at explaining changes in one or several latent variables as realistically as possible, the variance based technique should be preferred (Fuchs, 2011: 35). These procedures focus on the maximization of the variance explained and the predictive power (Aichholzer, 2017: 167). If the research aims at the analysis of a novel theory-based hypothesis system, the application of the covariance based technique is recommendable. The objective of covariance based SEM is to show that the

complete set of paths as specified in the model that is being analyzed is plausible, given the sample data (Gefen et al., 2000: 28). Technically, the approaches differ as follows: Whilst the covariance based technique tries to reproduce the empirical information with the causal model based on the analysis of the variance-covariance matrix, variance based techniques target estimating the original data as precisely as possible (Fuchs, 2011: 36). As the objective of the study at hand corresponds to that of covariance based SEM, all following explanations refer to covariance based SEM[16].

SEM have their roots in the fields of econometrics and psychometrics (Aichholzer, 2017: 5) and constitute a central method for researchers of all disciplines, with particular importance in the social sciences (Hooper et al., 2008). They have their roots in the work of Spearman (1904) on factor analysis and Wright (1921) on genetic path analysis. SEM gained popularity in the socials sciences in the 1960s and 1970s mainly because of the development of computational capacity and access. A pioneering work can be seen in the study from Wheaton et al. (1977), who significantly contributed to the diffusion of SEM throughout the social, behavioral, and health sciences (Acock, 2013).

SEM serve the empirical test of theoretically deduced statements about complex cause-effect relationships. They estimate parameters on the basis of empirically measured variances and covariances of indicator variables and hence allow conclusions about the relationships between the underlying latent variables (Fuchs, 2011: 2). For this purpose, SEM combine elements of factor analysis and path analysis testing the modeled causal structures in form of a linear equation system. By the combination of these two methods, SEM overcome the requirements of path models that all variables have to be directly observable (Arzheimer, 2015: 2). The integration of the measurement model in form of a factor analysis allows for the operationalization of non-observable variables (latent constructs, factors). In this context, it is not necessary that the indicators represent the variable perfectly or that all indicators are equally suited to measure the latent variable, as modeling the inevitable measurement error is integral part of the model (Arzheimer, 2015: 3). SEM reach a stronger predictive power by removing the measurement error, which is assumed to be a random error and thus does not involve any explanatory power. In SEM, the measurement model(s) and the structural model, mapping the

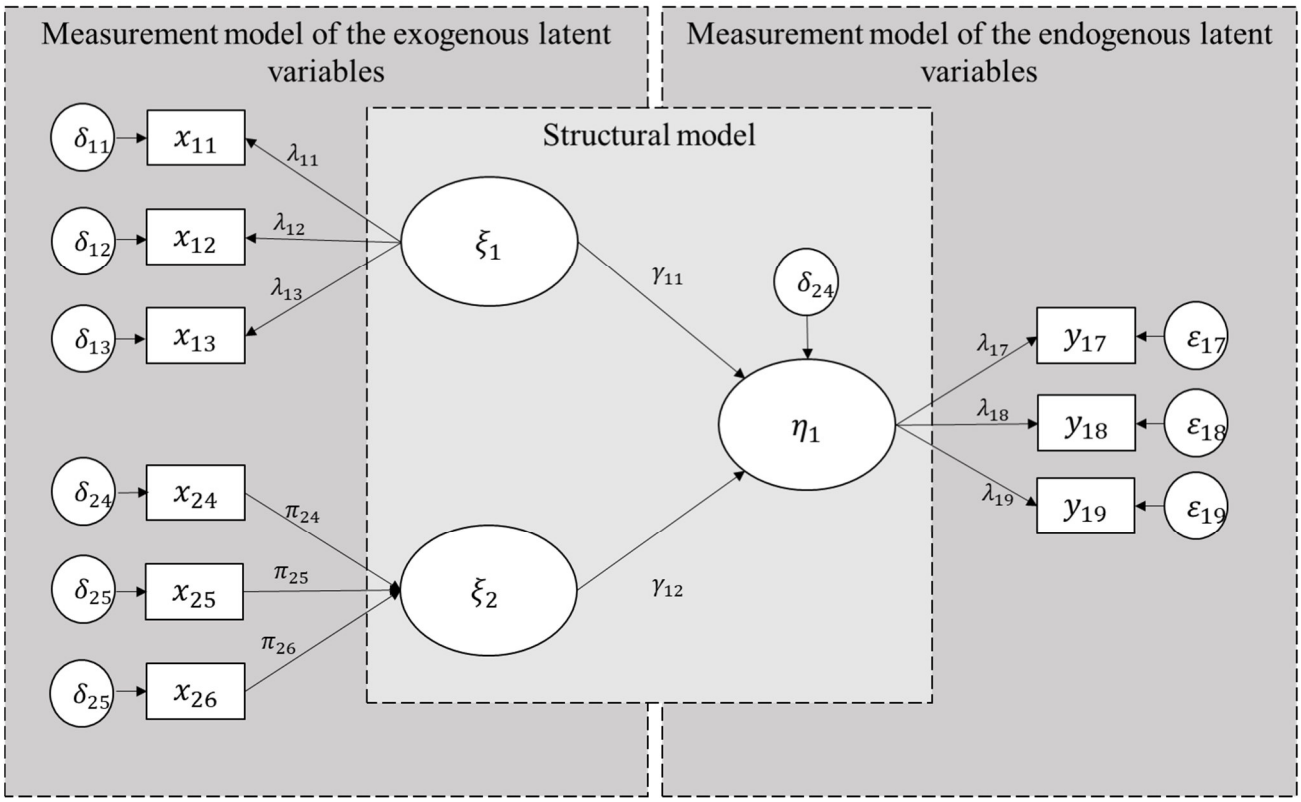
[16] For a comparison of covariance and variance based SEM see for example Reinartz et al. (2009).

hypothesized relations between the latent variables, are estimated simultaneously, allowing a particularly efficient way of using the information in the data (Gefen et al., 2000). Moreover, SEM allow to distinguish between direct and indirect effects, which are also estimated simultaneously (Arzheimer, 2015: 50). Additionally, SEM allow to explicitly model covariances between variables and error terms and provide a variety of absolute and relative fit statistics, delivering support to specify the model best fitting the data (Acock, 2013: 113).

6.2 Components of structural equation models

In the following, the components of SEM are expounded in more detail, linking it to the model of the present study. Figure 15 shows the composition of a SEM.

Figure 15: Composition of a Structural Equation Model



Source: Fuchs (2011: 6)

The figure shows the measurement model of the latent exogenous variables, the measurement model of the latent endogenous variables and the structural model.

The structural model maps the causal relationships between the latent variables, which have been deduced on the basis of theoretical and logical considerations, in form of a path diagram.

The measurement models serve the estimation of the structural relations of the latent constructs themselves. Reflective and formative measurement models are distinguished depending on the direction of the relation between a latent construct and its indicators, reflective and formative indicators respectively.

In *reflective models*, latent variables are understood as factors that cause the occurrence of the observed indicators. Thus, the observed measures reflect the latent variable and not the other way around. Reflective models follow a factor analytical approach. A high correlation among the measurement variables, all of which are caused by the latent variable, is a central assumption of these approaches (Hildebrandt & Temme, 2006: 5).

In *formative models*, in contrast, the indicator items are considered as causing the latent variable. Thus, they follow a regression approach, in which the latent variable is dependent of the indicator variables (Weiber & Mühlhaus, 2014: 41).

The study at hand applies established scales for the measurement of the latent constructs (employer attributes, employer attractiveness and work values), which correspond to the approach of reflective indicators. For this reason, the following explanations refer to reflective measurement models only.

In reflective models, indicators deliver conclusions with regard to the existence of the phenomena described by the latent variable (Fuchs, 2011: 5). The answers to items can be understood as empirically observed values for the latent variables. In the study at hand, the answers to items on a five-point Likert scale constitute quasi-continuous indicators. As measurements are inevitably afflicted by measurement errors, Figure 15 shows error terms for each indicator variable (δ for the measurement models of the latent exogenous and ε for the measurement models of the latent endogenous variables). Thus, the error terms or residuals display the variance that is unexplained by a model component (e.g. by an indicator). SEM work on the assumption that errors are normally distributed and uncorrelated across items. As SEM explicitly model the error terms of endogenous variables they avoid an incorporation of errors into the parameter estimates and thus estimate the parameters more precisely (Acock, 2013: 115).

The SEM in Figure 15 is composed of two exogenous latent constructs ξ_1 and ξ_2 and one endogenous latent construct η_1. The study at hand is based on an experimental design, so that the exogenous variables constitute the treatments in the form of different architectural types. The exogenous variables are thus observable categorical variables and do not have to be measured based on a measurement model. Correspondingly, there are no measurement errors

for the exogenous variables in the study. For the analysis of such experimental data, SEM are also recommended as the method of choice, as compared to the use of classical methods such as ANOVA and MANOVA (Aiken et al., 1994; Bagozzi & Yi, 1989).

The hypothesized relations between the latent constructs are depicted with arrows, which are called path coefficients (γ). Each arrow represents one equation in the model. The direction of the arrows represent the direction of effect, which is interpreted as causal, whereupon the path coefficient is an indicator for the strength of the relationship. This corresponds to a regression of the dependent variable at the end of an arrow on an independent variable at the beginning of an arrow (Arzheimer, 2015: 46). Modeling a path in the model thus allows a free estimation of its parameter, whilst not modeling a path implies restricting the parameter to being 0. The paths for the SEM of the study at hand are modeled corresponding to the research model presented in Figure 14. Thus, there are paths from each of the three architectural types (the Solid Open Type serves as reference category) to each of the six assumed mediator variables and from each of the mediator variables to the outcome variable Employer Attractiveness. Moreover, there is a direct path from each of the architectural types to Employer Attractiveness.

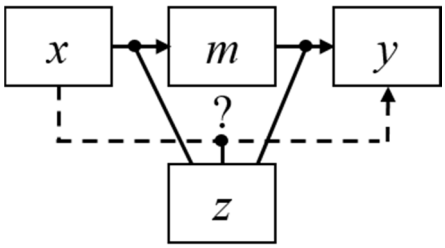
6.3 Direct and indirect effects, mediation and moderation

SEM allow to estimate direct and indirect effects as well as their standard errors (Aichholzer, 2017: 54). Indirect effects are mediated effects in the context of which one variable impacts an outcome variable via a third variable, as it is modeled in the research model at hand. Indirect effects can be computed by multiplying the path coefficients of the direct effects. Total effects can be obtained by adding up all indirect and direct path coefficients affecting one outcome variable (Fuchs, 2011: 5). By this, positive and negative effects can cancel out each other. In the study at hand, direct, indirect and total effects are of interest. With regard to the direct effects it is of interest, how each of the architectural types impacts Innovation & Flexibility, Effort, Autonomy, Pressure to Produce, Integration and Adequacy for Work. Moreover, it is crucial to understand how each of these mediator variables influences Employer Attractiveness. Regarding the indirect effects, the question can be answered how one particular architectural type influences Employer Attractiveness e.g. via Innovation & Flexibility, can be answered. Most importantly, the SEM can provide a result for the total effect of one architectural type on Employer Attractiveness, adding up the mediated effects and the direct effect of the architectural type. It is important to consider that the actual effect of a variable and its statistical

significance should not be assessed until its total effect has been computed, as it can deviate considerably from the direct effect (Aichholzer, 2017: 54).

Aside from the mediating effects, SEM can estimate moderating effects. The moderation assumes that the relation between two variables turns out differently depending on the level or category a third variable adopts (Aichholzer, 2017: 53 ff.). With regard to the model of the present study, moderating effects are also of interest. After estimating the main model, the empirical analysis focusses on the moderating impact of personal characteristics (e.g. grade, gender) and work values. Thus, the analysis provides answers on questions such as "Are the mediated effects of a particular architectural type on Employer Attractiveness different for women and men?" Here, gender is the moderating variable. What is being estimated in this complex case is called a moderated mediation. A simplified example for such a model is illustrated in Figure 16. Here, *x* constitutes the independent, *y* the dependent and m the mediating variable. As there is also a direct effect from *x* to *y* (dashed line), the model represents a partially mediated (as opposed to a fully mediated) model. *Z* is the moderating variable in the model and impacts the paths between *x* and *m* as well as the path between *m* and *y*.

Figure 16: Moderated mediation model



Quelle: Aichholzer (2017: 53)

6.4 Estimation and assessment of structural equation models in Stata

The SEM developed in this study is estimated with the software Stata. Since version 12, Stata comprises the procedure *sem*, with which a variety of models can be estimated efficiently (Arzheimer, 2015: 9). Moreover, Stata provides the possibility of data analysis and data preparation in one integrated environment (Aichholzer, 2017: 2). The study at hand applies the sem procedure for linear SEM in Stata 13.

Covariance based SEM, as applied here, try to conduct an estimation of the model parameters in such a way that the empirical variance-covariance-matrix can be reproduced as precisely as

possible. Hence, the objective of the approach is the minimization of the difference between the estimated and the true covariance matrix. In terms of this target function, SEM work with different estimation methods for the calculation of the model parameters, meaning regression coefficients, factor loadings, covariances and variances. In Stata, each estimation method begins with a series of plausible start values for the parameters and calculates the model implicated covariance matrix based on this start values and the modeled structures (paths) of the model. As this first covariance matrix will deviate from the empirical matrix, the software consistently varies systematically and simultaneously the parameter estimations in order to reduce the discrepancy between the two matrices, until no further considerable improvements can be achieved. This stage of the estimation procedure is called convergence.

6.4.1 Estimation of structural equation models

In Stata, four **estimation methods** are available for SEM: maximum likelihood, quasi maximum likelihood, asymptotic distribution free, and maximum likelihood with missing values (Stata Pres, 2015: 43). The appropriate choice and efficiency of the estimation method decisively depends on the data structure, pertaining to sample size, deviances from a metrical measurement level and/or normal distribution as well as the absence of values. Generally, it can be stated that the χ2-statistic, which is central for SEM, depends critically on the distribution of the data (Aichholzer, 2017: 112). Likewise, the methods for the estimation of the variances depend on the distribution of the data. For this reason, all endogenous variables initially need to be tested for multivariate normal distribution (which is described in chapter 7.1).

The *maximum likelihood estimation method (ML)* constitutes one of the most important and widely used estimation methods for SEM (Arzheimer, 2015: 60; Finney & DiStefano, 2006: 270; Fuchs, 2011: 15; McCoy, 2015). It is the default estimator in Stata SEM and delivers the most precise estimators, given a sufficient sample size and multivariate normal distribution (Weiber & Mühlhaus, 2014: 64). ML requires univariate and multivariate normality of all endogenous variables, which also implies that the endogenous variables are continuous. If ML is used and variables noticeably deviate from a normal distribution, this leads to χ^2 being too high and significance levels being too good. All fit values based on χ^2 are also affected then, so that a model is potentially rather denied, even if it is specified correctly (Aichholzer, 2017: 114). With large samples ($n > 1000$), the parameter estimations are mostly not affected from the normality distribution requirements and for this reason estimated correctly (Aichholzer,

2017: 114). Hence, ML is particularly suitable for large samples. However, the variance estimation of the parameters and the inferential statistics are still impaired. Using ML, Stata estimates standard errors by default based on *observed information matrix*, which is based on multivariate normal distribution.

An alternative in case of non-normal distributed data is the *quasi maximum likelihood method (QML)*. This method combines ML with the robust estimation of standard errors according to Satorra and Bentler (1994), also called *SB-estimation***.** This form of the ML estimation takes deviation from the normal distribution into account. It delivers the same parameters as the standard ML method, but corrected standard errors and an adjusted SB- χ^2-test. The robust SB-estimation is recommended in case of not normally distributed variables or ordinal, quasi metric indicators in samples with $n > 200$ (Finney & DiStefano, 2006; Urban & Mayerl, 2013). However, ML has proven to be considerably robust in case of violation of normality (Acock, 2013: 14; Arzheimer, 2015: 60). The latent constructs of the study at hand are all based on a five-point Likert scale, which can be treated as quasi-metric (Völkl & Korb, 2017: 20) and the sample size is much larger than 200. Against this background, SB-estimation basically is a suited method. Nonetheless, robust standard errors are less efficient than the observed information matrix standard errors, in case the assumptions for ML are met (Acock, 2013: 15). Another approach for the estimation of standard errors is the *bootstrap method*, a resampling procedure, which is especially recommended for the estimation of standard errors of indirect effects in the mediation analysis. This is particularly appropriate in case of small samples or in case of numerous mediators, the latter case applying to the data at hand.

An estimation method not based on the multivariate normality assumption is the *asymptotical distribution free (ADF)* method, which is a form of weighted least squares. This measure delivers parameters and χ^2 values that differ from a ML estimation. As this methods requires sample sizes with $n > 2000$ and is less sensitive to misspecification, the SB estimation should always be preferred, if possible (Aichholzer, 2017: 115).

The *maximum likelihood with missing values* method is an efficient approach in case of missing values, which is not a problem in the data set at hand and will for this reason not be amplified further.

To conclude, ML seems to be the method of choice in case of normally distributed data or slight deviation from it, because of its efficiency and robustness. Thus, in the empirical analysis (chapter 7) it will firstly be tested if the application of ML is appropriate. In order to test robustness, it will be combined with SB-estimation (particularly given its appropriateness for

quasi-metric variables) and bootstrapping (because of its appropriateness for mediated effects). With regard to the computation of indirect effects, Stata by default computes all indirect effects as well as the standard errors and its statistical significance, calculated according to the delta method[17]. Moderating effects, which are also part of the research model, can be tested with the option of group comparisons in Stata.

Before the model can be estimated, it needs to be ensured that it is *identified*[18]. Non-identified models cannot be estimated. Identification refers to two aspect: First, there need to be sufficient empirical information for the estimation. Second, the metric / scaling for the latent variables and the error variables needs to be defined. With regard to the first aspect, it can be referred to the number of degrees of freedom (d.f.), which Stata automatically reports for each estimation and which are also reported in this study. Moreover, model fit statistics are reported for each estimation in this study, which can only be retained for overidentified models. The second condition, namely the *scaling of the variables*, refers to the unobserved variables. In order to make the values of the unobserved variables subject to interpretation, they need to be assigned to a scale. One means of doing this is to take one of the indicator variables (ideally the one with the highest loadings), allocate it to one latent variable and fix its factor loading to 1. Consequently, the latent variable is identical to the indicator variable, expect to the error term. The default procedure in Stata follows this approach described, which is also applied in the present analysis.

6.4.2 Assessment of structural equation models

The **evaluation of model goodness**[19] plays a pivotal role with regard to SEM, as it reveals information about how the theoretical model structures fit to the empirical data. For this reason, assessing whether a specified model 'fits' the data is one of the key aspects in structural equation modelling (Yuan, 2005). The objective is to make an assessment with regard to quantifiable reliability and validity criteria (Fuchs, 2011: 16).

Generally, tests can be applied to local and global quality criteria. *Local criteria* refer to the assessment of the measurement model, thus the assessment of the measurement of the latent

[17] For further details on the application of the delta-method for computing standard errors please see Bollen (1987) or Sobel (1987).
[18] For a detailed description of the conditions for model identification please turn to Appendix 5.1
[19] For a detailed discussion of the criteria for the evaluation of model goodness please refer to Appendix 5.2

constructs by their indicators. *Global criteria*, referring to the complete model, focus on the comparison of the covariance matrix implied by the theoretical model and the empirical covariance matrix. Following the approach by Anderson and Gerbing (1988: 418), this study follows the approach to first assesses the measurement model separately before estimating the complete SEM. Misspecifications in the measurement model impact the validity of the estimation of the parameters in the structural model as well as the goodness of fit of the complete structural equation model. Thus, the estimations become more precise by assessing the model goodness in two steps.

In terms of the **reliability criteria**, the consideration of *internal consistency* is of particular importance for reflective measurement models based on a series of items and will therefore be focused on. The corresponding test statistics are based on the correlations of the indicators and determine, to which degree a latent construct is measured by the indicators assigned to it (Fuchs, 2011: 25). Based on the measurement of internal consistency by Cronbachs α, several further criteria have been developed based on the ideas of variance decomposition, which can be tested with the help of confirmatory factor analysis (Hildebrandt & Temme, 2006: 6). Internal consistency can be represented by (a) *indicator reliability,* represented by the statistical measure *variance explained* and (b) *construct reliability,* represented by *factor reliability* and *average variance extracted* (see Table 13 for an overview of the criteria applied and the corresponding thresholds).

According to Bryant (2000), the **proof of validity** can be based on *content validity*, *criterion validity* or *construct validity*. Content validity, focusing on the content of instruments (the items), is difficult to capture statistically and is stronger driven in terms of content and theory. For this reason, tests of validity primarily focus on causal analytical test referring to criterion and construct validity (Bühner, 2006: 36). For SEM, construct validity is considered most important (Hildebrandt & Temme, 2006: 7). Correspondingly, the concepts of construct validity, represented by *convergent validity*, *discriminant validity*, and *nomological validity* is focused on in this study.

With regard to *content validity*, the researcher has to decide first, which construct and which facets of a construct should be captured and thus which items to develop or select. This selection process rests upon logical and theoretical considerations (Michel & Conrad). In this study, the selection of items was based on predefined and already tested item scales (compare chapter 5). Hence, it can be theoretically substantiated that the constructs are suited for being captured with a measurement model. After the first selection of items, the criterion of unidimensionality

requires that the items used capture one common attribute only. As a procedure suited for testing unidimensionality, explorative and confirmatory factor analysis can be used and are usually applied successively (Hildebrandt & Temme, 2006: 9). In this context, the use of a maximum likelihood based factor analyses as well as an oblique rotation method is recommended, which takes correlations between factors into account (Hildebrandt & Temme, 2006). As the study uses established scales for the operationalization of variables, unidimensionality of factors could be expected, so that the explorative factor analysis could be omitted. However, an explorative factor analysis is regarded as reasonable here because: First, not all scales have been revised thoroughly so that their psychometric properties are partly unknown and second, all scales are in English so that they had to be translated into German for the study at hand. Thus, misinterpretations and ambiguous translations could have resulted, so that an explorative factor analysis is recommendable. The detailed procedure and decision criteria for the explorative factor analysis are explained in chapter 7.

Construct validity mainly captures three aspects (Hildebrandt & Temme, 2006): First, a measurement model maps all characteristics of a construct. Second, the model only captures those characteristics of importance to the construct and third, it reflects the relation to other constructs. Accordingly, the degree of validity can be determined with statistical tests of the *convergent* and *discriminant validity*, which can be carried out on the basis of a confirmatory factor analysis. Whilst for convergent validity, the factor reliability and the AVE – the same measures as for the assessment of construct reliability - can be drawn upon, discriminant validity is captured with the Fornell-Larcker criterion (see Table 13 for the criteria applied and the corresponding thresholds).

Moreover, some researchers call for the additional proof of *nomoligical validity* (e.g. Netemeyer et al., 2003), which requires to integrate the construct into a larger theoretical context (Hornburg & Giering, 1996: 7). In short, this means that the hypothesis about the relations of the construct with other constructs should be supported (Hildebrandt & Temme, 2006: 20–21). This corresponds to the criteria of global fit, which are expounded in the following. Detailed descriptions of the tests and criteria for the measurement model can be found in Appendix 5.2.1.

In the context of covariance based SEM, *global fit indices*[20] are based on the comparison of the

[20] Please turn to Appendix 5.2.2 for a more detailed discussion of the global fit indices applying to the overall model

model theoretical implied covariance matrix and the empirical covariance matrix (Fuchs, 2011: 17). In this connection, the *chi-squared test* tests the validity or the absolute fit of the model (Fuchs, 2011: 18) and represents the traditional measure for evaluating overall model fit for covariance based SEM (Hu & Bentler, 1999: 21). However, the chi-squared test itself is afflicted with various difficulties, as for instance its sensivity to sample size. Accordingly, it is known that the chi-squared test tends to become significant (< 0.05) and hence rejects the model when samples reach sizes with n > 1000, which is the case in the study at hand. For this reason, a statistic that reduces the impact of sample size has been developed by Wheaton et al. (1977) by setting the model chi-square and the degrees of freedom into relation. This so called *normed chi-sqaure* (χ2/df) has become one of the most common assessment criteria and is regarded as acceptable when adopting values ≤ 3[21] (Fuchs, 2011: 18)

Table 13: Fit indices for the assessment of SEM

	Fit index	Acceptable threshold	Source
Local goodness-of-fit measures	Indicator reliability	variance explained ≥ 50% / factor loading ≥ 0.7	Bagozzi & Yi (1988: 82)
	Factor reliability	≥ 0,6	Bagozzi & Yi (1988: 82)
	Average variance extracted (AVE)	≥ 0,5	Bagozzi & Yi (1988: 82)
	Test of significance of factor loadings	t ≥ 1,645	Homburg & Giering (1996: 11)
	Fornell/Larcker criterion	AVE > each squared correlation of construct i with all other constructs	Fornell & Larcker (1981: 46)
Global goodness-of-fit measures	Chi-squared	p ≥ 0.05	Homburg & Giering (1996: 10)
	Normed chi-squared (χ2/df)	≤ 3,0 ≤ 5,0	Fuchs (2011: 18) Wheaton et al. (1977: 84ff).
	Root mean squared error of approximation (RMSEA)	≤ 0,08	Browne & Cudeck (1993: 144)
	Standardized root mean squared residual (SRMR)	≤ 0.08	Hu & Benteler (1999)
	Comparative fit index (CFI)	≥ 0.95	Hu & Benteler (1999)

Quelle: Own depiction following Zerres (2010: 146)

[21] There is no consensus regarding an acceptable threshold for this statistic. Recommendations vary between 2.0 and 5.0. For further discussions on the threshold see for example Wheaton et al. (1977), Tabachnick et al. (2007) or Homburg and Baumgartner (1995)

Two other indices not afflicted with the problems of the chi-square are the *root mean squared error of approximation (RMSEA) and the standardized root mean squared residual (SRMR)*. Pertaining to relative fit indices, which compare to what extent the goodness of fit of the theoretical model changes as compared to a baseline model (model, in which all variables measured are assumed to be uncorrelated) (Zinnbauer & Eberl, 2004: 11), the *comparative fit index* (CFI) is a widely used measure (Acock, 2013; Hu & Bentler, 1999).

To conclude, Table 13 summarizes the local and global fit indices explained above together with their acceptable thresholds. However, it needs to mentioned that there are no generally accepted criteria for the assessment of "approximate" model fit, so that the collective consideration of indices becomes essential (Aichholzer, 2017: 129). Hooper et al. (2008) refer to the combination of certain fit indices, on the basis of which those indices listed in Table 13 are reported in the present study.

The fit indices considered so far provide criteria for the assessment of models. Apart from this, each of the estimated path coefficients can be considered separately, referring to the assessment of the *structural model*[22]. The path coefficients represent a measure for the strength of the relations between the variables in the SEM. For a path to be a justifiable part of the model, meaning to reflect a true relationship, path coefficients need to be significant and sufficiently large.

In addition to the significance of separate coefficients, the difference between coefficients and the question, whether this difference is significant, is of importance. In the present study, for example, it is pivotal to understand whether the different architectural styles have a significantly different influence on the perceived employer attributes. Such a significance test can be performed with a Wald chi-squared test (Acock, 2013: 83; Arzheimer, 2015: 121).

Aside from the path coefficient of the direct paths between two variables, the indirect path on an outcome variable are of interest in SEM. In the present study, the influence of the different mediated path on the outcome variable Employer Attractiveness is of importance. The coefficient for an indirect path can be calculated by simply multiplying the coefficients of the direct relationships. As the indirect effects are products of parameters, statistical significance has to be tested with a non-linear test (Acock, 2013: 76 ff.) Stata offers a non-linear test based

[22] Further details on the assessment of structural models can be found in Appendix 5.2.3

on the "delta method", an approximation appropriate in large samples.

With regard to *model comparison,* referring to the comparison of nested and non-nested models, in this study mainly the comparison of the alternative model fit indices (CFI, SRMR, RMSEA) as introduced above is applied. A more detailed discussion of tests for model comparison can be found in Appendix 5.2.4.

Due to the complexity of SEM, it is common to be confronted initially with models not fitting sufficiently (Hooper et al., 2008: 56). An indication about possible misspecifications can be retrieved from the *modification indices*[23], which Stata provides with a simple command. The modification indices MI show the expected reduction (improvement) of the chi-squared, if a restricted parameter would be estimated free. In the present study, the MI are particularly consulted pertaining to the indices for the covariances of the error terms. These need to be analyzed carefully, as a covariance of error terms indicates that there is another issue not specified within the model that is causing the covariation of the error terms (Hooper et al., 2008: 56). Hence, integrating these into the model is like acknowledging the existence of some level of spuriousness (Acock, 2013: 123). However, adding the correlated error decreases the coefficient of the path between the two latent variables, because it is "allowed" that part of the relationship between the indicators of the latent variables is spurious because of a common (unobserved) antecedent variable, which is adjusted for by allowing the covariance in the model. Without allowing for the errors to be correlated, we would have a larger coefficient on the path between the latent variables, but a relatively poor fit for our model (Acock, 2013: 123). Deciding to integrate correlated error terms requires a strong theoretical justification, which is easier to provide for within-factor error correlations than for across factor correlations. However, both are acceptable when substantiated theoretically (Hooper et al., 2008: 56).

To conclude the chapter about SEM, the following can be stated: SEM is a method extremely flexible with regard to the integration of complex causal structures as well as particularly accurate in the parameter estimation, providing various possibilities of model assessment and model comparison. The feasibility of SEM of including multiple paths as mediation and moderation at the same time considerably increases the explanatory power of a model (Baum

[23] Further details on model modification can be found in Appendix 5.2.4

& Kabst, 2011). Recruitment literature, to which the present study wants to contribute, has largely neglected mediating processes so far. Particularly studies based on the signaling theory have not explored the mechanisms that link signals to outcomes (Jones et al., 2014). This study aims at analyzing the mechanisms between architecture as a signal and Employer Attractiveness as a recruitment relevant outcome. Against this background, SEM are extremely suitable as they can combine as well as confront theory with empirical data (Fronell, 1982), so that it supports the process of building theory to such a high degree that cannot be provided by any other method (Fuchs, 2011: 2).

7 Empirical results: How the four architectural types affect job seekers

The focus of this chapter is to present the main findings of the empirical analysis and thus shed light on how the four architectural types impact perceived Employer Attractiveness. Accordingly, the results on the test of the research hypotheses developed in chapter 4 (Table 11) are presented in this chapter.

For this purpose, the following chapter first deals with the preliminary steps of the empirical analysis. It presents firstly the descriptive statistics. Afterwards, the endogenous variables are analyzed, which are the perceived employer attributes as well as Employer Attractiveness. In order to ensure that the measurement model of the structural equation model is specified correctly explorative and afterwards confirmatory factor analysis are applied. The following subchapters are dedicated to the analysis of the exogenous variables. In a first step, it is examined, whether the manipulation of the independent variable, corporate architecture with its four categories in form of the four architectural types, has worked reasonably. For this examination a variance analysis (ANOVA) is applied. In a next step, the pairs of pictures, each representing one architectural type, are analyzed based on a mean value comparison. Finally, the analysis proceeds with the latent moderator variables, the Work Values, by presenting the results of the exploratory and confirmatory factor analyses. Afterwards, the analysis moves on to the main analysis and presents the estimation results for the complete structural equation model. For this purpose, the analysis is structured according to the research hypothesis (Table 11), in terms of the presentations and interpretation of the estimation results. In a further step, the results of the main analysis are extended by firstly conducting a more detailed analysis of the effects of the Solid Type. In a second step, the moderating effects of the personal characteristics and the Work Values are examined and interpreted by means of group comparisons.

7.1 Preliminary steps of the analysis

In terms of the preliminary steps, the following chapter firstly presents the descriptive statistics. It afterwards deals with the analysis of the endogenous variables and then focuses on the exogenous variables.

7.1.1 Descriptive statistics

The conducted online survey had 1,822 participants in total. Table 14 shows the descriptive characteristics of the data collection. The table reveals that almost two-thirds of the sample are women. As women and men have been addressed likewise, this figure can probably be explained by women's higher readiness to take part in such online surveys in general. Moreover, the data show that students represent 75% of the sample, whilst professionals constitute 25%. The unequal distribution is based on the fact that students were addressed via large mailing list, whilst professionals were approached individually or via small mailing list. Thus, in total, the coverage was clearly larger for students than for professionals. The large share of students is also reflected in the age structure of the sample. 58% of the participants are aged between 20 and 26, the mean age being 26.57 years (median =24). Moreover, the table shows that the survey had two main sources for students: The University of Tübingen constituting 51% of the student sample and the University of Paderborn, constituting 22% of the student sample. This distribution is owed to the researcher access to these two universities. With regard to course of study it can be said that the majority of the students are economics students (41%), followed by linguistics, cultural studies and humanities students (12%) and natural sciences (11%). Looking at the industries the professionals are working it can be pointed out that research, development and science together with public service represents the largest industry group, owing to the fact that addressing universities, besides students also professionals have been addressed.

Table 14: Descriptive characteristics of the sample

Variable	Value	Participants (n = 1822) absolut	Participants (n=1822) percentaged
Gender	Female	1172	64%
	Male	650	36%
Status	Student	1360	75%
	Professional	462	25%
Age	17 - 19	166	9%
	20-26	1061	58%
	27-30	252	14%
	31-35	142	8%
	36-45	104	6%
	> 45	97	5%
University (students only)	Ruhr-Universität Bochum	27	2%
	Universität Bielefeld	60	4%
	Universität Augsburg	100	7%
	Hochschule Ostwestfalen-Lippe	108	8%
	Universität Paderborn	305	22%
	Universität Tübingen	700	51%
	Other	60	4%
Course of study (students only)	Business Education	10	1%
	Engeneering	16	1%
	Industrial Engineering, Business Informatics, Business Mathematics	24	2%
	Medical Science	48	4%
	Mathematics, Computer Sciences, Statistics	57	4%
	Law	60	4%
	Psychology, Science of Education	61	4%
	Social Sciences	96	7%
	Natural Sciences	147	11%
	Linguistics, Cultural Studies, Humanities	165	12%
	Economics	560	41%
	Other	116	9%
Industry (professionals only)	Consulting	15	3%
	Marceting / Advertising / PR	17	4%
	EDP / IT	22	5%
	Healthcare	24	5%
	Human Rescources Consulting	36	8%
	Education	60	13%
	Research / Development / Science	86	19%
	Public Service	101	22%
	Other	101	22%

Normal distribution of variables, missing values and outliers

In order to get a first impression of the data and decide on the methods to apply, the data have to be inspected for missings, normality distribution and outliers. Missing values do not pose a problem to the data set, as the online survey forced participants to answer each question. Outliers were tested for by building a sumscore over all items (Bühner, 2006: 33) and visualizing it with the help of a boxplot. The results show that outliers do not have to be regarded as a problem. In a next step, normal distribution is tested for.

As mentioned before in chapter 6.4, deviations from the normal distribution play a pivotal role in terms of choosing the estimation method (Aichholzer, 2017: 114), as the maximum likelihood method (ML) is based on the assumption of a normality distribution of the endogenous variables, which seems most appropriate for the data structure at hand in the first place. For this reason, the data are tested for univariate normality distribution in a first step, applying the Shapiro-Francia-Test, which belongs to the most accurate tests in detecting deviation from normality (Mbah & Paothong, 2015). The Test shows that the normality assumption has to be rejected for the majority of variables (see Appendix 6, Table 44). Accordingly, the results of the Doornik-Hansen-Test for multivariate normality also indicate that the assumption of multivariate normality has to be rejected (see Appendix 6, Table 45). Bühner (2006: 251), however, suggests that deviances from normal distribution can be neglected, as long as skewness and kurtosis of the data do not exceed particular critical values. Thus, skewness and kurtosis are controlled for all variables in the following. According to Bühner (2006: 198), the data are moderately not normal distributed, in case skewness $|<2|$ and kurtosis $|<7|$, otherwise a substantial deviation has to be assumed. In case of a moderate deviation, ML can be applied. The values for all variables, except age, are clearly below these values (see Appendix 6, Table 46). The distribution of the sumscores of the latent variables is also visualized with the help of histograms (see Appendix 6, Figure 54, Figure 55, Figure 56). Following the results, the standard ML will be applied as the main estimation method, whilst complementing it by QML and bootstrapping, taking deviations from normal distribution for the calculation of standard errors into account (see chapter 6.4).

Correlation of variables

To begin an explorative analysis, all items are analyzed with regard to their bivariate relations based on the Pearson correlation coefficient. The full sample correlation matrix can be found

in Appendix 6 (Table 47 and Table 48). As the items do not follow a standard normal distribution, correlations are additionally tested using the Spearman correlation test. Since no meaningful differences can be found, these results are not reported. Firstly, the internal item correlations of the theoretically assumed latent constructs (marked reddish) are considered. Ideally, these correlations should be high, so that a high convergence is reached. Moreover, the internal correlations should be clearly higher than the correlation of items with other constructs, indicating a high discrimination. The results show that the construct internal correlation coefficients are mainly of medium sizes, meaning between 0.5 and 0.6. The theoretical constructs Pressure to Produce and Integration, however, show quite low internal correlation. Moreover, the correlation coefficients suggest positive relations between the constructs Autonomy, Innovation & Flexibility, Effort, and Integration and the dependent variable Employer Attractiveness. The correlations coefficients between Pressure to Produce and Employer Attractiveness, in contrast, indicate a negative relation. These first descriptive results correspond to the preliminary theoretical considerations. The items of the theoretical constructs also show several cross correlations, which indicates a low degree of discrimination.

With regard to the work values, most of the internal correlation coefficients are of medium size, meaning between 0.5 and 0.75. Single items also show lower coefficients. The cross correlations are small (<0,3). An exception is the relation between the work values Independences and Creativity. The coefficients here are of medium size, which could be assumed from a theoretical perspective.

In the following, the revealed correlation patterns will be further analyzed with the help of factor analyses.

7.1.2 Factor analyses of the endogenous variables: Employer attributes and Employer Attractiveness

In chapter 6 the method of SEM has been introduced. It has been pointed out that it is recommendable to firstly ensure that the measurement model of the SEM fulfils all validity and reliability criteria, before estimating the complete SEM. For this reason, the following paragraphs deal with the factor analyses of the measurement models of the endogenous variables, which are the employer attributes and the outcome variable Employer Attractiveness. Moreover, the procedure to first apply an exploratory factor analysis and then a confirmatory factor analysis is followed, as also explained in chapter 6.

In this section, the focus is on the endogenous variables of the model, the employer attributes and Employer Attractiveness. In chapter 7.4 the exogenous variables will be analyzed more closely.

Exploratory factor analysis of the employer attributes and Employer Attractiveness

Exploratory factor analysis can help to see how the items distribute among the dimensions. This is an important step before reporting measures of internal consistency, as the alpha value, which depends on the internal correlation of items as well as the number of items and therefore can be high even if internal correlation a low. Hence, factor analysis is a method for the examination of content validity for multi item constructs.

Exploratory factor analysis can mainly follow two objectives: To reduce number of data respectively variables or to attribute correlations between items to latent variables (Bühner, 2006), the letter objective applying to the present study. To reach these objectives different procedures can be applied. To choose the right procedure, five general decisions on the methodology and their implementation have to be made on (1) data inspection techniques, (2) the factor analytic method, (3) the factor retention method, (4) the factor rotation method, and (5) the factor loading cutoff (Howard, 2016).

With regard to the data *inspection method*, the Kaiser-Meyer-Olkin (KMO) criterion is regarded as an appropriate method for testing the adequacy of data for a factor analysis (Aichholzer, 2017; Bühner, 2006; Howard, 2016). The KMO measure for all items is above 0.8, which is referred to as "good". 27 of the items 31 show a KMO measure of above 0.9, representing a "great" level of adequacy. Moreover, the sample size has to be checked. Recommendation for minimum sample sizes vary between 200 to 500 participants and the participant-to-variable ratio is recommended to be between 5 to 1 and 20 to 1. The sample at hand consists of 1822 participants. The factor analysis for the employer attributes comprises 31 items, which corresponds to a participant-to-variable ratio of approximately 59:1.

Pertaining to the *factor analytic method*, SEM follow the objective to estimate the population correlations matrix based on the sample correlation matrix. For this reason, ML should be applied (Aichholzer, 2017; Bühner, 2006). Moreover, the results of the exploratory factor analysis are to be further validated with a confirmatory factor analyses, which also implies the application of ML (Howard, 2016: 53). ML estimates the population correlation matrix based on the sample correlation matrix and successively extracts factors, which explain as much of

the variance as possible.

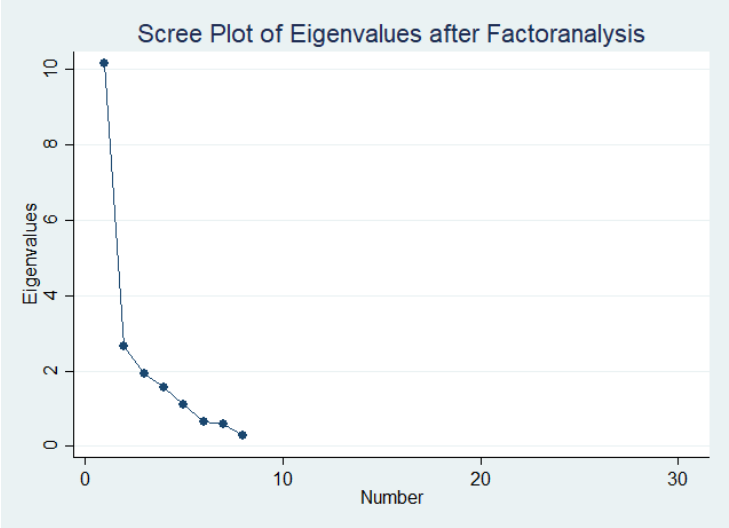
With regard to the *factor retention method,* apart from content plausibility, the best choice for the determination of the number of factors extracted is the scree test, taking accuracy and practicability into account (Costello & Osborne, 2005: 3). Following this method, the graph of the eigenvalues is examined for natural bends or break points in the data. The number of data points above or before the break is suggested to be the number of factors to retain. Thus, the point at which the break occurs is not included in this number. Further it is proposed to conduct multiple factor analysis, by adapting the number of factors to be extracted, taking the number of factors suggested by the scree test, the number of factors theoretically presumed, and then numbers above and below that numbers.

To reach a better mapping of the items to the factors, a *rotation technique* is used. Rotation technique allows to obtain correlated (oblique) or uncorrelated (orthogonal) factors. In the present study, an oblique rotation technique is chosen, as the theoretical considerations as well as the correlation matrix indicate correlations between the factors.

As to the *factor loading cutoff,* a combination of decision criteria is followed, as proposed by Costello and Osborne (2005) and Howard (2016). According to their recommendation, variables should load on their primary factor above .40, load on an alternative factor below 0.3 and demonstrate a difference of at least 0.2 between their primary and alternative factor loadings. Additionally, there should be no factors with fewer than three items. It may be possible to have items with two factors and maintain a strong factor if there is a very large data set (Costello & Osborne, 2005: 5).

The factor analysis to be conducted includes the 31 items of the six theoretically assumed constructs (Employer Attractiveness as well as the five employer attributes Autonomy, Innovation and Flexibility, Effort, Pressure to Produce, and Integration). Consequently, the factor analysis is conducted forcing 6 factors (the theoretically implied solution), 5 factors, and 7 factors, following recommendations of Costello and Osborne (2005). The χ^2 test yields significant values for all factor solutions, indicating that the factor structures do not adequately reflect the data structure. The scree test (see Figure 17) shows a decline after 7 factors, indicating a 6-factor solution (χ^2=931.72).

Figure 17: Scree Plot of the Eigenvalues for employer attributes and Employer Attractiveness



The analysis with regard to the factor loadings shows that for all factor solutions, Innovation and Flexibility as well as Employer Attractiveness are the strongest factors, having high factor loadings and no or few cross loadings. For all other factors, clear differences can be observed for the different factor solutions. The five factor solution does not provide a clear factor structure. The six factor solution shows more cross loadings than the seven factor solution. For this reason, the seven factor solution is followed upon. The results are represented in Table 15. The items marked grey are excluded from the further analysis, because they do not correspond to the factor loading cutoff rule mentioned above. Moreover, the fifth factor comprising the items Effort 1 and Effort 2 is dropped as the factor only consist of two items (the third item shows cross loadings > 0.2) and the loadings are not high enough to justify a stable factor.

As a result, the following six factors are retained: Innovation and Flexibility (I), Integration (II), Employer Attractiveness (III), Autonomy (IV), Pressure to Produce (VI), and Effort (VII). The Item Pressure to Produce 2^{r} loads on one factor together with the two Items of the theoretical construct of Effort. This seems coherent content wise, as all of the three items refer to a relaxed, rather unambitious way of work. For this reason, the item Pressure to Produce2^{r} is attributed to the construct of Effort. Afterwards, the exploratory factor analysis is run again as a 6 factor solution with the reduced set of items. The results are represented in Table 16.

Table 15: Results from the maximum likelihood factor analysis (oblique rotation), seven factor solution

Variable	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Factor VII	Uniqueness
Employer Atr. 1			0.8470					0.2662
Employer Atr. 2[r]			0.6664					0.4877
Employer Atr. 3			0.8355					0.2651
Employer Atr. 4			0.7700					0.4393
Employer Atr. 5			0.9331					0.1850
Autonomy 1				0.6615				0.4024
Autonomy 2				0.6621				0.4470
Autonomy 3[r]				0.7871				0.2924
Autonomy 4[r]				0.7312				0.3228
Autonomy 5[r]				0.7635				0.4473
Innovation & Flex. 1	0.4595			0.3325				0.5047
Innovation & Flex. 2	0.8276							0.3857
Innovation & Flex. 3	0.8344							0.3212
Innovation & Flex. 4	0.7053							0.3796
Innovation & Flex. 5	0.5709							0.4035
Innovation & Flex. 6	0.5069							0.4504
Effort 1					0.5630			0.3876
Effort 2					0.4892			0.3255
Effort 3[r]							0.6787	0.4347
Effort 4					0.5030		0.3282	0.3464
Effort 5[r]							0.7252	0.3128
Pressure to Produce 1						0.6304		0.5196
Pressure to Produce 2[r]							0.5425	0.6112
Pressure to Produce 3						0.7868		0.3775
Pressure to Produce 4						0.7405		0.4104
Pressure to Produce 5[r]						0.4686	0.4554	0.4556
Integration 1[r]		0.4132					0.3473	0.5054
Integration 2		0.4366						0.7306
Integration 3		0.8133						0.3199
Integration 4		0.7438						0.3058
Integration 5[r]		0.5281						0.3884

Notes: Blanks represent loadings < 0.3. Variables marked with a raised 'r' are inverted items.

Table 16: Results from the maximum likelihood factor analysis (oblique rotation), six factor solution, reduced set of items

Variable	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Uniqueness
Employer Atr. 1			0.8429				0.2675
Employer Atr. 2[r]			0.6499				0.4932
Employer Atr. 3			0.8309				0.2661
Employer Atr. 4			0.7633				0.4378
Employer Atr. 5			0.9261				0.1836
Autonomy 1		0.6415					0.4314
Autonomy 2		0.6441					0.4691
Autonomy 3[r]		0.8025					0.2823
Autonomy 4[r]		0.7380					0.3253
Autonomy 5[r]		0.7664					0.4485
Innovation & Flex. 2	0.7921						0.3984
Innovation & Flex. 3	0.7997						0.3348
Innovation & Flex. 4	0.6986						0.3730
Innovation & Flex. 5	0.5763						0.4107
Innovation & Flex. 6	0.5620						0.4729
Effort 3[r]					0.7415		0.4002
Effort 5[r]					0.7382		0.3493
Pressure to Produce 1						0.6236	0.5313
Pressure to Produce 2[r]					0.5651		0.6460
Pressure to Produce 3						0.8436	0.3213
Pressure to Produce 4						0.7025	0.4527
Integration 2				0.4752			0.7618
Integration 3				0.8319			0.3117
Integration 4				0.7645			0.3087
Integration 5[r]				0.4766			0.4212

Notes: Blanks represent loadings < 0.3. Variables marked with a raised 'r' are inverted items.

The results show that all items still load on the factors they were attributed to a priori. All factor loadings are > 0.4 and cross loadings are negligible. The weakest factor can be seen in Integration (Factor IV). Here only 2 items load > 0.7 and two items < 0.5. The Eigenvalue of the item Integration 2 is 0.76, meaning that 76% of the variance in this is not explained by the factor extracted. The structures detected are now analyzed using a confirmatory factor analysis.

Confirmatory factor analysis of the employer attributes and Employer Attractiveness

The confirmatory factor analyses (CFA) with ML estimations are performed based on the factors as resulting from the six-factor-solution from the exploratory factor analysis (see Table

16). Firstly, each of the six factors is considered separately, as recommended for example by Acock (2013) and Hildebrandt and Temme (2006). This ensures that the scales for the latent constructs themselves are reliable and valid before measuring their relation with other constructs. Estimating all constructs in one estimation, the complete variance- covariance matrix is used to estimate the loadings. This could then lead to models with reasonable fit, though the constructs themselves are content wise not valid. Thus, such a one-step-procedure could lead to artifacts. The procedure is of particular importance for the constructs representing employer attributes, because despite the scale for Employer Attractiveness, the psychometric properties for all other scales are not validated extensively. Moreover, the original context for the use of the scales targeted at employees who are supposed to evaluate their perceptions of the work climate for their current employer. Thus, applying the scales to a potential employer in a recruiting process changes the application context of the scales. For this reason, a fine-grained analysis of the scales before testing them in a complete structural equation model seems adequate here.

The CFA for the construct **Employer Attractiveness** is based on five items. The results show that all factors, despite Employer Attractiveness 2 (0.68), load > 0.7. This fulfils the conditions for indicator reliability, requiring standardized loading being ≥ 0.7 and variance explained being ≥ 0.5. The model fit is insufficient. The second item is the only one formulated reversed and for this reason might have led to participants having applied a different evaluation standard than for the other items of the scale. For this reason, Employer Attractivness 2 is eliminated from the scale and the modification indices (MI) for a potentially better model fit are requested from Stata. Based on the results, a covariance between the error terms of the items Employer Attractiveness 4 and Employer Attractiveness 5 is recommended. As these items show a high content wise overlapping, the covariance is added to the model. Afterwards, the model shows excellent fit values. Moreover, the criteria for construct reliability are met with a scale reliability of 0.88 and AVE being 0.7 (see Table 17).

Table 17: Results from confirmatory factor analysis for Employer Attractiveness

Emplyoer Attractiveness			
Item		Factor loading	Variance explained
Emplyoer Attractiveness 1	Für mich wäre Sound Technologies ein guter Arbeitsplatz.	0.85	0.72
Emplyoer Attractiveness 3	Sound Technologies wäre für mich als Arbeitgeber attraktiv.	0.87	0.76
Emplyoer Attractiveness 4	Ich würde gern mehr über Sound Technologies erfahren.	0.72	0.52
Emplyoer Attractiveness 5	Ein Job bei Sound Technologies wäre reizvoll für mich.	0.89	0.79
Covariance			
error .ea4 with error .ea5		0.23	
Fit Indices			
χ^2 (1)= 3.46, p > 0.05, RMSEA = 0.037, CFI = 0.999, SRMR = 0.004			
Scale Reliability	AVE		
0.88	0.7		

Note: Coefficients are standardized; p < 0.001 for all loadings

Item droped: Sound Technologies käme für mich nur als letzte Möglichkeit in Frage. (Employer Attractiveness 2)

The CFA for the six Items representing **Innovation and Flexibility** shows significant factor loadings > 0.7 (p < 0.01) for all factors (see Table 18).

