RESISTANCE TO IT-INDUCED CHANGE

THEORETICAL FOUNDATION AND EMPIRICAL EVIDENCE

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Including a Foreword by Prof. Dr. Tim Weitzel

Dedicated to my parents

Gisela and Thilo

FOREWORD BY PROF. DR. TIM WEITZEL

Why do people reject technologies? In this PhD thesis, Dr. Laumer gives a variety of compelling theoretical and expertly evaluated empirical answers that substantially extend existing theories. The proposed reasons why individuals oppose IT-induced change include personality traits (some people just hate change) and workflow changes (Information Systems are often undeservedly blamed when individuals resist, in fact, changes to their working routines).

The work of Sven Laumer responds to a call for going back to the theoretical roots of IT adoption research for substantially improving our understanding of why people use technology. This research agenda was voiced by a variety of renowned adoption researchers in an issue of the Journal of the Association of Information Systems (JAIS, 2007) solely dedicated to discussing Quo vadis, TAM? The special issue reflected on two decades of adoption research based on models like TAM (technology acceptance model) and concluded that it is time to make a next and essential step beyond TAM. Following Benbasat und Barki, Sven Laumer develops a theory of IT (non-)usage that draws on psycho-logical theories like the Theory of Reasoned Action and the Theory of Planned Behavior. At the same time, he fundamentally extends these approaches by also incorporating personality traits (such as a dispositional resistance to change) or a technology embeddedness perspective to offer new views on IT (non-)adoption.

At the core of his work, Dr. Laumer reflects that there is an underresearched theoretical difference between IT usage and IT resistance beyond mere math-ematical sign. Accordingly, the rich literature on IT adoption fails to sufficiently explain non-adoption. The importance of understanding resistance behavior can hardly be underestimated. Too many IT implementation and organizational change projects in firms still fail as the underling Information Systems are inad-equately used. Better understanding why individuals resist IT induced change is the most important step to developing interventions to overcome this problem and hence a relevant challenge for academia and practice alike. And indeed, as the thesis shows, comparing different usage and non-usage models reveals that low usage does not equal high resistance or vice versa. In addition to theoretical explanations and expertly gathered empirical data for validation, the thesis also empirically discloses the variety of shapes that user resistance can take. These range from actively voiced opposition over badmouthing the change initiative to increased employee turnover intention or even number of sick days.

While F. Nietzsche warned that "many are stubborn in pursuit of the path they have chosen, few in pursuit of the goal", in his thesis Sven Laumer took some theoretical paths not taken and fundamentally contributes not only to the IT adoption and change management literature but also the young literature on Human Resources Information Systems (HRIS) and the mature body of re-search on Computer and People research (CPR). The thesis is a definite must read for everybody interested in these areas.

Bamberg, June 2012

Prof. Dr. Tim Weitzel

ACKNOWLEDGEMENT

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RESISTANCE TO IT-INDUCED CHANGE

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1 INTRODUCTION

In the last two decades, Information Systems (IS) researchers especially in the field of technology acceptance have in numerous studies investigated the intentions behind an individual's use of technology (Hirschheim, 2007; Williams et al., 2009). The most popular model applied across a wide range of studies is the Technology Acceptance Model (TAM), which predicts that individual usage can be explained by an individual's intention to use a specific information system driven by the perceived ease of use and the perceived usefulness of that system (Davis, 1989; Davis et al., 1989). However, the authors of a special issue of the Journal of the Association for Information Systems (2007) argue that technology acceptance research has reached a point where "*TAM has fulfilled its original purpose and that it is time researchers move outside its limited confines*" (Benbasat and Barki, 2007, p. 216). Furthermore the authors recommend that researchers "*examine different antecedents and different consequences in order to reach a more comprehensive understanding of what influences adoption and acceptance in different IT use contexts*" (Benbasat and Barki, 2007, p. 216). At the same time, Venkatesh (2006) outlines future directions for technology acceptance research. He calls for research investigating the impacts of complex technology introductions in organizations, acknowledging that user resistance is one of the pitfalls of system implementations in organizations (Gibson, 2003) and that an intention to resist an information system is not just the other side of an intention to use it (Cenfetelli, 2004). Venkatesh (2006) points out that "*little research has focused on the individual employee and studied (…) the factors influencing resistance*" (Venkatesh, 2006, p. 501). Nonetheless, IS research concludes that there is still no unified definition of resistance regarding the implementation and use of new information technology (Vithessonthi, 2007). There are only a few theories and models dealing with user resistance from an IS perspective (Kim and Kankanhalli, 2009; Lapointe and Rivard, 2005). According to Hirschheim and Newman (1988), this is mainly due to the various causes and diverse forms resistance can take (Hirschheim and Newman, 1988). The signs of resistance can be shown by the most varied groups of personnel – such as shop-floor workers, technical staff, management, and boards of directors (Dickson and Simmons, 1970) – and the resultant modes of behavior can differ to a very large extent (Dickson and Simmons, 1970; Ferneley and Sobreperez, 2006).

Besides these general calls by academics for research for an extended understanding of user resistance, it can also be observed while investigating the implementation of electronic human resources management (E-HRM) and especially electronic recruiting (e-recruiting) that human resources (HR) personnel's willingness to accept technologies is reluctant. For example, one HR manager responsible for the recruiting process puts it this way:

"We are HR and HR is a people business, and for a people business I do not want to work with IT."[1]

In addition, project managers report that for several projects when they begin to implement a new information system or IT innovation within their HR departments a large number of their employees perceive the new systems negatively rather than positively and show user resistance behavior. One HR manager states:

"With every system implementation some people perceive new things badly and behave in a negative manner. When we start to communicate that we intend to implement an IT innovation or a new information system these individuals attract attention because of their rather negative perceptions of the new technology even before they have started to use it. However, in contrast to what one might assume, these employees are not always the older ones. Complaining and resisting employees come from different hierarchy levels, have different ages and educational backgrounds as well as different job tenure levels."

Consequently, research on E-HRM identifies user resistance as an important aspect (Lippert and Swiercz, 2005) and the management of HR personnel's resistance as one of the major challenges accompanying the implementation of E-HRM (Bondarouk and Ruël, 2009; Pant and Chatterjee, 2008). HR personnel might find ways to work around system constraints in unexpected ways (Boudreau and Robey, 2005) or avoid using the system at all (Dery et al., 2006). Understanding which determinants affect HR personnel resistance and how this resistance hinders organizations from realizing the full potential of E-HRM is important for enabling and improving the strategic impact and success of E-HRM in organizations.

In addition to the described challenges of implementing E-HRM successfully, the example of a system implementation at a financial service provider highlights that understanding negative user reactions to new information systems is important for both theory and practice (Laumer et al., 2012c). The case study provides evidence that negative perceptions of a new financial information system by employees lead to negative consequences. The results show a decrease in organizational commitment and overall job satisfaction as well as an increased turnover intention of individuals and a higher number of employee sick days. One project manager reports an increase in the number of people who indicated that they are stressed by work while the chief information officer (CIO) of the organization points out that:

"We got the impression that there was a strong storm blowing through the organization making everybody very unhappy."

Analyzing the implementation consequences it becomes obvious that paying less attention to the change process and neglecting the impact of the perceptions of employees causes several negative work- and health-related consequences. The example reveals that change management related issues can explain these results, as on the one side employees indicate that they feel less informed about the change and that the information provided was inadequate. However, on the other side a misunderstanding of employees' perceptions by project management was one of the major reasons for the failed implementation of the new financial information system (Laumer et al., 2012c).

Problems of this kind are acknowledged by the CIOs of top American companies for IT implementation in general. The management of change and the resistance connected to it is rated as the sixth most important challenge for CIOs in a survey of the Society for Information Management (Luftman et al., 2009). Moreover, little IS research opens the black box of user

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[1] The dissertation is based on several observations of information system implementations in the HR context. Over a period of more than four years the author has conducted case studies to understand the impact of information technology on the work routines of HR personnel. The examples used in the introductory remarks are derived from more than 50 interviews with HR experts or HR personnel of several large- and medium-size organizations (see section 3.1).

resistance (e.g., Bhattacherjee and Hikmet, 2007; Cenfetelli, 2004; Kim and Kankanhalli, 2009; Klaus and Blanton, 2010; Klaus et al., 2010; Lapointe and Rivard, 2005; Venkatesh and Brown, 2001) and focus on implementation problems of large-scale information systems (Buhl and Meier, 2011). Consequently, the objective of this dissertation is to provide valuable new insights of user resistance to IT-induced organizational change. IT-induced change can be defined as an IT-enabled change of organizational elements (Gibson, 2003) such as data, processes, working routines, structure, culture, etc. (Volkoff et al., 2007). Hence, IT-induced change describes changes caused by the implementation of an information system, and which have an impact on individual tasks, working routines, and organizational processes (Volkoff et al., 2007).

1.1 RESEARCH QUESTION

The general purpose of this dissertation is to provide theoretical foundation and empirical evidence to explain why individuals develop an intention to resist using a particular newly implemented information system. Therefore, the thesis heeds the calls of IS (e.g. Benbasat and Barki, 2007; Venkatesh, 2006) and E-HRM research (e.g. Lippert and Swiercz, 2005) to extend the current understanding of user resistance and to explain the phenomena described above.

As outlined in the opening remarks, technology acceptance research has focused mainly on explaining the intention to use and why an individual starts to use a particular technology in order to then explain acceptance of or resistance to a new information system in organizations (Williams et al., 2009). However, it assumes that user resistance is the opposite of acceptance and in so doing consequently neglects other behavioral intentions of individuals such as the intention to resist (Cenfetelli, 2004). Why an individual does not accept, or resists, a particular technology cannot be explained appropriately by these earlier research approaches (Klaus and Blanton, 2010; Klaus et al., 2010). Hence, as illustrated by Figure 1 the focus of the dissertation is to explain why an employee confronted with a new information system (non-user) develops an intention to resist and can consequently be classified as a resistant non-user. Using this approach will help explain in more detail the phenomena described in the opening remarks regarding user resistance. Based on the above discussion the main research question of this dissertation is as follows:

How can user resistance be explained during the implementation of an information system in organizations?
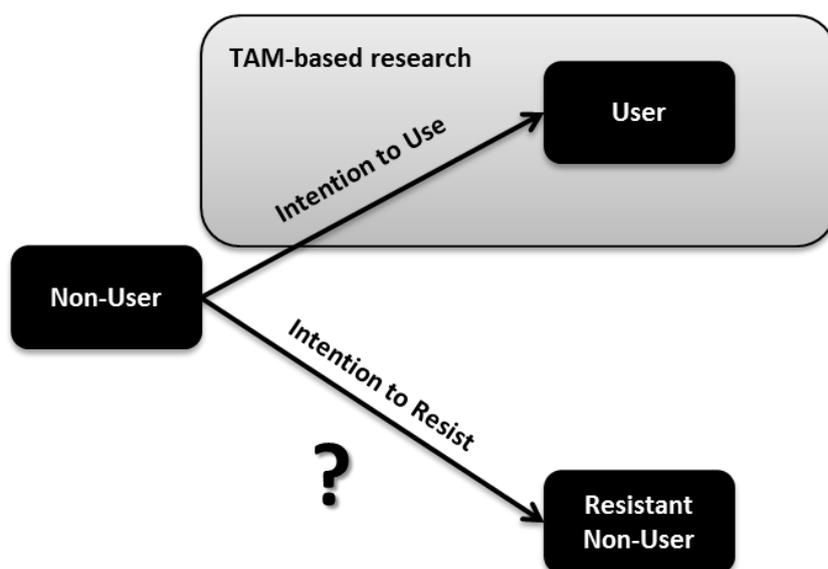
Figure 1: Research Question

1.2 STRUCTURE OF THE THESIS

The structure of the dissertation reflects the different research approaches that are applied to answer the research question presented above. The first chapter reveals prior research approaches investigating user resistance to illustrate current understanding and to identify potential research gaps. The second chapter investigates E-HRM in organizations in terms of potential IT-based measures and respective human resources information systems and illustrates the research domain of the dissertation. Within the third chapter a model of employees' resistance to IT-induced organizational change is developed to explain user resistance during the implementation of an information system in organizations. The proposed model will be validated in chapter four and implications for theory and practice will be outlined in this step as well. The overall structure is illustrated by Figure 2 and discussed in more detail in the following subsections.
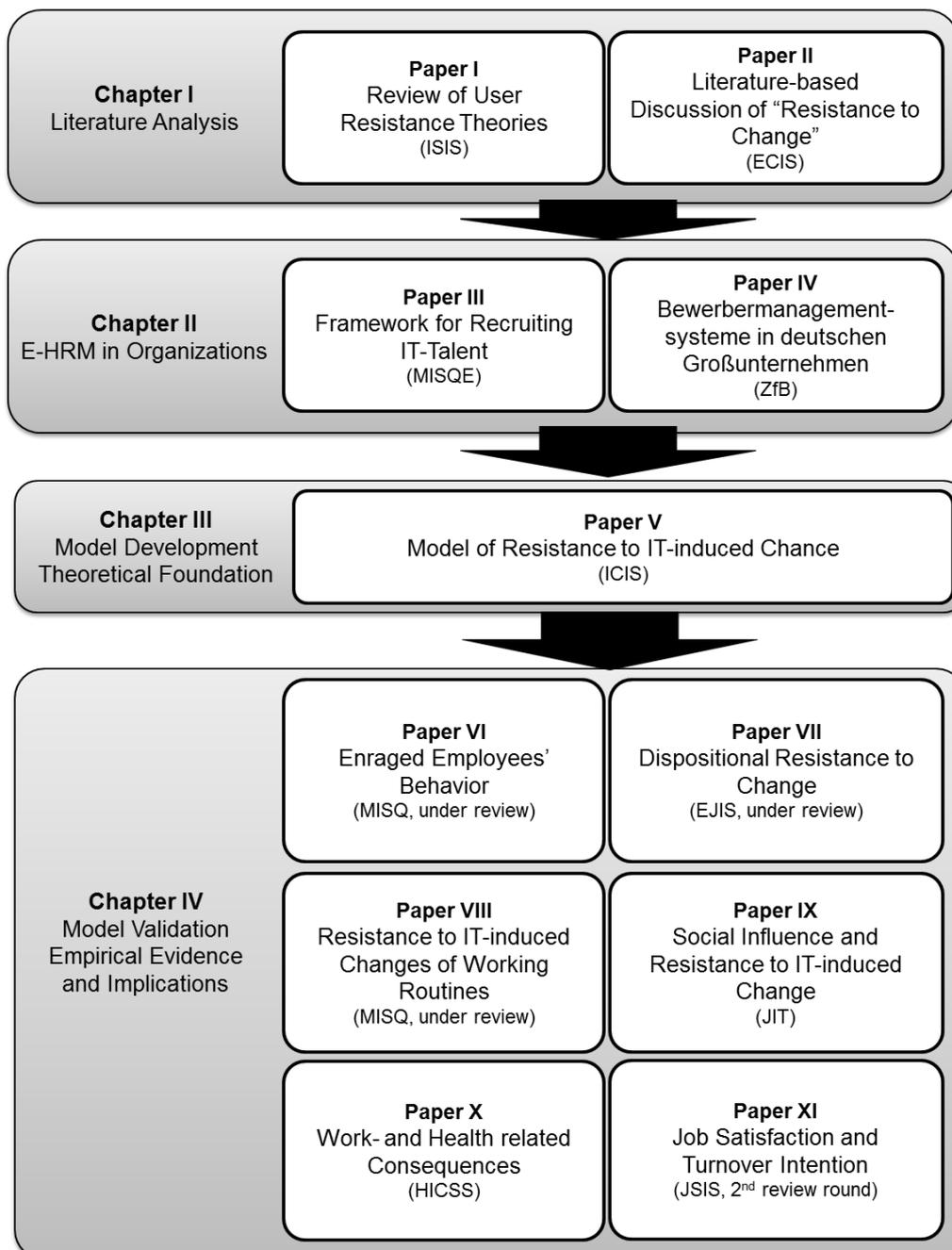
Figure 2: Structure of Thesis

1.2.1 Literature Analysis

The first chapter of the dissertation is a literature analysis of relevant literature from IS and managerial psychology research in order to provide an overview of the current understanding of resistance to IT-induced change. In this context, Lapointe and Rivard (2005) concludes that most IS research studies treat resistance as a topic to be avoided and can cite only four instances of research that propose theoretical explanations of how and why resistance occurs (see Joshi, 1991; Marakas and Hornik, 1996; Markus, 1983; Martinko et al., 1996). Therefore, the objective here is to present a comprehensive overview of different understandings of user resistance by identifying research papers in the major journals of information systems, organizational science, and managerial psychology. Based on the identified literature a model for explaining user resistance to IT-induced change will be developed.

1.2.2 E-HRM in Organizations

The second chapter of the thesis investigates E-HRM in organizations. Therefore, it provides an overview of different measures used in the recruiting process and analyzes the use of applicant tracking systems as part of an organizational recruiting system to support the respective processes. The results illustrate the underlying research domain of the dissertation and that E-HRM implementations in organizations are appropriate for investigating user resistance.

1.2.3 Model Development – Theoretical Foundation

The third chapter proposes a *Model of Resistance to IT-induced Organizational Change* (MRTOC) to explain drivers of user resistance and user resistance behaviors. The model integrates different approaches to explain resistance such as those identified in chapter 1 including personality traits, attitudes towards change and resistance as a behavior, to explain individual reactions to IT-induced change in organizations. The model incorporates technology acceptance, organization science, and managerial-psychology research to enable an integrative understanding of individual resistance to IT-induced change.

1.2.4 Model Validation – Empirical Evidence and Implications

The proposed *Model of Resistance to IT-induced Organizational Change* (MRTOC) will be validated in the fourth chapter with studies on IT innovations in recruiting, as chapter 2 concludes that HR departments are appropriate for investigating user resistance. The results of the model validation enable a discussion of resistance to IT-induced change from different perspectives like groups of personnel, drivers of user resistance and different modes of behavior. Furthermore, implications for theory and practice are discussed.

The introductory paper of the dissertation provides the following summary of the theoretical foundations of the thesis, the research methodologies conducted, the main findings of each article in the thesis and while highlighting the contribution to theory and practice.

2 THEORETICAL FOUNDATIONS

The dissertation is based on several theoretical research streams. First of all, the underlying theories for both technology acceptance and user resistance research are provided by social psychology. Therefore, in the first sub-section the underlying Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980) and its extension the Theory of Planned Behavior (TPB) (Ajzen, 1991a) are introduced (see 2.1). Afterwards, technology acceptance (see 2.2) and user resistance (see 2.3) research will be discussed. Moreover, organizational science provides several

explanations for the role of technologies in organizations which will be introduced at the end of this section (see 2.4).

2.1 THEORY OF PLANNED BEHAVIOR

The Theory of Reasoned Action (TRA) (Ajzen and Fishbein, 1980) and its extension the Theory of Planned Behavior (TPB) (Ajzen, 1991a), are two of the most popular social psychology theories used to explain individual intentions and behavior. These theories were adopted extensively by IS research to explain technology acceptance (Williams et al., 2009) and form the underlying theoretical assumptions of this research stream.

The majority of these approaches have their origin in the Theory of Reasoned Action and the Theory of Planned Behavior (Fishbein and Ajzen, 1975; Ajzen, 1985). The objective of TRA and TPB is to explain the determinants that predict an individual's specific behavior and the behavioral intention to perform the behavior in question. The TPB (see Figure 3) as an extension of the TRA presumes that an individual's behavior is predicted by the intentions to perform the behavior. An individual's intention reflects *"motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior"* (Ajzen, 1991a, p. 181). Intentions can be predicted by attitudes toward the behavior, subjective norms, and perceived behavioral control which are determined by beliefs and individual differences (Ajzen, 1991a).

Attitude refers to the *"degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question"* (Ajzen, 1991a, p.188). Subjective norm is defined as *"an individual's assessment of the extent that referent others would desire the performance or non-performance of the behavior"* (Ajzen, 1991a) and perceived behavioral control refers to *"the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles"* (Ajzen, 1991a, p. 188). In general, TPB assumes that the more positive the attitude and subjective norm in relation to the particular behavior and the greater the perceived behavioral control, the stronger an individual's intention to perform the behavior is and consequently the more likely its actual performance should be (see Figure 3).

Normative, behavioral or control beliefs are an individual's cognitive evaluation of the consequences of a particular behavior. Behavioral beliefs *"link the behavior to a certain outcome, or to some other attribute such as the cost incurred by performing the behavior"* (Ajzen, 1991a). Attitudes are formed as people hold behavioral beliefs about the object of the attitude by *"associating it with certain attributes"* (Ajzen, 1991a, p. 191). Normative beliefs are concerned with the *"likelihood that important referent individuals or groups approve or disapprove of performing a given behavior"* and influences subjective norms (Ajzen, 1991a, p. 195). Control beliefs have an impact on perceived behavioral control and are a set of beliefs that *"deals with the presence or absence of requisite resources and opportunities … [and] … the perceived difficulty of performing the behavior in question… based in part on past experience with the behavior"* (Ajzen, 1991a, p. 196). Individual differences such as gender, age and personality are posited as influencing attitudes, intentions and behaviors only via the mediating construct of beliefs (Ajzen, 1991a).
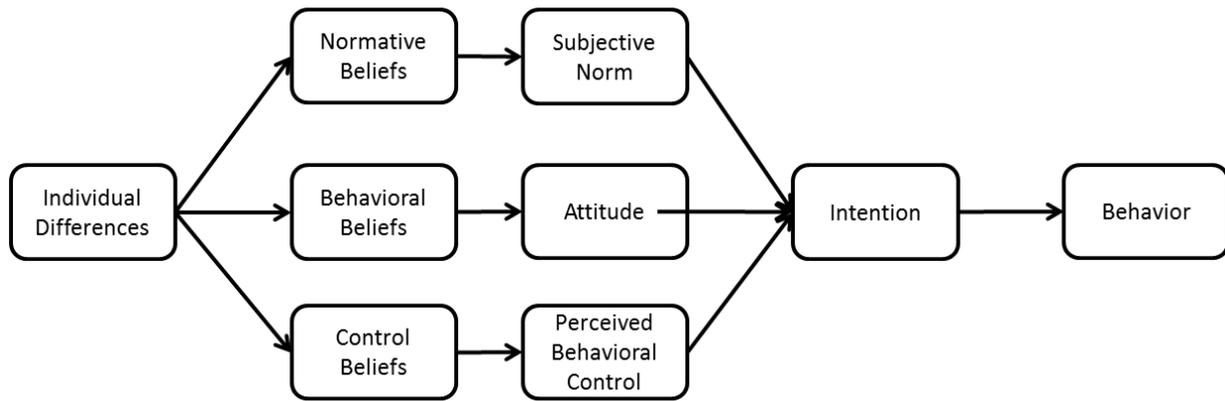
Figure 3: Theory of Planned Behavior (Ajzen, 1991a)

2.2 TECHNOLOGY ACCEPTANCE RESEARCH

Based on the Theory of Planned Behavior IS research investigates the acceptance of technologies by individuals. In the last 20 years 345 articles focusing on technology acceptance have been published in the top 19 peer-reviewed journals of the IS community (Williams et al., 2009). In this context researchers have predominately focused on validations and extensions of the Technology Acceptance Model (TAM) (Davis, 1989; Davis et al., 1989). In the basic TAM, which is based on the Theory of Reasoned Action, an individual's intention to use an information system is explained by the perceived usefulness of the system and the necessary cognitive effort of the individual – the system's perceived ease of use as behavioral belief in relation to the use of a particular technology. Perceived usefulness is defined as "*the degree to which a person believes that using a system would enhance his/her job performance*", (Davis 1989, p. 320) and perceived ease of use as "*the degree to which a person believes that using a system would be free of effort*" (Davis 1989, p. 320). Both beliefs about the characteristics of a technology influence an individual's attitude towards using the technology and consequently an intention to use. An intention determines one's usage behavior. The whole model is depicted in Figure 4.
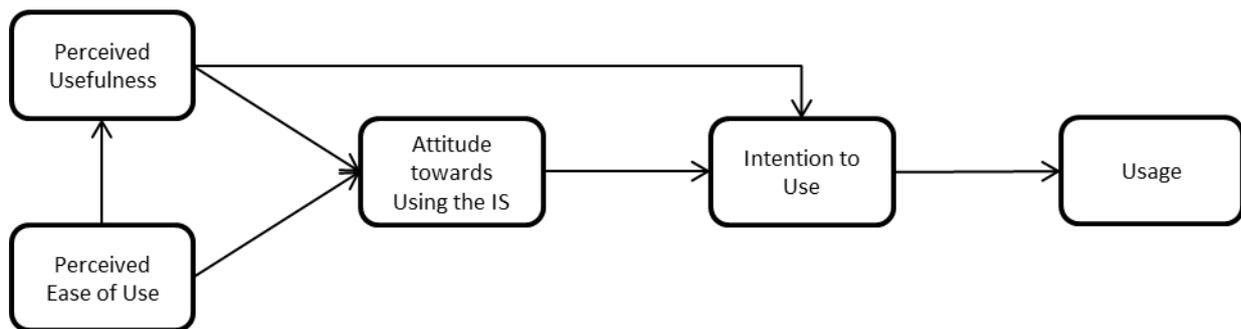
Figure 4: Technology Acceptance Model (Davis 1989, Davis et al. 1989)

In 2007, authors in a special issue of the Journal of the Association for Information Systems ask *"Quo vadis TAM?"* and discuss opinions on past and future technology acceptance research. In their contribution to this special issue, Lucas et al. (2007) summarize the development of technology acceptance and diffusion research since the early 1970s. The authors argue that firms today also innovate with information technology, as they did in the early 1970s. The managers responsible implement innovations with less understanding of their value proposition and their fit with individuals' tasks and organizational processes. Lucas et al. continue by stating that many of these projects run into difficulties and some of them have failed, as they still do today, however with less frequency and less contra-productive results. Management research at this time calls these phenomena implementation problems and addresses the nature and sources of

problems regarding the implementation of information systems (Churchman and Schainblatt, 1965). This kind of research continues into the 1980s and ends up in the introduction of the Technology Acceptance Model (TAM) (Davis, 1989; Davis et al., 1989). The TAM causes a tremendous research stream leading to various extensions, modifications, replications, competing (Venkatesh et al., 2007), and unifying models (Venkatesh et al., 2003). Several meta-analytical or scientometric approaches observe and review this development (Lee et al., 2003; Williams et al., 2009). Most of these models have in common that they use *"intention to use"* or *"IT usage"* as a dependent variable to explain user acceptance (e.g., (Mathieson, 1991; Venkatesh, 1999; Venkatesh and Davis, 2000; Venkatesh and Morris, 2000).

With the Unified Theory of Acceptance and Use of Technology (UTAUT) a unification of all these research approaches is provided. UTAUT suggests that technology acceptance is driven mainly by effort and performance expectancy, facilitating conditions, and social influence, and that the influence of these variables is moderated by age, gender, experience, and voluntariness (Venkatesh et al., 2003). The first variable, performance expectancy, is defined as *"the degree to which an individual believes that using the system will help him or her to attain gains in job performance"* (Venkatesh et al., 2003, p. 447). The variable is proposed based on the construct's perceived usefulness (Davis et al., 1989), extrinsic motivation (Davis et al., 1992), job-fit (Thompson and Higgins, 1991), relative advantage (Moore and Benbasat, 1991), and outcome expectations (Compeau et al., 1999; Compeau and Higgins, 1995). Performance expectancy is moderated by age and gender whereby the effect is stronger for men and younger workers. The second construct, effort expectancy, is defined as *"the degree of ease associated with the use of the system"* (Venkatesh et al., 2003, p. 450) and captures aspects of three different constructs: perceived ease of use (Davis et al., 1989), complexity (Thompson and Higgins, 1991), and ease of use (Moore and Benbasat, 1991). Effort expectancy is moderated by age, gender and experience whereby the effect is stronger for women, older workers, and those with limited experience. Social influence is defined as *"the degree to which an individual perceives that important others believe he or she should use the new system"* (pg. 451). The variable is proposed based on subjective norm (Fishbein and Ajzen, 1975; Mathieson, 1991; Taylor and Todd, 1995a; Taylor and Todd, 1995b), social factors (Thompson and Higgins, 1991), and image (Moore and Benbasat, 1991). The effect of social influence is moderated by gender, age, voluntariness, experience such that the effect is stronger for women, older workers, under conditions of mandatory use and with limited experience. The fourth construct of UTAUT, facilitating conditions, is defined *"as the degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system"*. This definition is based on perceived behavioral control (Ajzen, 1991b; Taylor and Todd, 1995b), facilitating conditions (Thompson and Higgins, 1991), and compatibility (Moore and Benbasat, 1991). Facilitating conditions influence both the intention to use and the actual usage behavior. They are moderated by age and experience, with the effect shown to be stronger for older workers with increasing experience. The UTAUT is illustrated by Figure 5.
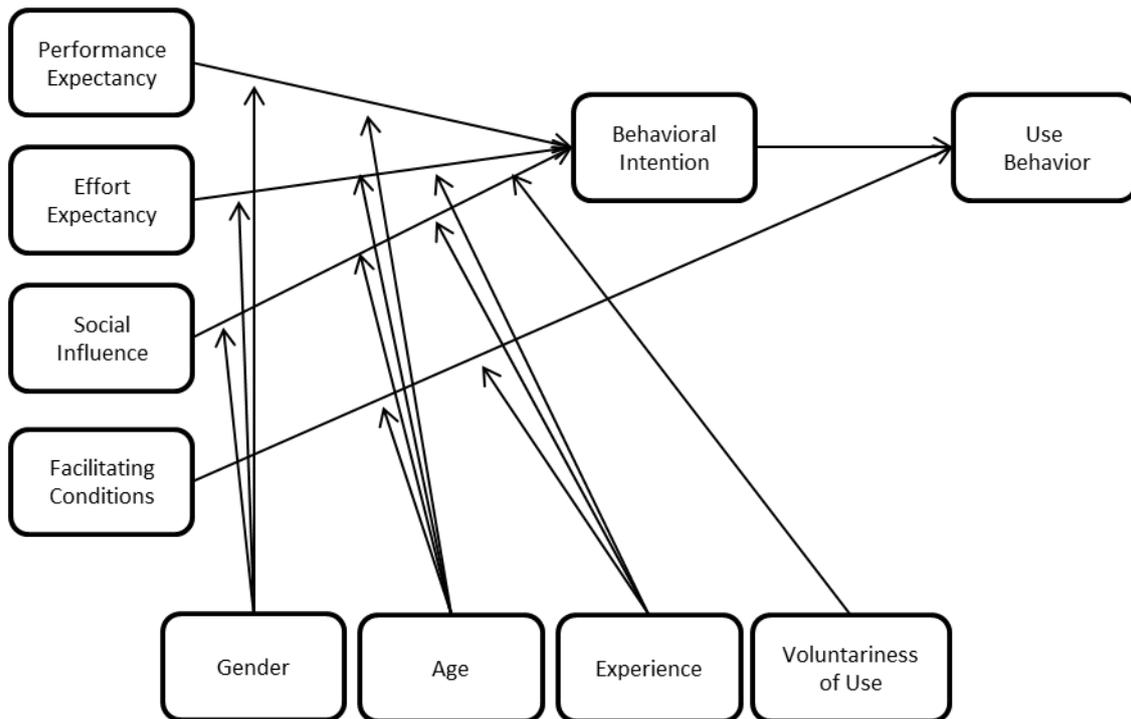
Figure 5: Unified Theory of Acceptance and Use of Technology (Venkatesh et al., 2003)

With the Technology Acceptance Model (TAM, Davis, 1989) and its extensions (for a detailed discussion: see Venkatesh et al., 2003) several solid models are available to explain an individual's intention to use an information system (Lee et al., 2003). Nonetheless, the topic of user resistance itself remains a sparse field of research (Lapointe and Rivard, 2005). Even, when a particular study is motivated to explain user resistance to system implementations, the dependent variable adopted by these studies is technology acceptance modeled as an individual's intention to use (Riemenschneider et al., 2002) or frequency of use (Karahanna et al., 1999). In addition, most technology acceptance studies make no explicit reference to resistance and assume that resistance is the opposite of acceptance. However, recent research illustrates that this assumption is erroneous (Klaus and Blanton, 2010; Klaus et al., 2010). This kind of information systems research has typically seen the presence of certain factors leading to adoption, while the absence of those factors is seen as the cause of rejection (Cenfetelli, 2004). Nonetheless, some approaches explicitly investigate user resistance assuming that resistance is not the opposite phenomena of acceptance, as will be outlined in the following section.

2.3 USER RESISTANCE RESEARCH

The idea that "[b]*etter theories of resistance will lead to better implementation strategies and hopefully to better outcomes*" has been the objective of researchers who have, since the beginning of the discipline, tried to explain why people resist technologies (Hirschheim and Newman, 1988; Keen, 1981; Markus, 1983). Resistance in general is defined as "*opposition, challenge or disruption to process or initiatives*". User resistance becomes particularly significant in IT-induced organizational change or IT implementation projects due to the resulting multifarious changes in the organizational, social, as well as technical systems (Gibson, 2003; Kim and Kankanhalli, 2009).

Compared with other IS themes, there are only a few research papers investigating user resistance (Lapointe and Rivard, 2005). The Multilevel Model of Resistance (Lapointe and Rivard, 2005) identifies five basic components of resistance: behaviors, object, subject, threats, and initial conditions. The model assumes that, when a system is introduced, users will first assess the system in terms of the interplay between its features and the user's initial conditions and tasks. If

the evaluation is threatening, resistance behavior will occur. Therefore, research on user resistance can be categorized in those approaches that investigate, on the one side, causes leading to user resistance and, on the other side, the resulting user resistance behaviors.

2.3.1 User Resistance Behavior

For user resistance behaviors the Compliance Resistance Workaround Model (Ferneley and Sobreperez, 2006) proposes a categorization of three different resistance behaviors related to the implementation of information systems, individuals can perform: compliance, resistance, and workaround. The model distinguishes between two resistance phases. The first one is the individual cognitive or emotional process that results in a non-adoption or resistance decision, and the second one is the actual resulting behavior of the individual, which can be compliance, negative or positive resistance, or workaround (Ferneley and Sobreperez, 2006). The Integrative Framework of User Resistance (Kim and Kankanhalli, 2009) provides a new construct for modeling user resistance behavior. This classification distinguishes between overt and covert, active and passive resistance and is developed to represent resistance behavior in the post-implementation stage of an IS project. Moreover, Klaus et al. (2010) identify resistant groups in enterprise system implementations and reveal eight user groups showing different resistance behaviors. The degree of resistance is considered to range from covert passive (e.g. ignoring or indifference) to overt active (e.g. obstructing) behaviors.

2.3.2 Causes of User Resistance

In the context of user resistance determinants the Dual-Factor Model (Cenfetelli, 2004) offers a conceptualization of perceived threats which will lead to resistance behavior. The model predicts that technology acceptance research in the past fostered positive user attitudes and encouraged system use. Nonetheless, there are also perceptions that solely foster user resistance and that are different from the ones encouraging usage. For the healthcare sector, the Model of Physicians Resistance to Healthcare Information Technology (Bhattacherjee and Hikmet, 2007) assumes that incorporating resistance to change into theoretical models of technology acceptance will enable researchers to better understand why individuals resist using technologies and consolidates the explanation as to why people resist technologies not in the technology itself but in the change caused by the introduction of an information system in the workplace (Bhattacherjee and Hikmet, 2007). Moreover, Klaus and Blanton (2010) discuss several user resistance determinants and the psychological contract in enterprise system implementations (Klaus and Blanton, 2010). They identify twelve determinants of individual, system, organizational, and process issues that upset the psychological contract and affect the level of user resistance behavior. Individual issues model individual perceived uncertainty about the future or potential loss of control or power in the organization. System issues capture technical problems or complexity and organizational issues cover the facilitating environment, the communication activities during the change project and the training during the implementation phase. Process issues are identified as a category summarizing an individual's reaction to job or job skill changes, the perceived workload and the lack of process and technology fit. Meissonier and Houze (2010) point out that most empirical research on users' resistance toward IT has been conducted after the implementation of IT in organizations and conceptualize *"IT Conflict-Resistance Theory"* assuming that enhancing resistance in order to anticipate and resolve latent conflicts that are directly or indirectly related to the project. They suggest considering user resistance in the pre-implementation phase (Meissonier and Houze, 2010).

2.3.3 Summary

The discussed models of user resistance all share the assumption that on the one side user resistance is expressed in different forms of resistance behaviors (Enns et al., 2003; Ferneley and Sobreperez, 2006; Kim and Kankanhalli, 2009), and on the other side user resistance results from

the mutual adjustment of several antecedents (Cenfetelli, 2004; Jiang et al., 2000; Klaus and Blanton, 2010).

2.4 TECHNOLOGY EMBEDDEDNESS VIEW OF TECHNOLOGIES IN ORGANIZATIONS

Besides IS research, other disciplines such as organizational science or managerial psychology (Oreg et al., 2011) have also investigated this kind of employee resistance, defined as "*the forces against change in work organizations*" (Mullins 1999, p. 824). The first theoretical conceptualizations started more than half a century ago when researchers identified a natural tendency of people to stick to a well-known and familiar environment rather than to accept change, for example, triggered by innovation, and thus the unknown (Coch and French, 1948; Lewin, 1947; Tichy, 1983). Kurt Lewin (1947) is one of the first researchers who use the term resistance to change. His pioneering studies on force-field analysis are the starting point for organizational change and the corresponding research on employees' resistance to change. Since these early studies, research in organizational science has investigated the phenomenon of resistance to change in different settings and developed a more precise understanding of how and why people resist organizational change (Oreg et al., 2011).

Understanding the different capabilities of an organization to change remains a central, ongoing research question in organizational theory (Bercovitz and Feldman, 2008). To understand the reactions to change, researchers study the interconnected nature of people, technologies and tasks, while people are using technologies to perform tasks (Pentland and Feldman, 2007). Organizational science research provides evidence that the psychological process of experiencing change leads to negative reactions (Oreg, 2006; Oreg et al., 2011) because humans prefer a known situation over an unknown future (Heath et al., 1993) and that these experiences are based on different change objectives such as technology, processes, and organizational structures (Orlikowski, 2000). The term resistance to change is often used to cover all these different aspects of employee resistance (Jermier et al., 1994; Nord and Jermier, 1994; Piderit, 2000). The failure of many major change initiatives can be directly related to employees' change resistance (Clegg and Walsh, 2004; Maurer, 1996), and organizational change is linked to a change in recipients' beliefs, interpretive schemata, paradigms, and behaviors (Elias, 2009; Smollan, 2006; Walinga, 2008). Moreover, the resulting behaviors and drivers of employees' resistance to change are multifarious (Oreg et al., 2011).

To study the role of information technology in organizations different theoretical perspectives in organizational research exists. For example, Boudreau and Robey (2005) propose a human agency perspective arguing that technologies in organizations can be resisted or reinvented by employees. While Gosain (2004) uses institutional theory and argues that technologies are objects of institutionalization during configuration and carry the institutional logic during use. Organizational science has employed a variety of approaches to bridge these two extremes.

One of these theoretical concepts, which will be used in this thesis, focuses on technological embeddedness (Volkoff et al., 2007) and argues that the introduction of information technology (IT) into an organization is generally accompanied by changes to organizational form and function. As a consequence "*technology-mediated organizational change should be examined at the level of organizational elements, namely, as changes in, for example, organizational routines, roles, and data, and as changes in the relationships between these elements*" (Volkoff et al., 2007, p. 845,). This theory argues that embedding a routine, role, or data in an information system changes that element and how it can be enacted by employees. Therefore, the role of technology in organizations is to embed organizational elements, which then have a material aspect that affects how employees are able to

enact and interact with these organizational elements. Using a critical realist perspective, the technological embeddedness view explains the process of change as a three-stage cycle in which organizational elements interact differently at different stages of the implementation process. The core theoretical concept of the theory is embeddedness, whereby, for example, technology is the embedding element that then embeds other organizational (embedded) elements (Volkoff et al., 2007). According to the technological view of technology in organizations research should distinguish between perceptions about the embedding technology as carried out by prior technology acceptance research and perceptions of the changing organizational element.

3 RESEARCH METHODOLOGY

To address the research question qualitative and quantitative studies have been conducted. Based on the theoretical background and several case studies a Model of Resistance to IT-induced Organization Change (MRTOC) has been developed and several empirical studies have been conducted to provide evidence for the hypothesis regarding user resistance in organizations, as will be explained in the following sub-sections.

3.1 QUALITATIVE CASE STUDIES

For the theoretical development and the testing of an extended understanding of user resistance, 29 case studies with HR executives in German enterprises were conducted to enhance the understanding of the research domain of staff recruitment. Moreover, two case studies have been conducted with a financial service provider in order to compare the derived phenomena of E-HRM implementations with other systems and organizational settings.

In compliance with Eisenhardt's findings (Eisenhardt, 1989), the qualitative case studies use a research strategy which focuses on understanding the dynamics present within individual settings. Yin (2003) additionally emphasizes the real-life-characteristic of these individual settings. Case study research provides "*a source of well grounded, rich descriptions and explanations of processes occurring in local contexts*" (Kaplan and Duchon, 1988, p.15), and is appropriate for investigating emergent phenomena, and especially for answering *"how"* or *"why"* research questions (Yin, 2009). Moreover, if there is a close relationship between context and phenomenon under investigation, while their interplay is unknown, case study research is the most suitable research methodology (Yin, 2009).

To enhance the overall understanding of technology in recruiting, technology-induced transformation of the recruiting process and HR personnel's reaction to these changes a multi-case study approach was used to understand the *"how"* and the *"why"* phenomena of this scenario. The results of the case studies are used on the one hand to gain a deeper understanding of the underlying research domain and real-life-characteristics of the respective implementation settings, and on the other hand, the case studies were used to pre-test the theoretically derived hypotheses.

The interviews for each case study were designed following the guidelines set by Yin (2003) and the recommendations of Myers and Newman (2007). Hence, the starting point was to define the research design and its components including the initial research questions, its proposition(s) and its unit(s) of analysis (Yin, 2003). For the purpose of attaining a certain level of generalizability (Lee, 1989) firms of different size, industry sectors and number of employees were chosen. Having concluded the definition phase, the companies to be considered within the case studies were selected in accordance with Eisenhardt (1989). Next interview guidelines defining the procedure adopted during data collection were established (Eisenhardt, 1989; Yin, 2003). Each case study was conducted in at least two stages. First, the context variables were

discovered using a semi-structured interview. This was followed by a fully structured interview. The interviews took place within the selected company and lasted about two hours. At least two representatives of the enterprise and two interviewers were involved. To support the results further, documents provided by the company as meeting records and project descriptions were added. Some case studies involved more than two interviews with employees of different hierarchical levels and different branches. Finally a resulting case study report was released by the participating company. Details of the case studies are presented in Table 1.

Table 1: Case Study Details

YEAR:	COMPANY:	REPORT IN:
2007	Benteler GmbH	Eckhardt et al., (2008b)
2007	Evonik Industries AG	Eckhardt et al., (2008b)
2007	Gruner+Jahr GmbH & Co. KG	Eckhardt et al., (2008b)
2007	IBM Deutschland Entwicklung GmbH	Eckhardt et al., (2008b)
2007	Lufthansa Technik AG	Eckhardt et al., (2008b)
2007	Qatar Airways Deutschland	Laumer et al., (2008b)
2007	Swissbit AG	Laumer et al., (2008b)
2008	Microsoft Deutschland GmbH	Laumer et al., (2009d)
2008	Philips Deutschland GmbH	Laumer et al., (2009d)
2008	Primondo Management Service GmbH	Laumer et al., (2009d)
2008	Siemens AG	Laumer et al., (2009d)
2008	Biesterfeld AG	Eckhardt et al., (2009a)
2009	Audi AG	von Stetten et al., (2010)
2009	Continental AG	von Stetten et al., (2010)
2009	PricewaterhouseCoopers	von Stetten et al., (2010)
2009	SAP AG	von Stetten et al., (2010)
2009	Symbio Herborn Group	Laumer et al., (2010b)
2010	Bertelsmann AG	von Stetten et al., (2011a)
2010	Gruner+Jahr GmbH & Co. KG	von Stetten et al., (2011a)
2010	Schaeffler Gruppe	von Stetten et al., (2011a)
2010	Sparkasse Bamberg (Recruiting)	Eckhardt et al., (2011c)
2010	Roche	von Stetten et al., (2011b)
2010	Raiffaisenlandesbank Niederösterreich-Wien	Laumer et al., (2011)
2011	Bayer AG	von Stetten et al., (2012a)
2011	MSG Systems AG	von Stetten et al., (2012a)
2011	Sparkasse Coburg-Lichtenfels (Finance)	Laumer et al., (2012c)
2011	Sparkasse Bamberg (Finance)	Wild and Laumer, (2011a, b)
2011	Deutsche Bahn AG	von Stetten et al., (2012a)
2011	Baloise Group	von Stetten et al., (2012b)
2011	Allianz Österreich	Laumer et al., (2012b)
2011	Coinor AG	Maier et al., (2012)

The case studies enable an extended understanding of the research domain of staff recruiting. Moreover, based on these case studies several ideas of the proposed Model of Resistance to IT-induced Change are identified, pre-tested and validated. These results are used to design several empirical studies, as explained in the following sub-section.

3.2 QUANTITATIVE STUDIES

The Model of Resistance to IT-induced Change and its different hypotheses are analyzed using empirical studies and structural equation modeling (SEM). SEM represents a new generation of multivariate analysis offering researchers in all domains the means of performing path analytic modeling with latent variables (Fornell, 1987). SEM with latent (non-observable) variables can be traced back to the work of Jöreskog (Jöreskog, 1978; Jöreskog, 1982; Jöreskog

and Sörbom, 1982), which offers a multivariate analytical method for observing causal relationships. A causal analysis is statistically based on the evaluation of relationships between latent variables (unobservable constructs) according to their degree of correlation. Therefore, SEM is based on two partial models. On the one hand the observable indicators are associated with the latent variables (unobservable constructs) in the measurement model, and on the other hand the relationships between the exogenous and endogenous (latent) variables are contained in the structural model (Leeflang et al., 2000). In order to analyze the relationships in a structural equation model a detailed operationalization within a measurement model is needed (Anderson and Gerbing, 1982). Therefore, one necessary precondition is to use a lot of directly observable and manifest indicators to explain the construct as completely as possible (Homburg and Dobratz, 1991). In order to test the interconnection between different endogenous and exogenous variables, SEM requires a strong theoretical background to concrete and argue for hypotheses that assume the influence of one variable on another one (Gefen et al., 2000). Thus, a major issue for conducting causal analyses is professional and theory-driven model specification in terms of the measurement model of each construct and the hypothesized effects between constructs as well as the evaluation of the explanatory power of the proposed model.

According to Chin (1998) causal analytic techniques have substantial advantages over so-called first-generation procedures such as factor analysis or multiple regressions, due to the greater flexibility a researcher has for the interplay between theory and data. An important and major difference between these causal analytical measures and regular multiple regressions is the ability to model complex dependence structures and mutual relationships (Homburg and Pflesser, 1999). The social psychology and marketing field was a primary area for the use of SEM (Bagozzi and Yi, 1988). Nowadays SEM is used in several research domains such as information systems in order to observe the empirical validation of theoretical founded explanation models (Steenkamp and Baumgartner, 2000).

Within this thesis SEM is used to evaluate and confirm different aspects of the proposed Model of Resistance to IT-induced Organizational Change. Three different kinds of empirical studies are conducted in order to validate different parts of the proposed model. First, for observing the implementation of E-HRM/E-Recruiting within one particular organization an empirical study is conducted with HR personnel of this particular organization in order to investigate the perceptions and resulting behavior of the affected employees (automotive supplier). This investigation is the central study for analyzing different causes and behaviors of user resistance (**Paper VI, VII, VIII, XI**). Second, the Fortune-1,000 organizations are investigated using the Recruiting Trends series in order to discuss E-HRM in organizations (**Paper III, IV**) and to validate parts of the proposed model (**Paper IX**). Third, several studies are conducted with job seekers from Germany (Bewerbungspraxis) in order to discuss the use of E-HRM measures (**Paper III**) and to illustrate acceptance and resistance of e-recruiting by this stakeholder group of the recruiting process and to pre-test newly derived or developed measurement models in different domains.

3.2.1 Automotive Supplier

To evaluate different components of the proposed Model of Resistance to IT-induced Change the HR department of one of the world's leading automotive suppliers was accompanied throughout the implementation of a new E-Recruiting system. The organization has between 55,000 and 90,000 employees at about 200 different locations and generates annual revenues of several billion euros. The main objective of the system implementation is to enhance the IT-support in the recruiting process and for the working routines to manage the tasks faster and to improve the perception of the organization on the job market. The system is designed to integrate the recruiting activities at five different plants with 150 HR managers, who have access to the new e-recruiting system.

The project started at the beginning of 2008 as the global operating company intended to optimize and standardize the company-specific recruiting process. The new recruiting process consists of six steps, different new and re-designed working routines, and is completely embedded within the new e-recruiting system. The process is initiated by the occurrence of a vacancy in any department in the organization. The next step of the regular recruiting process is the design and posting of a job ad, which will be designed by the relevant recruiter at the respective branch and approved by the corporate competence center. After publishing a job ad on the website, job portals such as Monster or in printed media, applicants submit their CV portfolio using the company's website or a paper based application. The applications will be automatically stored in the database of the e-recruiting system or have to be entered manually in the case of paper-based applications. Using the system, recruiters and HR specialists evaluate the incoming application, forward them to the responsible hiring manager and manage the communication with the candidate. After the selection step, the responsible manager makes a hiring decision in collaboration with the HR specialist or recruiter. Beside this general way of recruiting, the company introduces several additional changes including a central talent management. Figure 6 illustrates the new recruiting process, the employees involved in the process and the functionality of the new e-recruiting system. The architecture of the system is similar to the proposed holistic architecture for an e-recruiting system (Lee, 2007). The new system is a single enterprise wide system used by every stakeholder of the recruiting process. The system is browser-based and uses a central database, and it is implemented and investigated using SAP E-Recruiting 6.0 with Enhancement Package 4.
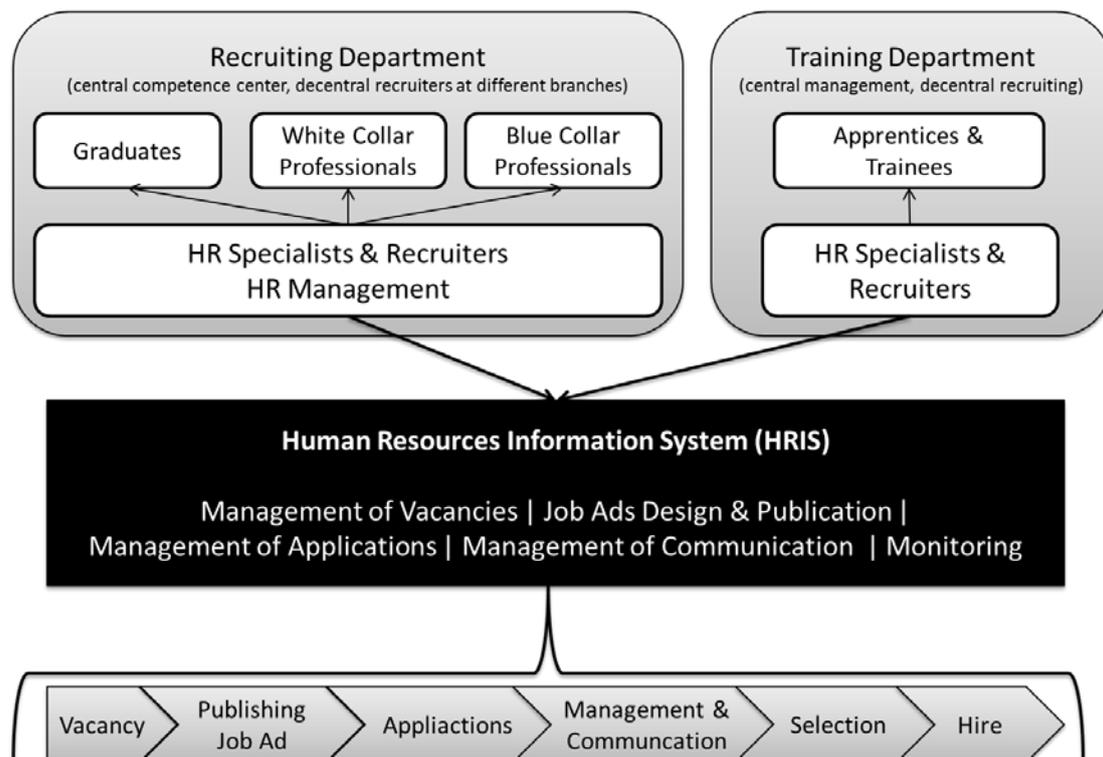
Figure 6: The new Recruiting Process and E-Recruiting System at the observed company

Beside the implementation of the new e-recruiting system the recruiting process is changed and adjusted by defining new working routines for the affected employees. In the opinion of the organization, the old routines lead to many misunderstandings and was the reason for an unstructured and inconsistent employer image on the job market. Therefore, a central aspect of the e-recruiting project besides implementing a new e-recruiting system is to design a completely new recruiting process for the entire organization and several new working routines for all

involved employees. Compared to the old routines and the corresponding IS support, the major changes for the affected recruiters, HR specialists, and HR managers are a standardization of the recruiting process, elimination of media disruptions, a new HRIS-supported design, approval and publication of job advertisements, management of incoming applications, communication guidelines, transparency, key performance indicators, decentralized vs. centralized talent pool, automated prescreening and a talent management tool. In order to investigate the acceptance of these changes interviews and an empirical study have been conducted in both the pre- and post-implementation phase of the information system.

The interviews were designed according the guidelines proposed by Yin (2009) and Eisenhardt (1989). The major objective of the interviews is to attain a cross-sectional view of the acceptance of the new HRIS in the organization and to pre-test initial hypotheses of the Model of Resistance to IT-induced Organizational Change. Thus, interviewees are selected who work at different branches and are at different hierarchy levels (e.g., Recruiter, HR specialist, HR manager [responsible for both the process in general and the induced changes in particular]). In total, 14 individuals are interviewed at least once. The HR managers are interviewed at different phases of the implementation in both single and group interviews (in total 5 interviews). The HR specialists and recruiters are interviewed in the pre-implementation with single interviews (5 interviews with 3 recruiters and 2 HR specialists) and especially in the post-implementation phase (12 interviews with 8 HR specialists and 4 recruiters). In total, 17 employees (11.3 per cent of the total change recipients) are interviewed in 22 interviews, as shown in Table 2. The age of the interviewed employees varies between 26 and 53 years of age and gender is illustrated in Table 2 (m: male, f: female)

Table 2: Number of Employees Interviewed in Pre- and Post-Implementation Phase

	HEAD-QUARTER	BRANCH A	BRANCH B	BRANCH C	TOTAL
HR manager	1 m ; 1 f	-	-	-	1 / 1
HR specialist	0 m ; 3 f	1 m; 1 f	1 m ; 1 f	0 m ; 2 f	2 / 7
Recruiter	0 m ; 1 f	0 m; 4 f	0 m ; 1 f		0 / 6
Total	1 / 5	1 / 5	1 / 2	0 / 2	3 / 14

Beside the interviews an empirical study has been conducted. Within this study, all 150 affected HR employees were surveyed concerning their beliefs and attitude toward and their behavior in relation to the new e-recruiting system based on the suggested Model of Resistance to IT-induced Change. The survey was designed in order to use SEM to test the hypothesis derived from the theoretical model development (see **Paper V**). Hence, the corresponding measurement models of the constructs has been developed and specified based either on existing models of prior research or on self-developed new measurement models (see **Paper VI, VII, VIII, XI** for more details). The entire survey instrument was implemented online and was then available online for two weeks. The survey was advertised during project meetings and training sessions among the target group of the 150 affected HR managers. In total 106 questionnaires returned, representing a response rate of 70.6 per cent. The demographic data of the derived data sample is portrayed in Table 3.

Table 3: Demographics[2]

ATTRIBUTE	MANIFESTATION	VALUE
Gender	Male	23.6%
	Female	62.3%
Age (in years)	Older than 45	16.0%
	36 to 45	25.5%
	25 to 35	23.6%
	Younger than 25	11.3%
Work Experience	less than 5 years	23.6%
	5 to 10 years	22.6%
	11 to 15 years	13.2%
	more than 15 years	12.3%

3.2.2 Recruiting Trends

For the evaluation of the diffusion and acceptance of several IT-innovations for the recruiting process an annual survey was implemented and conducted with the Fortune-1,000 enterprises from Germany[3]. Since 2003 the empirical study series *"Recruiting Trends"* is conducted annually by the Centre of Human Resources Information Systems (CHRIS). The survey addresses recruiting process owners and HR executives in corporate staff recruitment who are able to decide whether to use a technology or not. The study's questionnaire is sent every year to the 1,000 largest companies in Germany based on total revenue. The firms included in the study are large-scale companies with a number of employees ranging from 200,000 to 500 and with an annual turnover of more than 500 million Euros. Table 4 provides an overview of the five conducted Recruiting Trends studies since 2008.

Table 4: Recruiting Trends

STUDY	RESPONSE RATE
Recruiting Trends 2008	20.6%
Recruiting Trends 2009	13.1%
Recruiting Trends 2010	11.0%
Recruiting Trends 2011	14.7%
Recruiting Trends 2012	17.1%
Σ Responses	765

The recruiting trends studies are part of the following paper included in the dissertation. First of all, the diffusion and business value of applicant tracking systems has been investigated within the *"Recruiting Trends 2010"* and the results are illustrated by **Paper III**. Moreover, the impact of social influence on the intention to use IT in the recruiting context has been analyzed by *"Recruiting Trends 2009"* and the results have been published within **Paper VIII**.

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[2] The depicted results represent participants' actual answers. Participants who did not indicate their gender, age and tenure are not visualized within the table.

[3] Beside the study using the Fortune-1,000 enterprises from Germany, annual surveys with 1,000 Small- and Medium-sized enterprises from Germany, the Fortune-300 from several trend branches, and the Fortune-500 enterprises from Austria as well as Switzerland have been conducted. These studies enable a comparison of the results derived for the Fortune-1,000 from Germany with organizations of different size.

3.2.3   Bewerbungspraxis

Beside the Recruiting Trends series CHRIS conducts an annual study with job seekers from Germany to illustrate the acceptance of IT-based recruiting from a different stake holder group of the process: job seekers. The surveys address jobseekers, applicants and people particularly interested in career-related issues and have been conducted since 2004. The questionnaire is introduced to target groups using e-mail invitations to registered users of the global operating job board Monster Worldwide. Approximately 10,000 users answer the questionnaire each year. Table 5 provides an overview of the studies conducted since 2009 which are included as part of the dissertation's use of collected data to gain an extended understanding of the research domain of recruiting and to pre-test several hypotheses, concepts and measurement models in different research domains (see for example Laumer et al., 2010a; Laumer et al., 2010d; Laumer et al., 2009c; Maier et al., 2010, 2011a).

Table 5: Bewerbungspraxis

STUDY	RESPONSES
Bewerbungspraxis 2009	11,628
Bewerbungspraxis 2010	9,000
Bewerbungspraxis 2011	10,227
Bewerbungspraxis 2012	11,481
Σ	42,336

3.2.4   Summary

Using a combination of qualitative and quantitative research methods the dissertation provides evidence for the proposed Model of Resistance to IT-induced Organizational Change. The majority of these studies have been conducted in the recruiting context as research on E-HRM identifies user resistance as an important aspect (Lippert and Swiercz, 2005) and the reaction of HR personnel as one of the major challenges accompanying the implementation of E-HRM (Bondarouk and Ruël, 2009; Pant and Chatterjee, 2008). The main results of the cumulative dissertation derived from the different studies conducted are presented in the following section.

4   MAIN RESULTS OF THE THESIS

The following subsections provide a detailed overview of all papers integrated in this cumulative dissertation thesis. The results are presented according to the respective chapter and are discussed for each paper of the cumulative dissertation.

4.1   LITERATURE ANALYSIS

The first chapter of the cumulative dissertation provides an overview of the relevant literature dealing with user resistance. **Paper I** provides an overview of user resistance theories of IS research and **Paper II** discusses the implications from managerial psychology research for IS research regarding the understanding of user resistance to IT-induced organizational change.

4.1.1 Paper I: Why Do People Reject Technologies: A Review of User Resistance Theories[4]

Based on a literature review, **Paper I** provides an overview of those theories proposed by IS research to explain user resistance. The discussion focuses on four articles identified by Lapointe and Rivard (2005) which open the black box of user resistance. Moreover based on an analysis of the extended AIS senior journal basket using the guidelines for structured literature reviews (Webster and Watson, 2002), an additional four articles are identified meaning that the discussion is based on nine article published by IS research theoretically investigating user resistance. Using the Theory of Planned Behavior (Ajzen, 1985; Ajzen, 1991a) **Paper I** offers a conceptualization of individual user resistance theories as illustrated by Figure 7. **Paper I** reveals that the nine approaches included in IS research focus mainly on beliefs and attitudes and user resistance behavior. Only some theories address social influence or resistance to change in particular. Moreover, two theories discuss an Equity-Implementation Model highlighting the balance between positive and negative perception and the corresponding behavior.
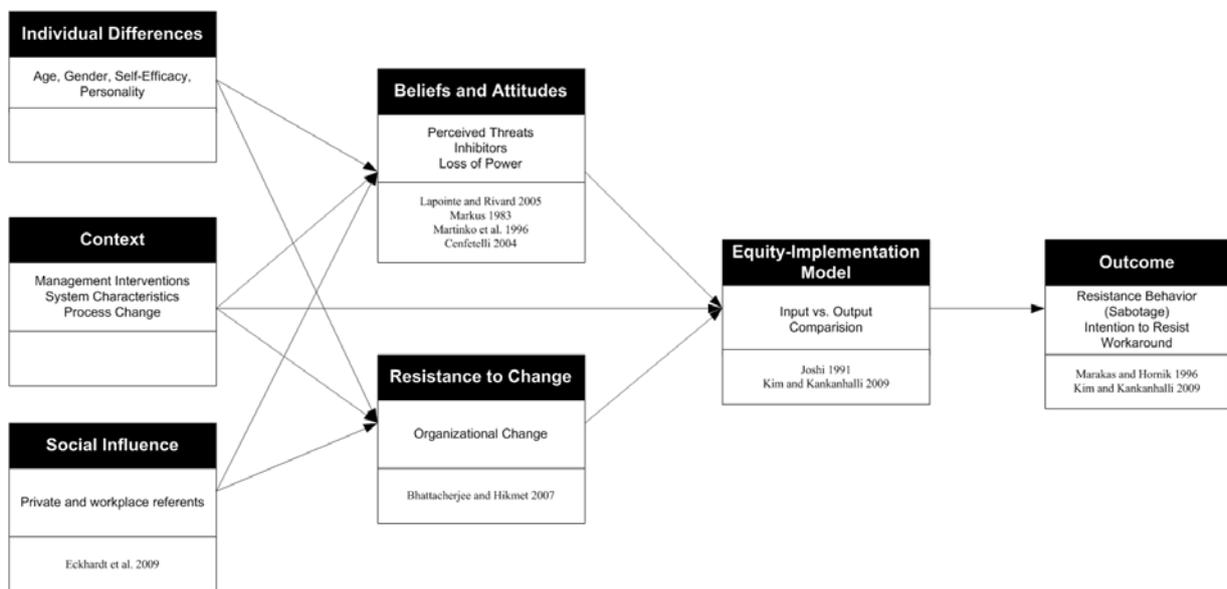
Figure 7: User Resistance Theories by IS research

4.1.2 Paper II: Why do People Reject Technologies - A Literature-based Discussion of the Phenomena *"Resistance to Change"* in Information Systems and Managerial Psychology Research[5]

Based on the results of **Paper I** highlighting the understanding of user resistance of IS research, **Paper II** provides a literature-based discussion of the phenomena *"resistance to change"* in information systems and managerial psychology research. **Paper II** follows a call by Orlikowski and Barley (2001) who demands an integration of recent developments of this research stream into IS research. The analysis and discussion shows that there are a lot of opportunities for IS research based on investigations using managerial psychology research and the phenomena of user resistance to IT-induced organizational change. The different benefits IS research might gain from managerial psychology research are:

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[4] Sven Laumer, Andreas Eckhardt; *Why Do People Reject Technologies: A Review of User Resistance Theories;* Dwivedi, Y.K., Wade, M.R., and Schneberger, S.L. (eds.): Information Systems Theory - Explaining and Predicting Our Digital Society, Vol. 1; in: Integrated Series in Information Systems, Vol. 28, 63-86

[5] Sven Laumer; Why do People Reject Technologies - A Literature-based Discussion of the Phenomena *"Resistance to Change"* in Information Systems and Managerial Psychology Research; Proceedings of the 19th European Conference on Information System (ECIS), Helsinki, Finland

- Extending the understanding of change recipients' resistance to change as managerial psychology indicates that resistance to change has an affective, cognitive and behavioral dimension.

- Extending the understanding of individual differences as managerial psychology provides evidence that dispositions are important to understand individual reactions to a changing environment.

- Extending the understanding of different resistance behaviors as managerial psychology research provides several suggestions for resistance behaviors like employee turnover.

- Extending the understanding of context variables (e.g. social influence) and resistance to IT-induced change.

- Distinguishing between change recipients' (users) belief and actions, change agent sense making and the recipient-agent relationship.

Figure 8 illustrates these different approaches and the implications of managerial psychology for IS research.
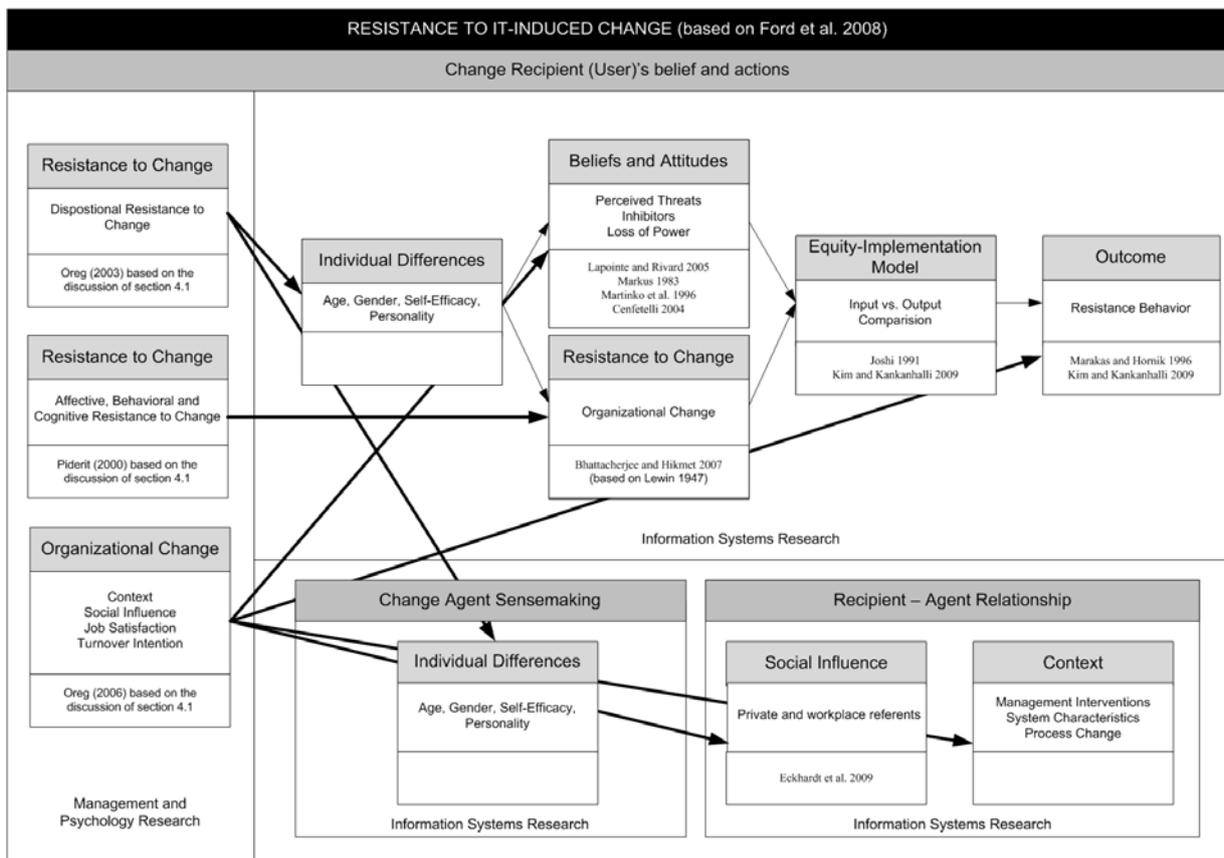
Figure 8: Extended Understanding of Resistance to IT-induced Change
(bold arrows: Implication from Managerial Psychology for IS research)

The results and identified theories of **Paper II** are the underlying theoretical base for the development of the Model of Resistance to IT-induced Change to be discussed in **Paper V**.

4.2 E-HRM IN ORGANIZATIONS

The second chapter of the dissertation investigates E-HRM in organizations, as the proposed model will be mainly validated with empirical studies in the recruiting context. E-HRM/E-Recruiting has been chosen as a research domain for investigating user resistance as on the one side the internet has *"revolutionized the way that people look for work"* and brought *"radical change to corporate recruiting"* (Parry, 2011) and on the other side the management of HR personnel's resistance is one the major challenges accompanying the implementation of E-HRM (Bondarouk and Ruël, 2009; Pant and Chatterjee, 2008). Thus, this chapter illustrates the use of E-HRM in organizations based on several research approaches conducted to investigate the design of the recruiting process and corresponding IT support (Eckhardt et al., 2011a; Eckhardt and Laumer, 2009, 2010; Eckhardt et al., 2011b; Eckhardt et al., 2009b; Lang et al., 2011; Laumer, 2009; Laumer et al., 2012a; Laumer and Eckhardt, 2009a, b, 2010b; Laumer et al., 2009a; Laumer et al., 2010c; Laumer et al., 2009b; von Stetten et al., 2009; Weitzel et al., 2009; Wirtky et al., 2011).

4.2.1 Paper III: A Framework for Recruiting IT Talent: Lessons from Siemens[6]

Following the case study of Siemens, research **Paper III** proposes a framework for recruiting IT talent in order to classify and illustrate different methods usable in recruiting. Thus, a three-dimensional framework for recruiting IT talent (see Figure 9) is developed proposing individualized recruiting methods classified by talent scarcity, temporal horizon and cost per recruiting method. Illustrated by the case of Siemens, 20 recruiting methods are presented with the objective of supporting executives challenged with recruiting IT talent and with employees showing rather negative attitudes towards IT in recruiting.
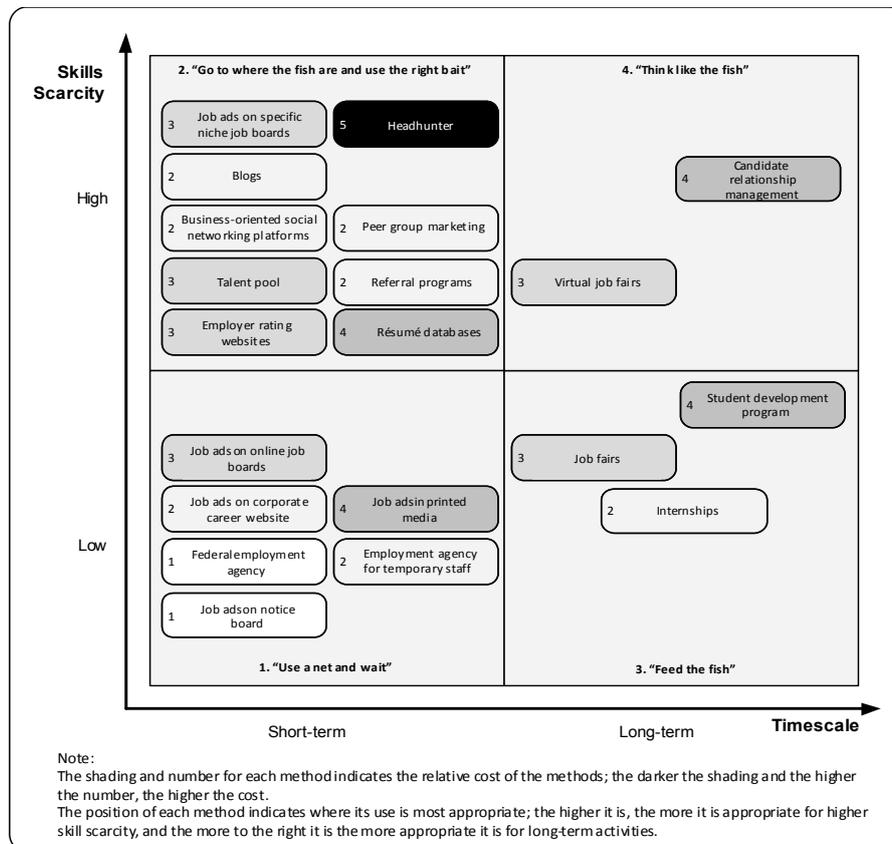
Figure 9: FIT (Finding [or Fishing for] IT Talent) Framework

4.2.2   Paper IV: Bewerbermanagementsysteme in deutschen Großunternehmen – Wertbeitrag von IKT für dienstleistungsproduzierende Leistungs- und Lenkungssysteme[7]

Paper IV discusses the use of applicant tracking systems in organizations. Employees' resistance to this type of human resource information system will be investigated in Chapter IV, where, for example, **Paper IV** illustrates the history, the main characteristics and design features of these systems. Figure 10 illustrates that a recruiting system (*"Beschaffungsmanagementsystem"*) is an organizational information system with both a control system (*"Lenkungssystem"*) and a system of services (*"Leistungssystem"*) as well as automated (*"automatisierte"*) and non-automated actors (*"nicht-automatisierte Aufgabenträger"*). The applicant tracking system (*"Bewerbermanagementsystem"*) is the automated actor of the recruiting system (see Figure 10). The main focus of the following papers of the dissertation is to present an analysis of the interplay between the automated and non-automated actors of the recruiting system.

