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WHY DO PEOPLE REJECT TECHNOLOGIES – A LITERATURE-BASED DISCUSSION OF THE PHENOMENA “RESISTANCE TO CHANGE” IN INFORMATION SYSTEMS AND MANAGERIAL PSYCHOLOGY RESEARCH

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Abstract

In 2008, Ford et al. (2008) pointed out for management research, that “it is time to expand our understanding of resistance to change”. Since 1947, when Kurt Lewin discuss the first time the concept of resistance to change within his field theory, managerial psychology researchers have extended, criticized, modified and re-conceptualized the understanding of employees’ responses to change initiatives. Also information systems research has identified resistance to change as major reason for IT project failures. However, as our analysis in this paper shows, there are a lot of opportunities for IS research to research resistance to IT-induced change. Using a literature review the paper discusses different concepts of resistance to change from managerial psychology and IS research in order to provide a better understanding of resistance to IT-induced change. The paper highlights implications from managerial psychology research to update the understanding of resistance to change in information systems research.

Keywords: User Resistance, Technology Resistance, Resistance to Change

1 INTRODUCTION

Information systems (IS) research has provided a lot of evidence of important drivers for an individual's intention to use an innovation within households and organizational contexts (Lee et al. 2003; Venkatesh et al. 2003). Different models like TAM (Davis 1989), TAM2 (Venkatesh and Davis 2000), TAM3 (Venkatesh and Bala 2008), UTAUT (Venkatesh et al. 2003), and MATH (Brown and Venkatesh 2005) have been developed, modified, extended and unified by IS researchers to explain an individual's attitudes and beliefs about a new technology and the corresponding usage behaviour. However, the phenomenon of user resistance towards the use of information technology is under researched as Lapointe and Rivard (2005) only identified four articles, which opened the black box of technology resistance by individuals. According to them, information systems non-adoption, rejection or resistance was the research objective of researchers in the early beginning of the IS discipline and especially adoption research (Keen 1981; Markus 1983; Hirschheim and Newman 1988) with few articles in the 1990s (Joshi 1991; Marakas and Hornik 1996) and at the beginning of the new century (Cenfetelli 2004; Ferneley and Sobreperez 2006; Bhattacharjee and Hikmet 2007). One of the few outcomes is that the most important drivers of resistance are perceived threats by individuals like perceived loss of power (Lapointe and Rivard 2005). Furthermore, resistance to change by employees has been presented as one of the most frequently encountered reasons for the non-use of innovations (Jiang et al. 2000).

Managerial psychology literature has defined resistance to change as "the forces against change in work organizations" (Mullins 1999, p. 824). The first theoretical conceptualizations of resistance to change by managerial psychology research started more than half a century ago. Researchers at this time identify in people a natural tendency to prefer keeping to what is well-known and familiar rather than to accept innovations, and thus the unknown (Coch and French 1948; Tichy 1983). Kurt Lewin (1947) was one of the first researchers, who used the term resistance to change. His pioneering studies on force-field analysis are the starting point of organizational change and the corresponding employees' resistance to change research. Since these early works, research in managerial psychology has investigated the phenomenon of resistance to change in different settings and developed a more precisely understanding of how and why people resist organizational change. For example, Piderit (2000) propose a multidimensional view of attitudes towards organizational change, Oreg (2003) discusses resistance to change as a personality trait, and Ford et al. (2008) describe different perspectives of resistance to change research, highlighting that research should distinguish between change agent and change recipients, and especially their relationship. All these organizational change research approaches have in common that they have extended the early understanding of resistance to change as provided by (Lewin 1947; Coch and French 1948).