Table 18: Results from confirmatory factor analysis for Innovation & Flexibility

Innovation & Flexibility			
Items		Factor loading	Variance explained
Innovation & Flexibility 2	Dem Anschein nach reagiert Sound Technologies schnell, wenn Änderungen notwendig sind.	0.72	0.52
Innovation & Flexibility 3	Es ist anzunehmen, dass das Management bei Sound Technologies schnell die Notwendigkeit erkennt, Dinge anders zu tun.	0.77	0.59
Innovation & Flexibility 4	Sound Technologies ist vermutlich eine sehr flexible Organisation; hier können Abläufe schnell geändert werden, um sich an neue Bedingungen anzupassen und Probleme direkt zu lösen, wenn sie auftauchen.	0.82	0.67
Innovation & Flexibility 5	Unterstützung bei der Entwicklung neuer Ideen steht hier wahrscheinlich jeder Zeit zur Verfügung.	0.75	0.56
Innovation & Flexibility 6	Es sieht so aus, als würden Mitarbeiter bei Sound Technologies immer nach neuen Wegen suchen, um mit Problemen umzugehen.	0.70	0.49
Covariance			
error .if2 with error .if3		0.28	
error .if5 with error .if6		0.21	
Fit Indices			
χ^2 (3)= 3.777, p > 0.05, RMSEA = 0.012, CFI = 1, SRMR = 0.004			
Scale Reliability	AVE		
0.85	0.57		

Note: Coefficients are standardized; p < 0.001 for all loadings

The model fit values, however, indicate an insufficient fit. The MI suggest adding a covariance between the error terms of items Innovation & Felxibility 3 and 4 as well as between Innovation & Flexibility 5 and 6. Looking at the content of these items, a high consistency can be found again so that a correlation of the error terms seems explainable. Adding these covariances to the CFA model, the fit statistics show excellent fit values. All validity and reliability criteria are also met.

The analysis for the hypothetical construct **Autonomy** shows factor loadings > 0.7 ($p < 0.01$) for all factors despite Autonomy 2, which has a loading of 0.68 ($p < 0.01$) (see Table 19). The fit statistics are not satisfactory. The modification indices indicate a covariance between the error terms of Autonomy 1 and 2 as well as between Autonomy 3 and 4. Considering the first two items, the content is nearly identical. Autonomy 3 and 4 are likewise similar and additionally, both are reversed items. For this reason, the inclusion of the two covariances seems reasonable from a theoretical perspective. After the corresponding modification of the model, the loadings for Autonomy 1 and 2 both are < 0.7 now (Autonomy 1 = 0.69, Autonomy 2 = 0.66, $p < 0.01$ for both), all other items still load highly significantly > 0.7. A stepwise elimination of first Autonomy 1 and then Autonomy 2, taking error correlation into account, also shows that factor loading of the two items are < 0.7.

Table 19: Results from confirmatory factor analysis for Autonomy

Autonomy			
Item		Factor loading	Variance explained
Autonomy 3[r]	Es scheint, als würden die oberen Führungskräfte die Arbeit derer unter ihnen streng kontrollieren.	0.88	0.77
Autonomy 4[r]	Es macht den Anschein, als ob das Management eine zu strikte Kontrolle darüber ausübt, wie die Dinge bei Sound Technologies erledigt werden.	0.84	0.71
Autonomy 5[r]	Hier ist es vermutlich wichtig, die Dinge erst mit dem Chef abzuklären, bevor eine Entscheidung getroffen wird.	0.70	0.49
Scale Reliability	AVE		
0.85	0.66		

Note: Coefficients are standardized; $p < 0.001$ for all loadings

Items droped: Das Management bei Sound Technologies läßt die Beschäftigten wahrscheinlich meist ihre eigenen Entscheidungen treffen. (Autonomy 1)

Vermutlich traut das Management den Mitarbeitern zu, arbeitsbezogene Entscheidungen zu treffen, ohne sich vorher Erlaubnis dafür zu holen. (Autonomy 2r)

For this reason, the first two items are eliminated from the model. The remaining three items probably also show a higher consistence because all three of them are reversed items. Model fit statistics for the model with three items cannot be retrieved, as the model is just identified with df = 0. However, validity and reliability criteria show good results.

The model for the construct **Effort** is based on three items. The results of the CFA show that that the loading for the items Effort 3 and 5 are > 0.7, whilst the item Pressure to Produce 2 only loads with 0.55 (see Table 20). As a consequence, the last item is eliminated. Fit indices cannot be obtained for the model, as the three items model is just identified and the two item model is not identified. Models with one factor and two indicators are locally not identified. However, if these models are part of a model with more factors, the model can be globally identified (which is the case in the study at hand). Ideally, models should be identified globally and locally. However, it is common practice that obtaining overall model identification is perfectly acceptable. For this reason, the factor Effort is retained with two indicators here to test its fit within the context of the complete measurement model in the next step. In order to fit the model with two indicators, a common research practice is followed, as recommended by Little et al. (1999: 207–208): In case a two-indicator-factor is justified from a theoretical perspective and the two indicators represent theoretically equivalent selections from the items reflecting the construct it is defensible to place equality constraints on the respective loadings. This leads on average to accurate results. This procedure, however, can only be applied reasonably for unstandardized estimations.

Table 20: Results from confirmatory factor analysis for Effort

Effort		
Item		Factor loading
Effort 3[r]	Es scheint, als würden Mitarbeiter bei Sound Technologies damit durchkommen, so wenig wie möglich zu tun.	0.77*
Effort 5[r]	Es macht den Anschein, als würden sich Mitarbeiter bei Sound Technologies nicht mehr als nötig anstrengen.	0.77*
Scale Reliability	AVE	
0.77	0.52	

Note: *Coefficients are unstandardized and constrained to be equal and the variance of Effort is fiexed to 1; $p < 0.001$ for all loadings

Items droped: Es macht den Eindruck, als wären die Arbeitsbelastungen der Mitarbeiter grundsätzlich nicht besonders herausfordernd. (Pressure to Produce 2r)

The construct **Pressure to Produce** is represented by three indicators. Two of the items, namely Pressure to Produce 3 and 4, load > 0.7 ($p < 0.001$) (see Table 21). The item Pressure to Produce 1 has a loading of 0.66 ($p < 0.001$). Consequently, the item Pressure to Produce 1 is eliminated. As the construct again only consists of two indicators, the loadings of the two indicators are set equal, as already described for the construct Effort.

Table 21: Results from confirmatory factor analysis for Pressure to Produce

Pressure to Produce		
Item		Factor loading
Pressure to Produce 3	Das Management verlangt vermutlich von den Beschäftigten, extrem hart zu arbeiten.	0,7494278*
Pressure to Produce 4	Wahrscheinlich sind die Mitarbeiter bei Sound Technologies unter Druck, die Ziele zu erreichen.	0,7494278*
Scale Reliability	AVE	
0.76	0.61	

Note: Coefficients are unstandardized and constrained to be equal and the variance of Effort is fiexed to 1; $p < 0.001$ for all loadings
Items droped: Es scheint, als würde von den Beschäftigten zu viel am Tag erwartet. (Pressure to Produce 1)

The construct **Integration** is initially represented by four items, two of which clearly load > 0.7 (Integration 3 and 4) and two items clearly load below 0.7 (Integration 2 with 0.46 and Integration 5 with 0.64) (see Table 22). Considering the integration of covariances between error terms as suggested by Stata and excluding Integration 2 does not improve the model in terms of model fit indices or loadings.

Table 22: Results from confirmatory factor analysis for Integration

Integration		
Item		Factor loading
Integration 3	Die Mitarbeiter in den unterschiedlichen Abteilungen sind wahrscheinlich bereit, Information untereinander auszutauschen.	0.73*
Integration 4	Bei Sound Technologies scheint die Zusammenarbeit zwischen den Abteilungen sehr effektiv zu sein.	0.73*
Scale Reliability	AVE	
0.99	0.68	

Note: Coefficients are unstandardized and constrained to be equal and the variance of Effort is fiexed to 1; $p < 0.001$ for all loadings

Items droped: Vermutlich gibt es bei Sound Technologies wenig Konflikte zwischen den Abteilungen. (Integration 2)

Es macht den Eindruck, als wäre der Umgang zwischen den Abteilungen eher rau. (integration $5^{r)}$

Taking the content of the items into account, the items 3 and 4 have insofar clearly more overlapping as in item 2 the word conflict is used, which is somewhat stronger than the expressions in the other items, and item 5 is a reversed item. Summarizing the analytical results for the construct Integration, the two items with the low loadings have to be eliminated. This leads again to the unfavorable case of a one-factor-two-indicator constellation. For this reason, all tow-indicator- factors need to be paid special attention to when they are tested in the context of the complete measurement model.

As the variable **Adequacy for Work** is based on one item only, there is no measurement model for this variable.

Estimating the entire measurement model for the employer attributes and Employer Attractiveness

Having established reasonable measurement models for each of the latent variables, the measurement model now needs to be solved simultaneously for all sets of items. The estimation of the model reveals very good results with regard to factor loadings and fit statistics ($\chi^2(116) = 331.294$, $\chi^2/df = 2.86$, $p < 0.001$, RMSEA = 0.032, CFI = 0.988, SRMR = 0.025). As the chi² test indicates that the model significantly fails to fit the data, the MI suggested by Stata are analyzed. As the MI do not indicate any reasonable improvements of the fit, the model is accepted, as all model fit indices despite the chi² reveal excellent values. The results of the fitted model are presented in Table 23.

Table 23: Results for the complete measurement model (CFA, maximum likelihood)

Construct	Indicator		Standard. value	Unstandard. value
Employer Attractiveness	Emplyoer Attractiveness 1	Für mich wäre Sound Technologies ein guter Arbeitsplatz.	0,89	0,96
	Emplyoer Attractiveness 3	Sound Technologies wäre für mich als Arbeitgeber attraktiv.	0,90	1 (fixed)
	Emplyoer Attractiveness 4	Ich würde gern mehr über Sound Technologies erfahren.	0,69	0,90
	Emplyoer Attractiveness 5	Ein Job bei Sound Technologies wäre reizvoll für mich.	0,85	1,00
Innovation & Flexibility	Innovation & Flexibility 2	Dem Anschein nach reagiert Sound Technologies schnell, wenn Änderungen notwendig sind.	0,71	0,80
	Innovation & Flexibility 3	Es ist anzunehmen, dass das Management bei Sound Technologies schnell die Notwendigkeit erkennt, Dinge anders zu tun.	0,76	0,86
	Innovation & Flexibility 4	Sound Technologies ist vermutlich eine sehr flexible Organisation; hier können Abläufe schnell geändert werden, um sich an neue Bedingungen anzupassen und Probleme direkt zu lösen, wenn sie auftauchen.	0,80	1,00 (fixed)
	Innovation & Flexibility 5	Unterstützung bei der Entwicklung neuer Ideen steht hier wahrscheinlich jeder Zeit zur Verfügung.	0,78	0,94
	Innovation & Flexibility 6	Es sieht so aus, als würden Mitarbeiter bei Sound Technologies immer nach neuen Wegen suchen, um mit Problemen umzugehen.	0,73	0,84
Autonomy	Autonomy 3[r]	Es scheint, als würden die oberen Führungskräfte die Arbeit derer unter ihnen streng kontrollieren.	0,87	1,00 (fixed)
	Autonomy 4[r]	Es macht den Anschein, als ob das Management eine zu strikte Kontrolle darüber ausübt, wie die Dinge bei Sound Technologies erledigt werden.	0,85	1,01
	Autonomy 5[r]	Hier ist es vermutlich wichtig, die Dinge erst mit dem Chef abzuklären, bevor eine Entscheidung getroffen wird.	0,70	0,80

Construct	Indicator		Standard. value	Unstandard. value
Integration	Integration 3	Die Mitarbeiter in den unterschiedlichen Abteilungen sind wahrscheinlich bereit, Information untereinander auszutauschen.	0,80	0,98
	Integration 4	Bei Sound Technologies scheint die Zusammenarbeit zwischen den Abteilungen sehr effektiv zu sein.	0,86	1 (fixed)
Effort	Effort 3[r]	Es scheint, als würden Mitarbeiter bei Sound Technologies damit durchkommen, so wenig wie möglich zu tun.	0,72	0,77
	Effort 5[r]	Es macht den Anschein, als würden sich Mitarbeiter bei Sound Technologies nicht mehr als nötig anstrengen.	0,88	1,00 (fixed)
Pressure to Produce	Pressure to Produce 3	Das Management verlangt vermutlich von den Beschäftigten, extrem hart zu arbeiten.	0,79	1 (fixed)
	Pressure to Produce 3	Wahrscheinlich sind die Mitarbeiter bei Sound Technologies unter Druck, die Ziele zu erreichen.	0,77	0,9655017
Fit Indices				
χ^2 (116)= 331.294 , χ^2/df = 2.86, p < 0.05, RMSEA = 0.032, CFI = 0.988 SRMR = 0.025				

Note: p < 0.001 for all coefficients

The model shows standardized loadings between 0.69 and 0.90. All loadings are highly significant with $p < 0.001$. For the unstandardized solution, the strongest indicator of each item was chosen as reference indicator. The factor loadings do only vary slightly from the loadings of the separate measurement models, now taking into account the *entire* covariance matrix and not just the covariances between the indicators of one construct. The constructs Integration, Effort, and Pressure to Produce, the three one-factor-two-indicator models, show satisfying factor loadings, as well.

In order to further verify the factor structure of the model, a one-factor model as well as different three-factor models are estimated alternatively. The fit values of the alternatives verify the superiority of the six-factor solution. The bad fit of the one factor model shows that common method variance does not seem to seriously bias the results (Iseke & Pull, 2017).

Table 24: Model fit of alternative measurement models

	χ^2	*df*	*p*	$\Delta\chi^2$ (Δdf)	p	CFI	RMSEA
Theoretically derived six-factor solution	331.294	116	.00			.99	.032
Best three-factor solution	2090.284	126	.00	1758.99 (10)	.00	.89	.093
One-factor solution	5616.651	131	.00	5285.357(15)	.00	.67	.152

Note: n = 1822, df degrees of freedom, CFI comparative fit index, RMSEA root-mean-square error of approximation

After having assessed the measurement model in terms of the factor-analysis based reliability and validity criteria as introduced in chapter 6, the nomological validity is now examined. In order to assess nomological validity, the constructs are considered in a larger context. For this reason, the correlation coefficients between the constructs (sumscores) are analyzed. All constructs, despite Pressure to Produce, show at least medium sized correlations (between r = 0.36 and 0.55) with Employer Attractiveness. Between Pressure to produce and Employer Attractiveness a small negative correlation can be observed (r = - 0.18). The estimation moreover reveals considerable positive correlations between the constructs Innovation & Flexibility and Integration (r = 0.74), and Innovation & Flexibility and Autonomy (r = 0.55). The analysis further indicates negative relationships between Pressure to Produce and all other constructs (with r between -0.17 and -0.57). Against this background, the constructs of the model correspond to the relation hypothesized on theoretical grounds.

To sum up the chapter on the factor analyses of the endogenous variables it can be concluded that the thorough conduct of first, an exploratory factor analysis, then the CFA of the separate constructs and finally the complete measurement model has led to a well revised, six factor based measurement model of the endogenous variables. The model corresponds to the theoretical considerations on the constructs and fulfills all criteria of model goodness. Thus, the following chapter focuses on the assessment of the exogenous variables.

7.1.3 Analysis of the independent variable: Corporate architecture

After the measurement model for the employer attributes, the endogenous variables of the model have been analyzed in the preceding sections, the analysis now sheds light on corporate architecture, the independent exogenous variable of the model. In a first step it is examined, whether the treatment variables, which are the different architectural types, have been realized by the participants as expected. Based on a one-way ANOVA it is firstly evaluated, if the participants have realized the manipulation at all. In a second step, a mean value comparison is applied in order to test whether the two scenarios representing one architectural type have been interpreted equally by the participants.

7.1.3.1 Analysis of the manipulation and its impact on Employer Attractiveness

With the objective of being able to evaluate whether the participants of the study have noticed the variations in the different scenarios, three control variables had been integrated into the questionnaire. The three questions for this manipulation check have been presented in chapter 5.3, Table 12. In the scenario experiment, each of the four architectural styles was represented by three pictures. The three questions of the manipulation check aimed at capturing whether the participants had realized each of the pictures.

A one-way ANOVA was conducted to determine whether the three dependent variables (manipulation checks) are different for the participant groups with the 4 different scenarios: Balanced, Fun, Solid Closed and Solid Open. A oneway ANOVA is a suitable method here as the dependent variable is measured at the continuous level (five-point Liker scales can be interpreted as quasi-continuous), whilst the independent variables consist of more than two categorical, independent groups. Normality distribution of the three variables over the four scenarios was tested, as this is a central assumption for ANOVA. The results of the Shapiro Wilk test showed that normality distribution can be assumed for the Building manipulation for the Balanced and the Fun Style. As the Shapiro Wilk test did not indicate a normal distribution

for the Building manipulation for the Solid Open and the Solid Closed style, the skewness and kurtosis were analyzed for these cases and showed that for both skewness was < |2| and kurtosis < |7| so that the data are only moderately not normally distributed which can be regarded as acceptable, as the variance analysis is robust for moderate violation of normality.

For the manipulation of the workplace as well as of the interaction areas for all groups normality distribution is moderately violated.

The assumption that variances are equal within groups was tested using the Barlett's test. The test revealed that the variances are homogenous within the four groups for the variable Interaction area manipulation. For the Building manipulation as well as for the Workplace manipulation the test indicated unequal variances. ANOVA is robust for such a violation, in case the groups are of same sizes. As this is the case in the analysis at hand (group sizes 463/462/448/449), the further analysis can be continued applying an ANOVA. Table 25 presents the results of the one-way ANOVA.

Table 25: Results of ANOVA for manipulation variables of the scenarios

	Group					
	Balanced N=463	Fun N=462	Solid Closed N=448	Solid Open N=449	F-Value	p
Building manipulation	$2,98_a$ (1,04)	$2,64_b$ (1,1)	$4,13_c$ (1,22)	$4,04_c$ (1,22)	193.43	< 0.001
Workplace manipulation	$4,26_a$ (0,78)	$4,02_b$ (1,07)	$3,19_c$ (1,19)	$3,57_d$ (1,23)	87.34	< 0.001
Interaction Area manipulation	$3,60_a$ (1,05)	$3,68_a$ (1,07)	$1,92_b$ (0,99)	$2,11_c$ (0,98)	388.36	< 0.001

Note: Means (standard deviations in brackets) per group. Means with different indices per row differ significantly ($p < 0.05$)

The analysis showed that for all three manipulations, there are significant differences between the groups. For the Building manipulation there was a statistically significant difference with $F(3,1818) = 193.43$, $p < 0.001$, for the Workplace manipulation with $F(3,1818) = 87.34$, $p < 0.001$, and for the Interaction area manipulation with $F(3,1818) = 388.36$, $p < 0.001$. In a further step, post-hoc tests revealed between which groups significant differences were determined.

The results in Table 25 are derived on the basis of a Scheffe post-hoc tests. Furthermore, a Tukey post-hoc test was applied, which confirmed the results. Boths, the Scheffe as well as the Tukey post-hoc test rank among the most common post-hoc tests (Backhaus et al., 2018: 192).

Pertaining to the manipulation of the building, the analyses indicated that all architectural types differ significantly from one another, with exception of the Solid Closed and the Solid Open Type. There is no significant difference between these two groups. This was expected, as these two architectural types are represented by the same building pictures.
The analysis of the workplace manipulation revealed significant differences between all four architectural types. This corresponds to the expectation, as each of the four architectural types is represented by a different workplace layout.
The further analysis of the interaction area manipulation showed that the participants did not perceive a significant difference between the Balanced and the Fun type. Recalling the item of the interaction area manipulation ("The interaction area is colorful / lively") it becomes clear that the item was not formulated sufficiently differentiated. Due to the fact that the interaction areas of the Balanced Type as well as of the Fun type are designed with colors, the manipulation was not able to differentiate between these two architectural types. A more appropriate item would have been "The interaction area is characterized by features resembling the world of leisure and fun". However, the difference of the mean values shows that the interaction area manipulation has a slightly higher value for the Fun Type (+ 0.08) than for the Balanced type. Though the difference is not significant, the 95% confidence interval retrieved from the pairwise comparison (Tukey test) confirms this direction (CI = [-.09 - .25]). Comparing the Balanced Type and the Fun Type with the Solid Open Type as well as comparing the Balanced Type and the Fun Type with the Solid Closed Type the analysis indicates significant differences. The analysis further reveals a significant difference between the Solid Closed and the Solid Open Type. This seems surprising, as both scenarios contain the same pictures representing the interaction areas. As Table 25 shows, there is a difference of 0.2 between the Solid Closed and the Solid Open Type for the interaction area manipulation, with the higher value for the Solid Open Type. There might be different explanations for this result: (1) As the Solid Open Type might have appeared more lively because of the cubical workplaces as compared to the closed and plain cell offices of the Solid Closed Type, this effect might have been transferred to the interaction areas. (2) One of the scenarios representing the Solid Closed and the Solid Open Type presented a plain kitchen, whilst the second scenario representing the

Solid Closed and the Solid Open Type contains a white kitchen with a narrow belt of orange tiles. This might have led to different evaluations of the interaction area manipulation. To have a closer look at this result, a further ANOVA is conducted. This time, there are four groups (Solid Closed scenario 1, Solid Closed scenario 2, Solid Open scenario 1, Solid Open scenario 2). The one-way ANOVA again shows that there are significant differences between the groups ($F(3,893) = 29.25$, $p < 0.001$). Both the post-hoc Scheffe test as well as the pairwise comparison reveal that there is no significant difference for the two scenarios containing the kitchen with the orange tiles. These two scenarios do also show higher mean values as the two scenarios with the plain white kitchens. However, the analysis indicates a significant difference (0.35, $p < 0.001$) between the two scenarios with the plane white kitchen. This difference can only be explained by the effect of the cubicles, as mentioned earlier above. The scenario with the plain white kitchen and the cubicles leads to a higher evaluation (1.92) of the interaction area manipulation as compared to the scenario with plain white kitchen and the cell offices (1.57), which supports this assumption.

To conclude the discussion of the results of the manipulation check the following points can be made: For the Building manipulation and the Workplace manipulation the results support the assumption that the manipulation of the two characteristics worked. With regard to the Interaction area manipulation a differentiated analysis of the scenarios revealed that the manipulation seemed to work for two scenarios, for the other two scenarios the manipulation did either nor work, or, as seems more likely, was influenced by other characteristics of the scenario. The last point supports the assumption that each of the architectural types affects participants as a whole, as an entity. To sum up, the analyses showed that it can be assumed that the manipulations of the scenarios have been noticed accordingly by the participants.

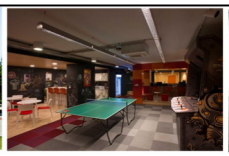
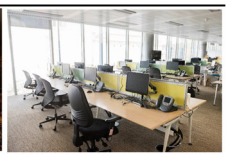
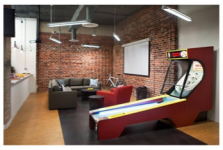
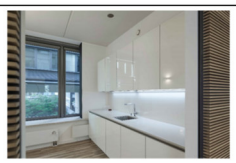
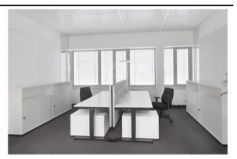
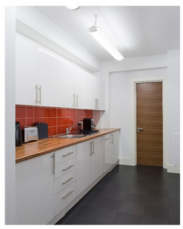
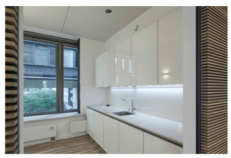
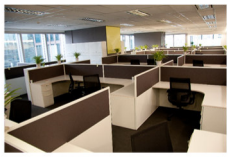
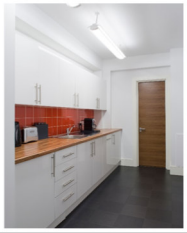
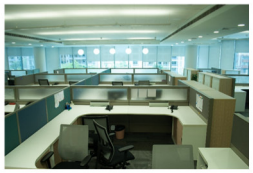
7.1.3.2 Comparison of the scenarios and their impact on Employer Attractiveness

The following section deals with the impact of the scenarios on the central dependent variable Employer Attractiveness. The analysis is based on a mean value comparison.

As mentioned earlier, each architectural type was represented by two scenarios in order to avoid artifacts or other characteristics biasing the results. Thus, it is vital to test whether each of the two scenarios represent the corresponding architectural type likewise, meaning that each of the two scenarios has a comparable influence on the dependent variable. This implies a pairwise comparison of the two scenarios representing one architectural type. A comparison of the mean values of two groups is commonly conducted with the help of a t- test of the mean values. Table

26 presents and overview of the scenarios, which are compared in the following.

Table 26: Overview of the scenarios[24]

Balanced 1			
Balanced 2			
Fun 1			
Fun 2			
Solid closed 1(g)			
Solid closed 2			
Solid open 1 (g)			
Solid open 2			

Note: 'g' in brackets marks the scenarios presenting a glass tower instead of a concrete tower

[24] For a list of picture credits for all pictures used in this work please see Appendix 10

The two-sample t-test shows that the difference in the Employer Attractiveness between the two scenarios representing the Balanced Type does not differ significantly from zero (Table 27). Likewise, the t-test implies no significant difference in the Employer Attractiveness for the two scenarios representing the Fun Style. With regard to the Solid Closed Type, however, the t-test indicates a significant difference of Employer Attractiveness between the two scenarios. The mean value of Employer Attractiveness for the scenario Solid Closed 1(g) is significantly higher than for the scenario Solid Closed 2. The main difference between the two scenarios seems to be the outer appearance of the building presented. Whilst the scenario Solid Closed 1(g) presents a glass tower, the second scenario presents a concrete tower. Accordingly, it seems likely that this difference in the scenarios has led to the different evaluation of the Employer Attractiveness.

Table 27: Analysis of the scenarios (t- test of the mean values for Employer Attractiveness)

	N	Mean (SD)	T-Value	p
Balanced 1	235	3,54 (0,83)	0,61	0,54
Balanced 2	228	3,49 (0,87)		
Fun 1	220	3,18 (0,91)	0,40	0,69
Fun 2	242	3,21 (0,91)		
Solid closed 1(g)	221	3,30 (0,88)	5,40	< 0,01
Solid closed 2	227	2,83 (0,93)		
Solid open 1 (g)	222	3,04 (0,97)	3,42	< 0,01
Solid open 2	227	2,74 (0,86)		

Note: 'g' in brackets marks the scenarios presenting a glass tower instead of a concrete tower

In the same way, the two scenarios representing the Solid Open Type indicate a significantly different effect on Employer Attractiveness, in such a way that the Employer Attractiveness for the scenario Solid Open 1(g) showed a higher value than the Employer Attractiveness for the scenario Solid Open 2. Again, the main difference between the two scenarios seems to be the

glass tower versus the concrete tower. Thus, the two scenarios of each of the two Solid Types do not have a homogenous effect on Employer Attractiveness. However, a homogenous direction becomes obvious: The Solid Closed 1g scenario comes along with a higher mean value (3,30) than the Solid Open 1g scenario (3,04), whereas both scenarios present the glass tower. Looking at the two scenarios presenting the concrete tower, the scenario Solid Closed 2 shows a higher mean value of Employer Attractiveness (2.83) than the scenario Solid Open 2 (2,74). Consequently, both scenarios representing the Solid Closed Type are linked to a higher Employer Attractiveness than the two scenarios representing the Solid Open Type.

In terms of these results, the following approach is chosen for the subsequent analysis in the form of a structural equation model: In a first step, each of the scenario-pairs is treated consolidated as one treatment / category of the independent variable, so that there are four categories representing the four different architectural types for the independent variable corporate architecture. In a second step, the Solid Type is analyzed in a differentiated way, so that the differences between the scenarios are accommodated.

7.1.4 Factor analyses of the moderating variables: Work values

The work value scales are well revised (see chap. 5.2) and revealed very good psychometric properties in earlier studies. However, in order to gain certainty about the content validity of the scales for the sample of the study and to accommodate the fact that the scales have been translated from English into German, the item structures are first reviewed on the basis of an exploratory factor analysis and subsequently a CFA.

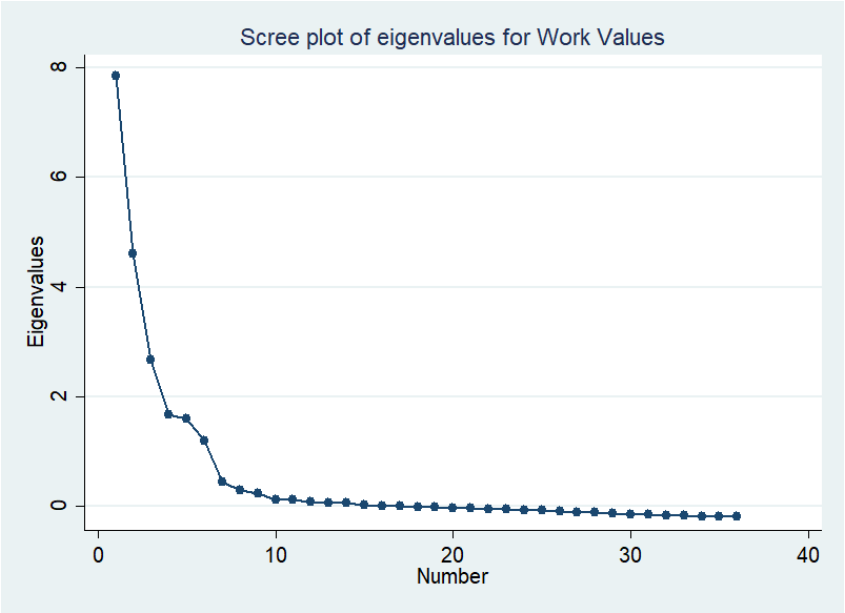
Exploratory factor analysis of work values

After having verified that the distribution of the variables only moderately deviates from normality (see chapter 7.1.1), the items for the work values are now revised in terms of their adequacy for factor analysis. Applying the Kaiser-Meyer-Olkin criterion the results reveal an overall value of 0.91. In more detail, all items show values > 0.85, whereas 26 out of the 36 items even show values > 0.9. Considering that values > 0.8 are regarded as “good” and values > 0.9 as “great” in terms of sampling adequacy, all items indicate an excellent quality for the analysis. Looking at the participant-to-variable ratio, a ratio of 50.6 / 1 can be reached which is well above the upper recommendation of 20/1.

As factor analysis method maximum likelihood is chosen for the same reasons as already

expounded for the factor analysis of the endogenous variables (see chapter 7.1.2). In a first step, the analysis is run without forcing a particular number of factors. The results (before rotation) show Eigenvalues > 1 for six factors. The screeplot of the Eigenvalues, presented in Figure 18, indicates a break point in form of a steep decrease of Eigenvalues after 6 factors. A six factor solution also correspond to the theoretical foundation of the scales. As the results with regard to the factor retention are clear, the analysis is run again forcing six factors.

Figure 18: Screeplot of eigenvalues for work values



Afterwards an oblique rotation method is applied, as the correlation matrix (see Table 48 in Appendix 6) as well as the theoretical assumptions suggest correlations between the factors. The results of the six-factor solution show a very clear picture with only 3 cross loadings, one of which has a value > 0.3. This concerns the items Achievement 6. This items does not fulfill the requirement for one factor loading > 0.4 on the primary factor and < 0.3 on an alternative factor. Looking at the content of the 6 items representing the construct Achievement, it is obvious that the first five items all refer to a kind of feeling of achievement and success, whereas the sixth factor focuses on the importance of being assigned to major projects. Due to the different focus of the items and the empirical findings, this item is eliminated from the further analysis. Table 28 shows the results of the six-factor solution without the item Achievement 6. The six-factor-solution shows one-dimensionality for all factors. All factor loadings are well above 0.4.

Table 28: Final six-factor-solution of the exploratory factor analysis for work values

Variable	Factor I	Factor II	Factor III	Factor IV	Factor V	Factor VI	Unique-ness
Achievement 1						0.7039	0.4747
Achievement 2						0.6716	0.4982
Achievement 3						0.8221	0.3651
Achievement 4						0.7161	0.4851
Achievement 5						0.5225	0.6259
Coworkers 1					0.5024		0.6532
Coworkers 2					0.6681		0.5473
Coworkers 3					0.8080		0.3767
Coworkers 4					0.4990		0.6776
Coworkers 5					0.5318		0.5630
Coworkers 6					0.7965		0.3728
Creativity 1		0.6410					0.4944
Creativity 2		0.7304					0.4413
Creativity 3		0.8539					0.2843
Creativity 4		0.8337					0.2882
Creativity 5		0.8474					0.2867
Creativity 6		0.7608					0.4070
Independence 1				0.4640			0.5621
Independence 2				0.5525			0.6121
Independence 3				0.8669			0.2818
Independence 4				0.8454			0.2983
Independence 5				0.4780			0.7157
Independence 6				0.4645			0.6414
Security 1			0.7091				0.4620
Security 2			0.5036				0.6298
Security 3			0.7141				0.4360
Security 4			0.8930				0.2205
Security 5			0.9249				0.1756
Security 6			0.7820				0.3427
Lifestyle 1	0.7094						0.4401
Lifestyle 2	0.7060						0.4839
Lifestyle 3	0.6923						0.4728
Lifestyle 4	0.7792						0.3885
Lifestyle 5	0.8451						0.2988
Lifestyle 6	0.8550						0.2744

Notes: Blanks represent loadings < 0.3

Even if the chi² indicates that the model significantly fails to reproduce the data (χ^2 (400) = 2226.25, $p < 0.001$), the model is retained as a high chi² is common for comparable sample sizes. In a next step, the factors are analyzed with a confirmatory factor analysis.

Confirmatory factor analysis of work values

As with the employer attributes (see chapter 7.1.2), the work values are also examined as separate constructs in a first step. The maximum likelihood method is again applied. A first estimation reveals factor loadings for the constructs vary between 0.52 and 0.87. All model fit indices are acceptable. In a second estimation, however, all items with factor loadings < 0.6 are eliminated in order to avoid problems with convergent and discriminant validity in further estimations.

With regard to the construct **Achievement,** the items Achievement 4 and Achievement 5 have to be eliminated due to their loadings. Content wise, it could be argued that these items shows a weaker focus on success and performance than the other items, which might also explain the weaker loadings. After the elimination of the items, all fit indices are satisfying.

Analyzing the construct **Coworkers**, one item (Coworkers 4) loads < 0.6. Looking at the content of the item, it seems that this item has a task focus whilst the other items all refer to "being together with colleagues". For this reason, the relatively low loading of the factor is comprehensible. Consequently, the item is excluded from the scale. Afterwards all loadings are significantly > 0.6, however, there is a problem with convergent validity, as the AVE is < 0.5. For this reason, the item with the smallest loading, Coworkers 5, also has to be eliminated. Afterwards, the AVE is > 0.5 and also all other fit indices are satisfying.

The construct **Independence** shows two items with loadings < 0.6. These are Independence 5 with 0.52 and Independence 6 with 0.58. In a first step Independence 5 is eliminated. Afterwards, all other loadings are > 0.6. However, there is a problem with the convergent validity, as the AVE is < 0.5. For this reason, the items Independence 6 and Independence 1, the ones with the lowest loadings, have to be eliminated from the model, until satisfying values for the convergent validity and all other fit indices are reached.

For the work values **Creativity**, **Security** and **Lifestyle** all item loadings are > 0.6 and all fit indices are satisfying. All constructs show considerable correlations between numerous error terms, so that the corresponding covariances are added to the models. Though the factor loadings are partly below the recommended 0.7, the model fit indices as well as the values for the construct reliability (between 0.77 and 0.88) are all absolutely satisfactory. With the exception of the construct Creativity ($\chi^2(4) = 10.783$, $p = 0{,}029$), all other constructs reveal insignificant ($p > 0.05$) results for the chi² test, so that the construct models suggest to fit the sample data. However, all other fit indices are excellent for the construct Creativity, so that it

is retained with all items. Tables for each latent construct, containing item loadings and fit indices, can be found in Appendix 7, Table 49 to Table 54.

In a next step the complete measurement model for the work values (Table 29) is estimated with a CFA.

Table 29: Results from the confirmatory factor analysis of the work values

Construct	Indicator		Standard. value	Unstandard. value
Achievement	Achievement 1	... ein Erfolgsgefühl am Ende des Tages habe	0.78	1 (fixed)
	Achievement 2	... mich erfolgreich fühle, wenn ich einen Job gut gemacht habe	0.76	0.90
	Achievement 3	... ein Gefühl von Leistung am Ende des Tages verspüre	0.71	0.97
Coworkers	Coworkers 1	... gute Interaktion mit meinen Kollegen habe	0.72	0.76
	Coworkers 2	... mich mit meinen Kollegen anfreunde	0.63	0.86
	Coworkers 3	... mit Leuten zusammenarbeite, die ich mag	0.81	1 (fixed)
	Coworkers 6	... mit Leuten zusammenarbeite, die mich mögen	0.81	1.02
Creativity	Creativity 1	... neue Ideen ausprobieren kann	0.68	0.70
	Creativity 2	… etwas komplett Neues kreieren kann	0.73	0.85
	Creativity 3	… mir neue Wege einfallen lassen muss, Dinge zu tun	0.81	0.92
	Creativity 4	… neue Ideen beitragen muss	0.83	0.93
	Creativity 5	… neue Wege erfinden muss, meine Arbeit zu machen	0.89	1 (fixed)
	Creativity 6	… neue Dinge oder Methoden entdecke	0.77	0.85
Independence	Independence 2	… mein eigener Chef bin	0.59	0.82
	Independence 3	... meine Arbeit auf die Art und Weise erledigen kann, wie ich es möchte	0.87	1 (fixed)
	Independence 4	... entscheiden kann, wie ich meine Arbeit erledigt bekomme	0.83	0.95
Security	Security 1	… weiß, dass meine Position dauerhaft besteht	0.75	0.75
	Security 2	… weitere Möglichkeiten habe, wenn meine aktuelle Stelle weggekürzt wird	0.68	0.64
	Security 3	… weiß, dass mein Beruf niemals überflüssig wird	0.73	0.78
	Security 4	… niemals gekündigt werde	0.84	1.01
	Security 5	… weiß, dass meine Stelle immer existent sein wird	0.86	1 (fixed)
	Security 6	... immer sicher bin, einen Job zu haben	0.83	0.90
Lifestyle	Lifestyle 1	… außerhalb der Arbeit einen Lebensstil führe, der mir gefällt,	0.76	0.86
	Lifestyle 2	... Zeit für meine Familie und/oder Freunde habe,	0.76	0.82
	Lifestyle 3	… diejenige Person sein kann, die ich gern sein möchte,	0.73	0.83
	Lifestyle 4	... ausreichend Zeit für Freizeitaktivitäten habe,	0.76	0.99
	Lifestyle 5	… die Art von Leben führen kann, die ich genieße,	0.84	1 (fixed)
	Lifestyle 6	… außerhalb der Arbeit Zeit zum Genießen haben kann,	0.80	0.98
Fit Indices				
χ^2 (320)= 1189.437 , χ^2/df = 3.72, p < 0.05, RMSEA = 0.039, CFI = 0.969 SRMR = 0.041				

Note: p < 0.001 for all coefficients

The loadings for the factors do not deviate considerable from the loadings of the separate measurement models of the constructs. The chi²-test shows that the model significantly deviates from the data ($\chi^2(320) = 1189.437$, $p < 0.05$). However, the relation of χ^2/df is acceptable with a value of 3.72 and all other fit indices indicate a very good fit of the model (RMSEA = 0.039,

CFI = 969, SRMR = 0.041). Subsequently, the constructs are reviewed for convergent and discriminant validity. The result reveal that there are no problem with the convergent and discriminant validity.

To sum up the chapter on the factor analyses of the work values it can be concluded that the results of the exploratory factor analysis as well as the CFA confirmed the theoretical assumed 6-factor structure. The thorough procedure of analysis led to a well revised measurement model, fulfilling all criteria of reliability and validity. The necessity to remove separate items from the measurement model, which might appear surprising against the background that the scales are presumed to be well revised, can probably be traced mainly back to the translation from English to German.
In the following, the complete measurement model including all employer attributes, Employer Attractiveness as well as the work values is analyzed.

7.1.5 Analysis of the complete measurement model of employer attributes, Employer Attractiveness and work values

A last step in evaluating the measurement model is conducting a CFA for all measurement constructs, meaning the employer attributes, Employer Attractiveness and the work values simultaneously. This is reasonable, as it can be assumed that there are shared variances between the variables. However, in light of the procedure which has been chosen for the analysis of the SEM, namely to conduct separate group comparisons in order to test the moderating effects of the work values, the employer attributes will only be in one measurement model with one work value at a time. Table 55 in Appendix 8 presents the results of the CFA estimated using ML. Applying QML, which combines ML with the robust estimation of standard errors according to Satorra and Bentler (1994), does not result in any meaningful differences. As the table reveals, all goodness of fit indicators are excellent. All coefficient are on a significance level of $p < 0.001$. Testing for problems with convergent and discriminant validity by considering average variance explained and squared correlations for all factors indicates that all constructs fulfill the corresponding validity criteria. Moreover, applying Raykov's factor reliability coefficient reveals that all coefficients have values > 0.7. As at the same time all factors show values > 0.5 for the average variance extracted, so that the Furnell Lacker criterion for convergent validity is also fulfilled for all factors. For this reason, the measurement model is

accepted.

7.2 Main findings: Direct and mediated effects of the architectural types on Employer Attractiveness

After having assessed the measurement models of the SEM, the analysis now moves on with the estimation of the complete SEM and thus sheds light on the structural relations between the variables. This involves corporate architecture with its four categories as exogenous independent variable, whereby the Solid Closed Type serves as the reference category. The employer attributes Innovation & Flexibility, Autonomy, Effort, Integration, and Pressure to Produce as well as Adequacy for Work are modeled as mediating variables. Employer Attractiveness is the outcome variable.

In a first step, the SEM is estimated with a maximum likelihood method. All estimation results are reported with unstandardized coefficients, as firstly the independent variable with its values in form of the four architectural types is categorical. Secondly, the analysis at hand involves group comparisons with categorical variables. Thirdly, the scales of all endogenous variables are 5-point Likkert scales. All three reasons imply the report of unstandardized coefficients (Arzheimer, 2015: 70–71; Hayes & Preacher, 2014: 461; Iseke & Pull, 2017), which quantify the effects of the presence of the Balanced, Fun or Solid Closed Architecture relative to the Solid Open Architecture.

The first estimation leads to unsatisfactory fit values, so that the model has to be rejected. In analyzing the modification indices it becomes clear that the error terms of the employer attributes are strongly correlated. The high correlation of the error terms indicates that there is another variable influencing all of the employer attributes. It seems reasonable that this influence might be a more or less conscious affective reaction of the participants. For example, if the participant has a positive feeling of the scenario, he or she will tend to rate all of the employer attributes higher. If the overall impression is rather negative, all variables will unconsciously be rated lower. For this reason, the covariances of the error terms between all employer attributes (Innovation & Flexibility, Autonomy, Effort, Integration, and Pressure to Produce) are added to the model. Having parallel mediators which all mediate some of the effect on one outcome variable, it is recommended to allow their error terms to correlate (Acock, 2013: 70). The new estimation shows satisfying fit values (χ^2 (167)= 452.58, χ^2/df = 2.71, p <

0.05, RMSEA = 0.031, CFI = 0.99 SRMR = 0.031). The coefficients are lower now, as the model "allows" one to extract the relation between the variables, which is possibly caused by a third parameter.

With regard to the structural model, the results (see Table 56 in Appendix 9) reveal that the different architectural styles (balanced, fun, solid closed) significantly affect the employer attributes. Each employer attribute is affected significantly by at least two architectural styles as compared to the reference type, the Solid Open Type. Moreover, the variable Adequacy for Work is strongly and significantly affected by the architectural styles. Furthermore, the results show that the mediator variables Innovation and Flexibility, Autonomy, Effort and Adequacy for Work do significantly influence Employer Attractiveness. The variables Pressure to Produce and Integration do not influence Employer Attractiveness significantly.

Pressure to Produce, with b = 0.02 does not significantly influence Employer Attractiveness (p = .56, CI = [-.04; -.08]). Given these results, it can be concluded that Pressure to Produce is well influenced by the architectural styles, whereas this attribute does not influence Employer Attractiveness. Thus, the variable can be considered as important with regard to the employer image. The Balanced (b=-.33) and the Fun Architecture (b=-.32) each have a highly significant negative influence (p=.00 for both) on the variable Pressure to Produce, the Solid Closed Type a significant negative influence of b=-.11 (p=.05), as compared to the reference category Solid Open. However, Pressure to Produce does not seem to influence Employer Attractiveness significantly. The confidence interval does not allow a clear conclusion either.

Similar inferences can be made with regard to the variable Integration. Integration has a coefficient of b=.05 on Employer Attractiveness, with p = 0.24 and a confidence interval of [-.03; .14]. The confidence interval rather indicates a positive coefficient. However, the coefficient is very low so that it can be expected that Integration does not have a meaningful influence on Employer Attractiveness. On the other hand, Integration is influenced considerably by the architectural styles. The Balanced Type influences Integration with a coefficient of b=.49 and the Fun Type with 0.43 (p=.00 for both). The Solid Closed Type does not significantly influence Integration as compared to the Solid Open Type.

As the objective of the study is to shed light on how architectural styles at the end of the causal chain influence Employer Attractiveness, Pressure to Produce and Integration are excluded from the model. The model fit of the reduced model shows that the estimated model adapts to the data at least as well. Table 30 presents the comparison of the model fit indices for both models.

Table 30: Model comparison: Model including all employer attributes vs. model without Pressure to Produce and Integration

	χ^2(df)	χ^2/df	p	RMSEA	CFI	SRMR
Full Model	452.58(167)	2.71	.00	.031	0.985	.031
Reduced Model	219.453(105)	2.09	.00	.024	0.993	.018

Note: df degrees of freedom, RMSEA root-mean-square error of approximation, CFI comparative fit index, standardized root-mean-square residual

In the following, the SEM estimation (maximum likelihood) results of the reduced model are analyzed more closely. Figure 19 summarizes the results of the estimated model graphically. An overview of the estimated effects is presented in Table 31. In order to account for the moderate deviation from normal distribution of the variables, the model has additionally been estimated using bootstrapping to estimate the standard errors (see Table 57 in Appendix 9). All coefficients remained significant, which underlines the robustness of the effects.

Figure 19: Structural Equation Model

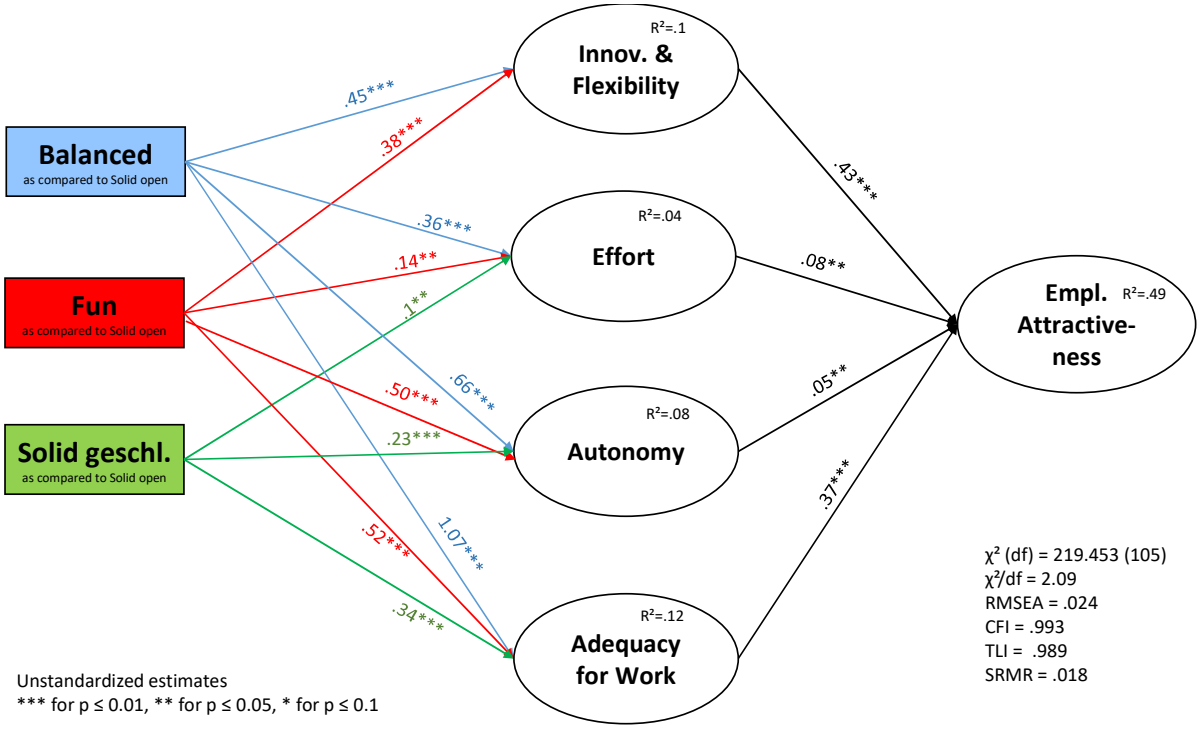


Table 31: SEM direct, indirect an total effects estimates

					Estimate	95% CI
		Adequacy for Work	→	Employer Attractiveness	.37***	[.34; .41]
		Innovation and Flexibility	→	Employer Attractiveness	.43***	[.34; .52]
		Autonomy	→	Employer Attractiveness	.05**	[.00; .11
		Effort	→	Employer Attractiveness	.08**	[.02; .14]
Balanced	→	Adequacy for Work			1.07***	[.94; .1.21]
Balanced	→	Innovation and Flexibility			.45***	[.37; .54]
Balanced	→	Autonomy			.66***	[.54; .78]
Balanced	→	Effort			.36***	[.26; .45]
Balanced		→		Employer Attractiveness	.00	[-.1; .09]
Balanced	→	Adequacy for Work	→	Employer Attractiveness	.40***	[.34; .46]
Balanced	→	Innovation and Flexibility	→	Employer Attractiveness	.19***	[.14; .15]
Balanced	→	Autonomy	→	Employer Attractiveness	.04**	[.00; .07]
Balanced	→	Effort	→	Employer Attractiveness	.03**	[.00; .05]
Balanced		**TOTAL EFFECT**		**Employer Attractiveness**	**.65*****	[.54; .77]
Fun	→	Adequacy for Work			.52***	[.38; .65]
Fun	→	Innovation and Flexibility			.38***	[.30; .47]
Fun	→	Autonomy			.50***	[.38; .61]
Fun	→	Effort			.14**	[.01; .23]
Fun		→		Employer Attractiveness	-.08*[a]	[-.17; .01]
Fun	→	Adequacy for Work	→	Employer Attractiveness	.19***	[.14; .25]
Fun	→	Innovation and Flexibility	→	Employer Attractiveness	.16***	[.12; .21]
Fun	→	Autonomy	→	Employer Attractiveness	.03**	[.00; .05]
Fun	→	Effort	→	Employer Attractiveness	.01*	[.00; .02]
Fun		**TOTAL EFFECT**		**Employer Attractiveness**	**.31*****	[.20; .43]
Solid Closed	→	Adequacy for Work			.34***	[.20; .47]
Solid Closed	→	Innovation and Flexibility			.07*[a]	[-.01; .16]
Solid Closed	→	Autonomy			.23***	[.11; .35]
Solid Closed	→	Effort			.1**	[.01; .19]
Solid Closed		→		Employer Attractiveness	.00	[-.09; .09]
Solid Closed	→	Adequacy for Work	→	Employer Attractiveness	.13***	[.07; .18]
Solid Closed	→	Innovation and Flexibility	→	Employer Attractiveness	.03*	[.00; .07]
Solid Closed	→	Autonomy	→	Employer Attractiveness	.01*	[.00; .03]
Solid Closed	→	Effort	→	Employer Attractiveness	.01	[.00; .02]
Solid Closed		**TOTAL EFFECT**		**Employer Attractiveness**	**.18*****	[.06; .29]

Note: Unstandardized estimates; 95% CI = 95% confidence interval

Indirect effects are estimated using nonlinear comparison (delta method standard errors)

a) Effect not significant based on bootstrapped (2000 replications) standard errors

Subsequent to the estimation of the model, Wald chi-squared tests have been applied in order to test the equality of the path coefficients (see Table 32 and Table 33, for more detailed results see Table 59 and Table 60 in Appendix 9). The estimations presented in the tables will be interpreted in light of the hypotheses form page 153 onwards.