Aufgabenobjekt	Aufgabenträger		Phasenobjekt
	automatisiert	nicht-automatisiert	
Informationssystem (Beschaffungsmanagementsystem)	Bewerbermanagementsystem Anwendungssystem BMS als Lenkungssystem (Analysekomponente)	Manager Sachbearbeiter / Recruiter	**Lenkungssystem** Bewerberanalyse Prozessanalyse Medienanalyse
	Anwendungssystem BMS als Leistungssystem (Datenhaltungs-, Administrations-, Kommunikations-, Assessmentkomponente)	Sachbearbeiter / Recruiter Verantwortliche Fachabteilung Bewerber	**Leistungssystem** Personalmarketing Bewerbungseingang Bewerbermanagement Bewerberauswahl Vertragsmanagement
Basissystem	Maschinen	Angestellte, Arbeiter	

Figure 10: Applicant Tracking Systems as an Organizational Information System (based on Ferstl and Sinz, 2006)

Moreover, using an empirical study with Germany's Fortune 1,000 organizations (Recruiting Trends 2010) **Paper IV** shows that applicant tracking systems enable a more favorable and quicker management of the recruiting process and that these advantages do not differ in relation to the size of the respective organization. However, the results also reveal that for each process step of the recruiting process applicant tracking systems provide benefits for organizations in that vacancies can be filled faster and at lower cost. In relation to the proclaimed *"War for Talent"* (Chambers et al., 1998) these benefits are the basis on which organizations hire qualified employees. Hence, **Paper IV** illustrates that organizations should persuade their recruiters to use these systems and understand driver and the different forms of user resistance.

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[7] Andreas Eckhardt, Sven Laumer, Christian Maier, Tim Weitzel; Bewerbermanagementsysteme in Deutschen Großunternehmen – Wertbeitrag von IKT für Dienstleistungsproduzierende Leistungs- und Lenkungssysteme; Forthcoming: Zeitschrift für Betriebswirtschaftslehre (ZfB)

4.3 MODEL DEVELOPMENT – THEORETICAL FOUNDATION

4.3.1 Paper V: Why do People Reject Technologies? - Towards an Understanding of Resistance to IT-induced Organizational Change[8]

Paper V develops theoretically the proposed Model of Resistance to-IT-induced Organizational Change (MRTOC) as illustrated by Figure 11. Based on the results of the literature analysis **(Paper I, Paper II)**, the model posits that work, technology, and process related outcomes are determined by an extended understanding of resistance to change, perceptions about the technology and perceptions of IT-induced changes of processes or working routines. The beliefs and attitudes regarding the IT-induced change are influenced by the context of the change and individual differences.

Work-related outcomes suggest that conditions of change and change in general predict organizational outcomes such as job satisfaction, organizational commitment and intention to leave the organization. Technology-related outcomes are different usage behaviors or those behaviors of change recipients related to the new technology. Process- or task-related outcomes are behaviors of individuals concerning recently introduced processes, new tasks or other organizational elements and are not directly related to the technology in question.

The main part of the model is a multi-dimensional resistance to change construct, which includes affective and cognitive components. These components reflect three different manifestations of an individual's evaluation of an object or situation. Process perceptions are based on the evaluation of process or working routine changes by individuals, such as perceived ease of implementing or executing or the perceived usefulness of new working routines. Technology perceptions are based on IT acceptance research. All constructs that model the evaluation of and beliefs about technologies by individuals and which have been thoroughly researched, fall into this category.

Moreover, individual differences based on age, gender, tenure, educational background, etc. can influence an individual's evaluation and attitude towards the induced change, technology and process perceptions, and are consequently included in the proposed research model. In addition, theories and research on resistance to change have primarily addressed the context-specific antecedents of resistance. A large variety of contextual variables have been proposed as related to employees' resistance to change. For the hypothesized Model of Resistance to IT-induced Organizational Change the resistance context will be considered as a multidimensional phenomenon and therefore outcome and process variables will be included.

To argue for the interplay between these categories **Paper V** uses the results of the interviews of the automotive supplier case. **Paper V** illustrate that the model is appropriate to gain a deeper understanding of user resistance. The different hypothesis of the model will be validated using different approaches in the fourth chapter of the dissertation.

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[8] Sven Laumer, Andreas Eckhardt; Why do People Reject Technologies? - Towards an Understanding of Resistance to IT-induced Organizational Change; Proceedings of the 31st International Conference on Information Systems (ICIS), St. Louis (MO)
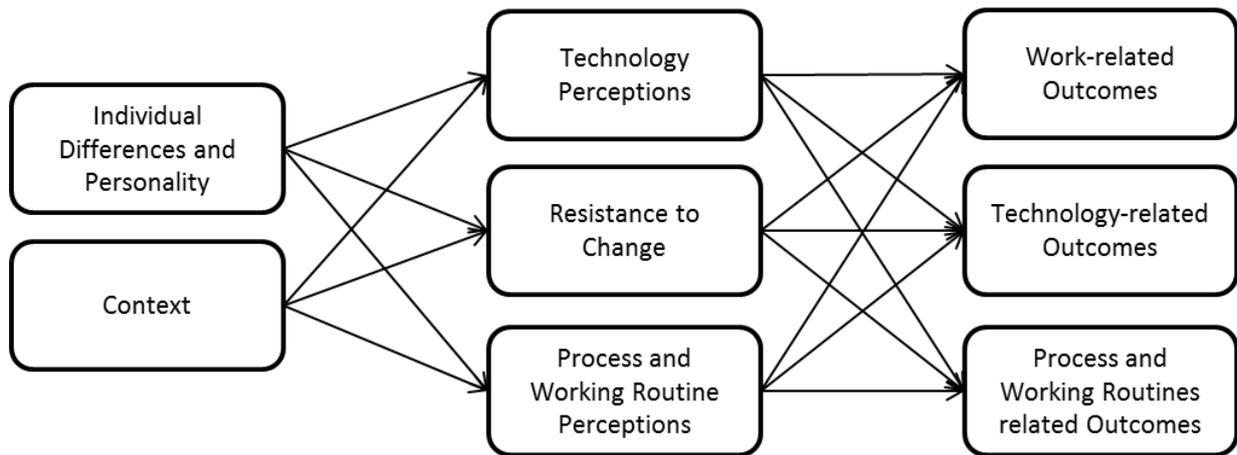
Figure 11: Model of Resistance to IT-induced Organizational Change (MRTOC)

4.4 MODEL VALIDATION – EMPIRICAL EVIDENCE AND IMPLICATIONS

4.4.1 Paper VI: Why Are They Talking So Negatively About My New System? - Theoretical Foundation and Empirical Evidence of Enraged Employees[9]

Based on the proposed Model of Resistance to IT-induced Organizational Change (MRTOC) Paper (**Paper V**) **Paper VI** presents a theoretical discussion based on an extended understanding of resistance to IT-induced change as identified by **Paper II**'s demonstration of the implications for IS research of managerial psychology. Furthermore, it proposes a new variable for capturing an employees' overt and negative resistance behavior in early implementation phases of a new information system. As illustrated by Figure 10 **Paper VI** incorporates individual differences and personality, resistance to change, and technology-related outcomes into the theoretical discussion and empirical analysis of resistance to IT-induced change as proposed by MRTOC (**Paper VI**). These concepts of MRTOC are analyzed using the empirical study conducted during the implementation of e-recruiting at the automotive supplier.

Regarding an extended understanding of resistance to change **Paper VI** argues and provides evidence that resistance to change has affective, cognitive and dispositional components which enable an explanation of different causes leading to user resistance behavior. On the one side user resistance is driven by the perception of the IT and on the other side by cognitive and affective reactions to the change determined by the dispositional one. This approach extends prior conceptualizations of user resistance in IS research (e.g. Bhattacherjee and Hikmet, 2007) and is based on the results of the literature analysis (see **Paper II**).

Moreover, the proposed variable of overt and negative resistance behavior provides an answer to the discussion of the right dependent variable for IT acceptance models in mandatory usage setting, as prior research indicate that an employee's attitude is not necessarily linked with one behavioral intention and corresponding usage behavior (e.g. Brown et al., 2002).

The results of **Paper VI** reveal that an employee's attitude either based on the technology or the change, affects the proposed variable of user resistance behavior.

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[9] Sven Laumer, Andreas Eckhardt, Christian Maier, Tim Weitzel; Why Are They Talking So Negatively About My New System? - Theoretical Foundation and Empirical Evidence of Enraged Employees, Under Review: MIS Quarterly
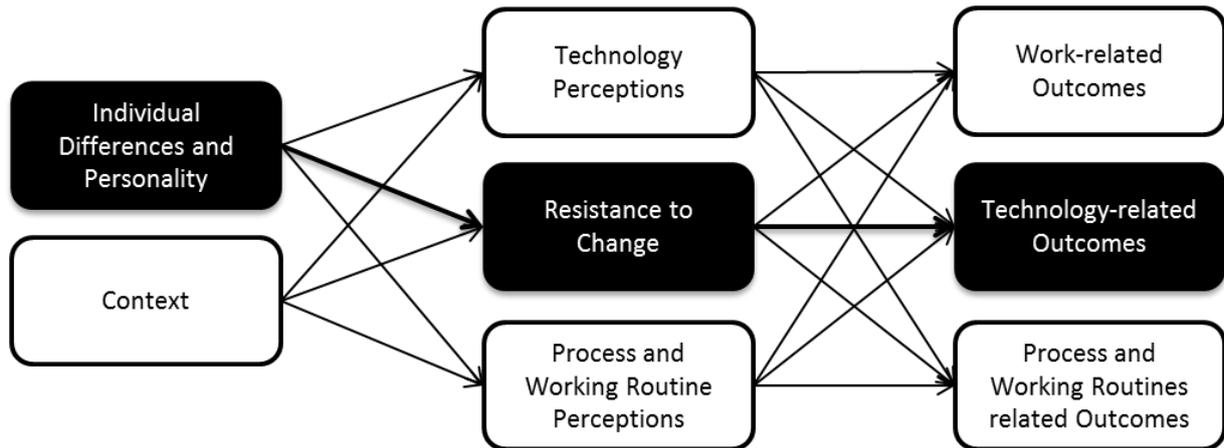
Figure 12: Employees' Resistance to IT-induced Change

4.4.2 Paper VII: Dispositional Resistance to Change and the Evaluation of Technologies by Individuals – An Empirical Study of an IT-Innovation Adoption in Recruiting[10]

Paper VII investigates the extent to which an employees' predisposition to resist change influences the perception of a new information system. Using the concept of dispositional resistance to change as proposed by psychology research (see **Paper II**) and the Unified Theory of Acceptance and Use of Technology (UTAUT) **Paper VII** investigates the proposed effect of MRTOC that individual differences and personality has an impact on an individual perceptions of a new technology (see Figure 11).

Paper VII shows that the disposition to resist changes in general has an impact on the perceived effort and performance expectancy of a new information system and that this effect is even stronger than the impact of age, gender, or working experiences. **Paper VII** is based on the results of the empirical study with the automotive supplier. In order to transfer the concept of dispositional resistance to change into IS research models two pre-studies have been conducted based on the Bewerbungspraxis series to ensure content validity of the used measurement model of the personality trait resistance (Laumer et al., 2010d; Maier et al., 2011a).
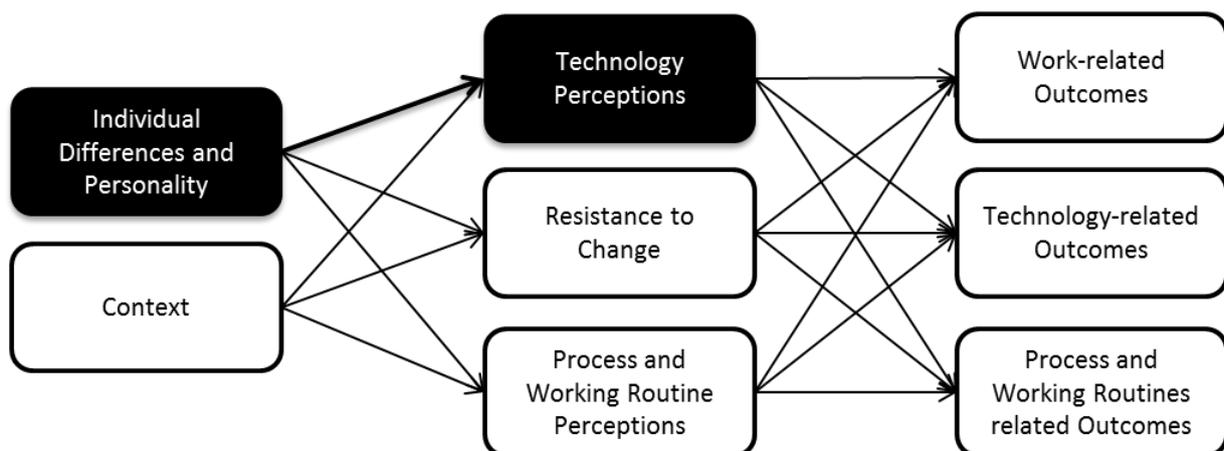
Figure 13: Dispositional Resistance to Change

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[10] Sven Laumer, Christian Maier, Andreas Eckhardt, Tim Weitzel; Dispositional Resistance to Change and the Evaluation of Technologies by Individuals – An Empirical Study an IT-Innovation Adoption in Recruiting; Under Review: European Journal of Information Systems

4.4.3 Paper VIII: Resistance to E-HRM-induced Changes of HR Personnel's Routines – Theoretical Foundation and Empirical Evidence[11]

Paper VIII evaluates an individual's perceptions of IT-induced change of personnel's routines as a major predictor of user resistance. It investigates the impact of process or working routine perceptions on technology-related outcomes (intention to use or usage behavior) and working-routines related outcomes (intention to resist) as proposed by MRTOC (see Figure 11). **Paper VIII** is motivated by an analysis that changing and standardizing working routines is beneficial for organizations while implementing E-HRM (Münstermann et al., 2010; Schreiber et al., 2010; von Stetten et al., 2008).

According to the empirical analysis (based on the automotive supplier study) in **Paper VIII**, user resistance is more strongly influenced by the perceptions of working routines than of the technology. The observed personnel indicate that their resistance is more often driven by effort and performance expectancy of the new working routines than by effort and performance expectancy of the technology. Nonetheless, regarding the intention to use the new technology, the effect of the expectations of the new system is stronger than those relating to the working routines. The results indicate that the drivers of resistance and adoption are different and that resistance is not just the other side of the coin of acceptance.
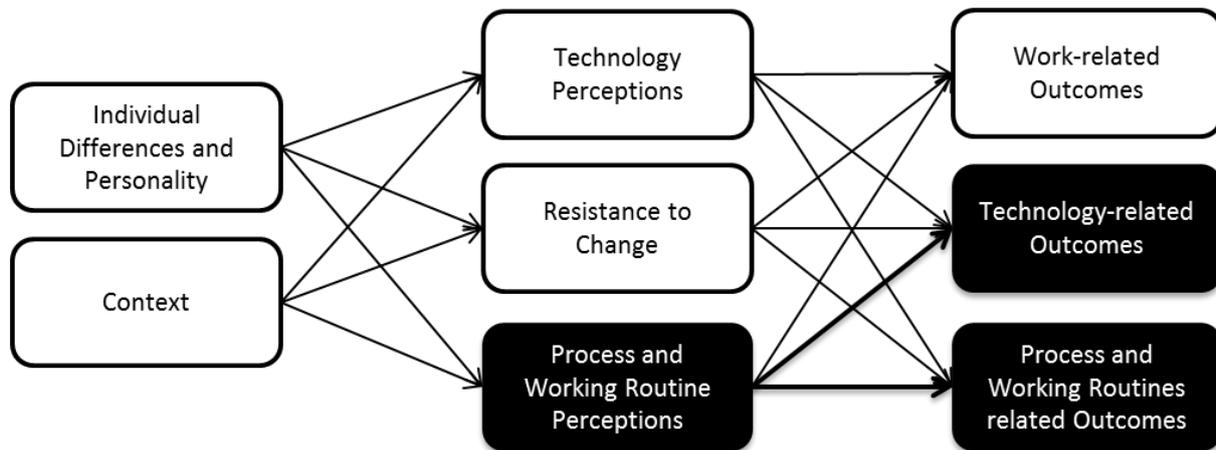
Figure 14: Resistance to IT-induced Changes of Working Routines or Processes

4.4.4 Paper IX: Who influences whom? - Analyzing workplace referents' social influence on IT adoption and non-adoption[12]

Within **Paper IX** the role of a context variable for technology perceptions and technology-related outcomes is investigated as proposed by MRTOC (**Paper V**). Prior research reveals that technology adoption research has long struggled to incorporate normative beliefs from sources in the social environment of adopters or non-adopters into IS research models. Therefore, **Paper IX** studies based on several prior research studies (Eckhardt et al., 2008a; Laumer and Eckhardt, 2010a; Laumer et al., 2010a; Laumer et al., 2008a) the role of social influence from different workplace referent groups, such as superiors and colleagues or the IT department, on the intention to adopt.

Paper IX reveals based on the Unified Theory of Acceptance and Use of Technology while using an empirical data from 152 firms (Recruiting Trends 2009) that the effect of social

[11] Sven Laumer, Andreas Eckhardt, Christian Maier, Tim Weitzel; Resistance to E-HRM-induced Changes of HR Personnel's Routines – Theoretical Foundation and Empirical Evidence; Under Review: MIS Quarterly
[12] Andreas Eckhardt, Sven Laumer, Tim Weitzel; Who influences whom? - Analyzing workplace referents' social influence on IT adoption and non-adoption; Journal of Information Technology (14:1), 11-24

influence for using a technology significantly differs with regard to both source (peer group) and sink (adopters and non-adopters). Non-adopters are mainly influenced by the own department (HR), operations department and the IT department.
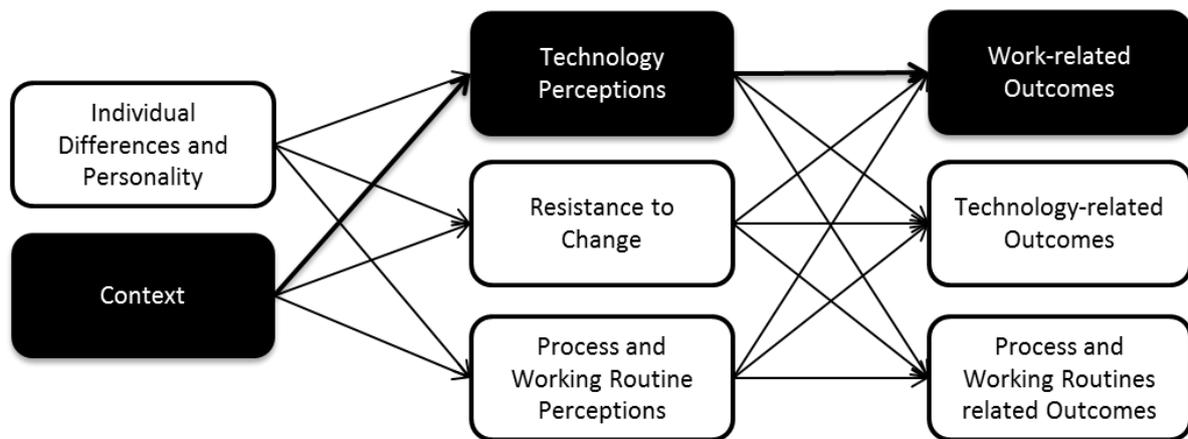
Figure 15: Social Influence and Resistance to Change

4.4.5 Paper X: The Implementation of Large-scale Information Systems in Small and Medium-Sized Enterprises - A Case Study of Work-and Health-related Consequences[13]

Using a case study of a financial service provider, **Paper X** argues theoretically and uses case study evidence to show that negative attitudes toward new information systems have work and health-related consequences. Based on the proposed MRTOC (see **Paper V**) **Paper X** can be categorized as a first step towards an understanding of the influence of technology perceptions and resistance to change on work-related outcomes (see Figure 16). Especially for mandatory usage settings, **Paper X** provides a next step toward an answer to the question, if an employee's attitude is not related to his or her intention to use, what does it influence (Brown et al., 2002)? The results of **Paper X** show that a negative attitude towards a new information system influences work-related outcomes such as job satisfaction and turnover intention as well as health-related ones such as the number of sick days.

4.4.6 Paper XI: Do HRIS Drive Away Employees? – An Empirical Analysis of Work-Related Consequences of Information Systems Implementations[14]

The results derived from **Paper X** and the conducted case study with a financial service provider has been transferred to the recruiting context in **Paper XI**. Using the empirical study conducted with an automotive supplier, **Paper XI** provides empirical evidence for the hypothesized part of MRTOC (see **Paper V**) that technology perceptions and negative attitudes influences work-related outcomes such as job satisfaction and turnover intentions (see Figure 16). The results reveal that negative attitudes influence job satisfaction which in turn has an impact on turnover intention. **Paper XI** provides a theoretical driven and empirical validated answer to Brown et al.'s (2002) question regarding factors which are influenced by an individual's attitude in mandatory settings. The results show that an employee's attitude influences job satisfaction in mandated situations. Moreover, **Paper XI** is in line with Venkatesh et al. (2007)'s findings regarding integrating job satisfaction and turnover intention, and thus by adding two important organizational variables into technology adoption research. This research considers other

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[13] Sven Laumer, Christian Maier, Andreas Eckhardt, Tim Weitzel; The Implementation of Large-scale Information Systems in Small and Medium-Sized Enterprises - A Case Study of Work-and Health-related Consequences; Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS), Maui (HI)

[14] Christian Maier, Sven Laumer, Andreas Eckhardt, Tim Weitzel; Do HRIS Drive Away Employees? – An Empirical Analysis of Work-Related Consequences of Information Systems Implementations; Under Review: Journal of Strategic Information Systems

dependent variables rather than just focusing on intention to use. In addition, **Paper XI** breaks up the black box (Straub and Burton-Jones, 2007) of the technology-focused attitude-behavior relation of technology acceptance models, by integrating an additional technology-independent attitude – job satisfaction – and a technology-independent behavior – turnover intention – into technology acceptance or resistance models.
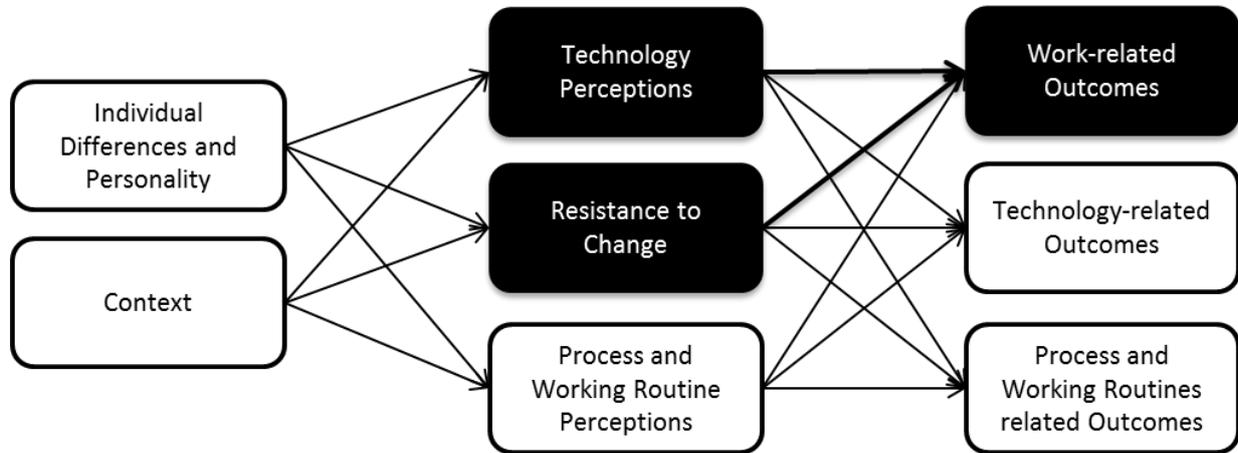
Figure 16: Resistance to Change and Work-related Consequences

4.5 SUMMARY

Using an extensive literature analysis of different disciplines and multiple research methods the dissertation provides an explanation as to how an individual's resistance behavior can be explained during the implementation of an information system in organizations. The different papers included in the thesis highlight different aspects of the proposed Model of Resistance to IT-induced Change. However, the approach and the results presented within this section are limited, although they provide contributions to theory and practice. Hence, in the following section the results presented will be discussed according to their limitations, contributions to theory and practice, and their implications for future research.

5 LIMITATIONS

Due to the research design the results of this cumulative dissertation might be limited due to certain factors. In **Paper I and II** some articles might have not been found during the search for articles dealing with user or employee resistance to change due to the authors' inadequate or wrong key wording of the articles containing a construct for resistance to change. However, for the AIS senior basket, both papers contain all relevant articles.

Moreover, as with any empirical field study, the empirical evaluation of the different aspects of the proposed Model of Resistance to IT-induced change (**Paper VI, Paper VII, Paper VIII, Paper IX, and Paper XI**) has limitations. First of all, the instantiation of the derived categories of the proposed model (**Paper V**) only represents selective example of variables related to these categories. There might be a difference if one uses a different operationalization of the derived categories of individual differences and personality, context, technology or process characteristics, resistance to change, work-, technology-, and process-related outcomes. Nonetheless, the constructs used are derived from a theoretical development of the arguments presented in each paper in order to minimize the effect were there to be different results for a different operationalization.

Furthermore, it should be noted that user resistance and the proposed model (**Paper V**) were mainly discussed and evaluated in the recruiting contexts. Therefore, the results might represent an isolated example derived from staff recruitment which has been evaluated within one organization only. There might be differences for organizations of different size, structure, culture or national specialties and different information systems. In order to check for differences from other domains, **Paper X** discusses the work-related consequences of a financial service provider, and several additional case studies have been conducted to control for user resistance in different industries and different organizations (see section 3.1). These case studies indicate that also in other organizations and industries similar user reactions in terms of perceptions, attitudes and behavior can be observed. Moreover, to ensure content validity of the different constructs used, the measurement models were tested within the Bewerbungspraxis series using on the one side technologies used by job seekers for the recruiting context and on the other side non-recruiting technologies (see among others Laumer and Eckhardt, 2010a, b; Laumer et al., 2010a; Laumer et al., 2010d; Maier et al., 2011a, b).

Moreover, the results of the empirical studies are limited as the data has been collected at one particular point of time and represents examples of the specific time point. The results might be different for data collection at other points of time. Moreover, longitudinal studies that trace the drivers and consequences of user resistance over time will lead to additional insights as will be discussed in the future research section. Nonetheless, the focus of this thesis was on gaining an understanding of why an individual initially resists an IT-induced change initiative in the early implementation phase (as recommended by IS research, Meissonier and Houze, 2010), and so single-point of time studies are appropriate for this particular question.

Regarding the case study results of **Paper III**, **Paper V,** and **Paper X** one has to acknowledge that these case studies only represent examples of the particular organizations observed. The results might differ for other industries or organizations and when applying different change management processes.

6 CONTRIBUTIONS

The theoretical development and empirical evidence of the proposed Model of Resistance to IT-Induced Change has several implications for theory and practice, which will be summarized and highlighted within this section.

6.1 CONTRIBUTIONS TO THEORY

Based on the Theory of Planned Behavior and the Unified Theory of Acceptance and Use of Technology several contributions and implications for IS theory development have been discussed within the different papers of this cumulative dissertation. **Paper I** identifies several opportunities for future research distinguishing between those for understanding user resistance behaviors and those for drivers of user resistance. In addition**, Paper II** discusses implications of managerial psychology research for IS research highlighting that an integration of organizational theories as demanded by Orlikowski and Barley (2001) is beneficial for an extended understanding of resistance to IT-induced change. These identified implications have been examined by **Paper V** as it theoretically develops the Model of Resistance to IT-induced Change highlighting that to understand user resistance, different resistance behaviors and drivers of user resistance have to be identified and investigated. The contributions of the dissertation provide evidence for different aspects of the proposed model such as user resistance behavior in terms of work-, technology-, and process-related outcomes (**Paper VI**, **Paper X, Paper XI**) and drivers of user resistance in terms of individual differences and personality (**Paper VI, VII**), context

variables (here: social influence, **Paper IX**), technology characteristics (**Paper VI, Paper VIII, Paper X, Paper XI)**, resistance to change (**Paper VI**), and working routine or process characteristics (**Paper VIII**) which will be summarized in the following two sub-sections. Figure 17 summarizes the contributions of the cumulative dissertation for the theories and models used in IS research to explain phenomena related to the implementation, acceptance of, or resistance to, an information system.

6.1.1   User Resistance Behavior

In terms of user resistance behavior two contributions have been derived. First of all, within **Paper X** and **Paper XI** job satisfaction and turnover intention have been identified and evaluated as a consequence of negative perceptions about a new information system in organizations. **Paper VI** suggests that enraged employee behavior is a variable for capturing user resistance behavior in early implementation phases.

Both results contribute to theory as they answer Brown et al.'s (2002) question regarding factors which are influenced by an individual's attitude in mandatory usage settings such as the implementation of E-HRM in organizations. Brown et al. (2002) emphasize that an employee's attitude or perception about a technology is not necessarily linked with one's behavioral intention or corresponding usage behavior. As a consequence, they demanded more research which incorporates various attitude-behavior response modes that provide a richer characterization of mandatory environments. Furthermore, both results break up the black box (Straub and Burton-Jones, 2007) of the technology-focused attitude-behavior relation by integrating technology-independent behaviors – voluntary turnover (turnover intention) or enraged employee behavior – into technology acceptance or resistance models. In addition, the results provide an answer to the demand made by Venkatesh et al. (2007) for considerations of different dependent variables besides the intention to use an information system.

With the results of **Paper VI** evidence can be provided that an employee's attitude influences enraged employee behavior as individuals are determined by their attitude to complain, talk negatively about, or protest against the change. This form of resistance behavior is independent from the use of the technology and enables an understanding and measurement of a negative resistance as the rationale to oppose or deceive and as an overt and active resistance in early implementation phases. The results reveal that a negative attitude towards using an information system or the induced change becomes visible in the enraged employee behavior observed within the study conducted for **Paper V**. Future research interested in explaining user resistance in early implementation phase might use this proposed variable as a new dependent variable for measuring and explaining user resistance behavior in early implementation phases.

Moreover, **Paper X** and **Paper XI** provide evidence that an employee's attitude directly influences job satisfaction and indirectly turnover intentions in mandatory usage settings. Since employees have no choice but to use another IS or to reject using the IS altogether, the negative evaluation of the technology becomes noticeable through lower job satisfaction and an increased desire to quit the job. The results of **Paper XI** are also a response to Morris and Venkatesh (2010) who suggested that job outcomes and the relation to technology, has the characteristics of an important research field. With the study conducted for **Paper XI** it can be shown that the perceptions of a technology are important predictors of job outcomes such as job satisfaction or turnover intention, which represent a different conceptualization of user resistance behaviors. Thus, integrating job satisfaction and turnover intention into user resistance or technology acceptance models break up the technology-focused attitude-behavior relation and provides another option for measuring user resistance behavior during the implementation of information systems by focusing on job-related outcomes.
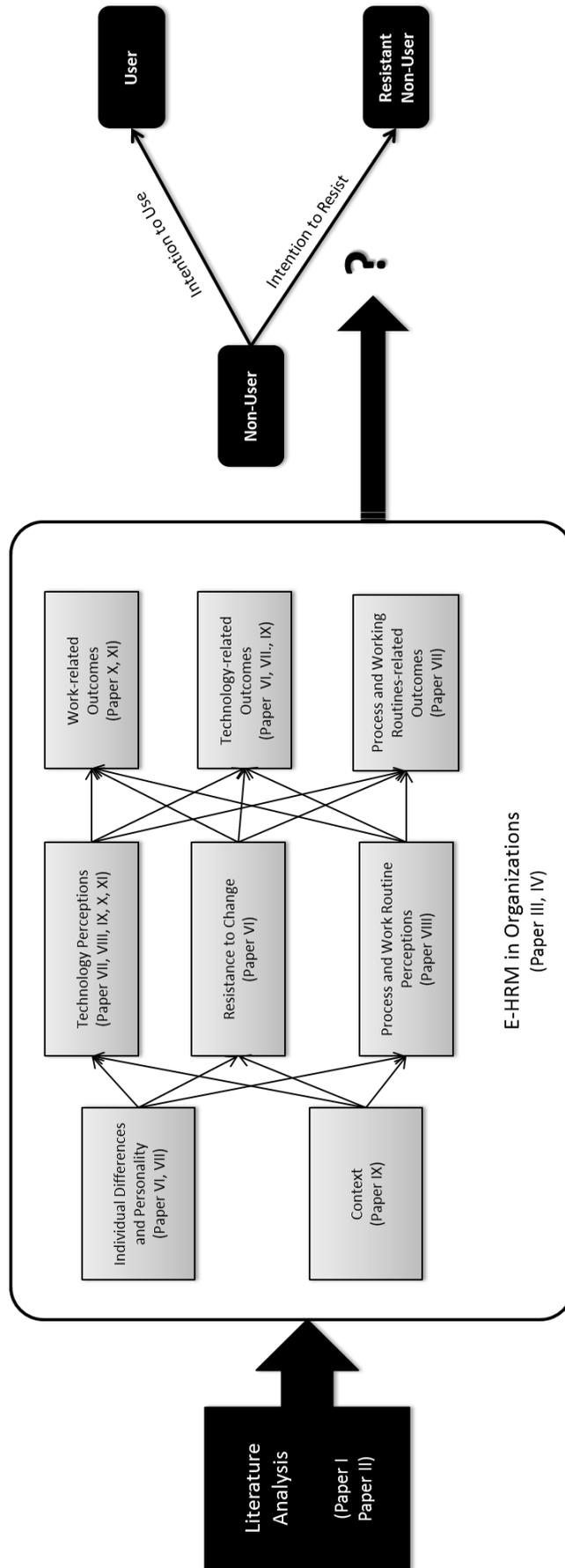
Figure 17: Contributions to Theory

6.1.2 Drivers of User Resistance

In terms of drivers of user resistance several conclusions have been reached. **Paper VI** and **VII** reveal that predispositions of an individual are an important predictor of resistance to information systems in organizations and the perceptions of technologies. Moreover, **Paper VI** suggests an affective and cognitive resistance to change variable as a technology-independent attitude towards the change induced by an information system. **Paper VIII** highlights that changing working routines are a resistant object threatening individuals in organizations during the implementation of an information system which changes these routines. In general, **Paper VI** and **VIII** concludes that resistance to new information systems in organizations is, beside the technology focus of technology acceptance research, also predicted by the resistance to the change from the status quo caused by the new system. Moreover, **Paper IX** provides evidence that social influence as a driver of user resistance is different for adopters and non-adopters.

The contributions have in common that they provide an integration of organizational theory into technology acceptance or user resistance models. For the theoretical development of the argumentation the papers make use of the theoretical lens of technology embeddedness (Volkoff et al., 2007, see section 2.4). This theoretical lens provides the basis for understanding and isolating beliefs and attitudes related to different resistance objects such as the technology, changing working routines or the general change induced by a new information system. This approach is in line with the call by Orlikowski and Barley (2001) for IS research *"to make much more use of more developments in organization theory"* (p.153).

Regarding dispositional resistance to change, **Paper VI** and **VII** contribute to theory by showing that the predispositions of an individual can be evaluated as an important predictor of resistance to information systems in organizations and the perceptions of the technology. Thus, it can be shown that beyond situational beliefs about the technology, an individual's predisposition is also important for understanding the acceptance of or resistance to IT in organizations. Moreover, the results indicate that the impact of dispositional resistance to change is an even better predictor than other common individual-focused factors such as age, gender or working experience. Hence, the results extends the understanding of perceptual beliefs about a technology, since it can be shown that in addition to self-evaluation beliefs such a computer self-efficacy, more general traits are also important predictors of an individual's belief about a technology. These results are an answer to the mandates of Devaraj et al. (2008) who calls for an integration of personality into IS research models, and Venkatesh (2006) who demands an integration of user resistance and personality research. Moreover, it can be shown that besides the perceptions of different resistance objects in a particular IS-induced change situation as discussed by Bhattacherjee and Hikmet (2007), individual characteristics are also important for understanding the respective employee behavior in relation to a new information system.

Furthermore, the results contribute to theory as they break up the black box (Straub and Burton-Jones, 2007) of the technology-focused attitude-behavior relation of the technology acceptance model (Davis, 1989; Venkatesh et al., 2003), by integrating technology-independent attitudes – affective and cognitive resistance to change (**Paper VI**), job satisfaction (**Paper XI**) – or technology-independent beliefs – effort and performance expectancy of working routines (**Paper VIII**) - into technology acceptance or resistance models. The technology-independent multi-dimensional resistance to change construct, as suggested by **Paper VI**, extends the understanding of the specific resistance to change argument discussed by Bhattacherjee and Hikmet (2007). Using affective and cognitive resistance to change indicates that without having used the system in their daily work, users develop different reactions which are based not only on the technology, but also on the changes caused by the new system. Moreover, the results of **Paper VI** reveal that these reactions are an even better predictor of user resistance than the perceptions of the technology. Although, it seems logical and obvious, it is important not to

neglect change related aspects in theories or models explaining employees' perceptions and behaviors in early implementation phases. Given the specific scenario of an early implementation phase of a mandated technology the results reveal that besides offering a different understanding of user behavior in these implementation phases (see section 6.1.1 for a detailed discussion), it is also important to extend the understanding of causes leading to resistance behavior and the underlying resistance objects. Thus, **Paper VI** concludes that for mandated environments it is important to check perceptions of the technology and for different resistance objectives as modeled cumulatively in this study, to show all changes caused by the new system.

The results of **Paper VIII** are an answer to the demand for research on individual acceptance of business processes or working routines (Venkatesh, 2006) and provides an extension of the proposed cumulative understanding of all changes caused by the new information system as introduced by **Paper V**. **Paper VIII** discusses and evaluates effort and performance expectancy of new working routines as strong predictors of user resistance and even stronger than technology perceptions. While suggesting these two constructs **Paper VIII** provides relevant process-centric constructs that can predict the success of new working routines as demanded by Venkatesh (2006). **Paper VIII** also provides evidence, that user resistance and technology acceptance are driven by distinct phenomena, as user resistance is driven more by working routine perceptions and the intention to use than by technology perceptions.

Paper XI extends this discussion by integrating job satisfaction as an attitude based on another object than the ones discussed in **Paper VI** and **VIII**. **Paper XI** is based on the derived case study evidence of **Paper X**. It reveals that also integrating job-related variables break up the technology-focused attitude behavior relationship as it can be shown that negative perceptions about a new information technology causes a decreasing job satisfaction and consequently an increased turnover intention. **Paper X,** as well as **Paper XI,** indicate a different form of user resistance which is related to the working environment rather than to the change situation. They provide evidence that a negative perception of a change leads to negative perceptions of the working environment (job satisfaction) and consequences related to the job in general than the specific change situation.

Beside the characteristics of the specific situation or the individual, **Paper IX** focuses on the social environment and concludes that the influence of people in the working environment has different impacts on adopters or non-adopters of a specific technology. **Paper IX** extends the understanding of the social influence for technology acceptance or resistance decisions as it highlights that non-adopters are mainly influenced by people of their own department (HR), the operating department, and the IT department. In contrast, adopters are influenced by the own department (HR) and superiors. **Paper IX** indicates that measuring the social influence of a particular group and for different recipients yields substantially better results in terms of the explanatory power of the respective research model and also in terms of understanding the impact of the social environment on adoption and non-adoption decisions. Therefore, **Paper IX** proposes an approach that measures workplace referents' social influence that is differentiated for source (different peer groups) and sink (adopters or non-adopters) and showing significant differences for both source and sink.

In addition to the contribution to user resistance and technology acceptance theories the results of the dissertation also contribute to theories and model related to E-HRM in particular. **Paper IV** shows that applicant tracking systems provide business value for organizations, however these benefits are financial and time-related rather than qualitative ones and that resistance to applicant tacking systems has to be classified as a negative resistance as it hinders organizations from realizing the full potential of these systems. Therefore, **Paper IV** provides an answer for the requests of prior research to analyze the controversial discussed and ambiguous business value of E-HRM (Lee, 2007; Strohmeier, 2007) for the particular case of e-recruiting.

6.2 CONTRIBUTIONS TO PRACTICE

The contributions to practice of the dissertation can be classified as either implications for change management or as implications for ensuring the success of E-HRM implementations. A general implication from the results is that it is unlikely that *"one size will fit all"* in terms of enabling effective and efficient change management as well as the success of E-HRM.

Paper III is explicitly designed to provide implications for practice. The FIT-Framework introduced in **Paper III** enables managers to select based on the timeframe, cost, and scarcity of talent recruiting, measures most appropriate for the particular recruiting situation. Based on the insight that HR personnel is resistant to IT-based recruiting measures, the FIT-Framework supports a target-aimed selection of IT-based methods in order to reduce the changes of working routines for recruiters.

Moreover, **Paper IV** shows that implementing applicant tracking systems is beneficial for organizations as it reduces the time-to-hire and the costs per hire. These benefits can be realized independently of the size of the organization. Managers discussing the potential implementation of an applicant tracking system might use these results to provide senior executives with an argument that their organization will benefit from IT-support in recruiting.

For change or implementation management the results indicate that even by designing systems to the most appropriate guidelines and principles, an almost perfect system may be perceived negatively. Interpreting the results the other way around, one can see that design failures may not be the only reason that an individual perceive a technology negatively as **Paper VII** discusses the importance of individual focused predictors of user resistance. Thus, if organizations are searching for employees who perceive management initiatives positively one might hire people with a low level of dispositional resistance to change. During the implementation of an information system those employees with a high level of dispositional resistance to change may benefit most from training that focuses on the ease of using new information systems, as employees with high dispositional resistance to change exhibit mostly negative effort expectancy beliefs. Consequently, it might be appropriate to ensure the implementation success to design different training measures according to the personality of employees.

In this context, **Paper VI** indicates that affective and cognitive resistance to change influence enraged employee behavior. Therefore, organizations might consider different ways and means of addressing the emotional and cognitive reactions of employees. As distinguishing between affective and cognitive responses is valid for the theoretical model, it is also appropriate for discussing practical implications. Thus, on the one side, implementing channels where employees could communicate their emotions about the change to address affective reactions of employees are necessary to reduce resistance behavior of employees. Being aware of emotional reactions in the early implementation phase and offering an official channel or valve, where employees can discuss different aspects of the change will prevent them from talking to others about the change. On the other side, implementing platforms where managers and employees could discuss about the change initiative and exchange arguments pro and contra the change are appropriate to take cognitive responses into consideration. Both examples illustrate, that it is important for implementation or change managers to implement channels for a guided conversation of employees so that affective and cognitive responses can be articulated and discussed under the control of management. With official channels the diffusion of rather negative conversations through the organization can be hindered. Based on **Paper IX** one possibility for influencing conversations about a change initiative is peer group marketing (see **Paper III** for an explanation of the measure). As **Paper IX** shows adopters and non-adopters are influenced by different groups such as identifying opinion leaders within groups or departments help organizations to

reduce individual's affective and cognitive resistance to change and consequently their behavioral reactions such as enraged employee behavior or employee turnover. Thus, project management might use conversations on their own in order to convince employees to talk positively about the change and present their support of the project to their colleagues so as to lower negative perceptions about the IT-induced change initiative.

Moreover, **Paper VIII** highlights the importance of working routine perceptions on user resistance. Thus, if a new system is changing both technologies and routines organizational change management measures might be targeted at both objects. Trainings or the communication strategy should not only target at the new technology and the efforts to use it, but also on the benefits and practicability of new working routines. Based on the results of **Paper VIII** organizations might provide employees the possibility to obtain the knowledge and skills to interact especially with the new working routines and tasks as effort expectancy of working routines has been evaluated as a significant predictor of user resistance.

Paper X indicates that system implementations might increase the number of days people are sick and **Paper XI** confirms the impact of technology perception of job-related outcomes such that designing work environments which address employees' needs is the precondition that employees work in a satisfied manner within their job and do not intend to quit. Implementing new information systems in a manner perceived negatively by employees will decrease their job satisfaction and increase their turnover intentions. Therefore, reducing an employee's fear towards a new technology through appropriate measures such as well-designed training is important to retain employees at the organization.

Regarding successful E-HRM (here: e-recruiting) the results reveal that HRIS implementation not only impacts business processes, HR architecture, competitive advantages, or balance sheets as intended, but also has an influence on HR employee. Therefore, ensuring E-HRM success requires technical, organizational and individual factors.

7 FUTURE RESEARCH

With the results of the thesis several implications for theory have been derived in order to explain why an individual resists an IT-induced change. According to Figure 18 the results of the thesis focus mainly on the transformation of a non-user to a resistant non-user. However, as Figure 18 indicates, there are several opportunities for future research to investigate user resistance and technology acceptance from different perspectives. First of all, future research might discuss what factors might influence resistant users to rethink their decision and why they might start using a technology although they decided beforehand to resist an IT-induced change. Moreover, if individuals decided to start to use a technology another form of user resistance is that these individuals decide to stop using a particular technology or to resist an IT-induced change after a period of excited usage. A different scenario might be, why and how users become a power user of a technology and how and why individuals transform between these categories of technology acceptance and resistance.

For these scenarios future research might consider whether those with a high level of dispositional resistance to change modify their attitudes and beliefs in different ways from those with a low level of this personality trait. One could argue that on the one hand those employees with a high level of dispositional resistance to change will not change their opinion easily. However, when convinced of a change initiative they will be long-term supporters of this project. On the other hand one might hypothesize that employees with a high level of dispositional resistance to change perceive new ideas negatively also at the moment the system should be

replaced with a new system. Investigating these hypotheses may make clearer the impact of dispositional resistance to change during the lifecycle of an IT innovation.

Regarding the impact of perceptions of different objects (technology, change, working routines) as discussed in the dissertation for user resistance future research might continue the discussion by focusing on an analysis whether these factors are important for additional decisions made during the proposed user transformations as illustrated by Figure 18. In addition, future research might identify additional objects an individual evaluates during the implementation of an information system. Organizational science research points to changes in organizational structures, culture or individual roles as possible resistant objects (Volkoff et al., 2007). In this context, future research might specific affective and cognitive resistance to change based on different change elements. With the variable used in this research, the evaluation of change has been captured within cumulative affective and cognitive reactions. Moreover, future research might specify the beliefs related to the change in general and different change objects. For example, it might be beneficial to analysis whether performance or effort expectancy of the change has an impact on affective and cognitive resistance to change and the resulting user resistance behavior. Regarding working routine perceptions, such as specification which has been confirmed within this dissertation, future research might focus on conceptualizing additional relevant process characteristics that can influence employee acceptance and resistance to IT-induced change. One possible focus might be on an individual's acceptance of business process standardization.
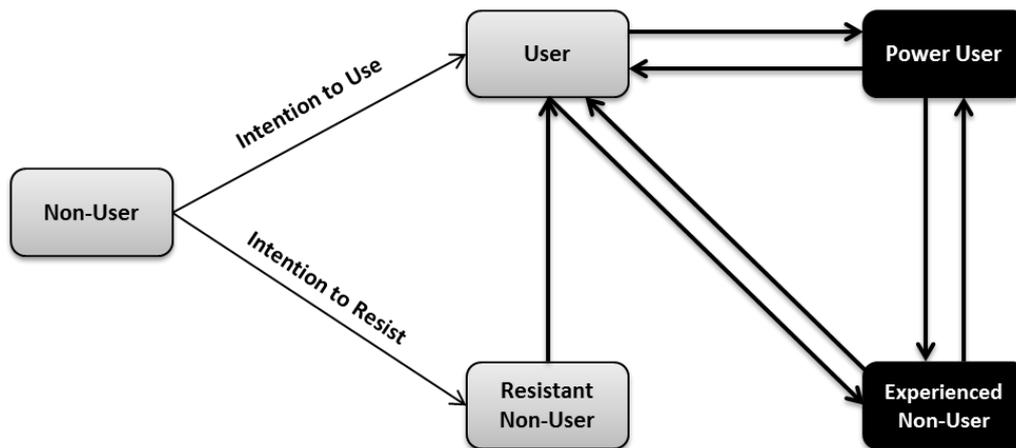
Figure 18: User Transformation Model

Regarding user resistance behavior it is important both to understand at what stages of the implementation process or the product lifecycle of an IT innovation and what kind of user resistance behaviors occur and what the predictors of these different user resistance behaviors are.

Regarding an integration of organizational theory into IS research models there are also remaining opportunities for IS research as discussed in **Paper II**. This thesis does not focus on change agent sensemaking or the recipient-change agent relationship during IS implementation projects, and so future research might consider these perspectives to explain user resistance to IT-induced change. In this context the social constructivist view indicates that resistance is an outcome of a constructed organizational context resulting from the change agent-recipient relationship rather than a one-sided behavior with resistance only occurring in the change recipients. Thus, future research might build on the presented idea and take into account that all organizational members are responsible for the construction of realities and to recognize that none of these realities might be the correct one.

8 CONCLUSION

The main objective of this dissertation is to provide theoretical explanations and empirical evidence as to why people resist an IT-induced change initiative and how an individual's resistance behavior can be explained during the implementation of an information system in organizations. Based on the results it can be concluded that it is important to distinguish between user resistance behavior and causes of user resistance. Within the dissertation two additional user resistance behaviors are suggested and evaluated: voluntary turnover and enraged employee behavior. Moreover, the dissertation focuses on the causes of user resistance. In this context dispositional resistance to change as an example of individual differences and personality, social influence as an context variable, performance and effort expectancy of new working routines as an operationalization of process perceptions, technology perceptions and affective and cognitive resistance to change have been evaluated as predictors of different user resistance behaviors including those provided by prior research and those suggested within this thesis.

In the beginning the dissertation was motivated by different examples of user resistance and work-related consequences for organizations and employees. While using the results derived from the thesis these examples can be explained and might guide managers to implement new information systems, successfully taking employees reactions and emotions into account. Moreover, the results illustrate that resistance to E-HRM is rather counter-productive as it hinders organizations from realizing the full and strategic impact of these systems. Therefore, using the results discussed in the dissertation will enable HR personnel to agree with one manager interviewed in a case study, who makes the following observation after the successful implementation of E-HRM in his organization and on the basis of more than ten years experience using IT in HR:

> *"Indeed, we are HR and HR is a people business, and even for a people business technologies enable us to do our work more effectively and to provide useful solutions to employees and business partners. Now, we can do real people business."*

9 REFERENCES

Ajzen, I. 1985. From intentions to actions: A theory of planned behavior. In J. Kuhl, and J. Beckmann (Eds.), *Action Control: From Cognition to Behavior B2 - Action Control: From Cognition to Behavior*: 11-39. New York: Springer.

Ajzen, I. 1991a. The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2): 179-211.

Ajzen, I. 1991b. The Theory of Planned Behavior Some Unresolved Issues, *Organizational Behavior and Human Decision Processes*, Vol. 50: 179-211.

Ajzen, I., and Fishbein, M. 1980. *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice Hall.

Anderson, J. C., and Gerbing, D. W. 1982. Some Methods for Respecifying Measurement Models to Obtain Unidimensional Construct Measurement, *Journal of Marketing Research* (JMR), 19(4): 453-460.

Bagozzi, R. P., and Yi, Y. 1988. On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Science*, 16(1): 74-94.

Benbasat, I., and Barki, H. 2007. Quo vadis, TAM? *Journal of the Association for Information Systems*, 8(4): 211-218.

Bercovitz, J., and Feldman, M. 2008. Academic Entrepreneurs: Organizational Change at the Individual Level. *Organization Science*, 19(1): 69-89.

Bhattacherjee, A., and Hikmet, N. 2007. Physicians' resistance toward healthcare information technology: a theoretical model and empirical test. *European Journal of Information Systems*, 16(6): 725-737.

Bondarouk, T., and Ruël, H. 2009. Electronic Human Resource Management: challenges in the digital era. *International Journal of Human Resource*, 20(3): 505–514.

Boudreau, M.-C., and Robey, D. 2005. Enacting Integrated Information Technology: A Human Agency Perspective. *Organization Science*, 16(1): 3-18.

Brown, S. A., Massey, A. P., Montoya-weiss, M. M., and Burkman, J. R. 2002. Do I really have to? User acceptance of mandated technology. *European Journal of Information Systems*, 11(4): 283-295.

Buhl, H., and Meier, M. 2011. Die Verantwortung der Wirtschaftsinformatik bei IT-Großprojekten. *Wirtschaftsinformatik*, 52(2): 59-62

Cenfetelli, R. T. 2004. Inhibitors and Enablers as Dual Factor Concepts in Technology Usage. *Journal of the Association for Information Systems*, 11-12(472-492).

Chambers, E. G., Foulon, F., Handfield-Jones, H., Hankin, S. M., and Michaels, E. G. 1998. The War for Talent. *The McKinsey Quarterly*, 1.

Chin, W. W. 1998. Issues and opinion on structural equation modeling. *MIS Quarterly*, 22(1): vii.

Churchman, C. W., and Schainblatt, A. H. 1965. The researcher and the manager: A dialectic of implementation. *Management Science*, 11(4): 69-87.

Clegg, C., and Walsh, S. 2004. Change management: Time for a change! *European Journal of Work and Organizational Psychology*, 13(2): 217-239.

Coch, L., and French, J. R. P., Jr. 1948. Overcoming resistance to change. *Human Relations*, 4: 512-532.

Compeau, D., Higgins, C. A., and Huff, S. 1999. Social Cognitive Theory and Individual Reactions to Computing Technology: A Longitudinal Study. *MIS Quarterly*, 23(2): 145-158.

Compeau, D. R., and Higgins, C. A. 1995. Computer Self-Efficacy: Development of a Measure and Initial Test. *MIS Quarterly*, 19(2): 189-211.

Davis, F. D. 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3): 319-340.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. 1989. User Acceptance of Computer Technolgoy: A Comparison of Two Theoretical Models. *Management Science*, 35(8): 982-1003.

Dery, K., Hall, R., and Wailes, N. 2006. ERPs as 'technologies-in-practice': social construction, materiality and the role of organisational factors. *New Technology, Work and Employment*, 21(3): 229-241.

Devaraj, S., Easley, R. F., and Crant, J. M. 2008. How Does Personality Matter? Relating the Five-Factor Model to Technology Acceptance and Use. *Information Systems Research*, 19(1): 93-105.

Dickson, G., and Simmons, J. 1970. The behavioural side of MIS: some aspects of the people problem. *Business Horizons*, 4: 59-71.

Eckhardt, A., Brickwedde, W., Laumer, S., and Weitzel, T. 2011a. The Need for a Recruiter 2.0 for Hiring IT Talent - The German Software Manufacturer Case. In J. Luftman (Ed.), *Managing IT Human Resources: Considerations for Organizations and Personnel*: IGI Publishing.

Eckhardt, A., and Laumer, S. 2009. An IT-Architecture to Align E-Recruiting and Retention Processes. *International Journal of E-Services and Mobile Applications* 1(2): 38-61.

Eckhardt, A., and Laumer, S. 2010. An IT-Architecture to Align E-Recruiting and Retention Processes. In I. R. M. Association (Ed.), *Electronic Services: Concepts, Methodologies, Tools and Applications*.

Eckhardt, A., Laumer, S., and Maier, C. 2011b. Introducing a First Step towards a Holistic Talent Management System Architecture. In A. Scupola (Ed.), *Developing Technologies in E-Services, Self-Services, and Mobile Communication: New Concepts*. Hershey (PA): IGI Global.

Eckhardt, A., Laumer, S., von Stetten, A., Weitzel, T., Kaestner, T. A., and von Westarp, F. 2011c. Recruiting Trends im Mittelstand 2011 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand. Bamberg, Frankfurt am Main, Germany: Centre of Human Resources Information Systems (Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt am Main).

Eckhardt, A., Laumer, S., von Stetten, A., Weitzel, T., and König, W. 2009a. Recruiting Trends im Mittelstand 2009 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand: Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt.

Eckhardt, A., Laumer, S., and Weitzel, T. 2008a. Reconsidering Subjective Norm - A Multilayer-Framework for Modeling Normative Beliefs in IT Adoption, *Proceedings of the 14th Americas Conference on Information Systems (AMCIS)*. Toronto, ON, Canada.

Eckhardt, A., Laumer, S., Weitzel, T., and König, W. 2008b. Recruiting Trends 2008 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen in Deutschland sowie den Top-300-Unternehmen aus den Branchen Energieversorgung, Gesundheit und Wellness sowie Informationstechnologie: Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt.

Eckhardt, A., von Stetten, A., and Laumer, S. 2009b. Value Contribution of IT in Recruiting - A Multi-National Causal Analysis, *Proceedings of the 2009 ACM SIGMIS CPR Conference*. Limerick, IrelandView Abstract.

Eisenhardt, K. M. 1989. Building Theories from Case Study Research. *The Academy of Management Review*, 14(4): 532-550.

Elias, S. M. 2009. Employee Commitment in Times of Change: Assessing the Importance of Attitudes Toward Organizational Change. *Journal of Management*, 35(1): 37-55.

Enns, H. G., Huff, S. L., and Higgins, C. A. 2003. CIO Lateral Influence Behaviors: Gaining Peers' Commitment to Strategic Information Systems. *MIS Quarterly*, 27(1): 155-176.

Ferneley, E. H., and Sobreperez, P. 2006. Resist, comply or workaround? An examination of different facets of user engagement with information systems. *European Journal of Information Systems*, 15(4): 345-356.

Ferstl, O. K., and Sinz, E. J. 2006. *Grundlagen der Wirtschaftsinformatik*. München Oldenbourg.

Fishbein, M., and Ajzen, I. 1975. *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley Publishing Company.

Fornell, C. 1987. A Second Generation of Multivariate Analysis: Classification of Methods and Implications for Marketing Research. In M. J. Houston (Ed.), *Review of Marketing*: 407-450. Chicago, IL: American Marketing Association.

Gefen, D., Straub, D. W., and Boudreau, M.-C. 2000. Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems*, 4(7): 1-77.

Gibson, C. F. 2003. IT-Enabled Business Change: An Approach to Understanding and Managing Risk. *MIS Quarterly Executive*, 2(2): 104-115.

Gosain, S. 2004. Enterprise information systems as objects and carriers of institutional forces: The new iron cage? *Journal of the Association for Information Systems*, 5(4): 151-182.

Heath, C., Knez, M., and Camerer, C. 1993. The strategic management of the entitlement process in the employment relationship. *Strategic Management Journal*, 14(S2): 75-93.

Hirschheim, R. 2007. Introduction to the Special Issue on 'Quo Vadis TAM - Issues and Reflections on Technology Acceptance Research'. *Journal of the Association for Information Systems*, 8(4): 203-205.

Hirschheim, R., and Newman, M. 1988. Information Systems and User Resistance: Theory and Practice. *The Computer Journal*, 31(5): 398-408.

Homburg, C., and Dobratz, A. 1991. Iterative Modellselektion in der Kausalanalyse. *Zeitschrift fuer betriebswirtschaftliche Forschung*, 48(3): 213-237.

Homburg, C., and Pflesser, C. 1999. Strukturgleichungsmodelle mit latenten Variablen: Kausalanalyse. In A. Herrmann, andC. Homburg (Eds.), *Marktforschung*: 633-659. Wiesbaden: Gabler.

Jermier, J. M., Knights, D., and Nord, W. (Eds.). 1994. *Resistance and Power in Organisation*. London: Routledge.

Jiang, J. J., Muhanna, W. A., and Klein, G. 2000. User resistance and strategies for promoting acceptance across system types. *Information & Management*, 37(1): 25-36.

Jöreskog, K. 1978. Structural analysis of covariance and correlation matrices. *Psychometrika*, 43(4): 443-477.

Jöreskog, K. G. 1973. A General Method for Estimating a Linear Structural Equation System. In A. S. Goldberger, andO. D. Duncan (Eds.), *Structural Equation Models in Mathematical Psychology*, Vol. 2: 85-112. New York.

Jöreskog, K. G., and Sörbom, D. 1982. Recent Developments in Structural Equation Modeling. *Journal of Marketing Research (JMR)*, 19(4): 404-416.

Joshi, K. 1991. A Model of Users' Perspective on Change: The Case of Information Systems Technology Implementation. *MIS Quarterly*, 15(2): 229-242.

Kaplan, B., and Duchon, D. 1988. Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study. *MIS Quarterly*, 12(4): 571-586.

Karahanna, E., Straub, D. W., and Chervany, N. L. 1999. Information Technology Adoption Across Time: A Cross-Sectional Comparison of Pre-Adoption and Post-Adoption Beliefs. *MIS Quarterly*, 23(2): 183-213.

Keen, P. G. W. 1981. Information systems and organizational change. *Commun. ACM*, 24(1): 24-33.

Kim, H.-W., and Kankanhalli, A. 2009. Investigting User Resistance to Information Systems Implementation: A Status Quo Bias Perspective. *MIS Quarterly*, 33(3): 567-582.

Klaus, T., and Blanton, J. E. 2010. User resistance determinants and the psychological contract in enterprise system implementations. *European Journal of Information Systems*, 19(6): 625-636.

Klaus, T., Wingreen, S. C., and Blanton, J. E. 2010. Resistant groups in enterprise system implementations: a Q-methodology examination. *Journal of Information Technology*, 25(1): 91-106.

Lang, S., Laumer, S., and Eckhardt, A. 2011. Drivers, Challenges and Consequences of E-Recruiting - A Literature Review, *Proceedings of the 2011 ACM SIGMIS CPR Conference*. San Antonio (TX).

Lapointe, L., and Rivard, S. 2005. A Multilevel Model of Resistance to Information Technology Implementation. *MIS Quarterly*, 29(3): 461-491.

Laumer, S. 2009. Non-Monetary Solutions for Retaining the IT Workforce. *Proceedings of the 2009 Americas Conference on Information Systems (AMCIS)*. San Francisco, CA

Laumer, S., Blinn, N., and Eckhardt, A. 2012a. Opening the Black Box of Outsourcing Knowledge Intensive Business Processes - A Longitudinal Case Study of Outsourcing Recruiting Activities, *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS)*. Maui (HI).

Laumer, S., and Eckhardt, A. 2009a. Help to find the Needle in a Haystack - Integrating Recommender Systems in a IT supported Staff Recruitment System, *Proceedings of the 2009 ACM SIGMIS CPR Conference*. Limerick, Ireland.

Laumer, S., and Eckhardt, A. 2009b. What makes the difference? - Introducing an integrated information system architecture for employer branding and recruiting. In T. Bondarouk, H. Ruel, E. Oiry, andK. Guiderdoni (Eds.), *Handbook of Research on E-Transformation and Human Resources Management Technologies*: 275-288. Hershey (PA): Information Science Reference.

Laumer, S., and Eckhardt, A. 2010a. The Internet as Additional Secondary Source - First empirical Results for Differentiating the Impact of Secondary Sources on the Intention to use IT, *Proceedings of the 16th Americas Conference on Information Systems (AMCIS)*. Lima, Peru.

Laumer, S., and Eckhardt, A. 2010b. Online Gaming Platforms to Apply for Jobs - Proposing a Research Model to Investigate Job Seekers' Behavior, *Proceedings of the 3rd Academic Workshop on Electronic Human Resource Management*. Bamberg, Germany.

Laumer, S., Eckhardt, A., and Trunk, N. 2010a. Do as your parents say? - Analyzing IT adoption influencing factors for full and under age applicants. *Information Systems Frontiers* 12(2): 169-183.

Laumer, S., Eckhardt, A., von Stetten, A., and Weitzel, T. 2011. Recruiting Trends 2011 Österreich - Eine empirische Untersuchung mit den Top-500 Unternehmen aus Österreich. Bamberg, Frankfurt am Main, Germany: Centre of Human Resources Information Systems (Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt am Main).

Laumer, S., Eckhardt, A., von Stetten, A., Weitzel, T., and König, W. 2010b. Recruiting Trends im Mittelstand 2010 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand: Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt.

Laumer, S., Eckhardt, A., and Weitzel, T. 2008a. Do as your Competitors Do? - Analyzing Competitors' Influence on the Non-Adoption of Information Systems In Organizations, *Proceedings of the 16th European Conference on Information Systems (ECIS)*. Galway, Ireland.

Laumer, S., Eckhardt, A., and Weitzel, T. 2009a. Status Quo and Trends in E-Recruiting - Results from an Empirical Analysis, *Proceedings of the International Conference on Information Resources Management (CONF-IRM)*. Dubai, United Arab Emirates.

Laumer, S., Eckhardt, A., and Weitzel, T. 2010c. Electronic Human Resources Management in an E-Business Environment. *Journal of Electronic Commerce Research*, 11(4): 240-250.

Laumer, S., Eckhardt, A., Weitzel, T., and König, W. 2008b. Recruiting Trends im Mittelstand 2008 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem Deutschen Mittelstand: Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt.

Laumer, S., Maier, C., and Eckhardt, A. 2010d. Why do they resist? - An empirical analysis of an individual's personality trait resistance regarding the adoption of new information systems, *Proceedings of the 18th European Conference on Information System (ECIS 2010)*. Pretoria, South Africa.

Laumer, S., Maier, C., Eckhardt, A., von Stetten, A., and Weitzel, T. 2012b. Recruiting Trends 2012 Österreich - Eine empirische Untersuchung mit den Top-500 Unternehmen aus Österreich. Bamberg, Frankfurt am Main und Wien: Centre of Human Resources Information Systems (Universität Bamberg, Universität Frankfurt am Main).

Laumer, S., Maier, C., Eckhardt, A., and Weitzel, T. 2012c. The Implementation of Large-scale Information Systems in Small and Medium-Sized Enterprises - A Case Study of Work- and Health-related Consequences, *Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS)*. Maui (HI).

Laumer, S., von Stetten, A., and Eckhardt, A. 2009b. E-Assessment. *Business and Information Systems Engineering* 1(3): 263-265.

Laumer, S., von Stetten, A., Eckhardt, A., and Keim, T. 2009c. Online Gaming to Apply for Jobs - the Impact of Self- and E-Assessment on Staff Recruitment, *Proceedings of the 42nd Hawaii International Conference on System Sciences (HICSS)*. Big Island (HI).

Laumer, S., von Stetten, A., Eckhardt, A., Weitzel, T., and König, W. 2009d. Recruiting Trends 2009 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen in Deutschland sowie den Top-300-Unternehmen aus den Branchen Aerospace, Bildung und Erziehung sowie Transport und Logistik: Recruiting Trends 2009 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen in Deutschland sowie den Top-300-Unternehmen aus den Branchen Aerospace, Bildung und Erziehung sowie Transport und Logistik.

Lee, A. S. 1989. A Scientific Methodology for MIS Case Studies. *MIS Quarterly*, 13(1): 33-50.

Lee, I. 2007. An architecture for a next-generation holistic e-recruiting system. *Commun. ACM*, 50(7): 81-85.

Lee, Y., Kozar, K. A., and Larsen, K. 2003. The Technology Acceptance Model: Past, Present, and Future. *Communications of the Association for Information Systems*, 12(50): 752-780.

Leeflang, P. S. H., Wittink, D. R., Wedel, M., and Naert, P. A. 2000. *Building Models for Marketing Decisions*. Boston: Springer.

Lewin, K. 1947. Frontiers in Group Dynamics: Concept, Method and Reality in Social Science; Social Equilibria and Social Change. *Human Relations*, 1: 5-41.

Lippert, S. K., and Swiercz, P. 2005. Human resource information systems (HRIS) and technology trust. *Journal of Information Science*, 31(3): 340-353.

Lucas, H. C. J., Swanson, E. B., and Zmud, R. 2007. Implementation, Innovation, and Related Themes Over The Years In Information Systems Research. *Journal of the Association for Information Systems*, 8(4): Article 17.

Luftman, J., Kempaiah, R., and Rigoni, E. H. 2009. Key Issues for IT Executives 2008. *MIS Quarterly Executive*, 8(3).

Maier, C., Laumer, S., and Eckhardt, A. 2010. Technology Adoption by Elderly People - An Empirical Analysis of Adopters and Non-Adopters of Social Networking Sites, *Tagungsband zur 10. Internationalen Tagung Wirtschaftsinformatik*. Zürich, Schweiz.

Maier, C., Laumer, S., and Eckhardt, A. 2011a. *Dispositional Resistance to Change and Social Network Site Adopters' and Non-Adopters' Attitudinal Beliefs - An Empirical Analysis*. Paper presented at the Proceedings of the 19th European Conference on Information System (ECIS), Helsinki, Finland.

Maier, C., Laumer, S., and Eckhardt, A. 2011b. Technology Adoption by Elderly People - An Empirical Analysis of Adopters and Non-Adopters of Social Networking Sites. In A. Heinzl, P. Buxmann, O. Wendt, andT. Weitzel (Eds.), *Theory-Guided Modeling and Empiricism in Information Systems Research*. Heidelberg: Physica-Verlag.

Maier, C., Laumer, S., Eckhardt, A., Von Stetten, A., Weitzel, T., and Guhl, E. 2012. Recruiting Trends im Mittelstand 2012 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand. Bamberg und Frankfurt am Main: Centre of Human Resources Information Systems (Universität Bamberg, Universität Frankfurt am Main).

Marakas, G. M., and Hornik, S. 1996. Passive resistance misuse: overt support and covert recalcitrance in IS implementation. *European Journal of Information Systems*, 5(3): 208-219.

Markus, M. L. 1983. Power, politics, and MIS implementation. *Commun. ACM*, 26(6): 430-444.

Martinko, M. J., Zmud, R. W., and Henry, J. W. 1996. An attributional explanation of individual resistance to the introduction of information technologies in the workplace. *Behaviour & Information Technology*, 15(5): 313-330.

Mathieson, K. 1991. Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior. *Information Systems Research*, 2(3): 173-191.

Maurer, R. 1996. Using resistance to build support for change. *Journal for Quality and Participation*, 3(56-63).

Meissonier, R., and Houze, E. 2010. Toward an `IT Conflict-Resistance Theory': action research during IT pre-implementation. *European Journal of Information Systems*, 19(5): 540-561.

Moore, G. C., and Benbasat, I. 1991. Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation. *Information Systems Research*, 2(3): 192-222.

Morris, M. G., and Venkatesh, V. 2010. Job Characteristics and Job Satisfaction: Understanding the Role of Enterprise Resource Planning System Implementation. *MIS Quarterly*, 34(1): 143-161.

Münstermann, B., von Stetten, A., Eckhardt, A., and Laumer, S. 2010. The Performance Impact of Business Process Standardization - HR Case Study Insights. *Management Research Review* 33(9): 924-939.

Myers, M. D., and Newman, M. 2007. The qualitative interview in IS research: Examining the craft. *Information and Organization*, 17: 2-26.

Nord, W. R., and Jermier, J. M. 1994. Overcoming Resistance to Change: Insigts from a Study of the Shadows. *Public Administration Quarterly*, 17(4): 396-409.

Oreg, S. 2006. Personality, context, and resistance to organizational change. *European Journal of Work & Organizational Psychology*, 15(1): 73-101.

Oreg, S., Vakola, M., and Armenakis, A. 2011. Change Recipients' Reactions to Organizational Change: A 60-Year Review of Quantitative Studies. *The Journal of Applied Behavioral Science*.

Orlikowski, W. J. 2000. Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations. *Organization Science*, 11(4): 404-428.

Orlikowski, W. J., and Barley, S. R. 2001. Technology and Institutions: What can Research on Information Technology and Research on Organizations Learn from Each Other? *MIS Quarterly*, 25(2): 145-165.

Pant, S., and Chatterjee, A. 2008. e-HR Systems Implementation: A Conceptual Framework, Vol. 14: 1–6.

Parry, E. 2011. An examination of e-HRM as a means to increase the value of the HR function. *The International Journal of Human Resource Management*, 22(5): 1146-1162.

Pentland, B. T., and Feldman, M. S. 2007. Narrative Networks: Patterns of Technology and Organization. *Organization Science*, 18(5): 781-795.

Piderit, S. K. 2000. Rethinking Resistance and Recognizing Ambivalnce: A Multidimensional Attitude Toward an Organizational Change. *Academy of Management Review*, 25(4): 783-794.

Riemenschneider, C. K., Hardgrave, B. C., and Davis, F. D. 2002. Explaining software developer acceptance of methodologies: a comparison of five theoretical models *IEEE Transactions on Software Engineering*, 28(12): 1135-1145.

Schreiber, B., Eckhardt, A., and Laumer, S. 2010. Between Cost Efficiency and Limited Innovation - A Scientometric Study of Business Process Standardization, *Proceedings of the 16th Americas Conference on Information Systems (AMCIS)*. Lima, Peru.

Smollan, R. K. 2006. Minds, hearts and deeds: Cognitive, affective and behavioural responses to change. *Journal of Change Management*, 6(2): 143-158.

Steenkamp, J. B. E. M., and Baumgartner, H. 2000. On the use of structural equation models for marketing modeling. *International Journal of Research in Marketing*, 17(2): 195-202.

Straub, D., and Burton-Jones, A. 2007. Veni, Vidi, Vici: Breaking the TAM Logjam. *Journal of the Association for Information Systems*, 8(4): Article 14.

Strohmeier, S. 2007. Research in e-HRM: Review and implications. *Human Resource Management Review*, 17(1): 19-37.

Taylor, S., and Todd, P. 1995a. Assessing IT Usage: The Role of Prior Experience. *MIS Quarterly*, 19(4): 561-570.

Taylor, S., and Todd, P. A. 1995b. Understanding Information Technology Usage: A Test of Competing Models. *Information Systems Research*, 6(2): 144-176.

Thompson, R. L., and Higgins, C. A. 1991. Personal Computing: Toward a Conceptual Model of Utilization. *MIS Quarterly*, 15(1): 125-143.

Tichy, N. M. 1983. *Managing strategic change. Technical, political and cultural dynamics*. New York: Wiley.

Venkatesh, V. 1999. Creation of Favorable User Perceptions: Exploring the Role of Intrinsic Motivation. *MIS Quarterly*, 23(2): 239-260.