Recent IS research studies like Bhattacharjee and Hikmet (2007) referred to these early approaches of resistance to change while proposing and validating a model integrating attitudes towards change and technology acceptance. Bhattacharjee and Hikmet (2007) draw upon Cenfetelli (2004)'s dual-factor model of IT usage and Lewin (1947)'s notion of opposing forces to explain physicians' resistance toward healthcare information technology. Other researchers define user resistance as "the behavioral expression of a user's opposition to an information system during the implementation" (Klaus and Blanton 2010, p.3). These two examples illustrate that IS research conceptualizes resistance in different ways and refers to concepts of resistance to change of managerial psychology research, which are already extended and updated within these disciplines. Therefore, in this approach the different concepts of resistance and resistance to change within IS research will be categorized and compared to the development of resistance to change research in managerial psychology, in order to develop an understanding of resistance to change based on recent research in these disciplines.

The reminder of the paper to discuss the phenomenon of resistance to change is as follows. In the following section 2, the general background of this research will be presented shortly. In section 3, the research methodology will be explained. Section 4 is the main part of this paper highlighting different concepts of resistance to change of managerial psychology and information systems research. Section 5 discusses this concepts and concludes with implications for IS research.

2 RESEARCH BACKGROUND

The phenomenon resistance itself has long been recognized, as more than half a century ago researchers already identify in people a natural tendency to prefer keeping to what is well-known and familiar rather than to accept innovation, and thus the unknown. However, there exist several definitions of resistance to change, which will be outlined within section 2.1. Moreover, there are a few approaches explaining resistance towards IT-induced change, which will be discussed in section 2.2.

2.1 Definitions of “Resistance to Change”

The term resistance to change is used frequently in research and practitioner literature on organizational change (Dent and Goldberg 1999; Dent and Goldberg 1999; Oreg 2006), usually as an explanation for why efforts to introduce large-scale changes in technology, production methods, management practices, or compensation systems fall short of expectations, or fail altogether. Kurt Lewin (1947) is credited with appropriating the term from the physical sciences, where it has a very precise meaning. However, in managerial psychology literature a variety of definitions of resistance to change exists. These definitions range from Beer et al. (1990), who claim that resistance is a function of the fallacy of programmatic change, to Kotter (1995), who finds that resistance is the obstacle in the organization's structure, to Spreitzer and Quinn (1996), whose work suggests that resistance can be found in individual and organizational characteristics (such as self-esteem and barriers to work) to Goldstein (1994), who invites leaders to see resistance as a temporary attraction to a state of equilibrium. To more fully illustrate the differences in resistance to change perspectives, the viewpoints of different managerial psychology as well as information system researchers are presented within this paper in order to discuss the use of the concept resistance to change in technology adoption models. To introduce the basic knowledge of technology adoption, the following section outlines the state of the art of technology adoption and resistance research.

2.2 Technology Adoption and Resistance

There is an extensive body of research that has focused on system acceptance starting with the introduction of the Technology Acceptance Model in 1989 by Davis (1989) and Davis et al. (1989). This research stream has led to 345 articles focusing on technology acceptance, which have been published in the top 19 peer-reviewed journals of the IS community in the last 20 years (Williams et al. 2009). These studies have consistently found relationships among beliefs, attitudes, behavioral intentions, and usage behavior, and typically focus on the initial decision about whether to use or not to use a system. However, far fewer studies have examined user resistance. Already in the early beginning of the discipline some researchers have asked for the other side of the coin of information systems acceptance: non-adoption, rejection or resistance (Keen 1981; Markus 1983; Hirschheim and Newman 1988). As Lapointe and Rivard (2005) argue, until 2005 there are only four publications, which opened the black box of why and how resistance takes place. In general their review of 20 IT related journals over the past 25 years has found 43 articles recognizing and outlining resistance as a critical variable.

The most recent study Lapointe and Rivard (2007) look at resistance at group level with the aid of the “*political variant of interaction theory*” (Markus 1983), and are able, like the study they published two years earlier (Lapointe and Rivard 2005), to show that perceived threats, such as, for example, unfairness or loss of status or of power can give rise to resistance just as much as anxiety can. Previously Markus also come to this conclusion (Markus 1983). Three further publications focus on factors, which can give rise to resistance (Jiang et al. 2000; Enns et al. 2003; Kim and Kankanhalli 2009). These studies demonstrate that, for example, pressure (Enns et al. 2003), uncertainty and the loss of status or power can tip the balance between acceptance and resistance as much as perceived values or switching costs (Kim and Kankanhalli 2009). Another study shows that other factors can influence resistance both as cause and as effect (Bhattacharjee and Hikmet 2007). This study provides evidence that perceived threats have a significant effect on resistance, and also that resistance to change is a factor exerting significant influence on elements of TAM. Eckhardt et al. (2009) were also able to show, what groups exert a social influence on the decision of an individual not to use a specific technology.