Table 32: Equality of coefficients: Effects of architecture on employer attributes and Adequacy for Work

	Architecture Type		
	Balanced	**Fun**	**Solid Closed**
Adequacy for Work	1.07_a	$.52_b$	$.34_c$
Innovation & Flexibility	$.45_a$	$.38_a$	$.07_b$
Autonomy	$.66_a$	$.50_b$	$.23_c$
Effort	$.36_a$	$.14_b$	$.10_c$

Note: Results of Wald chi-squared test of equality of coefficients; Unstandardized coefficients reported; Coefficients with different indices per row differ significantly ($p < 0.01$)

Table 33: Equality of coefficients: Effects of employer attributes and Adequacy for Work on Employer Attractiveness

	Employer Attribute			
	Adequacy for Work	**Innovation & Flexibility**	**Autonomy**	**Effort**
Employer Attractiveness	$.37_a$	$.43_a$	$.05_b$	$.08_b$

Note: Results of Wald chi-squared test of equality of coefficients; Unstandardized coefficients reported; Coefficients with different indices per row differ significantly ($p < 0.01$)

In a next step, a variety of **control variables** are integrated into the model (region, age, grade, experience, familiarity with building, gender). The control variables are necessary in order to reveal an overall influence on the endogenous variables. For example, such an influence that younger people evaluate Employer Attractiveness generally (irrespective of the architectural style having been confronted with) higher or that people from a special region evaluate Innovation & Flexibility different, because of different influences of regional building structures (rather modern vs. outdated architectural structures). From a theoretical perspective,

however, such influences are not to be expected on the model level. More likely, as implied by theoretical reasoning (cp. Chapter 3.3.2), such influences can be expected depending on architectural style. This impact, though, cannot be captured with the help of control variables, but on the basis of group comparisons, which are conducted later on.
As expected, none of the control variables reveals a meaningful and systematic influence. The estimated effects are reported in Table 34.

Table 34: SEM control variables effects estimates

	Employer Attractiveness	***Adequacy for Work***	***Innovation & Flexibility***	***Autonomy***	**Effort**
age	.00	-.02***	-.01***	-.01	.00
region (north vs. west)	.04	-.22	-.18	-.37*	-.22
region (east vs. west)	-.42*	-.52	-.25	.19	-.21
region (south vs. west)	-.14***	-.07	.01	-.02	.02
grade[a)]	.00	.07***	.04***	-.01	.03**
experience	-.01*	.00	.00	.00	.00
familiarity with building (familiar vs. not familiar)	-.12	.15	.06	.04	.13
gender (female vs. male)	-.12***	-.04	.14***	.12**	.23***

Note: n = 1424, unstandardized coefficients, *** for p ≤ 0.01, ** for p ≤ 0.05, * für p ≤ 0.1
a) grade measured as 1 (representing 1,0-1,3) being the best grade to 9 (representing 3,8-4,0) being worst grade

For this reason, the control variables are dropped from the general model and taken into account later on for the group comparisons.

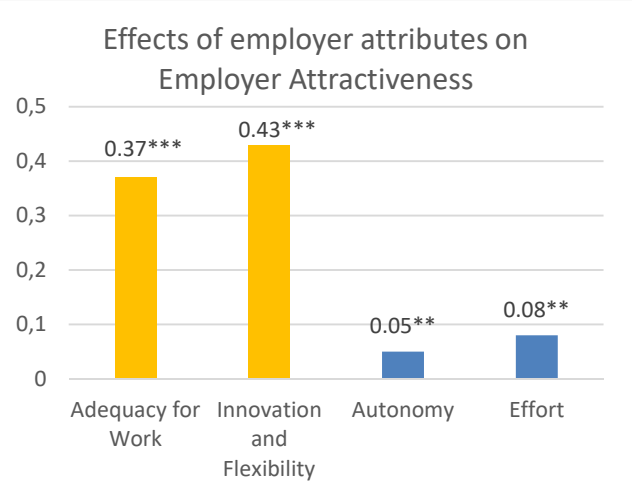
Next**, common method bias** needs to be taken into account. As the study is based on an experimental design, the risk for common method bias is reduced because the independent variable is manipulated and not measured (Iseke & Pull, 2017). However, the mediating variables (Adequacy for Work, Innovation & Flexibility, Autonomy and Effort) as well as Employer Attractiveness were collected using the same dataset. Consequently, the relationship might be inflated by a same-source bias (Podsakoff et al., 2012). In order to test for common method bias, the advice by Shaver (2005) is followed, who suggests using the control variables as instruments, which means that they are allowed to load on the mediator variables but not on the outcome variable. Such procedure has been used by other authors testing mediation effects

wit SEM (e.g. Boehm et al., 2014; Iseke & Pull, 2017). The estimation of this alternative model shows that the relationships between Adequacy for Work as well as Innovation and Flexibility on Employer Attractiveness stay significant at the 1%-level, the effects of Autonomy and Effort stay significant at the 5%-level. Moreover, there is no mentionable change in effect sizes (see Table 58 in the Appendix), altogether indicating a low probability for a common method bias driving the reported effects.

Interpretation of the results in terms of the hypotheses: The effects of the architectural types on the employer attributes and Employer Attractiveness

Having verified that firstly, control variables do not play a major role in the interpretation of the effects and that secondly, common method bias does not pose a serious risk, the main effects of the model are analyzed now. As mentioned before, all employer attributes as well as Adequacy for Work are significantly affected by the three architectural types. Employer Attractiveness, in turn, is also affected significantly by the three employer attributes and Adequacy for Work. Figure 20 illustrates the effects of the mediator variables on Employer Attractiveness, the outcome variable.

Figure 20: Effects of the mediator variables on Employer Attractiveness



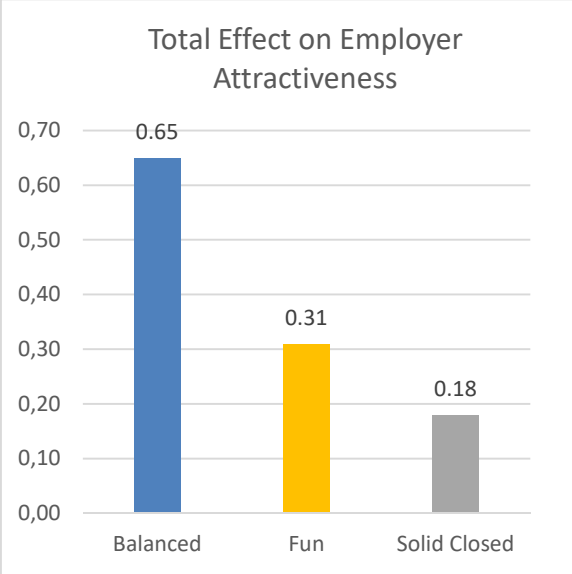
Note: Unstandardized coefficients reported; effects represented by different colors differ significantly ($p < 0.01$)

As the graphic shows, Adequacy for Work and Innovation and Flexibility have the strongest influence on Employer Attractiveness. Though Innovation and Flexibility (b=.43) shows a slightly stronger effect size than Adequacy for Work (b=.37) the difference in effects is not

significant. However, both coefficients indicate a considerable influence, which means that effects of the architectural types mediated by Adequacy for Work or Innovation and Flexibility will have a meaningful impact on Employer Attractiveness. Autonomy and Effort, on the contrary, show very small coefficients of b=.05 for Autonomy and b=.08 for Effort (p <.05 for both), which also do not differ significantly from one another. Due to the small coefficients sizes, effects of the architectural types which are mediated via Autonomy or Effort will hardly affect Employer Attractiveness. Even in case of large coefficients from the architectural types on one of the two latter mediators the total mediated effect will almost vanish, as the mediated effects are based on the multiplication of the two coefficients.

As explained in chapter 6, the total effects on the outcome variable Employer Attractiveness result from the addition of all mediated and direct effects on the variable. Figure 21 presents the total effects of the three architectural types (as compared to the Solid Open Type) on Employer Attractiveness.

Figure 21: Total effects of the architectural types on Employer Attractiveness



Note: Unstandardized coefficients reported; all coefficients significant with p < 0.01; architectural Types represented by different colors differ significantly (p < 0.01)

The figure shows that the total effects differ considerably and significantly. Very clearly, the Balanced Type has the strongest positive effect on Employer Attractiveness, followed by the Fun and the Solid Closed Type. These effects refer to the total sample of students and professionals. Particularly against this background, the sizes of the effects are remarkable. The coefficient of the Balanced Type with b=.65 for example means that a person having been

confronted with the Balanced Type evaluates Employer Attractiveness 0.65 out of 5 scale units higher as compared to having been confronted with the Solid Open Type.

In the following, the composition of these total effects is analyzed more closely. For this purpose, the results of the SEM are interpreted along the causal paths. Thus, the analysis is structured according to the mediating variables, as analogous to the formulation of the hypotheses which are to be tested (see chapter 4, Table 11).

Adequacy for Work

The results show that the Balanced Type enhances Adequacy for Work significantly, which in turn increases Employer Attractiveness (H1 supported). Similarly, the Fun Type significantly increases Employer Attractiveness, mediated by Adequacy for Work (H2 supported). Lastly, also the Solid Closed Type has a significant positive effect on Employer Attractiveness as compared to the Solid Open Type, mediated by Adequacy for Work (H3 supported). Looking at effect sizes (see Figure 22), the results show that of the three architectural styles the Balanced Type clearly has the strongest effect on Adequacy for Work (b=1.07), which is more than twice as high as the effect of the Fun Type on Adequacy for Work (b=.52). The Solid Closed Type affects Adequacy for Work with b=.34. This is notable as the Solid Closed Type is perceived accordingly as being considerably more pleasant for fulfilling ones job than the Solid Open Type. As the difference between the two Solid Types is solely the layout of the offices, this positive effect of the Solid Closed Type can be attributed to the closed offices. The Wald statistics reveal that the three coefficients differ significantly (p=.00, see Table 32). These findings are in line with H4 and are illustrated in Figure 22. Further interpreting the results, it can be concluded that on average the participants of the study consider the Balanced Type as offering the most adequate conditions for performing their work. The effect size has to be regarded as substantial, as it refers to all occupational groups and all age groups within the sample (the groups will be analyzed in a more detailed way later in this chapter). The Fun Type, being considerably smaller in effect size, still reveals a substantial positive influence. This means that the work conditions, as presented by the Fun Type, have a more positive influence on Adequacy for work than both Solid Types. This effect is also remarkable, considering again the mixed age and professional structure of the sample.

Adequacy for Work impacts Employer Attractiveness with b=.37, which leads to considerable sizes of the mediated effects (b=.40 for the Balanced, b=.19 for the Fun and b=.13 for the Solid

Closed Type), all being significant at the 1%-level. The sizes of the mediated effects are illustrated in Figure 23.

Figure 22: Direct effects on Adequacy for Work

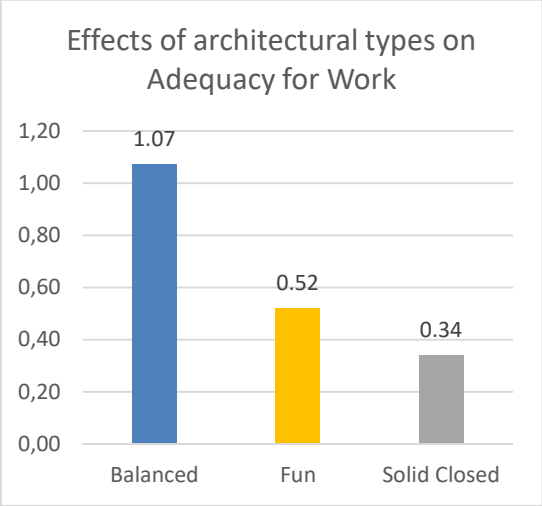
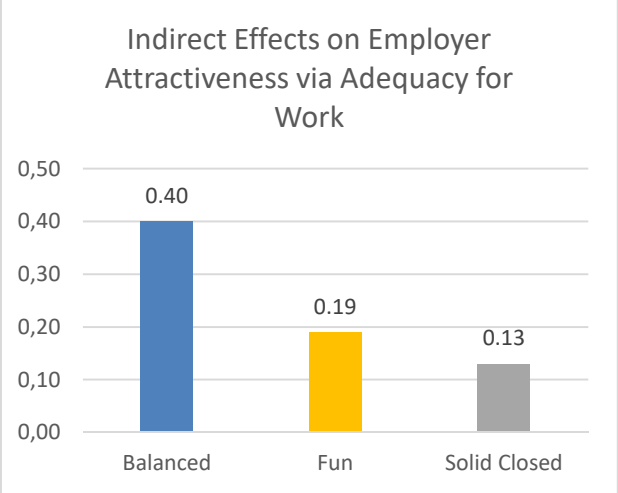


Figure 23: Indirect effects via Adequacy for Work



Note: Unstandardized coefficients reported; all coefficients significant with $p < 0.01$; architectural Types represented by different colors differ significantly ($p < 0.01$)

Innovation and Flexibility

The results show that the Balanced Type significantly enhances Employer Attractiveness via its positive effect on Innovation & Flexibility (H5 supported). Likewise, the Fun Type has a positive effect on Employer Attractiveness, mediated by Innovation & Flexibility (H6 supported). Though the effect sizes from Balanced Architecture on Innovation and Flexibility (b=.45) and Fun Architecture on Innovation and Flexibility (b=.38) differ, this difference is not significant (see Figure 24). Equally, the indirect effects (see Figure 25) from Balanced Architecture (b=.19) and Fun Architecture (b=.16) on Employer Attractiveness do not differ significantly (H7 not supported). The Solid Closed Architecture also has a positive significant effect on Employer Attractiveness, mediated by Innovation & Flexibility. The effect size of this direct effect of Architecture on Innovation and Flexibility as well as of the indirect effect on Employer Attractiveness is almost negligible however, as was expected. Based on the bootstrapping method (see Table 57 in Appendix 9), the effects (direct and mediated) from the Solid Closed Type are not significant. The finding that the Fun Architecture does not have a stronger effect on Innovation & Flexibility than the Balanced Architecture is striking. The Fun Architecture, which itself is a new and innovative trend, mainly spilling over from the Silicon

Valley where companies from the dot-com-industry follow this trend, was expected to have the strongest effects on Innovation & Flexibility. The group comparisons following later on might provide further insights on this unexpected result.

Figure 24: Direct effects on Innovation and Flexibility

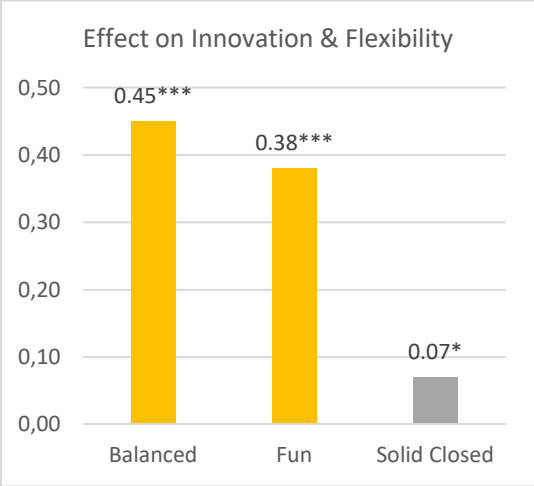
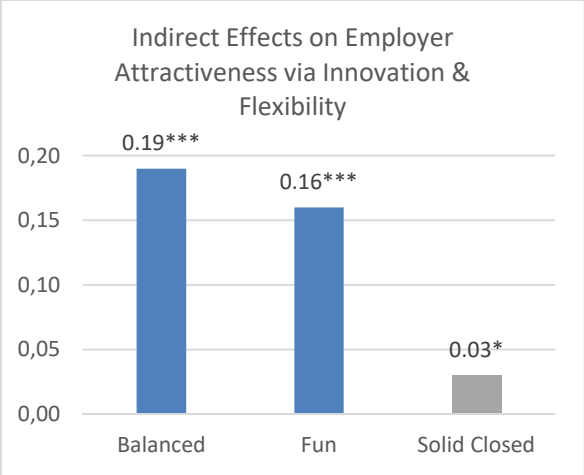


Figure 25: Indirect effects via Innovation and Flexibility



Note: Unstandardized coefficients reported; *** for $p \leq 0.01$, * for $p \leq 0.1$; architectural Types represented by different colors differ significantly ($p < 0.01$)

Autonomy

The Balanced, the Fun and the Solid Closed Type all enhance Employer Attractiveness, such that each of the architectural styles has a positive impact on Autonomy, which in turn increases Employer Attractiveness (H8, H9, and H10 supported). With regard to the direct impact of the architectural styles on Autonomy (see Figure 26), clear differences can be found. The Balanced Architecture has the strongest effect on Autonomy, followed by the Fun Architecture. The Wald statistics (see Table 32) indicate that this difference is significant (p=.00). This means that the Balanced Type conveys most strongly the impression of letting people decide on their own during work, without control of the (top) management. The Fun Type also seems to convey this impression, but less than the Balanced Type. According to H11, the reverse relationship would have been expected (H11 not supported). The hypothesis was developed assuming that the fun elements signal a lot of Autonomy with regard to the decision, how and where (within the company) to do the work. On the other hand, these same elements might also stand for the expectation of the management that the employees should spend most of their time within the company to be under the control of the management, which stands contrary to the positive effect. The Balanced Type might appear more “straight forward”, so that people expect to better

know the general requirements and thus are more confident to work autonomously.

The smaller positive impact of the Solid Closed Type, as compared to the Solid Open Type, also differs significantly from the other two types. The smaller size can be explained looking at the outer appearance of the building, standing for control and bureaucracy. Moreover, both Solid Types seem to offer few alternatives on how and where to work. The positive effect as compared to the Solid Open Type can be explained by the feeling of being watched and controlled by superiors, conveyed by the open plan offices.

Looking at the indirect effects (see Figure 27) on Employer Attractiveness, it becomes clear that Autonomy plays a minor role. Autonomy impacts Employer Attractiveness wit b=.05 only. This small effect size reduces the direct impacts of architecture on Autonomy considerably, so that the indirect effects, all three of them still significant, are of minor relevance with regard to Employer Attractiveness.

Figure 26: Direct effects on Autonomy

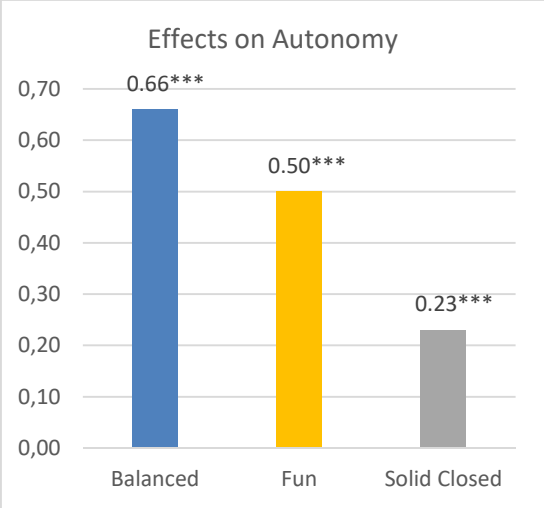
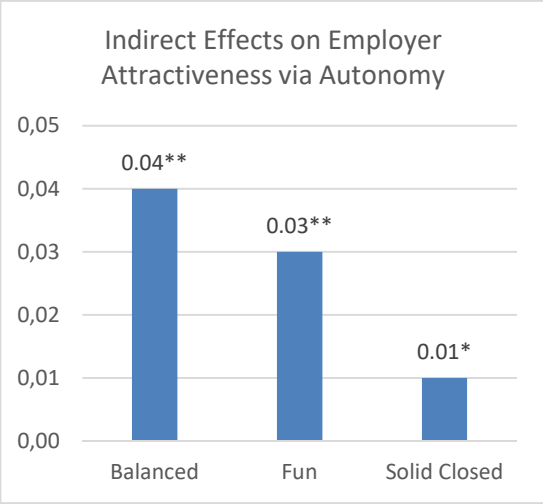


Figure 27: Indirect effects via Autonomy



Note: Unstandardized coefficients reported; *** for $p \leq 0.01$, ** for $p \leq 0.05$; * for $p \leq 0.1$; architectural Types represented by different colors differ significantly ($p < 0.01$)

Effort

All three architectural types have a significant positive influence on Effort (H12 and H13 supported), which in turn enhances Employer Attractiveness. With regard to the direct effects (see Figure 28), Balanced Architecture impacts Effort most strongly (b=.36), differing significantly from the effects the Fun and the Solid Closed Type exert. The latter two show coefficients of b=0.1 each, whereat the effect of the Solid Closed Type has not been expected.

Interpreting the coefficients, this means that the Balanced Type is least associated with an organization whose employees do not make an effort and do not work hard (the items have been reversed items). Corresponding to H14, the strongest effect on Effort was expected from the Fun Architecture, conveying the impression of an achievement oriented, dynamic, high striving organization. Accordingly, H14 is not supported. On the one hand, this result might be attributed to the fun and leisure elements, which could tempt employees to turn away from work unnoticed and thus not always give the best for the task. The assumption that people should be extra motivated by the fun style and for this reason always give their very best for the employer does not seem to hold in the eyes of the participants of the study. Another explanation for the results could lie in the impression of the participants that such a fun employer expects people to stay in the office almost the whole day, anyway, so that an additional "extra effort" does not seem possible or necessary.

The fact that there seems to be no considerable difference between the Solid Closed and the Solid Open Type shows that these kind of workplaces do not seem to matter with regard to associations with Effort. The outer appearance of the Solid Types seems to be more striking here (these difference will be further analyzed later on).

Figure 28: Direct effects on Effort

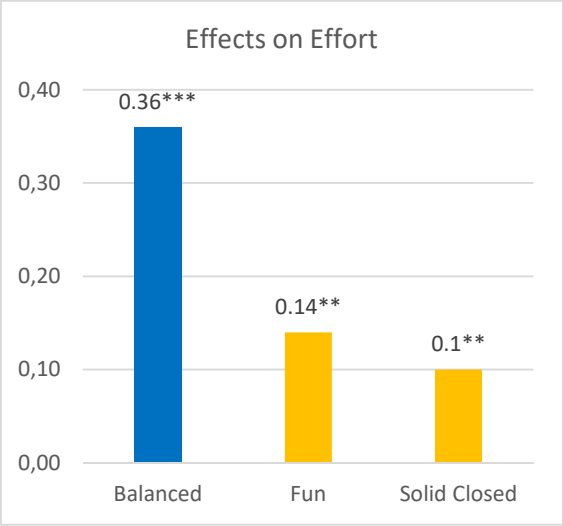
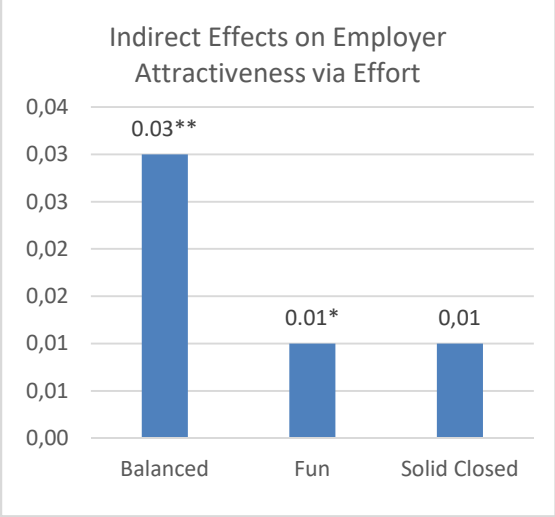


Figure 29: Indirect effects via Effort



Note: Unstandardized coefficients reported; *** for $p \leq 0.01$, ** for $p \leq 0.05$; * for $p \leq 0.1$; architectural Types represented by different colors differ significantly ($p < 0.01$)

Analyzing the indirect effects via Effort on Employer Attractiveness (see Figure 29) it becomes obvious that Effort, with its small direct effect of b=.08 on Employer Attractiveness, does not seem to play a major role with regard to employer choice, the size of the mediated effects being

neglectable.

Lastly, the inspection of the **direct effects** of architecture on Employer Attractiveness does not reveal any significant effects (see Table 31), meaning that the effects of architecture are *fully mediated*. This supports the theoretical assumption that architecture sends information in the form of signals which are interpreted by the recipient in terms of how preferable work at this employer would be. Consequently, the total effects of the architectural types on Employer Attractiveness (see Figure 21) are fully based on the indirect effects.

Pressure to Produce and Integration

As has been discussed earlier, the variable Pressure to Produce does not have a significant influence on Employer Attractiveness. However, the architectural styles have a significant direct negative influence on Pressure to Produce[25] (H15, H16 and H17 partly supported). Participants least expect management to put people under pressure to work hard from the Balanced and the Fun Type. The Fun Type does not have a stronger negative impact on Pressure to Produce than the Balanced Architecture, as would have been expected given the playful elements. Presumably, the open and uniform workspaces do have an effect in the opposite direction. The negative effects from the Solid Closed Type are smaller, but still people do assume less pressure from an employer with Solid Closed Architecture than from an Employer with Solid Open Architecture. This might have two reasons: On the one hand, the open Design might stand for surveillance and control. On the other hand, the arrangement of a huge number of uniform workplaces as well as the outer appearance of the building might be a signal for a purely efficiency driven organization.

In total, H18 is not supported, as it would have been assumed that the Solid Closed Type, mainly due to its closed layouts, has the strongest negative effects on Pressure to Produce, followed by the Balanced Type and finally the Fun Type with its competitive and challenging character.

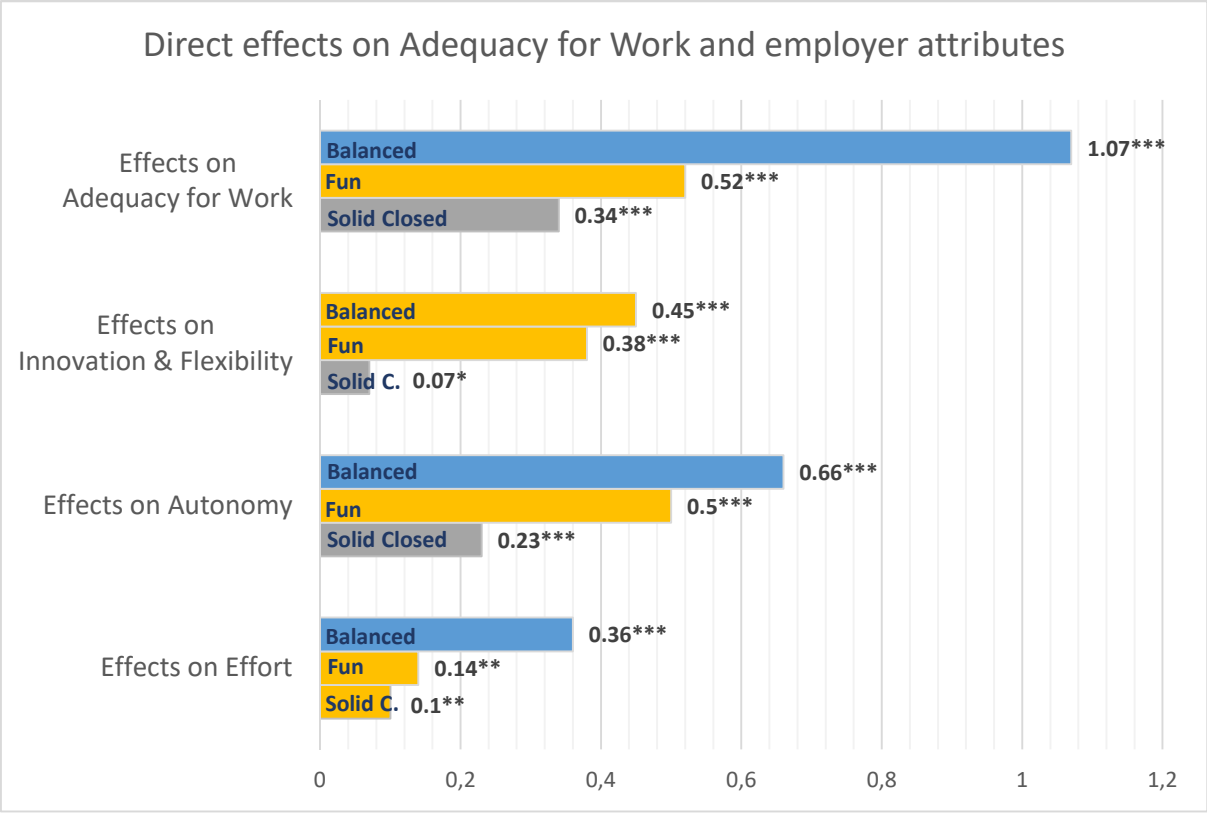
It is surprising that Pressure to Produce does not have an impact on Employer Attractiveness for the participants. Possibly, people expect that pressure to work hard and reach ones goals is something given when entering in the professional life so that they do not value it in terms of their employer choice.

[25] The coefficients are not reported here, as the variables Pressure to Produce and Integration were excluded from the final model. Thus, the coefficient sizes, stemming from the preliminary model and reported at the beginning of chapter 7.2, are not comparable directly to the other coefficients.

The variable Integration does not have a significant effect on Employer Attractiveness, either. Nevertheless, Integration is considerably influenced by the architectural styles. The Balanced and the Fun Type have a significant positive influence on Integration (H19 and H20 partly supported). Effect sizes between the two types do not differ significantly (H21 supported). The Solid Closed Type does not significantly influence Integration as compared to the Solid Open Type. The results support the assumption that the open structures of the Fun and the Balanced Type signal good cooperation and sharing knowledge between departments, whilst closed offices rather stand for individual work. Despite that, it is remarkable that Integration does not have an influence on Employer Attractiveness. As mentioned before, a good working climate seems to play a pivotal role in job choice, so that this result cannot be explained at this point.

To conclude the analysis of the main model, the most important findings are summed up in the following and illustrated in Figure 30.

Figure 30: Total effects on Adequacy for Work and employer attributes



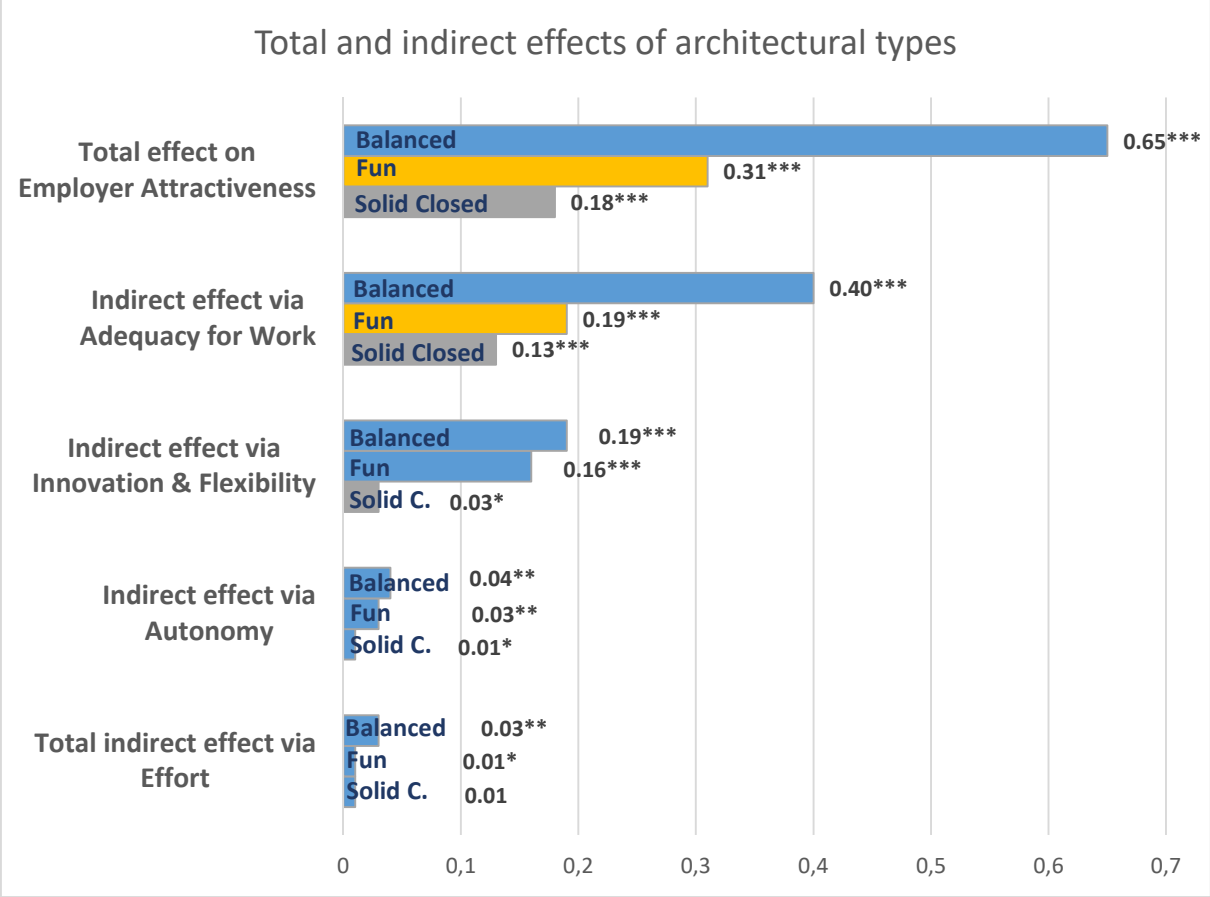
Note: Unstandardized coefficients reported; *** for $p \leq 0.01$, ** for $p \leq 0.05$; * for $p \leq 0.1$; architectural Types represented by different colors differ significantly ($p < 0.01$)

The results show that the different architectural styles have an impact on all employer attributes

and Adequacy for Work. However, the effect sizes on these variables differ considerably. As illustrated in Figure 30, Adequacy for Work is the variable most sensitive to the architectural styles and shows the largest effect sizes. Moreover, the different architectural styles provoke the largest effect differences for this variable. Autonomy, also differentiated for the three architectural types, is the variable showing the second strongest sensitivity, followed by Innovation & Flexibility, the latter one showing no difference between the Balanced and the Fun Type. It can be concluded further that the Balanced Type is the one leading to meaningful effect sizes for *all* employer attributes and Adequacy for Work.

Figure 31gives an overview of the total effects on Employer Attractiveness as well as the indirect effects accounting for these total effects.

Figure 31: Indirect effects of architectural types



Note: Unstandardized coefficients reported; *** for $p \leq 0.01$, ** for $p \leq 0.05$; * for $p \leq 0.1$; architectural Types represented by different colors differ significantly ($p < 0.01$)

Exploring the indirect effects it becomes clear that Adequacy for Work has the strongest impact

on Employer Attractiveness. This is caused by the considerable direct effects of the architectural styles on Adequacy for Work combined with the direct effect of Adequacy for Work on Employer Attractiveness (b=.37). Innovation and Flexibility, impacting Employer Attractiveness in an at least comparably strong direct way (b=.43), shows lower indirect effects because of the direct effects of the architectural styles on Innovation and Flexibility being smaller than those on Adequacy for Work. Due to their small direct effects on Employer Attractiveness, Effort and Autonomy hardly play a role with regard to their mediated effects.
Consequently, Adequacy for Work and Innovation and Flexibility are the strongest mediator variables, predominantly contributing to the total effects on Employer Attractiveness. This means, participants value two things most: First, if the work environment itself seems comfortable and adequate for performing their task. Second, if the architecture reflects a flexible, quickly adapting organization offering support for new ideas and innovation. The Balanced Architecture clearly has the strongest positive effect on Employer Attractiveness (b=.65), followed by the Fun Architecture (b=.31) and Solid Closed Architecture (b=.18), all effects being significant at the 1%-level and differing significantly from one another. Further interpreting the effect sizes, for the Balanced Type this means: The Balanced Type, as compared to the Solid Open Type, leads to a 0.65 scale units higher evaluation of Employer Attractiveness on a 5-point scale. Considering that this effect is based on the presentation of three pictures only, this effect size can be regarded considerable.

7.3 The Solid Type – more involved effects

The Analysis of the scenarios in chapter 7.1.3.2 indicated heterogeneities with regard to the two scenarios presenting the Solid Closed Type and the Solid Open Type. For this reason, the following analysis considers these scenarios separately, so that the estimated model now includes architecture as an independent variable which can take six values (see Table 35). The deeper differentiation of the scenarios leads to smaller sample sizes. The reference category, being the Solid Open Type before, now changes as this type has been split up into two scenarios. The new reference type is the Solid Open Concrete Type, which results in coefficients not being comparable to the main model estimated before (see Table 31). The estimation of the differentiated model shows god fit values (χ^2(df) = 263.672(125), χ^2/df = 2.1, p = .00, RMSEA = .025, CFI = .99, SRMR = .018) (for detailed SEM results see Table 61 in the Appendix).

Table 35: Variable categories of the more differentiated model

Variable category	Description	N
Balanced Type	*as before representing the two scenarios*	*463*
Fun Type	*as before representing the two scenarios*	*462*
Solid Closed Type Glass	Scenario presenting glass tower	221
Solid Closed Type Concrete	Scenario presenting concrete tower	227
Solid Open Type Glass	Scenario presenting glass tower	222
Solid Open Type Concrete	Scenario presenting concrete tower	227

Note: For pictures of the scenarios turn to Table 26

Looking at the total effects of the architectural styles on Employer Attractiveness first, the analysis confirms the Balanced Type overall being most attractive to participants, differing significantly from all other architectural types (for tests of equality see Table 62 in the Appendix). On the second rank, the results show that, the Fun Type and the Solid Closed Glass Type do not show a significant difference in attractiveness. On third rank, the Solid Open Glass Type can be found and lastly the Solid Closed Concrete Type, which does hardly differ from the reference category Solid Open Concrete. In the following, the effects mainly driving these differences in total effects are analyzed more closely.

Figure 32: SEM differentiated model - total effects on Employer Attractiveness

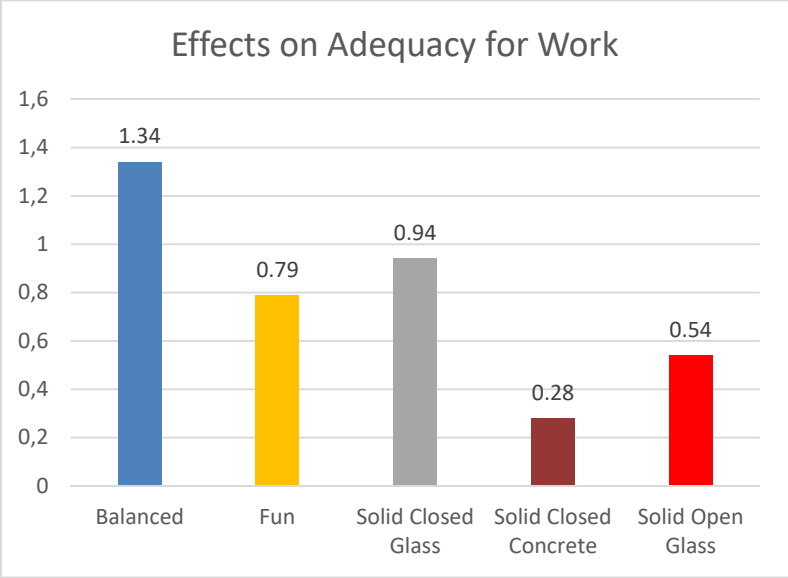
Note: Unstandardized coefficients reported; *** for $p \leq 0.01$; architectural types represented by different colors differ significantly ($p < .05$)

As the effects of the mediator variables on Employer Attractiveness remain stable as compared

to the main model (see Figure 20) with Adequacy for Work and Innovation & Flexibility being the strongest mediators, the focus is now on the effects of the architectural types on the mediator variables.

The main driver for the total effects on Employer Attractiveness seems to be **Adequacy for Work**. The effects of the architectural types on Adequacy for Work differ for all architectural types significantly (see Figure 32). The effects sizes are considerably larger as compared to the effects on the other mediators. As before, the Balanced Type is regarded as most adequate for doing one's work. The Solid Closed Glass Type, though, is seen on rank two with regard to Adequacy for Work, differing significantly from the Fun Type, following on rank three. This is surprising, as the effects of the Solid Closed Glass Type differ considerably from the effects of the other Solid Types. Consequently, the glass tower as compared to the concrete tower seems to have a strong impact on how adequate people regard the work environment. For both Solid Types, those with the closed office layouts are ranked better. This supports the results from the main model.

Figure 33: Effects of architectural types on Adequacy for Work (differentiated model)

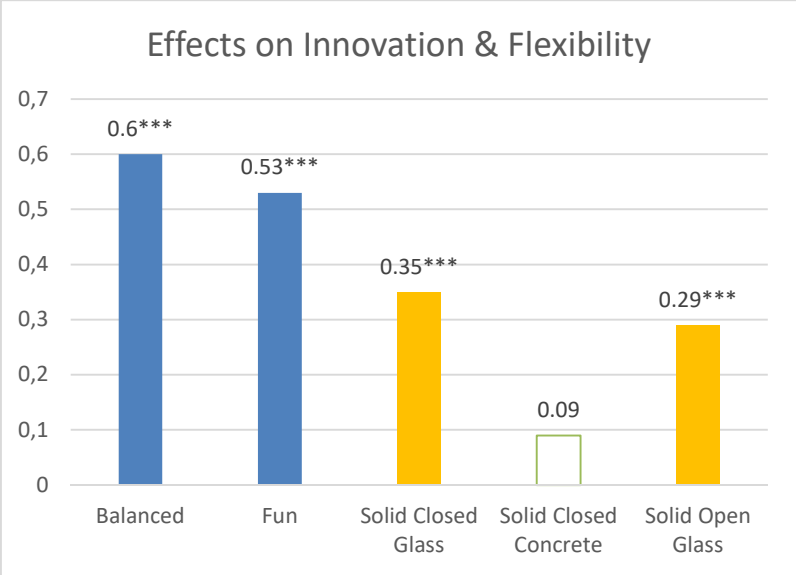


Note: Unstandardized coefficients reported; all coefficients significant with $p \leq 0.01$; architectural types represented by different colors differ significantly ($p < .05$)

With regard to **Innovation and Flexibility** (see Figure 34), the more differentiated model does not reveal considerable differences to the main model. The Balanced and the Fun Type are those associated most strongly with Innovation & Flexibility. Amongst the Solid Types, those with

the Glass Tower more strongly reflect Innovation & Flexibility as compared to both Solid Types with the Concrete Tower. Between the two types presenting the concrete tower, there is no significant difference. Thus, the office layout does not seem to make a difference with regard to how innovative and flexible the employer is perceived.

Figure 34: Effects of architectural types on Innovation & Flexibility (differentiated model)



Note: Unstandardized coefficients reported; *** for $p \leq 0.01$, architectural types represented by different colors differ significantly ($p < .05$)

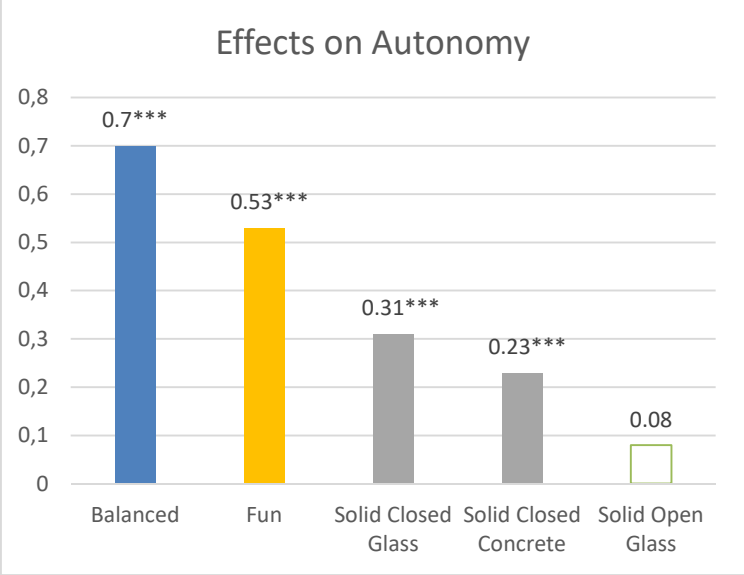
Pertaining to **Effort** (see Figure 35), the results from the main model are confirmed. Additionally, it was revealed that the Solid Closed Concrete Type did not have any significant effect on Effort at all. This means that if it is the Solid Type with the concrete tower, the different office layouts do not make a difference with regard to Effort. Similarly, there is no significant difference in the effects on Effort of the Solid Open Glass and the Solid Closed Glass Type, though the latter shows a lager coefficient.

Figure 35: Effects of architectural types on Effort (differentiated model)

Note: Unstandardized coefficients reported; *** for $p \leq 0.01$, ** for $p \leq 0.05$; architectural types represented by different colors differ significantly ($p < .05$)

With regard to **Autonomy** (see Figure 36**)**, the results from the main model are confirmed again. Interestingly, there is no significant difference between the Solid Closed Glass and the Solid Closed Concrete Type with regard to Autonomy.

Figure 36: Effects of architectural types on Autonomy (differentiated model)



Note: Unstandardized coefficients reported; *** for $p \leq 0.01$; architectural types represented by different colors differ significantly ($p < .05$)

However, the two Solid Closed Types rank better on Autonomy than the two Solid Open Types. Obviously, this seems to be rooted in the office layout. On the other hand, the Fun Type, also featuring completely open work places, shows considerably higher values for Autonomy. This finding shows again that the architectural types always affect people as a whole, as a holistic system.

To conclude, the results of the differentiated model have shown that the glass tower seems to have a strong positive effect as compared to the concrete tower. In total, this leads to the Solid Closed Glass Type being as attractive as the Fun Type. This effect is mainly driven by the strong positive effect of the Solid Closed Glass Type on Adequacy for Work. The concrete tower seems to have an overall negative effect, so that with exception of Autonomy, there is hardly any difference between the effects of the Solid Closed Concrete and the Solid Open Concrete Type. Thus, in case of the Solid Types, the façade can be interpreted as something like a hygiene factor in the sense of Herzberg's two factor theory (Herzberg, 1966).

7.4 Moderating effects

In order to analyze whether the work values or personal characteristics of the participants have an influence on how participants evaluate the different architectural styles, several group comparisons are conducted on the basis of the main model (compare chapter 7.2). Within each group model, two different groups are compared.

The estimation and assessment procedure for each of the group estimations is as follows: For each group estimation, the loadings and measurement intercepts are constrained to be equal across groups. This means, that the latent variables have the same meaning for both groups. As the indicators of the latent constructs are formulated very narrowly, so that there is little room for different interpretations, there seems to be no reason to assume that the constructs might have different meanings for students and professionals. The error terms are allowed to differ, which is in line with the default setting in Stata. In order to verify the group model, the fit of the model allowing to estimate the coefficients freely for the two groups within one model is compared to a model, in which the coefficients are forced to be equal for both groups. Then Wald-chi-tests[26] are applied to test whether the model allowing different paths coefficients fits

[26] Results on Wald-chi-tests for all subsequent group analyses can be delivered on request.

the data significantly better than the model forcing coefficients to be equal.

7.4.1 The moderating influence of the work values Creativity and Achievement

Creativity

For analyzing the impact of participants need for Creativity (H22c), two extreme groups are built on the basis of the 10% of participants with the highest need for creativity (N = 126, mean = 4.76) and the 10% of the participants with the lowest need for Creativity (N = 138, mean = 1.53). The estimation results show that almost none of the effect differences for the two groups is significant, which can be explained by the small group sizes. However, the following points can be made: For all participants the overall preferences for the architectural types are as in the main model. However, participants with high need for Creativity ascribe a considerably higher Adequacy for Work to the Fun Type (b = .70, p =.00) than participants with low need for Creativity (b = .28, p = .26). At the same time, participants with a high need for Creativity ascribe a higher Adequacy for Work to the Solid Closed Type (b = .80, p = .00) than participants with a low need for Creativity (b = .13, p = .59). This is surprising, as it would have been expected that people with a high need for Creativity clearly prefer the Fun Type. Nevertheless, the direct effects from the Fun Type on Employer Attractiveness for participants with a high need for Creativity (b = .23, p = .20) differs significantly from the direct effect for participants with a low need for Creativity (b = -.20, p = .29). Though the results are difficult to interpret due to the small sample sizes they do indicate that people with a high need for Creativity are more positive about the Fun Type than people with a low need for Creativity. Consequently, H22c is supported. On the basis of theoretical considerations (compare chapter 2), it has been assumed that the work values moderate the relationship between assumed employer attributes and Employer Attractiveness. However, the analysis has shown that Creativity also moderates the relationship between architecture and the assumed employer attributes, proving an even extended effect of this moderator. This indicates that depending on the existence and extent of a work value, this can also affect the perception of signals.

Achievement

With the group comparison on Achievement (H22a), the difference between participants scoring high on the work value Achievement (n = 199, m = 4.93) and participants scoring low on Achievement (n = 231, m = 2,71) is analyzed. Despite the small group sizes, the analysis

reveals several significant differences in the coefficients.

Firstly, there are differences in how participants weigh the different employer attributes. Those with a high need for Achievement put significantly more importance on Innovation and Flexibility (b =.36, p =.00) than those with a low need for Achievement (b = .17, p = .09), whilst participants with a high need for Achievement put less importance on Autonomy (b =.05, p =.46) than those with a low need for Achievement (b = .19, p = .00). Thus, the work value Achievement moderates the relation between inferred employer attributes and Employer Attractiveness and thus impacts the evaluation of the employer attributes. Consequently, H22a is supported.