Venkatesh, V. 2006. Where To Go From Here? Thoughts on Future Directions for Research on Individual-Level Technology Adoption with a Focus on Decision Making. *Decision Sciences*, 37(4): 497-518.

Venkatesh, V., and Brown, S. A. 2001. A Longitudinal Investigation of Personal Computers in Homes: Adoption Determinants and Emerging Challenges. *MIS Quarterly*, 25(1): 71-102.

Venkatesh, V., Davis, F., and Morris, M. G. 2007. Dead Or Alive? The Development, Trajectory And Future Of Technology Adoption Research. *Journal of the Association for Information Systems*, 8(4): Article 10.

Venkatesh, V., and Davis, F. D. 2000. A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2): 186.

Venkatesh, V., and Morris, M. G. 2000. Why Don't Men Ever Stop to Ask for Directions? Gender, Social Influence, and Their Role in Technology Acceptance and Usage Behavior. *MIS Quarterly*, 24(1): 115-139.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. 2003. User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3): 425-478.

Vithessonthi, C. 2007. Perceptions Affecting Employee Reactions to Change: Evidence from Privatization in Thailand. *Journal of American Academy of Business, Cambridge*, 12(1): 248-255.

Volkoff, O., Strong, D. M., and Elmes, M. B. 2007. Technological Embeddedness and Organizational Change. *Organization Science*, 18(5): 832-848.

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., and König, W. 2010. Recruiting Trends 2010 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen aus Deutschland sowie den Top-300-Unternehmen aus den Branchen Automotive, Finanzdienstleistung und IT: Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt.

von Stetten, A., Laumer, S., Eckhardt, A., and Keim, T. 2009. Does IT matter in recruiting - Eine länderübergreifende Kausalanalyse, *9. Internationale Tagung Wirtschaftsinformatik (Nominated for Young-Researcher-Award)*. Wien, Österreich.

von Stetten, A., Laumer, S., Eckhardt, A., Maier, C., Weitzel, T., and Guhl, E. 2012a. Recruiting Trends 2012 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen aus Deutschland sowie den Top-300-Unternehmen aus den Branchen Health Care, IT sowie Umwelt & Recycling. Bamberg und Frankfurt am Main: Centre of Human Resources Information Systems (Universität Bamberg, Universität Frankfurt am Main).

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T., Kaestner, T. A., and von Westarp, F. 2011a. Recruiting Trends 2011 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen aus Deutschland sowie den Top-300-Unternehmen aus den Branchen Finanzdienstleistung, IT und Öffentlicher Dienst. Bamberg, Frankfurt am Main, Germany: Centre of Human Resources Information Systems (Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt am Main).

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T., and von Westarp, F. 2011b. Recruiting Trends 2011 Schweiz - Eine empirische Untersuchung mit den Top-500-Unternehmen aus der Schweiz. Bamberg, Frankfurt am Main, Germany: Centre of Human Resources Information Systems (Otto-Friedrich-Universität Bamberg, Goethe-Universität Frankfurt am Main).

Von Stetten, A., Laumer, S., Maier, C., Eckhardt, A., and Weitzel, T. 2012b. Recruiting Trends 2012 Schweiz - Eine empirische Untersuchung mit den Top-500-Unternehmen aus der Schweiz. Bamberg, Frankfurt am Main und Zürich: Centre of Human Resources Information Systems (Universität Bamberg, Universität Frankfurt am Main).

von Stetten, A., Münstermann, B., Eckhardt, A., and Laumer, S. 2008. Towards an Understanding of the Business Value of Business Process Standardization - A Case Study Approach, *Proceedings of the 14th Americas Conference on Information Systems (AMCIS)*. Toronto, ON, Canada.

Walinga, J. 2008. Toward a Theory of Change Readiness: The Roles of Appraisal, Focus, and Perceived Control. *Journal of Applied Behavioral Science*, 44(3): 315-347.

Webster, J., and Watson, R. T. 2002. Analyzing the Past to Prepare for the Future: Writing a Literature Review. *MIS Quarterly*, 26(2): xiii-xxiii.

Weitzel, T., Eckhardt, A., and Laumer, S. 2009. A Framework for Recruiting IT Talent: Lessons from Siemens. *MIS Quarterly Executive (MISQE)*, 8(4): 175-189.

Wild, U., and Laumer, S. 2011a. Adopting Business Processes - Distinguishing Characteristics of Business Processes and the Role of Standardization, *Proceedings of IFIP 8.2/Organizations and Society in Information Systems (OASIS) (Pre-ICIS Workshop)*. Shanghai, China.

Wild, U., and Laumer, S. 2011b. Failure and Success of Knowledge Management Systems in the Financial Services Industry, *Proceedings of Quality Information in Organizations and Society (Pre-ICIS sigIQ Workshop)*. Shanghai, China.

Williams, M. D., Dwivedi, Y. K., Lal, B., and Schwarz, A. 2009. Contemporary trends and issues in IT adoption and diffusion research. *Journal of Information Technology*, 24(1): 1-10.

Wirtky, T., Eckhardt, A., Laumer, S., Wild, U., and Weitzel, T. 2011. *Going beyond operational efficiency in HR using IT - A Literature Review of Human Resources Information Systems.* Paper presented at the Proceedings of the 17th Americas Conference on Information Systems (AMCIS), Detroit (MI).

Yin, R. K. 2003. *Case Study Research: Design and Methods.* Thousand Oaks, London, New Dehli: Sage Publications, Inc.

Yin, R. K. 2009. *Case Study Research: Design and Methods.* London: Sage Publications.

1.

Chapter I

Literature Review

Paper I

WHY DO PEOPLE REJECT TECHNOLOGIES?

A REVIEW OF USER RESISTANCE THEORIES

Sven Laumer
University of Bamberg

Andreas Eckhardt
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WHY DO PEOPLE REJECT TECHNOLOGIES?

A LITERATURE-BASED DISCUSSION OF THE PHENOMENA "RESISTANCE TO CHANGE" IN IINFORMATION SYSTEMS AND MANAGERIAL PSYCHOLOGY RESEARCH

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Chapter II

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Paper III

A FRAMEWORK FOR RECRUITING IT TALENT

LESSONS FROM SIEMENS

Tim Weitzel
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Paper IV

BEWERBERMANAGEMENT-SYSTEME IN DEUTSCHEN GROSSUNTERNEHMEN

WERTBEITRAG VON IKT FÜR DIENSTLEISTUNGS-PRODUZIERENDE LEISTUNGS- UND LENKUNGSSYSTEME

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ZUSAMMENFASSUNG

In stürmischen Zeiten für die Personalbeschaffung deutscher Großunternehmen aufgrund von Fachkräftemangel können Beschaffungsmanagementsysteme zur Gewinnung neuer Mitarbeiter wertvolle Unterstützung für die Rekrutierung leisten. Zur Untersuchung des Wertbeitrages des automatisierten Aufgabenträgers dieser Systeme, der sogenannten Bewerbermanagementsysteme, wurden Personalverantwortliche der 1.000 größten Unternehmen in Deutschland befragt. Auf Basis der Ergebnisse dieser repräsentativen Umfrage konnten folgende Erkenntnisse für den Wertbeitrag von Bewerbermanagementsystemen als Teil dienstleistungsproduzierender Leistungs- und Lenkungssysteme gewonnen werden. Durch den Einsatz dieser Systeme werden primär Zeitreduktionen innerhalb einzelner Prozessabschnitte der Personalbeschaffung und eine Kostenreduktion für die interne Bearbeitung von Bewerbungen erreicht. Eine Verbesserung der Qualität der eingestellten Wunschkandidaten kann hingegen nicht realisiert werden. Es bestehen keine Unterschiede beim Wertbeitrag für das unternehmerische Leistungs- und Lenkungssystem. Auch die Unternehmensgröße hat keinen Einfluss auf den Wertbeitrag der Bewerbermanagementsysteme.

Schlüsselwörter: Bewerbermanagementsysteme, Beschaffungsmanagementsysteme, Recruiting, IT-Wertbeitrag, Korrelationsanalyse

1 EINLEITUNG

Technologischer und konjunktureller Wandel, bildungsmäßig bedingte Engpässe sowie der steigende Einfluss unternehmerischer Mitbestimmung führten bereits in den sechziger Jahren, sowohl in den USA als auch in Deutschland, zu einer wachsenden Bedeutung der Personalstammdatei zur Bereitstellung personalpolitisch bedeutsamer Daten. Aufgrund dieser Ereignisse begannen Forschung und Praxis bereits zu dieser Zeit mit der Konstruktion und Entwicklung von Personalinformationssystemen, um einzelne Tätigkeiten des Personalwesens durch den Einsatz entsprechender Systeme zu unterstützen. 1969 war dann der amerikanische Autobauer Ford das erste Unternehmen, das ein Personalinformationssystem zum Einsatz brachte. Das IPIS-System wurde primär dazu entwickelt, einzelne administrative Prozesse in der Personalverwaltung zu erleichtern. Drei Jahre später stellte dann IBM die Entwicklung des PERSIS-Systems fertig, welches als Datenbankensystem zur langfristigen Speicherung von Mitarbeiterdaten eingesetzt wurde (Dworatschek 1989).

In Deutschland waren die Deutsche Texaco AG, der Pharma-Hersteller Knoll AG sowie die Bausparkasse Wüstenrot Pioniere, die als erste auf Basis des IBM-Systems PERSIS eigene Personalinformationssysteme entwickelten und zum Einsatz brachten. Texaco formulierte im Rahmen der Einführung unter anderem den Leitgedanken, dass neben der Übernahme der vorhandenen Personal-Anwendungen (z.B. Lohn- und Gehaltsabrechnungsprogramme) auch Anschlusspunkte entwickelt werden sollten, wie das bestehende System sukzessive zu einem umfassenden Personalinformationssystem ausgebaut werden kann. Dieses System soll neben der Lohn- und Gehaltsabrechnung auch weitere Tätigkeiten im Personalwesen, wie die Personalentwicklung oder die Personalbeschaffung unterstützen (Computerwoche 1975). Das erste eigentliche System zur Unterstützung der Personalbeschaffung in Deutschland kam bereits ein paar Jahre zuvor zum Einsatz. Dieses war ein Personalsteuerungssystem zur Versorgung der Olympischen Spiele 1972 in München mit Kurzzeitarbeitskräften (Dworatschek 1989) und stellt damit die Urform des Beschaffungsmanagementsystems dar (Strohmeier 2008).

Im Rahmen der deutschen Wirtschaftsinformatik entwickelte Mülder in seiner Arbeit zur organisatorischen Implementierung von computergestützten Personalinformationssystemen einen 49 Punkte umfassenden Aufgabenkatalog der Personalwirtschaft. Dieser Aufgabenkatalog beinhaltete eine Unterteilung in administrative Aufgabengruppen, wie Lohn- und Gehaltsabrechnung, das Überwachen von Terminen, die Personaldatenverwaltung oder das Bearbeiten von Auskünften und Meldungen an verschiedene Adressaten und dispositive Funktionen, wie das Einholen von Auskünften über Arbeitsplätze und Mitarbeiter, das Erstellen von nicht periodischen Berichten und Statistiken, die Personalentwicklung sowie die Personalbeschaffung. Im Rahmen dieser Arbeit wurde auch das Problem identifiziert, dass die Mehrheit der personalwirtschaftlichen Aufgaben, wie die Personalbeschaffung mit dispositiven, planerischen Tätigkeiten verbunden ist, bisherige Informationssysteme aber vornehmlich auf die Unterstützung administrativer Aufgaben wie die Personaldatenverwaltung und die Lohn- und Gehaltsabrechnung beschränkt sind (Mülder 1984; Scheer 1995).

Dies wurde von DeSanctis (1986) bestätigt, die eine steigende Komplexität von klassischen Aufgaben im Personalwesen und die Wichtigkeit der IT-Unterstützung von dispositiven, planerischen Tätigkeiten identifizierte und deren Integration in zukünftige Systeme forderte (DeSanctis 1986). Palvia et al. präsentierten schließlich 1992 als Bestandteil des PRISM-Systems die erste konzeptionelle Architektur eines Beschaffungsmanagementsystems, das sowohl administrative Tätigkeiten, wie die Verwaltung von Bewerberdaten, als auch dispositive Aufgaben, wie die Möglichkeit zur Abstimmung mit der Fachabteilung sowie das interne Veröffentlichen einer Vakanz ermöglichte (Palvia et al. 1992). Anfänglich waren diese Systeme noch ausschließlich Teil des unternehmerischen Leistungssystems (Ferstl und Sinz 2008; Kink und Hess 2008) mit der Aufgabe, den Produktionsprozess von Gütern und Dienstleistungen beständig mit neuen Mitarbeitern zu versorgen (Barchilon 1998). Mit der Einführung seiner Architektur für ein holistisches E-Recruiting-System begann Lee (2007) das Beschaffungsmanagementsystem als Subsystem des unternehmerischen Lenkungs- bzw. Managementsystems anzusiedeln und dem Management über Schnittstellen die Möglichkeit zur Planung, Kontrolle und Organisation des Personalbeschaffungsprozesses zu ermöglichen (Lee 2007). Weiterführende Arbeiten zu Beschaffungsmanagementsystemen als Subsystem des unternehmerischen Managementsystems erweiterten die Architektur von Lee (2007) um strategischen Planungs- und Koordinationsprozesse, wie die Entwicklung einer nachhaltigen Arbeitgebermarke sowie die Organisation von Personalbindungsmaßnahmen (Eckhardt und Laumer 2009; Laumer und Eckhardt 2009).

Insgesamt wuchs die Zahl derjenigen Unternehmen, die automatisierte Beschaffungsmanagementsysteme in Form von Bewerbermanagementsystemen nutzen, nach Marktreife der Systeme Ende der neunziger Jahre beständig. Innerhalb Deutschlands sank im Verlauf der letzten acht Jahre die Zahl derjenigen Großunternehmen, die kein

Bewerbermanagementsystem nutzen von 41 Prozent im Jahr 2002 auf nur noch 26,5 Prozent im Jahr 2010 (Färber et al. 2003a; von Stetten et al. 2011). Eine Umfrage unter den 1.000 größten Unternehmen Deutschlands innerhalb dieses Jahres ergab darüber hinaus, dass aktuell 60,3 Prozent der befragten Unternehmen ein Bewerbermanagementsystem zur Unterstützung der Personalbeschaffung nutzen und weitere 13,2 Prozent planen, dies in Zukunft zu tun (von Stetten et al. 2011).

Gleichwohl ein großer Teil deutscher Großunternehmen bereits Bewerbermanagementsysteme nutzt, ist deren monetäre und/oder nicht monetäre Wirkung auf die Unternehmung (Kink und Hess 2008) nach wie vor umstritten bzw. unklar (Lee 2007; Strohmeier 2008; Laumer et al. 2010b), da bis dato lediglich einzelne Komponenten der Personalbeschaffung, aber nicht deren Verzahnung innerhalb eines Bewerbermanagementsystems betrachtet wurden (Grund 2006). Hinsichtlich des Wertbeitrages von Informationssystemen für die Personalbeschaffung überlegte der US-Forscher Leonard Rico bereits 1962, welchen Beitrag Computertechnik zu unternehmerischen Effizienzgewinnen, insbesondere der Bewerberqualität, leisten könnte (Rico 1962). Bisherige Forschungsansätze im Bereich der IT-unterstützten Personalbeschaffung konnten zwar zeigen, dass der generelle Einsatz von IT (von Stetten et al. 2009), die Nutzung digitalisierter Bewerbungsformen oder die Veröffentlichung von Stellenanzeigen in Internet-Stellenbörsen sowie auf der eigenen Webseite zu Zeit- und Kosteneinsparungen in der Personalbeschaffung führen kann (Chapman und Webster 2003; Malinowski et al. 2005; Grund 2006; Musaa et al. 2006). Inwieweit aber der Einsatz von Bewerbermanagementsystemen und der dazugehörigen Funktionalitäten zu monetären und/oder nicht monetären Wertbeiträgen in der Personalbeschaffung von Unternehmen führen kann, ist noch immer eine Forschungslücke und führt daher zur Forschungsfrage dieser Arbeit.

Was ist der Wertbeitrag von Bewerbermanagementsystemen für Beschaffungsmanagementsysteme von Unternehmen?

Zur Beantwortung der Forschungsfrage wird innerhalb dieser Arbeit basierend auf den Daten einer repräsentativen Untersuchung mit den 1.000 größten Unternehmen in Deutschland der Wertbeitrag von Bewerbermanagementsystemen untersucht und empirisch analysiert. Die Arbeit ist demnach folgendermaßen strukturiert. Nach einer kurzen Einordnung von Beschaffungsmanagementsystemen und deren automatisierter Aufgabenträger der Bewerbermanagementsysteme in die Struktur von Leistungs- und Lenkungssystemen im Unternehmen werden in Kapitel 2 auch einige Beschaffungsmanagementsysteme beispielhaft betrachtet. Kapitel 3 und 4 beschreiben die Methodik des quantitativen Forschungsansatzes und die Ergebnisse. Die Arbeit schließt in Kapitel 5 mit einer Zusammenfassung der erzielten Ergebnisse zum Wertbeitrag der Systeme sowie der Ausarbeitung möglicher Ansätze für zukünftige Forschung.

2 BESCHAFFUNGSMANAGEMENTSYSTEME ALS DIGITALE GESCHÄFTSSYSTEME

Innerhalb dieses Kapitels werden Leistungs- und Lenkungssysteme definiert, das Untersuchungsobjekt der Beschaffungsmanagementsysteme in die Struktur zu Leistungs- und Lenkungssystemen von Ferstl und Sinz (2008) eingeordnet und beispielhaft die automatisierte und nicht-automatisierte Gestaltung von Beschaffungsmanagementsystemen als Leistungs- und Lenkungssysteme dargelegt.

2.1 LEISTUNGS- UND LENKUNGSSYSTEME

Betriebliche Systeme bestehen nach Ferstl und Sinz (2008) aus unterschiedlichen Teilsystemen, die hinsichtlich des Phasenprinzips in Leistungs- und Lenkungssysteme unterscheidbar sind. Ist ein Teilsystem für die Durchführung eines leistungserstellenden Prozesses verantwortlich, wird dies als Leistungssystem verstanden, wohingegen ein Lenkungssystem für die Planung, Steuerung und Kontrolle einer Leistungserstellung verantwortlich ist. Mithilfe des Objektprinzips unterscheiden Ferstl und Sinz (2008) die Teilsysteme Basissystem bzw. Informationssystem hinsichtlich der diese Teilsysteme unterstützenden Objektarten Nicht-Information bzw. Information. Befassen sich Teilsysteme mit der Objektart Information, wie dies bei Lenkungssystemen der Fall ist, handelt es sich um ein Informationssystem, wohingegen sich ein Basissystem mit der Objektart Nicht-Information befasst. Die vier erwähnten Systeme – Informationssystem, Basissystem, Lenkungssystem, und Leistungssystem – können hinsichtlich ihrer Automatisierbarkeit differenziert werden. Sofern sich automatisierte Aufgabenträger mit der Objektart Information befassen, wird dies als Anwendungssystem wahrgenommen. Somit befasst sich jedes Lenkungssystem mit der Objektart Information und stellt ein Informationssystem dar. Ein Lenkungssystem mit automatisierten Aufgabenträgern ist ein Anwendungssystem, wohingegen ein Leistungssystem sowohl ein Informationssystem als auch ein Basissystem darstellen kann. Andere Autoren wie Heinrich et al. (2007) fassen neben den informationsverarbeitenden Aufgaben zusätzlich noch die jeweiligen Aufgabenträger in Form von Anwendungssystemen oder Individuen zu dem Begriff Informationssystem hinzu.

2.2 BESCHAFFUNGSMANAGEMENTSYSTEM ALS UNTERNEHMERISCHES LEISTUNGS- UND LENKUNGSSYSTEM

Die innerhalb dieses Forschungsansatzes betrachteten Beschaffungsmanagementsysteme umfassen alle Tätigkeit zur Unterstützung der Personalbeschaffung (Strohmeier 2008). Als Informationssysteme sind sie sowohl unternehmerische Leistungs- als auch Lenkungssysteme. Sie sind für die Produktion einer Dienstleistung (in diesem Fall die Besetzung einer Vakanz bzw. die Beschaffung neuer Mitarbeiter für die Fachabteilung) verantwortlich. Das Basissystem nach Ferstl und Sinz (2008) ist für die Produktion von Dienstleistungen ohne Bedeutung, da es die Produktion von physischen Gütern modelliert. Dem Lenkungssystem eines Beschaffungsmanagementsystems sind alle Tätigkeiten zuzuordnen, die der Steuerung und Kontrolle des Leistungssystems obliegen und dem Leistungssystem alle Tätigkeiten die zur operativen Erstellung der Dienstleistung zuzuordnen sind. Strohmeier (2008) unterscheidet verschiedene Komponenten eines Beschaffungsmanagementsystems, wobei die Administration und Kommunikation dem Leistungssystem und die Analyse dem Lenkungssystem zuzuordnen ist.

Ein Beschaffungsmanagementsystem hat sowohl nicht-automatisierte Aufgabenträger (z.B. Prozessverantwortlicher Personalbeschaffung, HR-Manager, Recruiter, Bewerber, Linienverantwortliche) als auch automatisierte Aufgabenträger (Bewerbermanagementsystem). Ein Bewerbermanagementsystem ist als Anwendungssystem der automatisierte Aufgabenträger des Beschaffungsmanagementsystems und kann auch als E-Recruiting System bezeichnet werden (Strohmeier 2008). Bewerbermanagementsysteme dienen der Unterstützung von Angestellten in der Personalbeschaffung eines Unternehmens und kommunizieren über Mensch-Computer-Schnittstellen mit den nicht-automatisierten Aufgabenträgern des Beschaffungsmanagementsystems. Entsprechende Funktionen von Bewerbermanagementsystemen stellen die automatisierten Aufgabenträger des Beschaffungsmanagementsystems dar. Zu diesen können nach Strohmeier (2008) die Datenhaltungskomponente, die Kommunikationskomponente, die Administrationskomponente und die Assessmentkomponente des Leistungssystems eines Bewerbermanagementsystems zählen. Diese Komponenten enthalten sämtliche Funktionalitäten, die die Prozessschritte Personalmarketing, Bewerbungseingang, Bewerbermanagement, Bewerberauswahl und Vertragsmanagement als automatisierte Aufgabenträger unterstützen. Die Analysekomponente nach der idealtypischen Architektur von Strohmeier (2008) zählt zum Lenkungssystem. Nach Strohmeier (2008) zählen zu der Analysekomponente die Bewerberanalyse, die Prozessanalyse und die Medienanalyse.

Die Einordnung von Beschaffungsmanagementsystemen als Informationssystem und von Bewerbermanagementsystemen als Anwendungssystem in die von Ferstl und Sinz (2008) vorgeschlagene Strukturierung des betrieblichen Objektsystems ist in Abbildung 1 dargestellt.

Aufgabenobjekt	Aufgabenträger		Phasenobjekt
	automatisiert	nicht-automatisiert	
Informationssystem (Beschaffungsmanagementsystem)	Bewerbermanagementsystem Anwendungssystem BMS als Lenkungssystem (Analysekomponente)	Manager Sachbearbeiter / Recruiter	Lenkungssystem Bewerberanalyse Prozessanalyse Medienanalyse
	Anwendungssystem BMS als Leistungssystem (Datenhaltungs-, Administrations-, Kommunikations-, Assessmentkomponente)	Sachbearbeiter / Recruiter Verantwortliche Fachabteilung Bewerber	Leistungssystem Personalmarketing Bewerbungseingang Bewerbermanagement Bewerberauswahl Vertragsmanagement
Basissystem	Maschinen	Angestellte, Arbeiter	

Abbildung 1: Beschaffungsmanagementsysteme als digitale Geschäftssysteme
(Darstellung in Anlehnung an Ferstl und Sinz 2008)

Nach der Einordnung von Beschaffungsmanagementsystemen in die Struktur von Leistungs- und Lenkungssystemen (Ferstl und Sinz 2008; Kink und Hess 2008) werden innerhalb des folgenden Abschnitts beispielhaft Beschaffungsmanagementsysteme als Bestandteil des unternehmerischen Leistungs- und Lenkungssystems vorgestellt und insbesondere automatisierte Aufgabenträger in Form von Bewerbermanagementsystemen herausgestellt.

Sven Laumer

2.2.1 Beschaffungsmanagementsystem als Leistungssystem

Im Rahmen der IT-Unterstützung im Personalbeschaffungsprozess wurde 1992 in einem Artikel in MIS Quarterly von Palvia et al. (1992) die erste konzeptionelle Architektur eines Beschaffungsmanagementsystems (in Engl.: Applicant Tracking System) vorgestellt. Dieses System war ausschließlich für die interne Rekrutierung bzw. die Unterstützung von Job-Rotation-Maßnahmen vorgesehen. Das Beschaffungsmanagementsystem agiert dabei als Subsystem des unternehmensweiten PRISM Systems und wird von diesem mit wichtigen Mitarbeiterdaten und Informationen zu vakanten Stellenprofilen versorgt. Des Weiteren verfügt das System über drei Schnittstellen zu den relevanten Gruppen innerhalb des Personalbeschaffungsprozesses. Der Prozess wird dabei von einem Verantwortlichen aus einer beliebigen Fachabteilung („*Hiring Manager*") angestoßen, der über das System eine offene Stelle an mögliche Interessenten in anderen Abteilungen kommunizieren möchte. Diese Veröffentlichung muss durch einen verantwortlichen Manager („*Recommending Manager*") genehmigt werden. Die erteilte Genehmigung wird über das System an die Personalabteilung („*Corporate Employment*") gemeldet, die anschließend die offene Stelle über das Intranet des Unternehmens verbreitet. Wechselwillige Arbeitnehmer („*Applicant*") haben nun die Möglichkeit eine Bewerbung an das System zu senden. Innerhalb des PRISM Systems wird nun ein Matchingprozess in Gang gesetzt, der die Fähigkeiten des Bewerbers mit den Anforderungen der zu besetzenden Stelle vergleicht. Ist das Ergebnis positiv wird die Bewerbung an die Fachabteilung mit der betreffenden Vakanz weitergegeben. Der Hiring Manager hat über das System jederzeit die Möglichkeit, sich den aktuellen Stand der Bewerbungen zu der von ihm veröffentlichten Vakanz anzusehen. Das System offeriert darüber hinaus eine Rankingfunktion, welche dem Hiring Manger eine Rangfolge der am besten geeigneten Kandidaten für seine zu besetzende Vakanz anzeigt. Nach einer erfolgreichen Einstellung bzw. einem erfolgreichen Arbeitsplatzwechsel werden die daraus entstandenen, neuen Datensätze in der Mitarbeiterdatenbank („*JCA EEO History*") gespeichert (Palvia et al. 1992).

Eine prozessorientierte Perspektive in Bezug auf Beschaffungsmanagementsysteme wurde in der deutschen Personalwirtschaft von Schneider (1995) und Albert (1998) eingeführt. Der Personalbeschaffungsprozess gliedert sich hierzu in die kurzfristige Veröffentlichung einer Vakanz im Personalmarketing, die Bearbeitung und Weiterleitung der darauffolgend eingehenden Bewerbung im Bewerbermanagement, die Vorselektion dieser Bewerbungen anhand fester Kriterien oder Matching-Algorithmen sowie die finale Bewerberselektion im Rahmen von Assessment Centern oder Einstellungsinterviews. Diese Prozesssicht wurde von Färber et al. (2003b) in eine Bewerbermanagementsystemarchitektur integriert und von Laumer et al. (2010a) verfeinert und visualisiert. Abbildung 2 zeigt hierzu diese Zusammenführung von Personalbeschaffungsprozess- und Systemebene (Schneider 1995; Albert 1998; Färber et al. 2003b; Laumer et al. 2010a). Das Bewerbermanagementsystem ermöglicht in diesem Fall eine ganzheitliche IT-Unterstützung für den Personalbeschaffungsprozess mit dem Ziel alle Arbeitsschritte der Personalbeschaffung in einem System abzubilden, um eine effektivere und effizientere Rekrutierung zu ermöglichen. Das vorgeschlagene Bewerbermanagementsystem unterstützt dabei den gesamten Personalbeschaffungsprozess von der Meldung der Vakanz durch die Fachabteilung, über die Stellenausschreibung, dem Eingang der Bewerbung, der (Vor-) Auswahl der Kandidaten bis hin zur finalen Einstellungsabwicklung. Zusätzlich bietet das Bewerbermanagementsystem den Recruitern der Personalbeschaffung die Möglichkeit, in entsprechenden Kandidatendatenbanken aktiv nach geeigneten Bewerbern zu suchen.

Der Personalbeschaffungsprozess folgt innerhalb des Systems dem folgenden Ablauf. Die Fachabteilung meldet den Bedarf an einem neuen Mitarbeiter über eine Schnittstelle des Systems an die Personalabteilung und stößt somit den Personalbeschaffungsprozess an. Die Personalanforderung muss anschließend genehmigt und die Anforderungen an den Bewerber zwischen Fach- und Personalabteilung abgestimmt werden. Entsprechende Stellenprofile können

hierzu in einer Datenbank gespeichert werden, um diese bei zukünftigen ähnlichen Vakanzen wieder verwenden zu können. Anschließend kann basierend auf den Stellenanforderungen durch das System eine Stellenanzeige generiert werden und diese über entsprechende Schnittstellen im Karrierebereich der eigenen Webseite oder in einer Internet-Stellenbörse veröffentlicht werden. Weitere Schnittstellen zu Printmedien und der Arbeitsagentur sind beispielsweise umsetzbar. Die Nutzer des Systems sollten per Mausklick entscheiden können, in welchen Kanälen eine Anzeige geschaltet wird und je nach Bedarf weitere Kanäle hinzufügen können. Neben dieser passiven Suche nach neuen Mitarbeitern bieten sich interne Kandidatendatenbanken oder Lebenslaufdatenbanken von Internet-Stellenbörsen für eine aktive Suche nach Bewerbern an. Über Schnittstellen zu externen Systemen sowie über das System selbst können die Recruiter nach Kandidaten suchen und diese direkt ansprechen. Nach Veröffentlichung der Stellenanzeige oder der direkten Ansprache durch den Recruiter bewerben sich Kandidaten über einen der drei Bewerbungskanäle bei dem betreffenden Unternehmen. Dabei kann das Online-Bewerbungsformular, welches durch das System bereitgestellt wird, die dort eingegeben Daten direkt zur weiteren Verwendung speichern. Die Vorauswahl kann im Anschluss auch IT-basiert durchgeführt werden. Dabei kann das System eingehende Bewerbungen hinsichtlich der in der Stellenausschreibung definierten Kriterien bewerten und für den Recruiter eine Liste der am besten geeigneten Bewerbungen erstellen. Der Recruiter trifft im Anschluss in enger Zusammenarbeit mit der Fachabteilung die endgültige Auswahlentscheidung und führt Selektionsschritte wie Vorstellunggespräche durch (Schneider 1995; Albert 1998; Färber et al. 2003b; Laumer et al. 2010a).

Diese prozessorientierte Sichtweise verdeutlicht, wie ein System als IT-Dienstleistung (englisch: IT Service) unterstützend in den Personalbeschaffungsprozess eingreifen kann.

Da „*das computergestützte Personalinformationssystem häufig als Subsystem eines alle funktionalen Bereiche umfassenden Management-Informationssystems angesehen werden kann*" (Mülder 1984), werden im folgenden Kapitel zwei Systemarchitekturen vorgestellt, die explizit dem Management die Möglichkeit eröffnen, in planerischer, organisierender oder kontrollierender Form über das System auf den Personalbeschaffungsprozess Einfluss zu nehmen.
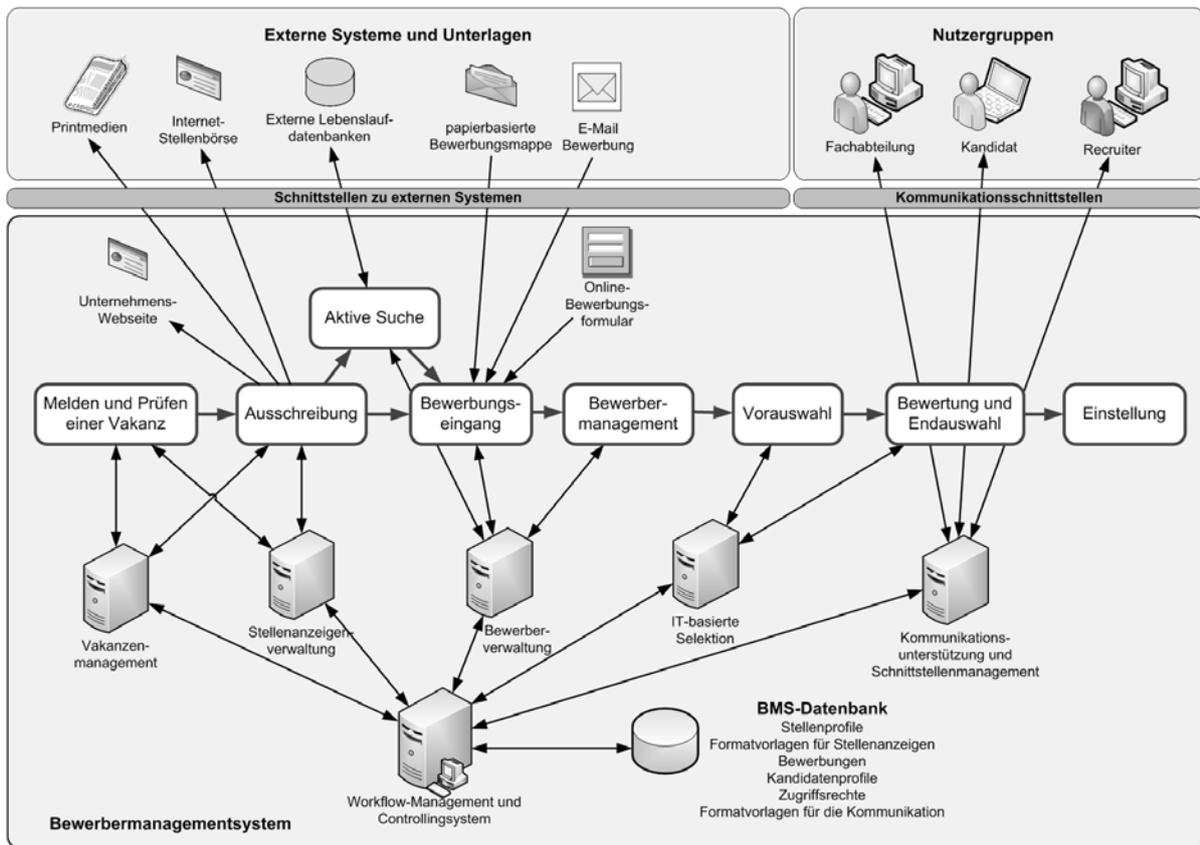
Abbildung 2: Darstellung eines Beschaffungsmanagementsystems (basierend auf Laumer et al. 2010a)

2.2.2 Beschaffungsmanagementsystem als Lenkungssystem

Architekturen für Beschaffungsmanagementsysteme im unternehmerischen Kontext, die innerhalb der letzten Jahre entwickelt wurden, zeichnen sich vornehmlich dadurch aus, dass dem Topmanagement über Systemschnittstellen umfangreiche planerische, organisierende oder kontrollierende Möglichkeiten zur Einflussnahme gegeben werden (Eckhardt et al. 2008). Als Beispiel werden hierzu die Architekturen von Strohmeier (2008) und Lee (2007) herangezogen. Die idealtypische Architektur für ein Beschaffungsmanagementsystem nach Strohmeier (2008) beinhaltet vier Hauptkomponenten (Datenhaltungs-, Administrations-, Kommunikations- und Analysekomponente) sowie eine fakultative Assessmentkomponente.

Die Datenhaltungskomponente hält entsprechende Daten zu Bewerbern, Bewerbungen, Vakanzen und Ausschreibungen vor. Die Bewerberdatei dient dabei zur Vermeidung redundanter Datenerfassung bei Mehrfachbewerbungen und zur Speicherung aller relevanten Kontakt- und personenbezogenen Daten eines Bewerbers. Dies ermöglicht in einem späteren Prozessschritt die schnittstellenfreie Kommunikation mit dem Bewerber über seine Kontaktdaten sowie eine etwaige systemgestützte Bewerberselektion. Die Bewerbungsdatei erfasst alle relevanten Attribute einer tatsächlichen Bewerbung, wie beispielsweise deren Eingangsdatum, die Art der Bewerbung sowie die Zuordnung zu einer vakanten Stelle. In der Vakanzdatei werden Daten und konkrete Informationen zu offenen Stellen hinterlegt. Diese Daten dienen zum einen der Erstellung von Jobprofilen und damit der Gestaltung von Stellenanzeigen und zum anderen zum späteren Abgleich („*Matching*") mit eingehenden Bewerbungen. Die Datei enthält des Weiteren Informationen zu dem in der Personalabteilung zuständigen Mitarbeiter, dem Besetzungsgrad der Stelle, etwaigen Befristungen sowie dem möglichen Besetzungszeitraum. Innerhalb der Ausschreibungsdatei werden sämtliche Informationen hinterlegt, die mit der tatsächlichen Ausschreibung in Zusammenhang stehen. In welchen Kanälen wurde die Vakanz zu welchen

finanziellen Konditionen ausgeschrieben. Zusätzlich sind Informationen zu Layout, Größe, Übertragungsart sowie Ausschreibungszeitraum und -zeitpunkt zu finden.

Die Administrationskomponente unterstützt die Verwaltung der Abläufe innerhalb der Personalbeschaffung sowie die Realisierung einzelner Prozessschritte und Teilaufgaben. Eine wesentliche Bedeutung kommt hierbei der Steuerung und Überwachung des Workflows und der damit zusammenhängenden sachlogischen Bearbeitung von Teilaufgaben durch unterschiedliche Bearbeiter zu. Dies schließt den notwendigen Daten- und Dokumentenfluss mit ein. Darüber hinaus stößt die Administrationskomponente neue Aufgaben, wie die Ausschreibung einer Vakanz oder die Selektion von Bewerbern im Rahmen von Assessments innerhalb der Assessmentkomponente an. Schließlich unterstützt die Komponente auch die Durchführung beschaffungsrelevanter Abrechnungen.

Die Kommunikationskomponente des Systems dient der Gestaltung und Durchführung der Kommunikation zwischen Bewerber und Unternehmen. Das System unterstützt dabei zuallererst den konventionellen papierbasierten Schriftverkehr über standardisierte Schnittstellen zu Textverarbeitungsprogrammen mit der Ausgabe von Individual- und Serienbriefen. Zur Unterstützung der Kommunikation per E-Mail wird der Austausch von Informationen und Dokumenten ermöglicht. Beispielsweise kann der Bewerber automatisiert per E-Mail über den Eingang seiner Bewerbung informiert werden oder mit Hilfe eines so genannten Jobagenten über neue Ausschreibung informiert werden. Des Weiteren kann das System beim Eingang von Bewerbungen über ein Onlineformular diese vollständig auslesen und die dazugehörigen Daten strukturiert aufbereiten. Bei der Bewerbung über ein Onlineformular muss der jeweilige Bewerber seine Daten selbst in ein standardisiertes Formular auf der Webseite des Unternehmens oder das Formular einer Internetstellenbörse eintragen. Die relevanten Bewerberdaten werden somit direkt in der internen Bewerberdatenbank des Unternehmens hinterlegt. Weitere Kommunikationskanäle, die das System unterstützen kann, sind der Mobilfunk-basierte Versand von Kurznachrichten zu offenen Stellen oder eingegangenen Bewerbungen direkt auf das Mobiltelefon des Bewerbers oder der Austausch zwischen Bewerber und Recruiter über eine Chat-Funktion auf der Karrierewebseite des jeweiligen Unternehmens. Kommunikationskanäle, die ebenso in Verbindung mit dem System stehen, können Weblogs oder Podcasts sein, die dazu dienen die Transparenz des Unternehmens als Arbeitgeber oder des Beschaffungsprozesses generell für den Bewerber zu erhöhen.

Die Analysekomponente schließlich bietet dem Management umfassende Möglichkeiten um gestalterisch, planend oder kontrollierend in den Beschaffungsprozess einzugreifen. Speziell durch diese Komponente zeigt sich, dass die modernen Beschaffungsmanagementsysteme mehr und mehr zu Subsystemen unternehmerischer Lenkungssysteme werden. Innerhalb der Analysekomponente dieser idealtypischen Architektur werden der Führungskraft umfassende Kennzahlen, Statistiken und sonstige Auswertungen zu den einzelnen Bewerbern, dem Prozess an sich und den genutzten Medien zur Verfügung gestellt. Die Bewerberkennzahlen bieten dabei die Möglichkeit über Matching-Algorithmen dem Manager eine Rangliste der am besten geeigneten Bewerber für eine offene Stelle zu erstellen. Des Weiteren kann der Manager über Prozesskennzahlen explizit verfolgen, wie lange welcher Prozessabschnitt in der Personalbeschaffung gedauert hat und wie lange der betreffende Mitarbeiter in der Personalbeschaffung für die Erfüllung dieser Teilaufgabe benötigt hat. Hinsichtlich der Nutzung einzelner Medien zur Verbreitung von Vakanzen bietet das System detaillierte Aufschlüsselungen der monetären Aufwendungen, so dass Kosten-Nutzen-Analysen Aufschluss über die Kanaleffizienz geben können.

Ein weiteres Beispiel für die Architektur eines Beschaffungsmanagementsystems, als Teil eines unternehmerischen Lenkungssystems, ist die Architektur für ein *„Next-Generation Holistic E-Recruiting System"* von Lee (2007). Ebenso wie im Rahmen der beschriebenen Analysekomponente

innerhalb der entworfenen Architektur von Strohmeier (2008) wird bei der Architektur von Lee (2007) dem Management über ein Subsystem die Möglichkeit gegeben, kontrollierend und planend in den Beschaffungsprozess einzugreifen. Der Beschaffungsprozess folgt indes einem ähnlichem Vorgehen wie bei den vorherig beschriebenen Ansätzen.

Auf die Identifikation einer Vakanz in der Fachabteilung wird über das *„Job requsition management subsystem"* eine Bedarfsanforderung angemeldet. Nach der Bestätigung dieser Anforderung über das System wird eine Stellenanzeige in einem oder mehreren Internet-Kanälen geschaltet. Im nächsten Prozessschritt stoßen Stellensuchende bei ihrer Jobsuche im Internet auf diese Stellenanzeige und senden eine Bewerbung ab.

Diese Bewerbungen gehen im Unternehmen ein und werden über das *„Applicant tracking management subsystem"* verarbeitet. Bei adäquaten Bewerbungen bietet nun das *„Prescreening/self-assessment subsystem"* die Möglichkeit an, in einem weiteren Prozessschritt eine Vorselektion der Bewerbungen durch online durchgeführte E-Assessments oder Self-Assessments durchzuführen (Laumer et al. 2009).

Das *„Job agent management subsystem"* bietet für den Bewerber auch nach Ablehnung seiner Bewerbung die Möglichkeit, über einen geschalteten Agenten regelmäßig zu neuen Stellenanzeigen informiert zu werden, die gemäß der gewählten Suchwörter für seinen Profil in Frage kommen.

Nach Bewerbungseingang und etwaiger Vorselektion über das *„Prescreening/self-assessment management subsystem"* durchsucht nun der Mitarbeiter in der Personalbeschaffung die einzelnen Profile in der Bewerberdatenbank und evaluiert deren Passungsgrad für die zu besetzende Stelle. Nach weiteren Selektionsstufen, beispielsweise im Rahmen eines Einstellungsinterviews durch Verantwortliche der Fachabteilung, wird nach finaler Zustimmung von Personal- bzw. Fachabteilung dem Bewerber ein Arbeitsvertrag angeboten. Vergleichbar zur Analysekomponente in der Architektur von Strohmeier (2008) ermöglicht bei der Architektur von Lee (2007) das *„Recruitment performance analysis subsystem"* die Option zur Erhebung relevanter Performancekennzahlen innerhalb des Beschaffungsprozesses. Führungskräfte können so Performancedimensionen in einzelnen Prozessschritten, wie im Personalmarketing und im Bewerbungseingang, oder über den ganzen Prozess hinweg kontrollieren. Speziell für die Planung und Organisation zukünftiger Personalbeschaffungsaktivitäten durch das Management bietet das *„Recruitment performance analysis subsystem"* wertvolle Erkenntnisse hinsichtlich der Effizient und Effektivität des Prozesses, der einzelnen zum Einsatz gebrachten Medien sowie der Struktur der Zielgruppen

Nach der Vorstellung klassischer Beschaffungsmanagementarchitekturen als Teil des unternehmerischen Leistungssystems (Palvia et al. 1992; Schneider 1995; Albert 1998; Färber et al. 2003b; Laumer et al. 2010a) sowie zweier Beispiele mit der Ergänzung um eine lenkungsorientierte Analysekomponente, wird nun im Rahmen des folgenden Kapitels der tatsächliche Wertbeitrag derartiger Systeme mit Hilfe einer umfassenden Korrelationsanalyse evaluiert sowie anhand deskriptiver Auswertungen dargestellt. Der Fokus der weiteren Untersuchung liegt insbesondere auf den automatisierten Aufgabenträgern von Beschaffungsmanagementsystemen: den Bewerbermanagementsystemen. Sowohl in der Darstellung von Laumer et al. (2010b), von Strohmeier (2008) als auch Lee (2007) werden die unterschiedlichen Funktionen von Bewerbermanagementsystemen beschrieben, deren Nutzung und der damit in Zusammenhang stehende Wertbeitrag im weiteren Verlauf des Beitrags analysiert werden wird.

3 GANG DER UNTERSUCHUNG

In diesem Kapitel wird der Gang der Untersuchung zur Validierung des Wertbeitrags von Bewerbermanagementsystemen für Beschaffungsmanagementsysteme dargelegt und die sich an der Umfrage beteiligten Unternehmen hinsichtlich deren Zusammensetzung charakterisiert.

3.1 METHODIK DER EMPIRISCHEN BEFRAGUNG

Zur Validierung des Wertbeitrags von Bewerbermanagementsystemen wurde im Jahr 2009 eine empirische Untersuchung mit den 1.000 größten Unternehmen aus Deutschland durchgeführt. Hierzu wurde aus dem aktuellen Datenbankregister von Hoppenstedt die Grundgesamtheit der deutschen Top-1.000 Unternehmen gestaffelt nach dem Kriterium Umsatz ermittelt. Anschließend wurde aufbauend auf den Erkenntnissen von bisheriger Fachliteratur zur IT-Nutzung in der Personalrekrutierung (Strohmeier 2008; Weitzel et al. 2009) und zum Wertbeitrag von IT (DeLone und McLean 2003; Urbach et al. 2009; Münstermann et al. 2010a,) ein Fragebogen zur Untersuchung des Wertbeitrages von IKT im Beschaffungsmanagementsystem der deutschen Großunternehmen entwickelt, der anschließend im Rahmen von Fallstudien und Experteninterviews getestet wurde.

Die Datenerhebung wurde mittels eines Fragebogens durchgeführt, der den zuvor telefonisch identifizierten Verantwortlichen des Personalbeschaffungsprozesses durch Mitarbeiter des Forschungsteams per E-Mail oder Post zugesandt wurde. Darüber hinaus hatten die Umfrageteilnehmer auch die Möglichkeit, den Fragebogen online auf der Website des Forschungsprojekts auszufüllen. Die Daten wurden nach dem Vier-Augen-Prinzip in entsprechende statistische Softwaresysteme (SPSS) eingeben, die anschließend für die Auswertungen verwendet wurden. Diejenigen 110 Unternehmen, die sich an der Studie durch das Rücksenden eines ausgefüllten Fragebogens beteiligt haben, sind die Grundlage für die empirischen Auswertungen dieses Beitrags. Die Zusammensetzung dieser Unternehmen, gemäß deren Mitarbeiterzahl, Umsatz und Branchenzugehörigkeit, analysiert das folgende Unterkapitel.

3.2 ZUSAMMENSETZUNG DER STUDIENTEILNEHMER

110 Unternehmen haben sich an der Untersuchung im Jahr 2009 beteiligt. Die Zusammensetzung der Stichprobe und der Grundgesamtheit der 1.000 größten Unternehmen aus Deutschland wird im Folgenden anhand der Kriterien Mitarbeiterzahl und Branchenzugehörigkeit untersucht. Ebenso wird ein Test auf Repräsentativität der Stichprobe für die Grundgesamtheit anhand dieser zwei Kriterien durchgeführt.

In Abbildung 3 ist die Verteilung der Grundgesamtheit (links) und der Stichprobe (rechts) nach dem Kriterium Mitarbeiterzahl dargestellt. Von den 110 sich an der Studie beteiligten Unternehmen haben 5,9 Prozent bis zu 150 Mitarbeiter, 6,9 Prozent zwischen 151 und 1100 und 9,9 Prozent zwischen 1101 und 1900 Angestellte. Zwischen 1901 und 3000 Mitarbeiter zu besitzen geben 12,7 Prozent der beteiligten Unternehmen an, 3001 bis 4000 besitzen 10,8 Prozent und 4001 bis 5500 9,8 Prozent. Zwischen 5501 und 10000 Mitarbeiter haben 10,9 Prozent der Unternehmen, 10.001 bis 25.000 11,8 Prozent und mehr als 25.000 besitzen 10,8 Prozent der Studienteilnehmer. Ein Test der Repräsentativität hinsichtlich des Kriteriums der Mitarbeiterzahl ergibt, dass der Wert der Irrtumswahrscheinlichkeit des Chi-Quadrat-Tests mit 0,881 das üblicherweise geforderte Signifikanzniveau von 0,050 übersteigt und somit die Nullhypothese einer gleichen Verteilung in Stichprobe und Grundgesamtheit nicht verworfen werden kann (Mantel 1963).
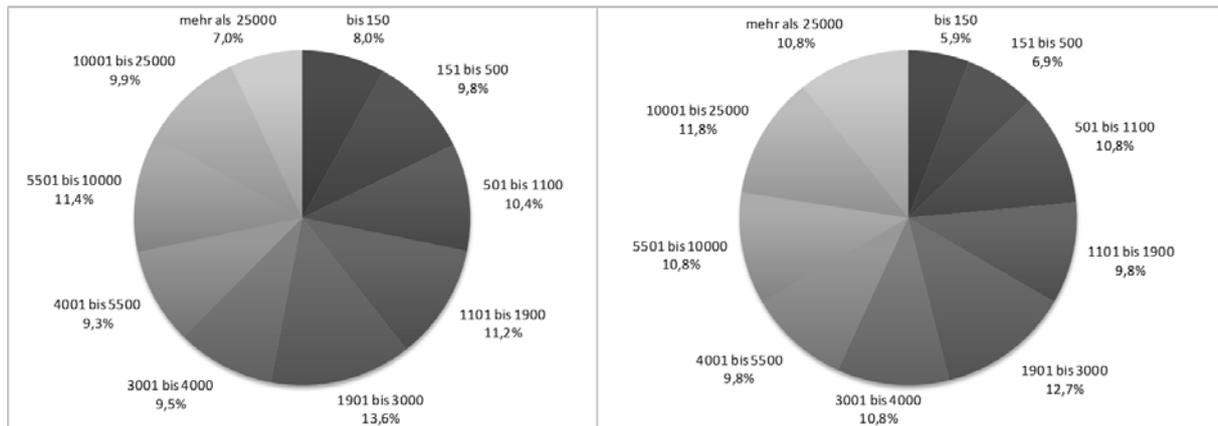
Abbildung 3: Verteilung nach Mitarbeiterzahl in der Grundgesamtheit (links) und in der Stichprobe (rechts)

Als zweites Kriterium zur Klassifizierung der Studienteilnehmer wird die Branchenzugehörigkeit der Unternehmen herangezogen. Die meisten Studienteilnehmen stammen dabei aus dem verarbeitenden Gewerbe. 18,7 Prozent sind Handelsunternehmen und 13,1 Prozent aus dem Kredit- und Versicherungsgewerbe. Die viertgrößte Gruppe stellen mit 9,3 Prozent Firmen aus dem Grundstücks- und Wohnungswesen. 4,7 Prozent stammen aus der Branche Verkehr und Nachrichtenübermittlung und jeweils 3,7 Prozent aus dem Baugewerbe und aus dem Bereich der Energie- und Wasserversorgung. Jeweils 0,9 Prozent der Studienteilnehmer sind im Bereich sonstiger Dienstleistungen sowie im Gastgewerbe tätig. Zur Untersuchung der Repräsentativität der erhobenen Stichprobe nach dem Merkmal der Branchenzugehörigkeit wurden die Verteilungen der Stichprobe (Abbildung 4, rechts) und der Grundgesamtheit der deutschen Top-1.000-Unternehmen aus dem aktuellen Datenbankregister von Hoppenstedt (Abbildung 4, links) herangezogen. Der Wert der Irrtumswahrscheinlichkeit des Chi-Quadrat-Tests übersteigt mit 0,305 das üblicherweise geforderte Signifikanzniveau von 0,050, weswegen die Nullhypothese einer gleichen Verteilung in Stichprobe und Population nicht verworfen werden kann (Mantel 1963).
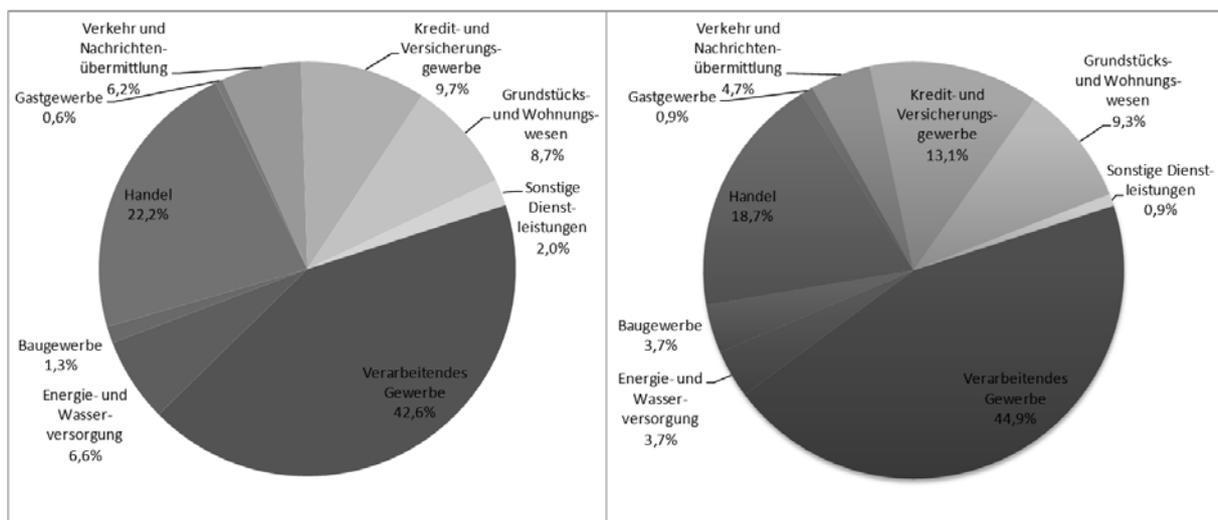
Abbildung 4: Verteilung nach Branchenzugehörigkeit in der Grundgesamtheit (links) und in der Stichprobe (rechts)

Neben der Klassifizierung und dem Test auf Repräsentativität veranschaulicht Abbildung 5 die Verteilung der sich an der Studie beteiligenden Unternehmen hinsichtlich der Neueinstellungen in 2009, den veröffentlichten Stellenanzeigen in 2009 und der Anzahl an eingehenden Bewerbungen in 2009. 4,2 Prozent der sich an der Untersuchung beteiligten

Unternehmen haben in 2009 keine Neueinstellung getätigt, 22,2 Prozent zwischen eins bis zehn bzw. zwischen elf und 20 Neueinstellungen realisiert. Zwischen 21 bis 50 Neueinstellungen haben 15,3 Prozent der Unternehmen realisiert und zwischen 51 bis 100 ein Viertel der Teilnehmer. Zwischen 101 bis 400 konnten 8,3 Prozent realisieren und mehr als 400 2,8 Prozent. 3,8 Prozent der Unternehmen haben keine Stelle in 2009 veröffentlicht und 21,5 Prozent haben zwischen einer und zehn offenen Stellen ausgeschrieben. Elf bis 25 Stellenanzeigen haben 25,3 Prozent, zwischen 36 und 50 15,2 Prozent, zwischen 51 bis 100 20,3 Prozent und zwischen 101 und 500 10,1 Prozent veröffentlicht. Mehr als 500 offene Stellen wurden von 3,8 Prozent der Unternehmen ausgeschrieben. Bis zu 500 Bewerbungen haben im Jahr 2009 26,0 Prozent der Unternehmen erhalten. Zwischen 501 und 1500 28,6 Prozent und zwischen 1.501 und 5.000 23,4 Prozent der Unternehmen. 5.001 bis 10.000 Bewerbungen gingen bei 9,1 Prozent der Unternehmen ein und 10.000 bis 40.000 bei 10,4 Prozent. Mehr als 40.000 Bewerbungen mussten 2,6 Prozent der Teilnehmer an der Untersuchung in 2009 bewältigen.

Abbildung 5: Verteilung der Stichprobe nach Anzahl Neueinstellungen, veröffentliche Stellen und eingehende Bewerbungen in 2009

Insgesamt zeigt die Klassifizierung der Umfrageteilnehmer und der Grundgesamtheit der 1.000 größten Unternehmen aus Deutschland, dass die Datengrundlage der folgenden Auswertungen repräsentativ für die Grundgesamtheit der 1.000 größten Unternehmen aus Deutschland nach den Kriterien Mitarbeiterzahl und Branchenzugehörigkeit ist. Basierend auf den Antworten der 110 Unternehmen, die sich an der Untersuchung beteiligt haben, analysiert das folgende Kapitel den Wertbeitrag von IKT im digitalen Geschäftssystem der Personalbeschaffung.

4 WERTBEITRAG VON IKT FÜR BESCHAFFUNGS-MANAGEMENTSYSTEME

Zur Analyse des Wertbeitrages von Bewerbermanagementsystemen für Beschaffungsmanagementsysteme werden im Folgenden die Nutzung und der Wertbeitrag von Bewerbermanagementsystemen analysiert. Hierzu wird auf einzelne Systemkomponenten aus Kapitel 2 zurückgegriffen (Palvia et al. 1992, Strohmeier 2008, Lee 2007, Laumer et al. 2010a) und zwischen dem Leistungs- und Lenkungssystem der Personalbeschaffung unterschieden.

4.1 BEWERBERMANAGEMENTSYSTEME UND UNTERNEHMENSGRÖßE

Bevor im Folgenden der Wertbeitrag von einzelnen Funktionen von Bewerbermanagementsystemen herausgearbeitet wird, analysiert dieses Unterkapitel zunächst, ob ein Zusammenhang zwischen dem Ausmaß der Nutzung einzelner Funktionen von Bewerbermanagementsystemen und der Größe des jeweiligen Unternehmens besteht. Tabelle 1 zeigt, dass keine signifikante Korrelation zwischen der Nutzung der Funktionen *„Verwaltung und*

Pflege von Bewerberdaten", *„Kommunikation mit den Bewerbern"*, *„Management des Bewerbungseingangs"* und *„Kommunikation mit der Fachabteilung"* mit den Kriterien Umsatz, Anzahl Mitarbeiter, Anzahl veröffentlichte Stellen in 2009, Anzahl der eingehenden Bewerbungen in 2009 und der Anzahl der Neueinstellungen in 2009 gemessen werden kann.

Ein positiver, signifikanter Zusammenhang kann für die Nutzung der Funktion zur automatisierten Veröffentlichung von Stellenanzeigen auf Internet-Stellenbörsen und der Anzahl der Mitarbeiter im Unternehmen sowie der Anzahl der eingehenden Bewerbungen in 2009 nachgewiesen werden. Ebenso korreliert die Nutzung der automatisierten Veröffentlichung von Stellenanzeigen auf der Unternehmens-Webseite signifikant positiv mit dem Umsatz der beteiligten Unternehmen. Zwischen der Nutzung von Bewerbermanagementsystemen zur Speicherung von Job- und Anforderungsprofilen und den Kriterien Umsatz, Anzahl Mitarbeiter und Anzahl eingehender Bewerbungen in 2009 besteht darüber hinaus ebenso ein positiver, signifikanter Zusammenhang wie zwischen der Nutzung der IT-basierten Selektion und den Kriterien Umsatz, Anzahl der veröffentlichten Stellen, Anzahl der eingehenden Bewerbung und Anzahl der Neueinstellungen. Weitere positive, signifikante Zusammenhänge bestehen zwischen der Suche in internen Lebenslaufdatenbanken und der Anzahl der Mitarbeiter, der Vertragsgestaltung bzw. -abschluss und der Anzahl eingehender Bewerbungen sowie zwischen der Bereitstellung von Prozesskennzahlen und den Kriterien Umsatz, Anzahl veröffentlichte Stellen und Anzahl der eingehenden Bewerbungen in 2009.

Tabelle 1: Bewerbermanagementsysteme und Unternehmensgröße

	Umsatz	Anzahl Mitarbeiter	Anzahl veröffent-lichter Stellen 2009	Anzahl eingehender Bewerbung-en 2009	Anzahl Neuein-stellungen 2009
Verwaltung und Pflege von Bewerberdaten	0,125	0,164	0,105	0,192	0,096
Kommunikation mit den Bewerbern	0,121	0,155	0,123	0,219	0,110
Veröffentlichung von Stellenanzeigen auf Stellenbörsen	0,235	**0,258*****	0,170	**0,272*****	0,148
Veröffentlichung von Stellenanzeigen auf der Webseite	**0,241*****	0,204	0,143	0,232	0,128
Management des Bewerbungseingangs	0,123	0,169	0,104	0,185	0,095
Kommunikation mit der Fachabteilung	0,184	0,194	-0,07	0,129	-0,1
Speicherung von Job- und Anforderungsprofilen	**0,228*****	**0,265*****	0,207	**0,319*****	0,181
IT-basierte Selektion	**0,294*****	0,096	**0,350*****	**0,480*****	**0,303*****
Suche in internen Lebenslaufdatenbanken	0,0698	**0,281*****	0,062	0,207	0,019
Vertragsgestaltung und –abschluss	0,038	-0,014	0,036	**0,234*****	-0,002
Bereitstellung von Prozesskennzahlen	**0,246*****	0,185	**0,233*****	**0,361*****	0,201

*** p < 0.001; ** p<0.005; * p<0.01

Nachdem der Zusammenhang zwischen der Nutzung unterschiedlicher Funktionen von Bewerbermanagementsystemen und der Unternehmensgröße dargelegt wurde thematisieren die folgenden beiden Unterkapitel den Wertbeitrag von Bewerbermanagementsystemen im Leistungs- und Lenkungssystem der Personalbeschaffung.

4.2 WERTBEITRAG VON BEWERBERMANAGEMENTSYSTEMEN ALS LEISTUNGSSYSTEM

Der Wertbeitrag von Bewerbermanagementsystemen als Leistungssystem ist Gegenstand der Analyse in diesem Kapitel. Hierzu werden auf der einen Seite deskriptive Auswertungen hinsichtlich der Nutzung einzelner Systemfunktionen präsentiert und auf der anderen Seite die Ergebnisse einer Korrelationsanalyse zwischen der Nutzung unterschiedlicher Funktionen und angegebener Verbesserungen in den Prozessdimensionen Zeit, Kosten und Qualität dargestellt.

4.2.1 Wertbeitrag bei der Veröffentlichung von Stellenanzeigen im Internet

Wie in Kapitel 2 dargelegt ist die erste Aufgabe des Personalbeschaffungsprozesses, vakante Stellen über Stellenanzeigen in der jeweiligen Zielgruppe zu bewerben. Hierzu stehen dem Unternehmen unterschiedliche Kanäle zur Verfügung wie zum Beispiel der Karrierebereich auf der eigenen Unternehmens-Webseite oder die Veröffentlichung in Internet-Stellenbörsen. Die Verbreitung der Vakanzen in diesen Kanälen kann dabei direkt aus einem Bewerbermanagementsystem angestoßen werden, so dass die Stellenanzeigen medienbruchfrei veröffentlicht werden. Hierzu sind Schnittstellen zwischen dem Bewerbermanagementsystem und den jeweiligen Kanälen notwendig. In Abbildung 6 ist die Nutzung von entsprechenden Funktionen von Bewerbermanagementsystemen zur automatisierten Veröffentlichung von Stellenanzeigen illustriert. 74,9 Prozent (kumulierter Wert der Prozentwerte von sehr häufig bis selten) veröffentlichen dabei Stellenanzeigen automatisch auf der eigenen Unternehmenswebseite und 69,2 Prozent in Internet-Stellenbörsen (kumulierter Wert der Prozentwerte von sehr häufig bis selten). Keine automatische Veröffentlichung über Schnittstellen existiert aktuell bei 26,2 Prozent für die eigene Unternehmens-Webseite und 30,8 Prozent für Internet-Stellenbörsen.
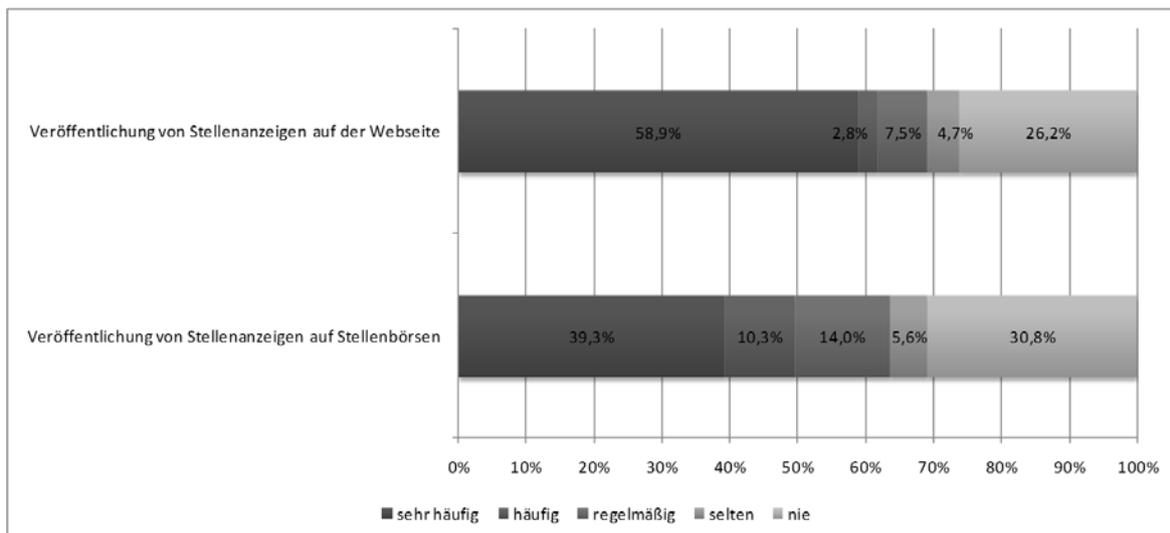
Abbildung 6: Nutzung von Bewerbermanagementsystemen bei der Schaltung von Stellenanzeigen

Neben dieser deskriptiven Analyse veranschaulicht Tabelle 2 die Ergebnisse einer Korrelationsanalyse zwischen der IT Nutzung bei der Schaltung von Anzeigen über das Bewerbermanagementsystem und den drei Wertbeitragskategorien des Personalbeschaffungsprozesses Zeit, Kosten und Qualität.

Sven Laumer

Tabelle 2 zeigt, dass ein positiver Zusammenhang zwischen denjenigen Unternehmen besteht, die eine automatisierte Schnittstelle des Bewerbermanagementsystems zur Veröffentlichung von Stellenanzeigen auf der eigenen Webseite nutzen, und denen, die zum einen die Zeit zwischen der Identifikation einer Vakanz und dem Schalten der Stellenanzeige und zum anderen die Zeit bis zu deren Besetzung verkürzen konnte. Für beide Zusammenhänge ergibt die Korrelationsanalyse nach Pearson einen Korrelationskoeffizienten von 0,205 bzw. 0,198 bei einem Signifikanzniveau von 5,0 Prozent. Darüber hinaus zeigt die Korrelationsanalyse, dass ein signifikanter Zusammenhang zwischen der Nutzung einer Schnittstelle zur Veröffentlichung von Stellenanzeigen in Internet-Stellenbörsen als auch auf der eigenen Unternehmens-Webseite und der Reduzierung von Kosten für die interne Bearbeitung von Bewerbungen besteht.

Tabelle 2: Wertbeitrag von IKT bei der Schaltung von Stellenanzeigen

Wir haben in den letzten Jahren…	Funktionen von Bewerbermanagementsystemen	
	Veröffentlichung von Stellenanzeigen auf Stellenbörsen	**Veröffentlichung von Stellenanzeigen auf der Webseite**
…die Zeit zwischen der Identifikation eienr Vakanz und dem Schalten der Anzeige verkürzt.	0,087	**0,205*****
… die Zeit zwischen der Identifikation einer Vakanz und ihrer Besetzung verkürzt.	0,078	**0,198*****
… die Qualität der Bewerberdaten gesteigert.	0,013	**0,179*****
… den Anteil der von uns erfolgreich eingestellten Wunschkandidaten gesteigert.	-0,078	0,048
… die Kosten im Personalmarketing reduziert.	0,034	-0,051
… die Kosten für die interne Bearbeitung von Bewerbungen reduziert.	**0,228*****	**0,194*****

*** $p < 0.001$; ** $p < 0.005$; * $p < 0.01$

4.2.2 Wertbeitrag im Bewerbungseingang

Die Darlegung verschiedener Prozessmodelle für Beschaffungsmanagementsysteme hat gezeigt, dass nach den Personalmarketingaktivitäten der Unternehmen Bewerber sich im Anschluss auf eine ausgeschriebene Stelle bewerben können und hierbei drei unterschiedliche Kanäle wählen können: papierbasierte Bewerbungsmappe, E-Mail Bewerbung und die Bewerbung über ein Bewerbungsformular im Internet. Bewerbermanagementsysteme bieten für diesen Prozessschritt in der Regel zwei Funktionalitäten an. Zum einen können durch die Integration der Formularbewerbung in das System die eingehenden Bewerbungen direkt in der Datenbank des Bewerbermanagementsystems gespeichert werden und zum anderen können durch entsprechende Funktionen gespeicherte Daten geändert und gepflegt werden.

Abbildung 7 zeigt dabei, dass 85,2 Prozent (kumulierter Wert der Prozentwerte von sehr häufig bis selten) der befragten Großunternehmen aus Deutschland die Funktion *„Management des Bewerbungseingangs"* und ebenso 85,0 Prozent (kumulierter Wert der Prozentwerte von sehr häufig bis selten) die Funktion *„Verwaltung und Pflege von Bewerberdaten"* eines Bewerbermanagementsystems nutzen. Betrachtet man den tatsächlichen Bewerbungseingang der Unternehmen im Jahr 2009, so geben die Teilnehmern an der Befragung an, dass sie im Mittel 33,6 Prozent papierbasierte Bewerbungsmappen, 36,3 Prozent E-Mail-Bewerbungen und 29,2 Prozent Formularbewerbungen erhalten.
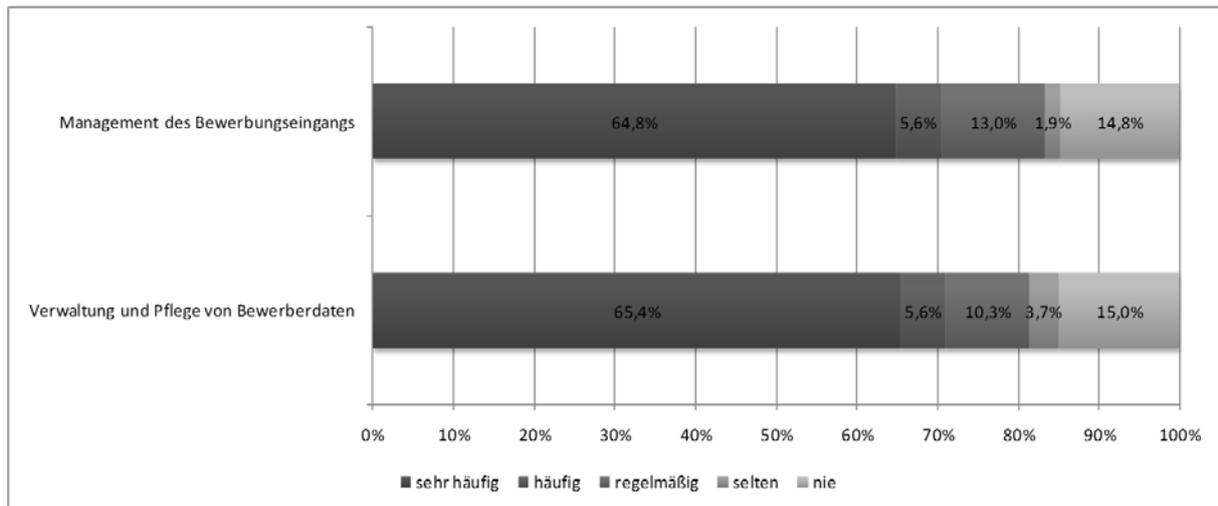
Abbildung 7: Nutzung von Bewerbermanagementsystemen im Bewerbungseingang

In Ergänzung zu der deskriptiven Auswertung veranschaulicht Tabelle 3 den Wertbeitrag von IKT im Leistungssubsystem Bewerbungseingang. Dabei zeigt sich, dass ein signifikanter Zusammenhang zwischen denjenigen Unternehmen besteht, die die Zeit zwischen der Identifikation einer Vakanz und deren Besetzung verkürzen konnten, die die Qualität der Bewerberdaten gesteigert haben, und die die Kosten für die Interne Bearbeitung reduzieren konnten, mit denen, die sowohl den Bewerbungseingang in einem Bewerbermanagementsystem managen als auch die Bewerberdaten in einem entsprechendem System verwalten und pflegen.

Der tatsächliche Bewerbungseingang im Jahr 2009 zeigt darüber hinaus, dass ein signifikanter Zusammenhang zwischen denjenigen Unternehmen besteht, die eine Vielzahl an Bewerbungen über das Bewerbungsformular bekommen, und denjenigen, die Zeit, Kosten und Qualitätsvorteile realisieren konnten. Interessant ist darüber hinaus, dass die Korrelationsanalyse in Tabelle 3 in Bezug auf die eingegangene Bewerbungsform zeigt, dass eine Vielzahl an E-Mail Bewerbungen sich negativ auf die drei Dimensionen auswirkt und auch eine Vielzahl ein papierbasierten Bewertungen nicht zu einer Reduzierung von Kosten für die interne Bearbeitung von Bewerbungen führt.

Tabelle 3: Wertbeitrag von IKT im Leistungssubsystem Bewerbungseingang

Wir haben in den letzten Jahren …	Manage-ment des Bewerbungseingangs	Verwal-tung und Pflege von Bewer-berdaten	Post-Bewer-bungen	E-Mail Bewer-bungen	Bewer-bungs-formular-Bewer-bungen
… die Zeit zwischen der Identifikation einer Vakanz und dem Schalten der Anzeige verkürzt.	**0,244***	0,151	-0,086	**-0,277***	**0,281***
… die Zeit zwischen der Identifikation einer Vakanz und ihrer Besetzung verkürzt.	**0,266***	**0,197***	-0,118	**-0,287***	**0,305***
… die Qualität der Bewerberdaten gesteigert.	**0,203***	**0,112***	-0,011	**-0,264***	**0,213***
… den Anteil der von uns erfolgreich eingestellten Wunschkandidaten gesteigert.	0,05	-0,067	-0,015	-0,019	0,011
… die Kosten im Personalmarketing reduziert.	0,028	-0,054	-0,078	0,074	-0,008
… die Kosten für die interne Bearbeitung von Bewerbungen reduziert.	**0,283***	**0,233***	**-0,344***	**-0,169***	**0,382***

*** p < 0.001; ** p<0.005; * p<0.01

4.2.3   Wertbeitrag im Bewerbermanagement und Selektion

Nach der Ausschreibung von Stellenanzeigen und dem Management des Bewerbungseingangs bieten Bewerbermanagementsysteme weitere Funktionen an, welche die Aufgaben im Bewerbermanagement oder der Selektion von eingehenden Bewerbungen unterstützen. Zu diesen Aufgaben gehört die weitere Kommunikation mit dem Bewerber, die Kommunikation mit den Fachabteilungen, das Speichern von Job- und Anforderungsprofilen als Grundlage für eine Evaluierung der Passgenauigkeit zwischen Bewerber und zu besetzender Stelle sowie eine grundlegende IT-basierte Selektion, wie sie zum Beispiel bei Laumer et al. (2009) im Rahmen von E-Assessments und Self-Assessments beschrieben wurde.

Abbildung 8 illustriert die Nutzung dieser Funktionen von Bewerbermanagementsystemen durch die befragten Großunternehmen aus Deutschland. 83,2 Prozent (kumulierter Wert der Prozentwerte von sehr häufig bis selten) nutzen Bewerbermanagementsysteme zur weiteren Kommunikation mit Bewerbern und 67,6 Prozent (kumulierter Wert der Prozentwerte von sehr häufig bis selten) zur Kommunikation mit der Fachabteilung. Job- und Anforderungsprofile als Grundlage für Bewerberselektion speichern 61,7 Prozent (kumulierter Wert der Prozentwerte von sehr häufig bis selten) der Unternehmen und Methoden der IT-basierten Selektion sowie die Suche in internen Lebenslaufdatenbanken werden von 47,2 Prozent der Unternehmen (kumulierter Wert der Prozentwerte von sehr häufig bis selten) angewendet. Die Funktion *„Vertragsgestaltung und –abschluss"* nutzen 39,8 Prozent der Unternehmen.
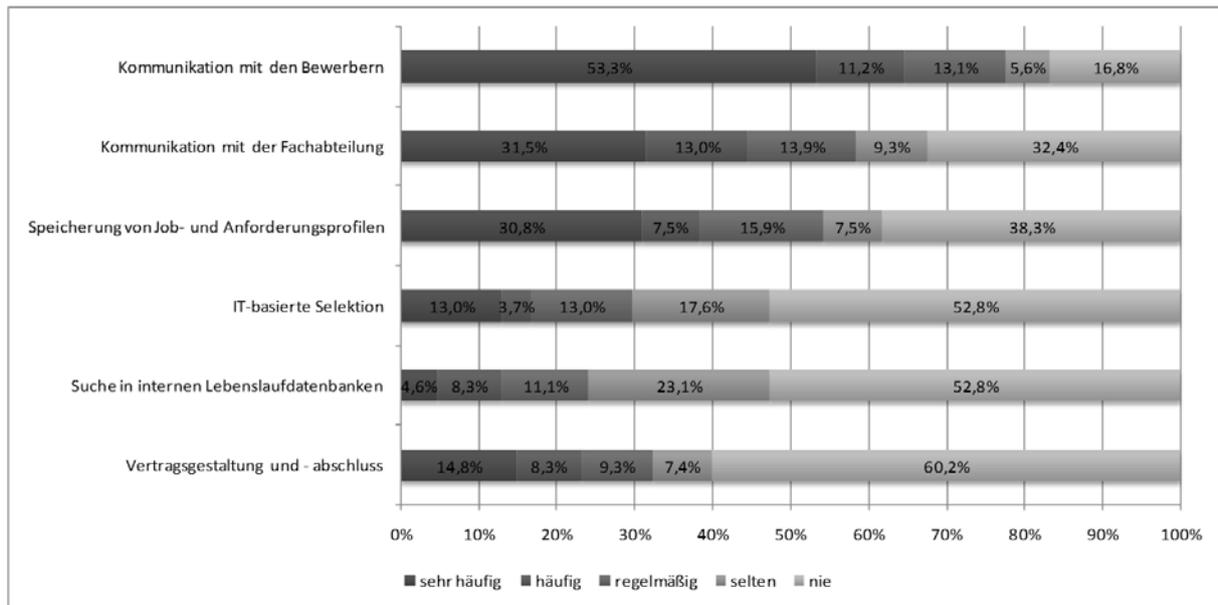
Abbildung 8: Nutzung von Bewerbermanagementsystemen bei Bewerbermanagement und Selektion

Eine Korrelationsanalyse der Nutzung von Bewerbermanagementsystemen im Bewerbermanagement und -auswahl mit den Prozessperformancedimensionen Zeit, Kosten und Qualität zeigt dabei, dass die Kommunikation mit den Bewerbern über das System bzw. Schnittstellen des Systems in einem positiven Zusammenhang mit der Reduzierung von Kosten für die interne Bearbeitung von Bewerbungen steht. Ebenso besteht ein positiver Zusammenhang zwischen der Reduktion der Kosten für die interne Bearbeitung als auch der Verkürzung der Zeit zwischen der Identifikation einer Vakanz und dem Schalten der Stellenanzeige mit der Funktionalität *„Kommunikation mit der Fachabteilung"* und entsprechenden automatisierten Schnittstellen.

Die Speicherung von Job- und Anforderungsprofilen korreliert darüber hinaus mit realisierten zeitlichen, finanziellen und qualitativen Verbesserungen. Die häufige Nutzung einer IT-basierten Selektion steht in einem positiven Zusammenhang mit realisierten Kostenvorteilen der Unternehmen. Die Suche in internen Lebenslaufdatenbanken steht darüber hinaus ebenso in einem positiven Zusammenhang mit realisierten Kosteneinsparungen für die interne Bearbeitung. Die Durchführung der Vertragsgestaltung und des Vertragsabschluss führt darüber hinaus zu zeitlichen Verbesserungen sowie zu einer Erhöhung des erfolgreich eingestellten Wunschkandidaten.

Tabelle 4 illustriert die Ergebnisse der Korrelationsanalyse in den Prozessschritten Bewerbermanagement und Selektion.

Tabelle 4: Wertbeitrag von IKT im Leistungssubsystem Bewerbermanagement und Selektion

Funktionen von Bewerbermanagementsystemen

Wir haben in den letzten Jahren …	Kommunikation mit den Bewerbern	Kommunikation mit der Fachabteilung	Speicherung von Job- und Anforderungsprofilen	IT-basierte Selektion	Vertragsgestaltung und –abschluss	Suche in internen Lebenslaufdatenbanken
… die Zeit zwischen der Identifikation einer Vakanz und dem Schalten der Anzeige verkürzt.	0,133	**0,199***	**0,240***	0,076	**0,197***	0,152
… die Zeit zwischen der Identifikation einer Vakanz und ihrer Besetzung verkürzt.	0,165	0,124	**0,244***	0,11	**0,186***	0,106
… die Qualität der Bewerberdaten gesteigert.	0,052	0,158	**0,265***	0,128	**0,265***	0,134
… den Anteil der von uns erfolgreich eingestellten Wunschkandidaten gesteigert.	-0,053	0,059	0,054	0,118	**0,216***	-0,021
… die Kosten im Personalmarketing reduziert.	0,031	-0,069	0,092	**0,238***	0,13	0,143
… die Kosten für die interne Bearbeitung von Bewerbungen reduziert.	**0,327***	**0,247***	**0,359***	**0,252***	0,079	**0,287***

*** $p < 0.001$; ** $p < 0.005$; * $p < 0.01$

4.3 WERTBEITRAG IM LENKUNGSSYSTEM DER PERSONALBESCHAFFUNG

Nach der Einteilung von Beschaffungsmanagementsystemen in Kapitel 2 wird das Informationssystem Personalbeschaffung nach dem Leistungs- und Lenkungssystem unterschieden. Zu den Aufgaben des Lenkungssystems gehören nach Strohmeier (2008) die Bewerberanalyse, die Prozessanalyse und die Medienanalyse. Generell können diese Aufgaben durch automatisierte Aufgabenträger im Rahmen von Bewerbermanagementsystemen unterstützt werden, wie unter anderem die beispielhaften Architekturvorschläge von Lee (2007) und Strohmeier (2008) zeigen.

Wie Abbildung 9 veranschaulicht, nutzen aktuell 67,6 Prozent (kumulierter Wert der Prozentwerte von sehr häufig bis selten) der Unternehmen die Möglichkeit, über Bewerbermanagementsysteme Kennzahlen zur Steuerung und Kontrolle zu erheben und bereitzustellen.
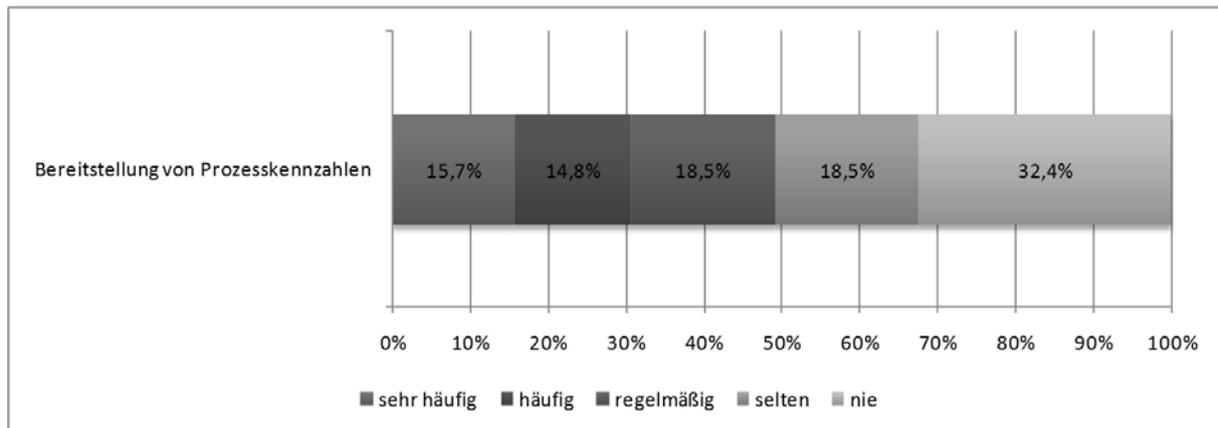
Abbildung 9: Nutzung von Bewerbermanagementsystemen als lenkungssystem bei der Erhebnung von kennzahlen

In Ergänzung zu der generellen Nutzung zeigt Tabelle 5, dass die Nutzung von Bewerbermanagementsystemen im Lenkungssystem der Personalbeschaffung mit den Prozesskennzahlen Zeit, Kosten und Qualität in Zusammenhang steht. So besteht eine positive, signifikante Korrelation von 0,382 zwischen denjenigen Unternehmen, die Prozesskennzahlen über ein Bewerbermanagementsystem verwalten und denjenigen, die die Zeit zwischen der Identifikation einer Vakanz und dem Schalten von Stellenanzeigen verkürzt haben sowie eine positive Korrelation von 0,293 mit denjenigen Unternehmen, die die Zeit zwischen der Identifikation einer Vakanz und deren Besetzung reduzieren konnten. Darüber hinaus besteht ein positiver, signifikanter Zusammenhang mit denjenigen Unternehmen, die die Qualität der Bewerberdaten steigern sowie die Kosten für die interne Bearbeitung reduzieren konnten.

Tabelle 5: Wertbeitrag von IKT für das Lenkungssystem

Wir haben in den letzten Jahren …	Bereitstellung von Prozesskennzahlen
… die Zeit zwischen der Identifikation einer Vakanz und dem Schalten der Anzeige verkürzt.	0,382***
… die Zeit zwischen der Identifikation einer Vakanz und ihrer Besetzung verkürzt.	0,293***
… die Qualität der Bewerberdaten gesteigert.	0,180***
… den Anteil der von uns erfolgreich eingestellten Wunschkandidaten gesteigert.	-0,017
… die Kosten im Personalmarketing reduziert.	0,022
… die Kosten für die interne Bearbeitung von Bewerbungen reduziert.	0,318***

*** p < 0.001; ** p<0.005; * p<0.01

Mit der Analyse des Wertbeitrags von IKT für das Lenkungssystem ist die Auswertung der Ergebnisse der Untersuchung mit den 1.000 größten Unternehmen aus Deutschland abgeschlossen. Das folgende Kapitel fasst diese Ergebnisse abschließend zusammen, zeigt deren Bedeutung für Wissenschaft und Praxis auf, und skizziert mögliche Themenfelder für zukünftige Forschungsarbeiten.

5 ZUSAMMENFASSUNG UND ANSÄTZE FÜR ZUKÜNFTIGE FORSCHUNG

In Bezug auf die Forschungsfrage zu Beginn dieser Arbeit lässt sich feststellen, dass die betrachteten Bewerbermanagementsysteme nachweislich einen Wertbeitrag für die Personalbeschaffung in deutschen Großunternehmen leisten, wobei kein Unterschied hinsichtlich der Größe der Unternehmen besteht. Allerdings zeigen die Ergebnisse der durchgeführten Analysen hinsichtlich der Performancedimensionen Zeit, Kosten und Qualität (Münstermann et al. 2010a; Münstermann et al. 2010b) aber auch, dass die erzielten Wertbeiträge primär zeitlicher und monetärer Natur sind, während nicht monetäre Wertbeiträge, beispielsweise ein Anstieg der Gesamtqualität der Bewerber, nur selten oder gar nicht mit den einzelnen Funktionalitäten der eingesetzten Bewerbermanagementsysteme korrelieren.

Betrachtet man den Beitrag für das unternehmerische Leistungs- und Lenkungssystem zeigen sich überwiegende Gemeinsamkeiten in Bezug auf den Wertbeitrag. Sowohl als Bestandteil des Leistungs- als auch des Lenkungssystems bringt der Einsatz eines Bewerbermanagementsystems hauptsächlich eine Zeitreduktion der einzelnen Prozessschritte sowie des gesamten Beschaffungsprozesses mit sich. Monetäre Wertbeiträge durch IKT wie Kosteneinsparungen in der Personalbeschaffung entstehen sowohl im Leistungs- als auch im Lenkungssystem nahezu ausschließlich bei der internen Bewerbungsbearbeitung, da der Workflow durch das System optimiert wird. Wertbeiträge in Bezug auf die Qualitätsdimension entstehen bei beiden Betrachtungen nur bei der Qualität der Bewerberdaten, da das Bewerbermanagementsystem bereits im Rahmen des Bewerbungseingangs einen schnittstellenfreien Datenfluss durch den Einsatz von standardisierten Webformularen bei der Eingabe der Bewerbung durch den Bewerber auf der Unternehmens-Webseite ermöglicht.

In Bezug auf die einzelnen Prozessabschnitte führt die zunehmende Nutzung von IKT zu unterschiedlichen Wertbeiträgen. Bei der Schaltung von Stellenanzeigen im ersten Prozessschritt der Personalbeschaffung haben Bewerbermanagementsysteme, insbesondere durch automatisierte Schnittstellen zur Unternehmens-Webseite, vor allem zu zeitlichen Effizienzgewinnen bei den Unternehmen geführt. Da durch das System Stellenanzeigen nun schneller veröffentlicht werden können, können so offene Stellen schneller besetzt und die Kosten für die interne Bearbeitung reduziert werden. Der Einsatz geht darüber hinaus mit einer steigenden Qualität der Bewerberdaten einher, da externe Kanäle wie Internet-Stellenbörsen diese in strukturierter Form anbieten. Für zukünftige Forschung innerhalb dieses Bereiches wäre es interessant zu sehen, ob und wie dies auch für Schnittstellen zu modernen Kanäle wie Social Media bei der Schaltung von Stellenanzeigen in Karrierenetzwerken wie Xing oder Netzwerkplattformen wie Facebook gilt (Weitzel et al. 2009).

Der Einsatz von IKT im Leistungssubsystem Bewerbungseingang steht ebenso im Zusammenhang mit Verbesserungen der Effizienz des Personalbeschaffungsprozesses. Da über das Bewerbermanagementsystem Stellenanzeigen schneller geschaltet werden können und Bewerbungen im Bewerbungseingang in strukturierter Form eingehen, kann somit die Zeit zwischen der Identifikation einer Vakanz und deren Besetzung reduziert werden. Da die Bewerber direkt über ein standardisiertes Formular ihre Daten in das Bewerbermanagementsystem eingeben, führt diese strukturierte Form der Bewerberdaten zu einer besseren Datenqualität und einer Reduzierung der internen Kosten für die weitere Verarbeitung (Lee 2007). Zusätzlich wird auch deutlich, dass der Einsatz von nicht-automatisierten Aufgabenträgern negativ mit den angegebenen Verbesserungen korreliert. Die deutlichen Vorteile der standardisierten Bewerbungsformen gehen aber auch einher mit einer geringen Präferenz auf Bewerberseite für standardisierte Bewerbungen über ein Webformular (Laumer et al. 2010a). Zukünftige Ansätze sollten an diesem Punkt ansetzen und überprüfen,

welche Faktoren die geringe Präferenz der Bewerber für diesen Kanal beeinflussen und welche Strategien Unternehmen anwenden können, um diesen Widerstand zu überwinden. Erste Erkenntnisse in diesem Zusammenhang liefert die Arbeit von Grund (2006), der aufzeigte, dass Stellensuchende im Internet überdurchschnittlich gut ausgebildet sind und Stellen mit überdurchschnittlich langer Arbeitszeit bekleiden.

Im Leistungssubsystem Bewerbermanagement und -selektion zeigen die Ergebnisse, dass die Nutzung von IKT zur Kommunikation mit weiteren Beteiligten im Personalbeschaffungsprozess zu zeitlichen und finanziellen Vorteilen führt. Das Speichern von Job- und Anforderungsprofilen steht darüber hinaus im Zusammenhang mit Verbesserungen in allen drei Dimensionen und die IT-basierte Selektion, beispielsweise im Rahmen von E-Assessments, führt zu finanziellen Verbesserungen. Im Rahmen von zukünftiger Forschung im Rahmen der IT-basierten Selektion sollte aufgrund dieses Resultates unbedingt betrachtet werden, warum der Vorteil einer verbesserten Bewerberqualität beispielsweise im Rahmen von E-Assessments noch nicht erreicht wird, obwohl dies der grundlegende Treiber für die Nutzung dieser Systeme ist. Speziell bei den ortsunabhängigen E-Assessments könnte der Bewerber durch mehrmaliges Durchführen diverser Testverfahren oder das Hinzuziehen dritter Personen den ursprünglichen Sinn dieser Systeme aushebeln.

Der kurze Ausblick in Bezug auf das unternehmerische Lenkungssystem zeigt, ebenso wie bei den einzelnen Prozessschritten im Leistungssystem, dass der primäre Wertbeitrag von IKT auf eine Reduktion der Prozesszeit sowie eine Verbesserung der Bewerberdaten und einen optimierten Workflow beschränkt ist. Zukünftige Ansätze können bei einer Betrachtung von spezifischen Kennzahlen noch detaillierter werden und einzelne Kennzahlen aus Bewerber-, Prozess- und Medienanalyse (Strohmeier 2008) und deren Auswirkungen auf die Performancedimensionen Zeit, Kosten und Qualität betrachten.

Zusammenfassend muss festgestellt werden, dass die bisher eingesetzten Informationssysteme in der Personalrekrutierung durch eine Automatisierung von routinemäßigen Tätigkeiten in der Personalabteilung helfen, zeitliche und finanzielle Ressourcen für die strategische Personalarbeit frei zu setzen. Sie leisten indes keinen direkten Beitrag für strategische Aufgaben. Die bestehenden Systeme unterstützen deutsche Großunternehmen nicht bei der Lösung aktueller Herausforderungen der Personalarbeit wie dem schwelenden Fachkräftemangel (von Stetten et al. 2011) oder immer spezifischerer Anforderungen einzelner Berufsbilder (Laumer et al. 2010b). Die Nutzung von Bewerbermanagementsystemen erreicht in den seltensten Fällen auch ein strategisch wichtiges Ziel, da die Unternehmen durch den Einsatz entsprechender System zum Beispiel nicht den Anteil erfolgreich eingestellter Wunschkandidaten erhöhen konnten.

Dieses Ergebnis bestätigt die Forschungsarbeiten von Ngai et al. (2006), die zeigen, dass Unternehmen nahezu kein strategisches Potential aus Personalinformationssystemen ziehen. Die Gründe hierfür sind vielfältig. Betrachtet man die individuelle Perspektive des Systemnutzers, so werden die bestehenden Systeme und all ihre zur Verfügung stehenden Funktionalitäten nicht in dem geplanten Ausmaß genutzt, um strategisches Potential zu realisieren (Dery et al. 2006), da viele Systemnutzer im Bereich der Personalrekrutierung nur unzureichende Fähigkeiten zur Systemnutzung besitzen, bzw. diese erst erlernen müssen (Wiblen et al. 2010). Des Weiteren bieten bestehende Systeme nur in geringem Maße Funktionalitäten an, die das Erreichen strategischer Ziele in Bezug auf Prozessqualität unterstützen (Jamrog und Miles 2004; Lawler et al. 2004). Ein weiterer Grund wurde im fehlenden strategischen Alignment zwischen Personal- und Fachabteilung bzw. Personal- und IT-Abteilung identifiziert (Weitzel et al. 2011).

Unternehmen, die zukünftig innerhalb der Personalrekrutierung verstärkt strategisch vorgehen und dabei durch Informationssysteme unterstützt werden möchten, haben somit zwei

Handlungsoptionen. Erstens besteht die Möglichkeit, durch unternehmensinternes Knowhow selbst ein System zu entwickeln, das alle strategischen Ziele innerhalb der Rekrutierung abbildet und unterstützt. Ein erfolgreiches Beispiel in diesem Zusammenhang bietet das Unternehmen Bertelsmann, welches aufgrund unzureichender Systemlösungen am Markt selbst ein integriertes Bewerbermanagementsystem gemäß den eigenen Anforderungen entwickelte und dies schließlich auch am Markt anderen Unternehmen als alternative Systemlösung erfolgreich anbot (Keim et al. 2006). Möchten die Unternehmen weiterhin auf Systeme bestehender Anbieter wie SAP, Oracle oder Kenexa zurückgreifen, könnte ein Zusammenschluss deutscher Großunternehmen, wie im Rahmen des queb [15] (Arbeitskreis deutscher Rekrutierungsverantwortlicher) helfen, als Konglomerat Druck auf Softwareanbieter aufzubauen, und bei der Entwicklung neuer Systeme oder der Weiterentwicklung bestehender Systeme die vermehrte Einbindung strategischer Komponenten zu fordern.

6 LITERATURVERZEICHNIS

Albert, G. (1998). Betriebliche Personalwirtschaft, Ludwigshafen, Kiehl, 1998.

Barchilon, M. G. (1998). Technology's impact on online résumés, IPCC 1998 proceedings, Québec City, Québec, Canada: Institute of Electrical and Electronics Engineers, 183-187.

Chapman, D. S. und Webster, J. (2003). The Use of Technologies in the Recruiting, Screening, and Selection Processes for Job Candidates, *International Journal of Selection and Assessment* 11(2-3), 113–120.

DeLone, W.H. und McLean, E.R. (2003). The DeLone and McLean Model of Information Systems Success: A Ten-Year Update, *Journal of Management Information Systems*, 19(4), 9 - 30.

Dery, K., Hall, R. und Wailes, N. (2006). ERPs as 'Technologies-in-Practice': Social Construction, Materiality and the role of Organisational Factors, New Technology, Work and Employment 21(3), 229–241.

DeSanctis, G. (1986). Human resource information systems: a current assessment, *MIS Quarterly*, 10, 217-234.

Dworatschek, S. (1989). Grundlagen der Datenverarbeitung, 8. Aufl., Berlin/New York.

Eckhardt, A. und Laumer, S. (2009). An IT-Architecture to Align E-Recruiting and Retention Processes, *International Journal of E-Services and Mobile Applications*, 1(2), 38-61.

Eckhardt, A., Laumer, S. und Weitzel, T. (2008). Extending the Architecture for a Next-Generation Holistic E-Recruiting System, *Proceedings of the International Conference on Information Resources Management (Conf--IRM)*, Niagara Falls, Canada.

Färber, F., Keim, T., König, W., von Westarp, F., Weitzel, T. und Wendt, O. (2003). Recruiting Trends 2003: Eine empirische Untersuchung der Top-1.000-Unternehmen in Deutschland, Arbeitsbericht des Centre of Human Resources Information Systems, Frankfurt am Main.

Färber, F., Keim, T. und Weitzel, T. (2003). An Automated Recommendation Approach to Personnel Selection, *Proceedings of the 2003 Americas Conference on Information Systems (AMCIS)*, Tampa.

Grund, C. (2006). Mitarbeiterrekrutierung über das Internet – Marktanalyse und empirische Untersuchung von Determinanten und Konsequenzen für die Arbeitnehmer, *Zeitschrift für Betriebswirtschaft*, 76(5), 451-472.

Ferstl, O. K. und Sinz, E. J. (2008). Grundlagen der Wirtschaftsinformatik, 6. Aufl., Oldenbourg, München 2008.

Heinrich, L.J., Heinzl, A. und Roithmayr, F. (2007). Wirtschaftsinformatik — Einführung und Grundlegung. 3. Auflage, Oldenbourg Wien/München.

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[15] Für nähere Informationen: siehe www.queb.org

Jamrog, J. und Miles, H. (2004). Building a Strategic HR function: Continuing the Evolution., *Human Resource Planning* 27(1), 51–63.

Keim, T., König, W., von Westarp, F. und Weitzel, T. (2006). Recruiting Trends 2006 - Eine empirische Untersuchung der Top-1.000-Unternehmen in Deutschland und von 1.000 Unternehmen aus dem Mittelstand, Zusatzbefragungen mit den Branchen Automobil, IT und Kreditwirtschaft, Arbeitsbericht des Centre of Human Resources Information Systems, Frankfurt.

Kink, N. und Hess, T. (2008). Wirkungsanalyse von Informations- und Kommunikationstechnologien: Positionierung des Forschungsansatzes, Arbeitsbericht 1/2008, http://www.wim.bwl.uni-muenchen.de/pubdb/work_papers/2008-001.html, (Abrufdatum: 25.11.2010).

Laumer, S. und Eckhardt, A. (2009). What makes the difference? – Introducing an integrated information system architecture for employer branding and recruiting, in: Bondarouk, T., Ruel, H., Oiry, E. und Guiderdoni, K.: Handbook of Research on E-Transformation and Human Resources Management Technologies, 275-288.

Laumer, S., Eckhardt, A., von Stetten, A., Weitzel, T. und König, W. (2010a). Recruiting Trends im Mittelstand 2010: Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand, Arbeitsbericht des Centre of Human Resources Information Systems, Bamberg und Frankfurt am Main.

Laumer, S., Eckhardt, A., und Weitzel, T. (2010b). Electronic Human Resources Management in an E-Business Environment, Journal of Electronic Commerce Research, 11(4), 240-250.

Laumer, S., von Stetten, A. und Eckhardt, A. (2009). E-Assessment, *Wirtschaftsinformatik*, 51(3), 306-308.

Lawler, E. E., Levenson, A. und Boudreau, J. (2004). HR Metrics and Analytics: Use and Impact, *Human Resource Planning* 27(4), 27–35.

Lee, I. (2007). The Architecture for a Next-Generation Holistic E-Recruiting System, *Communications of the ACM*, 50(7), 81-85.

Malinowski, J., Keim, T. und Weitzel, T. (2005). Analyzing the Impact of IS Support on Recruitment Processes: An E-Recruitment Phase Model, *Proceedings of Pacific Asia Conference on Information Systems*, 9, 977–988.

Mantel, N. (1963). Chi-Square Tests with One Degree of Freedom; Extensions of the Mantel-Haenszel Procedure, *Journal of the American Statistical Association*, 58 (303), 690-700.

Mülder, W. (1984). Organisatorische Implementierung von computergestützten Personalinformationssystemen : Einführungsprobleme u. Lösungsansätze, Springer-Verlag GmbH & Co. KG Heidelberg.

Münstermann, B., Eckhardt, A. und Weitzel, T. (2010a). The performance impact of business process standardization: An empirical evaluation of the recruitment process, *Business Process Management Journal*, 16(1), 29 – 56.

Münstermann, B., von Stetten, A., Eckhardt, A. and Laumer, S. (2010b). The Performance Impact of Business Process Standardization – HR Case Study Insights, *Management Research Review*, 33(9), 924-939

Musaa, N., Junaini, S. N. und Bujang, Y. R. (2006). Improving Usability of E-recruitment Website: A Preliminary Study on Sarawak Government Website, *Proceedings of Pacific Asia Conference on Information Systems*, 10, 507-515.

Ngai, E. W. T. und Wat, F. K. T. (2006). Human resource information systems: a review and empirical analysis, *Personnel Review* 35(3), 297–314.

O.V. (1975). Aufbau von Personal-Datenbanken - Beförderung am Bildschirm geplant, Computerwoche, 29.8.1975, http://www.computerwoche.de/ heftarchiv/1975/35/ 1204810/, (Abrufdatum: 25.11.2010)

Palvia, P. C., Perkins, J. A. und Zeltmann, S. M. (1992). The PRISM System: A Key to Organizational Effectiveness at Federal Express Corporation, *MIS Quarterly*, 16(3), 277-292.

Rico, L. (1962). The Staffing Process and the Computer, *Management of Personnel Quarterly*, Autumn/Winter 1962, 33.

Scheer, A.-W. (1995). Wirtschaftsinformatik - Referenzmodelle für industrielle Geschäftsprozesse, 6. Aufl.

Schneider, B. (1995). Personalbeschaffung. Peter Lang Europäischer Verlag der Wissenschaften: Frankfurt a.M.

Strohmeier, S. (2008). Informationssysteme im Personalmanagement - Architektur - Funktionalität - Anwendung, 1. Auflage, 2008, Vieweg+Teubner Verlag, Wiesbaden.

Urbach, N., Smolnik, S. und Riempp, G. (2009). Der Stand der Forschung zur Erfolgsmessung von Informationssystemen – Eine Analyse vorhandener mehrdimensionaler Ansätze, *Wirtschaftsinformatik*, 51(4), 363-375.

von Stetten, A., Laumer, S., Eckhardt, A. und Keim, T. (2009). Does IT matter in recruiting? – Eine länderübergreifende Kausalanalyse, *Tagungsbände der 9. Internationalen Tagung Wirtschaftsinformatik*, Wien, Österreich.

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T. und von Westarp, F. (2011). Recruiting Trends 2011: Eine empirische Untersuchung mit den Top-1.000-Unternehmen aus Deutschland sowie den Top-300-Unternehmen aus den Branchen Finanzdienstleistung, IT und Öffentlicher Dienst, Arbeitsbericht des Centre of Human Resources Information Systems, Bamberg.

Weitzel, T., Eckhardt, A. und Laumer, S. (2009). A Framework for Recruiting IT Talent: Lessons from Siemens, *MIS Quarterly Executive*, 8(4), 175-189.

Weitzel, T., Eckhardt, A., von Westarp, F., von Stetten, A., Laumer, S. und Kraft, B. (2011). Recruiting 2011. Weka Verlag, Zürich, Schweiz.

Wiblen, S., Grant, D. und Dery, K. (2010). Transitioning to a new HRIS: The reshaping of human resources and information technology talent, *Journal of Electronic Commerce Research* 11(4), 251–267.

ANHANG: VERWENDETER FRAGEBOGEN

Tabelle 6: Fragen zur Nutzungshäufigkeit von Bewerbermanagementsystemen

Wie häufig nutzen Sie die folgenden Funktionen von Bewerbermanagementsystemen?	sehr häufig (1)	häufig (2)	regel-mäßig (3)	selten (4)	nie (5)
Verwaltung und Pflege von Bewerberdaten	☐	☐	☐	☐	☐
Kommunikation mit dem Bewerber	☐	☐	☐	☐	☐
Veröffentlichung von Stellenzeigen in Internet-Stellenbörsen	☐	☐	☐	☐	☐
Veröffentlichung von Stellenanzeigen auf der Unternehmens-Website	☐	☐	☐	☐	☐
Management des Bewerbungseingangs	☐	☐	☐	☐	☐
Kommunikation mit der Fachabteilung	☐	☐	☐	☐	☐
Speicherung von Job- und Anforderungsprofilen	☐	☐	☐	☐	☐
IT-basierte Selektionsinstrumente	☐	☐	☐	☐	☐
Suche in internen Lebenslaufdatenbanken	☐	☐	☐	☐	☐
Vertragsgestaltung und – abschluss	☐	☐	☐	☐	☐
Bereitstellung von Prozesskennzahlen	☐	☐	☐	☐	☐

Tabelle 7: Fragen zur ProzessDeterminaten im Recruiting

Wir haben in den letzten Jahren …	←stimme zu (1)				stimme nicht zu → (7)		
… die Zeit zwischen der Identifikation einer Vakanz und dem Schalten der Anzeige verkürzt.	☐	☐	☐	☐	☐	☐	☐
… die Zeit zwischen der Identifikation einer Vakanz und ihrer Besetzung verkürzt.	☐	☐	☐	☐	☐	☐	☐
… die Qualität der Bewerberdaten gesteigert.	☐	☐	☐	☐	☐	☐	☐
… den Anteil der von uns erfolgreich eingestellten Wunschkandidaten gesteigert.	☐	☐	☐	☐	☐	☐	☐
… die Kosten im Personalmarketing gesenkt.	☐	☐	☐	☐	☐	☐	☐
… die Kosten für die interne Bearbeitung von Bewerbungen gesenkt.	☐	☐	☐	☐	☐	☐	☐

Tabelle 8: Fragen zum Bewerbungseingang

Wie hoch ist der Anteil der folgenden Kanäle an den eingehenden Bewerbungen in 2009?	
	Bewerbungseingang 2009 (Anteil an allen Bewerbungen, **Summe = 100 %**)
Post	_____ %
E-Mail	_____ %
Online Bewerbungsformular	_____ %

Tabelle 9: Kontrollvariablen

Fragen zu Ihrem Unternehmen
Branche
Letzter kommunizierter Umsatz (in Mio. EUR)
Anzahl der Mitarbeiter
Anzahl der veröffentlichten Stellen in 2009
Anzahl der eingehenden Bewerbungen in 2009
Anzahl der Neueinstellungen in 2009

3.

Model Development – Theoretical Foundations

WHY DO PEOPLE REJECT TECHNOLOGIES?

TOWARDS AN UNDERSTANDING OF RESISTANCE TO IT-INDUCED ORGANIZATIONAL CHANGE

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4.

Model Validation – Empirical Evidence and Implications

Paper VI

WHY ARE THEY TALKING SO NEGATIVELY ABOUT MY NEW SYSTEM?

THEORETICAL FOUNDATION AND EMPIRICAL EVIDENCE OF ENRAGED EMPLOYEES

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WHY ARE THEY TALKING SO NEGATIVELY ABOUT MY NEW SYSTEM?

THEORETICAL FOUNDATION AND EMPIRICAL EVIDENCE OF ENRAGED EMPLOYEES

ABSTRACT

Complaining employees presenting their objections about a new information system to both project management and colleagues are a well-known phenomenon during the implementation of new information systems in organizations. Although, this kind of user resistance is an important aspect of early implementation phases as what people know and believe also comes from conversations passed on by others, user resistance research neglects this kind of user resistance and early implementation phases. In order to explain this phenomenon we propose a Model of Enraged Employees' Resistance to IT-induced Change which aims at extending the understanding of why and how people resist IT-induced organizational changes. Theoretical foundations and empirical evidence of enraged employees complaining and talking negatively about an IT implementation are provided. The validation of the model with a study of a human resources information system shows that the resistance behavior of 106 individuals in the early implementation phases is explained by their affective, cognitive, and dispositional resistance to change, technology perceptions, and individual differences. The newly proposed variable of Enraged Employees' Behavior and the results answer the question what is being influenced by an individual's attitude in mandated usage settings.

Keywords: Resistance Behavior, Resistance to Change, Technology Adoption, Change Management, Enraged Organizational Citizens

1 INTRODUCTION

Imagine an organization that implements a new information system and its employees start using it. Nonetheless, the atmosphere within this organization or several departments gets worse. The project management is confronted with enraged employees who have not accepted the new system and are continuously complaining about it and the induced changes of processes, routines, tasks, culture, etc. For explaining the acceptance of new information systems, technology adoption research provides several theories and models. They focus on an individual's intention to use a new technology, attitude towards the new technology and several beliefs like effort or performance expectancy of the respective information system (for an overview see Venkatesh et al., 2003). However, for the implementation of mandated technology, where employees have to use a technology as expected by management, it seems that an employees' attitude towards using a new information system is not correlated with the observed usage behavior (Brown et al., 2002).

It is rather influencing an individual's resistance to change behavior as employees start to use the system and participate in trainings or project teams, but still keep complaining about the system and the organizational changes caused by the new technology. In this context, organization science research emphasize that understanding of conversations during implementations is critical for understanding success or failure of these projects (Ford and Ford, 2008) as resistance to change is generated and sustained through them (Ford and Ford, 1995).

We noticed exactly this kind of behavior and phenomena while observing the implementation of electronic human resources management (E-HRM) in several organizations of different size and from different branches.[16] In these cases project managers report that HR personnel start complaining about E-HRM at the point of time the idea of transforming HR processes to E-HRM was communicated in the organization. The following quote illustrates user reactions observed in early implementation phases of E-HRM: *"IT might be beneficial for other departments like finance but I do not believe that IT provides some benefits for HR. IT would be going to change HR completely and afterwards we will lose our focus on people. In my point of view this is not HR management as it should be. HR management should focus on people and should solve employees' problems. I have already presented my declination to project management and I talked to my colleagues. After discussing my objection they agreed that the new system and the change of HR will not be beneficial for our everyday work."*

Although technology adoption research so far has provided a lot of insights on the decision processes of an individual confronted with a new technology (Venkatesh et al., 2003), user resistance behaviors like the described conversations are neglected (Johansson and Heide, 2008). Thus, the causes and consequences of user resistance remain a black box (Lapointe and Rivard, 2005). When discussing employees' resistance through a social constructivist view as provided by organizational change research (Ford, 1999; Ford and Ford, 2008) it becomes obvious that resistance is the outcome of a constructed organizational context, the change agent-recipient relationship and conversations among change agents, sponsors, or change recipients (Ford et al., 2002). This view emphasizes the importance of both communication and conversations in order to succeed in the intended organizational change initiative. Much of what people know and believe comes from conversations passed on by others rather than from the direct experience (Ford et al., 2002). Although researchers have shown that shifting the focus on conversations can enable the success of organizational change initiatives (Scherr, 1989), little research has investigated an individual's communication behavior during the implementation of IT-induced organizational change initiatives (Johansson and Heide, 2008).

Thus, the objective of this research is to investigate the communication behavior of employees expressing user resistance in conversations during early phases of the implementation. It proposes a Model of Enraged Employees' Resistance to IT-induced Change and aims at extending the understanding of why and how people resist IT-induced organizational changes by providing theoretical foundations and empirical evidence of enraged employees complaining and talking negatively about an IT implementation. Using this model, the paper intends to answer the following two research questions:

How can enraged employees' behavior be expressed and captured?

What are causes of this kind of user resistance in early implementation phases?

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[16] Our research on user resistance is based on several observations of information system implementations in the HR context. Since more than 5 years the authors have conducted more than 30 case studies in order to understand the impact of information technology on HR personnel's working routines (for some of these case studies see Weitzel et al. 2009, Laumer and Eckhardt 2010, Münstermann et al. 2010).

For the foundation and empirical validation of the proposed model, the remainder of this paper is as follows. First, the theoretical background of user resistance research will be presented and the proposed Model of Enraged Employees' Resistance to IT-induced Change will be developed. Within this step, the variable for capturing Enraged Employees' Behavior will be introduced and potential causes of this kind of user resistance will be discussed. In a second step, the model will be evaluated using data collected during the introduction of a new human resources information system (HRIS). The study was conducted during early implementation phases of the new system when the project management was confronted with enraged employees complaining about the changes and the new information system. At the time the study was conducted, users were already aware of the system and the changes coming along with it, yet they have not started using it for their daily work. The study concludes with a discussion about whether the proposed model is valid to explain an individual's resistance behavior and whether the proposed user resistance variable is suitbale to model user resistance behaviors in early implementation phases.

2 DEVELOPING A MODEL OF ENRAGED EMPLOYEES' RESISTANCE TO IT-INDUCED CHANGE

Already in the 1980ies, IS researchers indicate the challenge of user resistance (Hirschheim and Newman, 1988; Keen, 1981; Markus, 1983). "*Better theories of resistance will lead to better implementation strategies and hopefully to better outcomes*", is the outlined objective of researchers trying to explain, why people resist IT-induced changes (Markus, 1983). However, only a few approaches explicitly investigate user resistance (Bhattacherjee and Hikmet, 2007; Cenfetelli, 2004; Hirschheim and Newman, 1988; Joshi, 1991; Klaus and Blanton, 2010; Klaus et al., 2010; Lapointe and Rivard, 2005; Marakas and Hornik, 1996; Markus, 1983) and those approaches mainly focus on the post-implementation phase (Meissonier and Houze, 2010).

To provide explanations for user resistance behaviors in pre- and early-implementation phases and to extend the current understanding of user resistance we will propose a Model of Enraged Employees' Resistance to IT-induced Change in the following. Within these implementation phases, conversations are important aspects for succeeding in the intended organizational change initiative (Ford et al., 2002). Resistance behavior in pre- or early-implementation phases can be expressed through the change agent-recipient relationship and conversations among change agents, sponsors, or recipients (Ford et al., 2002). In the following we will therefore suggest and develop *Enraged Employees' Resistance* as a new user resistance behavior concept based on the framework of resistance to organizational change (Oreg, 2006) to provide a new aspect of user resistance to IT-induced change initative and to explain the phenomona described in the opening remarks. Furthermore, hypotheses regarding potential drivers of this particular user resistance behavior are developed in the following sub-sections.

2.1 ENRAGED EMPLOYEES' BEHAVIOR

Research investigating resistance as a behavior defines resistance as "*opposition, challenge or disruption to process or initiatives*" (Jermier et al., 1994; Ferneley and Sobreperez, 2006) or as "*opposition of a user to change associated with a new IS implementation*" (Kim and Kankanhalli, 2009, p. 568). Resistance behavior can be classified into two different forms: a negative resistance as the rationale to oppose or deceive (Marakas and Hornik, 1996) and a positive one as the rationale to support or improve (Joshi, 1991). The possibly occurring resistance behaviors range from a lack of cooperation on the one side, to deliberate sabotage on the other side (Lapointe and Rivard, 2005; Prasad and Prasad, 2000; Waddell and Sohal, 1998). The degree of resistance can also be

considered to increase from covert passive (e.g. ignorance or indifference) to overt active (e.g. obstruction) behaviors (Kim and Kankanhalli, 2009). However, these approaches are not able to capture enraged employees' behavior explicitly which is modeled as complaining and talking negatively to colleagues or project management about the change activities.

In order to extend the understanding of user resistance behavior in early implementation phases and to exactly address the behavioral patterns described in the opening remarks we propose the concept of Enraged Employees' Behavior which is an overt (open and expressive) and active (originating action) form of resistance (Kim and Kankanhalli, 2009). It is an example of behavioral resistance to change defined as "*actions or intention to act in response to the change*" (Oreg, 2006, p.76). Complaining about a change, trying to convince others that a change is bad, protesting against or presenting objections regarding the change are conversations in which stories about an IT-induced change project are told. They are examples of Enraged Employees' Behavior (Buchanan and Dawson, 2007; Ford and Ford, 2008). This conceptualization enables a discussion of the behavioral reactions of an individual when change takes place. By using this concept user resistance behavior in early implementation phases can be explained. This is important eespecially for mandatory usage settings in which an individual might use the technology but still shows this kind of resistance behavior before and after the go-live of the system. Thus, investigating Enraged Employees' Behavior enables a discussion of actual and observable user resistance behavior during early phases of an IS implementation project as it is detached from actual and mandated system use. This aspect is demanded by Brown et al. (2002) in order to explain user reactions to information technology in organizations (Brown et al., 2002).

Enraged Employees' Behavior is a systemic und public phenomenon founded in conversations in which people engage (Dent and Goldberg, 1999). It can be seen as conversations in which individuals constitute different perceptions of the reality and in which employees formulate their perception of the reality in order to convince others based on own experiences. This behavioral component of resistance to change reflects an individual's dissent or protest, whether intentional, habitual, or spontaneous (Piderit, 2000) which is expressed in conversations with both project management and colleagues. This behavior is the base for an increasing resistance to change during the implementation of an information system as an individual's resistance is generated and sustained through conversations among change recipients (Ford and Ford, 1995). Thus, Enraged Employees' Behavior will be considered an important resistance to change component during early phases of information systems implementations and is included as a behavioral variable in the proposed Model of Enraged Employees' Resistance to IT-induced Change.

Potential drivers of this kind of resistance behavior as identified above will be discussed in the following sections in order to enable a discussion why employees complain or talk negatively about an IT-induced change initiative.

2.2 PERCEPTIONS OF THE EMBEDDING INFORMATION TECHNOLOGY

Indicated by the opening examples and further emphasized by the discussion of Enraged Employees' Behavior an understanding of conversations during implementations is critical for understanding success or failure of an implementation project (Ford and Ford, 2008). Nonetheless, it is also important to understand drivers of this particular form of user resistance. As highlighted by technology acceptance research, beliefs about using the system to be introduced influence its acceptance in terms of usage intentions and behavior (Venkatesh et. al, 2003). Beliefs about using an information technology like effort and performance expectancy are the central aspect of technology acceptance research. Thus, also for the described user resistance behavior of enraged employees, we assume that if employees perceive a IS rather negatively in terms of ease of use and/or usefulness they will express their negative beliefs about the system in

the form of user resistance behavior. Therefore, perceptions of the technology inducing organizational changes (Davis, 1989; Venkatesh et al., 2003) will have an impact on Enraged Employees' Behavior.

In this context the Technology Acceptance Model (TAM, Davis, 1989; Davis et al., 1989) assumes that technology acceptance by individuals is driven by two attitudinal beliefs about the technology: perceived ease of use and perceived usefulness. In order to control for the impact of technology based variables on user resistance expressed as Enraged Employees' Behavior, the three TAM variables might be used to capture perceptions of the new technology. Using TAM as an example of technology perceptions enables a discussion about the dependent variable related to an individual's attitude towards using the technology in organizations (Brown et al., 2002). It is assumed that technology perceptions influence enraged employees' behavior instead of actual usage behavior. If employees perceive a new technology rather negatively in terms of its key characteristics they will express their objections to project management or their colleagues and complain for example about the ease of use or usefulness of the new technology. However, since the management insists on the new system to be used, employees will indeed use it, although having a negative attitude towards it. In turn, this attitude does not influence the actual employees' usage behavior. Instead, we suggest that it influences Enraged Employees' Behavior. Thus, based on the Technology Acceptance Model (Davis, 1989; Davis et al., 1989), we assume that Perceived Ease of Use of the technology, POerceived Usefulness of the new information system, and Attitude towards Using the technology will influence an individual's resistance behavior as follows:

H1: Perceived Usefulness (PU) has a direct negative impact on Enraged Employees' Behavior (EEB).

H2: An individual's Attitude towards Using the new Information System (ATT) has a direct, negative impact on Enraged Employees' Behavior (EEB).

H3: Perceived Usefulness (PU) has a direct positive impact on an individual's Attitude towards Using the new Information System (ATT)

H4: Perceived Ease of Use (PEOU) has a direct positive impact on Perceived Usefulness (PU)

H5: Perceived Ease of Use (PEOU) has a direct positive impact on Attitude (ATT)

2.3 PERCEPTIONS OF THE CHANGES OF ORGANIZATIONAL ELEMENTS

The implementation of an information technology in organizations induces also changes in organizational elements such as routines, processes, structure, etc. (Orlikowski, 2000). Thus, while understanding the role of technology in organizations as to embed organizational elements it is this material aspect that determines how employees are able to interact with those elements embedded in a technology (Volkoff et al., 2007). The persistence of existing routines and older norms of behavior frequently impede organizational transformation. Individuals embedded in highly institutionalized contexts with strong traditions and well-established behavioral norms may resist these changes (DiMaggio and Powell, 1983; Kraatz and Moore, 2002). Consequently, in order to explain Enraged Employees' Behavior during IT implementation we consider the perceptions of these IT-induced changes of organizational elements one central determinant of user resistance to new information systems. Hence, we assume that perceptions of and variables related to the change induced by the new information system (Oreg, 2006; Piderit, 2000) will have an impact on enraged employees' behavior.

Perceptions of the changes of organizational elements are individual beliefs about the organizational elements such as routines, roles, processes, structure, or culture caused by the

introduction of a new information system (Volkoff et al., 2007). In this context, organizational change research defines *"resistance to change"* as perceptions about changing organizational elements (Dent and Goldberg, 1999). In particular resistance to change is an attitude towards change, which includes behavioral, affective, and cognitive components (Piderit, 2000). These components reflect three different manifestations of people's evaluation of a change object or situation (McGuire, 1985; Smollan, 2006). The behavioral component has already been discussed as the resulting enraged employees' behavior in the previous sub-section. The affective component regards *"how one feels about the change (e.g. angry, anxious)"* (Oreg, 2006, p.76) and the cognitive component involves *"what one thinks about the change (e.g.: Is it necessary? Will it be beneficial?)"* (Oreg, 2006, p.76).

It is the primary objective of organizational change research to understand the role of affective and cognitive response processes among change recipients (Smollan, 2006). This research stream predicts that a distinction between cognitive and affective components of an attitude towards change will enable *"a higher resolution that highlights the particular resistance that is associated with each of the antecedents and consequences"* (Oreg, 2006, p.76). This is based on the difference between affective resistance to change which models an individual's emotions towards the change, and cognitive resistance to change which consists of an individual's thoughts and rational conclusions. Thus, distinguishing between affective and cognitive resistance to change will enable a discussion whether user resistance behavior is rather predicted by emotions and feelings than by rational evaluations of the change context. However, it also makes the investigation of antecedents and consequences more complex compared to earlier resistance studies (Oreg, 2006).

An affective and cognitive attitude of resistance to change related to IT-induced changes of organizational elements will enable deeper insights into technology implementation phenomena as it focus on different objects beside the technology. This argumentation is in line with the Model of Physicians Resistance to Healthcare Information Technology which points out that *"while acceptance behavior is targeted at a specific IT and driven by user perceptions related to IT, resistance is a generalized opposition to change engendered by the expected adverse consequences of change. Resistance is therefore not focused so much on a specific IT but on the change from the status quo caused by IT usage"* (Bhattacherjee and Hikmet, 2007, p.727). Thus, perceptions of the changes of organizational elements are either affective or cognitive and are related to any change in organizational elements induced by an information technology. First approaches proposing variables for capturing resistance to IT-induced change define resistance to change either as an affective resistance to change (e.g. *"fear that I may lose control over the way I work"*, Bhattacherjee and Hikmet, 2007), a cognitive resistance to change (e.g. *"changing to the new way of working with the NOP system would enhance my effectiveness on the job than working in the current way"*, Kim and Kankanhalli, 2009) or focus on a specific organizational element (e.g. loss of power, Bhattacherjee and Hikmet, 2007; Markus, 1983). Thus, we suggest that both affective and cognitive resistance to change focusing on the general change in all organizational elements (Oreg, 2006; Piderit, 2000) will break up the technology-focused attitude-behavior relation (Straub and Burton-Jones 2007) of technology acceptance models (Davis, 1989; Venkatesh et al., 2003). We assume that Enraged Employees' Behavior is influenced by employees' affective and cognitive resistance to change in organizations:

> *H6: Affective Resistance to Change (A-RTC) of individuals has a positive, direct effect on Enraged Employees' Behavior (EEB)*

> *H7: Cognitive Resistance to Change (C-RTC) of individuals has a positive, direct effect on Enraged Employees' Behavior (EEB)*

Using both cognitive and affective resistance to change within one model requires further discussion of the type of influence of the two variables. Regarding affective and cognitive

attitudes we hypothesize that there is an internal hierarchy of resistance to change as an attitude between its cognitive and affective dimensions (Yang and Yoo, 2004). Triandis argues that a better understanding of the attitude-behavior relationship can be reached by using affective and cognitive components of attitude (Triandis, 1980). The affective dimension is influenced by beliefs (Tesser and Shaffer, 1990). These beliefs and the cognitive dimension of resistance to change can be considered as an evaluative belief (Thompson and Hunt, 1996). For example, while implementing information systems and changing organizational elements change recipients can form evaluative beliefs about efficiency and effectiveness. These beliefs in turn develop into employees' affective attitude (like or hate the change)(Yang and Yoo, 2004). Thus, there is a hierarchical relationship among affective and cognitive attitude components such that affective resistance to change is influenced by cognitive resistance to change. Consequently, we assume that

> *H8: Cognitive Resistance to Change (C-RTC) of individuals has a positive direct effect on Affective Resistance to Change (A-RTC) as the cognitive effect will be mediated by the affective one.*

2.4 INDIVIDUAL DIFFERENCES

Besides these material aspects of either the changing technology or the changed organizational element also individual factors might determine how an individual reacts to a change initiative. These factors might include traits such as personality as well as demographic variables (Zmud, 1979) and are defined as individual differences (Agarwal and Prasad, 1999). Using the concept of individual differences we suggest that any dissimilarity across people might influence employees' behavior during the implementation of an information system. Hence, individual differences (Agarwal and Prasad, 1999; Zmud, 1979) will have an impact on Enraged Employees' Behavior.

Regarding an example of individual differences, the concept of dispositional resistance to change has been established as a predictor of behavioral, affective and cognitive resistance to change (Oreg, 2006). Furthermore, a measure for the personality component of resistance to change has been designed (Oreg, 2003). This variable is explicitly related to the change context such that it is used as an example of personality in our model. People high on dispositional resistance to change, which is conceptualized as a stable personality trait, are less likely to voluntarily incorporate changes into their life, and when change is imposed upon them they are more likely to experience negative reactions, such as anxiety, anger, and fear (Oreg, 2003, 2006). The structure and its validity have been demonstrated with the aid of several studies in various contexts and cultural areas (Oreg et al., 2008). Therefore, we assume for the perceptions of the change context that

> *H9: Dispositional Resistance to Change (D-RTC) of individuals has a positive direct effect on Enraged Employees' Behavior (EEB).*

Furthermore, several research studies on technology acceptance reveal that age, gender and experience are important demographic variables influencing the perceptions of new information systems and the corresponding usage behavior (Agarwal and Prasad, 1999) such that we assume

> *H10: Demographic variables (age, gender, experience) have a positive direct effect on Enraged Employees' Behavior.*

In this context, it is suggested that internal psychological variables (i.e. beliefs or perceptions of embedding technologies or embedded organizational elements) fully mediate the effects of all other variables in the external environment which may have an impact on an individual's acceptance or use of an innovation (Davis et al., 1989). Also in the underlying theory of reasoned

action (Fishbein and Ajzen, 1975) or planned behavior (Ajzen, 1985) personality is identified explicitly as a type of exogenous variable that influences behavior mediated by beliefs and attitudes. For the technology acceptance context the mediated influences of individual differences has been demonstrated among othersby Agarwal and Prasad (1999) such that we also assume mediated influences on individual differences on enraged employees' behavior.

> *H11: Dispositional Resistance to Change (D-RTC) of individuals has a positive direct effect on Affective Resistance to Change (A-RTC) such that Affective Resistance to Change (A-RTC) mediates the impact of Dispositional Resistance to Change (D-RTC) on Enraged Employees Behavior (EEB).*

> *H12: Dispositional Resistance to Change (D-RTC) of individuals has a positive direct effect on Cognitive Resistance to Change (A-RTC) such that Cognitive Resistance to Change (C-RTC) mediates the impact of Dispositional Resistance to Change (D-RTC) on Enraged Employees Behavior (EEB).*

> *H13: Demographic variables (Age, Gender, and Experience) have a positive direct effect on a) Perceived ease of use, (b) Perceived usefulness, (c) Affective Resistance to Change, and (d) Cognitive Resistance to Change such that Perceived Ease of Use, Perceived Usefulness, Affective and Cognitive Resistance mediates the impact of Age, Gender and Experience on Enraged Employees Behavior (EEB)*

2.5 RESEARCH MODELS

Based on the assumption that user resistance is expressed on the one side as an observable behavior during IT implementations in organizations and that this behavior is on the other side influenced by the embedding technology, the embedded organizational elements or the individual we propose in this section two competing research models for empirically testing the theoretically developed propositions. The first model (Figure 1) assumes that there is a direct impact of individual differences, perceptions of the technology, and perceptions of the changing organizational elements on enraged employees' behavior as discussed above (see H9 and H10). The second one (Figure 2) takes into consideration that the effect of individual differences can be mediated by individuals' beliefs about an information technology or changing organizational elements as proposed in the previous section (see H11, H12, and H13). Both models will be tested empirically as it will be explained in the following section.
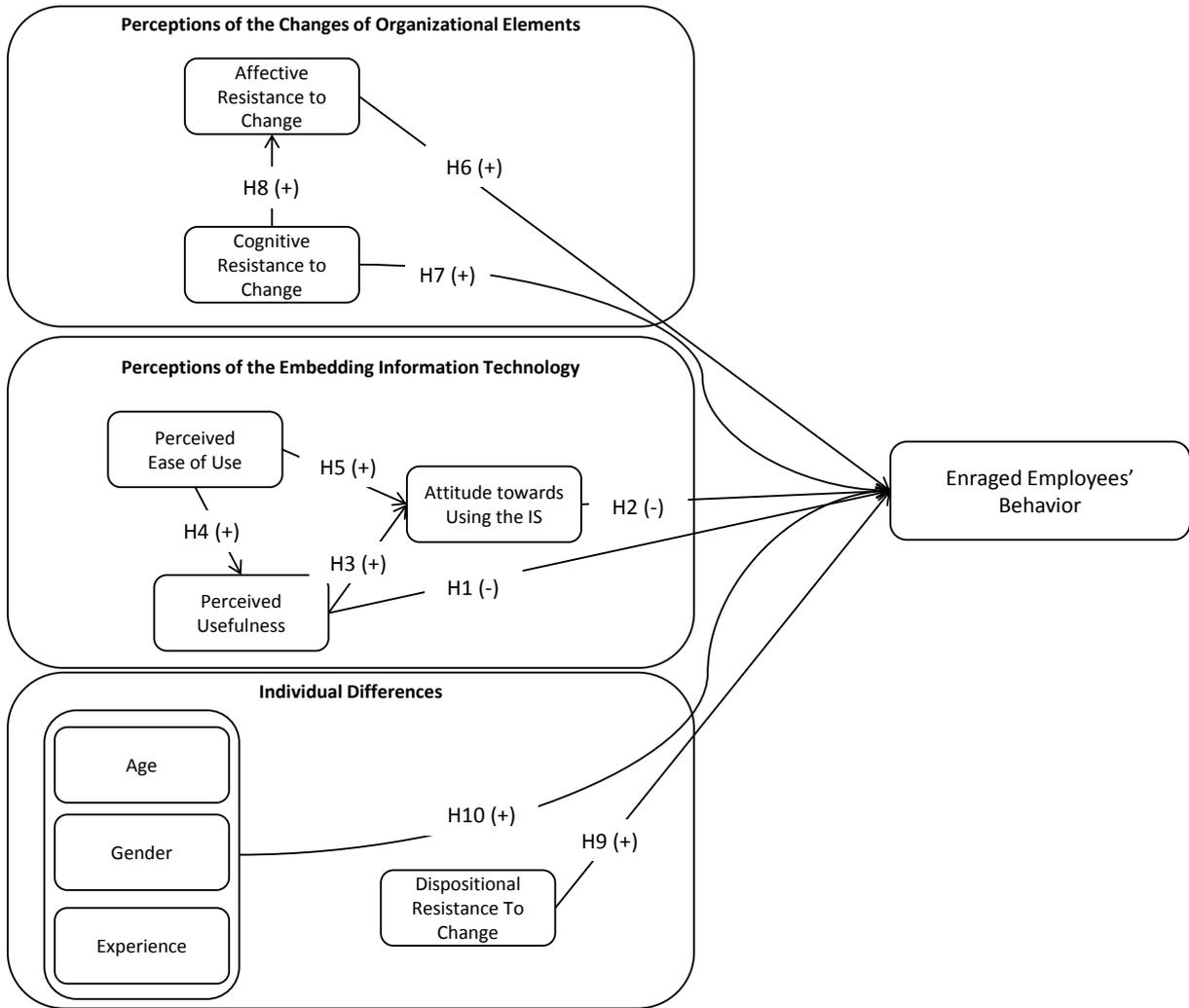
Figure 1: Model of Enraged Employees' Resistance to Change (Direct Model)
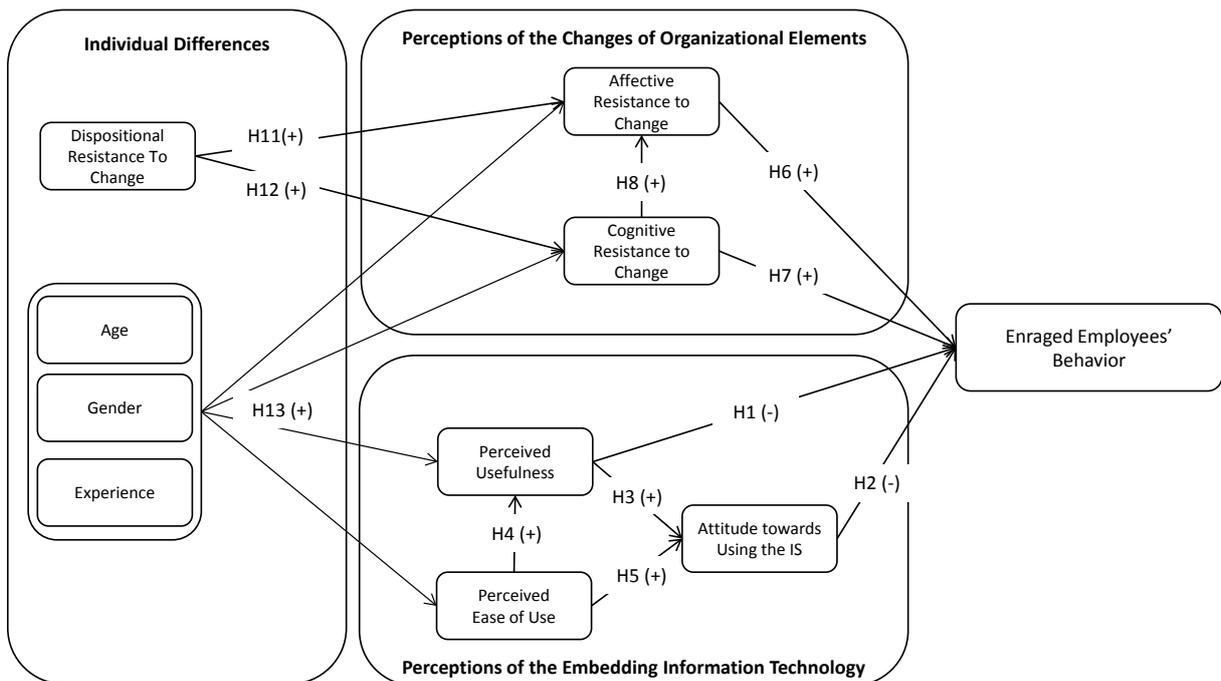
Figure 2: Model of Enraged Employees' Resistance to Change (Mediated Model)

3   EMPIRICAL EVIDENCE

Within this section, empirical evidence for the Model of Enraged Employees' Resistance to Change will be provided. Therefore, the following section introduces the survey instrument, and followed by the presentation of the results.

3.1   RESEARCH DESIGN

To validate the research model, data was collected within one company in a Western-European country. The company is an automotive supplier with over 50,000 employees at about 200 locations in more than 40 countries worldwide who generated total revenues of more than 6 Billion Euros in 2009. The project observed is the implementation of a new human resources information system for 150 recruiters aimed to support the company's recruiting process. The project started in January 2010 and the system will be fully implemented by July 2010. The new system replaces existing stand-alone solutions that support only a few tasks of the recruiting process. Along with the new system various changes in the recruiting process took place as well.

In order to get a broader idea of user resistance behaviors, an empirical survey has been conducted in the early implementation phase from Mid-May to the end of June 2010 to validate the proposed model. In total 106 out of 150 recruiters participated in our study, which accounts for a response rate of 70.7 per cent. The demographic information about the research participants is presented in Table 1. In addition to the survey data, interviews with users and the project management were conducted.

Table 1. Demographics[17]

Attribute	Manifestation	Value
Gender	male	23.6%
	female	62.3%
Age	older 45	16.0%
	36 to 45	25.5%
	25 to 35	23.6%
	under 25	11.3%
Tenure	less than 5 years	23.6%
	5 to 10 years	22.6%
	11 to 15 years	13.2%
	more than 15 years	12.3%

For empirical validation structural equation modeling and the Partial Least Squares (PLS, SmartPLS 2.0 M3; Ringle et al., 2005) approach (Bagozzi and Yi, 1988; Chin, 1998a) were used.

3.2   RESEARCH RESULTS

Within this section, the proposed Model of Resistance to IT-induced Organizational Change will be validated using the data of 106 recruiters from the observed company.

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[17] The depicted results represent participants' actual answers. Participants who did not indicate their gender, age and tenure are not visualized within the table.

3.2.1 **Measurement Model**

The resistance to change and technology acceptance variables are measured as in prior research with small adaptations fitting the IS context (Oreg, 2006; Taylor and Todd, 1995), so that the relationship between the latent and the manifest variable is vectored and changes in the latent variable influence all the indicators (Hulland, 1999). Dispositional resistance to change was measured according to Oreg (2003) and Oreg et al. (2008). It is modeled with the four dimensions routine seeking (RS), emotional reaction (ER), short-term focus (SF), and cognitive rigidity (CR). Thus, for the reflective measurement model four factors – content validity, indicator reliability, construct reliability and discriminant validity – need to be validated (Bagozzi, 1979). The items were translated into the language of the country in which the study has been conducted.

3.2.1.1 Content validity

In setting up the questionnaire the aim was to refer to methods of measurement, which had already been used in empirical research, as described above. The items were tested in a two-step process. After a first test with students in the IS department, the questionnaire was refined by interviews with HR professionals to ensure content validity. During these interviews it emerged that HR personnel felt rather irritated by one of the proposed affective resistance to change items (being upset with the change) such that this item was initially removed from the questionnaire. The used measurement items are illustrated in Table 2. Age and gender were measured using one single item asking for the respective demographic information. For experience, participants were asked to state their working experience in years.

Table 2. Measurement Items

The following statements are related to all changes caused by the implementation of the e-recruiting system in the organization. Please indicate whether you rather agree or disagree.

	ITEM #	ITEM
EEB	EEB-1	I protested against the change.
	EEB-2	I complained about the change to my colleagues.
	EEB-3	I presented my objections regarding the change to management.
	EEB-4	I looked for ways to prevent the change from taking place.
	EEB-5	I spoke rather highly of the change to others*.
RTC-A	RTC-A-1	I am afraid of the change.
	RTC-A-2	I have a bad feeling about the change.
	RTC-A-3	I am stressed by the change.
	RTC-A-4	I was quite excited about the change*
RTC-C	RTC-C-1	I believe that the change would harm the way things are done in the organization.
	RTC-C-2	I believe that the change would make my job harder.
	RTC-C-3	I believed that the change would benefit the organization*
	RTC-C-4	I believed that I could personally benefit from the change*
	RTC-C-5	I thought that it's a negative thing that we were going through this change

* Reverse coded items.

The following statements are related to your perceptions of change in general. Please indicate whether you rather agree or disagree with the following statements independently of your opinion regarding the new e-recruiting system.

	ITEM #	ITEM
D-RTC	RS-1	I like to do the same old things rather than try new and different ones.
	RS-2	I'd rather be bored than surprised.
	ER-1	If I were to be informed that there's going to be a significant change regarding the way things are done at work, I would probably feel stressed.
	ER-2	When I am informed of a change of plans, I tense up a bit.
	ER-3	When things don't go according to plans, it stresses me out.
	SF-1	Changing plans seems like a real hassle to me.
	SF-2	Often, I feel a bit uncomfortable even about changes that may potentially improve my life.
	SF-3	When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me.
	CR-1	Once I've come to a conclusion, I'm not likely to change my mind.
	CR-2	I don't change my mind easily.
	CR-3	My views are very consistent over time.

The following statements are related to the usage of the new e-recruiting system in particular. Please indicate whether you rather agree or disagree.

	ITEM #	ITEM
PU	PU-1	I would find the e-recruiting system useful in my job.
	PU-2	Using the e-recruiting system enables me to accomplish tasks more quickly.
	PU-3	Using the e-recruiting system increases my productivity.
	PU-4	If I use the e-recruiting system, I will increase my chances of getting a raise.
PEOU	PEOU-1	My interaction with the e-recruiting system would be clear and understandable.
	PEOU-2	It would be easy for me to become skillful at using the e-recruiting system.
	PEOU-3	I would find the e-recruiting system easy to use.
	PEOU-4	Learning to operate the e-recruiting system is easy for me.
ATT	ATT-1	Using the new e-Recruiting system is a good idea.
	ATT-2	Using the new e-Recruiting system is a wise idea.
	ATT-3	Using the new e-Recruiting system is pleasant.

3.2.1.2 Indicator reliability

Indicator reliability shows the proportion of the variance of a single indicator, which derives from the relevant latent variables. All loadings should be greater than 0.707 to ensure that at least half of the variance of a latent variable is explained by the indicators used (Carmines and Zeller, 2008). However, in the early stages of measurement model development items with loadings above 0.5 can also be included in the measurement model (Chin, 1998b). As one can see in Table 14, the loadings are above these recommended thresholds. Only one item for RTC-B and RTC-A has to be removed as the loadings are below 0.4 (Hulland, 1999). The significance level of all loadings at $p \leq 0.001$ is high and was calculated by using the bootstrap method with 5000 samples (Henseler et al., 2009).

3.2.1.3 Construct reliability

Quality assessment at the construct level was evaluated using composite reliability (CR) and average variance extracted (AVE). As Table 14 indicates the estimated values were above the recommended thresholds of 0.7 for CR and 0.5 for AVE (Bagozzi and Yi, 1988).

3.2.1.4 Discriminant validity

Discriminant validity describes the extent, to which measurement items differ from another, which theoretically should not be equal (Campbell and Fiske, 1959). This can be evaluated by looking at the cross-loadings. The loadings of our reflective indicators are higher for the corresponding constructs than for any other (see Table 5 in Appendix). Additionally, the loadings must be smaller than the root of the corresponding AVE. As presented in Table 3 this necessary precondition is also fulfilled, so the discriminant validity of the latent variables is high (Hulland, 1999; Fornell and Larcker, 1981a; Fornell and Larcker, 1981b).

Table 3. Discriminant Validity

	Item	Loading	AVE	CR	PU	PEOU	ATT	RTC-A	RTC-C	RTC-D	AGE	GEN.	EXP.	EEB
PU	PU-1	0.912	0.805	0.943	0.897									
	PU-2	0.876												
	PU-3	0.901												
	PU-4	0.899												
PEOU	PEOU-1	0.914	0.819	0.948	0.747	0.905								
	PEOU-2	0.836												
	PEOU-3	0.941												
	PEOU-4	0.926												
ATT	ATT-1	0.927	0.844	0.942	0.644	0.554	0.919							
	ATT-2	0.915												
	ATT-3	0.914												
RTC-A	RTC-A-1	0.940	0.864	0.950	-0.141	-0.308	-0.241	0.897						
	RTC-A-2	0.959												
	RTC-A-3	0.887												
RTC-C	RTC-C-1	0.715	0.541	0.855	-0.563	-0.475	-0.619	0.640	0.897					
	RTC-C-2	0.691												
	RTC-C-3	0.728												
	RTC-C-4	0.766												
	RTC-C-5	0.774												
RTC-D	RTC-D-1	0.903	0.599	0.827	-0.095	-0.181	-0.161	0.256	0.242	0.897				
	RTC-D-2	0.873												
	RTC-D-3	0.897												
	RTC-D-4	0.892												
	RTC-D-5	0.772												
	RTC-D-6	0.786												
	RTC-D-7	0.717												
	RTC-D-8	0.864												
	RTC-D-9	0.883												
	RTC-D-10	0.895												
	RTC-D-11	0.901												
Ind. Dff.	Age	n.a.	n.a.	n.a.	-0.327	-0.378	-0.058	0.441	0.349	0.111	n.a.			
	Gender	n.a.	n.a.	n.a.	0.047	0.063	-0.097	-0.161	-0.152	-0.237	-0.366	n.a.		
	Experience	n.a.	n.a.	n.a.	-0.204	-0.100	0.057	0.215	0.170	-0.005	0.523	-0.293	n.a.	
EEB	EEB-1	0.725	0.543	0.821	-0.420	-0.389	-0.475	0.428	0.571	0.517	0.156	-0.123	-0.007	0.737
	EEB-2	0.895												
	EEB-3	0.755												
	EEB-4	0.723												
	Note: On diagonal square root of AVE is listed.													