Secondly, there are differences with regard to what inferences people make about the architectural types. Those people with a high need for Achievement ascribe lower Adequacy for Work to the Fun Type (b = .07, p = .77) than people with a low need for Achievement (b = .61, p = .00). This finding is comparable with the results of the group comparison for high versus low graders, which will be presented in chapter 7.4.4. Moreover, participants with a high need for Achievement ascribe stronger Innovation & Flexibility to the Balanced Type (b =.54, p =.00) than participants with a low need for Achievement (b = .30, p = .01). With regard to Autonomy, people with a low need for Achievement ascribe more Autonomy to the Solid Closed Type (b = .41, p = .00) than people with a high need for Achievement (b = .07, p = .70). An explanation for this finding could be that people scoring low on Achievement and with low motivation feel more autonomous if they can hide in a closed office rather than being exposed to colleagues and superiors. Again, the results show parallels to those of the group comparison based on grade. Moreover, these effects again show that the work values also moderate the relation between architecture and inferred employer attributes which indicates that the work values influence the way people process signaled information.

Finally and most strikingly, there is a direct negative effect from the Balanced Type on Employer Attractiveness for those low on Achievement (b = -.42, p = .00), which significantly differs from those high on Achievement (b = .18, p = .21). This effect is difficult to interpret. Most probable, there are negative associations, which are not captured with a mediator variable. This could be aspects such as privacy, which would reflect the preference for closed offices, as indicated before. Another possibility would be an affective, rather subconscious reaction, such as a general antipathy against this architectural type. Given the size of the effects, the first assumption however seems more realistic here. In total, the results indicate that participants high on Achievement clearly prefer the Balanced Type (b = .82, p = .00). All other total effects

not being significant, the coefficients however indicate that the participants high on Achievement in total do not make a difference between the Fun Type and the Solid Closed Type. The participants low on achievement, in total do not clearly prefer the Balanced Type. They do not seem to make a difference between the Balanced and the Fun Type, whilst least preferring the Solid Closed Type.

The group comparisons analyzing the moderating effects of the Work Values **Collaboration** (H22b), **Independency** in Work (H22d), **Security** (H22e), and **Work-Life Balance** (H22f) did not reveal any considerable differences in effects for those high in the need for the corresponding work value versus those low in their need for it. This allows for two possible conclusions: First, against the theoretical assumptions, the Work Values do not have such an influence on the perception and evaluation of architecture. Or second: The extreme group comparisons conducted here lead to small samples which do not allow for any valid conclusions. A final conclusion cannot be drawn on the basis of the results at hand. However, it can be stated that the hypotheses H22b, H22d, H22e, and H22f cannot be supported here.

7.4.2 The moderating influence of status: Students vs. Professionals

The model analyzed so far does not consider the status of the participants, which as previously hypothesized (H23) might have an influence on how people perceive the different architectural styles. In particular, students and professionals were not differentiated. According to the preceding theoretical considerations, the effects of the four architectural types should vary depending on status. For this reason, the basic model of the previous chapter is complemented by a categorical group variable referring to the status of the participants.

It is assumed that the effects of the architectural types vary by status. I.e., the effects of the architectural types on the Employer Attributes (i.e. Innovation & Flexibility, Effort, and Autonomy) and on Employer Attractiveness are supposed to be moderated by status.

Particularly, it can be assumed that the effects of all architectural types on the employer attributes and on Employer Attractiveness are stronger for students than for professionals, that the effects of the Fun Type on Employer Attractiveness are more positive for students than for professionals, and that the effects of the Solid Type on Employer Attractiveness are more negative for the students than for professionals. Moreover, it was assumed that Adequacy for Work has a stronger positive influence on Employer Attractiveness for professionals than for

students.

In order to verify these assumptions, another group comparison is conducted. The two-group model estimation shows considerably different coefficients for the group of professionals and students. Looking at the total effects on Employer Attractiveness (see Table 36), the results show that there is a considerable significant difference in effect sizes of the Fun Type. Whilst students see the Fun Type on rank two with regard to Employer Attractiveness, Professionals rank the Fun Type on the last position, with b = .1, not significantly differing from the reference category Solid Open. For the other architectural styles, there are no noteworthy differences.

Table 36: Total effects on Employer Attractiveness for students and professionals

	Employer Attractiveness			
	Students		Professionals	
	Estimate	95% CI	Estimate	95% CI
Balanced	.69***	[.54; .82]	.62***	[.41; .83]
Fun	.4***	[.28; .53]	.1	[-.11; .31]
Soid Closed	.2***	[.07; .33]	.21**	[.00; .41]

Note: Unstandardized estimates; 95% CI = 95% confidence interval
*** for p ≤ 0.01, ** for p ≤ 0.05, * for p ≤ 0.1

Indirect effects are estimated using nonlinear comparison (delta method standard errors)
N Students = 1360, N Professionals = 462
Results are based on a group model estimation with the group model showing significantly (p=.00) better fit than the model forcing coefficients to be equal

Table 37 gives further insights on the estimation results for the two groups, including only those coefficients differing significantly. The results show a direct negative effect from the Fun Type on Employer Attractiveness for the professionals. This indicates that professionals seem to have a kind of aversion against the Fun Type, which is not caught by the mediator variables. For students, this direct effect does not exist. The results further show that professionals in general seem to assign higher coefficients to Adequacy for Work, and lower coefficients to Innovation & Flexibility, Autonomy and Effort, as compared to the students. Thus, the architectural types have smaller effects on the perceived employer attributes for professionals than for students. This is in line with the theoretical assumption based on Signaling Theory that the more experienced job seekers are, the less sensitive they are to signals. On the other hand, Adequacy

for Work seems to be an attribute which professionals have experienced to be an attribute of major importance for them. In light of this, they process information on this relevant attribute more critically, based on systematic processing, which in turn leads to larger effect sizes for Adequacy for Work. Another, complementary explanation for the result could be that Adequacy for Work delivers a direct utility, whilst Innovation and Autonomy have rather symbolic character and yield an indirect utility. Professionals might focus more on this direct utility and therefore perhaps are influenced stronger with regard to the attribute Adequacy for work.

Table 37: Effects of architectural types on mediator variables for students and professionals

	Students		Professionals	
	Estimate	95% CI	Estimate	95% CI
Fun → Employer Attractiveness	.03	[-.14; .08]	-.23**	[-.41; -.05]
Balanced → Adequacy for Work	1.04***	[.89; 1.20]	1.31***	[1.04; 1.58]
Solid Closed → Adequacy for Work	.29***	[.14; .45]	.67***	[.41; .93]
Balanced → Innovation & Flexibility	.50***	[.40; .59]	.33***	[.20; .45]
Fun → Innovation & Flexibility	.47***	[.38; .56]	.11	[-.02; .24]
Solid Closed → Innovation & Flexibility	.14***	[.05; .23]	-.07	[-.19; .04]
Balanced → Autonomy	.71***	[.59; .84]	.52***	[.34; .69]
Fun → Autonomy	.56***	[.44; .69]	.27***	[.09; .46]
Fun → Effort	.18***	[.08; .28]	.00	['-.14; .14]

Note: Unstandardized estimates; 95% CI = 95% confidence interval, *** for $p \leq 0.01$, ** for $p \leq 0.05$, * for $p \leq 0.1$

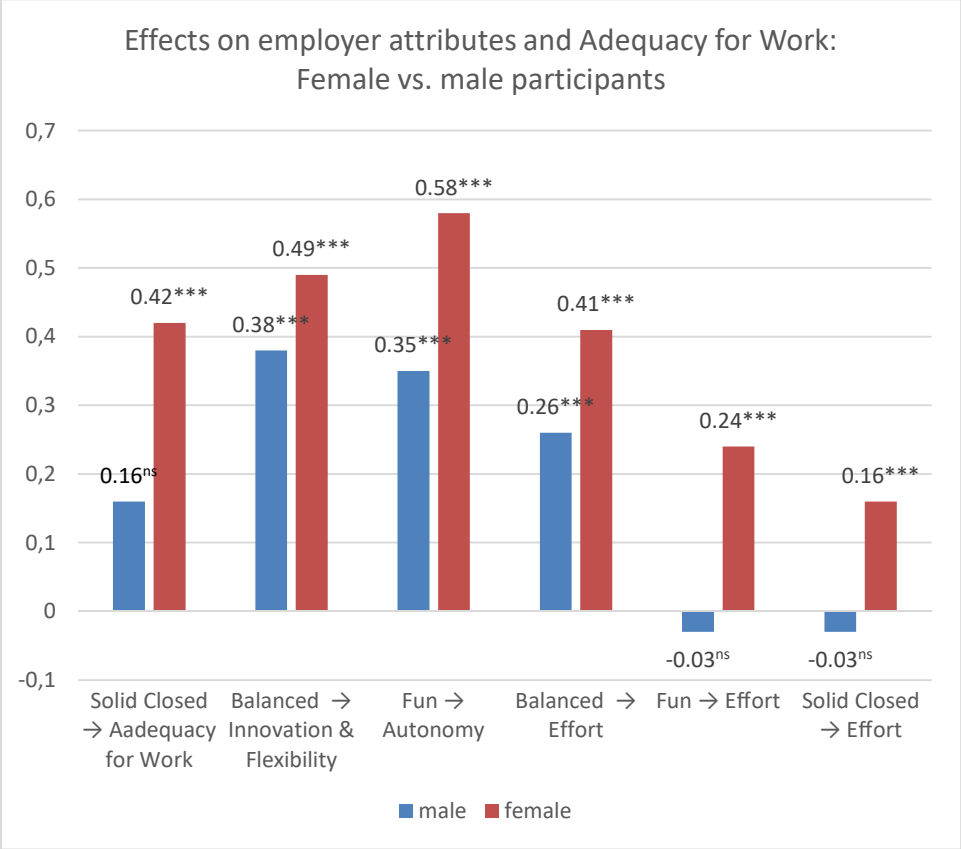
N Students = 1360, N Professionals = 462

In sum, the most important difference between the effects of students and professionals is the considerably lower evaluation of the Fun Type by the professionals. The Balanced Type is the most preferred one for both groups. The hypothesis on the moderating effect of status (H23) is consequently supported.

7.4.3 The moderating influence of Gender

The group comparison of female participants (N = 1172) versus male participants (650), testing H24, basically reveals two points: Firstly, women evaluate all employer attributes and Adequacy for Work higher than men. This is also reflected in diverse significant effect differences between the two groups (see Figure 37).

Figure 37: Effects on employer attributes and Adequacy for Work: Female vs. male participants

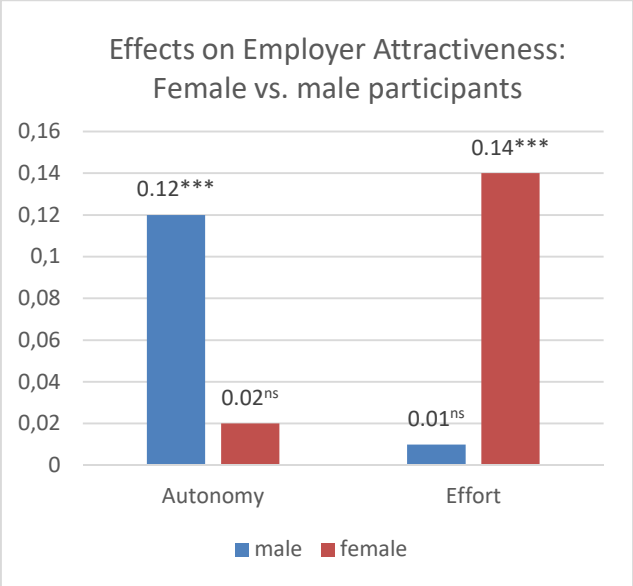


Note: Unstandardized coefficients reported; *** for $p \leq 0.01$; architectural types represented by different colors differ significantly with $p < .1$ at least

These findings indicate that women's reactions on architecture are somewhat stronger than those of men. This means that women are more sensitive to architecture when it comes to job decisions. This can lead to important implications for targeting women in the early application process.

Secondly, women show a larger effect from Effort on Employer Attractiveness whilst men show a larger effect from Autonomy on Employer Attractiveness (see Figure 38). Thus, women seem to put more weight on Effort as compared to men when making job decisions whilst men attribute more importance to Autonomy. The reasons for these results can possibly be enlightened by consulting literature on gender specific job preferences and perceptions (Jurgensen, 1978; Wiersma, 1990; Winter, 1996). In light of the results, H24 is supported.

Figure 38: Effects on Employer Attractiveness: Female vs. male participants



Note: Unstandardized coefficients reported; *** for $p \leq 0.01$; effects represented by different colors differ significantly with $p < .1$ at least

7.4.4 The moderating influence of Performance Level

In order to test whether the performance level of the participants (operationalized as grades) has an influence on the coefficients (H25), a further group model is estimated. The model compares effects for participants with exceptional grades (grade = 1.0-1.3; n = 268) with participants with average and lower grades (grade = 2.4-4.0; n = 346). The comparison of the model estimating coefficients for both groups freely as compared to the model forcing paths coefficients to be equal for both groups fits the data significantly better. With regard to total effects on Employer Attractiveness it can be concluded that both groups prefer the Balanced Type over the Fun and the Solid Type, the latter two effects not being significant. Strikingly, the high graders seem to prefer the Solid Open Type over the Solid Closed Type – a result which has not occurred so far. Possibly, high graders place high value on exchange of knowledge and networking in order to extend their abilities. Moreover, they might be less averse to being exposed to others, as they know they do not have to hide their results.

Further, the results indicate that participants with exceptional grades attribute a considerably lower Adequacy for Work to the Fun Type (b = .48, p = .01) as compared to participants with lower grades (b = .71, p = .00) (difference not significant). Moreover, the high graders seem to attribute a lower Adequacy for Work to the Solid Closed Type as compared to the lower

performance participants, difference in effects also not being significant. With regard to Innovation it can be seen that low graders attribute significantly higher Innovation and Flexibility to the Fun and the Solid Closed Type than high graders, the latter ones even attributing higher Innovation & Flexibility to the Solid Open than to the Solid Closed Type.
To reach a conclusion it can be stated that high graders attribute highest Employer Attractiveness to the Balanced Type. Thereafter, they narrowly prefer the Fun Type over the Solid Open Type, the Solid Closed Type being least attractive to them. Thus, the hypothesis that the mediated relationship between architecture and Employer Attractiveness is moderated by grade (H25) is supported.

7.4.5 Further possible moderating effects

Though there is no clear theoretical foundation and now hypotheses have been explicitly derived, it can be regarded as probable that the course of studies and the region of the participants exert and moderating effect on the relations between the variables. This possible moderation effects are tested on the basis of two further group comparisons.

Influence of Course of Studies

In order to test the influence of course of studies, three groups are built amongst the group of students: 1. economics students (N= 570), 2. languages, culture and social science students (N = 261), 3. natural sciences, math and engineering (N = 220). The number of students in other disciplines is too small as to build further groups. The results of the estimated model support the results from the main model. However, there are two significant differences in the effect sizes of the three groups. Firstly, the results show that for economics students, Effort has a much higher influence on Employer Attractiveness (b = .23, p = .00) than for languages, culture and social science students (b = .04, p = .12) and natural sciences, math and engineering (b = -.04, p = .62), the latter two groups not paying any significant importance to Effort at all. Secondly, languages, culture and social science students ascribe the Solid Closed Type a clearly higher Adequacy for Work (b = .60, p = .00) than the economics students (b = .17, p = .17) and natural sciences, math and engineering students (b = .15, p = .43). Overall, the results seem to indicate (not significantly) that the languages, culture and social science students have more positive associations with the Solid Closed Type than the other two groups, pertaining all employer attributes.

Influence of Region

As explained before, the participants have been split into four regions: North, east, south and west. As the north and the east group are very small (N north = 23, N east = 13), only the south (N = 1068) and west group (N = 718) are compared in a group model. The estimation results do not show any major differences between the two groups. The coefficients indicate that the effect sizes are always slightly larger for the west group than for the south group. However, the differences are not significant.

7.5 In essence: How the architectural types affect job seekers

In light of the complex preceding analysis and the diverse results of the different model estimations, the following paragraphs put the main results for each architectural type in a nutshell.

The Balanced Type[27]

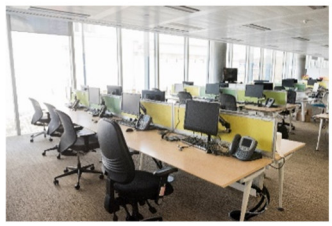
Balanced			

Overall, it can be said that the analyses show a clear preference for the Balanced Type across all group comparisons. Thus, this preference seems to be very stable and therefore highly meaningful. This strong preference is based primarily on the positive effects of the Balanced Type on Adequacy for Work and Innovation and Flexibility, the first named standing out particularly. Additionally, the Balanced Type has the strongest positive effects on Autonomy and Effort. However, these attributes do hardly contribute to the total positive effect on Employer Attractiveness. Moreover, the group comparisons reveal that the Balanced Type is preferred in particular by those showing a high need for Achievement, whilst those low on Achievement do not show an explicit preference for the Balanced Type (as compared to the Fun Type). Further, those people high on Achievement ascribe higher Innovation and

[27] For a list of picture credits for all pictures used in this work please see Appendix 10

Flexibility to the Balanced Type than those low on Achievement. Finally, the analysis reveals a direct negative effect for those low on Achievement from the Balanced Type on Employer Attractiveness, which indicates that these people are troubled by something not modeled explicitly. As the consultation of the other model comparisons indicates, this might be something like missing privacy. The Balanced Type with its clear business focus seems quite "straight forward" in that it clearly conveys a business atmosphere and does not provide any corners or amenities to withdraw or hide discreetly, conveyed by the functional orientation and the design style. This seems to rather be disliked by those low on Achievement, whilst those high on Achievement seem to value this "straight forward" approach and see it as a good environment for their work, also in an innovative and flexible way. Thus, in addition to its general attractiveness, the Balanced Type seems to affect the selection of job seekers positively.

The Fun Type

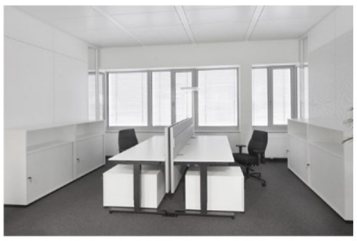
Fun			

Across all groups, the Fun Type is ranked on second position in terms of Employer Attractiveness together with the Solid Closed Glass Type. With regard to Adequacy for Work, one of the main drivers of the total effect, the Fun Type is ranked on third position behind the Balanced and the Solid Closed Glass Type. As for Innovation and Flexibility, the Fun Type is ranked on first position together with the Balanced Type. With regard to Effort, the Fun Type interestingly does not differ significantly from the effects of the Solid Closed Glass and the Solid Open Glass Type. In chapter 7.2. different approaches of explanation have been made. However, what can be concluded is that the Fun Type is *not* associated with the assumed kind of "extra motivation" in light of the playful environment and youthful spirit. Moreover, the Fun Type shows the second largest positive effects on Autonomy. Thus, autonomous work is expected, however not to the extent as from the Balanced Type. The reasons for this can be seen in contradicting inferences made on the Fun Type: On the one hand, people are autonomous in choosing to stay in the fun areas. On the other hand, people might assume to be "captured" 24/7 by their employers.

Pertaining to the impact of work values, people high on Creativity are more positive about the

Fun Type than people low own Creativity, though both groups prefer the Balanced Type overall. Moreover, people high on Achievement as well as people with a high performance level ascribe a lower Adequacy for Work to the Fun Type than people high on Achievement. Thus, with regards to Achievement and performance, the Fun Type might provoke negative effects in terms of selection. Lastly, professionals are clearly less positive about the Fun Type in that they rank the Fun Type on third position behind the Balanced and the Solid Closed Type, whilst students rank the Fun Type on second position.

The Solid Closed Glass Type

Solid Closed Glass			

Overall, across all groups the Solid Closed Glass Type is ranked on second position together with the Fun Type, behind the Balanced Type. This effect is mainly driven by the positive influence of the Solid Closed Glass Type on Adequacy for Work, being ranked on second position behind the Balanced Type. The results from the direct comparison with the Solid Closed Concrete Type are most striking about this type, which reveals the strong impact of the glass tower as compared to the concrete tower. Particularly, the glass tower has a considerable influence on how people perceive Adequacy for Work. Whilst the Solid Closed Glass Type ranks on second position for Adequacy for Work, the Solid Closed Concrete Type ranks on fifth position, which mainly differs in terms of the tower. Thus, it seems to be the closed office layout in combination with the glass tower, which leads to a high perceived Adequacy for Work. Thus, either the glass tower seems to have an outshining effect on the perception of other architectural characteristics or it is actually the combination of characteristics which lead to the total effect. Pertaining to the effects on Innovation and Flexibility, the Solid Open Glass Type and the Solid Closed Glass Type do not differ significantly in their effect sizes. This supports the assumption of the "outshining" effect. However, as for Autonomy, the Solid Closed Glass tower is ranked on third position together with the Solid Closed Concrete Type, whilst the Solid Open Glass Type is ranked w. This indicates that with regards to Autonomy, the effect of the

closed office layouts seems to overweigh.

To sum up, the Solid Closed Glass Type reveals considerable positive effects on Adequacy for Work, Innovation and Flexibility as well as Effort. These positive effects are always slightly, however not significantly, stronger for the Solid Closed Glass Type as compared to the Solid Open Glass Type.

With regard to the Solid Closed Type in general (the Glass and the Concrete Type), the analysis shows that particularly people with low need for Achievement ascribe higher Autonomy to the Solid Closed Type than people with high need for Achievement. Similarly, people with a low performance level infer a higher Adequacy for Work from the Solid Closed Type than people with a high performance level. In total, the high performers rank the Solid Closed Type on the last position, after the Solid Open Type. Thus, people with low need for achievement and low performance level rather seem to prefer closed layouts and people with high need for achievement and high performance level open layouts – at least with regards to the Solid Type. Furthermore, the Solid Closed Type has been ascribed significantly higher Adequacy to Work by the professionals as compared to the group of students.

The Solid Open Glass Type

Solid Open Glass			

In total, the Solid Open Glass Type ranks on fourth position ahead of the Solid Closed Concrete and Solid Open Concrete Type. This effect is mainly driven by the low Adequacy for Work attributed to this architectural Type. The further main points have already been mentioned above in comparison with the Solid Closed Glass Type. Comparing the Solid Open Glass Type with the Solid Open Concrete Type, the Solid Open Glass Type always ranks better, with one exception: The two types do not differ significantly as for Autonomy. As already mentioned above, the office layout seems to play a major role for the perception of Autonomy, which rules out the effect of the glass versus the concrete tower.

Pertaining to the Solid Open Type in general (the Glass and the Concrete Type), it can be stated

that this type has been clearly rated worse in terms of Adequacy for Work. Interestingly, this type is preferred over the Solid Closed Type only by those people with high performance levels, which reflects their strong preference for open workplace layouts.

The Solid Closed Concrete Type

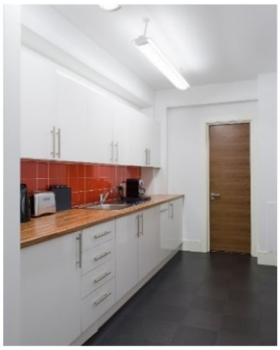
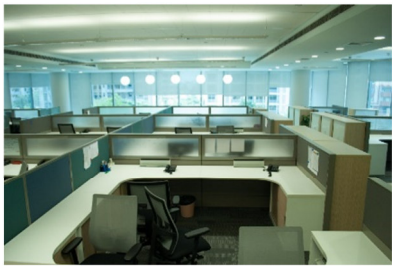
Solid Closed Concrete



Overall, this type is ranked on the second last position, ahead of the Solid Open Concrete Type only. In view of the employer attributes, there are two significant differences between the two types: In terms of Adequacy for Work and Autonomy the Solid Closed Concrete Type ranks significantly better than the Solid Open Concrete Type. There is no difference between the two with regards to the effects on Innovation and Flexibility and Effort,. Here, the concrete façade might operate like a hygiene factor according to Herzberg (1966), as already mentioned before.

Solid Open Concrete

Solid Open Concrete

This type served as the reference category for the empirical analysis and is overall clearly the least preferred type. All detailed points have already been mentioned in comparison with the other architectural types above.

To sum up the empirical results of the study, the general superiority of the Balanced Type in total as well as with regard to all employer attributes has to be mentioned again. With regard to the group comparisons, the results showed that the clearest differences can be found based on status and gender – a result of high relevance in terms of targeting different groups of job seekers. Moreover, performance level plays a role as do the Work Values Achievement and Creativity. However, these effects do in no case change the rank order of the architectural types in so far as the Balanced Type is always the most preferred one in terms of total effects. Thus, there seems to be a kind of superior architectural type overruling all other effects tested. Lastly, the analysis has shown that the effects of architectural characteristics always have to be considered in their combination, in their effect as a whole and *not in isolation.* With regards to the two Solid Types participants for example preferred the closed office layout as compared to the open layout. The Balanced Type and the Fun Type also feature semi-open and open layouts and are, however, ranked on first and second position in total. Thus, it seems that open office layouts in combinations with other architectural elements seem to unfold a rather positive effect.

Finally, Table 63 in Appendix 9 provides an overview of which of the model hypotheses have been supported or had to be denied on the basis of the preceding empirical analysis.

8 Conclusion

The objective of the present study was to answer the research question, *whether and how corporate architecture influences job seekers perception of employer attributes, and this, in turn, perceived Employer Attractiveness*. The theoretical discussion in terms of applying approaches from recruitment literature to the potential effects of corporate architecture clearly indicated that architecture functions as a signal for employer attributes to job seekers and thus influences them in their stated employer choice. The empirical examination of the research model verified that architecture influences Employer Attractiveness completely through the mediating effects of the employer attributes Innovation & Flexibility, Autonomy and Effort as well as perceived Adequacy for Work, thus highly supporting the assumed function of architecture as a signal for employer attributes. This provided an answer to the research question, w*hich employer associations corporate architecture triggers.* The analysis revealed that the four architectural types tested have a different influence on perceived Employer Attractiveness, with the Balanced Type emerging as a kind of "superior type", as it was the most preferred one in terms of leading to highest Employer Attractiveness over all groups of participants. The Solid Open Type, on the contrary, was the least preferred Type over all groups. The analysis of personal characteristics such as status, performance level, or gender showed that these moderators influenced the effects identified in two ways: First, in terms of how architecture was perceived as a signal for employer attributes, referring to the way the information in form of architecture is processed. Second, pertaining to the evaluation of the perceived attributes, substantiating the relevance of arguments referring to PO-Fit and Social Identity Theory. These results provide an answer to the question, *whether there is a selection effect of corporate architecture pertaining to particular personal characteristics of job seekers*. Such a selection effect does not hold true for the Balanced Type, as this is the preferred type across all groups examined in the study. However, the Fun and the Solid Closed Type appeal differently to different targets groups, as for example to students versus professionals, and for people with low and high need for achievement, so that a selection effect can be expected correspondingly.

Lastly, the results showed that architectural characteristics can only be evaluated in their effect as a whole, as a combination of characteristics, and not as isolated elements.

In the following, the implications of the results for theory and practice are discussed in more detail, followed by a section on limitations and avenues for future research.

8.1 Implications for theory and practice

This study brings together theoretical insights from the recruitment literature and literature on corporate architecture, which are substantiated by a large-scale empirical study, and thus create a new interdisciplinary perspective on corporate architecture in the recruitment context. In doing so it develops recruitment literature dealing with job preferences and organizational attractiveness (Boswell et al., 2003; Chapman et al., 2005; Kabst & Baum, 2013), by establishing corporate architecture as an important factor for job choice. This perspective has been opened up in a vestigial manner before: In this vein, for example Müller (2013), Earle (2003), Klaffke (2016b), and Hauser et al. (2016) have already argued that corporate architecture is supposed to influence job seekers. However, they have neither provided empirical evidence supporting their propositions, nor are these contributions substantiated with systematic theoretical evidence on why and how corporate architecture affects job seekers. Only one study by Radermacher et al. (2017) so far has provided empirical evidence on that architecture actually impacts employer choice of job seekers. Moreover, this study also provides strong theoretical arguments for the claim that architecture functions as a signal to job applicants. However, this study does not provide empirical evidence on *how* architecture impacts applicants. Moreover, it is based on a sample of 172 students and therefore can be regarded as a first indication of the effects of corporate architecture in the recruitment context. The study at hand provides both a far-reaching theoretical discussion and a broad empirical underpinning. The empirical study is based on a sample of more than 1,800 participants, including students and professionals, alike. In doing so the study provides a profound understanding as well as evidence of how and why corporate architecture affects job seekers. Thus, it does not only shed light on the relationship between architecture and employer attractiveness but also on the mechanisms which constitute this relationship.

In more detail, this study reveals that the overall attractiveness of the Balanced Type, which seems to combine all architectural attributes signaling an attractive employer and workplace, seems to reflect the preferences of a broad target group, irrespective of personal characteristics and work values. Moreover, this work shows that the preferences for the other architectural types strongly vary based on status. Whilst students rank the Fun Type on second position after the Balanced Type, professionals clearly see the Fun Type as being less attractive than the Solid Closed Type, which they rank on place two. Furthermore, the study contributes to the above-mentioned strand of literature by showing that it is particularly the high importance job seekers ascribe to Innovation and Flexibility and Adequacy for work, which impacts job seekers overall

preferences for the architectural types. Pertaining to Innovation and Flexibility, this study supports research emphasizing the role of perceived organizational innovativeness with regard to enhancing employer attractiveness, which Sommer et al. (2017) have identified. This study also identifies that Innovation and Flexibility is even more important for people with a high need for achievement, which additionally emphasizes the positive effects of perceived innovativeness and thus strengthens theory development in this direction. Moreover, this study establishes that the perceived Adequacy for Work of the physical work environment is of high importance for job seekers, which is a new impetus for theory on preferences for job and organizational attributes.

Applying Signaling Theory as an overarching framework and verifying its mechanisms on empirical basis, this study contributes to the recruitment literature dealing with employer signaling (Backes-Gellner & Tuor, 2010; Celani & Singh, 2011; Connelly et al., 2011). In particular, it develops theory on organizational characteristics as signals in that it does not only assume specific mechanisms in the relation between signals and outcomes, but sheds light on these mechanisms by analyzing and confirming them empirically. In this context, the study in particular enlightens the employer attributes which mediate the effect between architecture and employer attractiveness. The knowledge of these mediators provides important information on the relevant “adjusting screws”. In this sense, the knowledge of the mediators can provide information on how the organizational signal needs to be adapted or compensated for in terms of reaching the desired effect on the outcome variable, which is employer attractiveness in this study. Moreover, the study enlightens the moderating effects on the relation between architecture and employer attractiveness. Understanding the moderating variables is essential, as they can change effects considerably. This knowledge can be of particular importance when targeting special groups of job seekers. In doing so, the study contributes to bringing studies of this strand of literature to a higher level of insights, in the same vein as have, for instance, Jones et al. (2014) as well as Iseke and Pull (2017) already set an example.

Another important finding of this study refers to the gender based difference in effect sizes. It was revealed that women are more sensitive to architecture as a signal, in that sense that the effects of architecture on the perceived employer attributes and thus on employer attractiveness were considerably higher for women than for men. This finding connects to literature determining whether specific recruiting activities by an organization work equally well across men and women (Jurgensen, 1978; Wiersma, 1990), the importance of which has already been pointed out by Chapman et al. (2005: 930).

Moreover, this study suggests that architecture should be further analyzed on the basis of power and control related theoretical concepts such as the perspective of Foucault (1977), for example. The empirical study revealed that, for instance, the Balanced Type had a stronger effect on perceived Autonomy than the Fun Type. This could indicate that the possibility of choosing between sitting at the desk and lingering in fun amenities during work does not signal a higher degree of Autonomy, but rather implies thoughts of being subject to control of management influence more strongly. Moreover, the study showed that participants with a low need for Achievement associated a higher degree of Autonomy with the Solid Closed Type as did those with high need for Achievement. This again implies that thoughts of control and surveillance play a role pertaining to the evaluation of architectural characteristics.

This work also extends the literature propagating the communicative power of corporate architecture in terms of its impact on symbolic and brand personality perceptions (Raffelt & Meyer, 2012; Raffelt et al., 2013) by revealing that these effects do also operate in terms of employer branding and thus are not only relevant for approaching customers, but also for job seekers.

Practical implications

With regard to implications for management, this study provides a variety of implications for organizations on how to purposefully integrate corporate architecture in employer branding strategies and handle it reasonably in the recruitment process.

Firstly, as architecture has been identified to act strongly as a signal on job seekers perceptions on employer attributes, companies are urgently advised to purposefully integrate corporate architecture in their employer branding action. If their architecture is expected to evoke positive associations in line with the results of this study, employers should include direct impressions of their architecture in their communication. If architecture is assumed to lead to negative effects on the perception of employer attributes, particular “countermeasures” should be taken to directly address these concerns evoked. For example, a company architecture resembling the Solid Concrete Type, which was especially lacking positive associations with Innovation & Flexibility, should take other measures which emphasize this attribute. If a company plans investments in its corporate architecture, it should include considerations on the potential effects on the recruitment success in their concepts right from the beginning.

If companies do purposefully integrate architecture in their HR communication, they can expect a positive impact on selection effects. As the study has shown, Balanced architecture has an

even more positive effect on high performance job seekers and on those with high need for achievement. Moreover, job seekers with a low need for Achievement evaluated open workplaces less positive. High performers did also appreciate Innovation & Flexibility more than low performers. This indicates that communication emphasizing all aspects being associated with high innovativeness leads to a desirable selection. Moreover, it is suggested that employers striving to target women particularly are more successful when communicating architectural information.

With regard to communication media, the Media Richness Theory (Daft & Lengel, 1984, 1986) gives indications that media yielding the deepest and most detailed insights lead to strongest effects on job seekers. Thus, employers should think about virtual tours and 360° walk arounds which imply a high degree of immersion.

Employers should also consider where to arrange job interviews to give applicants a positive, yet realistic impression about the architecture. Job interviews could be complemented by company tours to complete the picture about the physical work environment. Company tours could also be an isolated measure being offered for potential applicants.

8.2 Limitations and avenues for future research

Though the study at hand has been conducted with utmost care on empirical and conceptual level, it is only a start for a possible examination of architecture in the recruitment context.

A first limitation refers to the design of the experiment conducted. In the scenario experiment, information about corporate architecture was made available to the participants via a fictive company website. As both companies and applicants, increasingly turn to company websites as sources of recruitment information, websites are a plausible vehicle for communicating corporate architecture. However, with the study focusing on one single way of communicating information about corporate architecture, the interpretation of the results is limited to the effects of corporate architecture made available via photographs on a company website. Photographs represent a one-dimensional source of information. The information of the viewer is limited to what the provider has captured on the pictures. Thus, the experience of the viewer is presumably of rather passive nature, in the sense that information is obviously limited and the viewer cannot actively gain further information. Nevertheless, Groat (1982) could show that evaluations of building pictures highly correlated with the evaluation of real buildings. However, the degree of immersion and supposedly experience of associations might be stronger for media conveying three-dimensional and lively experiences such as virtual tours. Against this backdrop it can be

assumed that the effects of architecture found in this study are of rather conservative nature as compared to other vehicles of communication. In consequence, this leads to the assumption that the true potential of corporate architecture during the recruitment process might be considerably higher than shown in the present study. Thus, future research should consider to what extent different sources of architectural information impact the size of effects on job seekers. Theories underpinning the assumption of different effect sizes depending on the selected medium are for example the Media Richness Theory (Daft & Lengel, 1984, 1986). Future research should attempt to shed light on corporate architecture in the context of such theoretical concepts, as findings on this issue could yield important information for management on how to communicate information on corporate architecture most effectively.

In light of the design of the study, the selection of the pictures can also bear some limitation. Though the pictures have been selected in close connection to the architectural characteristics identified, it cannot be ruled out that the pictures contained further architectural characteristics, which had not been considered theoretically but nevertheless had an effect on the participants. Likewise, all pictures selected have been taken by professionals. Nevertheless, it cannot be dismissed that possible differences in picture quality might have impacted the participants.

Further looking at the design, this study explores the isolated effect of corporate architecture. This means, it sheds light on how potential job seekers are affected by corporate architecture, holding all other factors constant. Whereas it is common to identify isolated effects, particularly when the field of research is new and nothing is known on the effect of interest at all, it does not reflect real job search scenarios, in which usually a variety of factors vary at the same time. The study by Radermacher et al. (2017) shows that architecture is of considerable importance when considered in connection with varying levels of annual salary, career opportunities and training offers. However, future research should set the meaning of architecture for employer choice in context with further attributes of importance to applicants.

Further, as a limitation of all scenario experiments and comparable designs, this study captures stated preferences, in contrast to revealed preferences. Thus, it cannot be proven that the effects identified would also hold in real decision situations. However, in light of the effect sizes and the robustness of the results identified here, it can be expected that the effects would also hold in real decision situation, even if their sizes might be smaller. Thus, future research on the question addressed in this study based on field data or field experiments would help to gain insights on this issue.

A further point refers to the generalizability of the study. This study aimed at identifying effects

of corporate architecture on future knowledge workers. The reason for this limited scope of the study was substantiated by the fact that the process of knowledge work is different from that of other work task and therefore comes along with particular requirements with regard to the work environment. Moreover, economists emphasize the importance of the knowledge sector and the increasing shortage of talent in certain parts of the sector. As this scope was reasonable in order to receive unbiased effects, it elicits the questions to what extent the results of the study can be transferred to other areas of work, such as blue-collar work. Backes-Gellner and Tuor (2010) point out that job preferences vary over different groups of job seekers. Given the fact that the empirical results on the strong preference for the Balanced Type over all groups of participants of this study were highly stable, it can be assumed that at least the preference for this architectural type might be stable over other groups of workers as well. However, it would be interesting to reveal how the other types effect other groups of workers specifically. It can, for example, be presumed that blue-collar workers, normally receiving lower levels of income, have a higher need for job security and thus value Solid Type like architecture stronger, at least with regards to the outer appearance (as the office environment usually does not play a role for blue-collar workers). Future research should thus extend the research question to further groups of workers and other work spaces such as factories or shops. Again, these results would be of high interest for managers, as labor shortages appear to also be a problem in the field of qualified skilled workers.

Another point pertaining to the generalizability of the findings refers to the national and cultural background of the study participants, since the study exclusively included German participants. The theoretical considerations on the interpretation of architecture have suggested that this interpretation for example depends on cultural norms and experiences (e.g. Rafaeli & Vilnai-Yavetz, 2004). Thus, future research should enlighten, to what extent the interpretation of and the preferences for the different architectural types can be transferred to other national contexts. For example, it would be interesting to understand how job seekers in the USA evaluate the Fun Type, which is much more common there.

With regard to the analysis of the influence of work values, extreme group comparisons have been conducted in order to reduce complexity and, in a rather explorative way, find out which moderating variables do impact the main effect at all. This analysis would be finer grained, when work values and other possible moderators would be integrated into the mediated moderated model as latent variables. However, the objective of this study was to find the main variables driving the effects. Thus, the simplified procedure was adequate for this purpose.

The study at hand analyzed the effects of four architectural ideal types. Thus, only a small part of existing architecture types could be considered. Future research should involve further forms of architecture. Further, it would be interesting to examine which of the architectural dimensions (the building, the interaction areas, or the workplace) have the strongest influence on job seekers attitudes. Moreover, it would be interesting to analyze whether there are differences with regards to the effects of architecture depending on firm size. Is, for example, another architectural type attractive for a small sized company as compared to a large group?
Finally, the fine grained analysis of the Solid Type revealed that the concrete tower seems to have an overall negative effect, so that, with exception of Autonomy, there is hardly any difference between the effects of the Solid Closed Concrete and the Solid Open Concrete Type. Thus, in the case of the Solid Types, it seems that the façade can be interpreted as something like a hygiene factor in the sense of Herzberg's two factor theory (Herzberg, 1966). Future research should expand on this finding, focusing on the question to what extent particular architectural features act as hygiene factors.

To sum up, the study at hand has yielded a variety of theoretical and practical implications of high relevance. They underline the claim that corporate architecture should be given a high priority in research as well as in management practice. Though the study also comes along with a series of limitations, the main results of the study are robust to such a degree that their actual existence and importance can hardly be denied. The avenues for future research identified here reflect that this study has targeted an unexplored field of research and thus paves the way for a host of future research projects enriching the insights generated in this piece of pioneer work.

References

Aaker, J. L. 1997. Dimensions of brand personality. ***Journal of Marketing Research***, 34(3): 347–356.

Acock, A. C. 2013. ***Discovering structural equation modeling using stata***. College Station, Texas: Stata Press.

Aguinis, H., & Bradley, K. J. 2014. Best practice recommendations for designing and implementing experimental vignette methodology studies. ***Organizational research methods***, 17(4): 351–371.

Aichholzer, J. 2017. ***Einführung in lineare Strukturgleichungsmodelle mit Stata***. Wiesbaden: Springer VS.

Aiken, L. S., Stein, J. A., & Bentler, P. M. 1994. Structural equation analyses of clinical subpopulation differences and comparative treatment outcomes: Characterizing the daily lives of drug addicts. ***Journal of Consulting and Clinical Psychology***, 62(3): 488.

Aiman-Smith, L., Bauer, T. N., & Cable, D. M. 2001. Are you Attracted? Do you intend to pursue? A recruiting policy-capturing study. ***Journal of Business and Psychology***, 16(2): 219–238.

Albinger, H. S., & Freeman, S. J. 2000. Corporate social performance and attractiveness as an employer to different job seeking populations. ***Journal of Business Ethics***, 28(3): 243–253.

Altmann, S., & Suess, S. 2015. The influence of temporary time offs from work on employer attractiveness - An experimental study. ***Management Revue***, 26(4): 282–305.

Alvesson, M., & Berg, P. O. 1992. ***Organizational culture and symbolism.*** Berlin, New York: Walter de Gruyter.

Anderson, J. C., & Gerbing, D. W. 1988. Structural equation modeling in practice: A review and recommended two-step approach. ***Psychological bulletin***, 103(3): 411.

Appel-Meulenbroek, R., Havermans, D., Janssen, I., & van Kempen, A. 2010. Corporate branding: an exploration of the influence of CRE. ***Journal of Corp Real Estate***, 12(1): 47–59.

Architizer Editors 2013. ***The future of the office is fun: Architecture + workspace***.

Arzheimer, K. 2015. ***Strukturgleichungsmodelle: Eine anwendungsorientierte Einführung***. Wiesbaden: Springer-Verlag.

Ashforth, B. E., & Mael, F. 1989. Social identity theory and the organization. ***Academy of Management Review***, 14(1): 20–39.

Auspurg, K., Hinz, T., & Liebig, S. 2009. Komplexität von Vignetten, Lerneffekte und Plausibilität im Faktoriellen Survey. ***Methoden, Daten, Analysen***, 3(1): 59–96.

Backes-Gellner, U., & Tuor, S. N. 2010. Avoiding labor shortages by employer signaling - On the importance of good work climate and labor relations. ***Industrial and Labor Relations Review***, 63(2): 271–286.

Backhaus, K., Erichson, B., Plinke, W., & Weiber, R. 2018. ***Multivariate Analysemethoden: Eine anwendungsorientierte Einführung:*** Springer-Verlag.

Backhaus, K., & Tikoo, S. 2004. Conceptualizing and researching employer branding. ***Career Development International***, 9(5): 501–517.

Bagozzi, R. P. 1998. A prospectus for theory construction in marketing: Revisited and revised. ***Die Kausalanalyse, Stuttgart***: 44–81.

Bagozzi, R. P., & Baumgartner, H. 1994. The evaluation of structural equation models and hypothesis testing. ***Principles of marketing research***, 1(10): 386–422.

Bagozzi, R. P., & Phillips, L. W. 1982. Representing and testing organizational theories: A holistic construal. ***Administrative Science Quarterly***: 459–489.

Bagozzi, R. P., & Yi, Y. 1988. On the evaluation of structural equation models. ***Journal of the Academy of Marketing Science***, 16(1): 74–94.

Bagozzi, R. P., & Yi, Y. 1989. On the use of structural equation models in experimental designs. ***Journal of Marketing Research***, 26(3): 271–284.

Bagozzi, R. P., Yi, Y., & Phillips, L. W. 1991. Assessing construct validity in organizational research. ***Administrative Science Quarterly***: 421–458.

Bailey, K. D. 1994. ***Typologies and taxonomies: an introduction to classification techniques:*** SAGE.

Baldry, C., Bain, P., & Taylor, P. 1998. 'Bright satanic offices': Intensification, control and team Taylorism. In P. Thompson & C. Warhurst (Eds.), ***Workplaces of the Future***: 163–

183. London: Macmillan.

Baldry, C., & Hallier, J. 2010. Welcome to the house of fun: Work space and social identity. ***Economic and Industrial Democracy***, 31(1): 150–172.

Banbury, S. P., & Berry, D. C. 2005. Office noise and employee concentration: Identifying causes of disruption and potential improvements. ***Ergonomics***, 48(1): 25–37.

Barber, A. E. 1998. ***Recruiting employees: Individual and organizational perspectives:*** Sage Publications.

Bauer, T. N., Maertz Jr, Carl P, Dolen, M. R., & Campion, M. A. 1998. Longitudinal assessment of applicant reactions to employment testing and test outcome feedback. ***Journal of Applied Psychology***, 83(6): 892.

Baum, M., & Kabst, R. 2011. Arbeitgebermarkenaufbau durch informelle Hochschul-Personalmarketingmaßnahmen: Eine empirische Analyse im deutschen Mittelstand. ***Zeitschrift für Betriebswirtschaft***, 81(3): 327–349.

Baum, M., & Kabst, R. 2012. Die Wirkung von informellen und internetbasierten Rekrutierungskanälen auf den Rekrutierungserfolg: Eine empirische Analyse in kleinen und mittleren Unternehmen. ***Zeitschrift für Betriebswirtschaft***, 82(3): 117-142.

Baum, M., & Kabst, R. 2014. The effectiveness of recruitment advertisements and recruitment websites: Indirect and interactive effects on applicant attraction. ***Human Resource Management***, 53(3): 353–378.

Behling, O., Labovitz, G., & Gainer, M. 1968. College recruiting: A theoretical basis. ***Personnel Journal***, 47(1): 13–19.

Bentler, P. M., & Bonett, D. G. 1980. Significance tests and goodness of fit in the analysis of covariance structures. ***Psychological bulletin***, 88(3): 588.

Berg, P. O., & Kreiner, K. 1990. Corporate architecture: turning physical settings into symbolic resources. In P. Gagliardi (Ed.), ***Symbols and artifacts: views of the corporate landscape***: 41–67. Berlin: de Gruyter.

Berthon, P., Ewing, M., & Hah, L. L. 2005. Captivating company: Dimensions of attractiveness in employer branding. ***International journal of advertising***, 24(2): 151–172.

Boehm, S. A., Kunze, F., & Bruch, H. 2014. Spotlight on age-diversity climate: The impact of

age-inclusive HR practices on firm-level outcomes. ***Personnel Psychology***, 67(3): 667–704.

Bollen, K. A. 1987. Total, direct, and indirect effects in structural equation models. ***Sociological Methodology***: 37–69.

Bollen, K. A. 1989. ***Structural equations with latent variables***. New York, NY [u.a.]: Wiley.

Boswell, W. R., Roehling, M. V., LePine, M. A., & Moynihan, L. M. 2003. Individual job-choice decisions and the impact of job attributes and recruitment practices: A longitudinal field study. ***Human Resource Management***, 42(1): 23–37.

Boswell, W. R., Zimmerman, R. D., & Swider, B. W. 2012. Employee job search: Toward an understanding of search context and search objectives. ***Journal of Management***, 38(1): 129–163.

Boutellier, R., Ullman, F., Schreiber, J., & Naef, R. 2008. Impact of office layout on communication in a science-driven business. ***R&D Management***, 38(4): 372–391.

Britzke, B. (Ed.) 2010. ***MTM in einer globalisierten Wirtschaft. Arbeitsprozesse systematische gestalten und optimieren.*** München: mi-Wirtschaftsbuch.

Browne, M. W., & Cudeck, R. 1993. Alternative ways of assessing model fit. ***Sage focus editions***, 154: 136.

Brunia, S., & Hartjes-Gosselink, A. 2009. Personalization in non-territorial offices: A study of a human need. ***Journal of Corporate Real Estate***, 11(3): 169–182.

Bryant, F. B. 2000. Assessing the validity of measurement. In L. G. Grimm & Yarnold, P. R. (Eds.), ***Reading and understanding MORE multivariate statistics***: 99–146. Washington, D.C.: US: American Psychological Association.

Bühner, M. 2006. ***Einführung in die Test- und Fragebogenkonstruktion*** (2nd ed.). München: Pearson Studium.

Cable, D. M., & Judge, T. A. 1994. Pay preferences and job search decisions: A person-organization fit perspective. ***Personnel Psychology***, 47(2): 317–348.

Cable, D. M., & Judge, T. A. 1996. Person–organization fit, job choice decisions, and organizational entry. ***Organizational Behavior and Human Decision Processes***, 67(3): 294–311.

Cable, D. M., & Turban, D. B. 2001. Establishing the dimensions, sources and value of job seekers' employer knowledge during recruitment. ***Research in personnel and human resources management***, 20: 115–163.

Cable, D. M., & Yu, K. Y. T. 2006. Managing job seekers' organizational image beliefs: The role of media richness and media credibility. ***Journal of Applied Psychology***, 91(4): 828–840.

Campbell, D. E. 1980. Professors and their offices: A Survey of person-behavior-environment relationships. In R. R. Stough & A. Wandersman (Eds.), ***Optimizing environments: Research, practice, and policy***. Washington, D.C: Environmental Design Research Association.

Celani, A., & Singh, P. 2011. Signaling theory and applicant attraction outcomes. ***Personnel Review***, 40(2): 222–238.

Chaiken, S., Liberman, A., & Eagly, A. H. 1989. Heuristic and systematic information processing within and beyond the persuasion context. In J. S. Uleman & J. A. Bargh (Eds.), ***Unintended thought***. New York: Guilford.

Chapman, D., & Webster, J. 2006. Toward an integrated model of applicant reactions and job choice. ***International Journal of Human Resource Management***, 17(6): 1032–1057.

Chapman, D. S., Uggerslev, K. L., Carroll, S. A., Piasentin, K. A., & Jones, D. A. 2005. Applicant attraction to organizations and job choice: A meta-analytic review of the correlates of recruiting outcomes. ***Journal of Applied Psychology***, 90(5): 928–944.

Chatman, J. A. 1991. Matching people and organizations: Selection and socialization in public accounting firms. ***Administrative Science Quarterly***, 36(3): 459–484.

Chatman, J. A., & O'Reilly, C. A. 2016. Paradigm lost: Reinvigorating the study of organizational culture. ***Research in Organizational Behavior***, 36: 199–224.

Chen, S., & Chaiken, S. 1999. The heuristic-systematic model in its broader context. ***Dual-process theories in social psychology***, 15: 73–96.

Chu, K. H.-L. 2008. A factorial validation of work value structure: Second-order confirmatory factor analysis and its implications. ***Tourism Management***, 29(2): 320–330.

Cogin, J. 2012. Are generational differences in work values fact or fiction? Multi-country evidence and implications. ***The International Journal of Human Resource Management***,

23(11): 2268–2294.