3.2.2 Structural Model

The explanatory power of our structural model can be determined by squared multiple correlations (R^2) and path coefficients' levels of significance (Chin, 1998b). For the analysis of the path coefficients in our research models, the t-values were evaluated using the bootstrap routine with 5000 samples (Henseler et al., 2009). Based on Yang et al. (2008) four steps are necessary in order to test for the mediation effect of individual differences and to derive the final model validation. The first step is a model containing only the individual differences variables and Enraged Employees' Behavior as the dependend variable. The second step is an evaluation of our first research model (direct effect) and the third one provides evidence for our second research model (indirect/mediated effect). The fourth model contains all the evaluated effects (direct vs. indirect) of the previous steps in order to visualize the final model.

For the first step Figure 3 reveals that the squared multiple correlations (R^2) of Enraged Employees' Behavior is 0.197 and that the impact of age, gender, and experience cannot be evaluated as significant. Nonetheless, the influence of dispositional resistance to change is significant such that those high on dispositional resistance to change show a higher level of enraged employees' behavior.
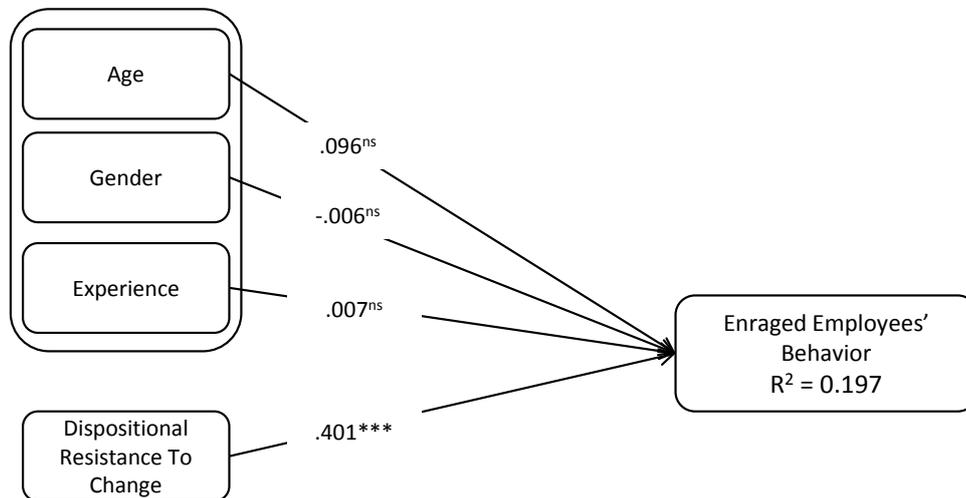
Figure 3: Step 1 - Direct Effects of Individual Differences on Enraged Employees' Behavior

Regarding the second step Figure 4 illustrates the results of the structural model validation for the complete research model of perceptions of the technology, perceptions of the changing organizational elements and individual differences (Research Model 1). The model validation reveals an R^2 of 0.529 for enraged employees' behavior and significant impacts of dispositional, affective and cognitive resistance to change as well as perceived ease of use and usefulness. No significant impact can be observed for age, gender, and experiences as well as attitude towards using the information system.

These results indicate that the effect of age, gender, and experiences might be fully mediated by beliefs as no direct effect can be observed and dispositional resistance to change might be partially mediated as evidence for a direct effect can be provided.
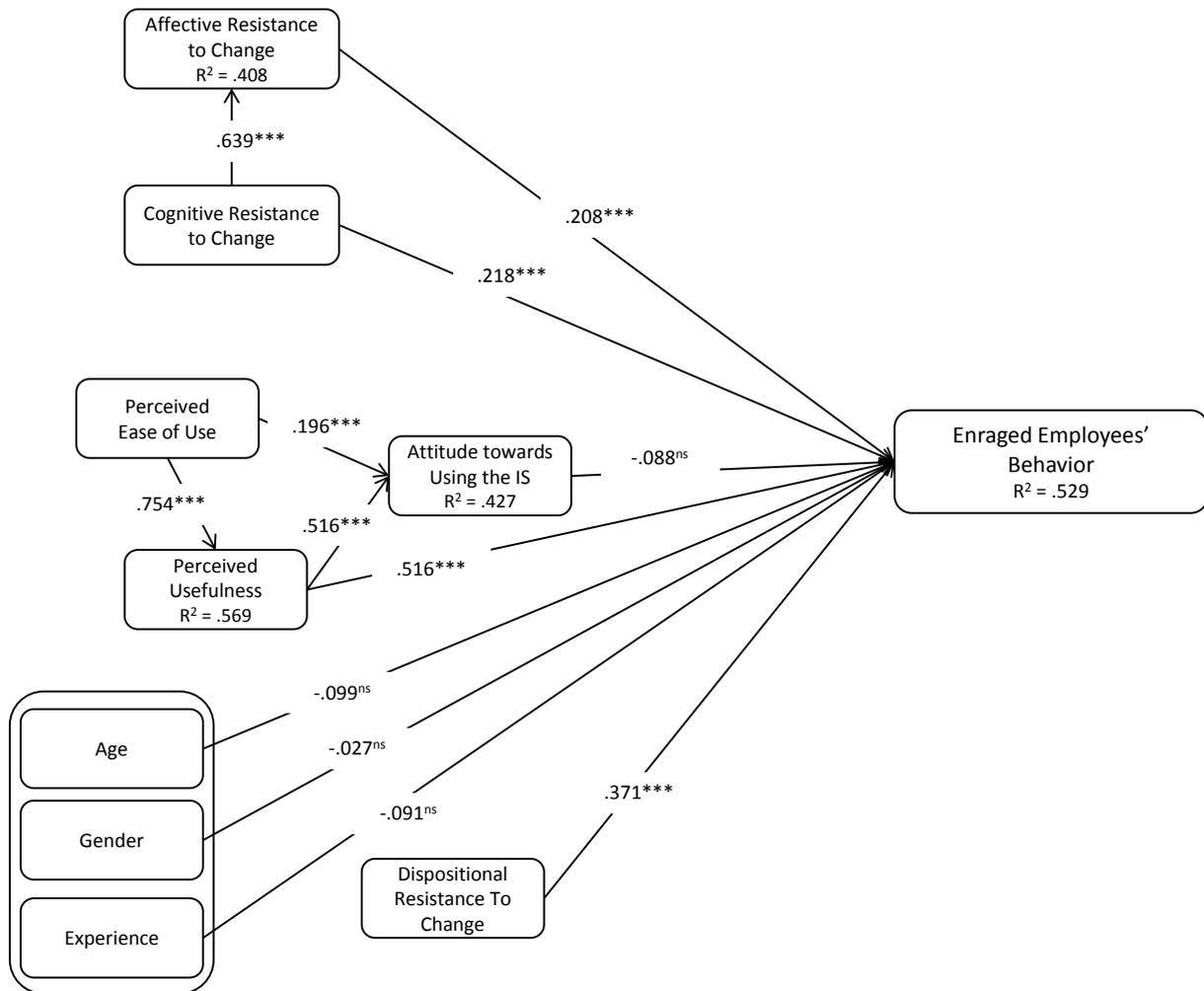
Figure 4: Structural Model Validation for Research Model 1 (Direct Effect)

For the indirect effect model (3rd step) Figure 5 reveals that the R^2 is 0.385 and significant effects of both perceptions of the technology and the changing organizational elements can be observed. It can also be shown that dispositional resistance to change has a significant impact on affective and cognitive resistance to change. Moreover, experience can be evaluated as an important predictor of perceived ease of use and perceived usefulness as well as age for affective and cognitive resistance to change and perceived ease of use. As the R^2 is significantly lower for the direct model than for the indirect model and in the direct model a significant effect of dispositional resistance to change can be shown (see Figure 4 and Figure 5) one has to assume that the impact of dispositional resistance to change is partially mediated by affective and cognitive resistance to change and the influence of age, gender, experience is fully mediated. Consequently, in the fourth step the final model containing these evaluated effects will be evaluated.
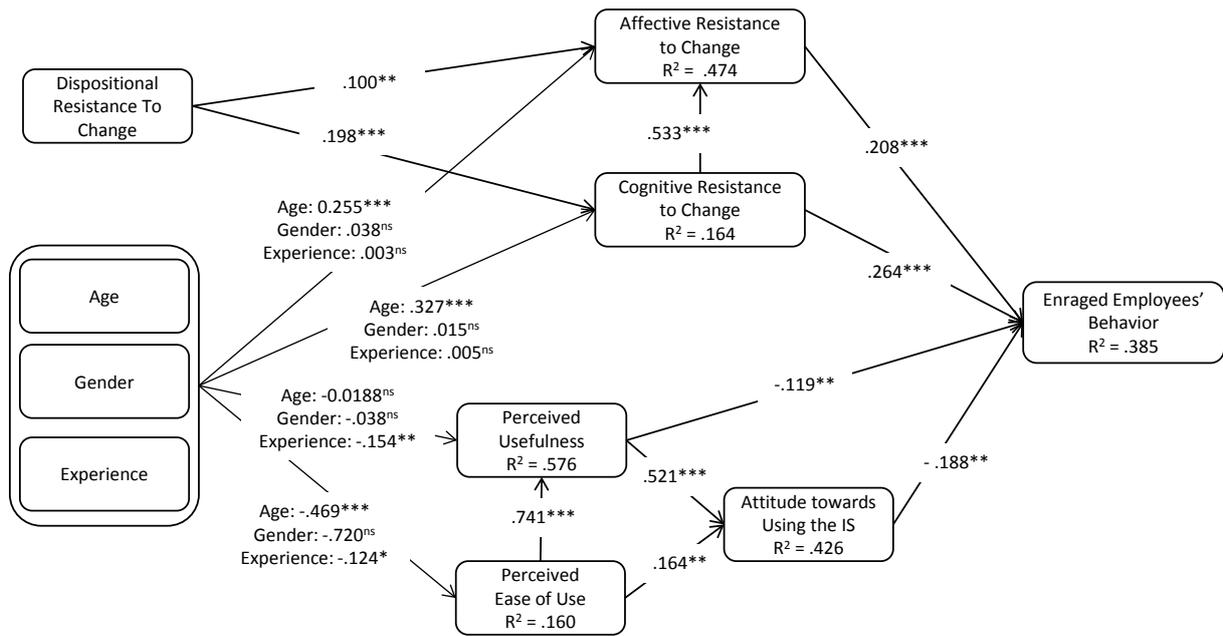
Figure 5: Structural Model Validation for Research Model 2 (Indirect/Mediated Effect)

Figure 6 illustrates the results of the final model containing indirect effects of demographic variables and a partially mediated one of dispositional resistance to change. The squared multiple correlations (R^2) of Enraged Employees' Behavior is 0.516. According to Chin (1998), the explanation power of behavioral resistance to change in early implementation phases is strong. According to the path coefficients a significant impact for both affective and resistance to change and technology perceptions on enraged employees' behavior can be evaluated. Furthermore, the effect of age, gender, experience and dispositional resistance to change on beliefs and attitudes is analyzed. In this context age is evaluated as a significant antecedent of affective and cognitive resistance to change and perceived usefulness. Experience is influencing perceived ease of use and perceived usefulness. Gender has no impact on any variable of the proposed model. Dispositional resistance to change is a strong predictor of affective and cognitive resistance to change and Enraged Employee Behavior.

Besides squared multiple correlations (R^2) and path coefficients also the effect size can be evaluated to control for the respective impact of different variables in one model. Regarding the three propositions the effect size is as follows. The effect size of TAM is 0.100, affective and cognitive resistance to change yield 0.284 and individual differences yield 0.226. Thus, affective and cognitive resistance to change have a stronger impact on Enraged Employees' Behavior than the technology focused variables of TAM.
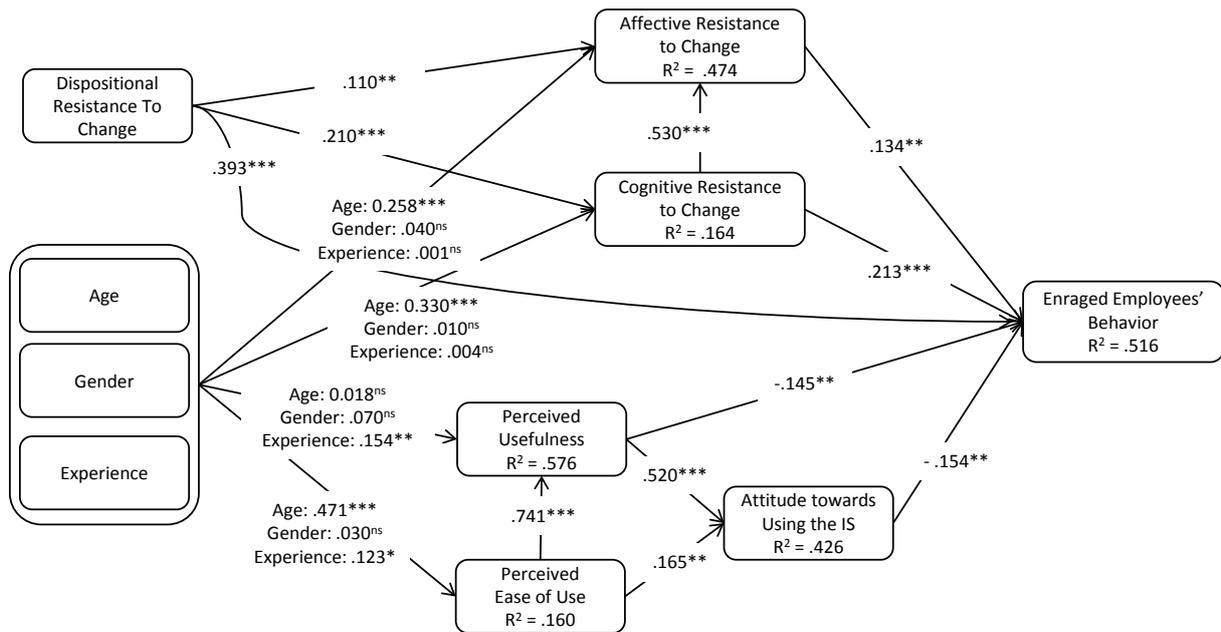
Figure 6: Final Research Model of Enraged Employees' Behavior and its Antecedents

3.2.3   Common Method Bias

As with every self-reported data, there is a possibility for common method biases (CMB) resulting from multiple sources such as consistency and social desirability (Podsakoff et al., 2003; Podsakoff and Organ, 1986). In order to test for CMB, statistical analyses are performed. Following Liang et al. (2007) and Podsakoff et al. (2003), a common method variable is included in the PLS model. The variable includes all the principal constructs' indicators and calculates each indicator's variances substantively explained by the principal construct and by the method. As shown in Table 4, the results demonstrate that the average substantively explained variance of indicators is 0.710, while the average method-based variance is 0.007. The ratio of substantive variance to method variance is about 98:1 and therefore even better than the level proposed by Liang et al. (2007). In addition, most method factor loadings are not significant. Also some method factor loadings appeared to be significant; however, in the presented study the percentage of significant ones is much less than in the study by Liang et al. (2007). The mean of the squared path coefficient is 0.013 for the paths from the CMB variable and 0.717 for the single factor item. The ratio is about 54:1. Given the small magnitude and the insignificance of method variance the method and survey instrument used is unlikely to be a serious concern for our study (Liang et al., 2007).

Table 4: Common Method Variance

	R²(CMB)	R²	ΔR²	Path CMB		Path²	Path		Path²
ATT-1	0.838	0.838	0.000	-0.004	ns	0.000	0.913	***	0.833
ATT-2	0.848	0.847	0.001	0.043	ns	0.002	0.953	***	0.907
ATT-3	0.838	0.837	0.001	-0.039	ns	0.002	0.886	***	0.784
EEB-1	0.563	0.561	0.002	-0.067	ns	0.005	0.796	***	0.633
EEB-2	0.791	0.791	0.000	0.019	ns	0.000	0.876	***	0.767
EEB-3	0.554	0.553	0.001	-0.048	ns	0.002	0.777	***	0.604
EEB-4	0.299	0.291	0.008	0.126	ns	0.016	0.451	***	0.203
C-RTC-1	0.659	0.655	0.004	-0.110	ns	0.012	0.902	***	0.814
C-RTC-2	0.378	0.373	0.004	0.123	ns	0.015	0.508	***	0.258
C-RTC-3	0.780	0.775	0.005	0.131	ns	0.017	0.770	***	0.593
C-RTC-4	0.785	0.784	0.001	0.064	ns	0.004	0.831	***	0.691
C-RTC-5	0.404	0.386	0.018	-0.248	ns	0.061	0.830	***	0.689
PEOU-1	0.873	0.860	0.013	0.190	**	0.036	1.079	***	1.164
PEOU-2	0.688	0.666	0.023	-0.249	ns	0.062	0.617	***	0.380
PEOU-3	0.895	0.894	0.002	0.063	ns	0.004	0.995	***	0.991
PEOU-4	0.869	0.869	0.000	-0.012	ns	0.000	0.922	***	0.850
PU-1	0.834	0.834	0.000	-0.033	ns	0.001	0.886	***	0.785
PU-2	0.782	0.782	0.000	0.004	ns	0.000	0.888	***	0.788
PU-3	0.820	0.820	0.000	0.022	ns	0.000	0.923	***	0.852
PU-4	0.818	0.818	0.000	0.007	ns	0.000	0.911	***	0.829
D-RTC-1	0.822	0.456	0.366	0.195	**	0.038	0.688	***	0.474
D-RTC-2	0.822	0.849	-0.027	-0.126	**	0.016	0.913	***	0.833
D-RTC-3	0.661	0.746	-0.084	-0.020	ns	0.000	0.862	***	0.743
D-RTC-4	0.804	0.793	0.010	-0.196	**	0.038	0.992	***	0.985
D-RTC-5	0.793	0.822	-0.029	-0.017	ns	0.000	0.916	***	0.838
D-RTC-6	0.667	0.618	0.050	0.245	ns	0.060	0.659	***	0.435
D-RTC-7	0.466	0.804	-0.337	-0.002	ns	0.000	0.897	***	0.805
D-RTC-8	0.791	0.793	-0.002	0.002	ns	0.000	0.890	***	0.791
D-RTC-9	0.494	0.665	-0.172	-0.046	ns	0.002	0.830	***	0.689
D-RTC-10	0.865	0.454	0.411	0.119	ns	0.014	0.636	***	0.405
D-RTC-11	0.746	0.788	-0.042	-0.055	ns	0.003	0.905	***	0.819
MEAN	0.718	0.710	0.007	0.003		0.013	0.836		0.717

*** p<0.001, ** p<0.01, ns p>0.05

3.3 LIMITATIONS

Due to the methodology, the proposed research might have limitations as every empirical study. It might only represent a single example of resistance to one specific IT-induced organizational change project within a specific company, economy, country, or cultural region. There might be differences for resistance to change and the actual resistance behavior within different settings. Furthermore, the results are limited by removing three items from the initial measurement model. In addition, no environmental variables were tested within the research model. For instance, system complexity, characteristics of the previous system, and the nature of

the task may all play important roles in resistance, which are not controlled for in the proposed model as only one system was investigated.

Furthermore, the discussed social constructionist view of organizations (Ford, 1999) categorizes resistance as the outcome of a constructed organizational context, the change agent-recipient relationship, and the way in which this relationship is enacted through communication, interpretation, and construction of multiple realities. The proposed model is not able to address all these different aspect of the social constructionist view. It only represents a model of user resistance behavior through communicating and complaining about the change which is seen as an important behavior as realities are constructed through conversations. Also, no distinction has been made between the three types of conversations (Ford et al., 2002) which limits the discussion of the derived results.

4   DISCUSSION AND FUTURE RESEARCH

The Model of Enraged Employees' Resistance to IT-induced change explains the resistance behavior of 106 recruiters complaining and talking negativly about the change in the pre-implementation stage. As antecedents their affective, cognitive and dispositional resistance to change as well as their perceptions of the new e-recruiting system can be evaluated. Moreover, a stronger effect for resistance to change and individual differences than for technology perceptions can be observed while explaining Enraged Employees' Behavior. Therefore, this approach has several implications for research and practice.

4.1   IMPLICATIONS FOR RESEARCH[18]

This research shows that for an understanding of IT-induced resistance in early implementation phases four aspects are important: characteristics of the change recipient (demographics and personality), characteristics of the change inducing object (information technology), change recipients' affective and cognitive resistance to change reactions, and the resulting resistance behavior (Enraged Employees' Behavior). The resulting behavior is detached from actual and mandated system usage. As a consequence, using dispositional resistance to change (Oreg, 2003), a two-dimensional attitude of resistance to change (Piderit, 2000), perceptions of the new information system, individual differences, and resistance behavior modeling enraged employees' behavior enables an understanding of resistance to IT-induced organizational change in early implementation phases. The results indicate that a better understanding of user resistance behavior in pre-implementation phases can be achieved by rather focusing on the actual change caused by the IT innovation than on the reactions to the IT itself. The evaluation of the final research model reveals that the explanatory power of the reactions to the change caused by the new IS is higher than it is for classical technology focused models like TAM. Therefore, integrating organizational change research as demanded by Orlikowski and Barley (2001) is necessary to extend the understanding, why people reject technologies during IS implementation projects in organizations. Affective, cognitive, and dispositional resistance to change have significant effects on the resistance behavior of those individuals, who are aware of a new information system in an organization.

Proposing and using a variable for Enraged Employees' Behavior enables a different understanding of user resistance besides the one already discussed by IS research. The categorization of different user resistance behaviors related to IS implementations (Ferneley and Sobreperez, 2006) distinguishes three different resistance behaviors individuals can perform to

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[18] The discussion is based on the evaluation of the final research model (Figure 6).

resist using a specific information system: compliance, resistance, and workaround. These resistance behaviors can be classified into a negative one as the rationale to oppose or deceive (Marakas and Hornik, 1996) and a positive one as the rationale to support or improve (Joshi, 1991). Furthermore, the possible occurring resistance behaviors range from a lack of cooperation on one side, to deliberate sabotage on the other side (Lapointe and Rivard, 2005; Prasad and Prasad, 2000; Waddell and Sohal, 1998). The Integrative Framework of User Resistance distinguishes between "*overt (open and expressive, and covert (concealed or hidden) resistance and between active (originating action) and passive (inert or not acting) resistance*" (Kim and Kankanhalli, 2009), p. 575). It providess measurement items for an intention to resist. Defining Enraged Employees' Behavior as user resistance enables an understanding and measuring of a negative resistance as the rationale to oppose or deceive (Marakas and Hornik, 1996), as a lack of cooperation (Prasad and Prasad, 2000; Waddell and Sohal, 1998), and as an overt and active resistance (Kim and Kankanhalli, 2009). Thus, it provides a different perspective on user resistance and enables - especially in early implementation phases - a discussion and measurement of user resistance behaviors. It focuses on conversations and not on technology usage. Future research interested in explaining user resistance in early implementation phases might use the proposed concept of Enraged Employees' Behavior as dependent variable explaining additional reasons why one might complain or talk negatively about the change.

The variable for Enraged Employees' Behavior and the confirmed impact of both technology perceptions and resistance to IT-induced change provide an answer to the discussion of the right dependent variable for IT acceptance models in mandatory usage settings (Brown et al., 2002). For mandatory usage environments, like the implementation of HRIS where individuals have to use a technology, recent research indicates that an employee's attitude is not necessarily linked with one's behavioral intention and corresponding usage behavior (Brown et al. 2002). As a consequence, Brown et al. (2002) ask "*if an employee's attitude is not related to his/her intention to use technology, what does it influence?*" (p. 293) and Venkatesh et al. (2007) state that "*the investigation of outcomes in technology adoption research is very limited*" (p. 277). In addition, Brown et al. (2002) highlight that "*more research is needed to incorporate various attitude-behavior response modes that may provide richer characterization of mandatory environments*" (Brown et al. 2002, p. 291). In this context of the on-going debate in IS research regarding the 'right' dependent variable (e.g. DeLone and McLean 2003), the results provide important contributions for technology adoption research. A potential answer is given to Brown et al.'s (2002) question, regarding factors which are influenced by an individual's attitude in mandatory settings. Evidence can be provided that an employee's attitude influences Enraged Employees' Behavior as individuals are determined by their attitude about using an information system to complain, talk negatively about, or protest against change. Since employees cannot choose to use another IS, the negative perceptions of the technology and the IT-induced change become noticeable by a higher resistance to change behavior. By integrating both technology-independent attitudes (affective and cognitive resistance to change) and behaviors (Enraged Employees' Behavior) into technology acceptance or resistance models our results break up the black box (Straub and Burton-Jones 2007) of the technology-focused attitude-behavior relation of the technology acceptance models (Davis, 1989; Venkatesh et al., 2003). ,.

Investigating the affective, behavioral, and cognitive reaction to the introduced IT-induced change extends the Model of Physicians' Reactions to Healthcare IT (Bhattacherjee and Hikmet, 2007) in order to discuss different reactions besides the intention to use caused by TAM and a uni-dimensional resistance to change conceptualization. Based on the two-dimensional resistance to change concept the proposed model is able to explain different reactions as described in the opening remarks. Enraged Employees' Behavior ("*I already present my declination to project management and I talked to my colleagues*") is caused on the one side by the perception of the IT ("*I do not believe that IT provides some benefits for HR*") and on the other side by cognitive and affective reaction to IT-induced change ("*IT would be going to change HR completely and afterwards we will lose our focus on*

people"). The results reveal that without having used the system in their daily work users develop affective and cognitive reactions to the introduced change in the pre-implementation phase of an IT implementation project, which are responsible for user resistance behavior in this phase of an IT project. These reactions are an even better predictor of the observed user resistance behavior. From the first impression this seems logical and obvious. If the behavior is rather related to the change itself than to the use of the technology then it is also more predicted from the perceptions of the change than by the technology. However, given the specific scenario of an early implementation phase of a mandated technology the results reveal that besides a different understanding of user behavior in these implementation phases it is also important to extend the understanding of causes leading to resistance behavior and the underlying resistance objects. Thus, for mandated environments it is important to control for both perceptions of the technology and for different resistance objective modeled cumulative in this study as all changes caused by the new system. Although it seems logical and obvious it is important to include these change related aspects in theories or models explaining employees' perceptions and behaviors in early implementation phases and not to neglect them because of their obviousness.

Moreover, using the two-dimensional construct of resistance to change and the dispositional resistance to change construct enables an understanding, of how individual differences affect the variables modeling the perceptions related to the change, which can lead to a more parsimonious understanding of the resistance phenomenon. The results reveal a stronger effect of dispositional resistance to change on affective ($f^2=0.064$, $R^2=0.118$) and behavioral reactions to change ($f^2=0.214$, $R^2=0.197$), however only a weaker one on cognitive reactions ($f^2=0.043$, $R^2=0.102$) (Chin, 1998). Compared to other studies investigating the effect of personality on individual beliefs the explained variance is good as in the social science settings, where personality variables are the focus of many studies, an R^2 value in the range of 10–20% is said to be quite acceptable (Gaur and Gaur, 2006, p. 109). The results indicate that the affective as well as behavioral resistance to change is rather predicted by the personality of an employee than cognitive resistance to change. Thus, these reactions are rather normal during early implementation phases as employees high on dispositional resistance to change are more probably to be predicted by reasons based in their person than by causes induced by the change initiative. In other words, these employees might always responde to any changing environment with rather affective and behavioral than cognitive resistance to change. Thus, the focus of understanding manageable resistance to change might be on cognitive resistance to change. However, as the results indicate both affective and cognitive resistance to change components are important, such that project management considers both to be important predictors of enraged organizational citizens. Cognitive ones are rather predicted by the change and affective ones by the personality of employees. Nevertheless, both components increase the likelihood of strong resistance behaviors and need to be addressed to enable project success.

In order to understand, why people resist a technology and show high resistance to IT-induced organizational change the results reveal that on the one side change independent variables like dispositional resistance to change and on the other side change dependent ones like affective and cognitive reactions to IT-induced change are important predictors for the behavioral resistance to change in the pre-implementation phase. In addition, these change related variables are more important than technology focused ones like perceived ease of use and perceived usefulness of the new system. Therefore, focusing more on the changes from the status quo caused by a new information system in an organization better explains individual reactions and the resulting Enraged Employees' Behavior than focusing only on the technology and individual's beliefs about the technology. Moreover, control variables such as gender, age and experience influences the variables designed for measuring individuals' perception of a technology and the perceptions of the change. Affective and cognitive resistance to change is correlated with age, such as older employees show higher emotional reactions to IT-induced change. Nonetheless, Enraged Employees' Behavior is not correlated with the age of the

respective employees such as both younger and older ones show high user resistance behavior. Thus, the results indicate that perceptions of a new technology are rather predicted by an individual's age or working experience than the perceptions of the organizational changes induced by a new technology. This is in line with prior research which states that age, gender and experiences is important for the technology-focused attitude-behavior relationship (e.g. Venkatesh et al. 2003), however less important for resistance to change as well as enraged employee behavior (e.g. Oreg 2006).

Therefore, the proposed and evaluated Model of Resistance to IT-induced Change is an important step towards a better understanding of user resistance behaviors in organizations as it integrates technology acceptance research, which focuses on an individual's IT-related beliefs, and organizational change research, which focuses on reactions to organizational change initiatives. Future research might build on the presented ideas of dispositional, affective, and cognitive resistance to change as well as resistance behaviors as it will be discussed in the following subsection.

4.2 FUTURE RESEARCH

Besides the already mentioned implications of the proposed model for IS research, there is still work to do to provide a better understanding of resistance to IT-induced organizational change.

A first important aspect is that in addition to the bi-dimensional resistance to change construct and the TAM variables a more specific conceptualization of affective and cognitive resistance to change based on the characteristics of the IT-induced change might be considered by future research. With the variables used in this research, the evaluation of the change has been captured within cumulative affective and cognitive reactions. However, there might be differences for specific changesof technologies, processes, roles, routines, structures, etc. which might have a different impact on behavioral resistance to change. Another important aspect is the possible differentiated conceptualization of user resistance behaviors. Behavioral resistance to change has been measured as Enraged Employees' Behavior of complaining and talking negatively about the change. However, as discussed there are different concepualizations of user resistance behaviors available (e.g. Kim and Kankanhalli, 2009, for an overview see Oreg et al., 2011). Therefore, it is important to understand at what stages in the implementation process what kind of user resistance behaviors occur. Thus, it might be interesting to investigate whether affective, cognitive, and dispositional resistance to change are also important predictors for different user resistance behaviors especially in the post-implementation stage of an IT project.

In addition, theories and research on resistance to change have primarily addressed the context-specific antecedents of resistance. A large variety of contextual variables has been proposed as related to employees' resistance to change. However, as the social constructivist view indicates resistance is rather an outcome of a constructed organizational context resulting from the change agent-recipient relationship than a one sided behavior with resistance occurring only in the change recipients who behave unreasonable or irrationally. Thus, future research might build on the presented idea of conversations in organizations as a major source for an extended user resistance phenomenon and take into account that all organizational members are responsible for the construction of realities where none of these realities is the correct one. The theory of background conversations (Ford et al., 2002) provides a good starting point for this kind of research

Furthermore, a number of studies have already found that conditions of change and the change in general can predict organizational outcomes such as job satisfaction, organizational commitment and the intention to leave the organization (Wanberg and Banas, 2000). Overall, it is

expected that positive and negative attitudes towards change will be associated with these outcome variables (Oreg, 2006).

4.3 PRACTICAL IMPLICATIONS

Besides these implications for theory and future research, the results of our approach have also some implications for practice. By using change management measures to lower behavioral responses to change, the likelihood of strong resistance behaviors related to the technology by employees will decrease.

First of all, the results show that employees high on dispositional resistance to change show high negative affective, behavioral and cognitive reactions to the IT-induced change. Therefore, one implication for practice is to hire employees with a low degree of dispositional resistance to change. Organizations might look for those employees as part of a broader selection process, probing for dispositional resistance to change along with other job-related qualifications in an interview.

Regarding affective reactions to IT-induced change, it is important to implement channels, which can be used by employees to communicate their emotions about the change. Offering an official channel, where employees can discuss different aspects of the change will prevent them from talking to others about the change and showing their affective responses to their colleagues. During the pre-implementation phase organizations need to be aware that there are emotions in relation to the change, which affect the acceptance of the change initiative and to offer a valve, where emotions can be let out. If organizations are able to reduce the negative emotional reactions, they are able to increase the likelihood of a successful implementation of the new information system.

Regarding cognitive responses to IT-induced organizational change an organization needs to implement platforms, where managers and employees can discuss about the change initiative, and where arguments can be exchanged. It is important to take cognitive responses seriously in order to convince employees about the usefulness of the change. These platforms should be different ones from the valves implemented to lower affective responses as organizations should try to give priority to cognitive responses as these are more important than affective ones.

Both examples illustrate that it is important for project managers to implement channels for a guided conversation of employees such as both cognitive and affective responses to the IT-induced change can be articulated and discussed under the control of management. With these official channels project management can hinder the diffusion of rather negative conversations throughout the organization and addressnegative talks at an early stage. As distinguishing between affective and cognitive responses is appropriate for the theoretical model it might also be suitable to implement different channels addressing affective and cognitive reactions of employees.

One possibility for change management activities in organizations is to focus on peer group marketing or world-of-mouth marketing campaigns inside or outside the organization (see Weitzel et al. (2009) for a description of this method in the context of recruiting IT professionals). Eckhardt et al. (2009) show adopters and non-adopters of technologies are influenced by different groups. Therefore, identifying the opinion leaders within groups or departments can help organizations to reduce individuals' behavioral resistance to change and might in turn lower the effect of the dispositional, affective, and cognitive resistance to change by individuals. In other words, project management might use conversations on their own to make employees talk rather positive about the change and present their support of the project to their

colleagues. Using peer-group marketing negative talks and corresponding user resistance can be reduced.

5 CONCLUSION

Proposing and validating a Model of Enraged Employees' Resistance to IT-induced Change reveals that user resistance behavior in the pre-implementation phase is more predicted by the affective, cognitive, dispositional resistance to the change caused by the new information systems and less by technology focused variables such as perceived ease of use and perceived usefulness. The proposed concept of Enraged Employees' Behavior enables a better understanding of user reactions to new information systems in the pre-implementation phase.

6 REFERENCES

Agarwal, R., and Prasad, J. 1999. Are Individual Differecnes Germane to the Acceptance of New Information Technology? *Decision Sciences*, 30(2): 361-391.

Ajzen, I. 1985. From intentions to actions: A theory of planned behavior. In J. Kuhl, andJ. Beckmann (Eds.), *Action Control: From Cognition to Behavior B2 - Action Control: From Cognition to Behavior*: 11-39. New York: Springer.

Bagozzi, R. P. 1979. The Role of Measurement in Theory Construction and Hypothesis Testing: Toward a Holistic Model. In O. C. Ferell, S. W. Brown, andC. W. Lamb (Eds.), *Conceptual and Theoretical Developments in Marketing*: 15-32. Chicago, IL: American Marketing Association.

Bagozzi, R. P., and Yi, Y. 1988. On the Evaluation of Structural Equation Models. *Journal of the Academy of Marketing Science*, 16(1): 74-94.

Bhattacherjee, A., and Hikmet, N. 2007. Physicians' resistance toward healthcare information technology: a theoretical model and empirical test. *European Journal of Information Systems*, 16(6): 725-737.

Brown, S. A., Massey, A. P., Montoya-weiss, M. M., and Burkman, J. R. 2002. Do I really have to? User acceptance of mandated technology. *European Journal of Information Systems*, 11(4): 283-295.

Buchanan, D., and Dawson, P. 2007. Discourse and Audience: Organizational Change as Multi-Story Process. *Journal of Management Studies*, 44(5): 669-686.

Campbell, D. T., and Fiske, D. W. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56.

Carmines, E. G., and Zeller, R. A. 2008. *Reliability and validity assessment* ([Nachdr.] ed.). Newbury Park, Calif.: Sage Publ.

Cenfetelli, R. T. 2004. Inhibitors and Enablers as Dual Factor Concepts in Technology Usage. *Journal of the Association for Information Systems*, 11-12(472-492).

Chin, W. W. 1998a. Issues and Opinion on Structural Equation Modeling, *MIS Quarterly*, Vol. 22: 1-1: MIS Quarterly & The Society for Information Management.

Chin, W. W. 1998b. The Partial Least Squares Approach to Structural Equation Modeling. In G. A. Marcoulides (Ed.), *Modern Methods for Business Research B2 - Modern Methods for Business Research*: 295-336. Mahwah, NJ: Lawrence Erlbaum.

Davis, F. D. 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3): 319-340.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. 1989. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35(8): 982-1003.

Dent, E. B., and Goldberg, S. G. 1999. Challenging "Resistance to Change". *The Journal of Applied Behavioral Science*, 35(1): 25-41.

DiMaggio, P. J., and Powell, W. W. 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48(2): 147-160.

Eckhardt, A., Laumer, S., and Weitzel, T. 2009. Who influences whom? - Analyzing workplace referents' social influence on IT adoption and non-adoption. *Journal of Information Technology* 14(1): 11-24.

Ferneley, E. H., and Sobreperez, P. 2006. Resist, comply or workaround? An examination of different facets of user engagement with information systems. *European Journal of Information Systems*, 15(4): 345-356.

Fishbein, M., and Ajzen, I. 1975. *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. Reading, MA: Addison-Wesley Publishing Company.

Ford, J. D. 1999. Organizational change as shifting conversations. *Journal of Organizational Change Management*, 12(6): 480-500.

Ford, J. D., and Ford, L. W. 1995. The Role of Conversations in Producing Intentional Change in Organizations. *The Academy of Management Review*, 20(3): 541-570.

Ford, J. D., and Ford, L. W. 2008. Conversational Profiles. *The Journal of Applied Behavioral Science*, 44(4): 445-467.

Ford, J. D., Ford, L. W., and McNamara, R. T. 2002. Resistance and the background conversations of change. *Journal of Organizational Change Management*, 15(2): 105-121.

Fornell, C., and Larcker, D. F. 1981a. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error: Algebra and Statistics, *Journal of Marketing Research*, Vol. 18: 382-388.

Fornell, C. R., and Larcker, D. F. 1981b. Structural equation models with unobservable variables and measurement error, *Journal of Marketing Research*, Vol. 18: 39-50.

Gaur, A. S., and Gaur, S. S. 2006. *Statistical methods for practice and research: A guide to data analysis using SPSS*. New Delhi: Response Books.

Henseler, J., Ringle, C. M., and Sinkovics, R. R. 2009. The use of partial least squares path modeling in international marketing. *Advances in International Marketing*, 20: 277-319.

Hirschheim, R., and Newman, M. 1988. Information Systems and User Resistance: Theory and Practice. *The Computer Journal*, 31(5): 398-408.

Hulland, J. 1999. Use of partial least squares (PLS) in strategic management research: a review of four recent studies, *Strategic Management Journal*, Vol. 20: 195-204.

Jermier, J. M., Knights, D., and Nord, W. (Eds.). 1994. *Resistance and Power in Organisation*. London: Routledge.

Johansson, C., and Heide, M. 2008. Speaking of Change: Three Communication Approaches in Studies of Change. *Corporate Communications: An International Journal*, 13(3): 288-305.

Joshi, K. 1991. A Model of Users' Perspective on Change: The Case of Information Systems Technology Implementation. *MIS Quarterly*, 15(2): 229-242.

Keen, P. G. W. 1981. Information systems and organizational change. *Commun. ACM*, 24(1): 24-33.

Kim, H.-W., and Kankanhalli, A. 2009. Investigating User Resistance to Information Systems Implementation: A Status Quo Bias Perspective. *MIS Quarterly*, 33(3): 567-582.

Klaus, T., and Blanton, J. E. 2010. User resistance determinants and the psychological contract in enterprise system implementations. *European Journal of Information Systems*, 19(6): 625-636.

Klaus, T., Wingreen, S. C., and Blanton, J. E. 2010. Resistant groups in enterprise system implementations: a Q-methodology examination. *Journal of Information Technology*, 25(1): 91-106.

Kraatz, M. S., and Moore, J. H. 2002. Executive Migration and Institutional Change. *The Academy of Management Journal*, 45(1): 120-143.

Lapointe, L., and Rivard, S. 2005. A Multilevel Model of Resistance to InformatioN Technology Implementation. *MIS Quarterly*, 29(3): 461-491.

Liang, H., Nilesh, S., Hu, Q., and Xue, Y. 2007. Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management. *MIS Quarterly*, 31(1): 59-87.

Marakas, G. M., and Hornik, S. 1996. Passive resistance misuse: overt support and covert recalcitrance in IS implementation. *European Journal of Information Systems*, 5(3): 208-219.

Markus, M. L. 1983. Power, politics, and MIS implementation. *Commun. ACM*, 26(6): 430-444.

McGuire, W. J. 1985. Attitudes and attitude change. In G. Lindzey, andE. Aronson (Eds.), *Handbook of social psychology*, 3rd ed., Vol. 2: 233-346. New York: Random House.

Meissonier, R., and Houze, E. 2010. Toward an /`IT Conflict-Resistance Theory/': action research during IT pre-implementation. *European Journal of Information Systems*, 19(5): 540-561.

Oreg, S. 2003. Resistance to Change: Developing an Individual Differences Measure. *Journal of Applied Psychology*, 88(4): 680-693.

Oreg, S. 2006. Personality, context, and resistance to organizational change. *European Journal of Work & Organizational Psychology*, 15(1): 73-101.

Oreg, S., Bayazit, M., Vakola, M., Arciniega, L., Armenakis, A., Barkauskiene, R., Bozionelos, N., Fujimoto, Y., González, L., Jian, H., Hřebíčková, M., Jimmieson, N., Kordačov´, J., Mitsuhashi, H., Mlačić, B., Ferić, I., Topić, M. K., Ohly, S., Saksvik, P. Ø., and Hetland, H. 2008. Dispositional Resistance to Change: Measurement Equivalence and the Link to Personal Values Across 17 Nations. *Journal of Applied Psychology*, 93(4): 935-944.

Oreg, S., Vakola, M., and Armenakis, A. 2011. Change Recipients' Reactions to Organizational Change: A 60-Year Review of Quantitative Studies. *The Journal of Applied Behavioral Science*.

Orlikowski, W. J. 2000. Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations. *Organization Science*, 11(4): 404-428.

Orlikowski, W. J., and Barley, S. R. 2001. Technology and Institutions: What can Research oN Information Technolog and Research on Organizations Learn from Each Other? *MIS Quarterly*, 25(2): 145-165.

Piderit, S. K. 2000. Rethinking Resistance and Recognizing Ambivalence: A Multidimensional View of Attitude toward an Organizational Change. *Academy of Management Review*, 25(4): 783-794.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., and Podsakoff, N. P. 2003. Common Method Biases in Behavioral Research: A Critical Review and Recommended Remedies. *Journal of Applied Psychology*, 83(5): 879–903.

Podsakoff, P. M., and Organ, D. 1986. Self-Reports in Organizational Research: Problems and Prospects. *Journal of Management*, 12(4): 531–544.

Prasad, P., and Prasad, A. 2000. Stretching the Iron Cage: The Constitution and Implications of Routine Workplace Resistance. *Organization Science*, 11(4): 387-403.

Ringle, C. M., Wende, S., and Will, A. 2005. SmartPLS 2.0.M3, www.smartpls.de. .

Scherr, A. L. 1989. Managing for breakthroughs in productivity. *Human Resource Management*, 28(3): 403-424.

Smollan, R. K. 2006. Minds, hearts and deeds: Cognitive, affective and behavioural responses to change. *Journal of Change Management*, 6(2): 143-158.

Taylor, S., and Todd, P. A. 1995. Understanding Information Technology Usage: A Test of Competing Models. *Information Systems Research*, 6(2): 144-176.

Tesser, A., and Shaffer, D. R. 1990. Attitudes and attitude change. *Annual Review of Psychology*, 41.

Thompson, R. C., and Hunt, J. G. J. 1996. In the black box of alpha, beta, and gamma change: using a cognitive-processing model to assess attitude structure. *Academy of Management Review*, 21(3).

Triandis, H. C. 1980. *Value, attitudes, and interpersonal behavior*. Lincoln, NE: University of Nebraska Press.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. 2003. User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3): 425-478.

Volkoff, O., Strong, D. M., and Elmes, M. B. 2007. Technological Embeddedness and Organizational Change. *Organization Science*, 18(5): 832-848.

Waddell, D., and Sohal, A. S. 1998. Resistance: a constructive tool for change management. *Management Decision*, 36(8): 543-548.

Wanberg, C. R., and Banas, J. T. 2000. Predictors and Outcomes of Openness to Changes in a Reorganizing Workplace. *Journal of Applied Psychology*, 85(1): 132-142.

Weitzel, T., Eckhardt, A., and Laumer, S. 2009. A Framework for Recruiting IT Talent: Lessons from Siemens. *MIS Quarterly Executive (MISQE)*, 8(4): 175-189.

Williams, M. D., Dwivedi, Y. K., Lal, B., and Schwarz, A. 2009. Contemporary trends and issues in IT adoption and diffusion research. *Journal of Information Technology*, 24(1): 1-10.

Yang, H.-D., and Yoo, Y. 2004. It's all about attitude: revisiting the technology acceptance model. *Decision Support Systems*, 38(1): 19-31.

Yang, H.-D., Kang, H.-R., and Mason, R.M. 2008. An exploratory study on meta skills in software development teams: antecedent cooperation skills and personality for shared mental models. European Journal of Information Systems, 17(4): 47-61.

Zmud, R. 1979. Individual Differences and MIS Success: A Review of the Empirical Literature. *Management Science*, 25(10): 966-979.

APPENDIX

Table 5. Cross-Loadings for Reflective Measurement

	ATT	ARTC	Age	EEB	CRTC	DRTC	Exp	GEN	PEOU	PU
PU-1	0.581	-0.152	-0.373	-0.334	-0.617	-0.037	-0.295	0.030	0.670	0.912
PU-2	0.548	-0.166	-0.336	-0.367	-0.442	-0.110	-0.088	-0.020	0.689	0.876
PU-3	0.583	-0.135	-0.190	-0.391	-0.487	-0.120	-0.152	0.064	0.650	0.901
PU-4	0.597	-0.055	-0.274	-0.415	-0.473	-0.074	-0.194	0.090	0.672	0.899
PEOU-1	0.391	-0.391	-0.379	-0.324	-0.389	-0.160	-0.148	0.151	0.914	0.561
PEOU-2	0.599	-0.134	-0.232	-0.303	-0.502	-0.031	-0.082	0.018	0.836	0.825
PEOU-3	0.487	-0.324	-0.421	-0.341	-0.403	-0.217	-0.081	0.021	0.941	0.624
PEOU-4	0.489	-0.297	-0.351	-0.439	-0.402	-0.264	-0.059	0.056	0.926	0.645
ATT-1	0.927	-0.217	-0.101	-0.434	-0.600	-0.140	-0.013	-0.145	0.583	0.652
ATT-2	0.915	-0.234	0.012	-0.404	-0.551	-0.116	0.109	-0.065	0.431	0.545
ATT-3	0.914	-0.215	-0.061	-0.469	-0.552	-0.186	0.071	-0.051	0.500	0.569
ARTC-1	-0.244	0.940	0.328	0.390	0.607	0.142	0.171	-0.165	-0.245	-0.108
ARTC-2	-0.194	0.959	0.435	0.390	0.603	0.187	0.234	-0.133	-0.222	-0.118
ARTC-3	-0.234	0.887	0.459	0.412	0.573	0.374	0.193	-0.151	-0.386	-0.162
ARTC-4	-0.137	0.654	0.415	0.364	0.715	0.074	0.228	-0.113	-0.246	-0.255
CRTC-1	-0.588	0.276	0.026	0.365	0.691	0.159	0.060	-0.178	-0.334	-0.474
CRTC-2	-0.415	0.689	0.342	0.436	0.728	0.148	0.210	0.094	-0.333	-0.310
CRTC-3	-0.632	0.268	0.191	0.483	0.766	0.316	0.028	-0.307	-0.458	-0.589
CRTC-4	-0.709	0.196	0.126	0.451	0.774	0.250	-0.019	-0.178	-0.425	-0.587
Gender	-0.097	-0.161	-0.366	-0.123	-0.152	-0.237	-0.293	1.000	0.063	0.047
Age	-0.058	0.441	1.000	0.156	0.349	0.111	0.523	-0.366	-0.378	-0.327
Exp.	0.057	0.215	0.523	-0.007	0.170	-0.005	1.000	-0.293	-0.100	-0.204
DRTC-1	-0.013	-0.009	0.099	0.204	0.073	0.903	0.124	-0.271	-0.016	-0.019
DRTC-2	-0.107	0.078	-0.067	0.400	0.022	0.873	-0.007	-0.039	-0.149	-0.040
DRTC-3	-0.031	0.143	0.016	0.385	0.075	0.897	0.091	-0.120	-0.016	0.060
DRTC-4	-0.168	0.096	-0.248	0.318	0.215	0.892	-0.047	-0.266	0.116	0.048
DRTC-5	0.192	0.060	-0.191	0.077	-0.027	0.772	0.073	-0.036	0.414	0.322
DRTC-6	0.105	0.264	-0.055	0.170	0.116	0.786	0.050	0.109	0.204	0.169
DRTC-7	-0.063	0.126	0.001	0.357	0.226	0.717	0.021	-0.297	-0.101	-0.127
DRTC-8	-0.103	-0.036	-0.056	0.324	0.213	0.864	-0.124	-0.128	-0.144	-0.181
DRTC-9	-0.024	0.348	0.220	0.363	0.096	0.883	-0.093	-0.164	-0.079	0.075
DRTC-10	-0.119	0.334	0.219	0.397	0.181	0.895	-0.012	-0.084	-0.252	-0.131
DRTC-11	-0.372	0.329	0.246	0.399	0.395	0.901	0.019	-0.173	-0.310	-0.220
EEB-1	-0.384	0.352	-0.007	0.725	0.457	0.239	-0.055	0.031	-0.202	-0.292
EEB-2	-0.438	0.483	0.228	0.895	0.565	0.461	-0.039	-0.226	-0.353	-0.338
EEB-3	-0.325	0.226	0.213	0.755	0.319	0.519	0.129	-0.086	-0.269	-0.295
EEB-4	-0.226	0.136	-0.063	0.723	0.314	0.257	-0.079	-0.017	-0.332	-0.338

DISPOSITIONAL RESISTANCE TO CHANGE AND THE EVALUATION OF TECHNOLOGIES BY INDIVIDUALS

AN EMPIRICAL STUDY OF AN IT-INNOVATION IN RECRUITING

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Abstract

This research is driven by several examples that employees resist changes in general. Thus, it investigates the extent to which employee resistance to IT-induced change is caused by individual predisposition to resist change. Based on concepts from psychology research, we develop a model of dispositional resistance to change and the perceptions of technologies. Using UTAUT and an empirical study involving 106 employees working in HR departments, the analysis reveals that up to 17.1 percent of R^2 in both performance and effort expectancy can be explained by the dispositional inclination to change initiatives. The four dimensions of dispositional resistance to change - routine seeking, emotional reaction, short-term focus and cognitive rigidity – have an even stronger effect than other individual-focused variables as age, gender, or working experiences. Thus, dispositional resistance to change is one example of individual differences that are instrumental in explaining a large proportion of the variance in beliefs about information technology in organizations. Several implications for theory, practice, and future research are discussed as they enable a better understanding of the impact of personality on IT acceptance or user resistance.

1 MOTIVATION

Thanks to rapid developments in information technology, new IT applications appear continually and simplify the work of users in the relevant field. Yet, an astonishing number of people are unwillingly to adopt these technologies (Bhattacherjee and Hikmet, 2007, Ferneley and Sobreperez, 2006, Kim and Kankanhalli, 2009, Klaus et al., 2010, Meissonier and Houze, 2010, Moore, 1999, Norman, 1999, Wiener, 1993). For example, several observations of IT implementations in Human Resources (HR) departments[19] reveal that the willingness of HR personnel to accept technologies for their everyday work is insufficient. One HR manager put it this way: *"We are HR, and HR is a people business. I do not want to work with IT in a people business."* In addition, project managers report for several projects that when they begin to speak with employees about implementing a new information system, the same employees always immediately have negative rather than positive perceptions. One HR manager point out that *"it is interesting that it is always the same people who perceive new things badly and behave in a negative manner. When we begin to communicate that we intend to implement an IT innovation or a new information system, these individuals attract attention because of their rather negative perceptions of the new technology even before they have started using it. However, contrary to what one would assume, these employees are not always older. Resistant employees are from different levels in the hierarchy, different ages, different educational backgrounds, and different tenure levels."* These sorts of problems with IT implementation in general are also seen by the CIOs of top American companies; they rate managing user resistance as their sixth-most important challenge (Luftman et al., 2009).

Although IS research recognizes the importance of understanding such user reactions (Lapointe and Rivard, 2005), only a few articles pry open the *"black box"* of user resistance (e.g., Bhattacherjee and Hikmet, 2007, Cenfetelli, 2004, Kim and Kankanhalli, 2009, Klaus and Blanton, 2010, Klaus et al., 2010, Lapointe and Rivard, 2005, Venkatesh and Brown, 2001). In this context, IS research provides evidence that resistance behaviors can differ to a large extent (Dickson and Simmons, 1970, Ferneley and Sobreperez, 2006) and that their causes are just as diverse (Cenfetelli, 2004, Hirschheim and Newman, 1988, Klaus et al., 2010). These approaches regard resistance as an individual's resistance to changes in a characteristic setting arising from changes in aspects of this situation (Bhattacherjee and Hikmet, 2007). However, the observed examples of electronic human resource management (E-HRM) indicate that the negative perceptions of employees are instead caused by an individual's predisposition to resist change than by the characteristics of any specific system implementation.

Hence, this research aims to extend the understanding of user resistance by analyzing the impact of an individual's natural tendency to perceive change generally as negative. In this context, psychology research discusses resistance from a dispositional point of view (e.g. Oreg, 2003). Consequently, we investigate the effects of an individual's personality on her perceptions of a new information system and we develop a model of dispositional resistance to change and technology perceptions by individuals. This approach is in line with IS research calls for an extended understanding of personality and IS research phenomena (Devaraj et al., 2008) as well as for an integration of user resistance and personality research (Venkatesh, 2006). It is also in line with a call for research to identify and analyze those individual differences that are instrumental in explaining a large proportion of variance in beliefs (Agarwar and Prasad, 1999) as

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[19] Our research on user resistance is based on several observations of information system implementations in the HR context. Over a period of more than five years, the authors conducted case studies to understand the impact of information technology on the work routines of HR personnel. The examples used in the paper are derived from more than 50 interviews with HR experts or HR personnel of several large- and medium-size organizations (for some of these case studies, see *anonymous*). While discussing these examples the idea of dispositional resistance to change emerged as an important predictor for technology beliefs emerged. Thus, the examples are used to support our argument that dispositional resistance change influences an individual's perceptions about IT innovation.

dispositional resistance to change is more appropriate for predicting perceptions about organizational change than other personality traits (Oreg, 2003) and IT implementations are related to organizational change. Hence, we are intended to show the impact of the specific trait *"resistance to change"* on beliefs variables in order to discuss whether this particular trait be more sufficient for predicting perceptions about information technologies in organizations than other factors reflecting individual differences (Agarwal and Prasad, 1999).

The model is tested empirically within a study during the implementation of E-HRM in a particular organization to validate that the indicative examples discussed in the opening remarks are supported by a more generalized and target-oriented study. For the theoretical development and empirical validation of the proposed model, the outline of the paper is as follows. We develop our model of dispositional resistance to change and technology evaluation in Section 2, and then present and discuss the results in Section 3 and Section 4. We also provide information about the empirical study to validate our research model.

2 THEORETICAL BACKGROUND AND RESEARCH MODEL DEVELOPMENT

The Theory of Reasoned Action (TRA, Fishbein and Ajzen, 1975) and the Unified Theory of Acceptance and Use of Technology (UTAUT, Venkatesh et al., 2003) are our underlying theoretical bases. TRA already highlights personality as an influencing factor for behavioral beliefs, and UTAUT provide two well-established constructs that model an individual's beliefs about a technology (Venkatesh et al., 2003).

2.1 THEORY OF REASONED ACTION

TRA explains behavior by the intention of the individual to carry out a specific behavior, where intention is a function of the two antecedents attitude (ATT) and subjective norm (SN) (Ajzen and Fishbein, 1980, Fishbein and Ajzen, 1975). The basic assumption of the theory is that beliefs about the outcomes of a particular behavior will influence an individual's affective response to the behavior in question, which will in turn develop behavioral intentions and finally will results in the particular behavior. Beliefs are defined as an individual's cognitive evaluation of the consequences of a particular behavior. TRA argues that individual differences are posited to influence attitudes, intentions, and behaviors only via the mediating construct of beliefs (Fishbein and Ajzen, 1975). Traits and personality characteristics, education and experience, cognitive style, age, or gender are highlighted as examples of individual differences. Thus, TRA incorporates individual personality traits as an external factor influencing individual beliefs about a particular behavior (Ajzen, 1991, Fishbein and Ajzen, 1975).

2.2 UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY

Since the introduction of the technology acceptance model (TAM, Davis, 1989, Davis et al., 1989), a tremendous research stream has focused on various extensions, modifications, replications, and competing models of technology acceptance (Williams et al., 2009). UTAUT unifies these approaches by pointing out that technology acceptance is driven mainly by effort and performance expectancy, facilitating conditions, and social influence, and that the influence of these variables is moderated by age, gender, experience, and voluntariness (Venkatesh et al., 2003).

As our objective is to develop an understanding of how beliefs about a technology are influenced by dispositional resistance to change, we consider the two variables of UTAUT modeling beliefs about a technology as part of our proposed research model. The first variable, performance expectancy, is defined as *"the degree to which an individual believes that using the system will help him or her to attain gains in job performance."* (Venkatesh et al., 2003, p. 447). The variable is proposed based on the construct's perceived usefulness (Davis et al., 1989), extrinsic motivation (Davis et al., 1992), job-fit (Thompson and Higgins, 1991), relative advantage (Moore and Benbasat, 1991), and outcome expectations (Compeau et al., 1999, Compeau and Higgins, 1995). The second construct effort expectancy is defined as *"the degree of ease associated with the use of the system"* (Venkatesh et al., 2003, p. 450) and captures aspects of three different constructs: perceived ease of use (Davis et al., 1989), complexity (Thompson and Higgins, 1991), and ease of use (Moore and Benbasat, 1991). The two variables are used as dependent variables in the proposed research model to investigate the impact of an individual's personality trait resistance.

2.3 PERSONALITY AND DISPOSITIONAL RESISTANCE TO CHANCE

Since the beginning of the 20th century, researchers in the field of personality psychology as the science of the individual person have sought a theory that explains how individuals are and what their exploration of the unknown guides (McAdams, 1996). Personality is defined as *"the dynamic organization within the individual of those psychophysical systems that determine [the person's] unique adjustments to his [or her] environment"* (Allport, 1937), and dispositional traits represent *"endogenous, stable, hierarchically structured basic dispositions governed by biological factors"* (Romero et al., 2009). Personality research, which often focuses on particular variables that capture a human's individuality and the resulting behavior, provides evidence for both the heritability and longitudinal consistency of personality traits and for the efficacy of traits scores in the prediction of behavior aggregated across many different situations (Ajzen, 1985, McAdams, 1996, McCrae and Costa, 1987)

According to the framework for studying persons (McAdams, 1996, 2001), dispositional resistance to change (Oreg, 2003) is an individual personality trait that affects an individual's personal concerns. The resistance to change scale was designed to measure the personality component of resistance to change (Oreg, 2003). The basic assumption is that individuals in whom the character trait resistance is most strongly present will be least disposed to initiate changes for themselves and will develop more negative beliefs and attitudes toward change with which they are confronted.

Four dimensions have been identified that reflect an individuals' dispositional resistance to change: routine seeking, emotional reaction, short-term focus, and cognitive rigidity (Oreg, 2003). These dimensions emerge from an analysis of the literature on resistance to change. In this process, six distinct individual different sources fostering resistance to change are identified (Oreg, 2003). The first is reluctance to lose control, which reflects an individual's fear of losing control over one's life as a consequence of change. Next is dogmatism; its rigidity and closed-mindedness are responsible for an individual's negative stance (Fox and Shaul, 1999, Rokeach, 1973). The lack of psychological resilience is also considered within resistance to change, as it reflects an individual's willingness to accept innovative ideas (Judge et al., 1999). Moreover, some people tend to avoid short-term efforts such as individuals' intolerance to the adjustment period involved in change is also a dimension of resistance. The aspect preference for low levels of stimulation and novelty aims at humans' different needs for innovative stimuli (Goldsmith, 1984a, b), whereas reluctance to give up old habits reflects the ability to disengage from habitual ways.

Although these traits are related to how people react to change, they have not been conceptualized to assess the dispositional inclination to resist change (Oreg, 2003). Oreg (2003)

proposes four dimensions of resistance. Routine seeking *"involves the extent to which one enjoys and seeks out stable and routine environments"* and reflects an individual's *"reluctance to give up old habits"* and a *"preference for low levels of stimulation and novelty." "Reluctance to lose control"* and a *"lack of psychological resilience"* are captured in emotional reaction, which *"reflects the extent to which individuals feel stressed and uncomfortable in response to imposed change."* Short-term focus *"involves the degree to which individuals are preoccupied with the short term inconveniences versus the potential long-term benefits of the change"* and with it an individual's *"intolerance for adjustment period involved in change"* as well as *"reluctance to lose control."* The dimension cognitive rigidity results through the same named and identified source of resistance and *"represents a form of stubbornness and an unwillingness to consider alternative ideas and perspectives"* (Oreg, 2003). These four dimensions have been shown to predict specific change-related behaviors above and beyond other related personality characteristics (Oreg, 2003), such as the Five-Factor Model (McCrae and Costa, 1987), tolerance for ambiguity (Budner, 1962), risk-aversion (Slovic, 1972), or sensation-seeking (Zuckerman and Link, 1968). Table 1 illustrates the correlation between the four dimensions and other individual traits.

Table 1: Dispositional Resistance to Change (Oreg 2003)

Variable	Correlated Personality Trait
Routine Seeking	Dogmatism (+), Generalized self-efficacy (-), Neuroticism (+), Openness for experience (-), Risk aversion (+), Self-Esteem (-), Sensation Seeking (-), Tolerance for ambiguity (-); (Oreg 2003)
Emotional Reaction	Dogmatism (+), Neuroticism (+), Risk aversion (+), Sensation seeking (-), Tolerance for ambiguity (-)
Short-term Focus	Sensation Seeking (-), Generalized self-efficacy (-), Self-Esteem (-), Tolerance for ambiguity (-), Extraversion (-), Neuroticism (-); (Oreg 2003)
Cognitive Rigidity	Generalized self-efficacy (-), Locus of control (+), Risk aversion (+); (Oreg 2003)

Moreover, the validity of the proposed measurement model has been demonstrated through several studies in various contexts and cultural areas (Arciniega and González, 2009, Oreg et al., 2008). Thus, we use these dimensions of dispositional resistance to change to explain different technology perceptions of individuals.

2.4 RESEARCH MODEL

The central hypothesis of the proposed model is that people with a high dispositional resistance to change are more likely to have negative emotional and cognitive reactions (Oreg, 2006). Hence, those employees with a high dispositional resistance to change will experience the implementation of new technologies in organizations more negatively, independent of the particular project characteristics. Dispositional resistance to change may explain the user reactions found in different IS implementation projects better than other common personality variables also used in IS research (Zmud, 1979, Agarwal and Prasad, 1999) as dispositional resistance to change is explicitly related to individual reactions to change situations (Oreg 2003). IT implementation are always connected with significant changes for employees (Kim and Kankanhalli, 2009) such that a personality trait more appropriate for explain change situations might be more sufficient for predicting perceptions about information technologies in organizations than other factors reflecting individual differences (Agarwal and Prasad, 1999). There should be a direct negative relationship between dispositional resistance to change and an individual's perceptions of a new information system as beliefs fully mediate the effects that all other variables in the external environment may have on an individual's use of an innovation (Agarwal and Prasad, 1999). Accordingly, we hypothesize that the two technology beliefs of the

UTAUT, effort expectancy and performance expectancy, are influenced negatively by dispositional resistance to change. Next, we develop in more detail the resulting hypotheses for the four dimensions of dispositional resistance to change, with a focus on two arguments.

First, using the observed examples of E-HRM implementations, we argue that the four dimensions have an impact on how individuals perceive the introduction of a new technology. Second, we discuss from a theoretical point of view that if one of the four dimensions is correlated with other personality traits, and these traits are correlated either with effort or performance expectancy (or the underlying perceived usefulness or ease of use variables), dispositional resistance to change may also affect effort and performance expectancy. Table 2 illustrates the correlations between technology beliefs, adoption, and several personality traits.

Table 2: Dispositional Resistance to Change, Technology Beliefs, and Personality Traits
[(-) negative correlation; (+) positive correlation]

Variable	Correlated Personality Trait
Effort Expectancy (Perceived Ease of Use)	Tolerance for ambiguity (Vandenbosch 1997); Self-efficacy (Agarwal and Karahanna 2000), Risk aversion (-) (Tan et al. 1999), Extraversion (+) (Moon et al. 2010); Neuroticism (-)(Moon et al. 2010);
Performance Expectancy (Perceived Usefulness)	Neuroticism (-) (Devaraj et al. 2008; Moon et al. 2010); Generalized self-efficacy (+) (Vijayasarathy 2004); Openness for experience (+) (Devaraj et al. 2008); Tolerance for ambiguity (Vandenbosch 1997); Self-efficacy (Agarwal and Karahanna 2000); Extraversion (+) (Lu and Hsiao 2010; Moon et al. 2010)
Adoption (Use)	Self-Efficacy (+) (McElroy et al. 2007); Openness for Experience (+) (McElroy et al. 2007; Bibby 2008), Extraversion (+) (McElroy et al. 2007; Bibby 2008) ; Neuroticism (-) (McElroy et al. 2007; Bibby 2008); Risk aversion (-) (Nohria and Gulati 1997, Singh 1986); Self-Esteem (-) (Bibby 2008; Mehdizadeh 2010); Conscientiousness (-) (Krishnan et al. 2010; Wilson et al. 2010); Agreeableness (+) (Krishnan et al. 2010)

For the first dimension of dispositional resistance to change, the observed examples of E-HRM implementations[20] illustrate that employees who enjoy and seek out stable and routine environments perceive IT innovations as more threatening. If IT innovations change the working environment of an individual who is seeking for stable and routine environments, she will perceive the IT innovation more negatively regarding its performance and effort expectancy. For example, one HR manager reports that *"when a new technology is changing the work routines of employees, some of them perceive the innovation more negatively than others. Interestingly, these employees always give a negative affirmation irrespective of what kinds of changes are introduced."* As a consequence, if someone is looking for routines and prefers low levels of stimulation, novel IT innovations that change routines are perceived more negatively.

In addition, from a theoretical point of view and based on earlier empirical research, routine seeking is negatively correlated with openness for experience, self-esteem, sensation seeking, tolerance for ambiguity, and generalized self-efficacy, and is positively correlated with dogmatism, neuroticism, and risk aversion (Oreg, 2003). Furthermore, there is a correlation between performance expectancy, effort expectancy, or actual adoption/use and tolerance for ambiguity (Vandenbosch and Huff, 1997), self-efficacy (Agarwal and Karahanna, 2000, McElroy et al., 2007, Vijayasarathy, 2004), openness for experience (Bibby, 2008, Devaraj et al., 2008, McElroy

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[20] For the development of the hypothesis the same examples of E-HRM implementations are used as explained in the introduction.

et al., 2007), risk aversion (Nohria and Gulati, 1997, Singh, 1986, Tan, 1999), neuroticism (Moon et al., 2010), and self-esteem (Bibby, 2008, Mehdizadeh, 2010). Therefore, our first hypothesis regarding dispositional resistance to change and technology beliefs is:

H1: Routine seeking has a direct negative effect on (a) performance expectancy and (b) effort expectancy.

Moreover, the observed examples of E-HRM implementations indicate that those employees feel stressed and uncomfortable with the particular IT-induced change in question and with any change in general are more likely disposed to perceive IT innovations more negatively. If someone is stressed by the changing environment in general he might identify IT innovations as stressors easier. As one employee in an organisation points out *"the new system is changing everything and I always feel stressed when my everyday life is confronted with any change"*. Another employee reports that *"I do not like the new system as it will not make my work easier and it is hard to handle all my routines with it efficiently"*. As a consequence, if someone is stressed easier by a changing environment in general, she will perceive IT innovations in an organizational context more negatively.

In addition, emotional reaction is negatively correlated with sensation seeking and tolerance for ambiguity as well as positively with risk aversion, dogmatism, and neuroticism (Oreg, 2003). Moreover, there is a negative correlation between effort expectancy and tolerance for ambiguity (Vandenbosch and Huff, 1997), risk aversion (Tan, 1999), and neuroticism (Moon et al., 2010), between performance expectancy and neuroticism (Moon et al., 2010), tolerance for ambiguity (Vandenbosch and Huff, 1997), and between adoption/use and neuroticism (Moon et al., 2010) and risk aversion (Nohria and Gulati, 1997, Singh, 1986). As a consequence, we hypothesize that:

H2: Emotional reaction has a direct negative impact on performance expectancy and effort expectancy.

The third dimension, short-term focus, indicates that individuals preoccupied with the short-term inconveniences of an IT innovation are more threatened by IT-induced change than are those who focus on the long-term benefits. As one employee confronted with an E-HRM implementation highlights, *"I feel really stressed by the effort to learn a new way of working and interacting with the new system. It doesn't matter whether the new system will make my work easier; I do not have time to respond to all these new things now."* Therefore, the short-term focus dimension is negatively associated with the perceptions of an IT innovation. When an individual is predisposed to perceive short-term inconveniences rather than long-term benefits, he also evaluates an IT innovation more negatively.

Further, short-term focus is positively correlated with sensation seeking, generalized self-efficacy, risk aversion, dogmatism, self-esteem, tolerance for ambiguity, and neuroticism (Oreg, 2003). Other IS research studies reveal a negative correlation between neuroticism and performance expectancy (Devaraj et al., 2008, Moon et al., 2010), and between self-efficacy and effort and performance expectancy (Agarwal and Karahanna, 2000, McElroy et al., 2007, Vijayasarathy, 2004). In addition, self-esteem (Bibby, 2008, Mehdizadeh, 2010) and risk aversion (Nohria and Gulati, 1996, Singh, 1986, Tan, 1999) affect technology evaluation and the resulting usage behavior. A strong link between tolerance for ambiguity and a predisposition to technology usage behavior has been identified (Vandenbosch and Huff, 1997). As a consequence, we assume that:

H3: Short-term focus has a direct negative effect on performance expectancy and effort expectancy.

For the last dimension, cognitive rigidity, one might expect that an individual who is unwillingly to consider alternative ideas and perspectives in general also perceives an IT innovation more negatively. As our observed E-HRM implementations indicate, this form of stubbornness is also important in IT implementations. One employee commented on the

implementation of E-HRM as follows: *"I have always worked with my paper-based applications, which have proven to be the best application form available. I will not even think about changing my way of working, as I will not change my current routines."*

Clearly, a general cognitive rigidity is also an important factor influencing how individuals perceive technologies. Furthermore, it is positively correlated with generalized self-efficacy, risk aversion, and locus of control. Other IS research studies reveal a positive correlation between self-efficacy and effort and performance expectancy (Agarwal and Karahanna, 2000, McElroy et al., 2007, Vijayasarathy, 2004) and a negative correlation between effort expectancy and risk aversion (Tan, 1999). Risk aversion is also correlated with the resulting adoption behavior (Nohria and Gulati, 1997, Singh, 1986). Since cognitive rigidity is positively correlated with self-efficacy and risk aversion, and self-efficacy as well as risk aversion with technology beliefs, we hypothesize that,

H4: Cognitive rigidity has a direct negative impact on performance expectancy and effort expectancy.

Figure 1 presents our proposed Model of Dispositional Resistance to Change and an Individual Perceptions of Technologies, which is based on the four hypotheses above. In the next section, we evaluate the proposed model through a study of an IT innovation within the recruiting context.
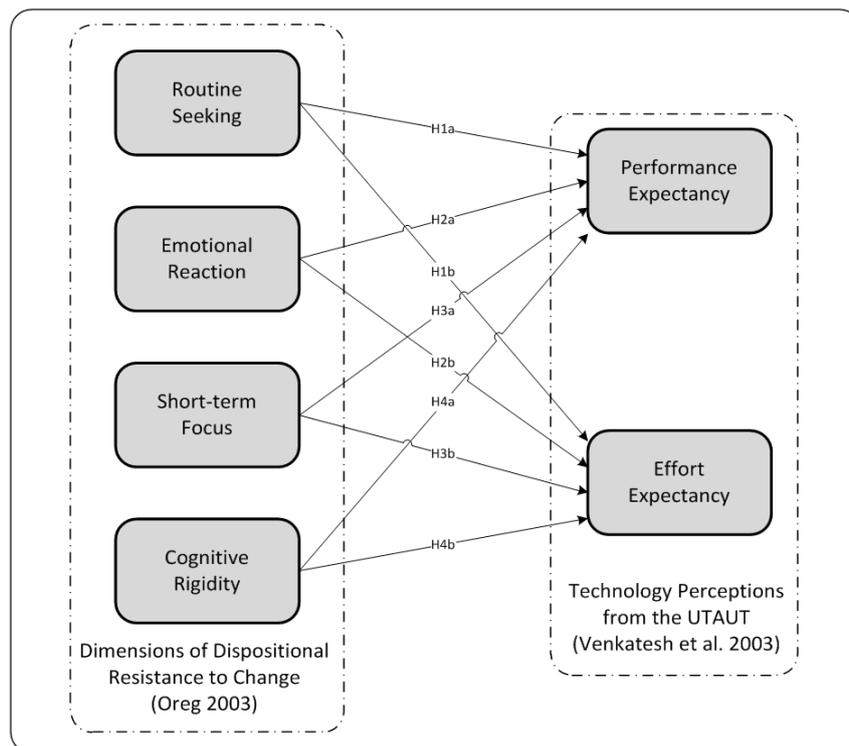
Figure 1: Model of Dispositional Resistance to Change and Technology Perceptions by Individuals

3 RESEARCH METHODOLOGY

The Internet has *"revolutionized the way that people look for work"* and brought *"radical change to corporate recruiting"* (Parry and Tyson, 2008). So, to investigate the impact of dispositional resistance to change on technology beliefs, we chose e-recruiting innovations as our E-HRM example.

3.1 IT INNOVATIONS IN RECRUITING

How recruiting is managed within organizations has changed dramatically over the years (Weitzel et al., 2009). Recent research shows that the internet has changed how HR processes are managed (Lee, 2007, Parry and Tyson, 2008, Strohmeier, 2007). In 1986, DeSanctis had already identified the increasing complexity of classic HR tasks and the need for IT support in HR processes (Desanctis, 1986). Palvia et al. (1992) introduce the first conceptual thoughts about applicant tracking systems to support the recruiting process (Palvia et al., 1992). An IT architecture suggested by (Lee, 2007) provides a holistic approach to an information system in the recruiting context. Central to the architecture are systems to manage job requisitions, application tracking, prescreening, job agents, candidate relationship, and to monitor the performance of the overall recruitment process. In this context an assimilation gap for IT adoption in corporate HR processes has been identified and a user-centered approach to investigate why IT is not fully utilized in HR departments has been demanded (*anonymous*). To understand the E-HRM assimilation gap and how user characteristics such as dispositional resistance to change affect employee perception of a new information center, a user-centered study was conducted within one particular organization. The project observed is the implementation of a new information system aimed at supporting the company's recruiting process and run by 150 employees. The system is similar to the proposed holistic system (Lee, 2007) and transformed the paper-based managed recruiting process of the organization to an IT-enabled one. The project began in January 2010 and the system was completely implemented by July 2010. To obtain a broader sense of user resistance, the empirical survey was conducted in the pre-implementation phase from mid-May to the end of June 2010. Hence, the study was executed after the training period and while users had access to a test system. Thus, all affected employees had begun to perceive the new system as either positive or negative. In total, 106 of 150 recruiters participated in our study (a 70.67% response rate).

Table 3 presents demographic information about the research participants. The observed organization is an automotive supplier with 50,000-plus employees at more 150 locations in greater than 50 countries worldwide, and that generated total revenues of more than €7 billion in 2009.

Table 3. Demographics[21]

Attribute	Manifestation	Value
Gender	male	23.6%
	female	62.3%
Age	older 45	16.0%
	36 to 45	25.5%
	25 to 35	23.6%
	under 25	11.3%
Tenure	less than 5 years	23.6%
	5 to 10 years	22.6%
	11 to 15 years	13.2%
	more than 15 years	12.3%

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[21] The depicted results represent participants' actual answers. Participants who did not indicate their gender, age and tenure are not visualized within the table.

3.2 SURVEY INSTRUMENT AND MEASUREMENT ITEMS

Each construct of the proposed research model is represented by a set of indicators. We designed the indicators for performance and effort expectancy following the proposition of (Venkatesh et al., 2003). For dispositional resistance, we used the scale proposed and evaluated by (Oreg, 2003, Oreg et al., 2008). Table 4 presents the operationalization of each indicator (the results are described in the section that follows).

Table 4: Measurement Items

Item	Item	
PE-1	I would find the system useful in my job.	
PE-2	Using the system enables me to accomplish tasks more quickly.	
PE-3	Using the system increases my productivity.	
PE-4	If I use the system, I will increase my chances of getting a raise.	Venkatesh
EE-1	My interaction with the system would be clear and understandable.	et al. (2003)
EE-2	It would be easy for me to become skillful at using the system.	
EE-3	I would find the system easy to use.	
EE-4	Learning to operate the system is easy for me.	
RS-1	I generally consider changes to be a negative thing.	
RS-2	I'll take a routine day over a day full of unexpected events any time.	
RS-3	Whenever my life forms a stable routine, I look for ways to change it.	
ER-1	If I were to be informed that there's going to be a significant change regarding the way things are done at work, I would probably feel stressed.	
ER-2	When I am informed of a change of plans, I tense up a bit.	
ER-3	When things don't go according to plans, it stresses me out.	Oreg (2003)
ER-4	If my boss changed the criteria for evaluating employees, it would probably make me feel uncomfortable even if I thought I'd do just as well without having to do any extra work.	
SF-1	Changing plans seems like a real hassle to me.	
SF-2	Once I've made plans, I'm not likely to change them.	
CR-1	I often change my mind.	
CR-2	Once I've come to a conclusion, I'm not likely to change my mind.	

4 RESEARCH RESULTS

The research model was transferred into a structural equation model and analyzed with PLS (Bagozzi and Yi, 1988, Chin, 2000) using SmartPLS 2.0 M3 (Ringle et al., 2005) as PLS does not rely on normally distributed indicator data (Chin, 1998, Chin and Gopal, 1995). Tests using SPSS revealed that the data set contains a number of abnormally distributed variables. The following sections illustrate the results of the model validation.

4.1 MEASUREMENT MODEL

The variables of the research model were measured so that the relationship between the latent and manifest variable is vectored and changes in the latent variable influence all the indicators (Hulland, 1999). Thus, for the reflective measurement model, four factors – content validity, indicator reliability, construct reliability, and discriminant validity – need to be validated (Bagozzi, 1979).

4.1.1 Content validity

Our aim in setting up the questionnaire was to refer to methods of measurement that had already been used in empirical research (Oreg, 2003, Oreg et al., 2008, Venkatesh et al., 2003). The items (Table 4) were tested with students of the IS department and refined based on interviews with HR professionals to ensure content validity (see *anonymous* for details of the pre-test of the used scale of dispositional resistance to change for technology adoption studies). As a result, as advised by project management, we removed three items (one for RS, SF, and CR) from which students and employees felt irritated.

4.1.2 Indicator reliability

Indicator reliability shows the proportion of the variance of a single indicator that derives from the relevant latent variables. All loadings should be greater than 0.6 (Carmines and Zeller, 1979). As one can see in Table 5, the loadings were above the recommended thresholds. The significance level of all loadings at $p \leq 0.001$ is high and was calculated using the bootstrap method with 5,000 samples (Henseler et al., 2009). However, two items (one each for SF and CR) indicate a loading below the recommended level of 0.4 and were removed from the final model. The scale used is similar to that validated for the German context (Oreg et al., 2008). Although, the re-movement of items limits our results, also Oreg (2009) and Stewart et al. (2009) indicate that the scale is different for different cultures and different research settings such as removing of items does not cause the explanation power.

4.1.3 Construct reliability

We evaluated quality assessment at the construct level using composite reliability (CR) and average variance extracted (AVE). As Table 5 indicates, the estimated values were above the recommended thresholds of 0.7 for CR and 0.5 for AVE (Bagozzi and Yi, 1988).

4.1.4 Discriminant validity

Discriminant validity can be evaluated by cross-loadings and the inter-variable correlation (Campell and Fiske, 1959). The indicator loadings are higher for the corresponding constructs than for any other (see Appendix, Table 7). In addition, the inter-variable correlations must be smaller than the root of the corresponding AVE. Since this is also the case (Table 5), the discriminant validity of the latent variables is high (Fornell and Larcker, 1981a, Fornell and Larcker, 1981b, Hulland, 1999).

Table 5: Measurement Model

Item	Loading	AVE	Composite Reliability	PE	EE	RS	ER	SF	CR
PE-1	0.946								
PE-2	0.867	0.840	0.955	0.917					
PE-3	0.940								
PE-4	0.912								
EE-1	0.935								
EE-2	0.861	0.860	0.961	0.798	0.927				
EE-3	0.961								
EE-4	0.949								
RS-1	0.692								
RS-2	0.692	0.528	0.769	-0.279	-0.265	0.917			
RS-3	0.791								
ER-1	0.729								
ER-2	0.831	0.616	0.865	-0.267	-0.348	0.425	0.785		
Er-3	0.758								
Er-4	0.818								
SF-1	0.933	0.727	0.840	-0.161	-0.236	0.362	0.628	0.917	
SF-2	0.764								
CR-1	0.975	0.861	0.925	-0.098	-0.153	-0.258	0.066	-0.076	0.917
CR-2	0.878								

On the diagonal the square root of AVE is listed, loadings are significant at p=0.001

4.2 STRUCTURAL MODEL

We were able to determine the explanatory power of our structural model by the squared multiple correlations (R^2) and the significance levels of the path coefficients (Chin, 1998). The squared multiple correlations for performance expectancy are 0.126. For effort expectancy, we observed an R^2 of 0.171 (as Figure 2 illustrates). The t-values were evaluated to analyze the path coefficients in the research model. We conducted significance tests using the bootstrap routine with 5,000 samples. Figure 2 shows all calculated path coefficients and the different significance levels.
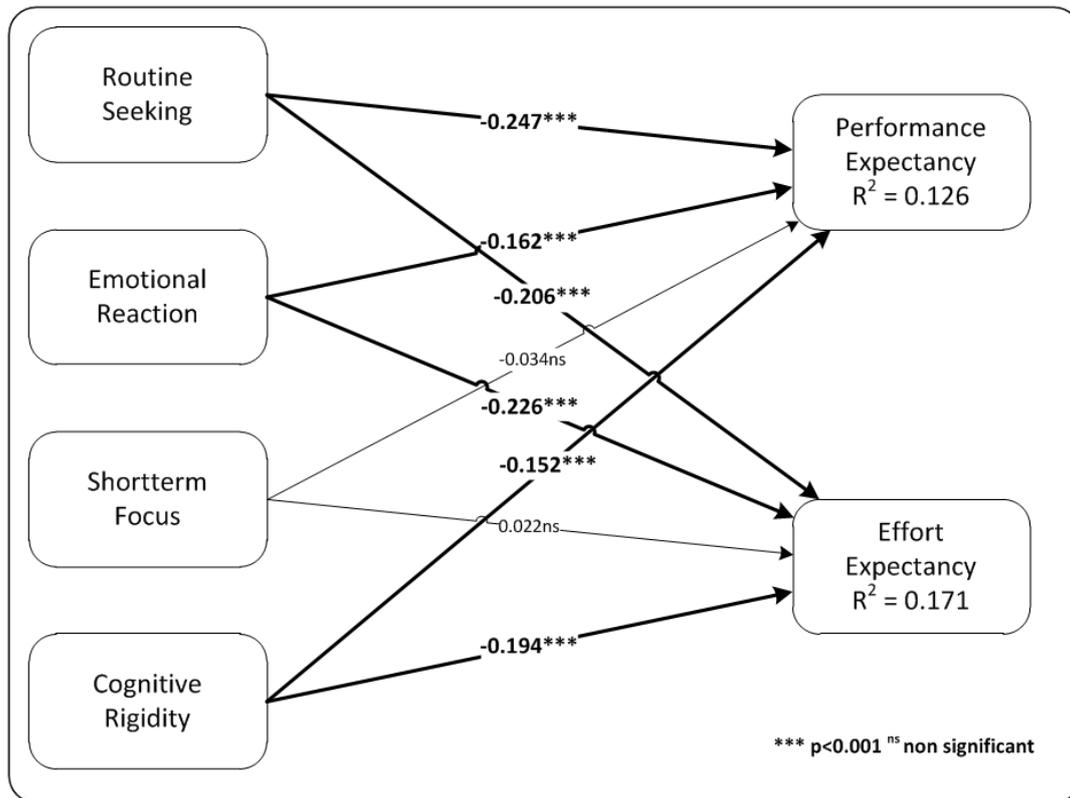
Figure 2: Structural Model Validation (N=106)

4.3 POST-HOC ANALYSIS

One might argue that age, gender, and work experience are an even better predictor of perceptions of IT innovations than the proposed effect of dispositional resistance to change. In this context age can be evaluated as a significant antecedent of both PE and EE, working experience for PE, and gender for none of them. However, comparing the effect size of age and dispositional resistance to change within one model, the f^2 of age on PE is 0.075 and is 0.180 on EE. In contrast, the f^2 of dispositional resistance to change on PE is 0.173 and is 0.111 on EE. Hence, dispositional resistance to change is an even better predictor of an individual's performance expectancy than that individual's age, and dispositional resistance to change has an equal effect as age for an individual's effort expectancy. Comparing the effect of work experience, the analysis reveals an f^2 of 0.101 on PE and 0.078 on EE, and for dispositional resistance to change an f^2 of 0.090 on PE and 0.151 on EE. Thus, dispositional resistance to change has an effect on performance expectancy equal to work experience, and an even greater effect on effort expectancy. For gender, a comparison reveals that gender has almost no effect on either EE and PE. The effect size of dispositional resistance to change in this analysis is 0.14 for PE and 0.20 for EE. Hence, dispositional resistance to change is a better predictor for perceptions of a technology than is gender.

Another argument might be that age is highly correlated with dispositional resistance to change. However, dispositional resistance to change is a stable disposition governed by biological factors (Romero et al., 2009) and should be independent of an individual's age (Oreg, 2003). A correlation analysis reveals only that the age of the research participants is significantly correlated (-0.241, $p<0.002$) with one indicator (RS-1) of the four dispositional resistance to change dimensions. In addition, for gender only one indicator (ER-4) correlates significantly with dispositional resistance to change and for work experience no significant correlation can be found.

4.4 COMMON METHOD BIAS

As with all self-reported data, there is a possibility for common method bias (CMB) resulting from multiple sources such as consistency and social desirability (Podsakoff et al., 2003, Podsakoff and Organ, 1986). To test for CMB, we introduced a common method factor in the PLS model (Liang et al., 2007, Podsakoff et al., 2003). The factor included all the principal constructs' indicators and calculated each indicator's variances, explained substantively by the principal construct and by the method. As Table 6 shows, the results demonstrate that the average substantively explained variance of indicators is 0.763, while the average method-based variance is 0.012. The ratio of substantive variance to method variance is approximately 61:1 and is therefore even better than the level proposed by Liang et al. (2007). In addition, even fewer method factor loadings are significant compared to the study of Liang et al. (2007). Given the insignificance and small magnitude of method variance, the conducted method is unlikely to be a serious concern.

4.5 LIMITATIONS

While the results revealed by our study are interesting, they are also limited to some extent. While the significant path coefficients of dispositional resistance to change seem to be low, this should be of minimal concern. Because the dimensions of dispositional resistance to change co-exist in a person, they combine to influence beliefs about a technology. An assessment of the combined effect reveals much greater standardized and significant ($p<0.001$) path coefficients of -0.559 for dispositional resistance to change on PE and -0.646 for dispositional resistance to change on EE. Furthermore, the study reveals the effect of dispositional resistance to change for only one particular system in one particular department in one cultural setting. In addition, we tested no environmental variables within the research model. System complexity, characteristics of the previous system, and the nature of the task may all play important roles in resistance, but because we investigated only one system these are not controlled for in our proposed model. This may limited the generalizability of the results.

Moreover, the concept of dispositional resistance to change and the study conducted do not indicate whether those with a high level of dispositional resistance to change perform better or worse, are more or less creative, and so on. Therefore, beyond the perception of technology our study does not control for a broader impact of high dispositional resistance to change on organizational performance.

5 DISCUSSION

The results of our research show that the personality trait of an individual's dispositional resistance to change is an important predictor of how that individual perceives an IT innovation. In total, dispositional resistance to change explains 0.171 of the R^2 of effort and 0.126 of performance expectancy. These results from a particular system implementation indicate that the observed examples described in the introduction to our paper can indeed be explained by an individual's personality and the natural tendency of some employees to perceive innovations negatively rather than positively.

This variance is good compared to other studies investigating the effect of personality traits on individual beliefs or behavior. Junglas et al. (2008) explain 11 percent of privacy concerns with the Five-Factor Model of Personality (McCrae and Costa 1987, Goldberg 2006) containing five different personality traits and Devaraj et al. explain 9 to 18 per cent of perceived usefulness using the Five-Factor Model. Also using the Five-Factor Model, Lounsbury et al. (2007) explain

12.7 percent of IT personnel's job satisfaction and 17.3 percent of career satisfaction. In addition, in the social science settings, where personality variables are the focus of many studies, an R^2 value in the range 10 to 20 percent is said to be quite acceptable (Gaur and Gaur 2006, p. 109). In our model, we explained 12.6 and 17.1 percent of the variance in EE or PE, respectively, using only one personality trait developed for measuring an individual's character trait resistance.

Compared to other studies investigating individual differences and belief variables (e.g. Agarwal and Prasad, 1999) the variance is also good as it explains an equal level of variance in effort expectancy as Agarwal and Prasad (1999) with tenure, level of education, experience, participation in training and role with regard to technology. The results of our study show that the effect of dispositional resistance to change is even stronger than these individual differences variables.

In this section, we discuss the implications for theory and practice as well as opportunities for future research based on these results.

5.1 IMPLICATIONS FOR THEORY

Recent personality research has emphasized the relationship of personality and individual's resistance to organizational change (Oreg, 2003). At the same time, IS research scholars have proposed that future research move beyond the technology acceptance model (Benbasat and Barki, 2007, Hirschheim, 2007) and investigate user resistance in greater detail (Lapointe and Rivard, 2005, Venkatesh, 2006). Our approach in this paper can be viewed as responding to all of these mandates by finding that dispositional resistance to change has a significant impact on the two technology belief variables of the UTAUT (Venkatesh et al., 2003).

The results show that - to a certain extent - the predisposition of an individual is an important predictor of resistance to information systems in organizations, and that the perception of the technology is not driven only by the characteristics of the technology in question. On the one hand, these results indicate that even by designing systems according to the most appropriate guidelines and principles, an almost perfect system may be perceived negatively because the perception is also driven by an individual's predisposition. Interpreting the results the other way around, we see that design failures may not be the only reason that an individual resists a change initiative. But on the other side the results also reveal that the reason of negative perceptions is based on an individual's personality such as overcoming this kind of resistance which is not based on design-able characteristics of the change situation is even more challenging for managers.

Prior research provides evidence that resistance to change in a particular situation and the evaluation of the change situation in general has a direct, negative impact on beliefs variables about a new information system (Bhattacherjee and Hikmet 2007). Therefore, the evaluation of the change context and the resulting resistance to change in this particular situation implies little likelihood of acceptance (Bhattacherjee and Hikmet 2007). Regarding dispositional resistance to change the results of this paper highlight the importance of individual differences and personality for perceptions of IT-induced organizational change initiatives by individuals. The results provide the foundation for an alternative explanation of predictors of technology perceptions by individuals in the context of technology adoption research and, as a consequence, of the resulting adoption and usage behavior. In addition to the situation-specific technology characteristics, an individual's personality is an important predictor of the perceptions of technologies in organization. The impact of dispositional resistance to change is an even better predictor than other common individual-focused ones such as age, gender, or work experience. Hence, our approach extends the understanding of technology beliefs by individuals as part of an investigation of the acceptance of or resistance to IT-induced change in organizations. It shows that beyond the situational beliefs about the technology, an individual's dispositional resistance to

change is also important to understand the acceptance of IT in organizations. In addition, it illustrates that to understand and control for the impact of an individual's characteristics dispositional resistance to change might be considered as a individual-oriented variable in future studies. Our work shows that in addition to situational and context-specific variables, which focus mainly on possible benefits, personality is important in a particular change situation.

The results explain our opening remarks that the same people always perceive IT innovation rather negatively. Our study indicates that these individuals may have a high level of dispositional resistance to change and are inclined by their predispositions to evaluate a change more negatively compared to others with a lower degree of dispositional resistance to change. The examples, supported by the results, also illustrate that these individuals, irrespective of the particular project, are more threatened by an IT-induced change. Moreover, with the insights derived from the empirical analysis, the opening examples of user resistance can be explained differently compared to the current understanding of IS research. Hence, the negative perceptions we described at the beginning of this paper are determined more by one's dispositional resistance to change than by age, gender, or work experience, to which the quote from one of the project managers we interviewed attests.

Focusing on the four dimensions of dispositional resistance to change, the results indicate that routine seeking, emotional reactions, and cognitive rigidity are important predictors of an individual's beliefs about IT innovations. The results show that employees who prefer and seek out stable and routine environments in general are those who indicate negative beliefs about technology in terms of effort and performance expectancy. As IT induces changes in routines and processes, individuals who seek stability perceive IT as a more threatening stressor than those with a low level of dispositional resistance to change. Consequently, those individuals perceive technologies more negatively because an IT implementation changes the everyday work with which one is comfortable. Moreover, those who feel stressed and uncomfortable by a change in general also have negative beliefs about the technology involved. Change is perceived as an extreme effort to transform from the status quo to the intended target state and a changing status quo is perceived negatively. If someone is stressed by a changing everyday life in general, she also perceives the changes to business life from an IT innovation more negatively. In addition, for those who at a high level of cognitive rigidity, which represents a form of stubbornness and an unwillingness to consider alternative ideas and perspectives in general, negative beliefs about the technologies in question could be observed.

As the results and the examples used in the introduction and model development sections indicate, some individuals may be unwillingly even to think about alternative ideas and perspective and resist any changes from their accepted status quo. If someone is more intent on maintaining the status quo and is unwillingly to consider alternative perspectives, he perceives an IT innovation that forces a new idea about or new perspective on her everyday business life more negatively. However, we observed no significant effect on the indicated beliefs of the technologies in question from those employees who are preoccupied with the short-term inconveniences versus the potential long-term benefits of a change in general. As the investigated technology is a mandated one, the results indicate that the employees are not preoccupied with the short-term inconveniences because they realize that the system will be part of their everyday business life for years to come. Short-term focus as part of dispositional resistance to change has no impact on the perceptions of a mandated technology.

Comparing dispositional resistance to change with other more general perceptions of technologies indicate that dispositional resistance to change is an individual personality trait affecting an individual's concern (McAdams, 1996, 2001) rather than a self-evaluation trait such as self-efficacy (Judge et al., 2001), which reflects beliefs about one's competencies (Bandura, 1977). More specifically, computer self-efficacy (CSE) (Compeau and Higgins, 1995) is *"an*

individual's perception of efficacy in performing specific computer-related tasks within the domain of general computing" (Marakas et al., 1998), p. 127). Research provides evidence that CSE also influences perceptual beliefs about a particular technology such as perceived ease of use (Hong 2001-2) and perceived usefulness (Agarwal and Karahanna, 2000). Comparing the theoretical concepts of both dispositional resistance to change and CSE reveals that the former is based on an individual's personality, as it represents a disposition towards changing environments (McAdams, 1996, Oreg, 2003), whereas the latter is a belief about general capabilities to deal with IT (Compeau and Higgins, 1995). The two concepts are thus theoretically distinct, although both are important predictors for perceptions of a specific technology changing an individual's environment. Hence, dispositional resistance to change extends the understanding of perceptual beliefs about a specific technology, since it can be shown that in addition to self-evaluation beliefs such as computer self-efficacy, more general traits are also important predictors of an individual's beliefs about an information system.

While personality traits are recognized as individual characteristics, research studies have had little or no direct focus on them in the context of perceptions of technologies by individuals in organizations (Devaraj et al., 2008). Our study shows that dispositional resistance to change is an important predictor of the evaluation of technologies by individuals and is an even better predictor of an individual's perceptions of technologies than are other variables such as age, gender, or work experience. Hence, dispositional resistance to change is one example of individual differences that is instrumental in explaining a large proportion of variance in beliefs and the results are a direct response to Agarwal and Prasad's (1999) call for research on these factors. Thus, future studies of technology adoption or user resistance might consider dispositional resistance to change as a variable in controlling models for an extended influence of effects caused by the individual or individual differences rather than by characteristics of the situation.

5.2   IMPLICATIONS FOR PRACTICE

Our results also have implications for practice. First, they show that employees with a high level of dispositional resistance to change perceive technologies more negatively than others. Therefore, practitioners may be advised to hire people with a low level of dispositional resistance to change if they want employees who perceive management initiatives more positively. However, one might also consider that an employee with a high level of dispositional resistance to change who becomes convinced of an IT-induced change initiative, she may end up a long-term supporter of the project because she does not change her opinions easily. The dimension of cognitive rigidity indicates that such employees do not often change their minds.

A second implication is that the results indicate that, in particular, employees with a high level of dispositional resistance to change exhibit negative effort expectancy beliefs. These employees may benefit most from training that focuses on the ease of using new information systems, and should be selected for training programs designed to overcome their natural inclinations. The results also indicate that extra effort may be required to convince certain personality types about the usefulness of a given technology. Designing training specifically for the target group with a high level of dispositional resistance to change may yield a greater acceptance of technologies and reduce user resistance.

The design of organizational change management initiatives in the face of new technology introductions, or the design of sales campaigns related to new IT innovations, may also be affected by the results. The implication of this study is that a *"one size fits all"* approach works in terms of technology-related change management policies or initiatives. Dispositional resistance to change of individual users affects the equation, and so awareness on the part of management

about various personality types and how they view technologies can lead to designing different and better change management strategies overall.

5.3 FUTURE RESEARCH

Our results also have implications for future research. For example, an analysis of whether dispositional resistance to change affects technology perceptions of people in private, non-work environments (Brown and Venkatesh, 2005) may be useful. The results suggest that one might assume that people with a high level of dispositional resistance to change may also have negative beliefs about technologies such as Facebook.com. In this context, there may be benefit in analyzing dispositional resistance to change in the context of whether it helps explain the so-called *"digital divide"*. In addition, future research could analyze whether contextual or situational variables moderate the impact of dispositional resistance to change on beliefs and attitudes about IT innovations in organizations. One possibility is to test whether several change management measures such as training, communication, or participation moderates the impact of dispositional resistance to change on effort or performance expectancy. This might be the only way for managers influencing behavior as *"the internal psychological process is not amenable to direct manipulation"* (Agarwal and Prasad, 1999, p. 381).

As we mention above, our study does not control for a broader impact of employees showing a high degree of dispositional resistance to change on individual, process, or organizational performance, or on creativity. Future research could address this issue by investigating the effect of dispositional resistance to change on other organizational variables and to compare the effect with the one observed in our study to discuss in more detail the organizational effect of employees having a higher degree of this personality trait.

Another option for future research is to compare the impact of dispositional resistance to change with other more general perceptions of individuals regarding technology, or self-evaluation traits such as an individual's self-efficacy. Again, these concepts are theoretically distinct, but it may be interesting to compare how each concept helps explain an individual's perception about a technology. In this context, dispositional resistance to change might be developed further as more of a self-evaluation trait to model an individual's inclination to IT-induced organizational changes rather than changes in general.

Future research could also examine the adoption patterns of early adopters versus late adopters, and the impact of dispositional resistance to change on technology evaluation variables once a system has been in use for an extended period. An investigation of the impact of dispositional resistance to change on the intention and corresponding behavior might be beneficial. Moreover, it may be interesting to determine whether there is a similar or different effect of dispositional resistance to change on continuous usage intentions and their antecedents (Bhattacherjee and Premkumar, 2004). Another important aspect for future research might be to integrate dispositional resistance to change with situational resistance to change models as, for example, proposed and analyzed by the Model of Physicians' Resistance to Healthcare IT (Bhattacherjee and Hikment 2007).

In this context, future research might investigate whether those with a high level of dispositional resistance to change change their attitudes and beliefs in different ways. One could argue that, on the one hand, it is more difficult to convince employees with a high level of dispositional resistance to change to perceive a change initiative positively. On the other hand, though, those who become convinced will not change their opinion easily and may be long-term supporters of a particular project. Thus, one might hypothesize that employees with a high level of dispositional resistance to change perceive new ideas negatively at the beginning of a system lifecycle and try to keep old habits at the end. Those same employees may be major supporters

during the other phases of a system lifecycle. Investigating these hypotheses may make clearer the impact of dispositional resistance to change on the perceptions of individuals during the lifecycle of an IT innovation; here, we have focused only an individual's initial contact with an IT innovation.

6 CONCLUSION

In general, this study reveals that dispositional resistance to change has an impact on employees' perceptions of technologies in organizations. The results indicate that those with a high level of dispositional resistance change perceive technologies in organizations more negatively than those with a low level. This personality trait is an even better predictor of technology perceptions than are an individual's age, gender, or work experience and is therefore one example of individual differences that is instrumental in explaining a large proportion of the variance in beliefs.

7 REFERENCES

Agarwal, R., Prasad, J., 1999. Are Individual Differences Germane to the Acceptance of New Information Technology? *Decision Sciences*, 30, 2, 361-391

Agarwal, R., Karahanna, E., 2000. Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. *MIS Quarterly*. 24**,** 665-694.

Ajzen, I., 1985. From intentions to actions: A theory of planned behavior. In: Kuhl, J. & Beckmann, J. (eds.) *Action Control: From Cognition to Behavior B2 - Action Control: From Cognition to Behavior*. New York: Springer.

Ajzen, I., 1991. The theory of planned behavior some unresolved issues. *Organizational Behavior and Human Decision Processes*.

Ajzen, I., Fishbein, M., 1980. Understanding attitudes and predicting social behavior, Englewood Cliffs, NJ, Prentice Hall.

Allport, G. W., 1937. Personality;: A psychological interpretation, New York, Holt, Rinehart, & Winston.

Arciniega, L. M., González, L., 2009. Validation of the spanish-language version of the resistance to change scale. *Personality and Individual Differences*. 46**,** 178–182.

Bagozzi, R. P., 1979. The role of measurement in theory construction and hypothesis testing: Toward a holistic model. In: Ferell, O. C., Brown, S. W. & Lamb, C. W. (eds.) *Conceptual and theoretical developments in marketing. Chicago*, IL: American Marketing Association.

Bagozzi, R. P., Yi, Y., 1988. On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*. 16**,** 74-94.

Bandura, A., 1977. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*. 84**,** 191–215.

Benbasat, I., Barki, H., 2007. Quo vadis, tam? *Journal of the Association for Information Systems*. 8**,** 211-218.

Bhattacherjee, A., Hikmet, N., 2007. Physicians' resistance toward healthcare information technology: A theoretical model and empirical test. *European Journal of Information Systems*. 16**,** 725-737.

Bhattacherjee, A., Premkumar, G., 2004. Understanding changes in belief and attitude toward information tech- nology usage: A theoretical model and longitudinal test. *MIS Quarterly*. 28**,** 229-254.

Bibby, P., 2008. Dispositional factors in the use of social networking sites: Findings and implications for social computing research. In: Yang, C., Chen, H., Chau, M., Chang, K., Lang, S.-D., Chen, P., Hsieh, R., Zeng, D., Wang, F.-Y., Carley, K., Mao, W. & Zhan, J. (eds.) *Intelligence and security informatics*. Springer Berlin / Heidelberg.

Brown, S. A., Venkatesh, V., 2005. Model of adoption of technology in households: A baseline model test and extension incorporating household life cycle. *MIS Quarterly*. 29**,** 399-426.

Budner, S., 1962. Intolerance of ambiguity as a personality variable. *Journal of Personality*. 30**,** 29-50.

Campell, D. T., Fiske, D. W., 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*. 56**,** 81–105.

Carmines, E. G., Zeller, R. A., 1979. Reliability and validity assessment, Beverly Hills, Sage Publications.

Cenfetelli, R. T., 2004. Inhibitors and enablers as dual factor concepts in technology usage. *Journal of the Association for Information Systems*. 11-12.

Chin, W. W. 1998. Issues and opinion on structural equation modeling. *MIS Quarterly*.

Chin, W. W., 2000. Frequently asked questions -- partial least squares and pls-graph.

Chin, W. W., Gopal, A., 1995. Adoption intention in gss: Relative importance of beliefs. *The DATABASE for Advances in Information Systems*. 26**,** 42–64.

Compeau, D., Higgins, C. A., Huff, S., 1999. Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quarterly*. 23**,** 145-158.

Compeau, D. R., Higgins, C. A., 1995. Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*. 19**,** 189-211.

Davis, F. D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*. 13**,** 319-340.

Davis, F. D., Bagozzi, R. P., Warshaw, P. R., 1989. User acceptance of computer technology: A comparison of two theoretical models. *Management Science*. 35**,** 982-1003.

Davis, F. D., Bagozzi, R. P., Warshaw, P. R., 1992. Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*. 22**,** 1111-1132.

DeSanctis, G., 1986. Human resource information systems: A current assessment. *MIS Quarterly*. 10**,** 15-27.

Devaraj, S., Easley, R. F., Crant, J. M., 2008. How does personality matter? Relating the five-factor model to technology acceptance and use. *Information Systems Research*. 19**,** 93-105.

Dickson, G., Simmons, J., 1970. The behavioural side of mis: Some aspects of the people problem. *Business Horizons*. 4**,** 59-71.

Ferneley, E. H., Sobreperez, P., 2006. Resist, comply or workaround? An examination of different facets of user engagement with information systems. *European Journal of Information Systems*. 15**,** 345-356.

Fishbein, M., Ajzen, I., 1975. Belief, attitude, intention and behavior: An introduction to theory and research, Reading, MA, Addison-Wesley Publishing Company.

Fornell, C., Larcker, D. F., 1981a. Evaluating structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*.

Fornell, C. R., Larcker, D. F., 1981b. Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*.

Fox, S., 1999. The psychology of resistance to change, Ramat Gan, Israel, Bar-Ilan University.

Goldsmith, R. E., 1984a. Personality and adaptive-innovative problems solving. *Journal of Social Behavior and Personality*. 1**,** 95–105.

Goldsmith, R. E., 1984b. Personality characteristics associated with adaption-innovation. *Journal of Psychology*. 117**,** 159–165.

Henseler, J., Ringle, C. M., R., S. R., 2009. The use of partial least squares path modeling in international marketing. *Advances in International Marketing*. 20**,** 277–319.

Hirschheim, R., 2007. Introduction to the special issue on 'quo vadis tam - issues and reflections on technology acceptance research. *Journal of the Association for Information Systems*. 8**,** 203-205.

Hirschheim, R., Newman, M., 1988. Information systems and user resistance: Theory and practice. *The Computer Journal*. 31**,** 398-408.

Hulland, J., 1999. Use of partial least squares (pls) in strategic management research: A review of four recent studies. *Strategic Management Journal*.

Judge, T. A., Higgins, C. A., Thoresen, C. J., Barrick, M. R., 1999. The big five personality traits, general mental ability, and career success across the life span. *Personnel Psychology*. 52**,** 621–652.

Judge, T. A., Thoresen, C. J., Bono, J. E., Patton, G. K., 2001. The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*. 127**,** 376–407.

Junglas, I. A., Johnson, N. A., Spitzmuller, C., 2008. Personality traits and concern for privacy: An empirical study in the context of location-based services. *European Journal of Information Systems*. 17**,** 387-402.

Kim, H.-W., Kankanhalli, A., 2009. Investigating user resistance to information systems implementation: A status quo bias perspective. *MIS Quarterly*. 33**,** 567-582.

Klaus, T., Blanton, J. E., 2010. User resistance determinants and the psychological contract in enterprise system implementations. *European Journal of Information Systems*. 19**,** 625-636.

Klaus, T., Wingreen, S. C., Blanton, J. E., 2010. Resistant groups in enterprise system implementations: A q-methodology examination. *Journal of Information Technology*. 25**,** 91-106.

Lapointe, L., Rivard, S., 2005. A multilevel model of resistance to information technology implementation. *MIS Quarterly*. 29**,** 461-491.

Lee, I., 2007. An architecture for a next-generation holistic e-recruiting system. *Communications of the ACM*. 50**,** 81–85.

Liang, H., Nilesh, S., Hu, Q., Xue, Y., 2007. Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. *MIS Quarterly*. 31**,** 59-87.

Lounsbury, J. W., Moffitt, L., Gibson, L. W., Drost, A. W., Stevens, M., 2007. An investigation of personality traits in relation to job and career satisfaction of information technology professionals. *Journal of Information Technology*. 22**,** 174-183.

Luftman, J., Kempaiah, R., Rigoni, E. H., 2009. Key issues for it executives 2008. *MIS Quarterly Executive*. 8.

Marakas, G. M., Yi, M. Y., Johnson, R. D., 1998. The multilevel and multifaceted character of computer self-efficacy: Toward clarification of the construct and an integrative framework for research. *Information Systems Research*. 9**,** 126-163.

McAdams, D. P., 1996. Personality, modernity, and the storied self: A contemporary framework for studying persons. *Psychological Inquiry*. 7**,** 295–321.

McAdams, D. P., 2001. The person: An integrated introduction to personality psychology, Ford Worth, TX., Harcourt College Publishers.

McCrae, R. R., Costa, P. T., 1987. Validation of the five-factor model of personality across instruments and observers. *Journal of Personality and Social Psychology*. 52**,** 81–90.

McElroy, J. C., Hendrickson, A. R., Townsend, A. M., Demarie, S. M., 2007. Dispositional factors in internet use: Personality versus cognitive style. *MIS Quarterly*. 31**,** 809-820.

Mehdizadeh, S., 2010. Self-presentation 2.0: Narcissism and self-esteem on facebook. CyberPsychology, *Behavior & Social Networking*. 13**,** 357-364.

Meissonier, R., Houze, E., 2010. Toward an `it conflict-resistance theory': Action research during it pre-implementation. *European Journal of Information Systems*. 19**,** 540-561.

Moon, Y. J., Kang, S., Kim, W. G., 2010. The effect of users' personality on emotional and cognitive evaluation in ucc web site usage. *Asia Pacific Journal of Information Systems*. 20**,** 167-181.

Moore, G. A., 1999. Crossing the chasm. Marketing and selling high-tech products to mainstream customers, New York, HarperBusiness.

Moore, G. C., Benbasat, I., 1991. Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*. 2**,** 192-222.

Nohria, N., Gulati, R., 1996. Is slack good or bad for innovation? *Academy of Management Journal*. 39**,** 1245–1264.

Nohria, N., Gulati, R., 1997. What is the optimum amount of organizational slack? : A study of the relationship between slack and innovation in multinational firms. *European Management Journal.* 15**,** 603-611.

Norman, D. A., 1999. Things that make us smart . Defending human attributes in the age of the machine, Reading, Mass, Perseus Books.

Oreg, S., 2003. Resistance to change: Developing an individual differences Measure. *Journal of Applied Psychology.* 88**,** 680-693.

Oreg, S., 2006. Personality, context, and resistance to organizational change. *European Journal of Work & Organizational Psychology.* 15**,** 73-101.

Oreg, S., Bayazit, M., Vakola, M., Arciniega, L., Armenakis, A., Barkauskiene, R., Bozionelos, N., Fujimoto, Y., González, L., Jian, H., Hřebíčková, M., Jimmieson, N., Kordačov´, J., Mitsuhashi, H., Mlačić, B., Ferić, I., Topić, M. K., Ohly, S., Saksvik, P. Ø., Hetland, H., 2008. Dispositional resistance to change: Measurement equivalence and the link to personal values across 17 nations. *Journal of Applied Psychology.* 93**,** 935-944.

Oreg, S., 2009. A Call for Greater Caution in Drawing Conclusions From Individual Samples: A Comment on „A Test of the Measurement Validity of the Resistance to Change Scale in Russia and Ukraine". *The Journal of Applied Behavioral Science.* 45, 490-493

Palvia, P. C., Perkins, J. A., Zeltmann, S. M., 1992. The prism system: A key to organizational effectiveness at federal express corporation. *MIS Quarterly.* 16**,** 277-292.

Parry, E., Tyson, S., 2008. An analysis of the use and success of online recruitment methods in the UK. *Human Resource Management Journal.* 18**,** 247–257.

Podsakoff, P. M., Mackenzie, S. B., Jeong-Yeon, L., Podsakoff, N. P., 2003. Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology.* 88**,** 879.

Podsakoff, P. M., Organ, D. W., 1986. Self-reports in organizational research: Problems and prospects. *Journal of Management.* 12**,** 531-544.

Ringle, C. M., Wende, S., Will, A., 2005. Smartpls 2.0.M3, www.Smartpls.de

Rokeach, M., 1973. The nature of human values, New York, The Free Press.

Romero, E., Villar, P., Luengo, M. Á., Gómez-Fraguela, J. A., 2009. Traits, personal strivings and well-being. *Journal of Research in Personality.* 43**,** 535–546.

Singh, J. V., 1986. Performance, slack, and risk taking in organizational decision making. *Academy of Management Journal.* 29**,** 562-585.

Slovic, P., 1972. Information processing, situation specificity, and the generality of risk taking behavior. *Journal of Personality and Social Psychology.* 22**,** 128–134.

Stewart, W.H., May, R.C., McCarthy, D.J., Castro, D. 2009. A Test of the Measurement Validity of the Resistance to Change Scale in Russia and Ukraine. *The Journal of Applied Behavioral Science.* 45, 468-489

Strohmeier, S., 2007. Research in e-hrm: Review and implications. *Human Resource Management Review.* 17**,** 19–37.

Tan, S. J., 1999. Strategies for reducing consumers' risk aversion in internet shopping. *Journal of Consumer Marketing.* 16**,** 163-180.

Thompson, R. L., Higgins, C. A., 1991. Personal computing: Toward a conceptual model of utilization. *MIS Quarterly.* 15**,** 125-143.

Vandenbosch, B., Huff, S. L., 1997. Searching and scanning: How executives obtain information from executive information systems. *MIS Quarterly.* 21**,** 81-107.

Venkatesh, V., 2006. Where to go from here? Thoughts on future directions for research on individual-level technology adoption with a focus on decision making. *Decision Sciences.* 37**,** 497-518.

Venkatesh, V., Brown, S. A., 2001. A longitudinal investigation of personal computers in homes: Adoption determinants and emerging challenges. *MIS Quarterly.* 25**,** 71-102.

Venkatesh, V., Morris, M. G., Davis, G. B., Davis, F. D., 2003. User acceptance of information technology: Toward a unified view. *MIS Quarterly.* 27**,** 425-478.

Vijayasarathy, L. R., 2004. Predicting consumer intentions to use on-line shopping: The case for an augmented technology acceptance model. *Information & Management*. 41**,** 747-762.

Weitzel, T., Eckhardt, A., Laumer, S., 2009. A framework for recruiting it talent: Lessons from siemens. *MIS Quarterly Executive*. 8**,** 175-189.

Wiener, L. R., 1993. Digital woes - why we should not depend on software, Addison-Wesley Pub. Co.

Williams, M. D., Dwivedi, Y. K., Lal, B., Schwarz, A., 2009. Contemporary trends and issues in it adoption and diffusion research. *Journal of Information Technology*. 24**,** 1-10.

Zuckerman, M., Link, K., 1968. Construct validity for the sensation-seeking scale. *Journal of Consulting and Clinical Psychology*. 32**,** 420-426.

Zmud, R., 1979. Individual Differences and MIS Success: A Review of the Empirical Literature. *Management Science*, 25, 10, 966-979

APPENDIX

Table 6: Common Method Bias

	R^2-1	R^2-2	R^2-DIFF	Path-1	Path-1^2	Path-2	Path-2^2
CR-1	0.873	0.873	0.000	0.935***	0.874	0.002^{ns}	0.000
CR-2	0.876	0.876	0.000	0.936***	0.876	-0.002^{ns}	0.000
EE-1	0.880	0.902	0.022	1.248***	1.558	-0.343***	0.118
EE-2	0.755	0.761	0.006	0.709***	0.502	0.177*	0.031
EE-3	0.916	0.918	0.001	0.881***	0.776	0.085^{ns}	0.007
EE-4	0.891	0.893	0.002	0.862***	0.743	0.091^{ns}	0.008
ER-1	0.530	0.554	0.024	0.621***	0.385	-0.181^{ns}	0.035
ER-2	0.594	0.597	0.003	0.806***	0.649	0.061^{ns}	0.004
ER-3	0.765	0.767	0.002	0.904***	0.817	0.051^{ns}	0.003
ER-4	0.619	0.622	0.003	0.824***	0.679	0.064^{ns}	0.004
PE-1	0.900	0.900	0.000	0.965***	0.930	-0.013^{ns}	0.000
PE-2	0.752	0.753	0.001	0.927***	0.860	-0.061^{ns}	0.005
PE-3	0.883	0.883	0.000	0.946***	0.895	-0.00^{ns}	0.000
PE-4	0.827	0.828	0.002	0.829***	0.687	0.091^{ns}	0.008
RS-1	0.706	0.706	0.000	0.834***	0.695	-0.015^{ns}	0.000
RS-2	0.717	0.719	0.002	0.870***	0.756	0.049^{ns}	0.002
RS-3	0.240	0.243	0.002	0.464***	0.216	-0.055^{ns}	0.003
SF-1	0.817	0.819	0.002	0.922***	0.850	0.046^{ns}	0.002
SF-2	0.714	0.717	0.004	0.871***	0.759	0.067^{ns}	0.004
MEAN	0.750	0.754	0.004	0.861	0.763	0.005	0.012

Table 7: Cross-Loadings

	CR	EE	ER	PE	RS	SF
PE-1	-0.048	0.760	-0.230	0.946	-0.273	-0.146
PE-2	-0.159	0.648	-0.301	0.867	-0.159	-0.146
PE-3	-0.102	0.740	-0.236	0.940	-0.266	-0.155
PE-4	-0.052	0.771	-0.217	0.912	-0.317	-0.143
EE-1	-0.150	0.935	-0.283	0.641	-0.176	-0.198
EE-2	-0.088	0.861	-0.197	0.817	-0.311	-0.119
EE-3	-0.178	0.961	-0.379	0.766	-0.256	-0.239
EE-4	-0.139	0.949	-0.392	0.742	-0.243	-0.290
SF-1	-0.091	-0.246	0.576	-0.164	0.391	0.933
SF-2	-0.022	-0.134	0.497	-0.097	0.181	0.764
CR-1	0.975	-0.172	0.017	-0.114	-0.291	-0.121
CR-2	0.878	-0.085	0.160	-0.046	-0.142	0.036
RS-1	-0.184	-0.239	0.074	-0.204	0.692	0.035
RS-2	-0.024	-0.104	0.527	-0.117	0.692	0.535
RS-3	-0.277	-0.193	0.439	-0.247	0.791	0.358
ER-1	-0.110	-0.202	0.729	-0.145	0.407	0.577
ER-2	0.027	-0.265	0.831	-0.180	0.361	0.599
ER-3	0.161	-0.219	0.758	-0.133	0.269	0.485
ER-4	0.096	-0.352	0.818	-0.312	0.319	0.393

RESISTANCE TO E-HRM-INDUCED CHANGES OF HR PERSONNEL'S ROUTINES

THEORETICAL FOUNDATION AND EMPIRICAL EVIDENCE

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RESISTANCE TO E-HRM-INDUCED CHANGES OF HR PERSONNEL'S ROUTINES

THEORETICAL FOUNDATION AND EMPIRICAL EVIDENCE

ABSTRACT

When implementing new Information Systems, organizations often face resistance from employees, who avoid or underutilize the system. We analyze the extent to which such resistance is explained by perceptions of technology or whether resistance is primarily related to the accompanying changes in work routines.

Looking at the implementation of a Human Resources Information System in a large global firm, we investigate why the organization is unable to use E-HRM (Electronic Human Resources Management) to its full potential. Based on the IT adoption and the organizational science literature and using a technology embeddedness perspective of technology-mediated change, the results show that perceptions of the IT-induced work routine changes have a stronger impact on user resistance than perceptions of the underlying technology. The changes in work routines thus are a major predictor of resistance to E-HRM.

Keywords: User Resistance, E-Recruiting, Process Adoption, Working Routines, Change Management, E-HRM

1 INTRODUCTION

One of the major challenges of electronic human resources management (E-HRM) in organizations is to embrace fully and actually use a human resource information system (HRIS) to its full potential and hence realize its strategic potential (Stone and Lukaszewski, 2009). As one anonymous HR expert put it: *"The one true challenge is to go from possibility to reality and overcome underusing HRIS."*

Researchers have identified several explanations for why HR personnel may not use E-HRM as intended. Observing the implementation of E-HRM and the changes E-HRM necessitates in work routines in different organizations indicates that identifying and evaluating drivers of user resistance and E-HRM success are important aspects for managing the change for HR personnel (Stone and Lukaszewski, 2009). HR personnel may find ways to work around system constraints in unexpected ways (Boudreau and Robey, 2005) or avoid using the system altogether (Dery et al., 2006). E-HRM induces changes in tasks and routines of HR personnel (Wiblen et al., 2010) and may result in employees who are compliant but also resistant (Ferneley and Sobreperez, 2006, Oreg, 2006). In other words, they are using the technology unwillingly, as it expected by

management that they use the technology for their daily work. Consequently, research on E-HRM identifies user resistance as an important facet (Lippert and Swiercz, 2005) and major challenge in the implementation of E-HRM (Pant and Chatterjee, 2008).

Employee perceptions of E-HRM pose additional challenges (Bondarouk and Ruel, 2009), especially when E-HRM involves not only the implementation of an HRIS but also restructuring of the HR function, HR personnel's routines, or HR processes. Changes in tasks, routines, and responsibilities have been discussed as major reasons for HR personnel's resistance to E-HRM (Huo and Kearns, 1992, p. 14) and may be considered in a model of E-HRM implementation success as organizational, technological, and human factors (Lippert and Swiercz, 2005). In general, understanding which determinants affect E-HRM implementation success or HR personnel resistance is important to enable the strategic impact and success of these systems.

These phenomena are certainly not unique to the HR domain and can be found in almost any large-scale information systems implementation project (Grant and Marshak, 2011), as IT-induced change in general requires changes in tasks, routines, and processes (Dixon, 1999, Markus, 2004, Suprateek et al., 2006). These work-related changes are in advance of or concurrent with the new information system (IS) (Dixon, 1999, Markus, 2004). To understand reactions to IT-induced changes, researchers study the interconnected nature of people, technologies, tasks, and routines as people use technologies (Pentland and Feldman, 2007). Venkatesh (2006) states that understanding individual acceptance of process or routine changes and isolating change beliefs related to technology versus processes or routines are beneficial directions for research in technology adoption. In general, resistance to the implementation of an IS is caused by different resistance objects (Lapointe and Rivard, 2005, Lippert and Swiercz, 2005, Volkoff et al., 2007) such as the affected processes and routines (Klaus et al. 2010).

Our goal is to understand better employee resistance to IT-induced changes and how it is related to perceptions of the introduced technology – as is a traditional focus of adoption analyses – or to changes in daily work routines that then require the adoption of countermeasures because IT gets *"wrongly"* blamed. We develop a model that builds on current research from organizational science and that enables isolating beliefs about technology and routines to explain user resistance.

Figure 1 shows the nomological network of the basic idea of this research.
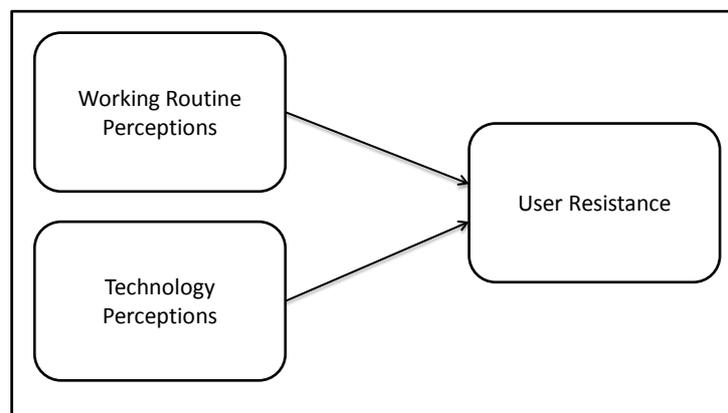
FIGURE 1: EVALUATION OF TECHNOLOGY VERSUS E-HRM-INDUCED PROCESS CHANGES

Based on the described research gap of investigating the impact of HR personnel perceptions of E-HRM-induced changes in work routines on user resistance during the implementation of E-HRM, our research question is:

How do HR personnel's perceptions about technology and work routine changes influence user resistance when implementing E-HRM?

We chose the recruiting process as an example of an HR process and for changing HR personnel's work routines. The Internet has *"revolutionized the way that people look for work"* and brought *"radical change to corporate recruiting"*; the strategic significance of recruitment is often reported in the literature (Parry and Tyson, 2008).

In the following section, we first delineate the theoretical background for our arguments about user resistance and IT-induced change. We then develop a model of technology and routine-based user resistance. We follow this by presenting the methodology and results of the empirical research, in which we investigated the implementation of a new e-recruiting system as an example of E-HRM. We conclude with a discussion of the implications for future research and practice.

2 THEORETICAL BACKGROUND AND RESEARCH MODEL

The objective of the research is to investigate the impact of HR personnel perceptions of E-HRM and the E-HRM-induced changes of working routines on user resistance. Working routines are defined as *"temporal structures that are often used as a way of accomplishing organizational work"* (Feldman, 2000), p. 611). Routines are important in organizations, in part because a lot of the work in organizations is performed through routines and employees are used to work with routines to perform their tasks (Feldman, 2000). Hence, they are *"repeated patterns of behavior that are bound by rules and customs and that do not change very much from one iteration to another"* (Feldman, 2000), p. 611). They might be altered when a new information system is introduced that changes the ways employees perform their tasks. For example, while implementing an e-recruiting system organizations might stop accepting paper-based applications and ask candidates to apply online. Consequently, employees have to change their routine of and criteria for evaluating applications as the way applicants apply for a job changes with the implementing of the new information system. Thus, employees are confronted with both a new technology and changing working routines and might perceive these objects differently.

However, as Venkatesh (2006) discusses, there are two possible explanations for why perceptions of technology and routines have not been considered separately in individual-level technology-adoption or user resistance research. In the late 1980s and early 1990s, research was conducted among fairly simple software systems that were designed to support existing routines, thus rendering routine change to be somewhat moot. Even in cases that included process or routine change, researchers typically treated the entire technology solution as a single entity and modeled no technology, process, or work routine characteristics (e.g., Venkatesh and Davis, 2000, Venkatesh et al., 2003).

According to the technological embeddedness view (Volkoff et al., 2007), the role of technology in organizations is to embed organizational elements such as routines. The theory argues that a technology-mediated organizational change should be examined at the level of these organizational elements. Embedding a routine, role, or data in an information system changes that element and how it could be enacted by employees. Therefore, the role of technology in organizations is to embed organizational elements, which then have a material aspect that affects how employees are able to enact and interact with those organizational elements. Thus, the persistence of existing routines and older norms of behavior frequently impede organizational transformation, and individuals embedded in highly institutionalized contexts with strong

traditions and well-established behavioral norms may resist these changes (Dimaggio and Powell, 1983, Kraatz and Moore, 2002).

Explaining IT-induced organizational change initiatives with the technology embeddedness view reveals that these changes are caused by the implementation of an information system, and that they have an impact on individual tasks, working routines, and organizational processes (Volkoff et al., 2007). Therefore, the central determinants of user resistance to new information systems are, on the one hand, perceptions of the new technology, which embeds organizational elements, and, on the other hand, perceptions of work routine changes as an example of these elements. Research on work routine change identifies this topic as an important aspect for individual acceptance of technologies; *"research has examined various aspects of business process change, [however] little research has focused on the individual employee and studied the drivers of process adoption by employees, the factors influencing resistance, the impacts of process change on employees and potential interventions to ease the transition"* (Venkatesh, 2006, p.501). Also in the E-HRM context, the evaluation of changes to existing work routines induced by E-HRM is a critical implementation aspect, and the success of implementing E-HRM is predicated on organizational (e.g., new processes or working routines), technological (e.g., new information system) and human factors (e.g., the perception of E-HRM-induced changes of technology and work routines) (Lippert and Swiercz, 2005). Hence, we will adopt the technological embeddedness view (Volkoff et al., 2007) to explain individual resistance to E-HRM based on perceptions of the embedding technology (E-Recruiting System) and the embedded element of organizational (HR) routines. The resulting hypotheses are introduced in the sections that follow.

2.1 PERCEPTIONS OF THE EMBEDDING HRIS (E-RECRUITING SYSTEM)

Since 1985, 345 publications in the top 19 peer-reviewed IS journals have focused on enablers, inhibitors, and consequences of an individual's technology usage (Williams et al., 2009). Most of these approaches build on the Technology Acceptance Model (TAM; (Davis, 1989, Davis et al., 1989)), which suggests that an individual's behavior could be explained by perceived usefulness and by perceived ease of use (Davis, 1989). The TAM precipitated a tremendous research stream leading to various extensions, modifications, replications, and competing (Venkatesh et al., 2007) and unifying models (Venkatesh et al., 2003).

The Unified Theory of Acceptance and Use of Technology (UTAUT) introduced two unified variables modeling an individual's perceptions of a technology. The first variable, performance expectancy, is defined as *"the degree to which an individual believes that using the system will help him or her to attain gains in job performance."* (Venkatesh et al., 2003, p.447). This is based on the constructs perceived usefulness (Davis et al., 1989), extrinsic motivation (Davis et al., 1992), job-fit (Thompson and Higgins, 1991), relative advantage (Moore and Benbasat, 1991), and outcome expectations (Compeau and Higgins, 1995, Compeau et al., 1999). The second variable, effort expectancy, is defined as *"the degree of ease associated with the use of the system"* (Venkatesh et al., 2003, p. 450) and captures aspects of three different constructs: perceived ease of use (Davis et al., 1989), complexity (Thompson and Higgins, 1991), and actual ease of use (Moore and Benbasat, 1991). These two variables are used to measure the perceptions of the embedding technology of a technology-mediated organizational change (Volkoff et al., 2007).

Further, for HR personnel, the skills needed to operate an HRIS are another crucial success factor (Panayotopoulou et al., 2007). Yet, a large number of employees' do not have the skills to operate an HRIS appropriately (Huo and Kearns, 1992), or the capabilities and knowledge to use the system (Lukaszewski et al., 2008). The use of an HRIS is particularly critical because it contains sensitive information about staff and applicants, such as personal data, prior employer, work performance, or even medical data, along with the results of an applicant's assessment center testing (Karakanian, 2000, Ngai et al., 2008). An individual's intention to use or resist an

HRIS is based on the effort and performance expectancy that individual develops. If an employee considers the implementation of the HRIS useful and the system easy to use, the HRIS is perceived as positive, and vice versa. For example, using an HRIS improves the support of information across several hierarchical levels (Kossek et al., 1994, Tansley et al., 2001) and assists an organization's management in a wide variety of decisions (Zahid et al., 2007).

A second useful characteristic of HRIS is that the HR department and thus the organization saves time (Nicholas et al., 1996, Panayotopoulou et al., 2007), for example, within the recruitment process, with the consequence that vacancies are filled significantly faster. In addition, employees only perceive an HRIS positively if they have the skills and knowledge (e.g. Hannon et al., 1996) to use it easily. However, these critical factors often do not exist to the desired degree (Lukaszewski et al., 2008). Thus, additional effort in the form of training courses becomes inevitable. In this context, (Beckers and Bsat, 2008) identify a negative stance from employees toward an HRIS with low effort expectancy. The lack of employee skills to operate an HRIS (Hannon et al., 1996, Kossek et al., 1994, Ngai and Wat, 2006)1994 #689}) requires training (Panayotopoulou et al., 2007) to ensure the success of the HRIS (Hannon et al., 1996) and to enable practical work with the system (Rodger and Pendharkar, 1998). All of this research depicts an employee's difficulty to use an HRIS, because HR staff does not know how to use the system efficiently and appropriately.

Thus, we derive two hypothesizes for our research model based on UTAUT (Venkatesh et al., 2003):

H1: The effort expectancy of a new HRIS has a direct, negative effect on user resistance.

H2: The performance expectancy of a new HRIS has a direct, negative effect on user resistance.

2.2 PERCEPTIONS OF THE EMBEDDED HR (RECRUITING) WORK ROUTINES

The implementation of contemporary IT systems in organizations also demands the adoption of significantly new procedures, routines, and processes (Venkatesh, 2006). Consequently, a better understanding of E-HRM routines may help organizations increase the acceptance and effectiveness of E-HRM (Stone and Lukaszewski, 2009), as these systems are also leading organizations to implement new HR processes or to introduce new work routines for employees (Singh and Finn, 2003). In fact, it may be argued that the intent of E-HRM is to implement new processes or routines as tneeded to lower labor costs, accelerate transactions, improve efficiency, and provide better service to stakeholders (Singh and Finn 2003). These routines play a similar but separate role from the technology itself because on the one hand the technology embeds these routines (Volkoff et al., 2007), and on the other hand the routines facilitate capturing and replicating more complex and fine-grained knowledge, since people must still interact to obtain details of the practice itself (Morris et al., 2009). In general, the nature of the new routines and employee perceptions about them affect the organizations ability to achieve the goals associated with E-HRM implementation E-HRM (Stone and Lukaszewski, 2009). These perceptions of the new recruiting work routines are used to measure the perceptions of the embedded organizational element of a technology-mediated organizational change (Volkoff et al., 2007).

In terms of the E-HRM-induced changes in the recruiting process, employees expect an improvement in the process efficiency HR routines from a new e-recruiting system (Beckers and Bsat, 2008, Bondarouk and Ruël, 2009, Lukaszewski et al., 2008, Stone and Lukaszewski, 2009). Furthermore, the efficiency of services provided by the HR department should be improved by new routines that accompany E-HRM implementation (Ruël et al., 2007). An organization might improve the efficiency of the hiring system by automating processes, such as resume screening or other tasks of the recruiting process (Chapman and Webster, 2003). However, developing and

implementing the new recruiting process and routines are difficult (Parry and Wilson, 2009) and may be perceived as such by those HR employees affected (Morris et al., 2009).

Thus, we define effort expectancy of new HRIS-induced work routines as a variable of an individual's perception of the technology-embedded organizational element and as the degree to which a person believes that working with the new routines that accompany a new information system will be easy to follow and relatively free of effort. Based on a similar definition of the UTAUT variable effort expectancy, we assume that

H3: The effort expectancy of new HRIS-induced working routines has a direct, negative effect on user resistance.

As discussed above, E-HRM assists the work of HR personnel by automatizing organizational processes and routines (Ngai et al., 2008, Pant and Chatterjee, 2008) and facilitates the storage and processing of applicant data (Stone et al., 2006). Recruitment personnel may perceive that new routines could save time and money (Singh and Finn, 2003) and relieve them from many everyday tasks, freeing up these HR professionals to develop a service orientation and participate more fully in strategic decision making (Haines and Petit, 1997). Black and Lynch (2005) argue that an organization's formalized routines induced by E-HRM help raise the firm's productive capacity through coordination of ideas, and that employees will perceive such IT-supported routines positively (Morris et al., 2009). In contrast, if E-HRM seems simply to shift previous tasks, it may be evaluated negatively, and its implementation will be perceived as a step backward (Panayotopoulou et al., 2007, Ruël et al., 2007). Some organizations report that online recruitment fit well with existing practices, while others experienced resistance from line managers to new processes that accompanied a new e-recruiting system (Parry and Wilson, 2009).

Since individual's values, goals, and job-relevant resources such as new routines serve as an important determinant of her intentions and behaviors (Stone and Lukaszewski, 2009), we define the performance expectancy of the new HRIS-induced work routines as a variable of the perceptions of the technology-embedded organizational element, and as the degree to which a person believes that working with the new routines would enhance her job performance. Based on the similar definition of performance expectancy from UTAUT, we hypothesize that:

H4: The performance expectancy of new HRIS-induced work routines has a direct, negative effect on user resistance.

Figure 2 illustrates the resulting research model.
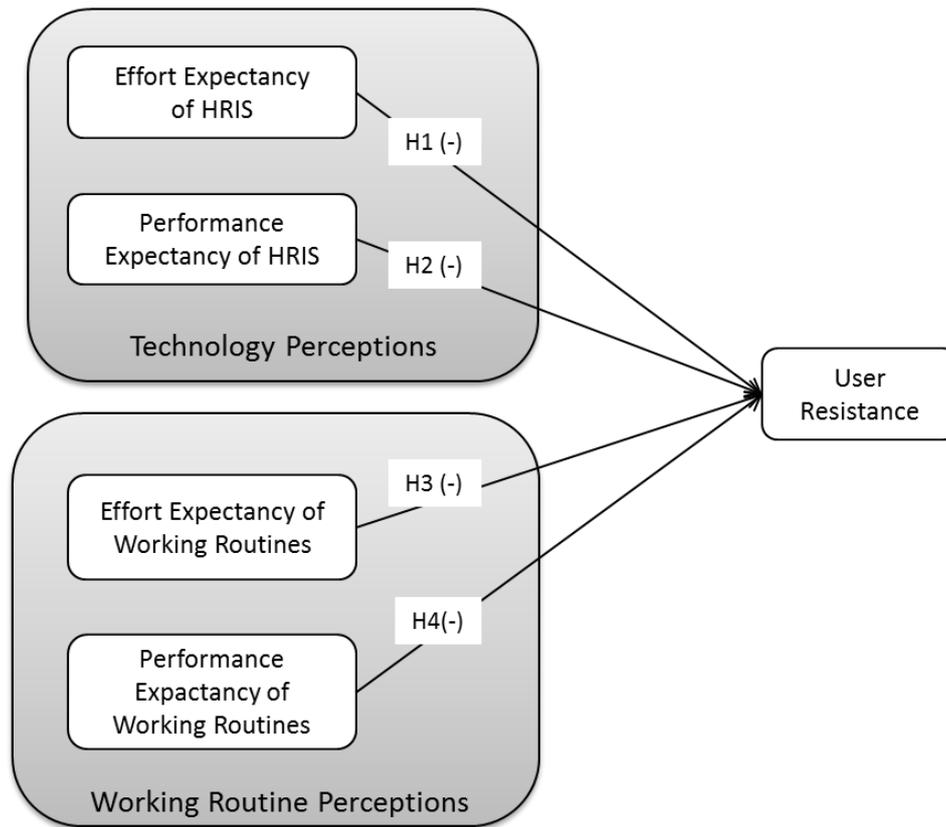
FIGURE 2: RESEARCH MODEL

3   RESEARCH METHODOLOGY

To evaluate the proposed research model, we accompanied one of the world's leading automotive suppliers throughout the implementation of a new e-recruiting system. The organization has tens of thousands of employees at about 200 different locations globally, and generates several billion euros in revenues each year. The company decided to implement a new e-recruiting system. The main objective was to enhance IT support to the recruiting process and for work routines that would make it possible to manage tasks faster and improve the perception of the organization in the job market. The system is designed to integrate the recruiting activities at five different plants, whose 150 HR managers all have access to the new e-recruiting system.

The project began at the start of 2008, when the company intended to replace its legacy system and optimize and standardize the company-specific recruiting process. The new recruiting process comprises six steps as well as new and re-designed work routines, and is completely embedded within the new e-recruiting system. The process is initiated when a vacancy opens in any of the organization's departments. The next step is the posting of a job ad designed by the responsible recruiter at the respective branch and approved by the corporate competence center. After this ad is published on the company's website, at job portals such as Monster, and/or in print media, applicants submit their CV portfolio via the company's website or using a paper application. Digital applications are stored automatically in the HRIS database; paper applications have to be entered manually. Recruiters and HR specialists use the system to evaluate and select candidates from among incoming applications, forward those applications to the responsible hiring manager, and manage with candidates. After the selection step, the responsible manager makes a hiring decision in collaboration with the HR specialist or recruiter.

To this rather general recruiting process, the company introduced several changes (e.g., central talent management). Figure 3 illustrates the new recruiting process, the employees involved in the process, and the functionality of the new HRIS. The architecture of the new e-recruiting system is similar to the proposed holistic architecture for an e-recruiting system (Lee, 2007). The new system is a single enterprise-wide system used by every stakeholder of the recruiting process. It is browser-based and uses a central database.
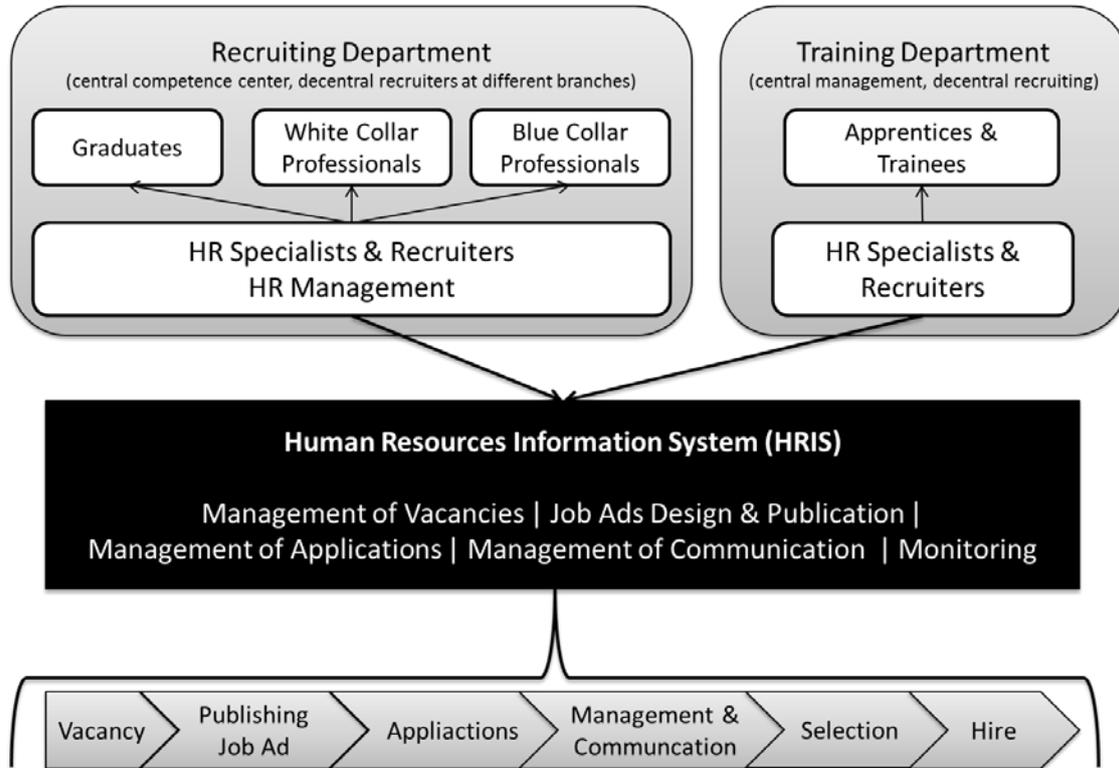
FIGURE 3: THE NEW RECRUITING PROCESS AND HRIS AT THE OBSERVED COMPANY

Beyond implementing the new e-recruiting system itself, the recruiting process was changed and adjusted by defining new work routines for employees who would use the system. This was a central aspect of the project; from the organization's perspective, the old routines had caused many misunderstandings and was the reason it was seen in the job market as an unstructured and inconsistent employer. The major changes for the recruiters, HR specialists, and HR managers include a standardization of the recruiting process, elimination of media disruptions, new HRIS support for the design, approval, and publication of job advertisements, management of incoming applications, communication guidelines, transparency, and key performance indicators, a decentralized talent pool, automated prescreening, and a talent management tool.

We gathered employees' opinions about the new e-recruiting system and the changes described above during the implementation and *"go-live"* phases of the project in June and July 2010. Through interviews with relevant employees, we pre-tested the theoretically derived hypotheses and validated our measurement model.

3.1 PRE-TEST

As part of the pre-test of the derived hypotheses, we used our 15 interviews in particular to pre-test the newly developed variables of effort and performance expectancy of new HRIS-induced work routines and for the newly developed measurement items for these constructs. The

results illustrate that the organization's HR personnel distinguish between changes to the technology and changes to organizational elements such as new work routines. One recruiter, discussing the differences in routines and technology, pointed out that *"if they change my role, I won't comply with the project. I think that e-recruiting is a good thing; however, the company should leave some responsibility at the recruiter level"*.

Another highlighted that *"I had a case with a colleague who said 'I'm so sorry, … I need this in hardcopy form,' and who brought along a bunch of paper. Managers are still printing out applications, and we need to educate them to go digital."*

The new manual data entry work routine of is perceived negatively, particularly in those departments advertising blue collar jobs and hence have a high percentage of paper-based applications: *"We had the luxury of outside typists, who did a lot of work for us. We no longer have this, [which is] a disadvantage. Scanning [applications], sure, that's cumbersome."*

Another new work routine was the introduction of quality control for the publication of job ads. The following statement shows that not everyone supports this change: *"Generally, I question this, because we published our vacancies the past 20 years without a CC [Corporate Centre] looking over it, honestly, I don't know for what. If the CC releases [ads], they should either be better informed about the content or they shouldn't be dealing with the actual content of an ad."* In some instances, people consciously ignored CC feedback: *"The decision is up to me, please. … To be honest, I just did not react at that time. I left it that way."*

HR specialists demonstrate one particular aspect of user resistance when they point out problems that are related mainly to coordination between the system and the new work routines. The fact that applicants apply for the same apprenticeship training positions but at different branches, combined with centralized and decentralized routines, create difficulties with the implementation of the training department's specific work routines o in the e-recruiting system. *"We have at least five jobs per applicant], all with the same test and the same counterpart. This stands in contrast to the logic of the new process, which is based on applications and not on candidates. Multiple applications per candidate have to be handled separately, even if parts of the process, such as the selection procedure, are identical."*

The consequences are confusion and greater effort required by applicants, in the opinion of the responsible HR employees. As one training department recruiter stated: *"Generally, it is fact that we need three times more time at the moment."*

In addition, an HR specialist added that *"the work routines are not implemented logically for the training department. For example, the interview comes before going to the assessment center."*

3.2 EMPIRICAL STUDY

The results of the pre-test and what our interviewees told us provide an ideal illustration of how the affected recruiters and HR managers perceive the new e-recruiting system and the new HRIS-induced new work routines differently. We surveyed all 150 affected HR employees about their beliefs and attitude regarding the HRIS and new work routines. The entire survey was available online for two weeks and was advertised during project meetings such as all employees were contacted once. We received 106 returned questionnaires. Table 1 shows the demographic data of our sample.