Cohen, B. D., & Dean, T. J. 2005. Information asymmetry and investor valuation of IPOs: Top management team legitimacy as a capital market signal. ***Strategic Management Journal***, 26(7): 683–690.

Collins, C. J., & Stevens, C. K. 2002. The relationship between early recruitment-related activities and the application decisions of new labor-market entrants: A brand equity approach to recruitment. ***Journal of Applied Psychology***, 87(6): 1121–1133.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. 2011. Signaling Theory: A review and assessment. ***Journal of Management***, 37(1): 39–67.

Coroiu, A. M., Găceanu, R. D., & Pop, H. F. 2016. Discovering patterns in data using ordinal data analysis. ***Studia Universitatis Babes-Bolyai, Informatica***, 61(1).

Costello, A. B., & Osborne, J. W. 2005. Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. ***Practical assessment, research & evaluation***, 10(7): 1–9.

D'Adderio, L. 2011. Artifacts at the centre of routines: Performing the material turn in routines theory. ***Journal of Institutional Economics***, 7(2): 197–230.

Daft, R. L., & Lengel, R. H. 1984. Information richness. A new approach to managerial behavior and organization design. ***Research in Organizational Behavior***, 6: 191–233.

Daft, R. L., & Lengel, R. H. 1986. Organizational information requirements, media richness and structural design. ***Management science***, 32(5): 554–571.

Danielsson, C. B., & Bodin, L. 2008. Office type in relation to health, well-being, and job satisfaction among employees. ***Environment and Behavior***, 40(5): 636–668.

Davis, T. R. V. 1984. The influence of the physical environment in offices. ***Academy of Management Review***, 9(2): 271–283.

De Been, I., & Beijer, M. 2014. The influence of office type on satisfaction and perceived productivity support. ***Journal of Facilities Management***, 12(2): 142–157.

Devlin, K., & Nasar, J. L. 1989. The beauty and the beast: Some preliminary comparisons of 'high' versus 'popular' residential architecture and public versus architect judgments of same. ***Journal of Environmental Psychology***, 9(4): 333–344.

Dineen, B. R., Ling, J., Ash, S. R., & DelVecchio, D. 2007. Aesthetic properties and message customization: Navigating the dark side of web recruitment. ***Journal of Applied Psychology***, 92(2): 356.

Drover, W., Wood, M. S., & Corbett, A. C. 2018. Toward a cognitive view of signalling theory: individual attention and signal set interpretation. ***Journal of Management Studies***, 55(2): 209–231.

Duffy, F. 1997. ***The new office***. London: Conrad Octopus.

Dul, J., Ceylan, C., & Jaspers, F. 2011. Knowledge workers' creativity and the role of the physical work environment. ***Human Resource Management***, 50(6): 715–734.

Earle, H. A. 2003. Building a workplace of choice: Using the work environment to attract and retain top talent. ***Journal of Facilities Management***, 2(3): 244–257.

Eberz, L.-M., Baum, M., & Kabst, R. 2012. Der Einfluss von Rekrutiererverhaltensweisen auf den Bewerber: Ein mediierter Prozess. ***Zeitschrift für Personalforschung***, 26(1): 5–29.

Ehlers, I. L., Greisle, A., Hube, G., Kelter, J., & Rieck, A. 2003. Die entscheidenden Einflussgroessen auf die Performance im Buero. ***Zukunftsoffensive OFFICE 21: Mehr Leistungin innovativen Arbeitswelten***: 54–169.

Ehrhart, K. H., & Ziegert, J. C. 2005. Why are individuals attracted to organizations? ***Journal of Management***, 31(6): 901–919.

Elsbach, K. D. 2003. Relating physical environment to self-categorizations: Identity threat and affirmation in a non-territorial office space. ***Administrative Science Quarterly***, 48(4): 622–654.

Elsbach, K. D., & Pratt, M. G. 2007. 4. The Physical Environment in Organizations. ***Academy of Management Annals***, 1(1): 181–234.

Ewerlin, D., Köllges, J., Ruhle, S., & Süß, S. 2016. Der Einfluss von Unternehmensleitbildern auf die Arbeitgeberattraktivität: Eine Experimentalstudie. ***German Journal of Human Resource Management: Zeitschrift für Personalforschung***, 30(1): 6–34.

Falk, S., Hammermann, A., Mohnen, A., & Werner, A. 2013. Different degrees of informational asymmetry on job markets and its impact on companies' recruiting success. ***Journal of Business Economics***, 83(4): 295-317.

Fan, X., Thompson, B., & Wang, L. 1999. Effects of sample size, estimation methods, and

model specification on structural equation modeling fit indexes. ***Structural equation modeling: a multidisciplinary journal***, 6(1): 56–83.

Fayard, A.-L., & Weeks, J. 2007. Photocopiers and water-coolers: The affordances of informal interaction. ***Organization Studies***, 28(5): 605–634.

Finney, S. J., & DiStefano, C. 2006. Non-normal and categorical data in structural equation modeling. In G. R. Hancock & R. O. Mueller (Eds.), ***Structural equation modeling: A second course***, vol. 10: 269–314. Greenwich, CT: Information Age Publishing.

Fornell, C., & Larcker, D. F. 1981. Evaluating structural equation models with unobservable variables and measurement error. ***Journal of Marketing Research***, 18(1): 39–50.

Foucault, M. 1977. ***Überwachen und Strafen. Die Geburt des Gefängnisses***. Frankfurt am Main: Suhrkamp.

Fuchs, A. 2011. Methodische Aspekte linearer Strukturgleichungsmodelle. Ein Vergleich von kovarianz-und varianzbasierten Kausalanalyseverfahren. ***Research Papers on Marketing Strategy***(2).

Gagliardi, P. (Ed.) 1990. ***Symbols and artifacts: views of the corporate landscape***. Berlin: de Gruyter.

Gatewood, R. D., Feild, H. S., & Barrick, M. R. 2011. ***Human resource selection***. Mason: South Western Cengage Learning.

Gefen, D., Straub, D. W., & Boudreau, M.-C. 2000. Structural equation modeling and regression: Guidelines for research practice. ***Communications of the association for information systems***, 4(1): 7.

Gefen, D., Straub, D. W., & Rigdon, E. E. 2011. An update and extension to SEM guidelines for administrative and social science research. ***Inf. Syst. Q***, 35(2).

Gensler Architects 2016. ***Creating an Innovation Ecosystem***: ***How does the physical workplace help employees innovate?***

Gifford, R., Hine, D. W., Muller-Clemm, W., Reynolds, D. J., & Shaw, K. T. 2000. Decoding Modern Architecture: A Lens Model Approach for Understanding the Aesthetic Differences of Architects and Laypersons. ***Environment and Behavior***, 32(2): 163–187.

Gleim, R. 2012. ***ARAG;*** https://gnogongo.de/arag-2/, 23 May 2019.

Gondring, H., & Wagner, T. 2012. ***Facility Management: Handbuch für Studium und Praxis*** (2nd ed.). München: Franz Vahlen.

Greening, D. W., & Turban, D. B. 2000. Corporate social performance as a competitive advantage in attracting a quality workforce. ***Business & Society***, 39(3): 254–280.

Groat, L. 1982. Meaning in post-modern architecture: An examination using the multiple sorting task. ***Journal of Environmental Psychology***, 2(1): 3–22.

Guillot-Soulez, C., & Soulez, S. 2014. On the heterogeneity of Generation Y job preferences. ***Employee relations***, 36(4): 319–332.

Hainmueller, J., Hangartner, D., & Yamamoto, T. 2015. Validating vignette and conjoint survey experiments against real-world behavior. ***Proceedings of the National Academy of Sciences***, 112(8): 2395–2400.

Hammond, M. S., Betz, N. E., Multon, K. D., & Irvin, T. 2010. Super's work values inventory-revised scale validation for African Americans. ***Journal of Career Assessment***, 18(3): 266–275.

Hauser, F., Schulte-Deußen, K., & Langer, D. 2016. Büro als Treiber von Arbeitgeber-Attraktivität und Mitarbeiter-Engagement. In M. Klaffke (Ed.), ***Arbeitsplatz der Zukunft. Gestaltungsansätze und Good-Pratice-Beispiele***: 57–79. Berlin: SP Gabler.

Hayes, A. F., & Preacher, K. J. 2014. Statistical mediation analysis with a multicategorical independent variable. ***British Journal of Mathematical and Statistical Psychology***, 67(3): 451–470.

Herzberg, F. I. 1966. ***Work and the nature of man***. Cleveland: World Publishing.

Hessisches Immobilienmanagement 2010. ***Büro 2020***: ***Eine Übersicht verschiedener Büroformen;*** https://lbih.hessen.de/sites/lbih.hessen.de/files/content-downloads/Brosch%C3%BCre%20B%C3%BCro%202020.pdf, 25 Apr 2019.

Highhouse, S., Lievens, F., & Sinar, E. F. 2003. Measuring attraction to organizations. ***Educational and Psychological Measurement***, 63(6): 986–1001.

Highhouse, S., Thornbury, E. E., & Little, I. S. 2007. Social-identity functions of attraction to organizations. ***Organizational Behavior and Human Decision Processes***, 103(1): 134–146.

Hildebrandt, L. 1998. Kausalanalytische Validierung in der Marktforschung. In L.

Hildebrandt & C. Homburg (Eds.), ***Die Kausalanalyse: Instrument der empirischen betriebswirtschaftlichen Forschung***: 85–110. Stuttgart: Schäffer-Poeschel.

Hildebrandt, L., & Temme, D. 2006. ***Probleme der Validierung mit Strukturgleichungsmodellen.*** SFB 649 discussion paper.

Hofstede, G. 1991. ***Cultures and organizations: Software of the mind***. London: McGraw Hill.

Homer, P. M., & Kahle, L. R. 1988. A structural equation test of the value-attitude-behavior hierarchy. ***Journal of Personality and Social Psychology***, 54(4): 638–646.

Hooper, D., Coughlan, J., & Mullen, M. 2008. Structural equation modelling: Guidelines for determining model fit. ***Electronic Journal of Business Research Methods,***, 6(1): 53–60.

Hornburg, C., & Giering, A. 1996. Konzeptualisierung und Operationalisierung komplexer Konstrukte. Ein Leitfaden für die Marketingforschung. ***Marketing ZFP***, 18(1): 5–24.

Howard, M. C. 2016. A review of exploratory factor analysis decisions and overview of current practices: What we are doing and how can we improve? ***International Journal of Human–Computer Interaction***, 32(1): 51–62.

Hu, L., & Bentler, P. M. 1999. Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. ***Structural equation modeling: a multidisciplinary journal***, 6(1): 1–55.

Hua, Y., Loftness, V., Kraut, R., & Powell, K. M. 2010a. Workplace collaborative space layout typology and occupant perception of collaboration environment. ***Environment and Planning B: Planning and Design***, 37(3): 429–448.

Hua, Y., Loftness, V., Kraut, R., & Powell, K. M. 2010b. Workplace collaborative space layout typology and occupant perception of collaboration environment. ***Environment and planning. B, Planning & design***, 37(3): 429.

Hughes, R., & Huby, M. 2002. The application of vignettes in social and nursing research. ***Journal of Advanced Nursing***, 37(4): 382–386.

Iseke, A., & Pull, K. 2017. Female executives and perceived employer attractiveness: On the potentially adverse signal of having a female CHRO rather than a female CFO. ***Journal of Business Ethics***.

Jandt, F. E. 2013. ***An introduction to intercultural communication***: ***Identities in a Global***

Communitty (7th ed.). Los Angeles, London, New Dehli, Singapore, Washington DC: SAGE.

Jones, D. A., Willness, C. R., & Madey, S. 2014. Why are job seekers attracted by corporate social performance? Experimental and field tests of three signal-based mechanisms. ***Academy of Management Journal***, 57(2): 383–404.

Judge, T. A., & Bretz, R. D. 1992. Effects of work values on job choice decisions. ***Journal of Applied Psychology***, 77(3): 261–271.

Judge, T. A., & Cable, D. M. 1997. Applicant personality, organizational culture, and organization attraction. ***Personnel Psychology***, 50(2): 359–394.

Jurgensen, C. E. 1978. Job preferences (What makes a job good or bad?). ***Journal of Applied Psychology***, 63(3): 267.

Kabst, R., & Baum, M. 2013. Conjoint implications on job preferences: The moderating role of involvement. ***The International Journal of Human Resource Management***, 24(7): 1393–1417.

Katz, D. 1960. The functional approach to the study of attitudes. ***Public opinion quarterly***, 24(2): 163–204.

Kausel, E. E., & Slaughter, J. E. 2011. Narrow personality traits and organizational attraction: Evidence for the complementary hypothesis. ***Organizational Behavior and Human Decision Processes***, 114(1): 3–14.

Keller, K. L. 1993. Conceptualizing, measuring, and managing customer-based brand equity. ***Journal of Marketing***, 57(1): 1–22.

Khanna, C., van der Voordt, T. J. M., & Koppels, P. W. 2013. Corporate real estate mirrors brand: A conceptual framework and practical applications. ***Journal of Corporate Real Estate***, 15(3/4): 213–230.

Kirby, A. E., & Kent, A. M. 2010. Architecture as brand: Store design and brand identity. ***Journal of Product & Brand Management***, 19(6): 432–439.

Klaffke, M. (Ed.) 2016a. ***Arbeitsplatz der Zukunft***: ***Gestaltungsansätze und Good-Pratice-Beispiele***. Berlin: SP Gabler.

Klaffke, M. 2016b. Erfolgsfaktor Büro – Trends und Gestaltungsansätze neuer Büro- und Arbeitswelten. In M. Klaffke (Ed.), ***Arbeitsplatz der Zukunft. Gestaltungsansätze und***

Good-Pratice-Beispiele: 2–27. Berlin: SP Gabler.

Knight, C., & Haslam, S. A. 2010a. The relative merits of lean, enriched, and empowered offices: An experimental examination of the impact of workspace management strategies on well-being and productivity. ***Journal of Environmental Psychology: Applied***, 16(2): 158–172.

Knight, C., & Haslam, S. A. 2010b. Your place or mine? Organizational identification and comfort as mediators of relationships between the managerial control of workspace and employees' satisfaction and well-being. ***British Journal of Management***, 21(3): 717–735.

Knirsch, J. 2002. ***Büroräume Bürohäuser***: ***Gelingt der Wandel zum Lebensraum Büro?*** (2nd ed.). Leinfelden-Echterdingen: Verlagsanstalt Alexander Koch.

Knittel-Ammerschuber, S. 2006. ***Erfolgsfaktor Architektur***: ***Strategisches Bauen für Unternehmen***. Basel, Boston, Berlin: Birkhäuser.

Konar, E., Sundstrom, E., Brady, C., Mandel, D., & Rice, R. W. 1982. Status demarcation in the office. ***Environment and Behavior***, 14(5): 561–580.

Kristof, A. L. 1996. Person-organization fit: An integrative review of its conceptualizations, measurement, and implications. ***Personnel Psychology***, 49(1): 1–49.

Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. 2005. Consequences of individuals' fit at work: A meta-analysis of person-job, person-organization, person-group, and person-supervisor fit. ***Personnel Psychology***, 58(2): 281–342.

Kuron, L. K. J., Lyons, S. T., Schweitzer, L., & Ng, E. S. W. 2015. Millennials' work values: Differences across the school to work transition. ***Personnel Review***, 44(6): 991–1009.

Kuß, A. 2012. Multivariate Analyseverfahren, ***Marktforschung: Grundlagen der Datenerhebung und Datenanalyse***: 235–288. Wiesbaden: Gabler Verlag.

Leuty, M. E. 2013. Stability of scores on super's work values inventory – Revised. ***Measurement and Evaluation in Counseling and Development***, 46(3): 202–217.

Levy, S. 2017. ***Apple's new campus: An exclusive look inside the mothership;*** https://www.wired.com/2017/05/apple-park-new-silicon-valley-campus/, 01 May 2019.

Lievens, F. 2007. Employer branding in the Belgian Army: The importance of instrumental and symbolic beliefs for potential applicants, actual applicants, and military employees. ***Human Resource Management***, 46(1): 51–69.

Lievens, F., Decaesteker, C., Coetsier, P., & Geirnaert, J. 2001. Organizational attractiveness for prospective applicants: A person–organisation fit perspective. ***Applied Psychology***, 50(1): 30–51.

Lievens, F., & Highhouse, S. 2003. The relation of instrumental and symbolic attributes to a company's attractiveness as an employer. ***Personnel Psychology***, 56(1): 75–102.

Lievens, F., & Slaughter, J. E. 2016. Employer image and employer branding: What we know and what we need to know. ***Annual Review of Organizational Psychology and Organizational Behavior***, 3: 407–440.

Little, T. D., Lindenberger, U., & Nesselroade, J. R. 1999. On selecting indicators for multivariate measurement and modeling with latent variables: When "good" indicators are bad and "bad" indicators are good. ***Psychological Methods***, 4(2): 192.

Martens, Y. 2011. Creative workplace: Instrumental and symbolic support for creativity. ***Facilities***, 29(1/2): 63–79.

Mbah, A. K., & Paothong, A. 2015. Shapiro–Francia test compared to other normality test using expected p-value. ***Journal of Statistical Computation and Simulation***, 85(15): 3002–3016.

McCoy, D. C. 2015. ***Course on Structural Equation Modeling (S090A1)***: ***Lecture Slides Spring 2015/2016;*** https://canvas.harvard.edu/courses/8737/pages/lecture-slides.

McCoy, J. M., & Evans, G. W. 2002. The potential role of the physical environment in fostering creativity. ***Creativity Research Journal***, 14(3/4): 409–426.

McElroy, J. C., & Morrow, P. C. 2010. Employee reactions to office redesign: A naturally occurring quasi-field experiment in a multi-generational setting. ***Human Relations***, 63(5): 609–636.

McElroy, J. C., Morrow, P. C., & Ackerman, R. J. 1983a. Personality and interior office design: Exploring the accuracy of visitor attributions. ***Journal of Applied Psychology***, 68(3): 541–544.

McElroy, J. C., Morrow, P. C., & Hull, L. C. 1983b. Generalizing impact of object language to other audiences: peer response to office design. ***Psychological Reports***, 53: 315.

Mehmetoglu, M. 2015. RELICOEF: Stata module to compute Raykov's factor reliability coefficient.

Messedat, J. 2004. ***Wie Marken in Architektur übersetzt werden;*** http://www.manager-magazin.de/unternehmen/artikel/a-325319.html, 27 Nov 2013.

Messedat, J. 2005. ***Corporate architecture. Development, concepts, strategies:*** Avedition Gmbh,Csi.

Meyer, A. D., Tsui, A. S., & Hinings, C. R. 1993. Configurational approaches to organizational analysis. ***Academy of Management Journal***, 36(6): 1175–1195.

Michel, L., & Conrad, W. Theoretische Grundlagen psychometrischer Tests. In K. J. Groffmann & L. Michel (Eds.), ***Enzyklopädie der Psychologie, Themenbereich B: Methodologie und Methoden, Serie II: Psychologiesche Diagnostic, Band I: Grundlagen Psychologischer Diagnostic***: 1–129. Göttingen: Hogrefe.

Millward, L. J., Haslam, S. A., & Postmes, T. 2007. Putting employees in their place: The impact of hot desking on organizational and team identification. ***Organization Science***, 18(4): 547–559.

Moultrie, J., Nilsson, M., Dissel, M., Haner, U.-E., Janssen, S., & Van der Lugt, R. 2007. Innovation spaces: Towards a framework for understanding the role of the physical environment in innovation. ***Creativity & Innovation Management***, 16(1): 53–65.

Müller, H. 2013. Corporate Architecture. In H. Künzel (Ed.), ***Erfolgsfaktor Employer Branding***: 185-199. Berlin, Heidelberg: Springer.

Muschiol, R. 2007. ***Begegnungsqualität in Bürogebäuden: Ergebnisse einer empirischen Studie:*** Shaker.

Netemeyer, R. G., Bearden, W. O., & Sharma, S. 2003. ***Scaling procedures: Issues and applications:*** Sage Publications.

Newsham, G., Brand, J., Donnelly, C., Veitch, J., Aries, M., & Charles, K. 2009. Linking indoor environment conditions to job satisfaction: a field study. ***Building Research & Information***, 37(2): 129–147.

Nienhüser, W. 2002. Politisierende Ansätze zur Analyse des Personalmanagements: Neomarxistische und foucaultianische Perspektiven. ***Essener Beiträge zur Personalforschung***, 2002.

o.V. Hochhausbau. Weg nach oben. ***DER SPIEGEL***, 1966(21): 74.

Oldham, G. R., & Brass, D. J. 1979. Employee reactions to an open-plan office: A naturally

occurring quasi-experiment. ***Administrative Science Quarterly***: 267–284.

Oldham, G. R., Cummings, A., & Zhou, J. 1995. The spatial configuration of organizations: A review of the literature and some new research directions. ***Research in personnel and human resource management***, 13: 1–37.

O'Reilly, C. A., Chatman, J., & Caldwell, D. F. 1991. People and organizational culture: A profile comparison approach to assessing person-organization fit. ***Academy of Management Journal***, 34(3): 487–516.

Parker, D. R. 1994. Designing the future workplace. ***Bulletin of the American Society for Information Science***, 20(5): 21–22.

Patterson, M. G., West, M. A., Shackleton, V. J., Dawson, J. F., Lawthom, R., Maitlis, S., Robinson, D. L., & Wallace, A. M. 2005. Validating the organizational climate measure: links to managerial practices, productivity and innovation. ***Journal of Organizational Behavior***, 26(4): 379–408.

Petendra, B. 2015. ***Räumliche Dimensionen der Büroarbeit. Eine Analyse des flexiblen Büros und seiner Akteure***. Wiesbaden: Springer VS.

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. 2012. Sources of method bias in social science research and recommendations on how to control it. ***Annual Review of Psychology***, 63: 539–569.

Rabe-Hesketh, S., & Everitt, B. 2003. ***Handbook of statistical analyses using Stata*** (3rd ed.). Boca Raton, London, New York, Washington, D.C.: Chapman and Hall/CRC.

Radermacher, K., Schneider, M. R., Iseke, A., & Tebbe, T. 2017. Signalling to young knowledge workers through architecture? A conjoint analysis. ***German Journal of Human Resource Management***, 31(1): 71–93.

Rafaeli, A., & Pratt, M. G. (Eds.) 2006. ***Artifacts and organizations: Beyond mere symbolism***. Mahwah, New Jersey: Lawrence Erlbaum associates Inc.

Rafaeli, A., & Vilnai-Yavetz, I. 2004. Instrumentality, aesthetics and symbolism of physical artifacts as triggers of emotion. ***Theoretical Issues in Ergonomics Science***, 5(1): 91–112.

Raffelt, U., & Meyer, A. 2012. Architectural Branding. In H. H. Bauer, D. Heinrich & M. Samak (Eds.), ***Erlebniskommunikation***: 207-222: Springer Berlin Heidelberg.

Raffelt, U., Schmitt, B., & Meyer, A. 2013. Marketing function and form: How functionalist

and experiential architectures affect corporate brand personality. ***International Journal of Research in Marketing***, 30(3): 201–210.

Rasmus, C. A., & Montgomery, D. B. 2011. Calibrating MBA job preferences for the 21st century. ***Academy of Management Learning & Education***, 10(1): 9–26.

Ravlin, E. C., & Meglino, B. M. 1987. Effect of values on perception and decision making: A study of alternative work values measures. ***Journal of Applied Psychology***, 72(4): 666.

Raykov, T. 1997. Estimation of composite reliability for congeneric measures. ***Applied Psychological Measurement***, 21(2): 173–184.

Reinartz, W., Haenlein, M., & Henseler, J. 2009. An empirical comparison of the efficacy of covariance-based and variance-based SEM. ***International Journal of Research in Marketing***, 26(4): 332–344.

Robinson, C. H., & Betz, N. E. 2008. A psychometric evaluation of super's work values inventory - Revised. ***Journal of Career Assessment***, 16(4): 456–473.

Rynes, S. L. 1991. Recruitment, job choice, and post-hire consequences: A call for new research directions. In M. D. Dunnette & L. M. Hough (Eds.), ***Handbook of industrial and organizational psychology***: 399–444 (2nd ed.). Palo Alto: Consulting Psychologist Press.

Rynes, S. L., Bretz, R. D., & Gerhart, B. 1991. The importance of recruitment in job choice: A different way of looking. ***Personnel Psychology***, 44(3): 487–521.

Rynes, S. L., & Lawler, J. 1983. A policy-capturing investigation of the role of expectancies in decisions to pursue job alternatives. ***Journal of Applied Psychology***, 68(4): 620.

Satorra, A., & Bentler, P. M. 1994. Corrections to test statistics and standard errors in covariance structure analysis. In A. von Eye & C. C. Clogg (Eds.), ***Latent variables analysis: Applications for developmental research***: 399–419. Thousand Oaks, CA, US: Sage Publications, Inc.

Schein, E. H. 1990. ***Organizational culture:*** American Psychological Association.

Schneider, B., Ehrhart, M. G., & Macey, W. H. 2013. Organizational climate and culture. ***Annual Review of Psychology***, 64: 361–388.

Schreurs, B., Druart, C., Proost, K., & de Witte, K. 2009. Symbolic attributes and organizational attractiveness: The moderating effects of applicant personality.

International Journal of Selection and Assessment, 17(1): 35–46.

Schwartz, S. H. 1992. ***Universals in the content and structure of values: Theoretical advances and empirical tests in 20 countries.*** London: Academic Press Limited.

Sedlmeier, P., & Renkewitz, F. 2008. ***Forschungsmethoden und Statistik in der Psychologie:*** Pearson Studium München.

Seifert, K. H., & Bergmann, C. 1983. Deutschsprachige Adaptation des Work Values Inventory von Super: Ergebnisse bei Gymnasiasten und Berufstätigen. [A German-language adaptation of the Work Values Inventory by Super: Results from high school students and employees.]. ***Psychologie und Praxis***, 27(4): 160–172.

Shaver, J. M. 2005. Testing for mediating variables in management research: Concerns, implications, and alternative strategies. ***Journal of Management***, 31(3): 330–353.

Sieverts, E. 1980. ***Bürohaus- und Verwaltungsbau***. Stuttgart: W. Kohlhammer.

Slaughter, J. E., & Greguras, G. J. 2009. Initial attraction to organizations: The influence of trait inferences. ***International Journal of Selection and Assessment***, 17(1): 1–18.

Slaughter, J. E., Zickar, M. J., Highhouse, S., & Mohr, D. C. 2004. Personality trait inferences about organizations: Development of a measure and assessment of construct validity. ***Journal of Applied Psychology***, 89(1): 85–103.

Sobel, M. E. 1987. Direct and indirect effects in linear structural equation models. ***Sociological Methods & Research***, 16(1): 155–176.

Sommer, L. P., Heidenreich, S., & Handrich, M. 2017. War for talents - How perceived organizational innovativeness affects employer attractiveness. ***R&D Management***, 47(2): 299–310.

Spearman, C. 1904. The proof and measurement of association between two things. ***The American Journal of Psychology***, 15(1): 72–101.

Spence, M. 1973. Job market signaling. ***Quarterly Journal of Economics***, 87(3): 355–374.

Stata Corporation 2017. ***Stata base reference manual***: ***Cluster kmeans and kmedians***. College Station, Texas: Stata Press.

Stata Pres 2015. ***Stata structural equation modeling***: ***Reference manual***.

Stein, P., & Vollnhals, S. 2011. ***Grundlagen clusteranalytischer Verfahren;***

https://www.uni-due.de/imperia/md/content/soziologie/stein/skript_clusteranalyse_sose2011.pdf, 22 May 2019.

Strati, A. 1999. ***Organization and aesthetics***. London: SAGE.

Stryker, J. B., Santoro, M. D., & Farris, G. F. 2012. Creating collaboration opportunity: Designing the physical workplace to promote high-tech team communication. ***IEEE Transactions on Engineering Management***, 59(4): 609–620.

Sundstrom, E., Burt, R. E., & Kamp, D. 1980. Privacy at work: Architectural correlates of job satisfaction and job performance. ***Academy of Management Journal***, 23(1): 101–117.

Sundstrom, E., Sundstrom, M. G., & Eric, S. 1986. ***Work places: The psychology of the physical environment in offices and factories:*** CUP Archive.

Tajfel, H., & Turner, J. C. 1986. The social identity theory of intergroup behaviour. In S. Worchel & W. G. Austin (Eds.), ***Psychology of intergroup relations***: 7–24. Chicago: Nelson-Hall.

Taylor, S., & Spicer, A. 2007. Time for space: A narrative review of research on organizational spaces. ***International Journal of Management Reviews***, 9(4): 325–346.

Theurer, C. P., Tumasjan, A., Welpe, I. M., & Lievens, F. 2018. Employer branding: A brand equity-based literature review and research agenda. ***International Journal of Management Reviews***, 20(1): 155–179.

Tom, V. R. 1971. The role of personality and organizational images in the recruiting process. ***Organizational Behavior and Human Performance***, 6(5): 573–592.

Trank, C. Q., Rynes, S. L., & Bretz, R. D. 2002. Attracting applicants in the war for talent: Differences in work preferences among high achievers. ***Journal of Business and Psychology***, 16(3): 331–345.

Trice, H. M., & Beyer, J. M. 1993. ***The cultures of work organizations:*** Prentice-Hall, Inc.

Turban, D. B., Forret, M. L., & Hendrickson, C. L. 1998. Applicant attraction to firms: Influences of organization reputation, job and organizational attributes, and recruiter behaviors. ***Journal of Vocational Behavior***, 52(1): 24–44.

Turban, D. B., & Keon, T. L. 1993. Organizational attractiveness: An interactionist perspective. ***Journal of Applied Psychology***, 78(2): 184.

Uggerslev, K. L., Fassina, N. E., & Kraichy, D. 2012. Recruiting through the stages: A meta-analytic test of predictors of applicant attraction at different stages of the recruiting process. ***Personnel Psychology***, 65(3): 597–660.

Urban, D., & Mayerl, J. 2013. ***Strukturgleichungsmodellierung: Ein Ratgeber für die Praxis:*** Springer-Verlag.

van der Voordt, T. J. M. 2004. Productivity and employee satisfaction in flexible workplaces. ***Journal of Corp Real Estate***, 6(2): 133–148.

van der Voordt, T. J. M., van Meel, J., Smulders, F., & Teurling, S. 2002. Corporate culture and design. Theoretical reflections on case-studies in the web design industry. ***Environments by DESIGN***, 4(2): 22–43.

van Hoye, G., Bas, T., Cromheecke, S., & Lievens, F. 2013. The instrumental and symbolic dimensions of organisations' image as an employer: A large-scale field study on employer branding in Turkey. ***Applied Psychology***, 62(4): 543–557.

van Marrewijk, A. H. 2009. Corporate headquarters as physical embodiments of organisational change. ***Journal of Organizational Change Management***, 22(3): 290–306.

van Meel, J., & Vos, P. 2001. Funky offices: Reflections on office design in the 'new economy'. ***Journal of Corporate Real Estate***, 3(4): 322–334.

Värlander, S. 2012. Individual flexibility in the workplace: A spatial perspective. ***The Journal of Applied Behavioral Science***, 48(1): 33–61.

Vilnai-Yavetz, I., Rafaeli, A., & Schneider Yaacov, C. 2005. Instrumentality, aesthetics, and symbolism of office design. ***Environment and Behavior***, 37(4): 533–551.

Völkl, K., & Korb, C. 2017. ***Deskriptive Statistik: Eine Einführung für Politikwissenschaftlerinnen und Politikwissenschaftler:*** Springer-Verlag.

Wagner, T., Hennig-Thurau, T., & Rudolph, T. 2009. Does customer demotion jeopardize loyalty? ***Journal of Marketing***, 73(3): 69–85.

Weber, M. 1963. Objectivity in social science and social policy. In M. Natanson (Ed.), ***Philosophy of the social sciences***: 355–418. New York: Random House.

Weiber, R., & Mühlhaus, D. 2014. ***Strukturgleichungsmodellierung***: ***Eine anwendungsorientierte Einführung in die Kausalanalyse mit Hilfe von AMOS, SmartPLS und SPSS*** (2nd ed.). Berlin Heidelberg: Springer Gabler.

Weiskopf, R. 2005. Gouvernementabilität: Die Produktion des regierbaren Menschen in post-disziplinären Regimen. ***Zeitschrift für Personalforschung/German Journal of Research in Human Resource Management***: 289–311.

Wheaton, B., Muthén, B., Alwin, D. F., & Summers, G. F. 1977. Assessing reliability and stability in panel models. ***Sociological Methodology***, 8: 84–136.

Wiedenbeck, M., & Züll, C. 2001. Klassifikation mit Clusteranalyse: Grundlegende Techniken hierarchischer und k-means-Verfahren. ***ZUMA How-to-Reihe, Nr. 10***(10): 1–18.

Wiersma, U. J. 1990. Gender differences in job attribute preferences: Work-home role conflict and job level as mediating variables. ***Journal of Occupational Psychology***, 63(3): 231–243.

Winter, P. A. 1996. Applicant evaluations of formal position advertisements: The influence of sex, job message content, and information order. ***Journal of Personnel Evaluation in Education***, 10(2): 105–116.

Wittig-Goetz, U. 2018. ***Einzelbüro: Konzentration und blockierte Kommunikation;*** https://www.ergo-online.de/ergonomie-und-gesundheit/buerokonzepte/artikel/zellenbueros/einzelbuero-konzentration-und-blockierte-kommunikation/, 23 May 2019.

Wright, S. 1921. Correlation and causation. ***Journal of agricultural research***, 20(7): 557.

www.Bloomberg.com 2014. ***Stocks***: ***DAX Index;*** http://www.bloomberg.com/markets/stocks/movers/dax/, 13 Dec 2014.

www.greatplacetowork.de 2014. ***Weltweit Beste Arbeitgeber 2014 - Multinational;*** www.greatplacetowork.de/ausgezeichnete-arbeitgeber/weltweit/2014/.

Yanow, D. 2006. Studying physical artifacts: An interpretive approach. In A. Rafaeli & M. G. Pratt (Eds.), ***Artifacts and organizations: Beyond mere symbolism***: 41–60. Mahwah, New Jersey: Lawrence Erlbaum associates Inc.

Yuan, K.-H. 2005. Fit indices versus test statistics. ***Multivariate behavioral research***, 40(1): 115–148.

Zhang, S., Lee, D., Singh, P. V., & Srinivasan, K. 2016. How much is an image worth? An empirical analysis of property's image aesthetic quality on demand at Airbnb.

Proceedings of the 37th International Conference on Information Systems (ICIS), Dublin, Ireland: 1–20.

Zinnbauer, M., & Eberl, M. 2004. Die Überprüfung von Spezifikation und Güte von Strukturgleichungsmodellen: Verfahren und Anwendung.

Zytowski, D. 2006. ***Technical brief: Super's work values inventory - Revised;*** https://www.kuder.com/research/technical-briefs/supers-work-values-inventory-r/, 16 Aug 2017.

Appendix

Appendix 1: Preparatory steps of the study on architectural types

Table 38: Companies included in the architecture data base

Dax-30 companies (2014)	25 Great Place to work companies (2014)
adidas AG	Google
Allianz SE	SAS Institute
BASF SE	NetApp
Bayer AG	W.L. Gore & Associates
Beiersdorf AG	Belcorp
Bayerische Motoren Werke AG	Microsoft
Commerzbank AG	Marriott
Continental AG	Monsanto
Daimler AG	Cisco
Deutsche Bank AG	American Express
Deutsche Boerse AG	Scotiabank
Deutsche Lufthansa AG	SC Johnson
Deutsche Post AG	Autodesk
Deutsche Telekom AG	Telefónica
E.ON SE	National Instruments
Fresenius SE & Co KGaA	FedEx Corporation
Fresenius Medical Care AG & Co KGaA	Atento
HeidelbergCement AG	EMC
Henkel KG & CO KGaA	Daimler Financial Services
Ifineon Technologies AG	Diageo
K+S AG	Hyatt
LANXESS AG	Mars
Linde AG	Accor
Merck KGaA	eBay
Muenchener Rueckversicherungs-Gesellschaft AG	The Coca-Cola Company
RWE AG	
SAP AG	
Siemens SE	
ThyssenKrupp AG	
Volkswagen AG	

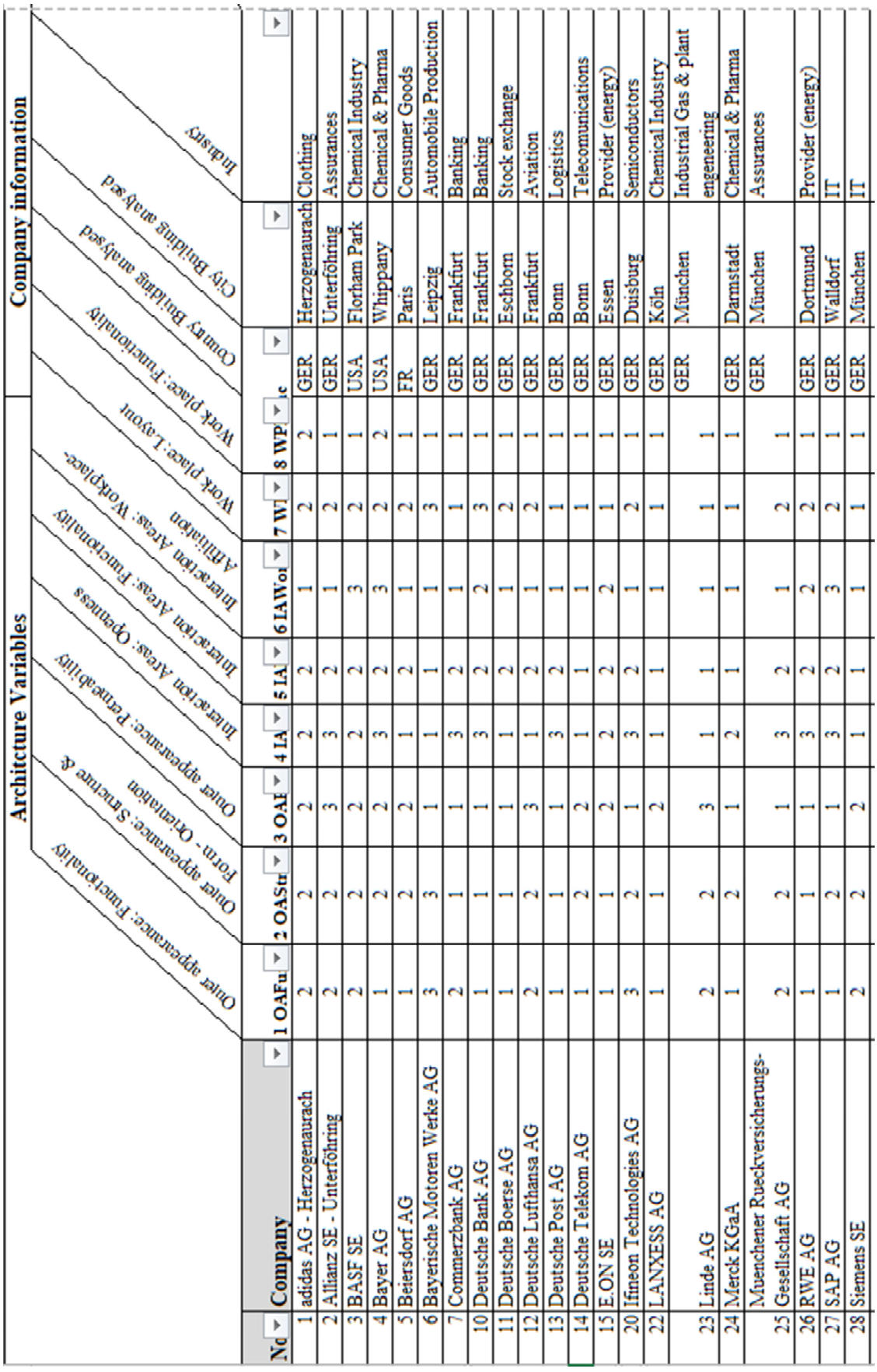
Source: www.Bloomberg.com (2014); www.greatplacetowork.de (2014)

Table 39: Architecture variables and scales

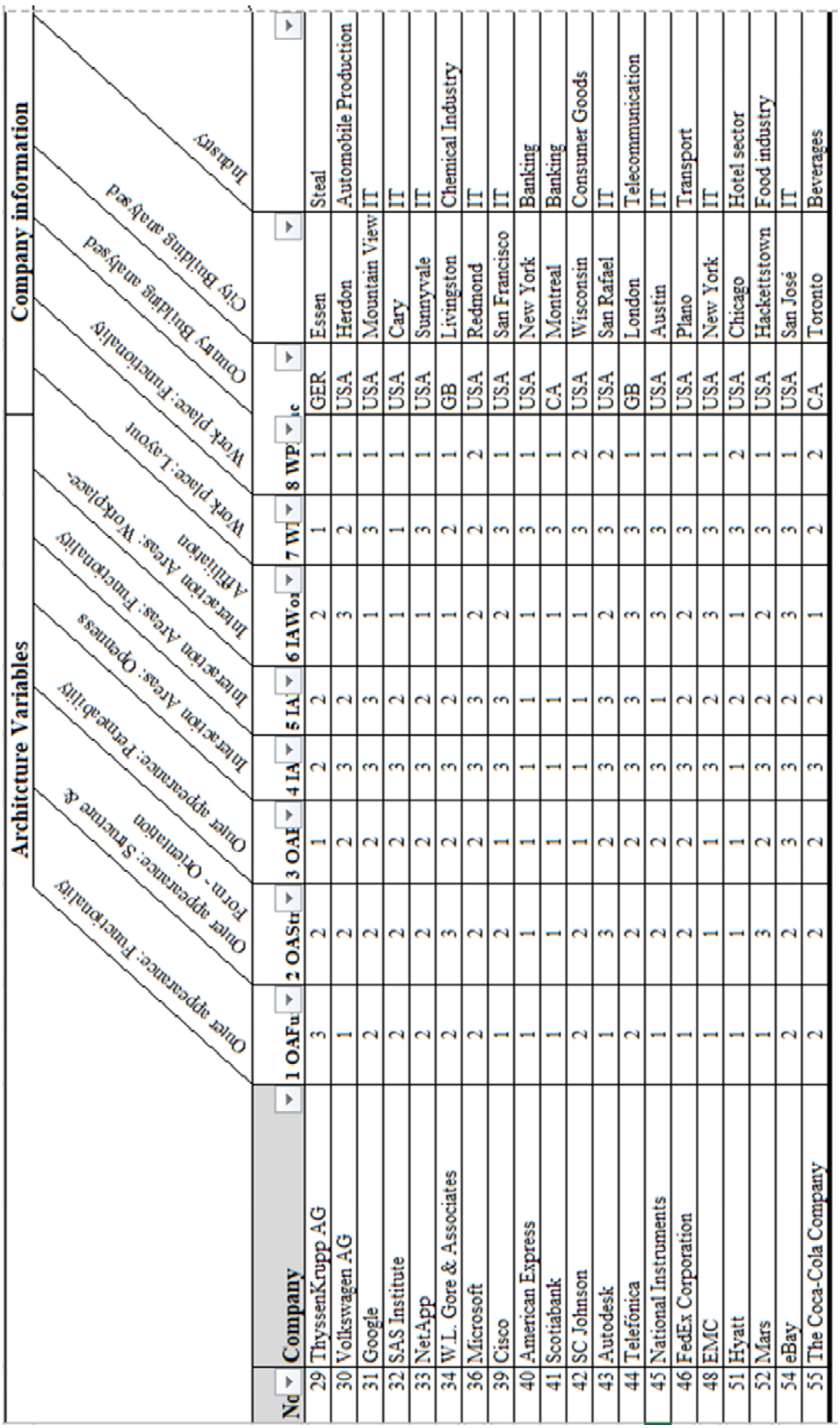
No.	Variable	Scale			Scale description
		1	2	3	
1	**Outer Appearance: Functionality**	functional	chic	expressive	**1 functional:** The facade and from a characterized by standard forms and material; the facade is flat, the surface is cloised; the constructioins does not show any specifications which do not fulfill a concrete function. **2 chic:** The basic construction is rather functional and simple / plain. But there are decent courses, e.g. in terms of colour, material or form, so that the holistic impression is one of chic or decent design or sense of "there is something special". **3 expressive:** The facade is charcaterised by extraordinary forms (e.g. free flowing, three dimensional), colours and/or materials. The building is unique; not comparble to other office buildings.
2	**Outer Appearance: Orientation**	vertical	balanced	horizontal	**1 vertical:** The orientation is clearly vertical, e.g. a tower (more than 5 storeys). **2 balanced oriented:** The orientation is balanced in both direction (horizontal and vertical), for example in form of a cube. **3 horizontal** The orientation shows a clear horizontal direction (no more than two storeys).
3	**Outer Appearance: Permeability**	cut off from the outside	partly open to the outside	tranparent/open to the outside	**1 cutt of from outside:** The building appears closed to the outside due to its form and the materials used (e.g. metalized glass, concrete). **2 partly open:** The building features elements, which suggest a certain openness due to material or form; for example the facade displays transparent glass section, which are interjected by non transparent materials; the form of the buildng is vertically or horizontally opened. **3 transparent:** The building appears opened and transparent due to material and form.
4	**Interaction Areas: Layout**	isolated rooms (e.g. tea kitchen, meeting room)	partly open	open to everybody, not separated by walls, open areas	**General:** Area for interaction can be a table with chairs for several persons, a bar table, a tea kitchen, a lounge corner, etc. Everything that is aimed at bringing together people to speak / meet. The area for interaction must be affiliated to the office zone; thus, is does not include a an employee restaurant or the entrance hall for example. **1 isolated / closed:** The interaction areas are solely located in a clearly seperate room; the room is surrrounded by walls (e.g. a meeting rrom, a tea kitchen). **2 partly open:** The interaction areas are half opened; e.g. separated to one side only or by transparent or medium high walls or partitions or they are located in a separated area, which means, not completely open but very large, rather a zone. There may additionally be closed areas for interaction. **3 open:** The interaction areas are open to the floor and are accessible for erveryone passing by (e.g. a lounge corner located openly on the floor). There may additionally be closed areas for interaction.