Table 1. Demographics[22]

ATTRIBUTE	MANIFESTATION	VALUE
Gender	Male	23.6%
	Female	62.3%
Age	older than 45	16.0%
	36 to 45	25.5%
	25 to 35	23.6%
	under 25	11.3%
Work Experience	less than 5 years	23.6%
	5 to 10 years	22.6%
	11 to 15 years	13.2%
	more than 15 years	12.3%

4 RESEARCH RESULTS

In this section, we show the results of our research, based on the proposed model and described methodology. We used structural equation modeling and Partial Least Squares (PLS) (Chin, 1998b) for validation.

4.1 MEASUREMENT MODEL

As all perceptual beliefs about the technology and changes to work routines, as well as the resulting user resistance, are measured by reflective indicators, content validity, indicator reliability, construct reliability, and discriminant validity need to be observed to validate the measurement model (Bagozzi, 1979).

4.1.1 Content validity

We utilize items of constructs that have proven to be suitable measurement items in prior research, modifying these items where necessary to fit the HR context. For the perceptions of work routines, we developed new items based on existing ones. Our measurement model is described below. To ensure content validity, we discussed the items with the project managers of the implementation project we observed. An empirical pre-test was conducted with five of the organization's HR employees.

To capture an employee's beliefs about the effort and performance expectancy of the implemented e-recruiting system, we used measurement items introduced by (Venkatesh et al., 2003), modifying the scales to fit the HR domain context. User resistance was measured according to Bovey and Hede (2001) and Kim and Kankanhalli (2009) using items to capture an individual's intention to resist E-HRM-induced changes both to the embedding technology and the embedded organizational element.

For the perceptions of the new HRIS-induced working routines, we developed our own variables and corresponding measurement items. We derived the variables from discussing prior research approaches; they were then pre-tested and validated within our interviews. The measurement items of the two variables are based on the measurement model of UTAUT

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[22] The depicted results represent participants' actual answers. Participants who did not indicate their gender, age and tenure are not visualized within the table.

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(Venkatesh et al., 2003); however, we changed the objective of the items to perceptions of work routines, as Klaus and Blanton (2010) and our research identify process and work routine changes as different resistance objects during the implementation of information systems. Therefore, we developed items for effort and performance expectancy of new HRIS-induced work routines. Table 2 shows all our measurement items.

Using the project setting of the E-HRM implementation enabled a clear distinction in the survey between the technology and the work routines. Project management created two different project teams: one responsible for technology issues, and one for the new process and the corresponding work routines. The outcomes of the two project teams were implemented and perceived by employees either as a technology or a work routine issue. The results match with the changes described in the previous section. As a consequence, by referring to the results of the two project teams, we were able to indicate which statements in the survey corresponded to which category of change (process or technology).

Table 2: Measurement Items

ITEMNO	ITEM	REFERENCE
PE-1	I would find the new e-recruiting system useful in my job.	(Venkatesh et al., 2003)
PE-2	Using the new e-recruiting system would enable me to accomplish tasks more quickly.	
PE -3	Using the new e-recruiting system would increase my productivity.	
PE-4	If I use the new e-recruiting system, I will increase my chances of getting a raise.	
EE-1	My interaction with the system would be clear and understandable.	
EE-2	It would be easy for me to become skillful at using new e-recruiting system	
EE-3	Overall, I would find the new e-recruiting system easy to use	
EE-4	Learning to operate the new e-recruiting system is easy for me.	
PE-WR-1	Overall, I would find the new working routines useful in my job.	Self-developed based on (Klaus and Blanton, 2010, Venkatesh et al., 2003)
PE-WR-2	The new working routines will enable me to accomplish tasks more quickly.	
PE-WR-3	The new working routines increase my productivity.	
EE-WR-1	It would be easy for me to become skillful on the new recruiting working routines.	
EE-WR -2	Learning to work with the new recruiting working routines is easy for me.	
EE-WR -3	Overall, I would find the new recruiting working routines easy to perform.	
RES-1	I will not comply with the change to the new way of working (new system and new routines).	(Bovey and Hede, 2001, Kim and Kankanhalli, 2009)
RES-2	I will not cooperate with the change to the new way of working (new system and new routines).	
RES-3	I oppose the change to the new way of working (new system and new routines).	
RES-4	I do not agree with the change to the new way of working (new system and new routines).	

4.1.2 Indicator reliability

The indicator reliability shows the rate of the variance of an indicator that comes from the latent variables. Each value must be 0.707 or more to explain at least 50 percent of the variance of a latent variable by the indicators (Carmines and Zeller, 2008). Table 3 shows this condition is fulfilled. In addition, all loadings have a significance level of 0.001. This is tested by performing bootstrap method with 5,000 samples (Henseler et al., 2009).

4.1.3 Construct reliability

We use the concepts composite reliability (CR) and average variance extracted (AVE) ((Fornell and Larcker, 1981)) to determine the quality at the construct level. Here, CR should be higher than 0.7 and AVE higher than 0.5. As illustrated by Table 3, both criteria are fulfilled.

4.1.4 Discriminant validity

Discriminant validity describes the extent to which measurement items differ (Campell and Fiske, 1959). Therefore, Table 4 shows the square root of AVE on the diagonal of latent variable correlation. As these square root values are greater than the corresponding construct correlations ((Fornell and Larcker, 1981, Hulland, 1999)), it can be stated that this requirement is fulfilled and the measurement model is valid.

Table 3: Measurement Model Validation

	Loading	AVE	CR	PE	EE	PE-WR	EE-WR	RES
PE-1	0.939							
PE-2	0.855	0.835	0.953	0.914				
PE-3	0.942							
PE-4	0.916							
EE-1	0.921							
EE-2	0.834	0.834	0.953	0.863	0.913			
EE-3	0.954							
EE-4	0.940							
PE-WR-1	0.957							
PE-WR-2	0.967	0.925	0.974	0.753	0.817	0.962		
PE-WR-3	0.961							
EE-WR-1	0.879							
EE-WR-2	0.951	0.864	0.950	0.689	0.787	0.919	0.929	
EE-WR-3	0.956							
RES-1	0.897							
RES-2	0.787	0.666	0.888	-0.611	-0.665	-0.625	-0.691	0.816
RES-3	0.793							
RES-4	0.782							

Loadings are significant at p<0.001; on the diagonal the square root of the AVE

4.2 STRUCTURAL MODEL

We use the coefficient of determination (R^2) and significance levels of each path coefficient are used (Chin, 1998a) to evaluate the structural model. Figure 4 indicates that the perceptual beliefs about the technology and work routine changes explain 51.4 percent of the variance user resistance. Regarding the path coefficients, we can state that only one hypothesized path is not significant, namely, the relation between the effort expectancy of work routines and user resistance.

Further, we evaluated the effect size of perceptions of the technology and work routines to control the explanatory power of the two different resistance objectives observed. As Figure 4 shows, the f^2 of the technology evaluation is 0.176 on user resistance. The effect size of the perceptions of the IT-induced work routine changes is 0.239 on user resistance. Therefore, a

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stronger impact of work routine perceptions could be observed for the researched e-recruiting system and the induced changes for the recruiting work routines.
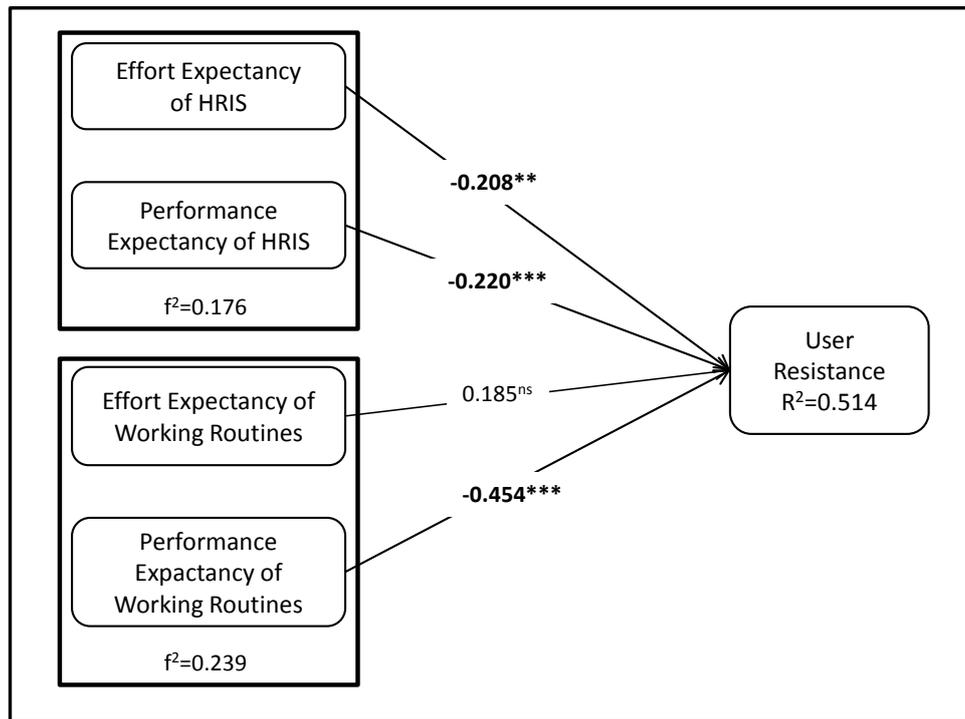
Figure 4: Structural Model Validation (* p<0.001, ** p<0.005, ns p>0.05)**

4.3 POST-HOC ANALYSIS

It appears that perceptions of the IT-induced work routines changes have a stronger impact on user resistance compared to perceptions of the underlying technology. In this section, we present some ad-hoc analysis to extend the understanding of the observed effect.

First, we evaluate the impact on the intention to use. For a PLS-analysis of the impact of the technology and work routine perceptions on the intention to use, the measurement model is valid, as it is for the resistance model. Table 4 shows the results of the structural model validation. All four path coefficients, from the independent variable to the dependent variable intention to use, are significant, and the R^2 is 0.556. The effect size of technology perceptions is 16.6 percent and is 4.7 percent for work routine changes; hence, the impact of technology perceptions is stronger for the intention to use than for perceptions of work routine changes. ´

Table 4: Structural Model validation for Intention to USe

IV	Path	F^2	R^2 (Intention)
EE (HRIS)	0.208**	0.166	
PE (HRIS)	0.128*		0.556
EE (WR)	0.137*	0.047	
PE (WR)	0.321***		

(*** p<0.001, ** p<0.005, * p<0.01)

4.4 COMMON METHOD BIAS

In line with Podsakoff and colleagues (Mackenzie et al., 2011, Podsakoff et al., 2003, Podsakoff and Organ, 1986), we incorporate the fact that individuals' social desirability in self-reported data such as scale length (Harrison et al., 1996) or ambiguous wording (Hufnagel and Conca, 1994) could imply common method biases (CMB). We conducted a statistical analysis to identify the extent of common method bias. We included an additional CMB factor into the PLS-model (Podsakoff et al., 2003, Williams et al., 2003) that contains every indicator of the origin model. The remaining origin factors are transformed into single-item constructs and we compare the ratio of R^2 as well as the path coefficient with the CMB factor to those without the CMB factor. The analysis results in a ratio of 68:1 for R^2 and 165:1 for the path coefficient. By comparing this with prior research investigating CMB (Liang et al., 2007), we find no sign of CMB influence.

Table 5: Common Method Bias

	R^2 CMB	R^2	dR^2	Path-1 (CMB)	Path-1^2		Path-2	Path-2^2	
EE-1	0.880	0.855	0.024	-0.429	0.184	***	1.32	1.75	***
EE-2	0.737	0.688	0.048	0.605	0.366	***	0.27	0.07	***
EE-3	0.914	0.913	0.001	-0.080	0.006	ns	1.03	1.06	***
EE-4	0.882	0.882	0.000	-0.037	0.001	ns	0.97	0.95	***
EE-WR-1	0.766	0.766	0.000	-0.006	0.000	ns	0.88	0.77	***
EE-WR-2	0.908	0.907	0.001	0.068	0.005	ns	0.89	0.80	***
EE-WR-3	0.919	0.919	0.001	-0.063	0.004	ns	1.01	1.03	***
PE WR-1	0.919	0.918	0.001	0.080	0.006	ns	1.02	1.03	***
PE-1	0.888	0.887	0.001	-0.081	0.007	ns	1.00	1.01	***
PE-2	0.750	0.746	0.004	-0.152	0.023	ns	0.91	0.83	***
PE-3	0.883	0.883	0.000	0.031	0.001	ns	0.73	0.53	***
PE-4	0.831	0.825	0.006	0.194	0.038	**	0.88	0.78	***
PE-WR-2	0.936	0.935	0.000	-0.065	0.004	ns	1.03	1.06	***
PE-WR-3	0.921	0.921	0.000	-0.014	0.000	ns	0.97	0.95	***
RES-1	0.645	0.645	0.000	-0.010	0.000	ns	0.80	0.63	***
RES-2	0.749	0.690	0.059	0.369	0.136	ns	1.11	1.23	***
RES-3	0.801	0.733	0.068	-0.396	0.157	***	0.56	0.31	***
RES-4	0.621	0.618	0.003	0.085	0.007	ns	0.85	0.72	***
MEAN	0.830	0.818	0.012	0.005	0.053		0.90	0.86	

4.5 LIMITATIONS

As with all empirical research, our results are limited by several issues. For example, the results represent only one example of one particular change in technology and work routine in one particular organization in one particular cultural setting. Therefore, the impact of an individual's evaluation of the embedding technology and the embedded process may differ in other departments such as marketing, finance, or accounting. Furthermore, there may be differences in other organizations with different organizational cultures. In addition, there may be country-specific characteristics that lead to different results for organizations based in different countries. The results may also differ in a setting where employees are free to decide whether they want to use the system or the new process.

The results are further limited by the timing of the study. We conducted the study during the implementation of the new system, when participating employees were aware of the new system and the work routine changes and when some were involved on different project teams, there had been training, and initial steps in working with the new system and new routines has been taken. Therefore, our results evaluate the impact of technology and work routine perceptions only at a relatively early stage of an IS implementation. Results may change over the system's lifecycle.

5   DISCUSSION AND IMPLICATIONS

Our research is based on recent IS (Klaus et al., 2010, Lapointe and Rivard, 2005), organizational science (Volkoff et al., 2007), and E-HRM (Lippert and Swiercz, 2005) research and observations of E-HRM implementation in organizations, and the results presented in this paper provide empirical evidence from one particular E-HRM implementation that resistance to E-HRM-induced organizational change projects is influenced more strongly by the perceptions of the embedded organizational element than the embedding technology. The HR personnel we observed indicate that their resistance towards the new e-recruiting system is driven more by effort and performance expectancy of the new recruiting work routines than by effort and performance expectancy of the new e-recruiting system, as illustrated by the f^2 in Table 5. However, for intention to use, the effect of the expectations of the new system is stronger than those for the work routines. The results have several implications for theory and practice.

First, the results provide empirical evidence for the observed phenomena that work routine changes induced by E-HRM are a resistance object that threatens individuals in organizations (Klaus et al., 2010). The objective of Klaus et al. (2010) was to identify major issues related to user resistance and categorize user resistance determinants. Based on a three-phase multi-method qualitative approach, they assumed that process issues are important user resistance determinants. Our approach allows us to validate empirically that the perceptions of work routine changes are a strong predictor of user resistance.

Second, the results respond to the Venkatesh (2006) call for research on individual acceptance of business processes or work. Venkatesh (2006) calls for research to identify relevant process-centric constructs that could predict adoption or resistance and thus help predict the success of new business processes or work routines. With our results, we are able to evaluate that effort and determine that performance expectancy of new work routines is a strong predictor of user resistance, even stronger than technology perceptions. From the point of view of (Venkatesh, 2006), these results can be explained by the freedom associated with the use of technologies compared to the adoption of a business process or work routines. Venkatesh (2006) states that *"unlike technologies, where it may indeed be possible for there to be freedom associated with their use, the same freedom may not be formally afforded to employees with regard to business processes"* (Venkatesh 2006, p. 502). Therefore, employees may perceive work routine changes as more threatening and develop a stronger intention to resist. This is in line with the assumption of Venkatesh (2006), who demands a rethinking of the dependent variables used in mandatory usage contexts, as technology-adoption research has examined intention to adopt technology and/or self-reported frequency, intensity, and duration of use of a technology (see (Venkatesh et al., 2003).

With respect to user resistance as proposed by Kim and Kankanhalli (2009), we are able to compare the different influences of work routine and technology perceptions, since the intention to resist is associated both with the embedding technology and the embedded organizational element. Future research might consider these effects in more detail by using positive-oriented

dependent variables such as change commitment (Cunningham, 2006) to illustrate the distinguished impact for these variables.

For intention to use, which according to Brown (2002) is not the most appropriate dependent variable for mandatory usage settings, our results indicate that technology perceptions are more important than those of work routines. On the negative side, we can evaluate that a distinction between work routine and technology perceptions reveals that process characteristics have a stronger impact than technology characteristics. Therefore, future research might extend our results by identifying and evaluating further determinants of IT-induced work routine or process change acceptance and its impact on both acceptance and resistance to IT-induced changes. Future research might also focus on conceptualizing relevant process characteristics that can influence employee acceptance and resistance to IT-induced change. One possible focus might be on an individual's acceptance of business process standardization as an example of process characteristics.

Third, our proposed model is a first step toward integrating organizational theory with technology acceptance or user resistance models. It employs the theoretical lens of technology embeddedness to discuss and evaluate different resistance objects. This research is in line with the call of Orlikowski and Barley (2001), who state that information system research must *"make much more use of more recent developments in organization theory"* (Orlikowski and Barley 2001, p. 153). Using one of these developments makes it possible to distinguish between process and technology perceptions as described in this paper. The technology embeddedness view provides the theoretical base for the *"understanding and isolating of change related to technology versus process characteristics"* called for by Venkatesh (2006 p.502). However, work routines are just one example of organizational elements as described by the technology embeddedness view of technology in organizations; hence, future research might evaluate different organizational elements that are embedded in a technology. Volkoff et al. (2007) provide several examples, including organizational structure, culture, or roles. Extending user resistance models using the technology embeddedness view might enable an extended discussion of further resistance determinants or resistance objects as, for example, identified by Klaus et al. (2010). With our research, we provide a first step in this direction; using the technology embeddedness view, we were able to evaluate the different impact of work routine and technology perceptions on user resistance.

Fourth, regarding the implementation and strategic impact of E-HRM, the results reveal that technology and work routine issues are major determinants of user resistance to E-HRM and hence hinder organizations from realizing their strategic E-HRM potential. Therefore, the approach reveals employee reactions and feelings related to E-HRM implementation and highlights that understanding work routine perceptions is an important complement to current work that investigates the strategic impact of E-HRM for organizations. User resistance resulting from technology and work routine perceptions are potential reasons that organizations are unable to realize the expected process performance and strategic benefits of investing in E-HRM. If the technology and the process are the basis for realizing the strategic potential, and HR employees resist these changes, organizations cannot achieve their desired objectives. In accord with the call of (Lippert and Swiercz, 2005) for a model of HRIS implementation success, our results indicate that such a model must include HR personnel perceptions of the HRIS and the corresponding HR work routines. This is in line with the challenges of E-HRM research identified by Bondarouk and Ruel (2009) with respect to investigating the perceptions of E-HRM by employees, especially when E-HRM involves not only a change in technology but also a restructuring of the HR function or HR processes. Our results indicate that perceptions of the restructuring of HR processes and work routines are particularly challenging as they are the major predictors of HR personnel resistance. If new processes or work routines are a precondition for realizing benefits such lower labor costs, accelerated transactions, improved efficiency, and better service to stakeholders, then the focus of HRIS implementation projects should be on processes

rather than technology to increase the acceptance and effectiveness of the HRIS. Organizations should make it possible for HR employees to obtain the knowledge and skills they need to interact with the technology and new work routines or processes and complete the corresponding individual tasks. Perceptions of the work routines drive user resistance, and they may hinder HR professionals from developing a service orientation and from participating more fully in strategic decision making (Haines and Petit, 1997). This is in line with the assumption that E-HRM could be evaluated negatively due to the shifting of previous tasks, as a consequence of which the HRIS implementation will be perceived as a step backwards (Panayotopoulou et al., 2007, Ruël et al., 2007). Therefore, the formalized processes induced by E-HRM are unable to raise the firm's productive capacity through coordination of ideas, as expected by Morris et al. (2009). The results are in line with (Parry and Wilson, 2009), who observe resistance from line managers due to new processes or routines that accompany a new e-recruiting system. As the development and implementation of the new recruiting process is perceived as difficult by the HR employees it affects, organizations might focus on these aspects during the implementation phase of E-HRM to gain commitment from HR employees and lessen their resistance to HRIS-induced changes.

Fifth, the results have several implications for other system implementation projects. Organizations might benefit by designing their change management strategy based on our results. Primarily, the results indicate the importance of designing change management activities to focus both on the embedding new technology and the embedded organizational element. Therefore, training activities during the implementation phase should target both technology and work routine or process issues. If organizations are able to communicate the necessity of a change in technology infrastructure and in the related work routines, the likelihood of achieving desired goals increase. Thus, organizations might implement platforms for managers and employees to discuss the changes and where arguments both pro and cons could be exchanged. It is important to take negative beliefs seriously if employees are to be convinced about the usefulness of a change.

The implication from this study is that it is unlikely that *"one size fits all."* There are two major drivers of user resistance, which are perceived differently by the HR employees we observed. Therefore, knowledge and awareness on the part of management about the various types of resistance objects as discussed in the research can lead to designing better change management strategies overall.

6 CONCLUSION

Following calls by IS and E-HRM researchers, the paper evaluates, based on the technology embeddedness view of technology-mediated change, that the perceptions of E-HRM-induced work routine changes by HR personnel are a major predictor of resistance to E-HRM, and an even stronger determinant than the perceptions of the technology itself. The results show that employee perceptions of E-HRM are pivotal to the system's effective usage.

7 REFERENCES

Bagozzi, R. P., 1979. The role of measurement in theory construction and hypothesis testing: Toward a holistic model. In: Ferell, O. C., Brown, S. W. & Lamb, C. W. (eds.) *Conceptual and theoretical developments in marketing.* Chicago, IL: American Marketing Association.

Beckers, A. M., Bsat, M. Z., 2008. A dss classification model for research in human resource information systems. *Information Systems Management.* 19:3**,** pp. 1–10.

Black, S. E., Lynch, L. M., 2005. Measuring organizational capital in the new economy. Institute for the Study of Labor (IZA).

Bondarouk, T., Ruël, H., 2009. Electronic human resource management: Challenges in the digital era. *International Journal of Human Resource*. 20:3, pp. 505–514.

Boudreau, M.-C., Robey, D., 2005. Enacting integrated information technology: A human agency perspective. *Organization Science*. 16:1, pp. 3-18.

Bovey, W. H., Hede, A., 2001. Resistance to organisational change: The role of defence mechanisms. *Journal of Managerial Psychology*. 16:7, pp. 534-548.

Campell, D. T., Fiske, D. W., 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*. 56:2, pp.81–105.

Carmines, E. G., Zeller, R. A., 2008. Reliability and validity assessment, Newbury Park, Calif., Sage Publ.

Chapman, D. S., Webster, J., 2003. The use of technologies in the recruiting, screening, and selection processes for job candidates. *International Journal of Selection and Assessment*. 11:2-3, pp. 113-120.

Chin, W. W. 1998a. Issues and opinion on structural equation modeling. *MIS Quarterly*. 22:1, p. VII

Chin, W. W., 1998b. The partial least squares approach to structural equation modeling. In: Marcoulides, G. A. (ed.) Modern Methods for Business Research B2 - Modern Methods for Business Research. Mahwah, NJ: Lawrence Erlbaum.

Compeau, D., Higgins, C. A., Huff, S., 1999. Social cognitive theory and individual reactions to computing technology: A longitudinal study. *MIS Quarterly*. 23:2, pp. 145-158.

Compeau, D. R., Higgins, C. A., 1995. Computer self-efficacy: Development of a measure and initial test. *MIS Quarterly*. 19:2, pp. 189-211.

Cunningham, G. B., 2006. The relationships among commitment to change,coping with change, and turnover intentions. *European Journal of Work & Organizational Psychology*. 15:1, pp. 29-45.

Davis, F. D., 1989. Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*. 13:3, pp. 319-340.

Davis, F. D., Bagozzi, R. P., Warshaw, P. R., 1989. User acceptance of computer technology: A comparison of two theoretical models. *Management Science*. 35:8, pp. 982-1003.

Davis, F. D., Bagozzi, R. P., Warshaw, P. R., 1992. Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of Applied Social Psychology*. 22:14, pp. 1111-1132.

Dery, K., Hall, R., Wailes, N., 2006. ERPs as 'technologies-in-practice': Social construction, materiality and the role of organisational factors. New Technology, Work and Employment. 21:3, pp. 229-241.

Dimaggio, P. J., Powell, W. W., 1983. The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*. 48:2, 147-160.

Dixon, D. R., 1999. The behavioral side of information technology. *International Journal of Medical Informatics*. 56:1-3, pp. 117-123.

Feldman, M. S., 2000. Organizational routines as a source of continuous change. *Organization Science*. 11:6, pp. 611-629.

Ferneley, E. H., Sobreperez, P., 2006. Resist, comply or workaround? An examination of different facets of user engagement with information systems. *European Journal of Information Systems*. 15:4, pp. 345-356.

Fornell, C. R., Larcker, D. F., 1981. Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*. 18, pp. 39-50

Grant, D., Marshak, R. J., 2011. Toward a discourse-centered understanding of organizational change. *Journal of Applied Behavioral Science*. 47:2, pp. 204-235.

Haines, V. Y., Petit, A., 1997. Conditions for successful human resource information systems. *Human Resource Management*. 36:2, pp. 261-275.

Hannon, J., Jelf, G., Brandes, D., 1996. Human resource information systems: Operational issues and strategic considerations in a global environment. *International Journal of Human Resource Management.* 7:1**,** pp. 245–269.

Harrison, D. A., Mclaughlin, M. E., Coalter, T. M., 1996. Context, cognition, and common method variance. *Organizational Behavior and Human Decision Processes.* 68:3**,** pp. 246–261.

Henseler, J., Ringle, C. M., Sinkovics, R. R., 2009. The use of partial least squares path modeling in international marketing. *Advances in International Marketing.* 20**,** pp. 277-319.

Hufnagel, E. M., Conca, C., 1994. User response data: The potential for errors and biases. *Information Systems Research.* 5:1**,** pp. 48-73.

Hulland, J., 1999. Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal.* 20, pp. 195-204

Huo, Y., Kearns, J., 1992. Optimizing the job-person match with computerized human resource information systems. *Personnel Review.* 21:2**,** pp**.** 3–18.

Karakanian, M., 2000. Are human resources departments ready for e-hr? *Information Systems Management.* 17:4**,** pp. 35–39.

Kim, H.-W., Kankanhalli, A., 2009. Investigating user resistance to information systems implementation: A status quo bias perspective. *MIS Quarterly.* 33:3**,** pp. 567-582.

Klaus, T., Blanton, J. E., 2010. User resistance determinants and the psychological contract in enterprise system implementations. *European Journal of Information Systems.* 19:6**,** pp. 625-636.

Klaus, T., Wingreen, S. C., Blanton, J. E., 2010. Resistant groups in enterprise system implementations: A q-methodology examination. *Journal of Information Technology.* 25:1**,** pp. 91-106.

Kossek, E. E., Young, W., Gash, D., Nichol, V., 1994. Waiting for innovation in the human resources department: Godot implements a human resource information system. *Human Resource Management.* 33:1**,** pp. 135–159.

Kraatz, M. S., Moore, J. H., 2002. Executive migration and institutional change. *The Academy of Management Journal.* 45:1**,** pp. 120-143.

Lapointe, L., Rivard, S., 2005. A multilevel model of resistance to information technology implementation. *MIS Quarterly.* 29:3**,** pp. 461-491.

Lee, I., 2007. An architecture for a next-generation holistic e-recruiting system. *Communications of the ACM.* 50:7**,** pp. 81-85.

Liang, H., Nilesh, S., Hu, Q., Xue, Y., 2007. Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. *MIS Quarterly.* 31:1**,** pp. 59-87.

Lippert, S. K., Swiercz, P., 2005. Human resource information systems (HRIS) and technology trust. *Journal of Information Science.* 31:3**,** pp. 340-353.

Lukaszewski, K. M., Stone, D. L., Stone-Romero, E. F., 2008. The effects of the ability to choose the type of human resources system on perceptions of invasion of privacy and system satisfaction. *Journal of Business and Psychology.* 23:3-4**,** pp. 73–86.

MacKenzie, S. B., Podsakoff, P. M., Podsakoff, N. P., 2011. Construct measurement and validation procedures in mis and behavioral research: Integrating new and existing techniques. *MIS Quarterly.* 35:2**,** pp. 293-295.

Markus, M. L., 2004. Technochange management: Using it to drive organizational change. *Journal of Information Technology.* 19:1**,** pp. 4-20.

Moore, G. C., Benbasat, I., 1991. Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research.* 2:2**,** pp. 192-222.

Morris, S. S., Wright, P. M., Trevor, J., Stiles, P., Stahl, G. K., Snell, S., Paauwe, J., Farndale, E., 2009. Global challenges to replicating HR: The role of people, processes, and systems. *Human Resource Management.* 48:6**,** pp. 973-995.

Ngai, E. W. T., Law, C. C. H., Chan, S. C. H., Wat, F. K. T., 2008. Importance of the internet to human resource practitioners in hong kong. *Personnel Review.* 37:1**,** pp. 66–84.

Ngai, E. W. T., Wat, F. K. T., 2006. Human resource information systems: A review and empirical analysis. *Personnel Review.* 35:3**,** pp. 297–314.

Nicholas, J., Kinnie, A., Arthurs, J., 1996. Personnel specialists' advanced use of information technology - evidence and explanations. *Personnel Review.* 25:**,** pp. 3–19.

Oreg, S., 2006. Personality, context, and resistance to organizational change. *European Journal of Work & Organizational Psychology.* 15:1**,** pp. 73-101.

Orlikowski, W. J., Barley, S. R., 2001. Technology and institutions: What can research on information technology and research on organizations learn from each other? *MIS Quarterly.* 25:2**,** pp. 145-165.

Panayotopoulou, L., Vakola, M., Galanaki, E., 2007. E-hr adoption and the role of hrm: Evidence from greece. *Personnel Review.* 36:2**,** pp. 277–294.

Pant, S., Chatterjee, A., 2008. E-hr systems implementation: A conceptual framework. *Proceedings of the 2008 American Conference on Information Systems*, Paper 338. http://aisel.aisnet.org/amcis2008/338

Parry, E., Tyson, S., 2008. An analysis of the use and success of online recruitment methods in the uk. *Human Resource Management Journal.* 18:3**,** pp.257-274.

Parry, E., Wilson, H., 2009. Factors influencing the adoption of online recruitment. *Personnel Review.* 38:6**,** pp.655-673.

Pentland, B. T., Feldman, M. S., 2007. Narrative networks: Patterns of technology and organization. *Organization Science.* 18:5**,** pp. 781-795.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., Podsakoff, N. P., 2003. Common method biases in behavioral research: A critical review and recommended remedies. *Journal of Applied Psychology.* 83:5**,** pp. 879–903.

Podsakoff, P. M., Organ, D., 1986. Self-reports in organizational research: Problems and prospects. *Journal of Management.* 12:4**,** pp. 531–544.

Rodger, J., Pendharkar, P., 1998. Reengineering the human resource information system at gamma. *Facilities*, 16:12/13, pp.361 - 365

Ruël, H., Bondarouk, T., Van Der Velde, M., 2007. The contribution of e-hrm to hrm effectiveness: Results from a quantitative study in a dutch ministry. *Employee Relations.* 29:3**,** pp. 280–291.

Singh, P., Finn, D., 2003. The effects of information technology on recruitment. *Journal of Labor Research.* 24:4**,** pp. 395-408.

Suprateek, S., Sarker, S., Sidorova, A. 2006. Understanding Business Process Change Failure: An Actor-Network Perspective. *Journal of Management Information Systems.* 23: 1, pp. 51-86

Stone, D. L., Lukaszewski, K. M., 2009. An expanded model of the factors affecting the acceptance and effectiveness of e-hrm systems. *Human Resource Management Review.* 19:2**,** pp. 134-143.

Stone, D. L., Sonte-Romero, E. F., Lukaszewski, K., 2006. Factors affecting the acceptance and effectiveness of electronic human resource systems. *Human Resource Management Review.* 16:2**,** 229–244.

Tansley, C., Newell, S., Williams, H., 2001. Effecting hrm-style practices through an integrated human resource information system: An e-greenfield site? *Personnel Review.* 30:3**,** pp. 351-371.

Thompson, R. L., Higgins, C. A., 1991. Personal computing: Toward a conceptual model of utilization. *MIS Quarterly.* 15:1**,** pp. 125-143.

Venkatesh, V., 2006. Where to go from here? Thoughts on future directions for research on individual-level technology adoption with a focus on decision making. *Decision Sciences.* 37:7**,** pp. 497-518.

Venkatesh, V., Davis, F., Morris, M. G., 2007. Dead or alive? The development, trajectory and future of technology adoption research. *Journal of the Association for Information Systems.* 8**,** Article 10.

Venkatesh, V., Davis, F. D., 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science.* 46:2**,** pp. 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., Davis, F. D., 2003. User acceptance of information technology: Toward a unified view. *MIS Quarterly.* 27:3**,** pp. 425-478.

Volkoff, O., Strong, D. M., Elmes, M. B., 2007. Technological embeddedness and organizational change. *Organization Science.* 18:5**,** pp. 832-848.

Wiblen, S., Grant, D., Dery, K., 2010. Transitioning to a new hris: The reshaping of human resources and information technology talent. *Journal of Electronic Commerce Research.* 11:4**,** pp. 251-267.

Williams, L. J., Edwards, J. R., Vandenberg, R. J., 2003. Recent advances in causal modeling methods for organizational and management research. *Journal of Management.* 29:3**,** pp. 903–936.

Williams, M. D., Dwivedi, Y. K., Lal, B., Schwarz, A., 2009. Contemporary trends and issues in it adoption and diffusion research. *Journal of Information Technology.* 24.1**,** pp. 1-10.

Zahid, H., James, W., Nelarine, E. C., 2007. The use and impact of human resource information systems on human resource management professionals. *Information and Management.* 44:1**,** pp. 74–89.

Paper IX

WHO INFLUENCES WHOM?

ANALYZING WORKPLACE REFERENT'S SOCIAL INFLUENCE ON IT ADOPTION AND NON-ADOPTION

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THE IMPLEMENTATION OF LARGE-SCALE INFORMATION SYSTEMS IN SMALL AND MEDIUM-SIZED ENTERPRISES

A CASE STUDY OF WORK-AND HEALTH-RELATED CONSEQUENCES

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Paper XI

DO HRIS DRIVE AWAY EMPLOYEES?

AN EMPIRICAL ANALYSIS OF WORK-RELATED CONSEQUENCES OF INFORMATION SYSTEMS IMPLEMENTATIONS

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DO HRIS DRIVE AWAY EMPLOYEES?

AN EMPIRICAL ANALYSIS OF WORK-RELATED CONSEQUENCES OF INFORMATION SYSTEMS IMPLEMENTATIONS

ABSTRACT

The research presented in this article posits that the implementation of an HR Information System (HRIS) impacts employees' job satisfaction and turnover intention. We theoretically develop and empirically evaluate a model that unifies the technology evaluation part of TAM with work-related consequences in terms of job satisfaction and turnover intention. An in-depth case (of a global firm introducing an e-recruiting system) shows how implementing HRIS can cause a negative technology evaluation and negative attitudes toward the new system leading to job dissatisfaction and a higher willingness to turnover. Several implications for both technology adoption and HRIS research are discussed.

Keywords

HRIS; technology evaluation; job satisfaction; turnover intention; e-recruiting system; mandatory IT usage

1 MOTIVATION

Electronic human resources management (E-HRM) allows human resource (HR) personnel to become a strategic player in an organization (Hussain et al. 2007, Kavanagh and Thite 2009). Human resources information systems (HRIS) automate routine HR tasks (Bondarouk et al. 2009, Lee 2007, Strohmeier 2007, 2009, Tansley et al. 2001) and provide HR personnel the time they need for strategic tasks (Lawler and Mohrman 2003) as recruiting, retaining, and developing staff (Luftman and Kempaiah 2008) or the creation of real time reports and metrics. These tasks embrace not only employee-related topics like employees' skills or performance management but also more long-term organizational issues like personnel planning as part of an organization's strategic decision making (Jamrog and Miles 2004, Lawler et al. 2004). However, most of the organizations using HRIS neglect its strategic potential and use it only for automating routinized tasks (Ngai and Wat 2006). But implementing HRIS can disrupt a workplace and have consequences beyond having to cope with new technologies. The implementation of HRIS for both automation and strategic objectives hence often involves unscheduled reactions of employees or other groups of stakeholders as they complain about, resist, or workaround using HRIS (Boudreau and Robey 2005, Dery et al. 2006, Ferneley and Sobreperez 2006). These behaviors are driven by the increasing pressure to support strategic objectives and include changes in both, job content and expectations of HR personnel (Ball 2001). For example, Wiblen

et al. (2010) analyze the reshaping of HR talent during the transitioning to a new HRIS. They point out that the skills and job profiles of HR professionals have changed according to new ways of working enabled by HRIS. One of these major changes in HR employees' work has been the contemporary need to support HR processes through HRIS (Hagood and Friedman 2002). One example of an HR process which has been changed dramatically in the last years and has been identified as enabler of the strategic impact of HRM is the recruiting process (Parry and Tyson 2008, Weitzel et al. 2009). The Internet has "*revolutionized the way that people look for work*" and brought "*radical change to corporate recruiting*" and the strategic significance of recruitment is often reported in the literature (Parry and Tyson 2008). The majority of e-recruiting research focuses on applicants and the organization using e-recruiting. But only a few approaches investigate the HR employee working with the HRIS at the individual level (Parry and Tyson 2008). As a consequence, Elkins and Philips (2000) point out that "*to understand the full impact of an organization's staffing processes, it is important to take into account the perceptions of people who are subjected to them*" and Bondarouk and Ruël (2009) call for research that goes beyond the organization's border to address the needs of all stakeholders and to focus on specific stakeholder groups in HRIS research studies. Thus, this research focuses on consequences of HRIS implementations for the HR employees using the system and hence its role in effective e-HRM.

A large part of IS research, technology adoption research has focused on when individual accept IS and put forward several research approaches (e.g., Taylor and Todd 1995, Venkatesh and Bala 2008, Venkatesh et al. 2003) since the introduction of the technology acceptance model (Davis 1989, Davis et al. 1989). A major tenet is that an employee's attitude is a key influencing factor for predicting one's behavior. At the same time, technology adoption research distinguishes between voluntary and mandatory systems use as different factors influence behavior in these two settings (Venkatesh et al. 2003). For mandatory usage environments, like the implementation of HRIS where individuals have to use a technology, recent research indicates that an employee's attitude is not necessarily linked with one's behavioral intention and social influence is the strongest predictor of an employee's behavior (Brown et al. 2002). As a consequence, Brown et al. (2002) ask "*if an employee's attitude is not related to his/her intention to use technology, what does it influence?*" (p. 293) and Venkatesh et al. (2007) state that "*the investigation of outcomes in technology adoption research is very limited*" (p. 277). In this context of the on-going debate in IS research regarding the 'right' dependent variable (e.g. DeLone and McLean 2003), Venkatesh et al. (2007) compare the main milestones of technology adoption and job satisfaction research and point out that the major areas of progress in job satisfaction research illustrate "*potential gaps that technology adoption researchers should seriously consider as part of their thinking on how to meaningfully extend technology adoption research*" (Venkatesh et al. 2007, p. 278). In addition, Brown et al. (2002) highlight that "*more research is needed to incorporate various attitude-behavior response modes that may provide richer characterization of mandatory environments*" (p. 291) and hypothesis that "*attitudes can have a significant influence on an individual's perception of the work environment and organization*" (Brown et al. 2002, p. 291). Therefore, they call for research on the relationship between attitudes toward a newly implemented IS, job satisfaction and turnover intention by stating that "*one possibility is to examine the intention to turn over as a result of the system implementation*". (Brown et al. 2002, p. 293) In addition, Morris and Venkatesh (2010) highlight the importance for future research to analyze the influences of "*technology characteristics … on … job characteristics and/or job outcomes*" (Morris and Venkatesh 2010) and Straub and Burton-Jones (2007) motivate to "*break[ing] up the 'black box'*" understanding of the influence of an individual's attitude on different outcomes variables in order to justify the high investments in modern IS in general (e.g. Galliers 2004, 2007) and HRIS in particular (e.g. Tafti et al. 2007).

In line with prior research on HRIS and technology adoption research and by following the described discussions and calls for future research, the objective of this article is to investigate how the implementation of an HRIS and its mandated usage influence work-related outcomes as job satisfaction and turnover intention of HR personnel. The hypothesized relationships can be

discussed both from a positive and negative side. On the one side, a positive evaluation of an HRIS might lead to increased job satisfaction and decreased turnover intention which is a welcomed consequence of implementing HRIS. However, on the other side an employee's negative evaluation of the new HRIS might decrease job satisfaction (Hackman and Oldham 1975, Umstat et al. 1976) and increase turnover and consequently does not exploit the full strategic potential of HRIS. This is a possible pitfall for organizations and their e-HRM capability.

In order to investigate these relationships and to follow the calls of IS and HRIS research, the remainder of this article is organized as follows. First, we provide a compact overview of relevant literature on technology adoption research, job consequences, and turnover intention. Based on this, we derive six hypotheses. After discussing research design and the used measures, we then present the results of the research model. Finally, the results are discussed by deriving implications for theory and practice as well as further research directions.

2 RESEARCH MODEL DEVELOPMENT

In order to take into account the perceptions of employees who are subjected to the recruiting process and to focus on the specific stakeholder group of HR personnel a research model will be theoretically developed capturing the evaluation of an HRIS and potential work-related consequences. The research model draws on the technology evaluation part of the technology acceptance model (e.g., Davis 1989, Davis et al. 1989) and also incorporates theoretical insights on work-related consequences of an IT-induced organizational change (e.g., Amiot et al. 2006, Begley and Czajka 1993, Cunningham 2006, Holt et al. 2007, Judge et al. 1999, Oreg 2006, Oreg et al. 2011, Rafferty and Griffin 2006, Schweiger and DeNisi 1991, Spreitzer and Mishra 2002, Wanberg and Banas 2000). The resulting research model (Figure 1) hence consists of two technology-related beliefs – namely perceived usefulness and ease of use –, an individual's attitude toward the new information system, job satisfaction, and turnover intention as elaborated below.
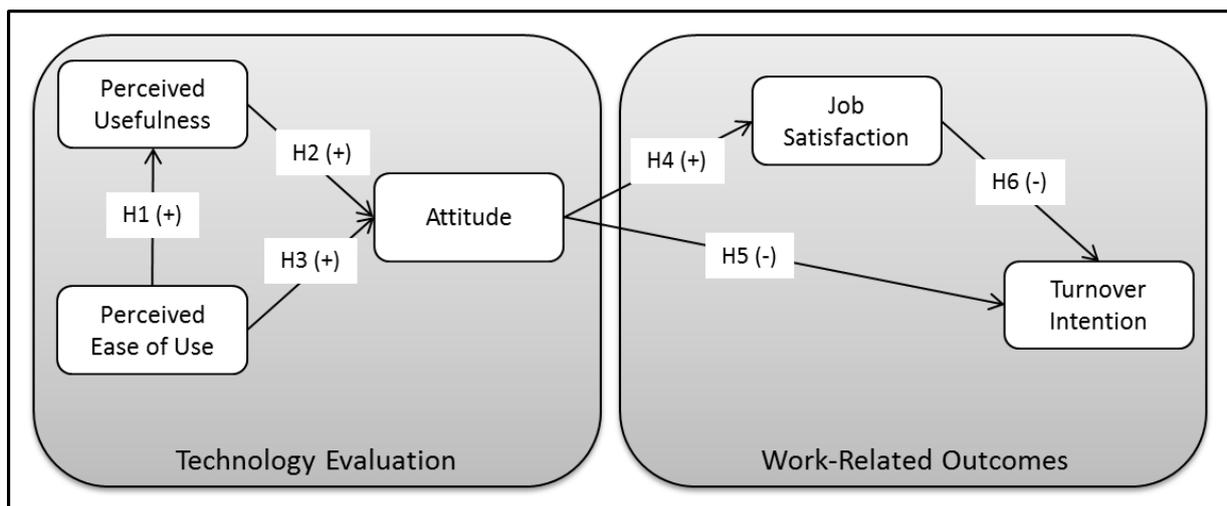

Figure 1: Research Model of HRIS Impact on HR Personnels' Job Satisfaction and Turnover Intentions

In the next section, the hypotheses of this model are developed with a focus on the human resource context in order to examine the question whether an implemented HRIS influences HR personnel job satisfaction and turnover intention.

2.1 HRIS EVALUATION

As an organization introduces an HRIS, each employee who works with this system evaluates the new technology. The evaluation of the HRIS is influenced by an individual's perception of its usefulness and ease of use. The perceived usefulness is defined as "*the degree to which a person believes that using a particular system would enhance his or her job performance*" (Davis 1989) and the perceived ease of use reflects "*the degree to which a person believes that using a particular system would be free from effort*" (Davis 1989). The evaluation of these two perceptions results in an employee's evaluation of the entire HRIS, which is reflected in one's attitude.

For HRIS employees', skills to operate the new system represent a crucial success factor (Panayotopoulou et al. 2007). Nonetheless, a high number of employees' do not have the skills to manage an HRIS appropriately (Huo and Kearns 1992) or the knowledge to use the system (Lukaszewski et al. 2008). The lack of employees' skills to operate an HRIS (Ngai and Wat 2006), which is particularly marked for HR personnel (Hannon et al. 1996, Kossek et al. 1994) requires training measures (Panayotopoulou et al. 2007) to ensure the success of HRIS (Hannon et al. 1996) and to convey practical work with the system (Rodger and Pendharkar 1998). This depicts an employee's difficulty to use an HRIS as HR staff frequently does not know how to use the system in an efficient and an appropriate manner. The use of HRIS is particularly critical as it contains sensitive information of staff and applicants like personal data, prior employer, work performance, or even medical data and results of an applicant's assessment center (Karakanian 2000, Ngai et al. 2008). Here, the organization has to guarantee a trustful dealing with these data (Ruël and Bondarouk 2004), for which Lukaszewski et al. (2008) point out several arrangements and recommend to limit the long-term storage of critical personal data, such a deletion of information about employees and applicants might be necessary, if HR personnel are not able to operate the information system in a trustful manner. However, this limits its usefulness as database containing information on staff and applicants could improve the instant access to data by employee, superior, and management. Besides, individuals' do not recognize the benefits of new information systems to a great degree, which could be lead back to the non-existing knowledge how to operate the whole HRIS. Referring to different organizational departments HR employees are the particular group hardest to convince of the usefulness of HRIS (Ruël and Bondarouk 2004), though they will benefit most. Summing up, as the whole functionality of an HRIS can only be realized when employees have the skills and knowledge to operate the information system to its full extent, we assume:

H1: The higher an individual's perceived ease of use of an implemented HRIS the higher the perceived usefulness.

An individual develops an attitude toward the HRIS based upon her evaluation of its perceived usefulness and ease of use (Taylor and Todd 1995). If an employee considers the implementation of the HRIS as useful and the system as easy to use, the HRIS is perceived as positive and vice versa. HR personnel thus balance the implementation experiences against certain demands. First, employees expect efficiency improvements. Here, the efficiency of human resources processes should be increased (Beckers and Bsat 2008, Bondarouk and Ruël 2009, Lukaszewski et al. 2008, Stone and Lukaszewski 2009) as well as the services of the HR department (Ruël et al. 2007). Thus, the HRIS assists the work of HR personnel by automatizing and optimizing organizational processes (Ngai et al. 2008, Pant and Chatterjee 2008) and facilitates the storage and processing of data (Stone et al. 2006), as for example during recruitment processes. Moreover, the usage of HRIS improves the information availability across several hierarchical levels (Kossek et al. 1994, Tansley et al. 2001) and assists an organization's management in a wide variety of decisions (Hussain et al. 2007). In particular, the communication behavior within a company could be improved with the implementation of HRIS (Marler 2009), so that HR personnel who work at different locations could collaborate in a more efficiency

manner (Tafti et al. 2007). A second useful characteristic of HRIS is the fact that the HR department and thus the organization saves time (Nicholas et al. 1996, Panayotopoulou et al. 2007), for example within the recruitment process when vacancies are filled faster. Third, HR employees evaluate an HRIS positive as the implementation and its usage increases their own standing and opens additional career paths within the organization (Bondarouk and Ruël 2009, Hussain et al. 2007, Lawler and Mohrman 2003, Maris 1994). In contrast, a new HRIS could also be evaluated in a negative manner due to changing tasks and new workflows and responsibilities (Panayotopoulou et al. 2007, Ruël et al. 2007). As argued above, in addition to these challenges employees only evaluate an HRIS positive if they have adequate skills and knowledge (e.g. Hannon et al. 1996) to use it in an easy manner. This, however, is not always the case (Lukaszewski et al. 2008). As a consequence, additional effort through training courses is inevitable. For example, Beckers and Bsat (2008) identify a negative stance of employees toward an HRIS with low ease of use. Consequently, two hypothesizes are derived for our research model based on TAM:

H2: The higher an individual's perceived ease of use of an implemented HRIS the higher the attitude toward using the system.

H3: The higher an individual's perceived usefulness of an implemented HRIS the higher the attitude toward using the system.

2.2 WORK-RELATED OUTCOMES

The implementation and usage of new systems like an HRIS often changes an employee's perspective on her job or firm (e.g. Oreg et al. 2011). This is reflected by the two variables job satisfaction and turnover intention. These are important and well-studied variables in a work-related context for comprehending employees' behavior and reactions after changes (Hom et al. 1992, Joseph et al. 2007, Lacity et al. 2008, Oreg 2006). For example, the commitment to change model suggests employees' commitment to and coping with change as contributing factors of turnover intentions within mandated settings after implementing a new information system (Cunningham 2006). For studying individual work-related outcomes of an HRIS implementation a people-oriented perspective is proposed (Bondarouk and Ruël 2009, Elkins and Philips 2000). From this perspective, investigating several work-related outcomes, as job performance, on the basis of an employee's attitude toward change is also possible (Judge et al. 1999). The same holds for job satisfaction and turnover intention, which vary depending on the degree of an employee's acceptance of change (Wanberg and Banas 2000). Thus, the implementation of an HRIS could involve a wide variety of employees' reactions (Oreg et al. 2011) influencing work-related outcomes (Oreg 2006): "*one potential outcome of organizational change efforts is employee turnover*" (Cunningham 2006) and job satisfaction (e.g., Amiot et al. 2006, Holt et al. 2007, Judge et al. 1999, Logan and Ganster 2007, Oreg 2006, Rafferty and Griffin 2006, Schweiger and DeNisi 1991, Wanberg and Banas 2000, Zalesny and Farace 1987).

Job satisfaction has been investigated in more than 12,400 studies in management science, managerial psychology or applied psychology among others over the last two decades and captures "*the sum of the evaluations of the discrete elements of which the job is composed*" (Locke 1969). This reflects an employee's degree of enjoyment as well as the fulfillment to work for the employer (Hoppock 1935, Spector et al. 2000). This satisfaction is especially marked after an individual has signed the employment contract (Vandenberghe et al. 2011) but is assumed to diminish over time, especially whether changes as the implementation of an HRIS arise (Igbaria et al. 1994, Morris and Venkatesh 2010, Thatcher et al. 2002). The cause of this are different perceived job attitudes (Ang and Slaughter 2001) and characteristics (Morris and Venkatesh 2010), which induce stress (Dahl 2011, Ragu-Nathan et al. 2008) and influence work-related outcomes as job

satisfaction (Beehr et al. 2000, Guimaraes and Igbaria 1992, Rafferty and Griffin 2006, Vandenberghe et al. 2011).

Not only changes in general influence an employee's job satisfaction (e.g., Amiot et al. 2006, Rafferty and Griffin 2006), but also the implementation of an HRIS in particular is a contributing factor of satisfaction at work due to a variety of reasons. For example, a poor communication of the reasons of the change could give employees the impression that the HRIS is implemented to reduce costs instead of facilitating employees' work (Stone and Lukaszewski 2009). In line with Ferratt et al. (2005), employees prefer an organization as employer which supports human capital instead of an employer which is mainly task- and profit-oriented. Employees' satisfaction continuous to decrease further as the HRIS is difficult to use (Beckers and Bsat 2008). This may also include a declining work motivation which in turn could affect job satisfaction in a negative manner (Fried and Ferris 1987, Ilgen and Hollenbeck 1991, Singh 1998). In addition to that HRIS induces employees' necessity to change their working habits and to adjust oneself to the new workflow (Wiblen et al. 2010). The learning of new routines dealing with the HRIS means a high amount of work (Cavanaugh et al. 2000, van der Velde and Feij 1995) and additional work stress. This is one reason why HR employees might resist using an HRIS (Ngai et al. 2008) as reengineered work routines and business processes are seldom seen in a positive smooth light by employees (Bhattacherjee and Hikmet 2007, Huo and Kearns 1992, Willcocks and Smith 1995). Furthermore, these reasons might also lead to a lower job satisfaction (Burke 2001, Konradt et al. 2003).

Due to reasons as stress and changed job tasks as consequences of the introduction of a new HRIS for an individual's job satisfaction, we hypothesize:

H4: The higher an individual's attitude toward using an implemented HRIS the higher the job satisfaction.

An employee's intention to quit is an important variable for understanding one's turnover behavior besides job satisfaction (Hom et al. 1992). Turnover intention reflects an employee's deliberate and conscious willingness to quit the job and leave the organization (Tett and Meyer 1993). In this process, researchers identify job satisfaction as major contributing factor (Lacity et al. 2008). Within several meta-analyses, researchers reveal a negative relation between job satisfaction and turnover intention (Griffeth et al. 2000, Joseph et al. 2007, Tett and Meyer 1993). In particular within their first months of employment, employees are satisfied with their job (Vandenberghe et al. 2011) and do not give much thought to quitting (Saks and Ashforth 2000). However, these changes over time as strain and stress occur (Podsakoff et al. 2007). In line with prior (Fisher and Gitelson 1983, Jackson and Schuler 1985) and more recent (Griffeth et al. 2000, Hom et al. 1992) meta-analyses, stressors at work are contributing factors for retention-related dimensions as employees' satisfaction with work as well as one's intention to quit. As the implementation of an HRIS could be perceived as an event of stress by employees (Weiss and Cropanzano 1996), it causes them to reconsider their situation at work (Rodell and Judge 2009, Vandenberghe et al. 2011), which in a first step is reflected in employees' job satisfaction and in a second step influences one's turnover intention (e.g., Podsakoff et al. 2007, Schaubroeck et al. 1989).

In general, a high number of recent research approaches investigate how attitude and satisfaction at work as well as turnover intention are related in changes (e.g., Amiot et al. 2006, Bordia et al. 2004, Cunningham 2006, Holt et al. 2007, Korsgaard et al. 2002, Lam and Schaubroeck 2000, Rafferty and Griffin 2006). But changes in HR departments often include a negative connotation (e.g., Lukaszewski et al. 2008, Marler 2009, Ngai and Wat 2006, Nicholas et al. 1996, Ruël et al. 2007) for instance by quitting staff (Bondarouk et al. 2009, Panayotopoulou et al. 2007). This causes rumors and disturbances within the organization and could lead employees', especially those who have a worse attitude toward the HRIS and are not satisfied within their

work, to intent to quit. This is in line with the commitment to change model, a micro- and people-oriented view toward organizational changes as the implementation of HRIS which states that a HR-personnel's coping with change and his/her commitment to change predicts one's intention to turnover during an HRIS-implementation (Cunningham 2006).

The effect of rising employees' turnover intention is strengthened as they perceive an increasing strain to acquire new skills (e.g., Hannon et al. 1996, Lukaszewski et al. 2008, Panayotopoulou et al. 2007) for fulfilling demands as cost reduction (e.g., Bondarouk et al. 2009, Marler 2009, Marler et al. 2009, Nicholas et al. 1996, Ruël et al. 2007), exploiting process improvements (e.g., Kossek et al. 1994, Tansley et al. 2001), and realizing time savings (e.g. Strohmeier 2007) in order to recruit well-qualified personnel in less time. Here, Ferratt et al. (2005) suggest that such a task-focused orientation of an HRIS which solely tries to increase an employee's short-time performance produces higher turnover rates than configurations focusing on the employee. The changed understanding of one's role after implementing HRIS (Nicholas et al. 1996, Wiblen et al. 2010) drops also back to the new system and is reflected within employees attitude and lead them to be unsatisfied or even quit their job. In particular, the strategic alignment of the HR department is changed after the introduction of HRIS. Organizations expect HR employees to carry out more strategic instead of administrative work (e.g., Ball 2001, Beckers and Bsat 2008, Bondarouk et al. 2009, Marler 2009, Ngai and Wat 2006, Ruël et al. 2007, Strohmeier 2009). Logical, the HR department represents – after implementing the information system – a strategic business partner (Roepke et al. 2000) by adding value and competitive advantages through matching practices known from HR to the business, producing an environment full of innovativeness and creativity (Brockbank 1999), supporting the management with strategic data (Kossek et al. 1994), as well as recruiting and retaining employees (Panayotopoulou et al. 2007).

As employees perceive IT-induced changing roles (Orlikowski 2000, Volkoff et al. 2007), status quos (Lewin 1947), and information systems (Bhattacherjee and Hikmet 2007, Kim and Kankanhalli 2009) as HRIS (Beckers and Bsat 2008, Stone and Lukaszewski 2009) differently, we hypothesize:

H5: The higher an individual's job satisfaction the lower the turnover intention.

H6: The higher an individual's attitude toward using an implemented HRIS the lower the turnover intention.

3 EMPIRICAL EVIDENCE

3.1 RESEARCH METHODOLOGY

To evaluate the proposed research model, we accompany one of the world's leading automotive suppliers throughout the implementation of an e-recruiting system. The organization has between 50,000 and 100,000 employees in over 100 different locations and generates revenues in the amount of multiple billions every year. The company decides to implement a new e-recruiting system within the two countries with the largest number of applications per year. In these two countries the organization receives annually about 120,000 applications. The system is designed to integrate the recruiting activities at five different plants with 150 HR managers who have access to the new e-recruiting system.

The project starts at the beginning of 2008 as the global operating company intends to replace the legacy system and to optimize and standardize the company-specific recruiting process. The main objective was to implement e-recruiting and to enhance the IT-support in the

recruiting process to manage the tasks faster and to improve the perception at the job market. The company initiated the project in December 2009. The system was implemented afterwards and went live in July 2010. The architecture of the new e-recruiting system is similar to the proposed holistic architecture for e-recruiting systems (Lee 2007). The new system is a single enterprise wide recruiting system used by every stakeholder of the recruiting process. The system is browser-based and uses a central database. With the new HRIS a new recruiting process was designed which consists of several steps and is completely embedded with the new e-recruiting system.

In order to gather employees' opinion regarding the implemented e-recruiting system, we surveyed 150 HR employees by undertaking an empirical study in 2010. The affected HR employees were surveyed concerning their beliefs and attitude about the HRIS like usefulness or ease of use as well as their attitude and intended behavior within their job. The latter attitude is captured by asking employees regarding their job satisfaction, whereby the intended behavior is reflected by their turnover intention. The survey was online for two weeks and we received 106 returned questionnaires, which corresponds to a response rate of 70.6 per cent. The entire survey was conducted in an anonymous manner and did not allow individuals to be identified. In order to decrease the probability of social desirability, the data of job satisfaction and turnover intention were not given to managers of the company. The demographic data of our data sample is portrayed in Table 1.

Table 1. Demographics[23]

Attribute	Manifestation	Value
Gender	male	23.6%
	female	62.3%
Age	older 45	16.0%
	36 to 45	25.5%
	25 to 35	23.6%
	under 25	11.3%
Tenure	less than 5 years	23.6%
	5 to 10 years	22.6%
	11 to 15 years	13.2%
	more than 15 years	12.3%

3.1.1   Measures

Perceptual beliefs   In order to capture an employee's beliefs about the ease of use and usefulness of the implemented HRIS, we make use of the measurement items introduced by Davis (Davis 1989, Davis et al. 1989) and specified by Taylor and Todd (1995). Due to the HR domain, we modify the scales to fit the context. Both perceptual beliefs are measured with a global single-item question: *"Overall, I would find the new e-Recruiting system useful in my job"* and *"Overall, I would find the new e-Recruiting system easy to use"*. Employees of the organization could give their consent based on a 7-Likert scale anchored by 1 (strongly disagree) and 7 (strongly agree). In addition to these global items, we use three more detailed questions for perceived usefulness as well as perceived ease of use.

Attitude   An employee's attitude toward using an HRIS is measured based on Taylor and Todd (1995). Here, we use a 7-Likert scale, whereby 7 reflects that an individual strongly agrees with the statement and 1 reflects an individual's strong disagreement.

Job satisfaction   Three questions are used to describe an employee's satisfaction at work. With the help of a 7-Likert scale, anchored by 1 (strongly disagree) and 7 (strongly agree), and an

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[23] The depicted results represent participants' actual answers. Participants who did not indicate their gender, age and tenure are not visualized within the table.

employee's evaluation of the overall job we reflect one's job situation. This scale bases on Bartol (1983), Thatcher et al. (2002) as well as Lee et al. (1999).

Turnover intention The dependent variable within the presented research model is turnover intention. This variable reflects an employee's intention to quit the job in a voluntary manner. Thus, it is different to involuntary turnover, planned staff reduction, or reduction in force (e.g. McElroy et al. 2001). Consequently, we base the measurement items of turnover intention on prior research articles (Hom and Katerberg 1979, Igbaria and Greenhaus 1991, Lee et al. 1999, Thatcher et al. 2002) as they focus voluntary turnover intention. Finally, we make use of a 7-Likert scale, whereby 1 reflects an individual's strong disagreement with the statement and 7 a strong agreement. The three items of turnover intention consists of a behavioral dimension like *"I intend to quit my job"* as well as cognitive thoughts about leaving the organization as *"I think about leaving my actual employer"* as well as *"I think often about quitting my job at my current employer"* and are in line with previous studies on turnover intention.

The whole survey instrument can be seen in Table 2.

Table 2: Measurement Items

Item#	Item	Reference
PU-1	Overall, I would find the new e-Recruiting system useful in my job.	Davis et al. 1989
PU-2	Using the new e-Recruiting system enables me to accomplish tasks more quickly.	
PU-3	Using the new e-Recruiting system increases my productivity.	
PU-4	If I use the new e-Recruiting system, I will increase my chances of getting a raise.	
PEOU-1	My interaction with the new e-Recruiting system would be clear and understandable.	Davis et al. 1989
PEOU-2	It would be easy for me to become skillful at using new e-Recruiting system	
PEOU-3	Overall, I would find the new e-Recruiting system easy to use	
PEOU-4	Learning to operate the new e-Recruiting system is easy for me.	
ATT-1	Using the new e-Recruiting system is a good idea.	Taylor and Todd 1995
ATT-2	Using the new e-Recruiting system is a wise idea.	
ATT-3	Using the new e-Recruiting system is pleasant.	
JS-1	Overall, I am satisfied with my job.	Thatcher et al. 2002
JS-2	I am satisfied with the way I work at the moment.	
JS-3	I am satisfied with the important aspects of my job.	
TI-1	I think often about quitting my job at my current employer.	Thatcher et al. 2002
TI-2	I intend to quit my actual job.	
TI-3	I think about leaving my actual employer.	

3.2 RESEARCH RESULTS

The presented measurements are used to empirically evaluate the research model. For validating the hypotheses we transfer the research model into a structural equation model (Chin 1998a). We use the partial least squares method and SmartPLS (Ringle et al. 2005), as this is suitable for small data samples (Chin and Newsted 2000). However, before presenting the results of the study we analyzed the data if it is affected by common method bias.

3.2.1 Common Method Bias

In line with Podsakoff and colleagues (Podsakoff and Organ 1986, Podsakoff et al. 2003), we consider the fact that individuals' social desirability in self-reported data, like the conducted survey here and scale length (Harrison et al. 1996) or ambiguous wording (Hufnagel and Conca 1994) could imply common method bias (CMB). In order to identify the extent of common

method bias, we perform a statistical analysis. In a first step, we include an additional CMB factor into the PLS-model (Podsakoff et al. 2003, Williams et al. 2003) that contains every indicator of the origin model. The remaining origin factors are transformed into single-item constructs. In a next step, we compare the ratio of R^2 and path coefficients with CMB factor to AVE without CMB factor. As the method factor explains a delta of R^2 of 0.009 and the R^2 without this factor is 0.838 we receive a ratio of 1:95. Furthermore, we compare the path coefficients from the CMB factor and the original construct and reveal a ratio of 1:371 for path coefficients and 1:32 for squared path coefficients (see Table 3) By comparing this with prior research investigating CMB, we could state that we cannot observe signs of CMB influence (Liang et al. 2007).

Table 3: Common Method Bias

	R^2 (CMB)	R^2	delta R^2	Path CMB		Path²	Path		Path²
ATT-1	0.906	0.905	0.000	0.033		0.001	0.923	***	0.852
ATT-2	0.897	0.893	0.003	-0.106	*	0.011	1.035	***	1.072
ATT-3	0.882	0.881	0.001	0.072		0.005	0.878	***	0.770
JS-1	0.781	0.775	0.006	0.022		0.000	0.811	***	0.658
JS-2	0.866	0.860	0.005	0.098		0.010	0.861	***	0.741
JS-3	0.649	0.613	0.036	-0.258	**	0.067	0.959	***	0.919
PEOU-1	0.850	0.846	0.004	-0.049		0.002	1.052	***	1.107
PEOU-2	0.755	0.732	0.023	0.339	***	0.115	0.553	***	0.305
PEOU-3	0.914	0.908	0.006	-0.169	**	0.029	1.104	***	1.219
PEOU-4	0.883	0.883	0.000	-0.010		0.000	0.948	***	0.899
PU-1	0.870	0.865	0.005	-0.033		0.001	1.044	***	1.089
PU-2	0.762	0.735	0.026	-0.310	**	0.096	1.122	***	1.259
PU-3	0.882	0.880	0.002	0.083		0.007	0.867	***	0.752
PU-4	0.823	0.793	0.030	0.331	***	0.110	0.608	***	0.370
TI-1	0.805	0.805	0.000	-0.018		0.000	0.888	***	0.788
TI-2	0.944	0.944	0.000	-0.010		0.000	0.966	***	0.934
Ti-3	0.935	0.934	0.000	0.026		0.001	0.980	***	0.961
MEAN	0.847	0.838	0.009	0.002		0.027	0.918		0.864

3.2.2 Measurement Model

As both, perceptual beliefs and attitude of TAM as well as the two work-related outcomes are measured by reflective indicators, content validity, indicator reliability, construct reliability, and discriminant validity need to be observed in order to validate the measurement model (Bagozzi 1979).

3.2.2.1 Content validity

As argued above the used items have proven to be robust in prior research approaches and are thus suitable measurement items. We just adapted the items to fit the HR context where necessary. To ensure the content validity the items have been discussed with the project management of the implementation project observed and a pre-test has been conducted with five HR employees of the organization.

3.2.2.2 Indicator reliability

The indicator reliability indicates the rate of the variance of an indicator that comes from the latent variables. In order to explain at least 50 per cent of the variance of a latent variable by the indicators, each value has to be 0.707 or more (Carmines and Zeller 2008). As shown in table 4,

this condition is fulfilled. In addition to that have all loadings a significance level of at least 0.001 and are highly significant. This is tested by performing bootstrap method with 5,000 samples (Henseler et al. 2009).

3.2.2.3 *Construct reliability*

For determining the quality at the construct level, we use the concepts composite reliability (CR) and average variance extracted (AVE) (Fornell and Larcker 1981). Here, CR should be higher than 0.7 and AVE higher than 0.5. As seen in Table 4, both criteria are fulfilled within the presented research model.

3.2.2.4 *Discriminant validity*

Discriminant validity describes the extent to which measurement items differ from one another (Campell and Fiske 1959). Therefore, the square root of AVE is contained within table 4 on the diagonal of latent variable correlation. As these square root values are greater than the corresponding construct correlations (Fornell and Larcker 1981, Hulland 1999), it can be stated that this requirement is fulfilled and the measurement model is valid.

Table 4: Measurement Model Validation

Item	Loading	AVE	CR	PU	PEOU	ATT	JS	TI
PU-1	0.928							
PU-2	0.847	0.818	0.947	0.904				
PU-3	0.941							
PU-4	0.899							
PEOU-1	0.912							
PEOU-2	0.869	0.841	0.955	0.760	0.917			
PEOU-3	0.951							
PEOU-4	0.935							
ATT-1	0.952							
ATT-2	0.944	0.893	0.962	0.742	0.669	0.945		
ATT-3	0.940							
JS-1	0.911							
JS-2	0.937	0.740	0.894	0.346	0.535	0.471	0.860	
JS-3	0.716							
TI-1	0.968							
TI-2	0.893	0.894	0.962	-0.201	-0.305	-0.308	-0.694	0.946
TI-3	0.973							

On the diagonal the square root of the AVE. Loadings are significant on p<0.001 level.

3.2.3 Structural model

For evaluating the structural model, the coefficient of determination (R^2) and significance levels of each path coefficient are used (Chin 1998b). Figure 2 indicates that the perceptual beliefs and attitude of TAM explain 22 per cent of the variance of an employee's job satisfaction. In addition to that explain the two attitudes – toward IT as well as job – about 48 per cent of the variance of turnover intention. Besides, the R^2 of perceived usefulness and attitude are both 58

per cent (Figure 2). Concerning the path coefficients, we could state that solely one hypothesized paths is not significant. This non-significant path within the research model is the relation between attitude and turnover intention.
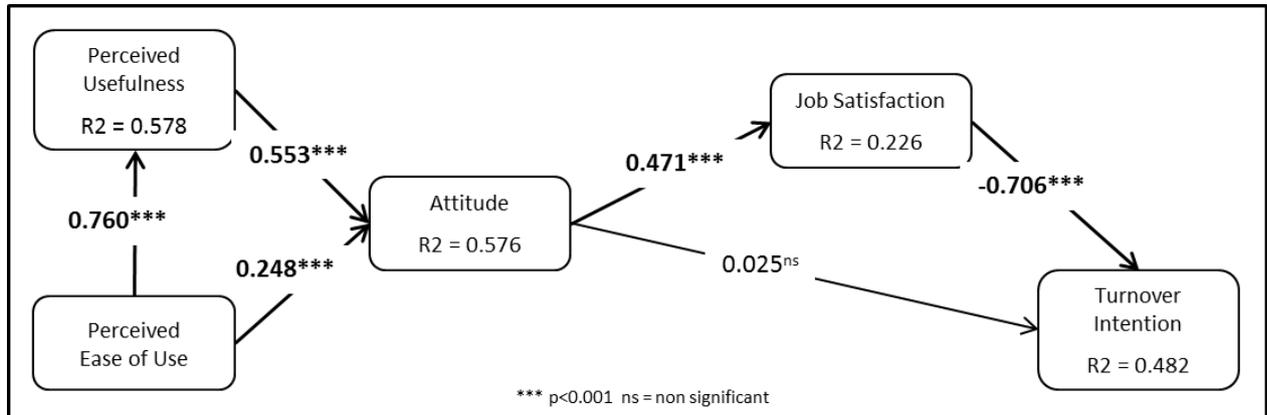

Figure 2: Structural model validation

3.2.4   Mediation Effect

In order to test if an employee's job satisfaction mediates the relationship between attitude toward HRIS and turnover intention, we use the three step approach proposed by Baron and Kenny (1986), the Sobel test (Sobel 1982), and a bootstrapping method (Preacher and Hayes 2004), as is customary in IS research (e.g., Flynn and Schaumberg in press, McKnight et al. 2009, Mithas et al. 2011).

Baron and Kenny (1986) suggest that a mediating effect is present if three conditions are fulfilled. First, the independent variable has to predict the mediator. Second, the independent variable must also be a predictor of the dependent variable. Third, when integrating the mediator into the relationship between independent and dependent variable, the predictive power must decrease. Transferred into our model, attitude toward the HRIS has a positive significant impact on the mediator job satisfaction ($\beta = 0.455$; $p < 0.001$) as well as a negative significant influence on the dependent variable turnover intention ($\beta = 0.294$; $p < 0.001$). By integrating job satisfaction to the relationship between attitude and turnover intention, the significant effect of attitude on an employee's turnover intention ($\beta = 0.025$; $p > 0.3$) diminishes, whereas the influence of job satisfaction on turnover intention ($\beta = -0.706$; $p < 0.001$) becomes significant. This means, that job satisfaction mediates the influence of attitude on turnover intention full.

In addition, we use the Sobel test (Sobel 1982) as it represents a rigorous, conservative as well as a confirmatory method to test mediation (Baron and Kenny 1986, MacKinnon et al. 1995). The result ($z = -4.19$; $p < 0.001$) indicate that an indirect effect exists within our model.

Finally, we perform a bootstrapping method as proposed by Preacher and Hayes (2004) as well as Shrout and Bolger (2002). Here, the indirect effect of attitude toward HRIS on turnover intention through an employee's job satisfaction is .15, and the associated 95%-bias-corrected confidence interval is between -0.149 and -0.735 (1,000 number of bootstrap resamples). Due to the fact that zero is not within this bias-corrected interval, the bootstrapping method supports our hypothesis that an indirect mediating effect exists.