No.	Variable	Scale			Scale description
		1	2	3	
5	**Interaction Areas: Functionality**	focus on function only	design	focus on fun & leisure	**General:** Area for interaction can be a table with chairs for several persons, a bar table, a tea kitchen, a lounge corner, etc. Everything that is aimed at bringing together people to speak / meet. The area for interaction must be affiliated to the office zone; thus, is does not include a an employee restaurant or the entrance hall for example. **1 functional:** The furniture and colour-concept have a clear focus on function. No design or fun elements (e.g. a simple conference table with office chairs). **2 design:** The Décor, colour-concept and so forth do clearly convey impressions of public places like cafes, lounges etc. Meaning, the décor is apparently purposefully applied to create a sense of well being, associations to a certain product, location, etc. However, the focus is still clearly put on function. **3 fun:** The décor fulfills a function which goes clearly beyond a pure office function. The décor stems frrom the world auf leisure and entertainment, often also typical for private accomodations, and encourages activities normally associated with private life (e.g. relaxing, sports, gaming).
6	**Interaction Areas: Workplace-Affiliiation**	rooms/areas separated from workplaces	partly integrated	directly affiliated to worplaces	**1 separated:** The interaction areas are spacially seprated from the workplace (e.g. in a closed room, on the corridor). **2 parly integrated:** The social areas are demarcated, but not completely physically separated from the workplace (e.g. a meeting corner is separated with a medium high partition from the workplaces). There may additionally be separated interaction areas. **3 integreated:** The social areas are directly affiliated to the workplaces (e.g. a meeting table between different workplacess). There may additionally be separated or partly integrated interaction areas.
7	**Work place: Layout**	isolated rooms (cell offices)	partly open	no walls (open space)	**Genereal:** If cell offices and open plan workplaces or cell offices and partly opened workplaces do coexist, the rating has to be for the more open workplace, as it is assumed that the cell office are destined for employees on higher hierarchy levels (which is not relevan for new labour market entrants). **1 isolated:** The workplaces are placed in rooms which are completely surrounded by walls (up to five workplaces). **2 partly open:** Many workplaces are on one area, but demarcated by partitions, which are for example kind of transparent or medium high. **3 open:** Many workplaces are on one area without spacial or clear visual partitions or low partrition (open space or cubicles).
8	**Work place: Functionality**	focus on function only	design	focus on fun & leisure	**1 functional:** The furniture and colour-concept have a clear focus on function. No design or fun elements. **2 design: T**he décor is apparently purposefully applied to create a sense of well being / chic. There are details (e.g. exraordinary form of furniture, certain accessories), which could have been omitted, if the focus was exclusively on function. However, the focus is still clearly put on function. **3 fun:** The décor fulfills a function which goes clearly beyond a pure office function. The décor stems frrom the world auf leisure and entertainment, often also typical for private accomodations, and encourages activities normally associated with private life (e.g. relaxing, sports, gaming)

Table 40: Architecture data set



No	Company	1 OAFu	2 OASt	3 OAI	4 IA	5 IA	6 IAWo	7 WI	8 WP			
1	adidas AG - Herzogenaurach	2	2	2	2	2	1	2	2	GER	Herzogenaurach	Clothing
2	Allianz SE - Unterföhring	2	2	3	3	2	1	2	1	GER	Unterföhring	Assurances
3	BASF SE	2	2	2	2	2	3	2	1	USA	Florham Park	Chemical Industry
4	Bayer AG	1	2	2	3	2	3	2	2	USA	Whippany	Chemical & Pharma
5	Beiersdorf AG	1	2	2	1	2	1	2	1	FR	Paris	Consumer Goods
6	Bayerische Motoren Werke AG	3	3	1	1	1	1	3	1	GER	Leipzig	Automobile Production
7	Commerzbank AG	2	1	1	3	2	1	1	1	GER	Frankfurt	Banking
10	Deutsche Bank AG	1	1	1	3	2	2	3	1	GER	Frankfurt	Banking
11	Deutsche Boerse AG	1	1	1	1	2	1	2	1	GER	Eschborn	Stock exchange
12	Deutsche Lufthansa AG	2	2	3	1	2	1	2	1	GER	Frankfurt	Aviation
13	Deutsche Post AG	1	1	1	3	2	1	1	1	GER	Bonn	Logistics
14	Deutsche Telekom AG	1	2	2	1	1	1	1	1	GER	Bonn	Telecommunications
15	E.ON SE	1	1	2	2	2	2	1	1	GER	Essen	Provider (energy)
20	Ifineon Technologies AG	3	2	1	3	2	1	2	1	GER	Duisburg	Semiconductors
22	LANXESS AG	1	1	2	1	1	1	1	1	GER	Köln	Chemical Industry
23	Linde AG	2	2	3	1	1	1	1	1	GER	München	Industrial Gas & plant engeneering
24	Merck KGaA	1	2	1	2	1	1	1	1	GER	Darmstadt	Chemical & Pharma
25	Muenchener Rueckversicherungs-Gesellschaft AG	2	2	1	3	2	1	2	1	GER	München	Assurances
26	RWE AG	1	1	1	3	2	2	2	1	GER	Dortmund	Provider (energy)
27	SAP AG	1	2	1	3	2	3	2	1	GER	Walldorf	IT
28	Siemens SE	2	2	2	1	1	1	1	1	GER	München	IT



		Architcture Variables									Company information			
No	Company	1 OAFu	2 OASu	3 OAI	4 IA	5 IA	6 IAWo	7 WI	8 WP					Industry
29	ThyssenKrupp AG	3	2	1	2	2	2	1	1	GER	Essen	Steal		
30	Volkswagen AG	1	2	2	3	2	3	2	1	USA	Herdon	Automobile Production		
31	Google	2	2	2	3	3	1	3	1	USA	Mountain View	IT		
32	SAS Institute	2	2	2	3	2	1	1	1	USA	Cary	IT		
33	NetApp	2	2	2	3	2	1	3	1	USA	Sunnyvale	IT		
34	W.L. Gore & Associates	2	3	2	3	2	1	2	1	GB	Livingston	Chemical Industry		
36	Microsoft	2	2	2	3	3	2	2	2	USA	Redmond	IT		
39	Cisco	1	2	1	3	3	2	3	1	USA	San Francisco	IT		
40	American Express	1	1	1	1	1	1	3	1	USA	New York	Banking		
41	Scotiabank	1	1	1	1	1	1	3	1	CA	Montreal	Banking		
42	SC Johnson	2	2	1	1	1	1	3	2	USA	Wisconsin	Consumer Goods		
43	Autodesk	1	3	2	3	3	2	3	2	USA	San Rafael	IT		
44	Telefónica	2	2	2	3	3	3	3	1	GB	London	Telecommunication		
45	National Instruments	1	2	2	3	1	3	3	1	USA	Austin	IT		
46	FedEx Corporation	1	2	2	3	2	2	3	1	USA	Plano	Transport		
48	EMC	1	1	1	3	2	3	3	1	USA	New York	IT		
51	Hyatt	1	1	1	1	2	1	3	2	USA	Chicago	Hotel sector		
52	Mars	1	3	2	3	2	2	3	1	USA	Hackettstown	Food industry		
54	eBay	2	2	3	3	2	3	3	1	USA	San José	IT		
55	The Coca-Cola Company	2	2	2	3	2	1	2	2	CA	Toronto	Beverages		

Appendix 2: Results from the k-means cluster analysis

Figure 39: Cluster "Balanced" from k-means clustering

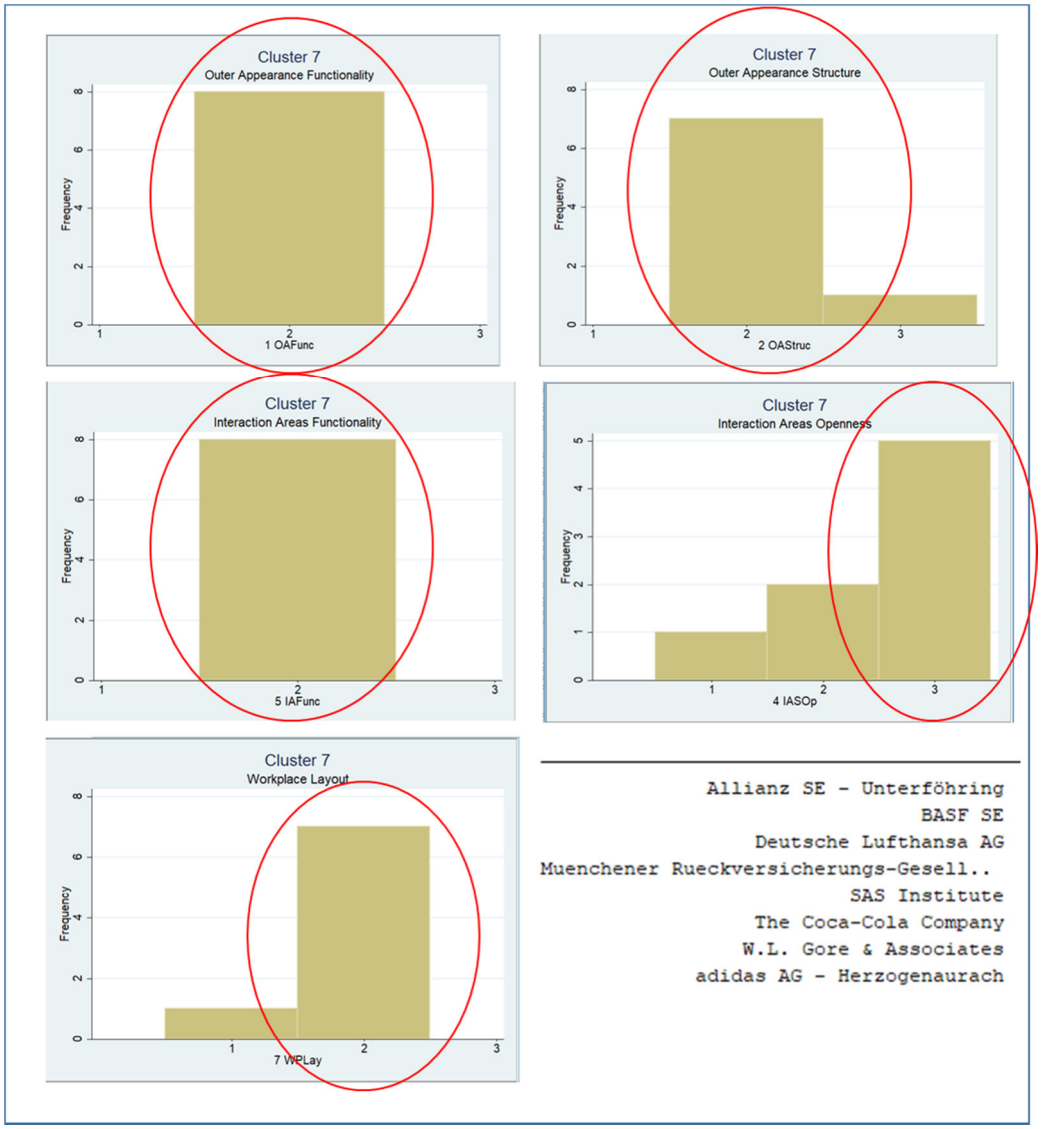


Figure 40: Cluster "Fun" from k-means clustering

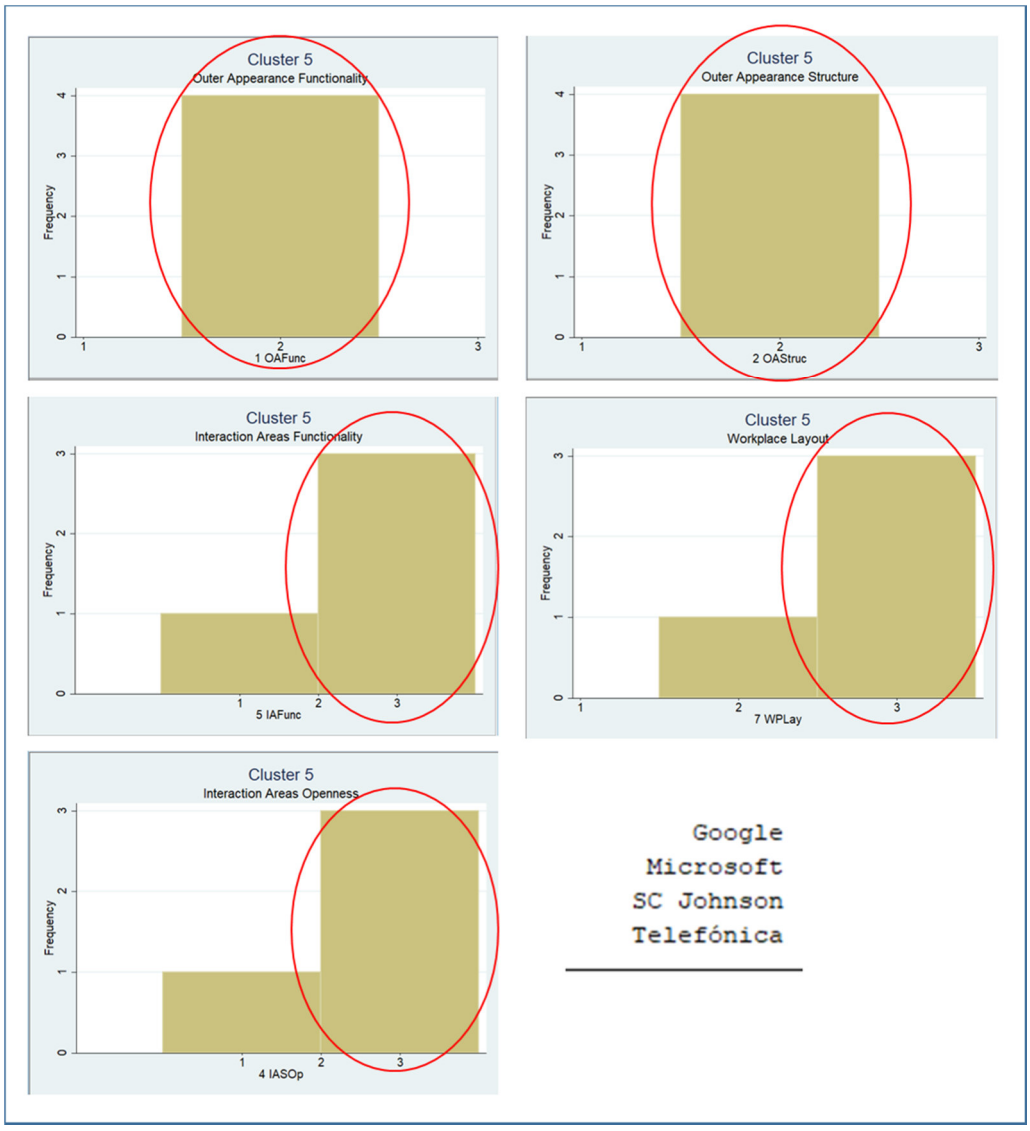


Figure 41: Cluster "Solid open" from k-means clustering

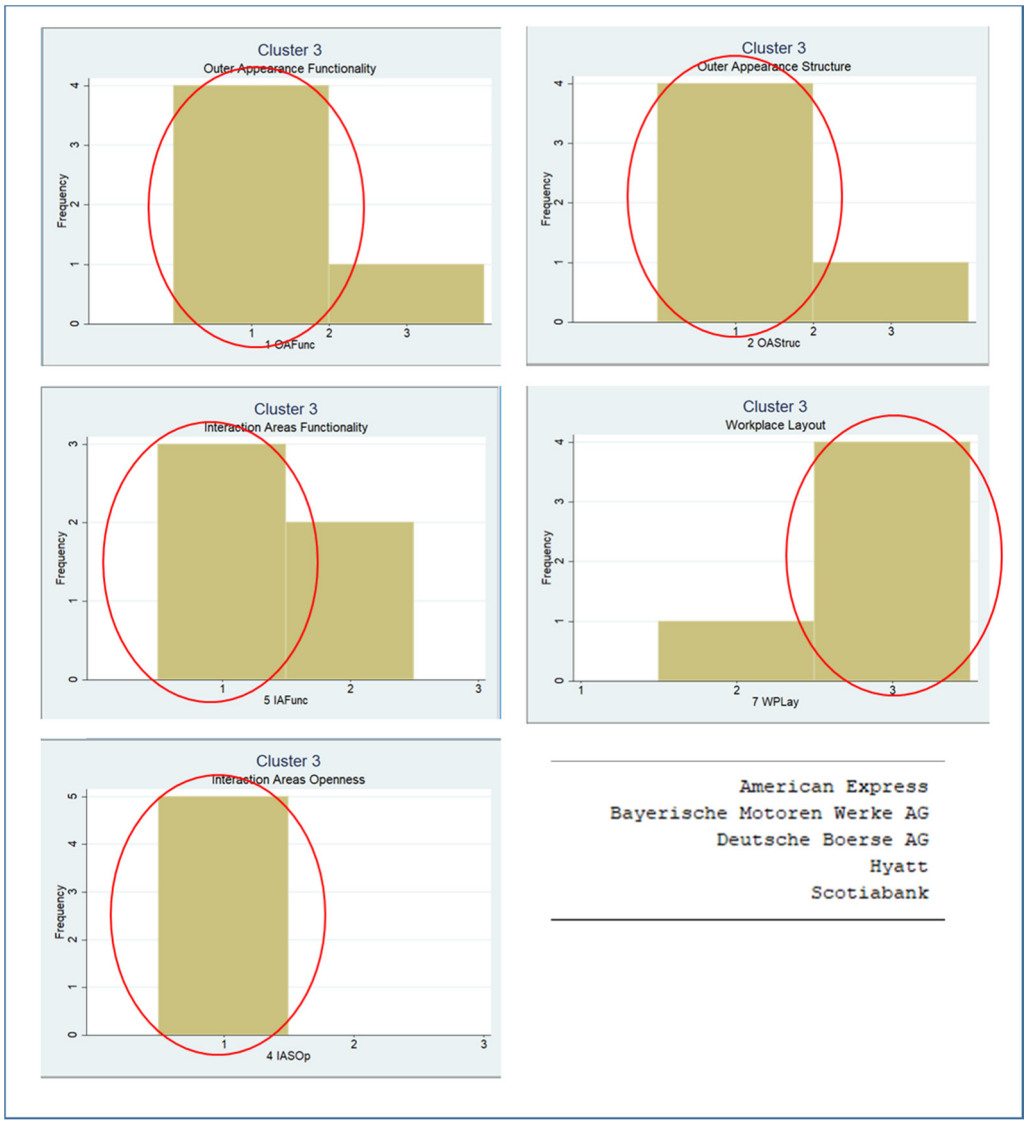


Figure 42: Cluster "Balanced like" from k-means clustering

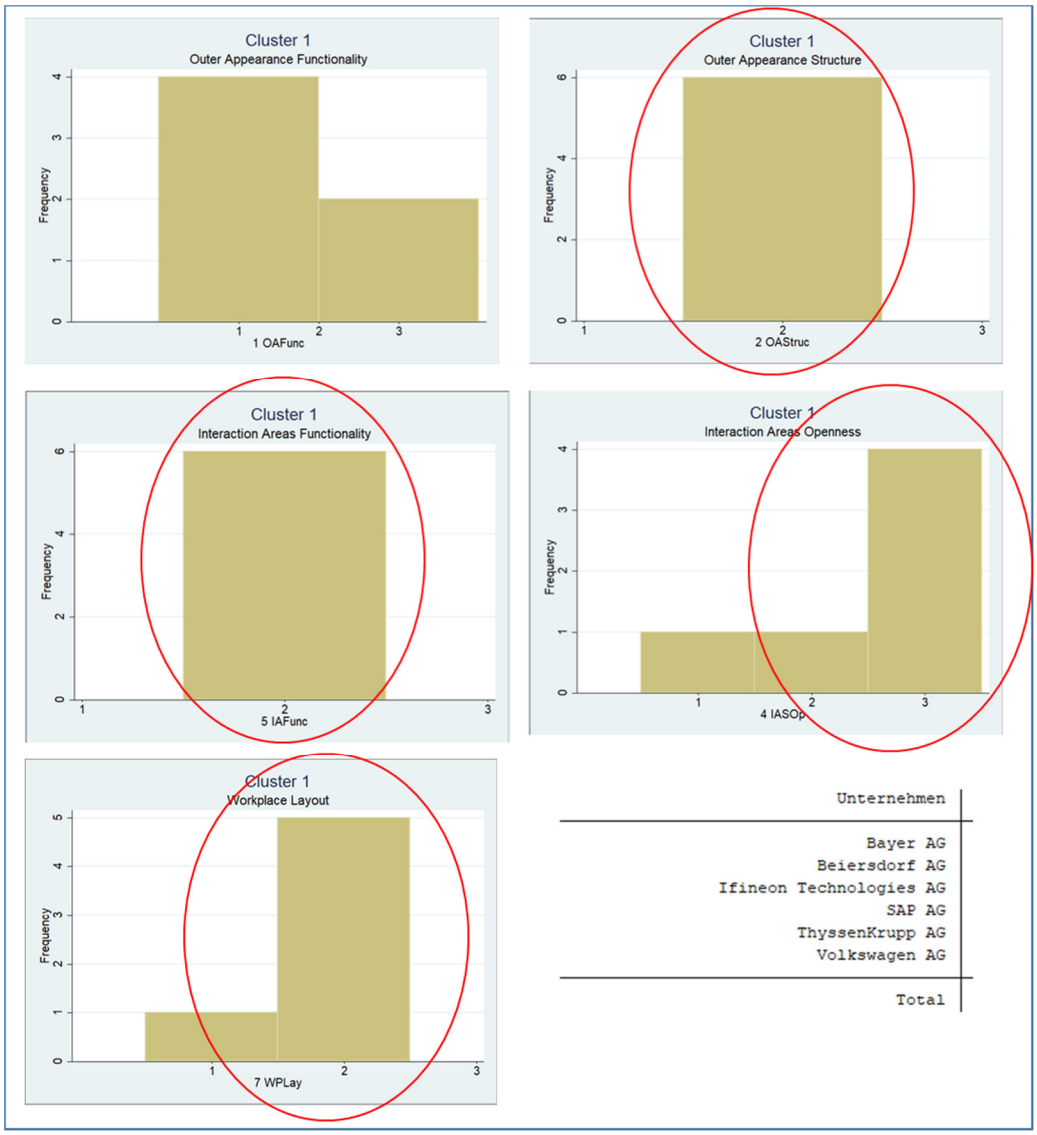


Figure 43: Cluster "Fun like" from k-means clustering

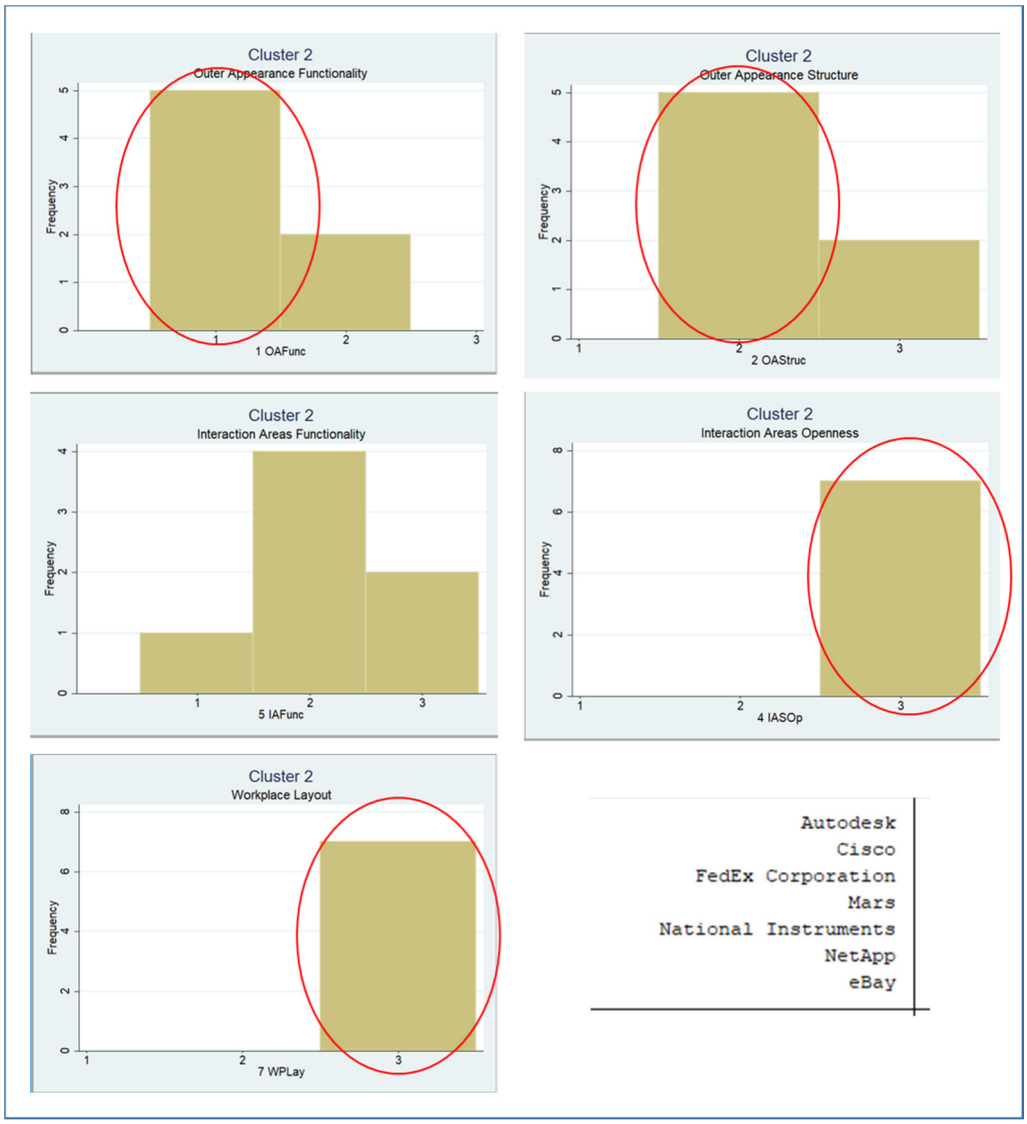
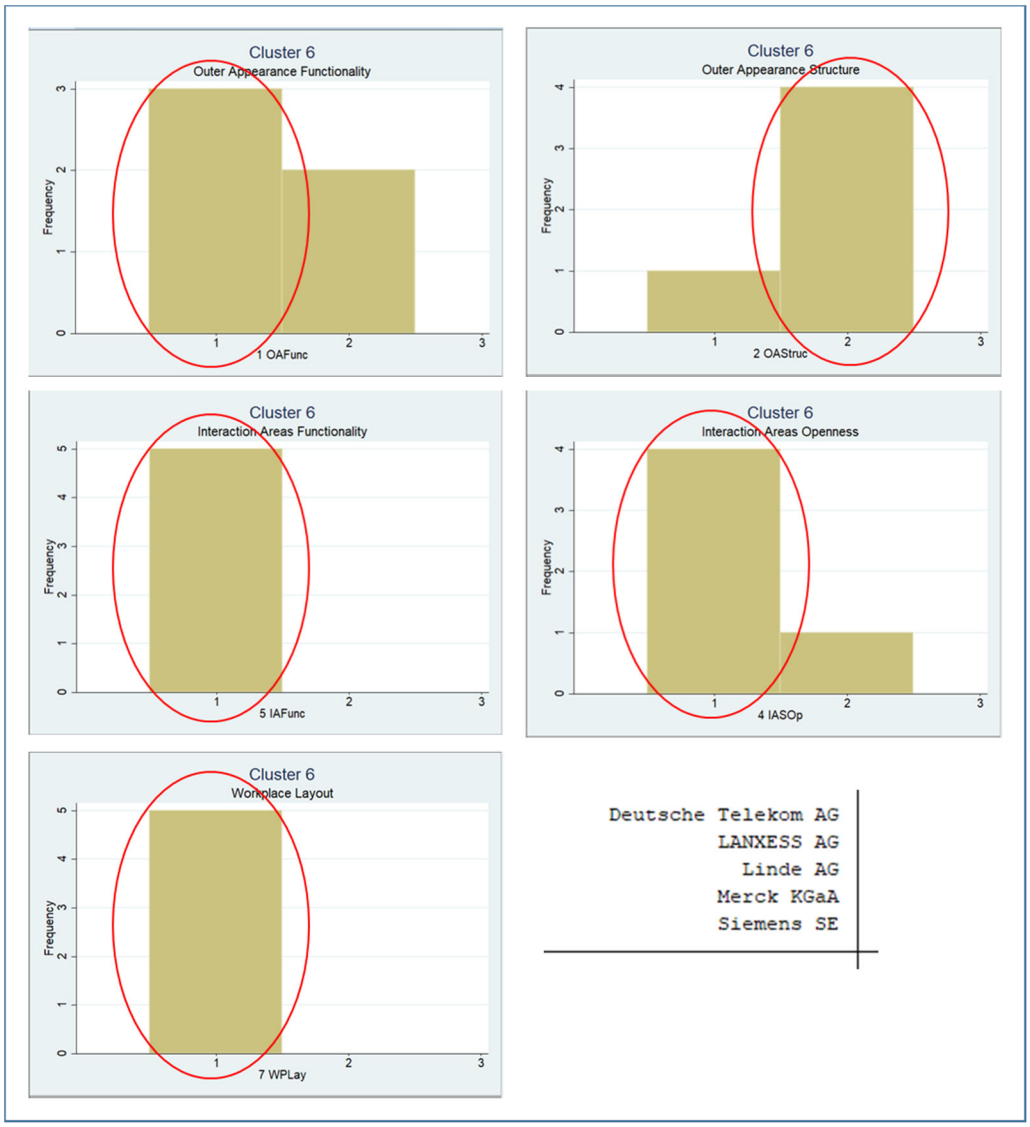


Figure 44: Cluster "Solid closed" from k-means clustering



Appendix 3: Scales for the operationalization of model variables

Table 41: Scales for Employer Attributes

Employer Attributes		
Organizational Climate Measure (Patterson et al., 2005)		**German tanslation (Items are applied to the company of the scenario called *Sound.Technologies*)**
Autonomy	Management let people make their own decisions much of the time.	Das Management läßt die Mitarbeiter meistens ihre eigenen Entscheidungen treffen.
	Management trust people to take work-related decisions without getting permission first.	Das Management traut den Mitarbeitern zu, arbeitsbezogene Entscheidungen zu treffen, ohne sich vorher Erlaubnis dafür zu holen.
	People at the top tightly control the work of those below them.*	Die oberen Fürhungskräfte kontrollieren die Arbeit derer unter ihnen strikt.*
	Management keep too tight a reign on the way things are done around here.*	Das Management hält zu strikte Herrschaft darüber, wie die Dinge bei Sound.Technoloies erledigt werden.*
	It's important to check things first with the boss before taking a decision.*	Hier ist es wichtig, die Dinge erst mit dem Chef abzuklären, bevor eine Entscheidung getrofen wird.*
Effort	People here always want to perform to the best of their ability.	Mitarbeiter bei Sound.Technologies wollen immer ihr Bestes geben.
	People are enthusiastic about their work.	Mitarbeiter bei Sound.Technologies sind von Ihrer Arbeit begeistert.
	People here get by with doing as little as possible.*	Mitarbeiter bei Sound.Technologies kommen damot durch, so wenig wie möglich zu tun.*
	People are prepared to make a special effort to do a good job.	Mitarbeiter bei Sound.Technologies sind bereit, sich besonders anzustrengen, um einen guten Job zu machen.
	People here don't put more effort into their work than they have to.*	Mitarbeiter bei Sound.Technologies strengen sich nicht mehr an als nötig.*
Innovation & Flexibility	New ideas are readily accepted here.	Neue Ideen werden bei Sound.Technologies leicht akzeptiert.
	This company is quick to respond when changes need to be made.	Sound.Technologies reagiert schnell, wenn Änderungen notwendig sind.
	Management here are quick to spot the need to do things differently.	Das Managemen bei Sound.Technologies erkennt schnell die Notwendigkeit, Dinge anders zu tun.
	This organization is very flexible; it can quickly change procedures to meet new conditions and solve problems as they arise.	Sound.Technologies ist eine sehr flexible Organisation; hier können Abläufe schnell gerändert werden, um neue Bedingungen zu erfüllen und Probleme direkt zu lösen, wenn sie auftauchen.
	Assistance in developing new ideas is readily available.	Unjterstützung bei der Entwicklung neuer Ideen ist hier jeder Zeit verfügbar.
	People in this organization are always searching for new ways of looking at problems.	Mitarbeiter bei Sound.Technologies suchen immer nach neuen Wegen um Probleme zu betrachten.
Integration	People are suspicious of other departments.*	Die Leute bei Sound.Technologies sind anderen Abteilungen gegenüber skeptisch/argwöhnisch.*
	There is very little conflict between departments here.	Bei Sound.Technologies gibt es wenig Konflikte zwischen den Abteilungen.
	People in different departments are prepared to share information.	Die Mitarbeiter in den unterschiedlichen Abteilungen sind bereit, Information untereinander auszutauschen.
	Collaboration between departments is very effective.	Bei Sound.Technologies ist die Zusammenarbeit zwischen den Abteilungen ist sehr effektiv.
	There is very little respect between some of the departments here.*	Zwischen einigen Abteilungen herrscht wenig Respekt.*
Pressure to Produce	People are expected to do too much in a day.	Von den Mitarbeitern wird zu viel am Tag erwartet.
	In general, peoples' workloads are not particularly demanding.*	Grundsätzlich sind die Workloads der Mitarbeiter nicht besonders herausfordernd.*
	Management require people to work extremely hard.	Das Management verlangt von den Leuten, extrem hart zu arbeiten.
	People here are under pressure to meet targets.	Die Leute sind hier unter Druck, die Ziele zu erreichen.
	The pace of work here is pretty relaxed.*	Das Arbeitstempo hier ist ziemlich entspannt.*
Items marked with an asterisk (*) are reversed before the scale is calculated.		

Adequacy for Work	In how far do you perceive the building and work environment as comfortable for doing your job?	Inwiefern empfinden Sie das dargestellte Gebäude und die Arbeitsumgebung als angenehm, um Ihren Job auszuüben?

Table 42: Scale for Employer Attractiveness

Employer Attractiveness	
Highhouse et al., 2003	**Gernan Translation (Items are applied to the company of the scenario called Sound.Technologies)**
For me, this company would be a good place to work.	Für mich wäre Sound.Technologies eine gute Arbeitsstelle.
I would not be interested in this company except as a last resort.*	Sound.Technologies käme für mich nur als letzte Möglichkeit in Frage.*
This company is attractive to me as a place for employment.	Sound.Technologies wäre für mich als Arbeitgeber attraktiv.
I am interested in learning more about this company.	Ich würde gern mehr über Sound.Technologies erfahren.
A job at this company is very appealing to me.	Ein Job bei Sound.Technologies wäre reizvoll für mich.

Items marked with an asterisk (*) are reversed before the scale is calculated.

Table 43: Scales for work values

Work Values		
Super's Work Value Inventory revised (Zytowsky, 2006)		**German translation**
How important is a job where I …		Wie wichtig ist ein Job bei dem ich …
Achievement	… feel a sense of achievement at the end of day.	… ein Erolgsgefühl am Ende des Tages habe.
	… achieve a feeling of success from a job well done.	… ein Gefühl von Erfolg von einem Job, den ich gut gemacht habe, erreiche.
	… get a feeling of accomplishment by the end of each day.	… ein Gefühl von Leistung am Ende des Tages verspüre.
	… know that I have really done something when I finish.	… weiß, dass ich wirklich etwas getan habe, wenn ich Feierabend mache.
	… know, by my results, that I have done a good job.	… an meinen Ergebnissen sehen kann, dass ich einen guten Job gemacht habe.
	… am assigned to important projects.	… wichtige Projekte übertragen bekomme.
Coworkers	… have good interaction with fellow workers.	… gute Interaktion mit meinen Kollegen habe.
	… make friends with my co-workers.	… mich mit meinen Kollegen anfreunde.
	… work with people that I like.	… mit Leuten zusammen arbeite, die ich mag.
	… can get help from my co-workers to complete a task.	… Hilfe von meinen Kollegen bekomme, um eine Aufgabe abzuschließen.
	… have co-workers who are easy to work with.	… Kollegen habe, mit denen man einfach / entspannt arbeiten kann.
	… work with people who like me.	… mit Leuten zusammen arbeite, die mich mögen.
Creativity	… can try out new ideas.	… neue Ideen ausprobieren kann.
	… create something entirely new.	… etwas komplett neues kreieren kann.
	… need to come up with new ways to do things.	… mir neue Wege einfallen lassen muss, Dinge zu tun.
	… need to contribute new ideas.	… neue Ideen beitragen muss.
	… invent new ways of doing my work.	… neue Wege erfinden muss, meine Arbeit zu machen.
	… discover new things or new methods.	… neue Dinge oder Methoden entdecke.
Independence	… can make decisions on my own.	… selbständig Entscheidungen treffen kann.
	… am my own boss.	… mein eigener Chef bin.
	… can do my work the way I want.	… meine Arbeit auf die Art und Weise erledigen kann, wie ich es möchte.
	… can decide how to get my task done.	… entscheiden kann, wie ich meine Arbeit erledigt bekomme.
	… work whatever hours I need to get the job done.	… arbeite, wie viele Stunden auch immer ich brauche, um den Job fertig zu bekommen.
	… can use my own judgments to solve problems.	… Gebrauch von menem eigenen Urteilsvermögen machen kann, um Probleme zu lösen.
Security	… know that my position will last.	…weiß, dass meine Position andauert.
	… have additional opportunities if my present position gets cut.	… weitere Möglichkeiten habe, wenn meine aktuelle Stelle weggekürzt wird.
	… know that my occupation will never become obsolete.	… weiß, dass mein Beruf niemals obsolet wird.
	… will never get laid off.	… niemals gekündigt werde.
	… know that my position will always be there.	… weiß, dass meine Stelle immer existent sein wird.
	… am always sure of having a job.	… immer sicher bin, einen Job zu haben.
Lifestyle	… have a lifestyle away from work that I like.	… außerhalb der Arbeit einen Lebensstil habe, der mir gefällt.
	… have time for familiy and/or friends.	… Zeit für meine Familie und/oder Freunde habe.
	… can be the kind of person I want to be.	… diejenige Person sein kann, die ich gern sein möchte.
	… have time enogh for leisure activities.	… ausreichend Zeit für Freizeitaktivitäten habe.
	… can lead the type of life that I enjoy.	… die Art von Leben führen kann, die ich genieße.
	… can have time to enjoy away from work.	… außerhalb der Arbeit Zeit zum Genießen haben kann.

Appendix 4: The scenarios of the experiment[28]

Figure 45: Scenario baseline information of all scenarios

Wer wir sind

Mit Sound Technologies gemeinsam in die Zukunft

Sound Technologies ist ein international agierendes Unternehmen mit Hauptsitz in München und 24 weiteren Standorten, davon 10 in Deutschland. Wir entwickeln und produzieren technologisch hoch anspruchsvolle HiFi-Produkte für die Automobil-branche. In 13 Ländern arbeiten mehr als 9.000 Mitarbeiter täglich hoch motiviert, kompetent und kundennah an neuen Lösungen.

Wen wir suchen

Was Sie für eine erfolgreiche Zusammenarbeit mit uns mitbringen müssen

Überzeugen Sie uns mit einem fachlichen und persönlichen Profil, das sich durch starke Leistungen und individuelle Skills abhebt. Damit haben Sie beste Chancen auf einen Einstieg – bei einem Unternehmen, das Ihnen die Türen zu einer rundum spannenden Karriere öffnet.

Ihre Ausbildung

Um Ihre Karriere bei Sound Technologies zu beginnen, stehen Ihnen viele Wege offen – ob direkt nach der Ausbildung, nach dem Studium oder als Professional mit Berufserfahrung. Wir glauben an die Kraft der Vielfalt. Deshalb spielt bei uns eine Vielzahl von Fachrichtungen eine wichtige Rolle.

Kommen Sie zu uns und bereichern Sie uns mit Ihrem Talent und Ihren Erfahrungen.

Sehen Sie hier, welche Bewerberprofile wir für unsere unterschiedlichen Geschäftsbereiche und Corporate Functions suchen.

[28] For a list of picture credits for all following scenarios please see Appendix 10

Figure 46: Scenario for the Balanced Type, alternative I

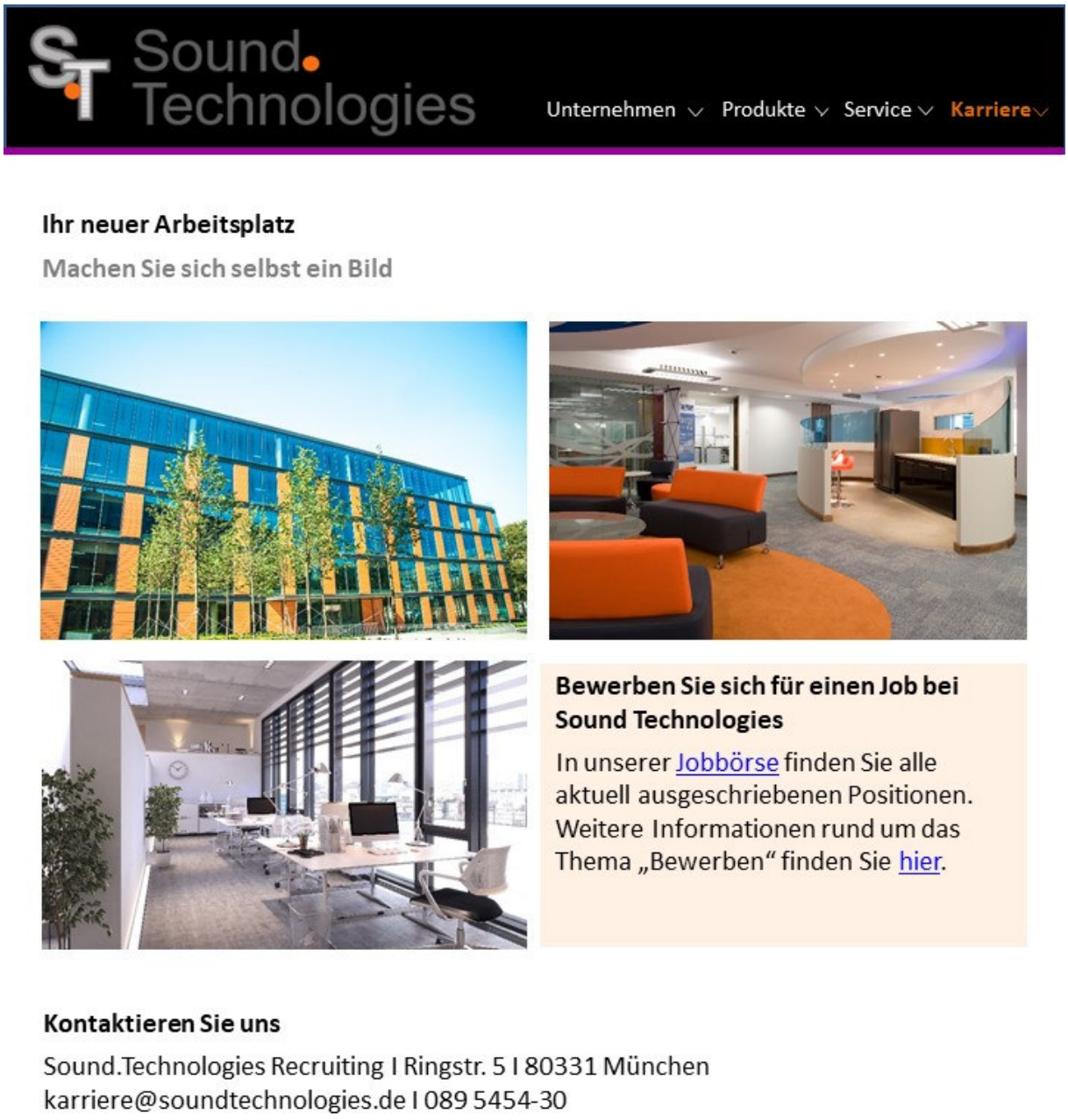


Figure 47: Scenario for the Balanced Type, alternative II

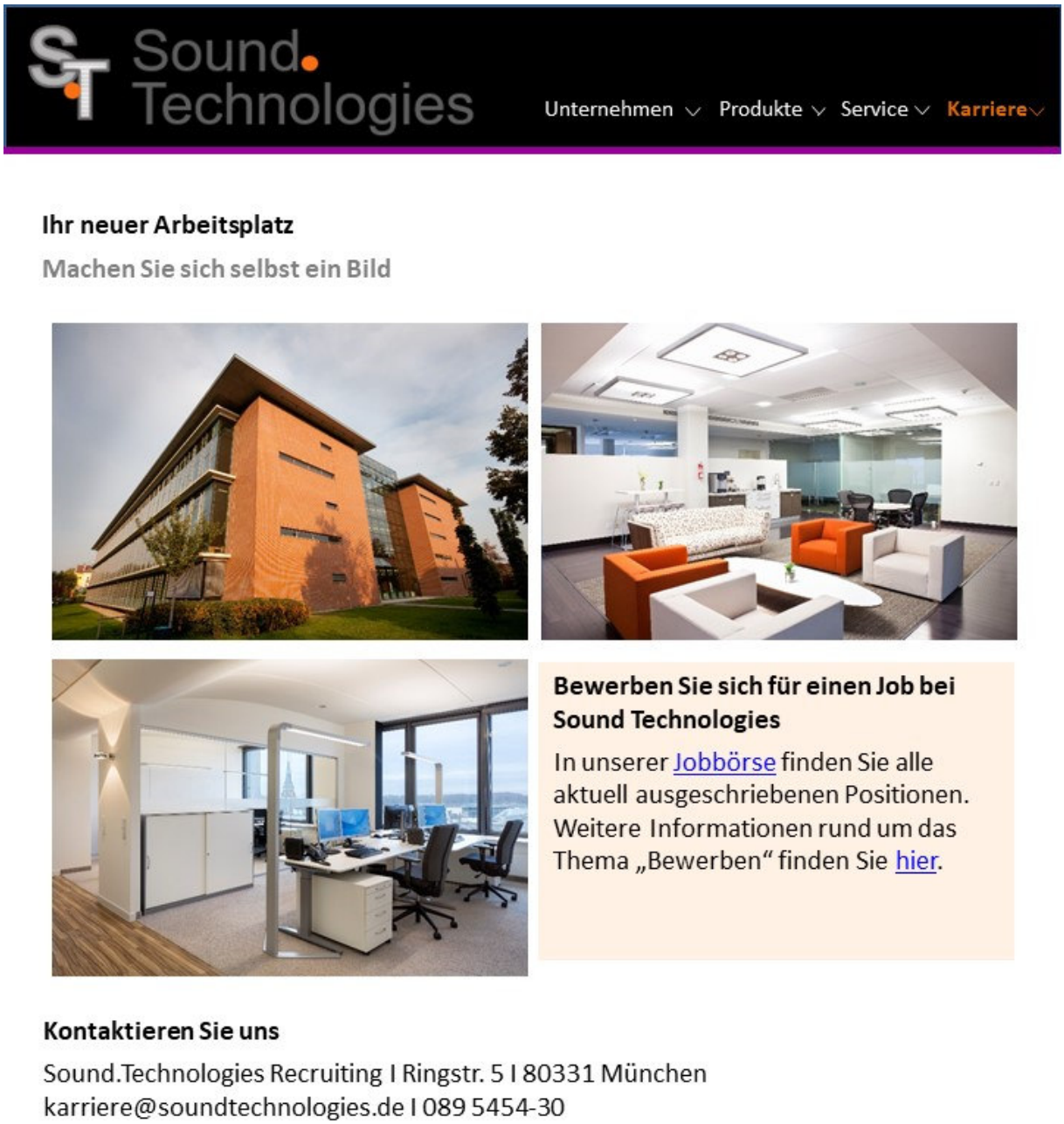


Figure 48: Scenario for the Solid Open Type, alternative I

Sound. Technologies

Unternehmen Produkte Service Karriere

Ihr neuer Arbeitsplatz

Machen Sie sich selbst ein Bild

Bewerben Sie sich für einen Job bei Sound Technologies

In unserer Jobbörse finden Sie alle aktuell ausgeschriebenen Positionen. Weitere Informationen rund um das Thema „Bewerben" finden Sie hier.

Kontaktieren Sie uns

Sound.Technologies Recruiting I Ringstr. 5 I 80331 München
karriere@soundtechnologies.de I 089 5454-30

Figure 49: Scenario for the Solid Open Type, alternative II

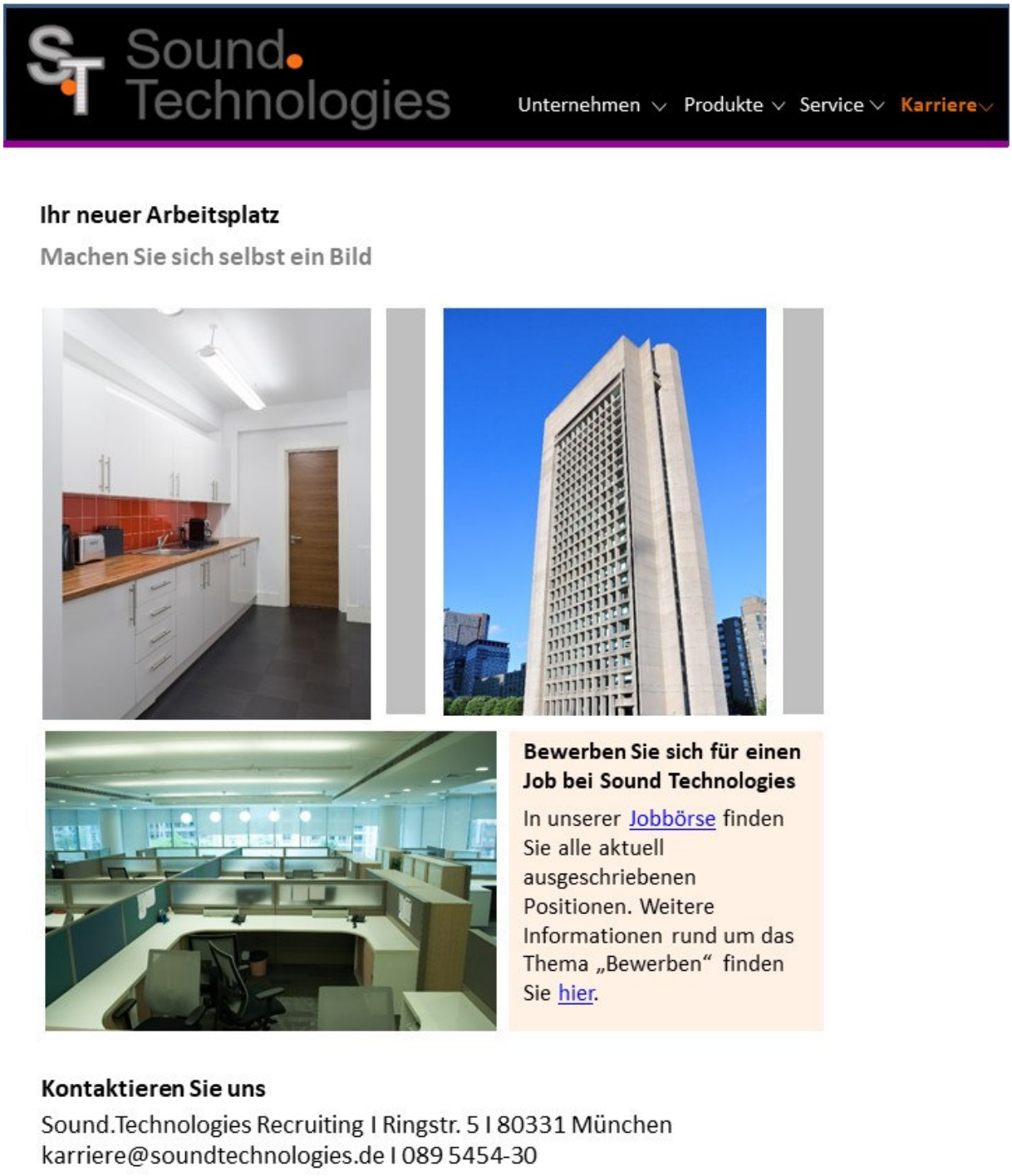


Figure 50: Scenario for the Solid Closed Type, alternative I

Sound. Technologies

Unternehmen Produkte Service Karriere

Ihr neuer Arbeitsplatz

Machen Sie sich selbst ein Bild

Bewerben Sie sich für einen Job bei Sound Technologies

In unserer Jobbörse finden Sie alle aktuell ausgeschriebenen Positionen. Weitere Informationen rund um das Thema „Bewerben" finden Sie hier.

Kontaktieren Sie uns

Sound.Technologies Recruiting I Ringstr. 5 I 80331 München
karriere@soundtechnologies.de I 089 5454-30

Figure 51: Scenario for the Solid Closed Type, alternative II

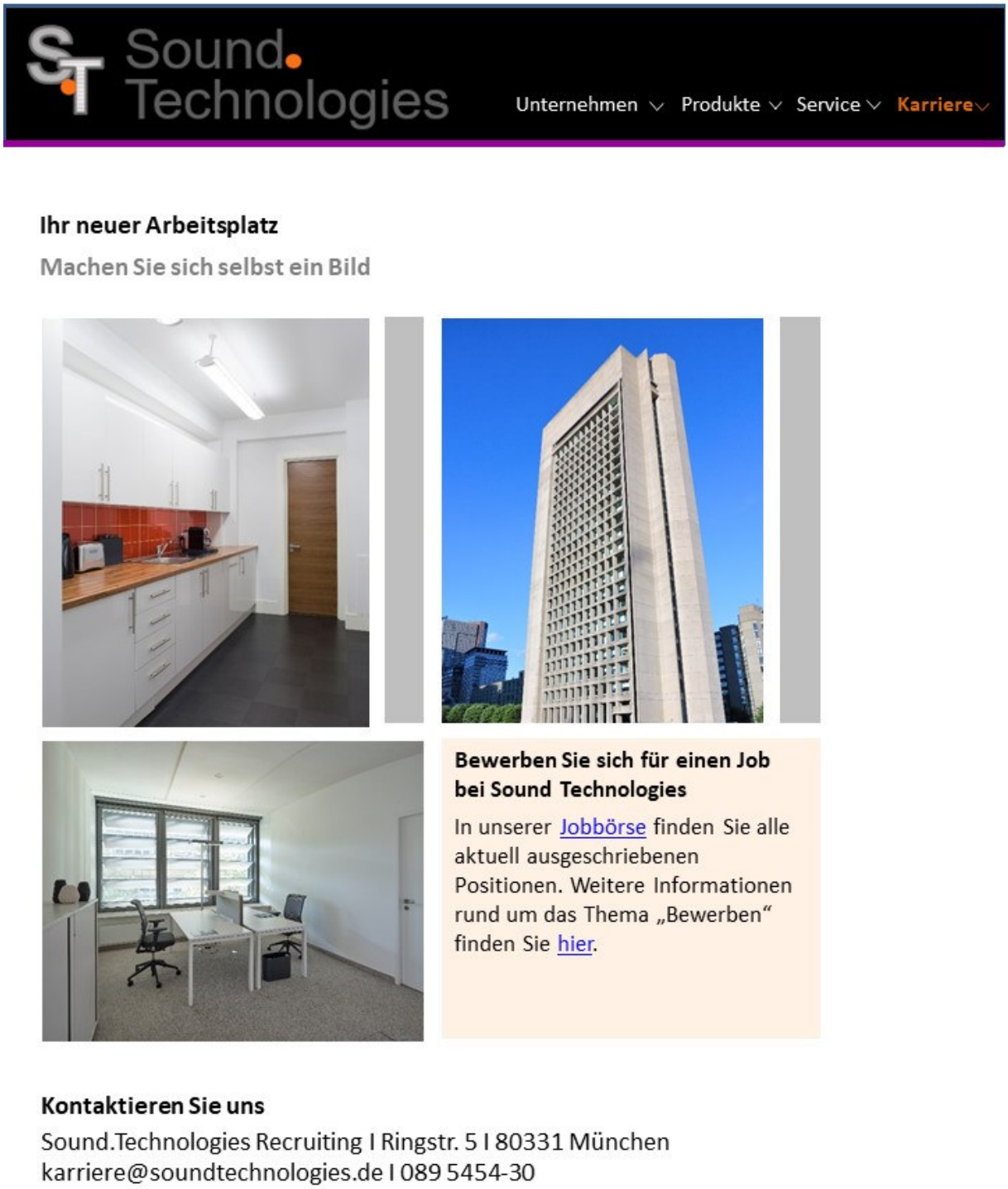


Figure 52: Scenario for the Fun Type, alternative I

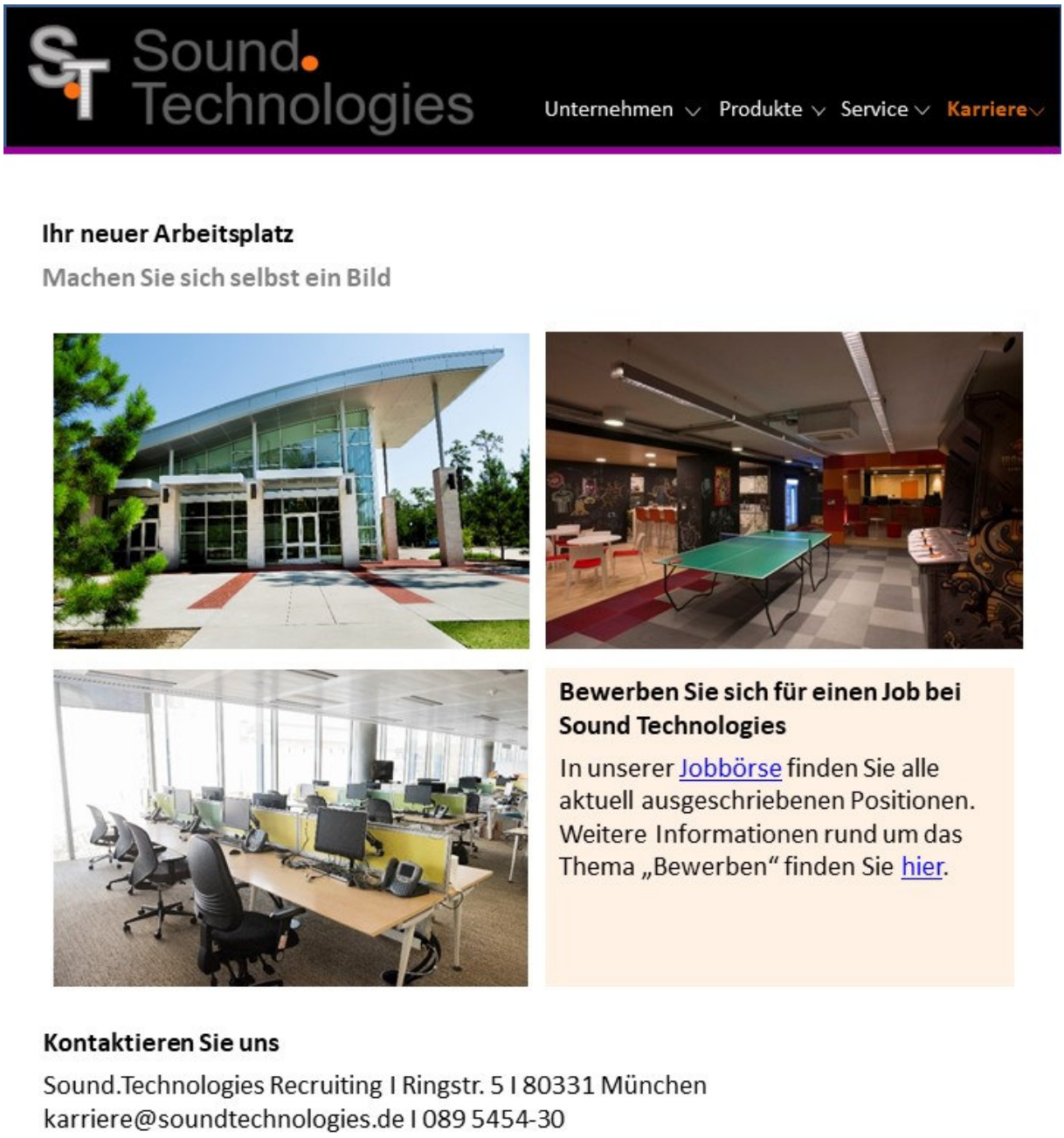


Figure 53: Scenario for the Fun Type, alternative II

Appendix 5: Details on the application of structural equation models

5.1 Structural equation modelling methods

Covariance based SEM try to conduct an estimation of the model parameters in such a way that the empirical variance-covariance-matrix can be reproduced as precise as possible. Hence, the objective of the approach is the minimization of the difference between the estimated and the true covariance matrix. Generally, SEM presume an a priori defined model which is based on the assumption that it has generated the data. Such a model normally comes along with certain model restrictions (path, which are not defined in the model and thus restrict the parameters to 0). As a result there are several possibilities for the solution of the structural equations. As a consequence, the empirical correlation matrix differs from the model implicated matrix (Aichholzer, 2017: 107).

The covariance matrix, reflecting the entity of all variable relations, is used as empirical information for the estimation of the parameters. The hypotheses depicted in the path diagram need to be transferred into an equation system. For each endogenous variable one equation has to be lined up, including the corresponding intervening and exogenous variables as dependent variables. Between the equations, a linear relationship is presumed. On these grounds, the target function of this method is the minimization of the discrepancy between S, the true / empirical covariance matrix, and the model implicated matrix $\Sigma(\Theta)$:

$$S - \Sigma(\Theta) \rightarrow \min$$

As already explicated before, the covariance analytical approach is based on the confirmatory factor analysis. With the help of the factor analysis, the factor loadings, which correspond to the correlations between the measurement variables and the factors, are estimated in such a way that the empirical variance-covariance-matrix can be reproduced as precise as possible. By means of this, the relation between the measurement variables and the latent variables as well as the causal relations within the structural model are estimated. The reproduction of the empirical correlation matrix by the model parameters rely on the fundamental theorem of the factor analysis which postulates that the value of a variable can be described with a linear combination of hypothetical factors, and the correlation matrix can be reproduced by the factor loadings and the correlations between the factors. As the parameter estimations are based on the hypotheses system of the researcher (and the parameter matrices derived from it), it becomes

clear that the substance and the conclusiveness of a hypotheses system determine the accuracy of the model (Weiber & Mühlhaus, 2014: 54 ff.).

Model Identification

Before the model can be estimated, however, it needs to be ensured that it is identified. Non-identified models cannot be estimated. Identification refers to two aspect: First, there needs to be sufficient empirical information for the estimation. Second, the metric / scaling for the latent variables and the error variables needs to be defined.

The first aspect refers to the question, whether the empirical information (variances and covariances) are sufficient for the simultaneous solution of the structural equation system. This is fulfilled, when the number of equations at least equals the number of parameters to be estimated (Weiber & Mühlhaus, 2014: 60). Given a model with p indicators for latent endogenous variables and q indicators for latent exogenous variables, the number of empirical available correlations can be derived as follows: ½ (p+q) (p+q+1) (Weiber & Mühlhaus, 2014: 60). Let model parameters be denominated t, then a model is identified if the following equation is fulfilled: $t \leq ½ (p+q) (p+q+1)$. If this is given, the number of degrees of freedom is larger than zero: d.f.s > 0, which is a necessary condition for the model identification in SEM. D.f. = ½ (p+q) (p+q+1) – t. With regard to the equation, three solutions are possible. If the number of d.f. is negative, the model is underidentified. In this case, the solution of the equation system is not possible. If the number of d.f is equal to zero, the model is just identified. In such case, the equation system can be solved, but there is no information left for the calculation of the quality criteria. Such a case has to be critically evaluated and has a low explanatory power. If the number of d.f. is larger than zero, the model is overidentified. In this case, the estimation process can find the best solution that minimizes the sum between the empirical values and the estimated values. In this case, model fit statistics (see chapter 6.4) can show how close the solution comes to the real data. In addition to this first necessary condition, a second necessary condition pertaining to availability of empirical information needs to be fulfilled: the correlation matrix has to be positively invertible. A necessary condition for this is that the number of research objects is higher than the number of indicator variables. However, even if these conditions are achieved, the complex model structures of SEM can still yield further problems with identification, which cannot be ruled out or tested for in preparation of. Stata calculates the number of parameters automatically and provides corresponding feedback in case of non-identified models.

After having tested the sufficiency of empirical information, the second condition needs to be taken into account, namely the scaling of the variables. In order to make the values of the unobserved variables (latent variables and error variables) subject to interpretation, they need to be assigned to a scale. The indicator variables serve the estimation of the latent variables. For this reason, it is sensible to take these variables as reference for the latent constructs and the error terms. First possibility to follow this approach is to take one of the indicator variables (ideally the one with the highest loadings), allocate it to one latent variable and fix its factor loading to 1. Consequently, the latent variable is identical to the indicator variable, excepting to the error term. A second possibility is to fix the variance of the latent variable to 1. This way provides the advantage that the loadings for all indicator variables can be estimated freely. Moreover, in such a case the covariance between two latent variables corresponds to their correlation, which eases the interpretation.

Both possibilities for setting the metric for the latent variables can lead to different results. If, however, the results of the parameter estimation are similar, it can be assumed that the estimation of the latent variables is reliable. The default procedure in Stata follows the first approach described, which is also applied in the present analysis.

5.2 Assessment of Structural Equation Models

The evaluation of model goodness plays a pivotal role with regard to SEM, as it reveals information about how the theoretical model structures fit to the empirical data. For this reason, assessing whether a specified model 'fits' the data is one of the key aspects in structural equation modelling (Yuan, 2005). The objective is to make an assessment with regard to quantifiable reliability and validity criteria (Fuchs, 2011: 16).

Reliability refers to the degree to which a measurement procedure delivers the same consistent results for repeated measurements, provided there is a stable environment. This means, the degree to which measures are free from random error and coefficients thus estimate the amount of systematic variance in a measure. *Validity* is a measure for how well an instrument captures the construct of interest (Hildebrandt & Temme, 2006: 2). Thus, validity means the conceptual accuracy of a measurement and depicts, to what extent the measurement actually measures what it is supposed to measure (Hornburg & Giering, 1996: 7).

Generally, tests can apply to local and global quality criteria. *Local criteria* refer to the assessment of the measurement model, thus the assessment of the measurement of the latent constructs by their indicators. *Global criteria*, referring to the complete model, focus on the

comparison of the covariance matrix implied by the theoretical model and the empirical covariance matrix. Following the approach by Anderson and Gerbing (1988: 418), this study follows the approach to first assesses the measurement model separately before estimating the complete SEM. Misspecifications in the measurement model impact the validity of the estimation of the parameters in the structural model as well as the goodness of fit of the complete SEM. Thus, the estimations become more precise by assessing the model goodness in two steps.

In the following, the most important quality criteria respectively statistical tests which allow the assessment of SEM under the application of the reliability and validity criteria named afore, are explained. According to the applied procedure, the criteria for the assessment for measurement models are expounded in a first step, followed by the criteria for the assessment of complete models and structural models.

5.2.1 Assessment of the measurement model

As Hildebrandt and Temme (2006: 6) recommend, it is helpful to take a look at the "True score"- theory (Bagozzi, 1998) for understanding the quality criteria for reflective measurement models. In this theory, an empirical measurement is understood as variable, which is composed of a true value and a measurement error. The measurement error itself can be split up into a random and a systematic error. Random error reflects influences which bias the measurement differently in each measurement, without any systematic. Systematic error means influences, which impact the measurement to the same extent for each separate measurement (Hornburg & Giering, 1996: 7). For the determination of reliability and validity, the variance of a variable is decomposed. **Reliability** then reflects the degree, to which a measurement is free of random error, resulting from the relation of error variance to total variance. Error variance can be captured with the help of different designs, which in turn lead to different conceptual understandings of reliability: Test-retest reliability, parallel-test reliability, and **internal consistency** (Hildebrandt, 1998). For reflective measurement models based on a series of items, the consideration of internal consistency is of particular importance and will be focused on in the following. Based on the measurement of internal consistency by Cronbachs α, several further criteria have been developed based on the ideas of variance decomposition, which can be tested with the help of confirmatory factor analysis (Hildebrandt & Temme, 2006: 6). Internal consistency can be captured by (a) **indicator reliability,** represented by the measure variance explained, and (b) **construct reliability**, represented by factor reliability and average

variance extracted, all of which are explained below.

The concepts of **validity**, also based on the idea of variance decomposition, means the degree to which a measurement is free of random and systematic error. This means, a measurement instrument is valid when the measured scores express actual differences in the characteristic which are objective of the measurement. In other words, validity means that an instrument actually measures what it is supposed to measure (Bühner, 2006: 36). The test of validity usually assumes that the researcher already has a clear picture about how a theoretical construct can be captured by a number of indicators and how the construct is related to other constructs. According to Bryant (2000), the proof of validity can be based on **content validity**, **criterion validity** or **construct validity** (convergent validity, discriminant validity, and nomological validity). Content validity, focusing on the content of instruments (the items), is content-related and theoretically driven and therefore difficult to capture statistically. For this reason, tests of validity primarily focus on causal analytical test referring to criterion and constructs validity (Bühner, 2006: 36). For SEM, the criterion of construct validity is considered most important (Hildebrandt & Temme, 2006: 7). Correspondingly, the concept of content validity as well as construct validity, the latter represented by convergent validity, discriminant validity, and nomological validity are expounded below.
However, before describing the reliability and validity criteria in detail, it should be pointed out that an indicator elimination procedure exclusively based on statistical tests can be problematic (Hildebrandt & Temme, 2006). This can lead to statistically valid but invalid constructs but with regard to content. For this reason, the decision about item elimination should always be made from a content and statistical perspective. If this does not lead to satisfying results, other construct solutions have to be considered.

Internal consistency

For the test of reliability, the methods of confirmatory factor analysis are available, which focus on the test of internal consistency. The corresponding test statistics are based on the correlations of the indicators and determine, to which degree a latent construct is measured by the indicators assigned to it (Fuchs, 2011: 25). Statistics in this respect are the indicator reliability, the factor reliability and the average variance extracted.

Indicator reliability

The indicator reliability is a measure on indicator level (as opposed to the two following measures of internal consistency on construct level). It measures the variance share of one indicator, which is explained by the latent variable assigned to it (**variance explained**). The indicator reliability can adopt values between 0 and 1, whereby at least half of the indicator variance should be explained by the latent variable (Bagozzi & Baumgartner, 1994: 402; Fuchs, 2011: 25; Hildebrandt & Temme, 2006: 14). This corresponds to a standardized loading of at least .7, which leads to a factor reliability of $0.7^2 = 0.49$. A factor reliability of > 0.5 ensures that more than 50% of the variance of one single indicator are explained by the latent construct assigned to it, whilst the rest has to be reduced to measurement error.

Construct reliability

As against the indicator reliability, the construct reliability (factor reliability) tests how precise the entity of indicators measures the latent construct. For this purpose, the factor reliability and the average variance extracted constitute two established measures (Fuchs, 2011; Hildebrandt & Temme, 2006; Hornburg & Giering, 1996).

The **factor reliability** determines the size of the total variance of the measurement model explained by the latent construct, as related to the total variance of the model. The reliability can be estimated in a way that accounts for the relative centrality of each item and the error in each item and also considers covariances between error terms, in case these are existent. This estimation of the reliability is more precise than the often referred to alpha-coefficient, as the latter one assumes that all items are unidimensional, have identical centrality, i.e. equal loadings, as well as uncorrelated error terms (Acock, 2013: 20; Aichholzer, 2017: 95). Factor reliability can be calculated according to Raykov (1997):

$$\rho = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum \theta_{ii} + 2\sum \theta_{ij}} \qquad \text{(a)}$$

$$\rho = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum \theta_{ii}} \qquad \text{(b)}$$

Where $(\sum \lambda_i)^2$ in equation (a) is the squared sum of the unstandardized loadings of all factors of

a construct, and $\sum\theta_{ii}$ is the sum of the unstandardized error variances. $2\sum\theta_{ij}$ represents two times the sum of the unstandardized covariances of the errors, in case these are any in the model. If there are no correlated errors, the equation reduces to the one represented under (b).
For the estimation of factor reliability the stata command "relicoef" is available, which can be applied after the "sem" command (Mehmetoglu, 2015). Factor reliability can adopt values between 0 and 1. Value of ≥ 0.6 are considered as acceptable (Bagozzi & Yi, 1988: 82).

The **average variance extracted** (AVE) is a criterion measuring how adequately one latent construct explains its indicators. For the determination, the variance of each indicator is decomposed into a variance explained by the latent construct (which corresponds to the squared loading) and the variance of the measurement error, not explained by the construct. The AVE then determines, how much of the variance of each indicator is explained by the latent construct on average. The AVE can adopt values between 0 and 1, whilst a critical value of .5 is regarded as acceptable (Bagozzi & Yi, 1988: 82). It reflects that on average, more than 50% of the variance of each indicator are explained by the latent construct (Fuchs, 2011: 26). The AVE, however, allows that low factor loadings of single indicators are compensated by other indicators with high loadings. To control for this, the indicator reliabilities have to be considered likewise (Fornell & Larcker, 1981). The AVE can be calculated as follows:

$$AVE = \frac{\sum_{i=1}^{k} \lambda_i^2}{\sum_{i=1}^{k} \lambda_i^2 + \sum_{i=1}^{k} Var(e_i)}$$

Content Validity

With regard to content validity, the researcher has to decide first, which construct and which facets of a construct should be captured and thus which items to develop or select. These considerations are based on the idea of representativeness, meaning that the items selected constitute a representative number of items from the "universe of items", which represent the characteristic of interest. This selection process rests upon logical and theoretical considerations (Michel & Conrad). In this study, the selection of items was based on predefined and already tested item scales (compare chapter 5). Hence, it can be theoretically substantiated that the constructs are suited for being captured with a measurement model. After the first selection of items, the criterion of unidimensionality requires that the items used capture one common attribute only. As criterion suited for testing unidimensionality, explorative and confirmatory

factor analysis can be used and are usually applied successively (Hildebrandt & Temme, 2006: 9). This procedure is more adequate than Cronbachs α, which itself presumes unidimensionality for a correct interpretation (Hildebrandt & Temme, 2006: 11). Unidimensionality means that item correlations can be explained sufficiently well by one basic factor.

As opposed to the use of principal component analysis, the use of a maximum likelihood-based factor analyses is recommended. Moreover, an oblique rotation method should be chosen for the rotation of the factor solution, in order to take correlations between factors into account (Hildebrandt & Temme, 2006). As the study uses established scales for the operationalization of variables, unidimensionality of factors could be expected, so that the explorative factor analysis could be omitted. However, an explorative factor analysis is regarded as reasonable here because: First, not all scales have been revised thoroughly so that their psychometric properties are partly unknown and second, all scales are in English so that they had to be translated into German for the study at hand. Thus, misinterpretations and ambiguous translations could have resulted, so that an explorative factor analysis is recommendable.

The detailed procedure and decision criteria for the explorative factor analysis are explained in chapter 7.

Construct validity

Construct validity mainly captures three aspects (Hildebrandt & Temme, 2006): First, a measurement model maps all characteristics of a construct. Second, the model only captures those characteristics of importance to the construct and third, it reflects the relation to other constructs. Accordingly, the degree of validity can be determined with statistical tests of the **convergent** and **discriminant validity**. Moreover, some researcher call for the additional proof of **nomoligical validity** (e.g. Netemeyer et al., 2003). The test of convergent and discriminant validity can be carried out on the basis of a confirmatory factor analysis.

Convergent validity

Convergent validity means that indicators measuring the same construct show a high correlation (Kuß, 2012). As measures to assess convergent validity, the factor reliability and AVE – the same measures as for the assessment of construct reliability - can be drawn upon (see above). For the assessment of convergent validity, also the same thresholds as for the construct reliability apply (Factor reliability ≥ 0.6, AVE ≥ 0.5) (Hornburg & Giering, 1996: 11). In the context of convergent validity, however, it is recommendable to consider additionally the

significance of the factor loadings (Bagozzi et al., 1991: 434), in the respect that factor loadings should be sufficiently high and significant, which is tested with the help of a t-test. Usually, a significance level of 5% is applied (Hornburg & Giering, 1996: 11).

Discriminant validity

"Discriminant validity is the degree to which measures of distinct concepts differ" (Bagozzi & Phillips, 1982: 469). Consequently, in the context of discriminant validity it is tested, to what extent the operationalized, reflective constructs essentially constitute independent factor entities (Zinnbauer & Eberl, 2004: 8). The Fornell/Larcker-criterion (Fornell & Larcker, 1981) represents the strictest test criterion for discriminant validity (Hornburg & Giering, 1996). It requires that the AVE of each construct is higher than each squared correlation of the corresponding factor with another factor. In Stata, the Fornell-Larcker criterion can be easily tested with the command “condisc”.

In addition the local criteria for the goodness of measurement models, the **squared multiple correlation** (SMC) constitutes a criterion for the goodness of fit of the structural model. The SMC is a measure for the degree to which the latent endogenous variables are explained by the exogenous variables of the model (Bollen, 1989). This means, the SMC explains on equation level, how much of the variance of an endogenous variable is explained by the exogenous and endogenous variables related in a causal network to it and is interpreted analogously to the coefficient of determination R^2 in a linear regression model. The SMC can adopt values between 0 and 1. In case a study focuses on the identification of causal mechanisms, as is the case in the present study, rather than targeting at fully explaining an outcome variable, there are no threshold values for the SMC. However, the extent of the explanatory power of a model, reflected by the SMC, indicates if a theory has reasonable explanatory power for the relationships analyzed (Gefen et al., 2000).

Nomological validity

In addition to convergent and discriminant validity, nomological validity should be fulfilled. Nomological validity requires integrating the construct into a larger theoretical context (Hornburg & Giering, 1996: 7). This means that the theoretically expected relations of a construct with other constructs (preceding or succeeding the construct of interest in the causal network) can be supported empirically (Netemeyer et al., 2003). Thus, for the assessment of

nomological validity it is firstly necessary that the estimation of such a nomological network as SEM shows an acceptable fit to the data. Such criteria for the assessment of global model fit will be treated in the following paragraphs. More precisely, the hypothesis about the relations of the construct with other constructs should be supported (Hildebrandt & Temme, 2006: 20–21).

5.2.2 Assessment of the overall model

In the context of covariance based SEM, global fit indices are based on the comparison of the model theoretical implied covariance matrix and the empirical covarianc matrix (Fuchs, 2011: 17).

Assessing goodness of fit

The chi-squared test tests the validity respectively the absolute fit of the model (Fuchs, 2011: 18) and represents the traditional measure for evaluating overall model fit for covariance based SEM (Hu & Bentler, 1999: 21). It compares the estimated model to a saturated model that has no degrees of freedom. It is tested whether the model perfectly reproduces the information in the covariance matrix. The assessment of the chi-squared value is conducted with the help of the probability p, under the condition that the null hypothesis is supported. The null hypothesis claims that the model implied covariance matrix does not significantly differ from the empirical covariance matrix. Commonly it is required that the probability adopts values of 0.05 at least, which means that the model cannot be rejected on the 5%-level (Hornburg & Giering, 1996). If the chi-squared is < 0.05, the model significantly fails to reproduce the data.

The utility of the chi-squared test, however, is restricted by a variety of constraints (Hooper et al., 2008: 54; Hornburg & Giering, 1996: 10). One of the main concerns is its sensivity with regard to the size of the sample (Bentler & Bonett, 1980). Accordingly, it is known that the chi-squared test tends to become significant (< 0.05) and hence rejects the model when samples reach sizes with $n > 1000$. On the other hand, the chi-squared test mostly becomes insignificant for samples sizes with $n < 100$, which leads to the acceptance of models.

Acknowledging these difficulties with the chi-squared test, there are other indices that help to evaluate how close the estimated solution comes to fitting the data (Acock, 2013: 23). The indices are on the one hand based on the chi-squared test and can be divided into absolute fit indices (which compare the model with a saturated model) and relative fit indices (which compare the model with a baseline model) (Aichholzer, 2017: 127).

Absolute fit indices

According to Hooper et al. (2008: 53), absolute fit indices provide the most fundamental indications of how well the theoretical model fits the data, as their calculation is not based on the comparison with a baseline model but is instead a comparison of how well the model fits in comparison to no model at all. As the chi-squared test itself is afflicted with the above named difficulties, a statistics that reduces the impact of sample size has been developed by Wheaton et al. (1977) by setting the model chi-square and the degrees of freedom into relation. This so called normed chi-sqaure ($\chi 2/df$) has become one of the most common assessment criteria and is regarded as acceptable when adopting values ≤ 3 (Fuchs, 2011: 18).

Another index not afflicted with the problems of the chi-square is the root mean squared error of approximation. The *root mean squared error of approximation* (RMSEA) is a further measure of fit. It measures, how much error there is for each degree of freedom. Thus, if unnecessary paths are added to the model and the model becomes more complex, the RMSEA accounts for this and correspondingly shows a higher value. The RMSEA is recommended to be < 0.08 (Browne & Cudeck, 1993: 144) for a reasonable fit and ≤ 0.05 for a good fit (Acock, 2013: 24). One advantage of the RMSEA is that a confidence interval can be calculated around its value, which allows for the null hypothesis to be tested more precisely. For well-fitting models, the lower limit of the confidence interval should be close to 0, whilst the upper limit should be less than 0.08 (Hooper et al., 2008: 54).

Another absolute index for model fit is the standardized root mean squared residual (SRMR). SRMR constitutes the square root of the difference between the residuals of the sample covariance matrix and the theoretical covariance model (Hooper et al., 2008: 55) and hence measures, how close the theoretical model comes to reproducing each correlation on average (Acock, 2013: 24). The SRMR ranges from 0 to 1. The recommendation for the SRMR is a value of < 0.08 (Hu & Bentler, 1999), which means that the model on average comes within < 0.08 in reproducing each correlation among the indicators.

Relative fit indices

Relative fit indices are also known as comparative or incremental fit indices and compare to what extent the goodness of fit of the theoretical model changes as compared to a baseline model. In a baseline model, all variables measured are assumed to be uncorrelated (Zinnbauer

& Eberl, 2004: 11)

The *comparative fit index* (CFI) is a widely used measure (Acock, 2013; Hu & Bentler, 1999). It compares the estimated model with a baseline model that assumes that there is no relationship among the observed indicator variables. Values for the statistic range between 0 and 1. According to relevant studies, a cut-off criterion of CFI ≥ 0.95 is recognized as indicative for good fit (Hu & Bentler, 1999), indicating that the estimated model does 95 % better than a null model assuming completely unrelated items (Acock, 2013).
An advantage of the CFI is that it considers the number of degrees of freedom and is not sensitive to sample size (as opposed to other relative fit indices such as the NFI and the NNFI (Hu & Bentler, 1999: 55), which makes it one of the most reported indices (Fan et al., 1999).

5.2.3 Assessment of the structural model

The fit indices considered so far provide criteria for the assessment of models. Apart from this, each of the estimated path coefficients can be considered separately. The path coefficients represent a measure for the strength of the relations between the variables in the SEM. For a path to be a justifiable part of the model, meaning to reflect a true relationship, path coefficients need to be significant and sufficiently large.
With the help of inference statistical methods, hypothesis about the values of the coefficients can be tested. Analogous to the procedure for multivariate regression, the null hypothesis is tested against an alternative hypothesis. For this purpose, a z-test is applied. Hence, after a model estimation, a standard error is computed for each coefficient. As the maximum likelihood estimations are approximately normally distributed, a coefficient can be interpreted as unequal from zero in case it is at least twice as large as it standard error (Arzheimer, 2015: 68). Hence, the test of the coefficients can be interpreted as in a regression model. With regard to the size of the effects, researcher have to decide in accordance with theoretical considerations, whether a coefficient can be interpreted as having a meaningful influence or not.
In addition to the significance of separate coefficients, the difference between coefficients and the question, whether this difference is significant, is of importance. In the present study, for example, it is pivotal to understand whether the different architectural styles have a significantly different influence on the perceived employer attributes. Such a significance test can be performed with a Wald chi-squared test (Acock, 2013: 83; Arzheimer, 2015: 121; Arzheimer, 2015: 123).

Aside from the path coefficient of the direct paths between two variables, the indirect path on an outcome variable are of interest in SEM. In the present study, the influence of the different mediated paths on the outcome variable Employer Attractiveness is of importance. The coefficient for an indirect path can be calculated by simply multiplying the coefficients of the direct relationships. As the indirect effects are products of parameters, statistical significance has to be tested with a non-linear test (Acock, 2013: 76 ff.) Stata offers a non-linear test based on the "delta method", an approximation appropriate in large samples.

5.2.4 Model comparisons and model modification

The chi-squared test is suitable for the comparison of two nested models, meaning two models with identical number of variables but different paramterization. In most cases, model comparisons aim at comparing a restrictive model (with more restricted variables and less degrees of freedom) with a less restrictive model. The assessment of the model comparison follows with the help of the difference in chi-squared values ($\Delta\chi2$) and difference in degrees of freedom (Δd. f.) and tests the significance of the difference. The difference in the chi-squared values is based on the likelihood-ratio test for models estimated with the maximum likelihood method, which is applied in this study. The chi-squared test for model comparison can be applied for measurement models based on confirmatory factor analysis as well as for entire SEM. Moreover, the test can be applied when testing group models. In such cases, the model without the group variable, e.g. for gender, is the more restricted one, as it “forces” coefficients for male and female participants to be equal. The model including a group variable is less restrictive: it allows coefficients for male and female participants to be different. Given the different numbers of degrees of freedom for both models, the significance of the chi-squared values can again be tested on the basis of a likelihood-ratio test. However, as the chi-squared difference test is afflicted by the same problems as the global chi-squared test (see above), model comparison is commonly based on the comparison of the alternative model fit indices introduced above, as well (Aichholzer, 2017: 130).

For nested and non-nested models, the *Akaike information criterion* (AIC) and the *Bayesian information criterion* (BIC) represent two indices for comparison. These information criteria set the advantages of a given model into relation with its disadvantages. In this context, the plausibility of a parameter estimation, thus the goodness of fit, is to be understood as advantage. The model complexity, expressed in the number of parameters to be estimated, poses the disadvantage. Both values are then combined in one index, whilst the BIC penalizes complex

models more strongly than the AIC (Arzheimer, 2015: 66). Comparing two models, generally the one with the smaller AIC or BIC is the one to be preferred (Acock, 2013: 24). These indices are not normed and thus are difficult to interpret by themselves.

In case of non-nested models, it is again most common to analyze the difference in the alternative goodness of fit indices presented above.

Modification of the model

Due to the complexity of SEM, it is common to be confronted initially with models not fitting sufficiently (Hooper et al., 2008: 56). Thus, the question, to which extent the model can be modified, always based on theoretical grounds, arises. Usually, the reason for a bad model fit is the misspecification of a model in such sense that parameters have been restricted to zero in the theoretical model but are unequal from zero in the population, or parameters are restricted to be equal in the model though they are unequal in the population (Aichholzer, 2017: 132). To further explain restrictions in SEM logic: Paths between two variables that are not specified in the model, pose a restriction which fixes the value of the corresponding coefficient to 0 (Arzheimer, 2015: 65). An indication about possible misspecifications can be retrieved from the modification indices, which Stata provides with a simple command. The modification indices MI show the expected reduction (improvement) of the chi-squared, if a restricted parameter would be estimated free. As the modification indices are based on statistical criteria solely, it is pivotal to always let theoretical reasons guide the decisions on which modifications to integrate into the model (Arzheimer, 2015: 65). The MI also show indices for the covariances of the error terms. These need to be analyzed carefully, as it means that there is another issue not specified within the model that is causing the covariation of the error terms (Hooper et al., 2008: 56). Thus, covariances between error terms express the assumption that unobserved variables are shared by these respective error terms. Hence, integrating these into the model is like acknowledging the existence of some level of spuriousness (Acock, 2013: 123). However, adding the correlated error decreases the coefficient of the path between the two latent variables, because it is "allowed" that part of the relationship between the indicators of the latent variables is spurious because of a common (unobserved) antecedent variable, which is adjusted for by allowing the covariance in the model. Without allowing for the errors to be correlated, we would have a larger coefficient on the path between the latent variables, but a relatively poor fit for our model (Acock, 2013: 123). Deciding to integrate correlated error terms requires a strong theoretical justification, which is easier to provide for within-factor error correlations than for

across factor correlations. However, both are acceptable when substantiated theoretically (Hooper et al., 2008: 56).

Generally, it needs to be taken into consideration that the MI hold true under the assumption that all other parameters are held constant. Thus, MI are not to be understood in an additive way.

Another way of model modification can be the elimination of a problematic variable, in case it is not essential in theoretical terms (Aichholzer, 2017: 133).

Appendix 6: Descriptive statistics

Table 44: Results of the Shapiro-Francia-Test for univariate normality for employer attributes, Work Values and other variables

Variable	Obs	W'	V'	z	Prob>z
Employer Attractiveness 1	1822	0.99590	4.728	3.698	0.00011
Employer Attractiveness 2	1822	0.99156	9.733	5.417	0.00001
Employer Attractiveness 3	1822	0.99491	5.871	4.213	0.00001
Employer Attractiveness 4	1822	0.98658	15.477	6.521	0.00001
Employer Attractiveness 5	1822	0.99485	5.941	4.241	0.00001
Autonomy 1	1822	0.99776	2.583	2.258	0.01196
Autonomy 2	1822	0.99518	5.557	4.082	0.00002
Autonomy 3	1822	0.99337	7.646	4.842	0.00001
Autonomy 4	1822	0.99444	6.416	4.425	0.00001
Autonomy 5	1822	0.99762	2.743	2.402	0.00816
Innovation & Flex. 1	1822	0.99534	5.378	4.005	0.00003
Innovation & Flex. 2	1822	0.99769	2.670	2.337	0.00971
Innovation & Flex. 3	1822	0.99743	2.963	2.585	0.00486
Innovation & Flex. 4	1822	0.99398	6.943	4.613	0.00001
Innovation & Flex. 5	1822	0.99742	2.980	2.599	0.00467
Innovation & Flex. 6	1822	0.99822	2.053	1.712	0.04341
Effort 1	1822	0.99499	5.782	4.177	0.00001
Effort 2	1822	0.99853	1.699	1.261	0.10361
Effort 3	1822	0.99504	5.718	4.150	0.00002
Effort 4	1822	0.99720	3.229	2.790	0.00263
Effort 5	1822	0.99636	4.201	3.417	0.00032
Pressure to Produce 1	1822	0.99940	0.692	-0.876	0.80939
Pressure to Produce 2	1822	0.99739	3.013	2.625	0.00433
Pressure to Produce 3	1822	0.99978	0.252	-3.277	0.99948
Pressure to Produce 4	1822	0.99781	2.524	2.204	0.01376
Pressure to Produce 5	1822	0.99804	2.263	1.944	0.02594
Integration 1	1822	0.99961	0.454	-1.880	0.96995
Integration 2	1822	0.99971	0.332	-2.628	0.99570
Integration 3	1822	0.99600	4.611	3.638	0.00014
Integration 4	1822	0.99940	0.694	-0.870	0.80789
Integration 5	1822	0.99948	0.604	-1.198	0.88463
Adequacy for Work	1822	0.99531	5.414	4.020	0.00003

Note: Values marked grey indicate normal distribution of variables, as p-values are > 0.05. For all other variables the hypothesis of normality has to be rejected.

Variable	Obs	W'	V'	z	Prob>z
Achievement 1	1822	0.99810	2.186	1.862	0.03129
Achievement 2	1822	0.99710	3.341	2.872	0.00204
Achievement 3	1822	0.99596	4.662	3.665	0.00012
Achievement 4	1822	0.99538	5.323	3.980	0.00003
Achievement 5	1822	0.99554	5.139	3.896	0.00005
Achievement 6	1822	0.99890	1.273	0.575	0.28254
Coworkers 1	1822	0.99009	11.428	5.799	0.00001
Coworkers 2	1822	0.99924	0.882	-0.299	0.61765
Coworkers 3	1822	0.99734	3.069	2.669	0.00380
Coworkers 4	1822	0.99788	2.446	2.129	0.01664
Coworkers 5	1822	0.99380	7.156	4.684	0.00001
Coworkers 6	1822	0.99803	2.274	1.956	0.02525
Creativity 1	1822	0.99723	3.194	2.765	0.00285
Creativity 2	1822	0.99738	3.027	2.637	0.00418
Creativity 3	1822	0.99960	0.461	-1.845	0.96745
Creativity 4	1822	0.99896	1.199	0.431	0.33308
Creativity 5	1822	0.99933	0.773	-0.612	0.72989
Creativity 6	1822	0.99847	1.767	1.355	0.08778
Independence 1	1822	0.99646	4.082	3.348	0.00041
Independence 2	1822	0.99806	2.233	1.912	0.02791
Independence 3	1822	0.99728	3.139	2.723	0.00324
Independence 4	1822	0.99636	4.201	3.417	0.00032
Independence 5	1822	0.99794	2.377	2.061	0.01964
Independence 6	1822	0.99602	4.586	3.625	0.00014
Security 1	1822	0.99181	9.447	5.346	0.00001
Security 2	1822	0.98679	15.230	6.482	0.00001
Security 3	1822	0.99414	6.753	4.547	0.00001
Security 4	1822	0.99761	2.758	2.415	0.00787
Security 5	1822	0.99706	3.388	2.904	0.00184
Security 6	1822	0.99098	10.399	5.574	0.00001
Lifestyle 1	1822	0.97547	28.294	7.957	0.00001
Lifestyle 2	1822	0.97572	27.999	7.932	0.00001
Lifestyle 3	1822	0.97637	27.249	7.867	0.00001
Lifestyle 4	1822	0.99423	6.654	4.512	0.00001
Lifestyle 5	1822	0.98477	17.567	6.822	0.00001
Lifestyle 6	1822	0.98485	17.472	6.809	0.00001

Variable	Obs	W'	V'	z	Prob>z
Age	1822	0.78800	244.504	13.090	0.00001
Experience	1822	0.89130	125.368	11.500	0.00001
Grade	1822	0.98842	10.672	5.550	0.00001

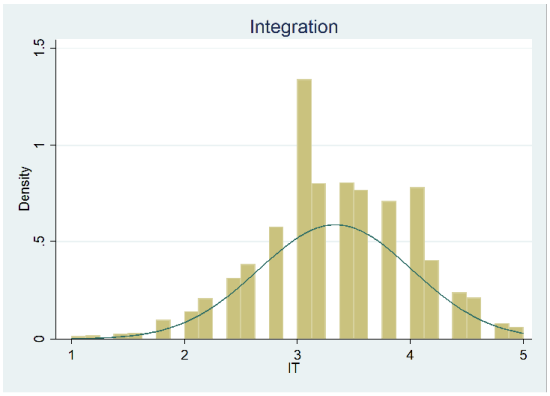
Note: Values marked grey indicate normal distribution of variables, as p-values are > 0,05. For all other variables the hypothesis of normality has to be rejected.

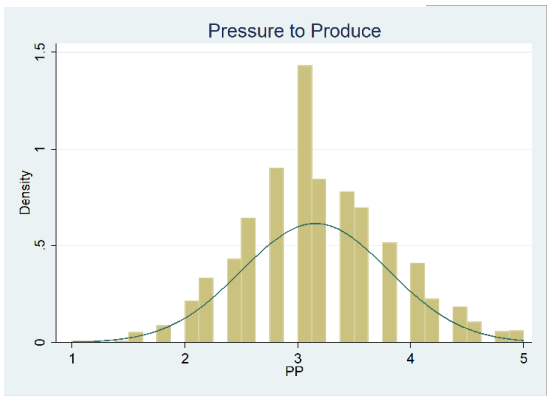
Table 45: Results of the Doornik-Hansen-Test for multivariate normality

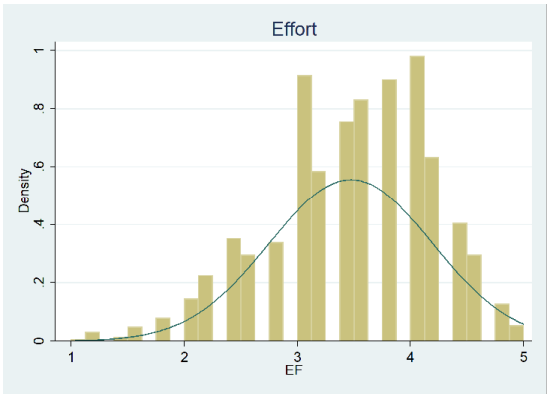
A. Employer Attributes	
Employer Attractiveness and all other Employer Attributes	
chi2(62) = 674.624	Prob>chi2 = 0.0000
B. Work Values	
chi2(72) = 3958.765	Prob>chi2 = 0.0000

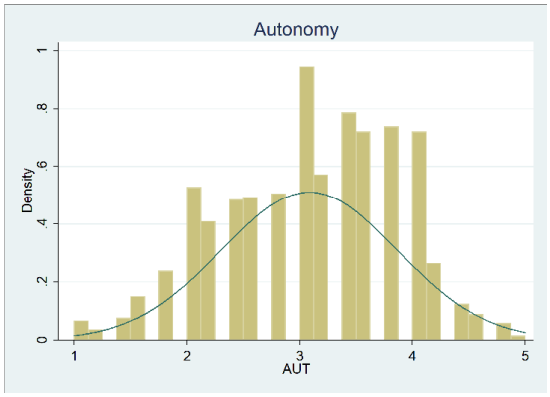
Histograms for the normality distribution of variables

Figure 54: Histograms for the normality distribution of employer attributes









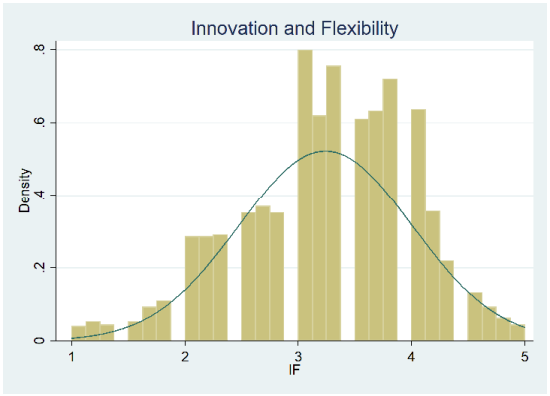


Figure 55: Histograms for the normality distribution of Work Values

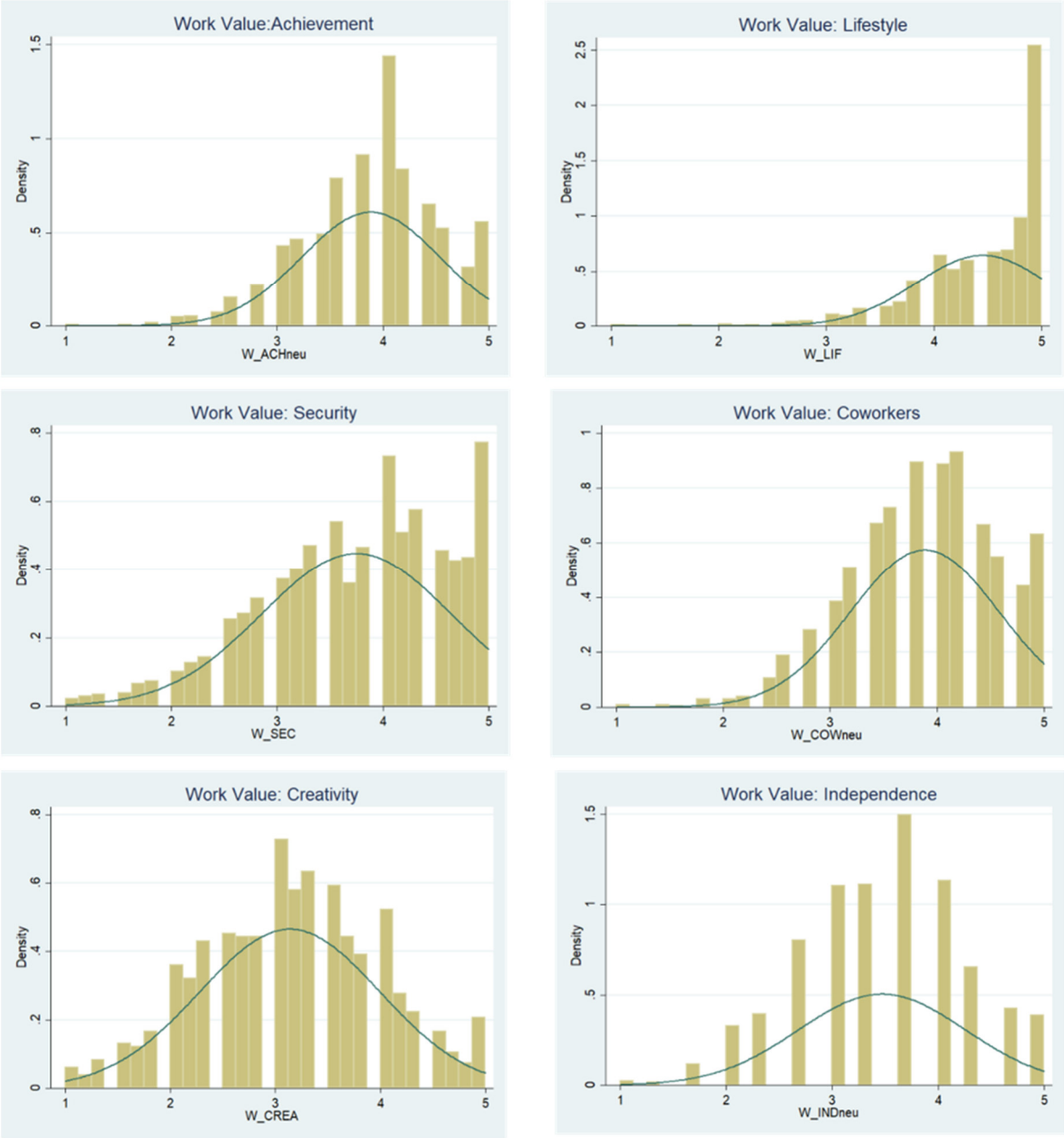


Figure 56: Histogram for the normality distribution of Employer Attractiveness

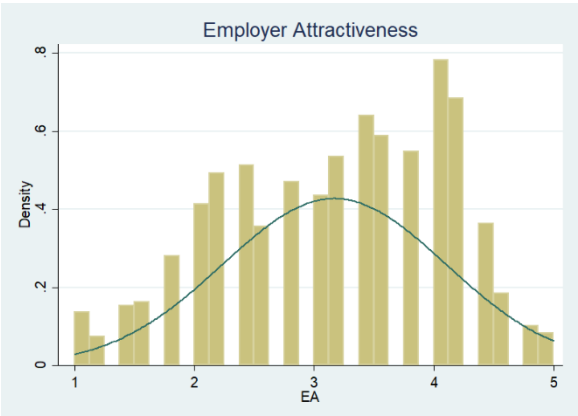


Table 46: Skewness and kurtosis of main variables

A. Employer Attributes

Variable	Min	Max	Skewness	Kurtosis
Employer Atr. 2[r]	1	5	-0,52	2,27
Employer Atr. 3	1	5	-0,22	2,35
Employer Atr. 4	1	5	-0,41	2,15
Employer Atr. 5	1	5	-0,07	2,14
Autonomy 1	1	5	-0,13	2,55
Autonomy 2	1	5	-0,13	2,33
Autonomy 3[r]	1	5	-0,28	2,39
Autonomy 4[r]	1	5	-0,36	2,52
Autonomy 5[r]	1	5	-0,01	2,35
Innovation & Flex. 1	1	5	-0,33	2,64
Innovation & Flex. 2	1	5	-0,29	2,85
Innovation & Flex. 3	1	5	-0,28	2,85
Innovation & Flex. 4	1	5	-0,31	2,47
Innovation & Flex. 5	1	5	-0,27	2,64
Innovation & Flex. 6	1	5	-0,21	2,72
Effort 1	1	5	-0,43	3,16
Effort 2	1	5	-0,22	2,83
Effort 3[r]	1	5	-0,57	2,93
Effort 4	1	5	-0,31	2,92
Effort 5[r]	1	5	-0,42	2,61
Pressure to Produce 1	1	5	0,17	2,72
Pressure to Produce 2[r]	1	5	-0,36	2,76
Pressure to Produce 3	1	5	0,00	2,65
Pressure to Produce 4	1	5	-0,22	2,61
Pressure to Produce 5[r]	1	5	-0,19	2,62
Integration 1[r]	1	5	-0,21	2,79
Integration 2	1	5	-0,08	2,99
Integration 3	1	5	-0,40	2,97
Integration 4	1	5	-0,14	3,08
Integration 5[r]	1	5	-0,27	2,60
Adequacy for Work	1	5	-0,13	2,16

Note: Variables marked with a raised 'r' are inverted items.