3.2.5 Limitations

The generalizability of the presented results is limited, as the empirical data stem from one firm and the introduction of an e-recruiting system in a one organization with exclusively HR employees from one country. Therefore, system and national particularities need to be analyzed in future research. In particular, employees with other cultural backgrounds in companies in other countries could process the mandatory HRIS usage in a different manner. Also, the empirical data are collected at one point in time. A longitudinal study that traces the turnover intention of employees over tine will yield important additional insights. Moreover, in this research, turnover intention – rather than actual turnover – is used as a dependent variable because turnover itself is closely related to general economic conditions, which are hard to control for (Sherman 1986). Hence, the results do not enable a discussion of actual turnover behaviors of HR personnel during the implementation of HRIS, it only provides empirical evidence for a discussion of turnover intentions and the related job satisfaction of employees.

4 DISCUSSION AND FUTURE RESEARCH

Following calls of HRIS and IS adoption research the objective of the presented approach is to investigate the influence of an individual's evaluation of an HRIS on work-related consequences such as job satisfaction and turnover intention. The empirical study conducted during the implementation of an e-recruiting system reveals that the HRIS influences an HR employee's attitude which has a direct effect on employee job satisfaction and an indirect effect on turnover intention. These results have several implications for both HRIS and technology adoption research, which will be discussed in the following.

Regarding HRIS research, Bondarouk and Ruël (2009) call for investigating a specific stakeholder group of HRIS, namely HR personnel. Focusing on this group, our results support the assumption by Elkins et al. (2000) that it is important to consider HR personnel's perceptions during the implementation of an HRIS. The analysis reveals that the HRIS implementation not only impacts business processes, HR architecture, competitive advantages, or balance sheets (e.g., Lee 2007, Strohmeier 2007, 2009), as intended, but also has an influence on HR employee job satisfaction. This is particularly remarkable in the light of the high number of organizational initiatives and strategies which fail, as organizations do not succeed in addressing employees' needs (Cartwright and Cooper 2004). However, designing work environments which address employees' needs is the precondition that employees work in a satisfied manner within their job and do not intend quitting their job and when employees do not resist, complain, or work around using the implemented system, organizations are able to exploit the full strategic potential of HRIS (Baptista et al. 2010, Boudreau and Robey 2005, Ferneley and Sobreperez 2006). In this context, organizations pursue the aim of automating routine tasks so that HR staff can focus on strategic tasks enhancing organizational performance as recruiting, retaining, and developing personnel (e.g., Lawler and Mohrman 2003, Luftman and Kempaiah 2008), or supporting the management with real time reports or metrics (Jamrog and Miles 2004, Lawler et al. 2004). In order to get all functions of the HRIS system used by the HR staff, the organization has to convince employees to accept the system and the new way of working. For this purpose, organizations have several possibilities, which are proposed by prior research articles. The HRIS implementation should be initiated in a strategic manner. This includes that employees should be informed about the upcoming change at an early stage, should be motivated to use it, or should have the possibility to participate in training courses or meetings to reduce fear and stress. The reduction of an employee's fear toward the new HRIS through training is important as a lot of employees do not have the skills to work with this system (Panayotopoulou et al. 2007). Such courses have the important side effect that they allay employees stress or fear for changes caused

through the tendency to prefer the status quo (Lewin 1947, Oreg 2003). In line with Ragu-Nathan et al. (2008), techno-stress could be pointed out as a cause for an employee's dissatisfaction with the job, as the evaluation of the discussed model shows that an adverse evaluation of an HRIS has the same effect and let employees even think about quitting their job. This link can be explained by the model of turnover (Holtom et al. 2005, 2008). The model suggests that employees, who experience the intervention in one's daily work as a threatening event or in the worst case as shock, have a higher willingness to turnover. Moreover, as for example training courses are not planned appropriately and employees are not capable of operating the HRIS, they could perceive this as one's individual failure (Henkel and Hinsz 2004). The daily confrontation with failure depicts a stressful situation that decreases the job satisfaction and will be remembered in the long run. The pitfall for organizations is that negative occurrences are more dominant in the long run than positive ones as for example the simplification of one's daily work after the HRIS implementation (Ito et al. 1998) and consequently, this depicts a major reason for an employee's intend to quit one's job after changing job characteristics (Morris and Venkatesh 2010).

Another option to reduce turnover after an HRIS implementation and convince employees to support the change is already possible during the selection process of new staff. Therefore, the management defines an organization's strategy and adjusts information system, human resource, and business strategies to the corporate-wide strategy (Butler 1988, Earl 1989, Galliers 1993, 2004). Based on this decision, organizations pursuing an innovative strategy (e.g. Chen et al. 2010) should select and recruit forward-thinking employees (e.g. Oreg 2003), as these feel more comfortable in an "*innovative IT climate*" (Watts and Henderson 2006) and would be more open in accepting a new HRIS, as an employee's interests are related to one's job satisfaction and turnover intention (Holland 1973, 1997, van Iddekinge et al. in press). This action is also qualified to reduce employees' initial fear toward the HRIS (Li et al. 2008) as they view changes as an ongoing process (Grant and Marshak 2011). It also ensures that employees are satisfied whereby this, in turn, entails a higher willingness to work longer and harder for the organization (Judge et al. 2001).

Summing up, if HR, business, and IT department work hand in hand in order to create work environments that satisfies HR personnel while using HRIS (Tarafdar and Gordon 2007), IS investments could achieve and sustain a competitive advantage (Sambamurthy et al. 2003, Wheeler 2002). Thus, HRIS could be used to support strategic tasks (Hussain et al. 2007, Kavanagh and Thite 2009). Next to the automation of routine processes, HRIS facilitates to support the management with data to take important strategic decisions (e.g., Jamrog and Miles 2004, Kossek et al. 1994, Lawler et al. 2004).

Additionally, our results provide important contributions for technology adoption research. First, we could answer Brown et al.'s (2002) question, regarding factors which are influenced by an individual's attitude in mandatory settings. We provide evidence that an employee's attitude influences job satisfaction in mandated situations. Since employees have no choice to use another IS, the bad evaluation of the technology becomes noticeable by a lower job satisfaction and the desire to quit the job. We also verify their statement, that "*attitudes can have a significant influence on an individual's perception of work environment and organization*" (Brown et al. 2002). In more detail, we show that technology-related attitude has an influence on both, the perception of and satisfaction with one's situation in the work environment and the perception of individual consequences as the own future within the organization in terms of turnover intention.

Second, we go in line with Venkatesh et al. (2007) by integrating job satisfaction and turnover intention and thus two important organizational variables into technology adoption research. This enables us to consider other dependent variables than just focusing on intention to use, as supposed by several researchers (e.g. DeLone and McLean 2003). The importance of this fact is

stated recently by Morris and Venkatesh (2010), as they suggest job outcomes and its relation to technology characteristics as an important research field. Moreover, we break up the black box (Straub and Burton-Jones 2007) of the technology-focused attitude-behavior relation of the technology acceptance model, by integrating an additional technology-independent attitude – job satisfaction – and a technology-independent behavior – turnover intention – into the model. Thus, we can conclude that the evaluation of a technology has next to a verified influence on technology-related attitudes (Davis et al. 1989) and behaviors (Davis 1989) also an impact on technology-independent attitude as job satisfaction and technology-independent behavior as turnover.

Third, we could verify that attitude toward the HRIS has an indirect effect on turnover intention, mediated by job satisfaction. This means that it is of high importance for organizations to satisfy the needs of HR personnel. Here, the described measures of the organization, as meeting, rewards, or the reduction of stress or the initial fear of the HRIS is an important issue, because employees do not quit their job as a direct consequence of the new information system. It is rather the decreasing job satisfaction that results from the HRIS and in turn causes an employee's intention to quit. Summing up, organizations could evade high turnover rates after implementing a new HRIS when its personnel are satisfied within the job.

Based on these insights, future research could address several relevant issues. First, researchers could analyze to what impact the proposed organizational measures as meetings, rewards, or the reduction of stress and fear through training courses increase job satisfaction and consequently facilitate the retention of employees despite the implementation of an HRIS. Additionally, it remains the question whether each employee reacts to the change to the same extent or if there are predispositions as neuroticism, extraversion, personal innovativeness, or dispositional resistance, which are responsible for the technology evaluation of an HRIS or the different extent of influence on job satisfaction and turnover after implementing an HRIS (e.g., Agarwal and Prasad 1998, Devaraj et al. 2008, Junglas et al. 2008, Lu et al. 2005, Oreg 2003). Furthermore, in organizational change research turnover is categorized as one possible resistance behavior of employees during organizational change initiatives. Based on our results that the evaluation of a new information system is influencing work-related outcomes future research might incorporate turnover as a dependent variable in user resistance models and controlling for the impact of new information system on actual turnover behavior of employees.

5 CONCLUSION

We could show that the implementation of an HRIS has a profound influence on the employees at the individual level that shows in job satisfaction and turnover intention. Ignoring such effects can make goals such as process improvements unreachable when employees don't use the new system. Our empirical analysis in a globally active automotive supplier reveals that a change of the IS in the HR departments entails a decreasing job satisfaction for HR staff, which leads in the long run to high turnover rates. Due to frequently changing personnel, the organizations could run into problems that the strategic potential of HRIS is not exploited. The same problem arises through the low job satisfaction, as this could involve disadvantageous behavior of employees as resistance, compliance, or workaround.

For technology adoption research, we demonstrate that in mandatory usage settings an employee's attitude and technology evaluation has an important influence on job satisfaction and turnover intention.

6 REFERENCES

Agarwal, R., and Prasad, J. 1998. A Conceptual and Operational Definition of Personal Innovativeness in the Domain of Information Technology. *Information Systems Research* (9:2), pp. 204–215.

Amiot, C., Terry, D., Jimmieson, N., and Callan, V. 2006. A longitudinal investigation of coping processes during a merger: Implications for job satisfaction and organizational identification. *Journal of Management* (32), pp. 552–574.

Ang, S., and Slaughter, S. A. 2001. Work Outcomes and Job Design for Contract Versus Permanent Information Systems Professionals on Software Development Teams. *MIS Quarterly* (25:3), pp. 321–350.

Bagozzi, R. P. 1979. The Role of Measurement in Theory Construction and Hypothesis Testing: Toward a Holistic Model, in Conceptual and theoretical developments in marketing, O. C. Ferrell, S. W. Brown, and C. W. Lamb (eds.), Chicago, Ill.: American Marketing Assoc., pp. 15–32.

Ball, K. 2001. The use of human resource management systems: A survey. *Personnel Review* (30:6), pp. 677–693.

Baptista, J., Newell, S. M., Currie, W. (2010). Paradoxical Effects of Institutionalisation on the Strategic Awareness of Technology in Organisations. *Journal of Strategic Information Systems*, (19:3), pp. 171-183

Baron, R. M., and Kenny, D. A. 1986. The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* (51:6), pp. 1173–1182.

Bartol, K. 1983. Turnover among Dp Personnel: A casual analysis. *Communications of the ACM* (26:10), pp. 807–811.

Beckers, A. M., and Bsat, M. Z. 2008. A DSS Classification Model for Research in Human Resource Information Systems. *Information Systems Management* (19:3), pp. 1–10.

Beehr, T. A., Jex, S. M., Stacy, B. A., and Murray, M. A. 2000. Work stressors and co-worker support as predictors of individual strain and job performance. *Journal of Organizational Behavior* (21:4), pp. 391–405.

Begley, T., and Czajka, J. 1993. Panel analysis of the moderating effects of commitment on job satisfaction, intent to quit, and health following organizational change. *Journal of Applied Psychology* (78), pp. 552–556.

Bhattacherjee, A., and Hikmet, N. 2007. Physicians' resistance toward healthcare information technology: A theoretical model an empirical test. *European Journal of Information Systems* (16:6), pp. 725–737.

Bondarouk, T., Ruël, H., and van der Heijden, B. 2009. e-HRM effectiveness in a public sector organization: A multi-stakeholder perspective. *International Journal of Human Resource Management* (20:3), pp. 578–590.

Bondarouk, T., and Ruël, H. 2009. Electronic Human Resource Management: Challenges in the digital era. *International Journal of Human Resource* (20:3), pp. 505–514.

Bordia, P., Hunt, E., Paulsen, N., Tourish, D., and DiFonzo, N. 2004. Uncertainty during organizational change: Is it all about control? *European Journal of Work and Organizational Psychology* (13), pp. 345–365.

Boudreau, M.-C., and Robey, D. 2005. Enacting Integrated Information Technology: A Human Agency Perspective. *Organization Science* (16:1), pp. 3–18.

Brockbank, W. 1999. If HR were really strategically proactive: Present and future directions in HR's contribution to competitive advantage. *Human Resource Management* (38:4), pp. 337–352.

Brown, S. A., Massey, A. P., Montoya-Weiss, M. M., and Burkman, J. R. 2002. Do I really have to? User acceptance of mandated technology. *European Journal of Information Systems* (11), pp. 283–295.

Burke, R. J. 2001. Workaholism Components, Job Satisfaction, and Career Progress. *Journal of Applied Social Psychology* (31:11), pp. 2339–2357.

Butler, P. 1988. Successful Partnerships: HR and Strategic Planning at Eight Top Firms. *Organizational Dynamics* (17:2), pp. 27–43.

Campell, D. T., and Fiske, D. W. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin* (56:2), pp. 81–105.

Carmines, E. G., and Zeller, R. A. 2008. Reliability and validity assessment, Newbury Park, Calif.: Sage Publ.

Cartwright, S., and Cooper, C. L. 2004. Managing mergers, acquisitions and strategic alliances: Integrating people and cultures, Oxford: Butterworth Heinemann.

Cavanaugh, M., Boswell, W., Roehling, M. V., and Boudreau, J. 2000. An Empirical Examination of Self-Reported Work Stress among U.S. Managers. *Journal of Applied Psychology* (85:1), pp. 65–74.

Chen, D. Q., Mocker, M., and Preston, D. S. 2010. Information systems strategy: Reconceptualization, measurement and implications. *MIS Quarterly* (34:2), pp. 233–259.

Chin, W. W. 1998a. Issues and Opinion on Structural Equation Modeling. *MIS Quarterly* (22:1).

Chin, W. W. 1998b. The Partial Least Squares Approach to Structural Equation Modeling, in Modern methods for business research, G. A. Marcoulides (ed.), Mahwah N.J. u.a.: Erlbaum, pp. 295–336.

Chin, W. W., and Newsted, P. R. 2000. Structural Equation Modeling analysis with Small Samples Using Partial Least Squares, in Statistical strategies for small sample research, R. H. Hoyle (ed.), Thousand Oaks, Calif.: Sage Publ., pp. 307–341.

Cunningham, G. 2006. The relationships among commitment to change, coping with change, and turnover intentions. *European Journal of Work and Organizational Psychology* (15:1), pp. 29–45.

Dahl, M. S. 2011. Organizational Change and Employee Stress. *Management Science* (57:2), pp. 240–256.

Davis, F. D. 1989. Perceived Usefulness, Perceived Ease of Use and User Acceptance of Information Technology. *MIS Quarterly* (13:3), pp. 319–340.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. 1989. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science* (35:8), pp. 982–1003.

DeLone, W. H., and McLean, E. R. 2003. The DeLone and McLean Model of Information Systems Success: A Ten-Year Update. *Journal of Management Information Systems* (19:4), pp. 9–30.

Dery, K., Hall, R., and Wailes, N. 2006. ERPs as 'Technologies-in-Practice': Social Construction, Materiality and the role of Organisational Factors. New Technology, Work and Employment (21:3), pp. 229–241.

Devaraj, S., Easley, R. F., and Crant, J. M. 2008. How Does Personality Matter? Relating the Five-Factor Model to Technology Acceptance and Use. *Information Systems Research* (19:1), pp. 93–105.

Earl, M. J. 1989. Management strategies for information technology, New York: Prentice Hall.

Elkins, T. J., and Philips, J. S. 2000. Job Context, Selection Decision Outcome, and the Perceived Fairness of Selection Tests: Biodata as an Illustrative Case. *Journal of Applied Psychology* (85:3), pp. 479–484.

Ferneley, E. H., and Sobreperez, P. 2006. Resist, comply or workaround? An examination of different facets of user engagement with information systems. *European Journal of Information Systems* (15:4), pp. 345–356.

Ferratt, T. W., Agarwal, R., Brown, C. V., and Moore, J. E. 2005. IT Human Resource Management Configurations and IT Turnover: Theoretical Synthesis and Empirical Analysis. *Information Systems Research* (16:3), pp. 237–255.

Fisher, C. D., and Gitelson, R. 1983. A meta-analysis of the correlates of role conflict and ambiguity. *Journal of Applied Psychology* (68), pp. 320–333.

Flynn, F. J., and Schaumberg, R. L. in press. When Feeling Bad Leads to Feeling Good: Guilt-Proneness and Affective Organizational Commitment. *Journal of Applied Psychology* .

Fornell, C., and Larcker, D. F. 1981. Evaluating Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research* (18:1), pp. 39–50.

Fried, Y., and Ferris, G. R. 1987. The Validity of the Job Characteristics Model: A Review and Meta-analysis. *Personnel Psychology* (40:2), pp. 287–322.

Grant D. and Marshak R.J. 2011. Toward a Discourse-Centered Understanding of Organizational Change. *Journal of Applied Behavioral Science* (47:2), pp. 204-235.

Galliers, R. D. 1993. IT Strategies: Beyond Competitive Advantage. *Journal of Strategic Information Systems* (2:4), pp. 283–291.

Galliers, R. D. 2004. Reflections on Information Systems Strategizing, in The social study of information and communication technology: Innovation, actors and contexts, Oxford, New York: Oxford University Press, pp. 231–262.

Galliers, R. D. 2007. On Confronting some of the Common Myths of Information Systems Strategy Discourse, in The Oxford handbook of information and communication technologies, Oxford, New York: Oxford University Press.

Griffeth, R. W., Hom, P. W., and Gaertner, S. 2000. A meta-analysis of antecedents and correlates of employee turnover: Update, moderator tests, and research implications for the next millennium. *Journal of Management* (26), pp. 463–488.

Guimaraes, T., and Igbaria, M. 1992. Determinants of Turnover Intentions: Comparing IC and IS Personnel. *Information Systems Research* (3:3), pp. 273–303.

Hackman, J., and Oldham, G. 1975. Development of the Job Diagnostic Survey. *Journal of Applied Psychology* (60:2), pp. 159–170.

Hagood, W. O., and Friedman, L. 2002. Using the Balanced Scorecard to Measure the Performance of Your HR Information System. *Public Personnel Management* (31:4), pp. 543–557.

Hannon, J., Jelf, G., and Brandes, D. 1996. Human resource information systems: operational issues and strategic considerations in a global environment. *International Journal of Human Resource Management* (7:1), pp. 245–269.

Harrison, D., McLaughlin, M., and Coalter, T. 1996. Context, cognition, and common method variance. *Organizational Behavior and Human Decision Processes* (68:3), pp. 246–261.

Henkel, J. M., and Hinsz, V. B. 2004. Success and failure in goal attainment as a mood induction procedure. *Social Behavior and Personality* (32:8), pp. 715–722.

Henseler, J., Ringle, C. M., and Sinkovics Rudolf R. 2009. The use of partial least squares path modeling in international marketing. *Advances in International Marketing* (20), pp. 277–319.

Holland, J. L. 1973. Making vocational choices: A theory of careers, Englewood Cliffs, N.J.: Prentice-Hall.

Holland, J. L. 1997. Making vocational choices: Theory of vocational personalities and work environments, Odessa: Psychological assessment resources.

Holt, D., Armenakis, A., Feild, H., and Harris, S. 2007. Readiness for organizational change: The systematic development of a scale. *Journal of Applied Behavioral Science* (43), pp. 232–255.

Holtom, B. C., Mitchell, T. R., Lee, T. W., and Eberly, M. B. 2008. Turnover and retention research: A glance at the past, a closer review of the present, and a venture into the future. *Academy of Management Annals* (2), pp. 231–274.

Holtom, B. C., Mitchell, T. R., Lee, T. W., and Inderrieden, E. J. 2005. Shocks as causes of turnover: What they are and how organizations can manage them. *Human Resource Management* (44), pp. 337–352.

Hom, P. W., Caranikas-Walker, F., Prussia, G. E., and Griffeth, R. W. 1992. A Meta-Analytical Structural Equations Analysis of a Model of Employee Turnover. *Journal of Applied Psychology* (77:6), pp. 890–909.

Hom, P. W., and Katerberg, R. H. C. 1979. Comparative examination of three approaches to the prediction of turnover. *Journal of Applied Psychology* (64:3), pp. 280–290.

Hoppock, R. 1935. Job Satisfaction, New York: Harper.

Hufnagel, E. M., and Conca, C. 1994. User response data: The potential for errors and biases. *Information Systems Research* (5:1), pp. 48–73.

Hulland, J. S. 1999. Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal* (20:2), pp. 195–204.

Huo, Y., and Kearns, J. 1992. Optimizing the job-person match with computerized human resource information systems. *Personnel Review* (21:2), pp. 3–18.

Hussain, Z., Wallace, J., and Cornelius, N. C. 2007. The use and impact of human resource information systems on human resource management professionals. *Information & Management* (44:1), pp. 74–89.

Igbaria, M., Parasuraman, S., and Badawy, M. 1994. Work Experiences, Job Involvement, and Quality of Work Life among Information Systems Professionals. *MIS Quarterly* (18:2), pp. 175–201.

Igbaria, M., and Greenhaus, J. 1991. Determinants of MIS Employees' Turnover Intentions: A Structural Equation Model. *Communications of the ACM*, pp. 34–49.

Ilgen, D., and Hollenbeck, J. 1991. The Structure of Work: Job Design and Roles, in Handbook of industrial and organizational psychology, M. D. Dunnette (ed.), Palo Alto, CA: Consulting Psychologists Press, pp. 165–207.

Ito, T. A., Larsen, J. T., Smith, N. K., and Cacioppo, J. T. 1998. Negative information weighs more heavily on the brain: The negativity bias in evaluative categorizations. *Journal of Personality and Social Psychology* (75:4), pp. 887–900.

Jackson, S., and Schuler, R. 1985. A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational Behavior and Human Decision Processes* (36), pp. 16–78.

Jamrog, J., and Miles, H. 2004. Building a Strategic HR function: Continuing the Evolution. *Human Resource Planning* (27:1), pp. 51–63.

Joseph, D., Kok-Yee, N., Koh, C., and Soon, A. 2007. Turnover of Information Technology Professionals: A Narrative Review, Meta-Analytic Structural Equation Modeling, and Model Development. *MIS Quarterly* (31:3), pp. 547–577.

Judge, T. A., Thoresen, C. J., Pucik, V., and Welbourne, T. M. 1999. Managerial coping with organizational change: A Dispositional Perspective. *Journal of Applied Psychology* (84:1), pp. 107–122.

Judge, T. A., Thoresen, C. J., Bono, J. E., and Patton, G. K. 2001. The job satisfaction-job performance relationship: A qualitative and quantitative review. *Psychological Bulletin* (127:3), pp. 376–407.

Junglas, I. A., Johnson, N., and Spitzmüller, C. 2008. Personality traits and concern for privacy: an empirical study in the context of location-based services. *European Journal of Information Systems* (17), pp. 387–402.

Karakanian, M. 2000. Are human resources departments ready for e-HR? *Information Systems Management* (17:4), pp. 35–39.

Kavanagh, M. J., and Thite, M. 2009. The Future of HRIS: Emerging Trends in HRM and IT, in Human resource information systems: Basics, applications, and future directions, Los Angeles: Sage, pp. 409–418.

Kim, H.-W., and Kankanhalli, A. 2009. Investigating User Resistance to Information Systems Implementation: A Status Quo Bias Perspective. *MIS Quarterly* (33:3), pp. 567–582.

Konradt, U., Hertel, G., and Schmook, R. 2003. Quality of Management by Objectives, Task-Related Stressors and Non- Task-Related Stressors as Predictors of Stress and Job Satisfaction among Teleworkers. *European Journal of Work and Organizational Psychology* (12:1), pp. 61–80.

Korsgaard, M., Sapienza, H. J., and Schweiger, D. 2002. Beaten before begun: The role of procedural justice in planning change. *Journal of Management* (28), pp. 497–516.

Kossek, E. E., Young, W., Gash, D., and Nichol, V. 1994. Waiting for Innovation in the Human Resources Department: Godot Implements a Human Resource Information System. *Human Resource Management* (33:1), pp. 135–159.

Lacity, M., Iyer, V., and Rudramuniyaiah 2008. Turnover Intentions of Indian IS Professionals. *Information Systems Frontiers* (10:2), pp. 225–241.

Lam, S. S. K., and Schaubroeck, J. 2000. A field experiment testing frontline opinion leaders as change agents. *Journal of Applied Psychology* (85), pp. 987–995.

Lawler, E. E., and Mohrman, S. A. 2003. HR as a strategic partner: what does it take to make it happen? *Human Resource Planning* (26:3), pp. 15–29.

Lawler, E. E., Levenson, A., and Boudreau, J. 2004. HR Metrics and Analytics: Use and Impact. *Human Resource Planning* (27:4), pp. 27–35.

Lee, I. 2007. An Architecture for a Next-Generation Holistic E-Recruiting System. *Communications of the ACM* (50:7), pp. 81–85.

Lee, T. W., Mitchell, T. R., Holtom, B. C., McDaniel, L. S., and Hill, J. W. 1999. The Unfolding Model of Voluntary Turnover: A Replication and Extension. *Academy of Management Journal* (42:4), pp. 450–462.

Lewin, K. 1947. Frontiers in Group Dynamics: Concept, Method and Reality in Social Science; Social Equilibria and Social Change. *Human Relations* (1:1), pp. 5–41.

Li, X., Hess, T. J., and Valacich, J. S. 2008. Why do we trust new technology? A study of initial trust formation with organizational information systems. *Journal of Strategic Information Systems* (17:1), pp. 39–71.

Liang, H., Saraf, N., Hu, Q., and Xue, Y. 2007. Assimilation of enterprise systems: The effect of institutional pressures and the mediating role of top management. *MIS Quarterly* (31:1), pp. 59–87.

Locke, E. A. 1969. What is job satisfaction? *Organizational Behavior and Human Performance* (4), pp. 309–336.

Logan, M., and Ganster, D. 2007. The effects of empowerment on attitudes and performance: The role of social support and empowerment beliefs. *Journal of Management Studies* (44), pp. 1523–1550.

Lu, J., Yao, J. E., and Yu, C. S. 2005. Personal innovativeness, social influences and adoption of wireless Internet services via mobile technology. *Journal of Strategic Information Systems* (14:3), pp. 245–268.

Luftman, J., and Kempaiah, R. 2008. Key Issues for IT Executives 2007. *MIS Quarterly* Executive (7:2), pp. 99–112.

Lukaszewski, K. M., Stone, D. L., and Stone-Romero, E. F. 2008. The Effects of the Ability to Choose the Type of Human Resources System on Perceptions of Invasion of Privacy and System Satisfaction. *Journal of Business and Psychology* (23:3-4), pp. 73–86.

MacKinnon, D. P., Warsi, G., and Dwyer, J. H. 1995. A Simulation Study of Mediated Effect Measures. *Multivariate Behavioral Research* (30:1), pp. 41–62.

Maris, G. M. 1994. Benchmarking human resource information systems in Canada and Hong Kong. *Information & Management* (26:6), pp. 305–316.

Marler, J. H. 2009. Making human resources strategic by going to the Net: reality or myth? *International Journal of Human Resource Management* (20:3), pp. 515–527.

Marler, J. H., Fisher, S. L., and Ke, W. 2009. Employee self-service technology acceptance: a comparison of the pre-implementation and post-implementation relationships. *Personnel Psychology* (62:2), pp. 327–358.

McElroy, J. C., Morrow, P. C., and Rude, S. N. 2001. Turnover and organizational performance: A comparative analysis of the effects of voluntary, involuntary, and reduction-in-force turnover. *Journal of Applied Psychology* (86:6), pp. 1294–1299.

McKnight, H. D., Phillips, B., and Hardgrave, B. C. 2009. Which reduces IT turnover intention the most: Workplace characteristics or job characteristics? *Information & Management* (46:3), pp. 167–174.

Mithas, S., Ramasubbu, N., and Sambamurthy, V. 2011. How Information Management Capability Influences Firm Performance, *MIS Quarterly* (35:1), pp. 237–256.

Morris, M. G., and Venkatesh, V. 2010. Job Characteristics and Job Satisfaction: Understanding the Role of Enterprise Resource Planning System Implementation. *MIS Quarterly* (34:1), pp. 143–161.

Ngai, E. W. T., Law, C. C. H., Chan, S. C. H., and Wat, F. K. T. 2008. Importance of the internet to human resource practitioners in Hong Kong. *Personnel Review* (37:1), pp. 66–84.

Ngai, E. W. T., and Wat, F. K. T. 2006. Human resource information systems: a review and empirical analysis. *Personnel Review* (35:3), pp. 297–314.

Nicholas, J., Kinnie, A., and Arthurs, J. 1996. Personnel specialists' advanced use of information technology - Evidence and explanations. *Personnel Review* (25:3), pp. 3–19.

Oreg, S. 2003. Resistance to Change: Developing an Individual Differences Measure. *Journal of Applied Psychology* (88:4), pp. 680–693.

Oreg, S. 2006. Personality, context, and resistance to organizational change. *European Journal of Work and Organizational Psychology* (15:1), pp. 73–101.

Oreg, S., Vakola, M., and Armenakis, A. 2011. Change Recipients' Reactions to Organizational Change: A 60-Year Review of Quantitative Studies. *The Journal of Applied Behavioral Science* (XX:X), pp. 1–64.

Orlikowski, W. J. 2000. Using Technology and Constituting Structures: A Practice Lens for Studying Technology in Organizations. *Organization Science* (11:4), pp. 404–428.

Panayotopoulou, L., Vakola, M., and Galanaki, E. 2007. E-HR adoption and the role of HRM: evidence from Greece. *Personnel Review* (36:2), pp. 277–294.

Pant, S., and Chatterjee, A. 2008. e-HR Systems Implementation: A Conceptual Framework. *Americas Conference on Information Systems (AMCIS)*, pp. 1–6.

Parry, E., and Tyson, S. 2008. An analysis of the use and success of online recruitment methods in the UK. *Human Resource Management Journal* (18:3), pp. 247–257.

Podsakoff, N. P., LePine, J., and Lepine, M. A. 2007. Differential Challenge Stressor–Hindrance Stressor Relationships With Job Attitudes, Turnover Intentions, Turnover, and Withdrawal Behavior: A Meta-Analysis. *Journal of Applied Psychology* (92:2), pp. 438–454.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., and Podsakoff, N. P. 2003. Common Method Biases in Behavioral Research: A Critical Review and Recommended Remedies. *Journal of Applied Psychology* (83:5), pp. 879–903.

Podsakoff, P. M., and Organ, D. 1986. Self-Reports in Organizational Research: Problems and Prospects. *Journal of Management* (12:4), pp. 531–544.

Preacher, K. J., and Hayes, A. F. 2004. SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers* (36), pp. 717–731.

Rafferty, A., and Griffin, M. 2006. Perceptions of organizational change: A Stress and coping perspective. *Journal of Applied Psychology* (91:5), pp. 1154–1162.

Ragu-Nathan, T. S., Tarafdar, M., Ragu-Nathan, B. S., and Qiang, T. 2008. The Consequences of Technostress for End Users in Organizations: Conceptual Development and Empirical Validation. *Information Systems Research* (1:4), pp. 417–433.

Ringle, C. M., Wende, S., and Will, A. 2005. SmartPLS: University of Hamburg.

Rodell, J., and Judge, T. A. 2009. Can "good" stressors spark "bad" behaviors? The mediating role of emotions in links of challenge and hindrance stressors with citizenship and counterproductive behaviors. *Journal of Applied Psychology* (94), pp. 1438–1451.

Rodger, J., and Pendharkar, P. 1998. Reengineering the Human Resource Information System at Gamma. *Americas Conference on Information Systems* (AMCIS) (4), pp. 125–126.

Roepke, R., Agarwal, R., and Ferratt, T. W. 2000. Aligning the IT Human Resource with Business Vision: Leadership Initiative at 3m. *MIS Quarterly* (24:2), pp. 327–353.

Ruël, H., and Bondarouk, T. 2004. E-HRM: Innovation or Irritation. *European Conference on Information Systems*, pp. 1–14.

Ruël, H., Bondarouk, T., and Van der Velde, M. 2007. The contribution of e-HRM to HRM effectiveness: Results from a quantitative study in a Dutch Ministry. *Employee Relations* (29:3), pp. 280–291.

Saks, A. M., and Ashforth, B. E. 2000. The role of dispositions, entry stressors, and behavioral plasticity theory in predicting newcomers' adjustment to work. *Journal of Organizational Behavior* (21:1), pp. 43–62.

Sambamurthy, V., Bharadwaj, A., and Grover, V. 2003. Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms. *MIS Quarterly* (27:2), pp. 237–263.

Schaubroeck, J., Cotton, J. L., and Jennings, K. 1989. Antecedents and consequences of role stress: A covariance structure analysis. *Journal of Organizational Behavior* (10), pp. 35–58.

Schweiger, D., and DeNisi, A. S. 1991. Communication with employees following a merger: A longitudinal field experiment. *Academy of Management Journal* (34), pp. 110–135.

Sherman, J. 1986. The Relationship between Factors in the Work Environment and Turnover Propensities among Engineering and Technical Support Personnel. *IEEE Transactions on Engineering Management* (33:2), pp. 72–77.

Shrout, P. E., and Bolger, N. 2002. Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods* (7), pp. 422–445.

Singh, J. 1998. Striking a Balance in Boundary-Spanning Positions: An Investigation of Some Unconventional Influences of Role Stressors and Job Characteristics on Job Outcomes of Salespeople. *Journal of Marketing* (62:2), pp. 69–86.

Sobel, M. E. 1982. Asymptotic confidence intervals for indirect effects in structural equation models, in Sociological Methodology, S. Leinhardt (ed.), Washington DC: American Sociological Association, pp. 290–312.

Spector, C. A., Zapf, D., Chen, P. Y., and Frese, M. 2000. Why negative affectivity should not be controlled in job stress research: Don't throw out the baby with the bath water, *Journal of Organizational Behavior* (21:1), pp. 79–95.

Spreitzer, G. M., and Mishra, A. K. 2002. To stay or to go: Voluntary survivor turnover following an organizational downsizing. *Journal of Organizational Behavior* (23:6), pp. 707–729.

Stone, D. L., Sonte-Romero, E. F., and Lukaszewski, K. 2006. Factors affecting the acceptance and effectiveness of electronic human resource systems. *Human Resource Management Review* (16:2), pp. 229–244.

Stone, D. L., and Lukaszewski, K. 2009. An expanded model of the factors affecting the acceptance and effectiveness of electronic human resource management systems. *Human Resource Management Review* (19:2), pp. 134–143.

Straub, D. W., and Burton-Jones, A. 2007. Veni, Vidi, Vici: Breaking the TAM Logjam. *Journal of the Association for Information Systems* (8:4), pp. 223–229.

Strohmeier, S. 2007. Research in e-HRM: Review and implications. *Human Resource Management Review* (17:1), pp. 19–37.

Strohmeier, S. 2009. Concepts of e-HRM consequences: a categorization, review and suggestion. *International Journal of Human Resource Management* (20:3), pp. 528–543.

Tafti, A., Mithas, S., and Krishnan, M. S. 2007. Complementarities Bbtween Information Technology and Human Resource Practices in Knowledge Work. ICIS 2007 Proceedings. Paper 132.

Tansley, C., Newell, S., and Williams, H. 2001. Effecting HRM-style practices through an integrated human resource information system: An e-greenfield site? *Personnel Review* (30:3), pp. 351–370.

Tarafdar, M., and Gordon, S. R. 2007. Understanding the influence of information systems competencies on process innovation: A resource-based view. *Journal of Strategic Information Systems* (16:4), pp. 353–392.

Taylor, S. P., and Todd, P. A. 1995. Understanding Information Technology Usage: A Test of Competing Models. *Information Systems Research* (6), pp. 144–176.

Tett, R. P., and Meyer, J. P. 1993. Job Satisfaction, Organizational Commitment, Turnover Intention, and Turnover: Path Analyses Based on Meta-Analytic Findings. *Personnel Psychology* (46:2), pp. 259–293.

Thatcher, J. B., Stepina, L. P., and Boyle, R. J. 2002. Turnover of Information Technology Workers: Examining Empirically the Influence of Attitudes, Job Characteristics, and External Markets. *Journal of Management Information Systems* (19:3), pp. 231–250.

Umstat, D. D., Bell, C., and Mitchell, T. R. 1976. Effects of Job Enrichment and Task Goals on Satisfaction and Productivity: Implications for Job Design. *Journal of Applied Psychology* (61:4), pp. 379–394.

van der Velde, M., and Feij, J. 1995. Change of Work Perceptions and Work Outcomes as a Result of Voluntary and Involuntary Job Change. *Journal of Occupational & Organizational Psychology* (68), pp. 273–290.

van Iddekinge, C. H., Roth, P. L., Putka, D. J., and Lanivich, S. E. in press. Are You Interested? A Meta-Analysis of Relations Between Vocational Interests and Employee Performance and Turnover. *Journal of Applied Psychology* .

Vandenberghe, C., Panaccio, A., Bentein, K., Mignonac, K., and Roussel, P. 2011. Assessing longitudinal change of and dynamic relationships among role stressors, job attitudes, turnover intention, and well-being in neophyte newcomers. *Journal of Organizational Behavior* (32:4), pp. 652–671.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. 2003. User Acceptance of Information Technology: Toward a unified View. *MIS Quarterly* (27:3), pp. 425–478.

Venkatesh, V., and Bala, H. 2008. Technology Acceptance Model 3 and a Research Agenda on Interventions. *Decision Sciences* (39:2), pp. 273–315.

Venkatesh, V., Davis, F. D., and Morris, M. G. 2007. Dead Or Alive? The Development, Trajectory And Future Of Technology Adoption Research. *Journal of the Association for Information Systems* (8:4), pp. 268–286.

Volkoff, O., Strong, D. M., and Elmes, M. B. 2007. Technological Embeddedness and Organizational Change. *Organization Science* (18:5), pp. 832–848.

Wanberg, C. R., and Banas, J. T. 2000. Predictors and outcomes of openness to changes in a recognizing workplace. *Journal of Applied Psychology* (85:1), pp. 132–142.

Watts, S., and Henderson, J. C. 2006. Innovative IT climates: CIO perspectives. *Journal of Strategic Information Systems* (15:2), pp. 125–151.

Weiss, H. M., and Cropanzano, R. 1996. Affective events theory: A theoretical discussion of the structure, causes and consequences of affective experiences at work. *Research in Organizational Behavior* (18), pp. 1–74.

Weitzel, T., Eckhardt, A., and Laumer, S. 2009. A Framework for Recruiting IT Talent: Lessons from Siemens. *MISQ Executive* (8:4), pp. 175–189.

Wheeler, B. C. 2002. NEBIC: a dynamic capabilities theory for assessing net-enablement. *Information Systems Research* (13:2), pp. 125–146.

Wiblen, S., Grant, D., and Dery, K. 2010. Transitioning to a new HRIS: The reshaping of human resources and information technology talent. *Journal of Electronic Commerce Research* (11:4), pp. 251–267.

Willcocks, L. P., and Smith, G. 1995. IT-enabled business process reengineering: organizational and human resource dimensions. *Journal of Strategic Information Systems* (4:3), pp. 279–301.

Williams, L. J., Edwards, J., and Vandenberg, R. 2003. Recent Advances in Causal Modeling Methods for Organizational and Management Research. Journal of Management (29:6), pp. 903–936.

Zalesny, M., and Farace, R. V. 1987. Traditional versus open offices: A comparison of sociotechnical, social relations, and symbolic meaning perspectives. *Academy of Management Journal* (30), pp. 240–259.
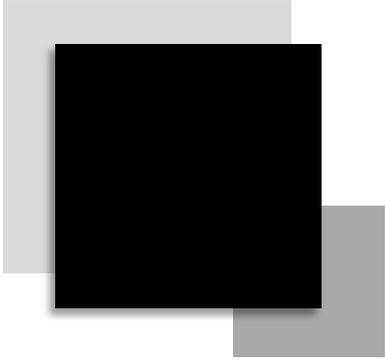
Appendix

ZUSAMMENFASSUNG

In den letzten beiden Jahrzehnten wurde durch die Forschung der Wirtschaftsinformatik und insbesondere der amerikanischen Informationssystemforschung umfassend aufgezeigt, welche Faktoren die Intention eines Individuums beeinflussen, so dass dieses eine neue Informationstechnologie (IT) nutzen möchte (Venkatesh et al., 2003). Jedoch zeigen entsprechende Literaturstudien (Lapointe und Rivard, 2005; Williams et al., 2009) aber auch, dass entsprechende Arbeiten aus dem Bereich der Technologieakzeptanz den Widerstand von Individuen seltener untersucht haben und dass entsprechend wenige wissenschaftliche Arbeiten existieren, die den Zusammenhang zwischen resistenten Verhaltensweisen und den dafür zugrundeliegenden Gründen thematisieren. Eine Auseinandersetzung mit dem Phänomen ist jedoch gerade für die Forschung der Wirtschaftsinformatik vor dem Hintergrund, dass viele IT-Großprojekte scheitern und der Widerstand von Systemnutzern neben technischen, und organisatorischen Faktoren als einer der Hauptherausforderungen für den Erfolg entsprechender Projekte angesehen wird, zielführend (Buhl und Meier 2011). Aus diesem Grund ist der Widerstand von Individuen während der Implementierung von Anwendungssystemen in Unternehmen Gegenstand dieser Dissertation. Die vorliegende Arbeit zeigt zum einen auf, welches Widerstandsverhalten Mitarbeiter in Unternehmen während der Einführung von neuen betrieblichen Anwendungssystemen zeigen können, und identifiziert zum anderen Faktoren, auf denen dieser Widerstand beruht. Die Forschungsfrage der vorliegenden Dissertation laut somit:

> **Wie kann der Widerstand von potentiellen Anwendungssystemnutzern während der Implementierung entsprechender Systeme in Unternehmen erklärt werden?**

Zur Beantwortung dieser übergeordneten Forschungsfrage ist die Dissertation in vier Kapitel gegliedert. Kapitel 1 zeigt das bestehende Verständnis der Wirtschaftsinformatikforschung zum Themengebiet der Dissertation auf und legt dar, welche Herausforderungen für die Wirtschaftsinformatikforschung bestehen, um das Phänomen des Widerstands von Systemnutzern besser verstehen zu können. In Kapitel 2 wird das in der Dissertation untersuchte betriebliche Informationssystem eingeführt. Die Dissertation fokussiert auf die Personalwirtschaft in Unternehmen und die Einführung von Bewerbermanagementsystemen in der Personalrekrutierung als ein Beispiel für betriebliche Anwendungssysteme in Unternehmen. Die Reaktionen der betroffenen Mitarbeiter hinsichtlich des neuen Systems und dessen Einführung sind Gegenstand der empirischen Untersuchungen. Der größte Teil der durchgeführten wissenschaftlichen Untersuchungen begleitet dabei die Einführung von SAP E-Recruiting 6.0 (Enhancement Package 4) in der Personalabteilung eines deutschen Automobilzulieferers. Zur Erklärung der Reaktionen der potentiellen Systemnutzer wird in Kapitel drei ein Forschungsmodell basierend auf Theorien und Modellen der Sozialpsychologie (Ajzen, 1985; Fishbein und Ajzen, 1975), der Wirtschaftsinformatik (Davis, 1989; Davis et al., 1989; Venkatesh et al., 2003) und der Organisationsforschung (Volkoff et al., 2007) entwickelt. Dieses Model fasst die grundlegenden Hypothesen der Dissertation zusammen, dass Widerstand von potentiellen Systemnutzern durch unterschiedliche Verhaltensweisen zum Ausdruck gebracht werden kann, und dass die Gründe für diese Verhaltensweisen in der Person selbst, den Rahmenbedingungen der Systemeinführung, den Eigenschaften des Anwendungssystems sowie in den Änderungen im betrieblichen Informationssystem begründet sind. Das dargelegt Model of Resistance to IT-induced Change wird in Kapitel 4 durch unterschiedliche Forschungsansätze validiert und entsprechende Implikationen für Forschung und die Implementierung von Anwendungssystemen in Unternehmen abgeleitet.

Die Ergebnisse der Dissertation zeigen, dass der Widerstand von potentiellen Systemnutzern zum einen in Gesprächen im Unternehmen zum Ausdruck gebracht werden kann, aber sich auch in der generellen Zufriedenheit mit den Arbeitsbedingungen niederschlägt und somit die Wechselwilligkeit von Arbeitnehmern beeinflusst. Als Gründe für unterschiedliche Formen des Widerstands von potentiellen Systemnutzern können in der Dissertation zum einen die Eigenschaften des Anwendungssystems (z.B. die wahrgenommene Einfachheit der Nutzung) als auch Eigenschaften des betrieblichen Informationssystems (z.B. wahrgenommene Umsetzbarkeit und Nützlichkeit von neuen Arbeitsroutinen) identifiziert werden. Darüber hinaus wird gezeigt, dass eine differenzierte Betrachtung des affektiven und kognitiven Widerstandes von Betroffenen eines durch IT ausgelösten organisatorischen Wandels zielführend für ein tiefergehendes Verständnis der Gründe der individuellen Ablehnung eines neuen Anwendungssystems sowie aller mit der Einführung einhergehenden Änderungen ist. Weitere Faktoren, die die Ablehnung durch potentielle Systemnutzer erklären, sind Eigenschaften der Person selbst. So zeigt die Dissertation, dass eine individuelle Prädisposition gegenüber Wandel im Allgemeinen ein wichtiger Einflussfaktor für die Wahrnehmung von IT-bedingtem organisatorischem Wandel und entsprechenden resistenten Verhaltensweisen ist. Auch der Einfluss aus dem jeweiligen sozialen Umfeld einer Person wurde als wichtiger Grund für Widerstand gegenüber neuen Informationssystemen identifiziert und evaluiert.

Mit den im Rahmen dieser Dissertation erzielten Ergebnissen können entsprechende Erkenntnisgewinne für die Forschung und Praxis der Wirtschaftsinformatik abgeleitet werden. Die Identifikation von weiteren während der Systemeinführung relevanten Verhaltensweisen von potentiellen Systemnutzern bietet zum einen Antwort auf die Frage von Brown et al. (2002), welche Reaktionen von Individuen durch deren Einstellung gegenüber der Nutzung eines Anwendungssystems erklärt werden können. Brown et al. (2002) stellten in ihren Arbeiten fest, dass die Systemnutzung von betrieblichen Anwendungssystemen in keinem signifikanten Zusammenhang mit der Wahrnehmung der jeweiligen Systemeigenschaften steht. Die Systemnutzung im Unternehmen kann vielmehr durch die Wahrnehmung des Systemnutzers erklärt werden, dass beispielsweise das Unternehmen und die jeweiligen Vorgesetzten die Nutzung erwarten oder vorschreiben (Brown et al., 2002). In diesem Zusammenhang zeigen die Ergebnisse der Dissertation, dass die Wahrnehmung von Anwendungssystemen und entsprechende Änderungen in betrieblichen Informationssystemen in einem Zusammenhang mit der generellen Arbeitszufriedenheit, der Wechselwilligkeit von Arbeitnehmern sowie dem resistenten Verhalten in Form von Gesprächen steht. Somit bieten die Ergebnisse eine Erweiterung der technologiefokussierten Einstellungs-Verhaltensrelation, die den meisten Arbeiten aus dem Bereich der Technologieakzeptanz zu Grunde liegt (Straub und Burton-Jones, 2007). Auch im Bereich der Gründe für widerständisches Verhalten können Erkenntnisse im Rahmen der Dissertation gewonnen werden, die entsprechend die technologiefokussierte Einstellungs-Verhaltensrelation erweitern. So wird gezeigt, dass unterschiedliche Objekte (z.B. Anwendungssystem, Arbeitsroutinen, etc.) des betrieblichen Informationssystems für den Widerstand von Individuen verantwortlich sein können. Neben dem Anwendungssystem konnten generell Änderungen in organisatorischen Elementen wie beispielsweise die Arbeitsroutine des Individuums als entsprechende Objekte evaluiert werden. Somit steht die Arbeit in Tradition der durch Venkatesh (2006) geforderten Wirtschaftsinformatikforschung über Widerstand im Allgemeinen und die Wahrnehmung von Prozessen und Arbeitsroutinen im Besonderen (Venkatesh, 2006). Auch die Ergebnisse hinsichtlich der Bedeutung der individuellen Persönlichkeit können als eine Antwort auf Venkatesh (2006) verstanden werden, da in seinem Kommentar Venkatesh (2006) Arbeiten fordert, die die Bedeutung von Persönlichkeitseigenschaften für die Akzeptanz und Ablehnung von Anwendungssystemen durch Individuen herausarbeiten.

Neben diesen Erkenntnissen zeigt die Dissertation zudem die Bedeutung von Anwendungssystemen für die Personalwirtschaft in Unternehmen auf. Die Arbeiten bezüglich

des Einsatzes von Bewerbermanagementsystemen in der Personalbeschaffung untermauern, dass eine entsprechende Automatisierung des Personalbeschaffungsprozesses zu finanziellen und zeitlichen Verbesserungen führt. Zudem bietet die Arbeit ein Rahmenwerk zur Auswahl von entsprechenden Rekrutierungsmethoden basierend auf dem zeitlichen Horizont der Besetzung einer Vakanz, der wahrgenommenen Knappheit der jeweiligen Zielgruppe und den Kosten der einzelnen Methoden. Zudem können entsprechende Implikationen für das Management von organisatorischem Wandel abgeleitet werden.

Hinsichtlich der Hauptmotivation der Dissertation, den Widerstand von Individuen gegenüber neuen betrieblichen Anwendungssystemen zu erklären, kann abschießend festgestellt werden, dass dieser Widerstand sich in unterschiedlichen Verhaltensweisen äußert und durch die Wahrnehmung von unterschiedlichen Objekten des betrieblichen Informationssystems sowie demographische und Persönlichkeitsmerkmale der jeweiligen Person erklärt werden kann. Die Dissertation steht somit in der Tradition von wissenschaftlichen Arbeiten der Wirtschaftsinformatik zur Erklärung der Akzeptanz entsprechender IT-Innovationen und bietet weiterführende Erkenntnisse basierend auf einer Kombination von qualitativen und quantitativen Forschungsmethoden für das Phänomen des Widerstandes von potentiellen Systemnutzern gegenüber der Einführung eines neuen Anwendungssystems.

LITERATURVERZEICHNIS

Ajzen, I. 1985. From intentions to actions: A theory of planned behavior. In J. Kuhl, andJ. Beckmann (Eds.), *Action Control: From Cognition to Behavior B2 - Action Control: From Cognition to Behavior*: 11-39. New York: Springer.

Buhl, H., und Meier, M. 2011. Die Verantwortung der Wirtschaftsinformatik bei IT-Großprojekten. *Wirtschaftsinformatik*, 53(2): 59-62.

Brown, S. A., Massey, A. P., Montoya-Weiss, M. M., und Burkman, J. R. 2002. Do I really have to? User acceptance of mandated technology. *European Journal of Information Systems,* 11(4): 283-295.

Davis, F. D. 1989. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3): 319-340.

Davis, F. D., Bagozzi, R. P., und Warshaw, P. R. 1989. User Acceptance of Computer Technology: A Comparison of Two Theoretical Models. *Management Science*, 35(8): 982-1003.

Fishbein, M., und Ajzen, I. 1975. Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research. Reading, MA: Addison-Wesley Publishing Company.

Lapointe, L., und Rivard, S. 2005. A Multilevel Model of Resistance to Information Technology Implementation. *MIS Quarterly*, 29(3): 461-491.

Straub, D., und Burton-Jones, A. 2007. Veni, Vidi, Vici: Breaking the TAM Logjam. *Journal of the Association for Information Systems*, 8(4): Article 14.

Venkatesh, V. 2006. Where To Go From Here? Thoughts on Future Directions for Research on Individual-Level Technology Adoption with a Focus on Decision Making. *Decision Sciences*, 37(4): 497-518.

Venkatesh, V., Morris, M. G., Davis, G. B., und Davis, F. D. 2003. User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3): 425-478.

Volkoff, O., Strong, D. M., und Elmes, M. B. 2007. Technological Embeddedness and Organizational Change. *Organization Science*, 18(5): 832-848.

Williams, M. D., Dwivedi, Y. K., Lal, B., und Schwarz, A. 2009. Contemporary trends and issues in IT adoption and diffusion research. *Journal of Information Technology*, 24(1): 1-10.

PUBLICATIONS

SCIENTIFIC JOURNALS (PEER REVIEWED)

Laumer, S., Eckhardt, A., and Weitzel, T. (2010), Electronic Human Resources Management in an E-Business Environment, Journal of Electronic Commerce Research, 11(4): 240-250

Münstermann, B., von Stetten, A., Eckhardt, A., and Laumer, S. (2010), The Performance Impact of Business Process Standardization - HR Case Study Insights, Management Research Review, 33(9): 924-939

Laumer, S., Eckhardt, A., and Trunk, N. (2010), Do as your parents say? - Analyzing IT adoption influencing factors for full and under age applicants, Information Systems Frontiers, 12(2): 169-183

Weitzel, T., Eckhardt, A., and Laumer, S. (2009), A Framework for Recruiting IT Talent: Lessons from Siemens, MIS Quarterly Executive, 8(4): 123-137

Laumer, S., von Stetten, A., and Eckhardt, A. (2009), E-Assessment, Business & Information Systems Engineering, 1(3): 263-265

Eckhardt, A., Laumer, S., and Weitzel, T. (2009), Who influences whom? - Analyzing workplace referents' social influence on IT adoption and non-adoption, Journal of Information Technology, 14(1): 11-24

Laumer, S., von Stetten, A., and Eckhardt, A. (2009), E-Assessment, Wirtschaftsinformatik, 51(3): 306-308

Eckhardt, A. and Laumer, S. (2009), An IT-Architecture to Align E-Recruiting and Retention Processes, International Journal of E-Services and Mobile Applications, 1(2): 38-61

CONFERENCE PROCEEDINGS (PEER REVIEWED)

Laumer, S., Blinn, N., and Eckhardt, A. (2012), Opening the Black Box of Outsourcing Knowledge Intensive Business Processes - A Longitudinal Case Study of Outsourcing Recruiting Activities, Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS), Maui (HI)

Laumer, S., Maier, C., Eckhardt, A., and Weitzel, T. (2012), The Implementation of Large-scale Information Systems in Small and Medium-Sized Enterprises - A Case Study of Work-and Health-related Consequences, Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS), Maui (HI)

Schilling, A., Laumer, S., and Weitzel, T. (2012), Who will remain? - An evaluation of actual Person-Job and Person-Team fit to predict developer retention in FLOSS-projects, Proceedings of the 45th Hawaii International Conference on System Sciences (HICSS), Maui (HI)

Maier, C., Laumer, S., and Eckhardt, A. (2011), Identifying Resistant User Groups during the Product Lifecycle of IT Innovations: Proposing a User Transformation Theory, Proceedings of the Special Interest Group on Adoption and Diffusion of Information Technology (DIGIT) (Pre-ICIS Workshop), Shanghai, China

Maier, C., Laumer, S., Weinert, C., and Eckhardt, A. (2011), Is Facebook Usage Becoming Stressful? Proposing and Validating a Theory of Stress-induced ICT Discontinuous Usage, Proceedings of the Special Interest Group on Adoption and Diffusion of Information Technology (DIGIT) (Pre-ICIS Workshop), Shanghai, China

Wild, U. and Laumer, S. (2011), Failure and Success of Knowledge Management Systems in the Financial Services Industry, Proceedings of Quality Information in Organizations and Society (Pre-ICIS sigIQ Workshop), Shanghai, China

Wild, U. and Laumer, S. (2011), Adopting Business Processes - Distinguishing Characteristics of Business Processes and the Role of Standardization, Proceedings of IFIP 8.2/Organizations and Society in Information Systems (OASIS) (Pre-ICIS Workshop), Shanghai, China

Schilling, A., Laumer, S., and Weitzel, T. (2011), Is the source strong with you? A fit perspective to predict sustained participation of FLOSS developers, Proceedings of the 32nd International Conference on Information Systems (ICIS), Shanghai, China

Wirtky, T., Eckhardt, A., Laumer, S., Wild, U., and Weitzel, T. (2011), Going beyond operational efficiency in HR using IT - A Literature Review of Human Resources Information Systems, Proceedings of the 17th Americas Conference on Information Systems (AMCIS), Detroit (MI)

Laumer, S. (2011), Why do People Reject Technologies - A Literature-based Discussion of the Phenomena "Resistance to Change" in Information Systems and Managerial Psychology Research, Proceedings of the 19th European Conference on Information System (ECIS), Helsinki, Finland

Maier, C., Laumer, S., and Eckhardt, A. (2011), Dispositional Resistance to Change and Social Network Site Adopters' and Non-Adopters' Attitudinal Beliefs - An Empirical Analysis, Proceedings of the 19th European Conference on Information System (ECIS), Helsinki, Finland

Lang, S., Laumer, S., Maier, C., and Eckhardt, A. (2011), Drivers, Challenges and Consequences of E-Recruiting - A Literature Review, Proceedings of the 2011 ACM SIGMIS CPR Conference, San Antonio (TX)

Laumer, S., Maier, C., Eckhardt, A., and Weitzel, T. (2011). The Trend is our Friend - German IT Personnel's Perception of Job-related Factors before, during and after the Economic Downturn, Proceedings of the 2011 ACM SIGMIS CPR Conference, San Antonio (TX), Winner of the ACM SIGMIS Magid Igbaria Outstanding Conference Paper of the Year 2011 Award

Maier, C., Laumer, S., and Eckhardt, A. (2011), Technology Adoption by Elderly People - An Empirical Analysis of Adopters and Non-Adopters of Social Networking Sites, Tagungsband zur 10. Internationalen Tagung Wirtschaftsinformatik, Zürich, Schweiz

Eckhardt, A., Laumer, S., and Nguyen, N. (2010), Social Influence in Technology Adoption Research - A Scientometric Study over two Decades, Proceedings of the Special Interest Group on Adoption and Diffusion of Information Technology (DIGIT) (Pre-ICIS Workshop), St. Louis (MO)

Laumer, S. and Eckhardt, A. (2010), Why do People Reject Technologies? - Towards a Unified Model of Resistance to IT-Induced Organizational Change, Proceedings of the Special Interest Group on Adoption and Diffusion of Information Technology (DIGIT) (Pre-ICIS Workshop), St. Louis (MO)

Laumer, S. and Eckhardt, A. (2010), Why do People Reject Technologies? - Towards an Understanding of Resistance to IT-induced Organizational Change, Proceedings of the 31st International Conference on Information Systems (ICIS), St. Louis (MO)

Laumer, S. and Eckhardt, A. (2010), Online Gaming Platforms to Apply for Jobs - Proposing a Research Model to Investigate Job Seekers' Behavior, Proceedings of the 3rd Academic Workshop on Electronic Human Resource Management, Bamberg

Laumer, S. and Eckhardt, A. (2010), The Internet as Additional Secondary Source - First empirical Results for Differentiating the Impact of Secondary Sources on the Intention to use IT, Proceedings of the 16th Americas Conference on Information Systems (AMCIS), Lima, Peru

Schreiber, B., Eckhardt, A., and Laumer, S. (2010), Between Cost Efficiency and Limited Innovation - A Scientometric Study of Business Process Standardization, Proceedings of the 16th Americas Conference on Information Systems (AMCIS), Lima, Peru

Laumer, S. (2010), Why do People Reject Information Systems? - An Investigation of IT Resistance and Personality, Doctoral Consortium, 18th European Conference on Information Systems (ECIS), Pretoria, South Africa

Laumer, S. and Eckhardt, A. (2010), Analyzing IT Personnel's Perception of Job-related Factors in Good and Bad Times, Proceedings of the 2010 ACM SIGMIS CPR Conference, Vancouver, BC, Canada

Laumer, S., Maier, C., and Eckhardt, A. (2010), Why do they resist? - An empirical analysis of an individual's personality trait resistance regarding the adoption of new information systems, Proceedings of the 18th European Conference on Information System (ECIS), Pretoria, South Africa

Laumer, S., Maier, C., and Eckhardt, A. (2009), Towards an Understanding of an Individual's Resistance to Use an IS - Empirical Examinations and Directions for Future Research, Proceedings of the Special Interest Group on Adoption and Diffusion of Information Technology (DIGIT) (Pre-ICIS Workshop), Phoenix (AZ)

Laumer, S. (2009), Non-monetary solutions for retaining the IT workforce, Proceedings of the 15th Americas Conference on Information Systems (AMCIS), San Francisco (CA)

Laumer, S., Eckhardt, A., and Weitzel, T. (2009), Status Quo and Trends in E-Recruiting - Results from an Empirical Analysis, Proceedings of the International Conference on Information Resources Management (CONF-IRM), Dubai, United Arab Emirates

Maier, C., Laumer, S., and Eckhardt, A. (2009), An Integrated IT-Architecture for Talent Management and Recruitment, Proceedings of the 3rd International Workshop on Human Resource Information Systems (HRIS 2009), Milan, Italy

Laumer, S. and Eckhardt, A. (2009), Help to find the Needle in a Haystack - Integrating Recommender Systems in a IT supported Staff Recruitment System, Proceedings of the 2009 ACM SIGMIS CPR Conference, Limerick, Ireland

Eckhardt, A., von Stetten, A., and Laumer, S. (2009), Value Contribution of IT in Recruiting - A Multi-National Causal Analysis, Proceedings of the 2009 ACM SIGMIS CPR Conference, Limerick, Ireland

von Stetten, A., Laumer, S., Eckhardt, A., and Keim, T. (2009), Does IT matter in recruiting - Eine länderübergreifende Kausalanalyse, 9. Internationale Tagung Wirtschaftsinformatik (Nominated for Young-Researcher-Award), Wien, Österreich

Laumer, S., von Stetten, A., Eckhardt, A., and Weitzel, T. (2009), Online Gaming to Apply for Jobs - the Impact of Self- and E-Assessment on Staff Recruitment, Proceedings of the 42nd Hawaii International Conference on System Sciences (HICSS), Big Island (HI)

Eckhardt, A., Laumer, S., and Weitzel, T. (2008), Hire Education For Firms - Successful IT Hires in Five Firms, Proceedings of the 14th Annual SIM Academic Workshop (Pre-ICIS Workshop), Paris, France

von Stetten, A., Münstermann, B., Eckhardt, A., and Laumer, S. (2008), Towards an Understanding of the Business Value of Business Process Standardization - A Case Study Approach, Proceedings of the 14th Americas Conference on Information Systems (AMCIS), Toronto, ON, Canada

Laumer, S., Eckhardt, A., and Weitzel, T. (2008), Recruiting IT Professionals in a Virtual World, Proceedings of the 12th Pacific Asia Conference on Information Systems (PACIS 2008), Suzhou, China

Eckhardt, A., Laumer, S., and Weitzel, T. (2008), Reconsidering Subjective Norm - A Multilayer-Framework for Modeling Normative Beliefs in IT Adoption, Proceedings of the 14th Americas Conference on Information Systems (AMCIS), Toronto, ON, Canada

Laumer, S., Eckhardt, A., and Weitzel, T. (2008), Do as your Competitors Do? - Analyzing Competitors' Influence on the Non-Adoption of Information Systems In Organizations, Proceedings of the 16th European Conference on Information Systems (ECIS), Galway, Ireland

Eckhardt, A., Laumer, S., and Weitzel, T. (2008), Extending the Architecture for a Next-Generation Holistic E-Recruiting System, Proceedings of the 2008 International Conference on Information Resources Management (Conf-IRM), Niagara Falls (ON), Canada

OTHER JOURNALS

Weitzel, T., Eckhardt, A., and Laumer, S. (2011), Zielgruppen, Prozesse, Personen - Es gibt viele Wege, das Recruiting zu optimieren, Personalmagazin (Sonderveröffentlichung "Online rekrutieren"), Issue 10, 4-7

Laumer, S. and Wiesinger, B. (2011), Recruiting Trends 2011 Österreich - Trends und Herausforderungen in der Personalbeschaffung, Personal Manager - Zeitschrift für Human Resources (4), 14-18

Laumer, S. and Weitzel, T. (2011), Outsourcing im HRM: Die "Make or Buy"-Entscheidung, Personal Manager - Zeitschrift für Human Resources (4), 46-49

Laumer, S., Eckhardt, A., and von Westarp, F. (2009), Recruiting Trends Deutschland, Österreich und Schweiz, Board Report, 46-48

Laumer, S. and Weitzel, T. (2007), Recruiting Trends 2007, Career Service Papers, Göttingen

BOOKS

Weitzel, T., Eckhardt, A., von Westarp, F., von Stetten, A., Laumer, S., and Kraft, B. (2011), Recruiting 2011, Weka Verlag, Zürich, Schweiz. ISBN 978-3-297-19971-8

BOOK CHAPTERS (PEER REVIEW)

Laumer, S. and Eckhardt, A. (2012), Why Do People Reject Technologies: A Review of User Resistance Theories, in: Dwivedi, Y.K., Wade, M.R., and Schneberger, S.L. (eds.): Information Systems Theory - Explaining and Predicting Our Digital Society, Vol. 1; in: Integrated Series in Information Systems, Vol. 28, 63-86, DOI: 10.1007/978-1-4419-6108-2_4.

Eckhardt, A., Brickwedde, W., Laumer, S., and Weitzel, T. (2011), The Need for a Recruiter 2.0 for Hiring IT Talent - The German Software Manufacturer Case, in: Jerry Luftman (ed.): Managing IT Human Resources: Considerations for Organizations and Personnel, IGI Publishing.

Laumer, S. and Eckhardt, A. (2009), What makes the difference? - Introducing an integrated information system architecture for employer branding and recruiting, In: T. Bondarouk, H. Ruel, E. Oiry, and K. Guiderdoni (eds.): Handbook of Research on E-Transformation and Human Resources Management Technologies. Information Science Reference, Hershey (PA), 275-288

Laumer, S. and Eckhardt, A. (2009), What makes the difference? - Introducing an integrated information system architecture for employer branding and recruiting, In: T. Bondarouk, H. Ruel, E. Oiry, and K. Guiderdoni (eds.): Handbook of Research on E-Transformation and Human Resources Management Technologies. Information Science Reference, Hershey (PA), 275-288

BOOK CHAPTERS (OTHERS)

Maier, C., Laumer, S., and Eckhardt, A. (2011), Technology Adoption by Elderly People - An Empirical Analysis of Adopters and Non-Adopters of Social Networking Sites, In: Heinzl, A., Buxmann, P., Wendt, O., Weitzel, T.: Theory-Guided Modeling and Empiricism in Information Systems Research, Physica-Verlag, Heidelberg.

Eckhardt, A., Laumer, S., and Maier, C. (2011), Introducing a First Step towards a Holistic Talent Management System Architecture, In: Scupola, A. (ed.): Developing Technologies in E-Services, Self-Services, and Mobile Communication: New Concepts, IGI Global, Hershey (PA)

Eckhardt, A. and Laumer, S. (2010), An IT-Architecture to Align E-Recruiting and Retention Processes, In: Information Resources Management Association (ed.): Electronic Services: Concepts, Methodologies, Tools and Applications, Idea Group Reference, 1574-1592

OTHER PUBLICATIONS

Laumer, S., Eckhardt, A., von Stetten, A., and Weitzel, T. (2011), Recruiting Trends 2011 - Österreich: Eine empirische Untersuchung mit den Top-500-Unternehmen aus Österreich, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T., and von Westarp, F. (2011), Recruiting Trends 2011 Suisse - Une étude empirique des 500 plus grandes entreprises suisses, Rapport de recherche, Université Otto-Friedrich de Bamberg et Université Goethe de Francfort-sur-le-Main

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T., and von Westarp, F. (2011), Recruiting Trends 2011 Schweiz - Eine empirische Untersuchung mit den Top-500-Unternehmen aus der Schweiz, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T., Kaestner, T.A., and von Westarp, F. (2011), Recruiting Trends 2011 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen aus Deutschland sowie den Top-300-Unternehmen aus den Branchen Finanzdienstleistung, IT und Öffentlicher Dienst, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

Eckhardt, A., Laumer, S., von Stetten, A., Weitzel, T., Kaestner, T.A., and von Westarp, F. (2011), Recruiting Trends im Mittelstand 2011 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

Laumer, S., von Stetten, A., Eckhardt, A., Weitzel, T., Kaestner, T.A., and von Westarp, F. (2011), Bewerbungspraxis 2011 - Eine empirische Untersuchung mit über 10.000 Stellensuchenden und Karriereinteressierten, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T., and von Westarp, F. (2010), Recruiting Trends 2010 Suisse - Une étude empirique des 500 plus grandes entreprises suisses, Rapport de recherche, Université Otto-Friedrich de Bamberg et Université Goethe de Francfort-sur-le-Main

Laumer, S., Eckhardt, A., von Stetten, A., and Weitzel, T. (2010), Recruiting Trends 2010 Österreich - Eine empirische Untersuchung mit den Top-500-Unternehmen aus Österreich, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

Laumer, S., Eckhardt, A., von Stetten, A., Weitzel, T., and König, W. (2010), Recruiting Trends im Mittelstand 2010 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

von Stetten, A., Laumer, S., Eckhardt, A., Weitzel, T., and von Westarp, F. (2010), Recruiting Trends 2010 Schweiz - Eine empirische Untersuchung mit den Top-500-Unternehmen aus der Schweiz, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

Laumer, S., Eckhardt, A., von Stetten, A., Weitzel, T., and König, W. (2010), Bewerbungspraxis 2010 - Eine empirische Untersuchung mit mehr als 9.000 Stellensuchenden im Internet, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., and König, W. (2010), Recruiting Trends 2010 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen aus Deutschland sowie den Top-300-Unternehmen aus den Branchen Automotive, Finanzdienstleistung und IT, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., König, W., and von Westarp, F. (2009), Recruiting Trends 2009 Switzerland - An empirical study of the top 500 companies in Switzerland, Research Report, Otto-Friedrich-University Bamberg and Goethe-University Frankfurt on the Main

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., König, W., and von Westarp, F. (2009), Recruiting Trends 2009 Suisse - Une étude empirique des 500 plus grandes entreprises suisses, Rapport de recherche, Université Otto-Friedrich de Bamberg et Université Goethe de Francfort-sur-le-Main

Laumer, S., Eckhardt, A., von Stetten, A., Weitzel, T., and König, W. (2009), Recruiting Trends 2009 Österreich - Eine empirische Untersuchung mit den Top-500-Unternehmen aus Österreich, Research Report. Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., König, W., and von Westarp, F. (2009), Recruiting Trends 2009 Schweiz - Eine empirische Untersuchung mit den Top-500-Unternehmen aus der Schweiz, Research Report, Otto-Friedrich-Universität Bamberg und Goethe-Universität Frankfurt am Main

Eckhardt, A., Laumer, S., von Stetten, A., Weitzel, T., and König, W. (2009), Recruiting Trends im Mittelstand 2009 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem deutschen Mittelstand, Research Report, Goethe-Universität Frankfurt am Main und Otto-Friedrich-Universität Bamberg

Laumer, S., von Stetten, A., Eckhardt, A., Weitzel, T., and König, W. (2009), Recruiting Trends 2009 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen in Deutschland sowie den Top-300-Unternehmen aus den Branchen Aerospace, Bildung und Erziehung sowie Transport und Logistik, Research Report, Goethe-Universität Frankfurt am Main und Otto-Friedrich-Universität Bamberg

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., König, W., and von Westarp, F. (2008), Recruiting Trends 2008 Switzerland - An empirical study of the top 500 companies in Switzerland, Research Report, Goethe-University Frankfurt on the Main and Otto-Friedrich-University Bamberg

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., König, W., and von Westarp, F. (2008), Recruiting Trends 2008 Suisse - Une étude empirique des 500 plus grandes entreprises suisses, Rapport de recherche, Université Goethe de Francfort-sur-le-Main et Université Otto-Friedrich de Bamberg

Laumer, S., Eckhardt, A., von Stetten, A., Weitzel, T., and König, W. (2008), Bewerbungspraxis 2009 - Eine empirische Untersuchung mit über 10.000 Stellensuchenden im Internet, Research Report, Goethe-Universität Frankfurt am Main und Otto-Friedrich-Universität Bamberg

Eckhardt, A., Laumer, S., Weitzel, T., König, W., and Lippert, J. (2008), Recruiting Trends 2008 Österreich - Eine empirische Untersuchung mit den Top-500-Unternehmen aus Österreich, Research Report, Goethe-Universität Frankfurt am Main und Otto-Friedrich-Universität Bamberg

von Stetten, A., Eckhardt, A., Laumer, S., Weitzel, T., König, W., and von Westarp, F. (2008), Recruiting Trends 2008 Schweiz - Eine empirische Untersuchung mit den Top-500-Unternehmen aus der Schweiz, Research Report, Goethe-Universität Frankfurt am Main und Otto-Friedrich-Universität Bamberg

Laumer, S., Eckhardt, A., Weitzel, T., and König, W. (2008), Recruiting Trends im Mittelstand 2008 - Eine empirische Untersuchung mit 1.000 Unternehmen aus dem Deutschen Mittelstand, Research Report, Goethe-Universität Frankfurt am Main und Otto-Friedrich-Universität Bamberg

Eckhardt, A., Laumer, S., Weitzel, T., and König, W. (2008), Recruiting Trends 2008 - Eine empirische Untersuchung mit den Top-1.000-Unternehmen in Deutschland sowie den Top-300-Unternehmen aus den Branchen Energieversorgung, Gesundheit und Wellness sowie Informationstechnologie, Research Report, Goethe-Universität Frankfurt am Main und Otto-Friedrich-Universität Bamberg