B. Work Values

Variable	Min	Max	Skewness	Kurtosis
Achievement 1	1	5	-0,39	2,91
Achievement 2	1	5	-0,59	3,33
Achievement 3	1	5	-0,50	2,98
Achievement 4	1	5	-0,58	3,05
Achievement 5	1	5	-0,70	3,43
Achievement 6	1	5	-0,30	2,60
Coworkers 1	1	5	-1,11	4,10
Coworkers 2	1	5	-0,19	2,37
Coworkers 3	1	5	-0,52	2,70
Coworkers 4	1	5	-0,38	2,68
Coworkers 5	1	5	-0,79	3,47
Coworkers 6	1	5	-0,41	2,67
Creativity 1	1	5	-0,40	2,67
Creativity 2	1	5	0,09	2,27
Creativity 3	1	5	0,02	2,44
Creativity 4	1	5	-0,08	2,40
Creativity 5	1	5	0,11	2,43
Creativity 6	1	5	-0,17	2,48
Independence 1	1	5	-0,57	3,07
Independence 2	1	5	0,13	2,37
Independence 3	1	5	-0,40	2,76
Independence 4	1	5	-0,47	2,95
Independence 5	1	5	-0,16	2,19
Independence 6	1	5	-0,58	3,27
Security 1	1	5	-0,78	2,98
Security 2	1	5	-0,94	3,49
Security 3	1	5	-0,62	2,67
Security 4	1	5	-0,27	2,11
Security 5	1	5	-0,22	2,09
Security 6	1	5	-0,77	2,72
Lifestyle 1	1	5	-1,74	6,40
Lifestyle 2	1	5	-1,84	6,59
Lifestyle 3	1	5	-1,69	6,15
Lifestyle 4	1	5	-0,91	3,42
Lifestyle 5	1	5	-1,42	5,01
Lifestyle 6	1	5	-1,34	4,77

C. Other

Variable	Min	Max	Skewness	Kurtosis
Age	17	75	2,06	7,62
Grade	1	9	0,61	2,82
Experience	1	13	1,02	2,88

Table 47: Pearsons correlation coefficients for items referring to employer attributes and Employer Attractiveness

	Variable	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1	Employer Atr. 1	2,92 (1,00)	1,00																														
2	Employer Atr. 2^r	3,61 (1,20)	0,65	1,00																													
3	Employer Atr. 3	3,06 (1,03)	0,74	0,58	1,00																												
4	Employer Atr. 4	3,34 (1,20)	0,60	0,48	0,63	1,00																											
5	Employer Atr. 5	2,91 (1,08)	0,76	0,60	0,77	0,71	1,00																										
6	Autonomy 1	2,96 (0,88)	0,34	0,27	0,35	0,27	0,31	1,00																									
7	Autonomy 2	3,05 (0,93)	0,33	0,25	0,33	0,26	0,31	0,65	1,00																								
8	Autonomy 3^r	3,20 (0,99)	0,29	0,35	0,30	0,22	0,26	0,56	0,53	1,00																							
9	Autonomy 4^r	3,36 (1,03)	0,31	0,34	0,31	0,21	0,26	0,53	0,49	0,74	1,00																						
10	Autonomy 5^r	2,85 (0,98)	0,23	0,25	0,21	0,13	0,19	0,52	0,52	0,62	0,59	1,00																					
11	Innovation & Flex. 1	3,30 (0,96)	0,32	0,28	0,33	0,27	0,31	0,50	0,49	0,43	0,45	0,38	1,00																				
12	Innovation & Flex. 2	3,31 (0,92)	0,34	0,25	0,36	0,26	0,33	0,35	0,35	0,29	0,28	0,21	0,47	1,00																			
13	Innovation & Flex. 3	3,23 (0,92)	0,37	0,28	0,39	0,30	0,37	0,37	0,35	0,30	0,30	0,22	0,50	0,68	1,00																		
14	Innovation & Flex. 4	3,20 (1,02)	0,35	0,29	0,37	0,30	0,35	0,47	0,44	0,40	0,37	0,32	0,52	0,60	0,63	1,00																	
15	Innovation & Flex. 5	3,27 (0,99)	0,39	0,32	0,40	0,34	0,38	0,48	0,43	0,43	0,45	0,31	0,57	0,54	0,57	0,61	1,00																
16	Innovation & Flex. 6	3,13 (0,94)	0,35	0,27	0,37	0,29	0,35	0,45	0,39	0,35	0,34	0,25	0,49	0,50	0,56	0,57	0,63	1,00															
17	Effort 1	3,44 (0,89)	0,38	0,29	0,37	0,33	0,37	0,32	0,29	0,22	0,20	0,14	0,35	0,38	0,42	0,39	0,44	0,46	1,00														
18	Effort 2	3,19 (0,94)	0,45	0,36	0,47	0,34	0,43	0,45	0,42	0,36	0,37	0,28	0,44	0,48	0,51	0,50	0,53	0,57	0,65	1,00													
19	Effort 3^r	3,79 (0,94)	0,25	0,27	0,24	0,21	0,24	0,13	0,11	0,19	0,19	0,12	0,18	0,22	0,26	0,26	0,26	0,27	0,35	0,33	1,00												
20	Effort 4	3,34 (0,87)	0,38	0,29	0,39	0,31	0,36	0,29	0,28	0,22	0,23	0,13	0,36	0,40	0,47	0,41	0,43	0,48	0,63	0,61	0,44	1,00											
21	Effort 5^r	3,59 (1,00)	0,28	0,29	0,28	0,24	0,27	0,20	0,18	0,28	0,30	0,20	0,25	0,28	0,32	0,33	0,33	0,34	0,44	0,42	0,63	0,54	1,00										
22	Pressure to Produce 1	2,76 (0,97)	-0,13	-0,19	-0,12	-0,11	-0,11	-0,20	-0,20	-0,36	-0,37	-0,31	-0,18	-0,06	-0,06	-0,15	-0,18	-0,11	-0,03^{ns}	-0,12	-0,09	0,00^{ns}	-0,18	1,00									
23	Pressure to Produce 2^r	3,54 (0,93)	0,15	0,16	0,17	0,16	0,16	0,06**	0,07	0,08	0,09	0,06	0,09	0,16	0,19	0,15	0,13	0,16	0,20	0,15	0,44	0,29	0,43	0,03^{ns}	1,00								
24	Pressure to Produce 3	2,99 (0,95)	-0,10	-0,14	-0,09	-0,02^{ns}	-0,05**	-0,19	-0,16	-0,33	-0,35	-0,29	-0,13	-0,04*	-0,03^{ns}	-0,10	-0,16	-0,06	0,04*	-0,08	0,00^{ns}	0,07	-0,06	0,54	0,15	1,00							
25	Pressure to Produce 4	3,19 (0,96)	-0,16	-0,16	-0,12	-0,09	-0,11	-0,28	-0,21	-0,34	-0,35	-0,32	-0,14	-0,04*	-0,05**	-0,15	-0,19	-0,12	-0,03^{ns}	-0,16	-0,02^{ns}	0,02^{ns}	-0,12	0,50	0,10	0,61	1,00						
26	Pressure to Produce 5^r	3,28 (0,91)	-0,14	-0,06	-0,13	-0,08	-0,13	-0,28	-0,27	-0,24	-0,23	-0,21	-0,22	-0,10	-0,12	-0,20	-0,23	-0,19	-0,10	-0,21	0,21	-0,02^{ns}	0,13	0,31	0,33	0,38	0,43	1,00					
27	Integration 1^r	3,47 (0,93)	0,29	0,29	0,28	0,22	0,27	0,26	0,25	0,33	0,35	0,26	0,31	0,34	0,36	0,39	0,37	0,32	0,32	0,36	0,41	0,36	0,45	-0,23	0,32	-0,16	-0,15	0,04*	1,00				
28	Integration 2	2,99 (0,87)	0,19	0,14	0,17	0,10	0,16	0,25	0,25	0,22	0,19	0,15	0,22	0,21	0,23	0,27	0,25	0,28	0,26	0,30	0,08	0,22	0,11	-0,13	-0,04	-0,14	-0,18	-0,29	0,18	1,00			
29	Integration 3	3,45 (0,91)	0,30	0,27	0,31	0,24	0,29	0,35	0,35	0,37	0,37	0,24	0,41	0,40	0,43	0,46	0,48	0,44	0,40	0,46	0,26	0,40	0,31	-0,20	0,14	-0,16	-0,19	-0,19	0,47	0,36	1,00		
30	Integration 4	3,23 (0,87)	0,37	0,28	0,36	0,29	0,35	0,36	0,35	0,33	0,32	0,24	0,40	0,46	0,50	0,48	0,49	0,49	0,46	0,54	0,30	0,49	0,34	-0,12	0,17	-0,10	-0,15	-0,19	0,47	0,41	0,68	1,00	
31	Integration 5^r	3,53 (0,99)	0,30	0,34	0,31	0,24	0,27	0,32	0,32	0,46	0,47	0,34	0,35	0,29	0,33	0,35	0,39	0,35	0,30	0,39	0,38	0,29	0,43	-0,38	0,24	-0,31	-0,33	-0,14	0,54	0,28	0,55	0,50	1,00

Note: All correlation coefficients without marking are significant at the 1%-level. Coefficients markedt with ** are signifiant at the 5%-level, coefficients marked with * are significant at the 10% level, and coefficients marked with 'ns' are not significant. Variabels marked with a raised 'r' are reversed items. All coeffcicients rounded to two decimals.

Table 48: Pearsons Correlation Coefficients for items referring Work Values

	Variable	Mean (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1	Achievement 1	3,76 (8,4)	1,00																																			
2	Achievement 2	4,03 (0,77)	0,58	1,00																																		
3	Achievement 3	3,76 (0,89)	0,57	0,54	1,00																																	
4	Achievement 4	3,81 (0,92)	0,49	0,43	0,62	1,00																																
5	Achievement 5	4,01 (0,81)	0,42	0,46	0,43	0,47	1,00																															
6	Achievement 6	3,52 (0,99)	0,29	0,35	0,35	0,28	0,35	1,00																														
7	Coworkers 1	4,31 (0,80)	0,17	0,20	0,12	0,13	0,21	0,24	1,00																													
8	Coworkers 2	3,45 (1,04)	0,14	0,16	0,13	0,14	0,16	0,17	0,43	1,00																												
9	Coworkers 3	3,88 (0,93)	0,13	0,17	0,11	0,11	0,16	0,11	0,43	0,53	1,00																											
10	Coworkers 4	3,70 (0,91)	0,13	0,14	0,13	0,14	0,17	0,12	0,37	0,36	0,39	1,00																										
11	Coworkers 5	4,08 (0,85)	0,16	0,18	0,09	0,14	0,18	0,10	0,45	0,37	0,47	0,41	1,00																									
12	Coworkers 6	3,70 (0,95)	0,17	0,19	0,14	0,14	0,16	0,11	0,38	0,51	0,65	0,44	0,50	1,00																								
13	Creativity 1	3,63 (0,95)	0,21	0,24	0,16	0,20	0,26	0,40	0,23	0,18	0,16	0,19	0,20	0,18	1,00																							
14	Creativity 2	3,05 (1,08)	0,23	0,20	0,20	0,20	0,24	0,39	0,14	0,15	0,10	0,13	0,13	0,11	0,70	1,00																						
15	Creativity 3	3,07 (1,06)	0,22	0,19	0,21	0,24	0,18	0,40	0,09	0,13	0,06	0,06	0,07	0,06	0,55	0,63	1,00																					
16	Creativity 4	3,07 (1,05)	0,25	0,24	0,24	0,23	0,23	0,42	0,14	0,14	0,07	0,10	0,08	0,05	0,54	0,59	0,72	1,00																				
17	Creativity 5	2,82 (1,05)	0,22	0,20	0,23	0,22	0,19	0,38	0,06	0,13	0,06	0,08	0,03^{ns}	0,05	0,48	0,56	0,72	0,75	1,00																			
18	Creativity 6	3,17 (1,03)	0,20	0,21	0,20	0,20	0,21	0,36	0,12	0,16	0,09	0,12	0,11	0,09	0,54	0,57	0,63	0,62	0,68	1,00																		
19	Independence 1	3,91 (0,86)	0,24	0,27	0,22	0,24	0,27	0,46	0,24	0,09	0,13	0,09	0,14	0,06	0,42	0,34	0,38	0,40	0,36	0,39	1,00																	
20	Independence 2	2,97 (1,07)	0,23	0,21	0,21	0,18	0,19	0,35	0,08	0,15	0,12	0,07	0,09	0,11	0,26	0,32	0,28	0,28	0,30	0,28	0,48	1,00																
21	Independence 3	3,72 (0,88)	0,19	0,19	0,11	0,13	0,21	0,26	0,14	0,09	0,15	0,11	0,18	0,12	0,30	0,29	0,26	0,27	0,24	0,26	0,48	0,52	1,00															
22	Independence 4	3,72 (0,88)	0,20	0,19	0,16	0,16	0,20	0,25	0,16	0,05	0,15	0,12	0,18	0,11	0,27	0,27	0,27	0,28	0,26	0,27	0,47	0,46	0,73	1,00														
23	Independence 5	3,33 (1,11)	0,15	0,16	0,12	0,11	0,14	0,20	0,13	0,15	0,17	0,16	0,20	0,18	0,21	0,23	0,18	0,17	0,19	0,17	0,25	0,35	0,40	0,47	1,00													
24	Independence 6	3,92 (0,82)	0,18	0,23	0,17	0,20	0,23	0,28	0,20	0,07	0,14	0,10	0,17	0,10	0,32	0,27	0,29	0,31	0,28	0,32	0,50	0,36	0,44	0,47	0,33	1,00												
25	Security 1	3,96 (1,01)	0,11	0,15	0,11	0,10	0,18	0,08	0,19	0,17	0,16	0,21	0,21	0,19	-0,01^{ns}	0,01^{ns}	-0,01^{ns}	-0,02^{ns}	-0,03^{ns}	0,00^{ns}	0,07	0,10	0,12	0,13	0,13	0,15	1,00											
26	Security 2	4,05 (0,95)	0,14	0,21	0,17	0,18	0,22	0,11	0,23	0,16	0,18	0,23	0,25	0,19	0,06	0,08	-0,01^{ns}	0,02^{ns}	-0,01^{ns}	0,03^{ns}	0,10	0,06	0,11	0,12	0,11	0,18	0,51	1,00										
27	Security 3	3,78 (1,07)	0,21	0,22	0,23	0,20	0,21	0,12	0,15	0,21	0,15	0,18	0,17	0,18	0,05	0,09	0,07	0,08	0,07	0,07	0,08	0,12	0,08	0,09	0,10	0,13	0,53	0,49	1,00									
28	Security 4	3,40 (1,21)	0,12	0,14	0,12	0,08	0,17	0,06	0,11	0,19	0,17	0,23	0,19	0,22	-0,02^{ns}	0,06	-0,03^{ns}	-0,04*	-0,01^{ns}	0,00ns	-0,01^{ns}	0,13	0,08	0,09	0,14	0,07	0,63	0,46	0,62	1,00								
29	Security 5	3,38 (1,18)	0,14	0,14	0,14	0,14	0,17	0,02^{ns}	0,10	0,19	0,16	0,22	0,18	0,19	-0,03^{ns}	0,05	-0,03^{ns}	-0,04*	0,01^{ns}	0,00ns	-0,01^{ns}	0,09	0,06	0,09	0,12	0,02^{ns}	0,64	0,47	0,67	0,82	1,00							
30	Security 6	3,92 (1,10)	0,14	0,19	0,16	0,15	0,18	0,05	0,19	0,18	0,19	0,19	0,21	0,21	-0,04*	0,01^{ns}	-0,04*	-0,03^{ns}	-0,02^{ns}	-0,02^{ns}	0,02^{ns}	0,04^{ns}	0,06	0,06	0,11	0,07	0,61	0,54	0,61	0,70	0,71	1,00						
31	Lifestyle 1	4,54 (0,73)	0,22	0,23	0,14	0,15	0,22	0,08	0,27	0,15	0,23	0,19	0,33	0,24	0,06	0,010^{ns}	-0,04^{ns}	-0,01^{ns}	-0,08	0,00ns	0,17	0,10	0,21	0,21	0,15	0,20	0,21	0,29	0,21	0,16	0,16	0,25	1,00					
32	Lifestyle 2	4,58 (0,70)	0,13	0,14	0,05	0,10	0,17	0,01^{ns}	0,30	0,15	0,24	0,22	0,33	0,23	0,10	0,02^{ns}	-0,06	-0,05	-0,11	-0,01^{ns}	0,13	0,06	0,13	0,15	0,13	0,17	0,21	0,26	0,18	0,15	0,15	0,21	0,57	1,00				
33	Lifestyle 3	4,52 (0,74)	0,22	0,24	0,17	0,20	0,24	0,12	0,29	0,15	0,24	0,21	0,30	0,25	0,18	0,13	0,03^{ns}	0,04^{ns}	-0,01^{ns}	0,06	0,21	0,14	0,20	0,21	0,13	0,23	0,15	0,24	0,19	0,13	0,13	0,18	0,55	0,55	1,00			
34	Lifestyle 4	4,22 (0,84)	0,16	0,14	0,08	0,10	0,15	0,05	0,25	0,21	0,24	0,24	0,37	0,29	0,13	0,07	-0,01^{ns}	-0,00^{ns}	-0,03^{ns}	0,02^{ns}	0,10	0,10	0,18	0,19	0,20	0,14	0,19	0,21	0,17	0,18	0,18	0,20	0,52	0,58	0,54	1,00		
35	Lifestyle 5	4,45 (0,76)	0,15	0,19	0,13	0,15	0,19	0,09	0,26	0,18	0,26	0,21	0,35	0,28	0,13	0,08	-0,02^{ns}	0,01^{ns}	-0,04^{ns}	0,02ns	0,16	0,12	0,21	0,20	0,19	0,20	0,16	0,25	0,16	0,14	0,13	0,21	0,64	0,54	0,62	0,65	1,00	
36	Lifestyle 6	4,40 (0,79)	0,17	0,18	0,11	0,12	0,19	0,05	0,27	0,19	0,27	0,25	0,37	0,28	0,13	0,07	-0,04*	-0,01^{ns}	-0,04*	0,01^{ns}	0,13	0,09	0,20	0,22	0,17	0,19	0,20	0,26	0,19	0,17	0,17	0,21	0,61	0,60	0,57	0,71	0,73	1,00

Note: All correlation coefficients without marking are at least significant at the 5%-level. Coefficients markedt with * are significant at the 10% level, and coefficients marked with 'ns' are not significant. All coeffcicients rounded to two decimals.

Appendix 7: Empirical findings: Results of the CFA of work values

Table 49: Results from the confirmatory factor analysis of Achievement

Achievement			
Item		Factor loading	Variance explained
Achievement 1	... ein Erfolgsgefühl am Ende des Tages habe	0.78	0.61
Achievement 2	... mich erfolgreich fühle, wenn ich einen Job gut gemacht habe	0.75	0.56
Achievement 3	... ein Gefühl von Leistung am Ende des Tages verspüre	0.72	0.52
Scale Reliability	AVE		
0,79	0.57		

Note: Coefficients are standardized; $p < 0{,}001$ for all loadings

Items droped: ... weiß, dass ich wirklich etwas getan habe, wenn ich Feierabend mache. (Achievement 4)
... an meinen Ergebnissen sehen kann, dass ich einen guten Job gemacht habe. (Achievement 5)
... wichtige Projekte übertragen bekomme. (Achievement 6)

Table 50: Results from the confirmatory factor analysis of Coworkers

Coworkers			
Item		Factor loading	Variance explained
Coworkers 1	... gute Interaktion mit meinen Kollegen habe	0.67	0.45
Coworkers 2	... mich mit meinen Kollegen anfreunde	0.64	0.41
Coworkers 3	... mit Leuten zusammenarbeite, die ich mag	0.83	0.68
Coworkers 6	... mit Leuten zusammenarbeite, die mich mögen	0.79	0.63
Covariance			
error w_cow1 with w_cow3		-0.29	
error w_cow1 with w_cow6		-0.33	
Scale Reliability	AVE		
0.79	0.54		

Note: Coefficients are standardized; $p \leq 0{,}001$ for all loadings

Item droped: ... Hilfe von meinen Kollegen bekomme, um eine Aufgabe abzuschließen. (Coworkers 4)
... Kollegen habe, mit denen man einfach / entspannt arbeiten kann. (Coworkers 5)

Table 51: Results from the confirmatory factor analysis of Independence

Independence			
Item		Factor loading	Variance explained
Independence 2	… mein eigener Chef bin	0.57	0.33
Independence 3	... meine Arbeit auf die Art und Weise erledigen kann, wie ich es möchte	0.90	0.81
Independence 4	... entscheiden kann, wie ich meine Arbeit erledigt bekomme	0.80	0.65
Scale Reliability	AVE		
0.79	0.60		

Note: Coefficients are standardized; p ≤ 0,001 for all loadings

Items droped:… mir meine Stunden vollkommen frei einteilen kann – Hauptsache, ich bekomme meine Arbeit fertig (Independence 5)

... selbständig Entscheidungen treffen kann (Independence 1)

... Gebrauch von meinem eigenen Urteilsvermögen machen kann, um Probleme zu lösen (Independence 6)

Table 52: Results from the confirmatory factor analysis of Creativity

Creativity			
Item		Factor loading	Variance explained
Creativity 1	... neue Ideen ausprobieren kann	0.68	0.46
Creativity 2	… etwas komplett Neues kreieren kann	0.73	0.53
Creativity 3	… mir neue Wege einfallen lassen muss, Dinge zu tun	0.81	0.66
Creativity 4	… neue Ideen beitragen muss	0.82	0.68
Creativity 5	… neue Wege erfinden muss, meine Arbeit zu machen	0.89	0.80
Creativity 6	… neue Dinge oder Methoden entdecke	0.77	0.59
Covariance			
error w_crea1 with w_crea2		0.40	
error w_crea1 with w_crea5		-0.38	
error w_crea2 with w_crea3		0.10	
error w_crea2 with w_crea5		-0.29	
error w_crea3 with w_crea4		0.17	
Fit Indices			
χ^2 (4)= 10.783, p = 0.029, RMSEA = 0.031, CFI = 0.999, SRMR = 0.007			
Scale Reliability	AVE		
0.87	0.62		

Note: Coefficients are standardized; p ≤ 0,001 for all loadings

Table 53: Results from the confirmatory factor analysis of Security

Security			
Item		Factor loading	Variance explained
Security 1	… weiß, dass meine Position dauerhaft besteht	0.74	0.56
Security 2	… weitere Möglichkeiten habe, wenn meine aktuelle Stelle wegge	0.67	0.45
Security 3	… weiß, dass mein Beruf niemals überflüssig wird	0.73	0.53
Security 4	… niemals gekündigt werde	0.85	0.72
Security 5	… weiß, dass meine Stelle immer existent sein wird	0.87	0.75
Security 6	... immer sicher bin, einen Job zu haben	0.82	0.68
Covariance			
error w_sec2 with w_sec4		-0.28	
error w_sec2 with w_sec5		-0.29	
error w_sec3 with w_sec5		0.11	
error w_sec4 with w_sec5		0.31	
Fit Indices			
χ^2 (5) = 3.390, p > 0.05, RMSEA = 0.000, CFI = 1, SRMR = 0.004			
Scale Reliability	AVE		
0.88	0.61		

Note: Coefficients are standardized; p ≤ 0,001 for all loadings

Table 54: Results from the confirmatory factor analysis of Lifestyle

Lifestyle			
Item		Factor loading	Variance explained
Lifestyle 1	… außerhalb der Arbeit einen Lebensstil führe, der mir gefällt,	0.76	0.57
Lifestyle 2	... Zeit für meine Familie und/oder Freunde habe,	0.76	0.58
Lifestyle 3	… diejenige Person sein kann, die ich gern sein möchte,	0.72	0.52
Lifestyle 4	... ausreichend Zeit für Freizeitaktivitäten habe,	0.76	0.57
Lifestyle 5	… die Art von Leben führen kann, die ich genieße,	0.86	0.73
Lifestyle 6	… außerhalb der Arbeit Zeit zum Genießen haben kann,	0.79	0.63
Covariance			
error w_lif1 with w_lif4		-0.12	
error w_lif2 with w_lif5		-0.33	
error w_lif4 with w_lif6		0.27	
error w_lif5 with w_lif6		0.16	
Fit Indices			
χ^2 (5) = 3.074, p > 0.05, RMSEA = 0.000, CFI = 1, SRMR = 0.003			
Scale Reliability	AVE		
0.88	0.6		

Note: Coefficients are standardized; p ≤ 0,001 for all loadings

Appendix 8: Empirical findings: Results of the CFA of the complete measurement model

Table 55: Results from the CFA of the complete measurement model including employer attributes, Employer Attractiveness and work values

	Construct	Indicator	Standard. Value	Unstandard. value
Employer Attributes	**Employer Attractiveness**	Employer Attractiveness 1	0.89	1.00
		Employer Attractiveness 2	0.9	1.04
		Employer Attractiveness 4	0.69	0.94
		Employer Attractiveness 5	0.86	1.04
	Innovation & Flexibility	Innovation & Flexibility 2	0.71	1.00
		Innovation & Flexibility 3	0.76	1.07
		Innovation & Flexibility 4	0.8	1.25
		Innovation & Flexibility 5	0.78	1.18
		Innovation & Flexibility 6	0.73	1.05
	Autonomy	Autonomy 3	0.87	1.00
		Autonomy 4	0.85	1.01
		Autonomy 5	0.7	0.8
	Integration	Integration 3	0.8	1.00
		Integration 4	0.86	1.02
	Effort	Effort 3	0.73	1.00
		Effort 5	0.86	1.26
	Pressure to Produce	Pressure to Produce 3	0.77	1.00
		Pressure to Produce 4	0.8	1.04
Work Values	**Achievement**	Achievement 1	0.78	1.00
		Achievement 2	0.76	0.9,
		Achievement 3	0.72	0.98
	Coworkers	Coworkers 1	0.71	1.00
		Coworkers 2	0.63	1.15
		Coworkers 3	0.81	1.32
		Coworkers 6	0.81	1.35
	Creativity	Creativity 1	0.68	1.00
		Creativity 2	0.73	1.21
		Creativity 3	0.81	1.32
		Creativity 4	0.83	1.33
		Creativity 5	0.89	1.43
		Creativity 6	0.77	1.22
	Independence	Independence 2	0.59	1.00
		Independence 3	0.87	1.22
		Independence 4	0.83	1.16
	Security	Security 1	0.75	1.00
		Security 2	0.68	0.86
		Security 3	0.73	1.04
		Security 4	0.84	1.35
		Security 5	0.86	1.34
		Security 6	0.83	1.2

	Lifestyle	Lifestyle 1	0.76	1.00
		Lifestyle 2	0.75	0.95
		Lifestyle 3	0.73	0.97
		Lifestyle 4	0.76	1.15
		Lifestyle 5	0.84	1.16
		Lifestyle 6	0.8	1.13
Fit Indices				
χ^2 (904)= 2239.149 . χ^2/df = 2.48. p < 0.05. RMSEA = 0.028. CFI = 0.971 SRMR = 0.031				
Note: p < 0.001 for all coefficients				

Appendix 9: Empirical main findings: Results of the complete SEM

Table 56: SEM estimation (ML) of model including all employer attributes

	Estimate	95% CI
Adequacy for Work → Employer Attractiveness	0.37	[0.34; 0.41]
Innovation and flexibility → Employer Attractiveness	0.34	[0.23; 0.45]
Autonomy → Employer Attractiveness	0.07	[0.01; 0.13]
Integration → Employer Attractiveness	0.05	[-0.03; 0.14]
Effort → Employer Attractiveness	0.08	[0.01; 0.14]
Pressure to Produce → Employer Attractiveness	0.02	[-0.04; 0.08]
Balanced → Employer Attractiveness	0.00	[-0.10; 0.10]
Fun → Employer Attractiveness	-0.08	[-0.16; 0.02]
Solid Closed → Employer Attractiveness	0.01	[-0.08; 0.10]
Balanced → Adequacy for Work	1.07	[0.94; 1.21]
Fun → Adequacy for Work	0.52	[0.38; 0.65]
Solid Closed → Adequacy for Work	0.34	[0.20; 0.47]
Balanced → Innovation & Flexibility	0.46	[0.37; 0.55]
Fun → Innovation & Flexibility	0.40	[0.31; 0.49]
Solid Closed → Innovation & Flexibility	0.05	[-0.03; 0.14]
Balanced → Autonomy	0.66	[0.54; 0.77]
Fun → Autonomy	0.49	[0.38; 0.61]
Solid Closed → Autonomy	0.23	[0.11; 0.34]
Balanced → Integration	0.49	[0.39; 0.59]
Fun → Integration	0.43	[0.33; 0.53]
Solid Closed → Integration	0.02	[-0.08; 0.12]
Balanced → Effort	0.37	[0.27; 0.47]
Fun → Effort	0.15	[0.37; 0.55]
Solid Closed → Effort	0.10	[0.05; 0.24]
Balanced → Pressure to Produce	-0.33	[-0.44; -0.22]
Fun → Pressure to Produce	-0.32	[-0.44; -0.21]
Solid Closed → Pressure to Produce	-0.11	[-0.23; 0.00]
Model fit		
χ^2 (167)= 452.58, χ^2/df = 2.71, p < 0.05, RMSEA = 0.031, CFI = 0.99 SRMR = 0.031		

Note: Unstandardized estimates; 95% CI = 95% confidence interval

Table 57: SEM estimation (Bootstrapping) of the final model

					Estimate	95% CI
		Adequacy for Work	→	Employer Attractiveness	.37***	[.33; .41]
		Innovation and Flexib	→	Employer Attractiveness	.43***	[.33; .53]
		Autonomy	→	Employer Attractiveness	.05*	[.00; .11
		Effort	→	Employer Attractiveness	.08**	[.01; .15]
Balanced	→	Adequacy for Work			1.07***	[.94; .1.21]
Balanced	→	Innovation and Flexibility			.45***	[.37; .54]
Balanced	→	Autonomy			.66***	[.55; .78]
Balanced	→	Effort			.36***	[.26; .45]
Balanced		→		Employer Attractiveness	.00	[-.1; .1]
Fun	→	Adequacy for Work			.52***	[.38; .66]
Fun	→	Innovation and Flexibility			.38***	[.30; .47]
Fun	→	Autonomy			.50***	[.38; .61]
Fun	→	Effort			.14***	[.05; .24]
Fun		→		Employer Attractiveness	-.08	[-.18; .02]
Solid Closed	→	Adequacy for Work			.34***	[.20; .48]
Solid Closed	→	Innovation and Flexibility			.07	[-.02; .16]
Solid Closed	→	Autonomy			.23***	[.11; .35]
Solid Closed	→	Effort			.1*	[.00; .20]
Solid Closed		→		Employer Attractiveness	.00	[-.09; .09]

Note: Estimation based on bootstrapped (2000 replications) standard errors; 95% CI = 95% confidence interval

Table 58: SEM effects estimates for Employer Attractiveness

	Employer Attractiveness	
	Original Model	Alternative Model (Control variables as instruments)
age	.00	
region (north vs. west)	.04	
region (east vs. west)	'-.42*	
region (south vs. west)	'-.14***	
grade[a)]	-.01	
experience	-.01*	
familiarity with building (familiar vs. not familiar)	-.12	
gender (female vs. male)	'-.12***	
Balanced Type	-.02	-.02
Fun Type	'-.13**	'-.13**
Solid Closed Type	.02	.01
Adequacy for Work	'.35***	'.37***
Innovation & Flexibility	'.41***	'.42***
Autonomy	'.08***	'.07**
Effort	'.12***	'.08**

Note: n = 1424, unstandardized coefficients, *** for $p \leq 0.01$, ** for $p \leq 0.05$, * für $p \leq 0.1$

a) grade measured as 1 (representing 1,0-1,3) being the best grade to 9 (representing 3,8-4,0) being worst grade

Table 59: Wald chi-squared test of equality of coefficients of architectural types

Adequacy for Work

	Estimate (p)	**Wald statistics of equality of coefficients**	
		b1	***b2***
$b_{1:}$ Balanced Type → Adequacy for Work	1.07 (.00)		
$b_{2:}$ Fun Type → Adequacy for Work	.52 (.00)	χ^2(df) = 65.17(1) p = .00	
$b_{3:}$ Solid Closed Type → Adequacy for Work	.34 (.00)	χ^2(df) = 113.19(1) p = .00	χ^2(df) = 6.9(1) p = .01

Note: Unstandardized coefficients

Innovation & Flexibility

	Estimate (p)	**Wald statistics of equality of coefficients**	
		b4	***b5***
$b_{4:}$ Balanced Type → Innovation & Flexibility	.45 (.00)		
$b_{5:}$ Fun Type → Innovation & Flexibility	.38 (.00)	χ^2(df) = 2.63(1) p = .11	
$b_{6:}$ Solid Closed Type → Innovation & Flexibility	.07 (.08)	χ^2(df) = 74.61(1) p = .00	χ^2(df) = 51.11(1) p = .00

Note: Unstandardized coefficients

Autonomy

	Estimate (p)	**Wald statistics of equality of coefficients**	
		b7	***b8***
$b_{7:}$ Balanced Type → Autonomy	.66 (.00)		
$b_{8:}$ Fun Type → Autonomy	.50 (.00)	χ^2(df) = 8.01(1) p = .00	
$b_{9:}$ Solid Closed Type → Autonomy	.23 (.00)	χ^2(df) = 51.99(1) p = .00	χ^2(df) = 19.47(1) p = .00

Note: Unstandardized coefficients

Effort			
	Estimate (p)	**Wald statistics of equality of coefficients**	
		b10	***b11***
$b_{10:}$ Balanced Type → Effort	.36 (.00)		
$b_{11:}$ Fun Type → Effort	.14 (.00)	χ^2(df) = 21.16(1) p = .00	
$b_{12:}$ Solid Closed Type → Effort	.10 (.04)	χ^2(df) = 29.85(1) p = .00	χ^2(df) = 0,94(1) p = .33

Note: Unstandardized coefficients

Table 60: Wald chi-squared test of equality of coefficients of employer attributes

Employer Attributes				
	Estimate (p)	**Wald statistics of equality of coefficients**		
		b13	***b14***	***b15***
$b_{13:}$ Adequacy for Work → Employer Attractiveness	.37 (.00)			
$b_{14:}$ Innovation & Flexibility → Employer Attractiveness	.43 (.00)	χ^2(df) = 1.06(1) p = .30		
$b_{15:}$ Autonomy → Employer Attractiveness	.05 (.04)	χ^2(df) = 102.37(1) p = .00	χ^2(df) = 35.65(1) p = .00	
$b_{16:}$ Effort → Employer Attractiveness	.08 (.02)	χ^2(df) = 59.49(1) p = .00	χ^2(df) = 28.57(1) p = .00	χ^2(df) = .04(1) p = .55

Note: Unstandardized coefficients

Table 61: SEM direct, indirect and total effects estimates (differentiated model)

					Estimate	95% CI
		Adequacy for Work	→	Employer Attractiveness	.37***	[.34; .41]
		Innovation and Flexibility	→	Employer Attractiveness	.43***	[.34; .52]
		Autonomy	→	Employer Attractiveness	.05**	[.00; .11
		Effort	→	Employer Attractiveness	.08**	[.01; .14]
Balanced	→	Adequacy for Work			1.34***	[1.18; .1.50]
Balanced	→	Innovation and Flexibility			.60***	[.49; .70]
Balanced	→	Autonomy			.70***	[.56; .84]
Balanced	→	Effort			.49***	[.38; .61]
Balanced		→		Employer Attractiveness	-.03	[-.14; .09]
Balanced	→	Adequacy for Work	→	Employer Attractiveness	.50***	[.42; .58]
Balanced	→	Innovation and Flexibility	→	Employer Attractiveness	.26***	[.19; .32]
Balanced	→	Autonomy	→	Employer Attractiveness	.04**	[.00; .07]
Balanced	→	Effort	→	Employer Attractiveness	.04**	[.01; .07]
Balanced	**TOTAL EFFECT**			**Employer Attractiveness**	**.80*** **	**[.66; .95]**
Fun	→	Adequacy for Work			.79***	[.62; .95]
Fun	→	Innovation and Flexibility			.53***	[.42; .63]
Fun	→	Autonomy			.53***	[.39; .68]
Fun	→	Effort			.28**	[.17; .39]
Fun		→		Employer Attractiveness	-.10*	[-.22; .01]
Fun	→	Adequacy for Work	→	Employer Attractiveness	.29***	[.23; .36]
Fun	→	Innovation and Flexibility	→	Employer Attractiveness	.23***	[.16; .29]
Fun	→	Autonomy	→	Employer Attractiveness	.03**	[.00; .06]
Fun	→	Effort	→	Employer Attractiveness	.02**	[.00; .04]
Fun	**TOTAL EFFECT**			**Employer Attractiveness**	**.47*** **	**[.33; .61]**
Solid Closed Glass	→	Adequacy for Work			.94***	[.75; 1.13]
Solid Closed Glass	→	Innovation and Flexibility			.35***	[.23; .47]
Solid Closed Glass	→	Autonomy			.31***	[.15; .48]
Solid Closed Glass	→	Effort			.38***	[.25; .51]

Solid Closed Glass		→		Employer Attractiveness	.01	[-.12; .14]
Solid Closed Glass	→	Adequacy for Work	→	Employer Attractiveness	.35***	[.27; .43]
Solid Closed Glass	→	Innovation and Flexibility	→	Employer Attractiveness	.15***	[.09; .21]
Solid Closed Glass	→	Autonomy	→	Employer Attractiveness	.02*	[.00; .04]
Solid Closed Glass	→	Effort	→	Employer Attractiveness	.03**	[.00; .06]
Solid Closed Glass	**TOTAL EFFECT**			**Employer Attractiveness**	**.55*** **	**[.39; .72]**
Solid Closed Concrete	→	Adequacy for Work			.28***	[.09; .47]
Solid Closed Concrete	→	Innovation and Flexibility			.09	[-.03; .21]
Solid Closed Concrete	→	Autonomy			.23***	[.07; .4]
Solid Closed Concrete	→	Effort			.09	[-.04; .22]
Solid Closed Concrete		→		Employer Attractiveness	-.06	[-.18; .07]
Solid Closed Concrete	→	Adequacy for Work	→	Employer Attractiveness	.10***	[.03; .18]
Solid Closed Concrete	→	Innovation and Flexibility	→	Employer Attractiveness	.04	[-.01; .09]
Solid Closed Concrete	→	Autonomy	→	Employer Attractiveness	.01	[.00; .03]
Solid Closed Concrete	→	Effort	→	Employer Attractiveness	.01	[.00; .02]
Solid Closed Concrete	**TOTAL EFFECT**			**Employer Attractiveness**	**.11*** **	**[.06; .27]**
Solid Open Glass	→	Adequacy for Work			.54***	[.35; .73]
Solid Open Glass	→	Innovation and Flexibility			.29***	[.17; .41]
Solid Open Glass	→	Autonomy			.08	[-.09; .25]
Solid Open Glass	→	Effort			.28***	[.15; .41]
Solid Open Glass		→		Employer Attractiveness	-.05	[-.18; .08]

Solid Open Glass	→	Adequacy for Work	→	Employer Attractiveness	.2***	[.13; .27]
Solid Open Glass	→	Innovation and Flexibility	→	Employer Attractiveness	.12***	[.07; .18]
Solid Open Glass	→	Autonomy	→	Employer Attractiveness	.00	[.00; .01]
Solid Open Glass	→	Effort	→	Employer Attractiveness	.02**	[.00; .04]
Solid Open Glass	**TOTAL EFFECT**			**Employer Attractiveness**	**.30*** **	**[.14; .47]**

Note: Unstandardized estimates; 95% CI = 95% confidence interval

Indirect effects are estimated using nonlinear comparison (delta method standard errors)

Table 62: Non-linear comparison of equality of coefficients (differentiated model) on Employer Attractiveness

		Non linear comparison - equality of coefficients			
	Estimate (p)	**b_1**	**b_2**	**b_3**	**b_4**
b_1: Balanced → Employer Attractiveness	0.80 (.00)				
b_2: Fun → Employer Attractiveness	0.47 (.00)	Δb = .34 p = .00			
b_3: Solid Closed Glass → Employer Attractiveness	0.55 (.00)	Δb = .25 p = .00	Δb = -.09 p = .23		
b_4: Solid Closed Concrete → Employer Attractiveness	0.11 (.00)	Δb = .70 p = .00	Δb = .36 p = .00	Δb = .45 p = .00	
b_5: Solid Open Glass → Employer Attractiveness	0.30 (.00)	Δb = .50 p = .00	Δb = .16 p = .02	Δb = .25 p = .00	Δb = -.20 p = .02

Note: Total effects are estimated using nonlinear comparison (delta method standard errors)
Reference category: Solid Open Concrete

Table 63: Overview of the results of the tests of hypotheses

No.	Hypothesis	
H1	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Adequacy for Work**, such that Balanced Architecture increases the perceived Adequacy for Work of the employer which in turn increases perceived Employer Attractiveness.	supported
H2	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Adequacy for Work**, such that Fun Architecture increases the perceived Adequacy for Work of the employer which in turn increases perceived Employer Attractiveness.	supported
H3	The relationship between **Solid Closed Architecture** and Employer Attractiveness is mediated by **Adequacy for Work**, such that Solid Closed Architecture increases the perceived Adequacy for Work of the employer which in turn increases perceived Employer Attractiveness.	supported
H4	Balanced Architecture has a stronger positive effect on **Adequacy for Work** compared to Fun Architecture, the latter one having a stronger positive effect on Adequacy for Work compared to Solid Closed Architecture, having a stronger positive effect than Solid Open Architecture.	supported
H5	H5: The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Innovation and Flexibility**, such that Balanced Architecture increases the perceived Innovation and Flexibility of the employer which in turn increases perceived Employer Attractiveness.	supported
H6	H6: The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Innovation and Flexibility**, such that Fun Architecture increases the perceived Innovation and Flexibility of the employer which in turn increases perceived Employer Attractiveness.	supported
H7	H7: Fun Architecture has a stronger positive effect on **Innovation & Flexibility** compared to Balanced Architecture.	not supported
	Note: The relationship between Solid Closed Architecture and Employer Attractiveness is not expected to be mediated by Innovation and Flexibility, because Solid Closed Architecture is not expected to influence the perceived Innovation and Flexibility and thus has no influence on perceived Employer Attractiveness.	
H8	H8: The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Autonomy,** such that Balanced Architecture increases the perceived Autonomy granted by an employer which in turn increases perceived Employer Attractiveness.	supported
H9	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Autonomy**, such that Fun Architecture increases the perceived Autonomy granted by an employer which in turn increases perceived Employer Attractiveness.	supported
H10	The relationship between **Solid Closed Architecture** and Employer Attractiveness is mediated by **Autonomy,** such that Solid Closed Architecture increases the perceived Autonomy granted by an employer which in turn increases perceived Employer Attractiveness.	supported
H11	Fun Architecture has a stronger positive effect on **Autonomy** compared to Balanced Architecture, the latter one having a stronger positive effect on Autonomy compared to Solid Closed Architecture, having a stronger positive effect than Solid Open Architecture.	not supported

No.	Hypothesis	
H12	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Effort,** such that Balanced Architecture increases the perceived Effort made by employees working for the employer which in turn increases perceived Employer Attractiveness.	supported
H13	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Effort,** such that Fun Architecture increases the perceived Effort made by employees working for the employer which in turn increases perceived Employer Attractiveness.	supported
H14	Fun Architecture has a stronger positive effect on **Effort** compared to Balanced Architecture.	not supported
	Note: The relationship between Solid Closed Architecture and Employer Attractiveness is not expected to be mediated by Effort, because Solid Closed Architecture is not expected to influence the perceived Effort and thus has no influence on perceived Employer Attractiveness.	
H15	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Pressure to Produce**, such that Balanced Architecture reduces the perceived Pressure to Produce which in turn increases perceived Employer Attractiveness.	partly supported
H16	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Pressure to Produce**, such that Fun Architecture reduces the perceived Pressure to Produce which in turn increases perceived Employer Attractiveness.	partly supported
H17	The relationship between **Solid Closed Architecture** and Employer Attractiveness is mediated by **Pressure to Produce**, such that Solid Closed Architecture reduces the perceived Pressure to Produce which in turn increases perceived Employer Attractiveness.	partly supported
H18	Solid Closed Architecture has a stronger negative effect on **Pressure to Produce** compared to Balanced Architecture, the latter one having a stronger negative effect on Pressure to Produce compared to Fun Architecture, having a stronger negative effect than Solid Open Architecture.	not supported
H19	The relationship between **Balanced Architecture** and Employer Attractiveness is mediated by **Integration,** such that Balanced Architecture increases the perceived Integration which in turn increases perceived Employer Attractiveness.	partly supported
H20	The relationship between **Fun Architecture** and Employer Attractiveness is mediated by **Integration,** such that Fun Architecture increases the perceived Integration which in turn increases perceived Employer Attractiveness.	partly supported
H21	Fun Architecture and Balanced Architecture have a similar positive effect on **Integration.**	supported
	Note: The relationship between Solid Closed Architecture and Employer Attractiveness is not expected to be mediated by Integration, because Solid Closed Architecture is not expected to influence the perceived Integration and thus has no influence on perceived Employer Attractiveness.	

H22	The mediated relationship between the architectural types and Employer Attractiveness is moderated by the individual **work values**	
	a) achievement,	supported
	b) collaboration,	not supported
	c) creativity,	supported
	d) independency in work,	not supported
	e) security,	not supported
	f) work-life balance	not supported
	of job seekers, such that the work values have an influence on the relation between perceived employer attributes and Employer Attractiveness.	
H23	The mediated relationship between the architectural types and Employer Attractiveness is moderated by **status (experience)**, such that status has an influence on the relation between the architectural styles and the perceived employer attributes as well as on the relation between the perceived employer attributes and Employer Attractiveness.	supported
H24	The mediated relationship between the architectural types and Employer Attractiveness is moderated by **gender,** such that gender has an influence on the relation between the architectural styles and the perceived employer attributes as well as on the relation between the perceived employer attributes and Employer Attractiveness.	supported
H25	The mediated relationship between the architectural types and Employer Attractiveness is moderated by **performance level**, such that performance level has an influence on the relation between the architectural styles and the perceived employer attributes as well as on the relation between the perceived employer attributes and Employer Attractiveness.	supported

Appendix 10: List of picture credits

- **Architecture of Allianz Unterföhring (Germany):**
  - All pictures taken from: http://www.baunetz.de/meldungen/Meldungen-Buerogebaeude_von_Auer_Weber_4711925.html
    Photographer: Aldo Amoretti (www.aldoamoretti.com/)

- **Architecture of Coca Cola Toronto (Canada)**
  - Building vector: https://de.freepik.com/fotos-vektoren-kostenlos/stadt" Stadt Vektor created by new7ducks - de.freepik.com
  - Picture of building: https://www.bisnow.com/toronto/news/commercial-real-estate/Coca-Colas-New-Head-Office-34745
  - Picture of interaction area: https://officesnapshots.com/2014/06/02/coca-cola-toronto-office-design-figure3/
    Photographer: Steve Tsai (www.stevetsai.photography)
  - Picture of workplaces: https://officesnapshots.com/2014/06/02/coca-cola-toronto-office-design-figure3/
    Photographer: Steve Tsai (www.stevetsai.photography)

- **Architecture of Google in Mountain View (USA)**
  - Picture of building: https://si.wsj.net/public/resources/images/SF-AB030_VALLEY_G_20110727135458.jpg
  - Picture of interaction areas: https://storage.googleapis.com/gweb-uniblog-publish-prod/images/Google_Malaysia_office.max-2800x2800.jpg
  - Picture of workplaces: https://storage.googleapis.com/gweb-uniblog-publish-prod/images/D6-GPLUS-1-12860.max-2800x2800.jpg

- **Architecture of Télefonica in London (UK)**
  - Building vector: https://de.freepik.com/fotos-vektoren-kostenlos/stadt" Stadt Vektor created by new7ducks - de.freepik.com
  - Picture of the building: http://www.pipesolutions.co.uk/projects/commercial-communications/quadrant-3-glasshouse-street-london
  - Pictures of the interaction areas:
    https://de.foursquare.com/v/telefónica/4fd26b0ee4b0aa9a71c2abe4?openPhotoId=524148a911d2653394ea80b8
    https://de.foursquare.com/v/telef%C3%B3nica/4fd26b0ee4b0aa9a71c2abe4?openPhotoId=52a5a59f11d266fe0437cca2
  - Picture of the workplaces:
    https://de.foursquare.com/v/telefónica/4fd26b0ee4b0aa9a71c2abe4?openPhotoId=52b95e7f498ea2f0286cb924

- **Architecture of American Express (New York)**
  - Picture of the Building:
    https://commons.wikimedia.org/wiki/File:3_World_Financial_Center.jpg; Source: Aude
  - Picture of the interaction area: https://www.glassdoor.co.uk/Photos/American-Express-Office-Photos-E35_P3.htm
  - Picture of the workplaces:
    http://www.wsj.com/articles/SB10001424052702304818404577349783161465976

- Building vector: https://de.freepik.com/fotos-vektoren-kostenlos/stadt" Stadt Vektor created by new7ducks - de.freepik.com

- **Scenario baseline information of all scenarios**
  - Picture with sticky notes: https://stock.adobe.com/de/images/post-its-et-pinces-sur-corde-a-linge-ficelle-vegetale/100263841
    © Unclesam/stock.adobe.com

- **Scenario for the Balanced Type, alternative I**
  - Building: https://de.depositphotos.com/13925056/stock-photo-cityscape-office-buildings.html?sst=0&sqc=17&sqm=37&sq=2yx5gj
    @ megastocker /Depositphotos.com
  - Workplace: https://stock.adobe.com/de/images/modernes-buro-modern-office/59531145
    © Christian Hillebrand/stock.adobe.com
  - Interaction Area: http://www.alamy.de/stockfoto-buroeinrichtung-55977455.html
    © photoWORKS / Alamy Stock Foto

- **Scenario for the Balanced Type, alternative II**
  - Building: https://de.depositphotos.com/4458991/stock-photo-office-building.html
    @ csakisti /Depositphotos.com
  - Workplace: https://ringkarree.de/gebaeude/buerowelten.html
    Photographer: Eberhard Franke
  - Interaction Area: http://www.istockphoto.com/de/foto/corporate-cafeteria-gm476062821-26357579
    @ iStock.com/ MiguelMalo

- **Scenario for the Solid Open Type, alternative I**
  - Building: https://www.istockphoto.com/de/foto/deutsche-bank-towers-in-ftrankfurt-deutschland-gm155473227-18060854
    @ iStock.com/PatrickPoendl
  - Workplace: http://www.istockphoto.com/de/foto/leeres-b%C3%BCro-gm148414918-19628180
    @ iStock.com/August0802
  - Interaction Area: https://ringkarree.de/gebaeude/buerowelten.html
    Photographer: Eberhard Franke

- **Scenario for the Solid Open Type, alternative II**
  - Building: https://de.depositphotos.com/35655211/stock-photo-boston-massachusetts.html
    @ Tupungato /Depositphotos.com
  - Workplace: http://www.istockphoto.com/de/foto/arbeitspl%C3%A4tze-gm537893537-57940358
    @ iStock.com/shekhardino
  - Interaction Area: http://www.alamy.de/stockfoto-buro-kuche-56836763.html
    © photoWORKS / Alamy Stock Foto

- **Scenario for the Solid Closed Type, alternative I**
  - Building: https://www.istockphoto.com/de/foto/deutsche-bank-towers-in-ftrankfurt-deutschland-gm155473227-18060854

@ iStock.com/PatrickPoendl
- Workplace: https://www.ceka.de/referenzen/individual-space-office.html
- Interaction Area: https://ringkarree.de/gebaeude/buerowelten.html
  Photographer: Eberhard Franke

- **Scenario for the Solid Closed Type, alternative II**
  - Building: https://de.depositphotos.com/35655211/stock-photo-boston-massachusetts.html
    @ Tupungato /Depositphotos.com
  - Workplace: https://ringkarree.de/gebaeude/buerowelten.html
    Photographer: Eberhard Franke
  - Interaction Area: http://www.alamy.de/stockfoto-buro-kuche-56836763.html
    © photoWORKS / Alamy Stock Foto

- **Scenario for the Fun Type, alternative I**
  - Building: http://www.istockphoto.com/de/foto/university-geb%C3%A4ude-auf-dem-campus-oder-modernen-b%C3%BCro-gm453964663-26031806
    @ iStock.com/fstop123
  - Workplace: http://www.istockphoto.com/de/foto/modernen-hellen-b%C3%BCro-woith-leer-arbeitspl%C3%A4tze-gm468207836-61559592
    @ iStock.com/JohnnyGreig
  - Interaction Area: http://www.martinezrudolph.com/en/portfolio/ironhide-games-office/
    Photographer: Santiago Cerini
- **Scenario for the Fun Type, alternative II**
  - Building: https://de.depositphotos.com/3479562/stock-photo-modern-office-buildings.html
    @ Photocreo /Depositphotos.com
  - Workplace: https://www.istockphoto.com/de/foto/moderne-b%C3%BCro-arbeitsplatz-gm177537159-21420562
    @ iStock.com/shekhardino
  - https://www.inc.com/articles/201110/coolest-offices-livingsocial-by-otj-architects.html
    Image courtesy of OTJ Architects

Statutory declaration

I hereby affirm that I, Katharina Radermacher, have authored this thesis independently, that I have not used other than the declared sources, and that I have explicitly marked all material which has been quoted either literally or by content from the used sources.
This thesis has not been submitted or published either in whole or part, for a degree at this or any other university or institution.

Paderborn, 14.06.2019