However, all the studies have in common that they define and conceptualize resistance, rejection, and non-adoption differently. Therefore, the purpose of this paper is to discuss, based on literature, how information systems as well as managerial psychology research deal with resistance to change in order to propose a better understanding of resistance to change for information systems research. The following section explains how we identified the papers used to discuss the different concepts of resistance to change.

3 RESEARCH METHODOLOGY

The main focus of this paper is a discussion of resistance to change based on information systems and managerial psychology literature. Therefore, based on Webster and Watson (2002) a literature review has been conducted in order to identify relevant literature, discussing resistance to change in the two disciplines. The paper is not intended to be classified as a scientometric study (Hunter et al. 1982; Leydesdorff 2001) as the purpose is not to present all papers dealing with resistance to change. However, the objective is to present a

comprehensive overview of different understandings of resistance to change by identifying research papers in the major journals of each discipline. The journals were selected based on their ranking in VHB Jourqual 2¹.

We started our analysis by searching for “resistance to change”, “overcome resistance”, “change” and “resistance” as a keyword in the journals listed in the appendix to identify research papers dealing with one of these keywords. We used the journal website or the Web of Science to identify relevant articles. Afterwards, we employed tools as citation analysis and observe the affiliations of authors, paper abstracts and texts or references and appendices. In a second step, we used the citation analysis in order to control for papers not identified by the search process (“*go backward*”). In addition, we applied in a third step the “*go forward*” step as recommended by Webster and Watson (2002) by using the Web of Science. Using the “*go forward*” and “*go backward*” technique, we identified articles citing or cited by the key articles identified in the previous step.

As a last step, we structured the identified papers by analyzing the definition and conceptualization of resistance and especially resistance to change. Webster and Watson (2002) recommended the use of a concept matrix in order to discuss the identified concepts in the papers. We used the concepts of general understanding of resistance as behavior, attitude or individual disposition and the explicit definition of resistance to change according to these categories. The resulting concept matrixes for the three research disciplines are illustrated and discussed in the following section.

4 RESEARCH RESULTS

Using a literature review as explained in the previous section, we identified several research papers dealing with resistance and resistance to change in particular. The following section introduces and discusses the identified concepts of resistance in managerial psychology and information systems research to develop a better understanding of resistance to change for information systems research. Within each discipline, we discuss selected papers out of the total identified ones that offer different perspectives on resistance to change, although other choices from the list could, perhaps, equally be used to justify the argumentation. The discussed papers were selected as other meta-analysis like (Dent and Goldberg 1999; Piderit 2000) uses them to discuss the development of resistance to change in managerial psychology.

4.1 Resistance to Change in Management and Psychology Research

According to Hirschhorn, “... *most organizations must change, and change profoundly, if they are to stay alive*” (Hirschhorn 2002, p.98), which represents the general motivation of management research to deal with the phenomenon of resistance to change. In this line, management literature has defined resistance to change as “*the forces against change in work organizations*” (Mullins 1999, p. 824) and resistance is defined in most of management research approaches as a subjective process psychologically at the individual level (Jermier and Knights 1994).

The general notion of resistance to change is credited to Kurt Lewin (Lewin 1947). Lewin evolved his concept “*based on the ‘person’ as a complex energy field in which all behavior could be conceived of as a change in some state of a field*”. For Lewin, resistance to change can occur but resistance can be anywhere in the system. Lewin has been working on this idea that the status quo represents an equilibrium between the barriers to change and the forces favoring change, since 1928 as part of his field theory (Weisbord 1987). Lewin believes that some difference in these forces – a weakening of the barriers or a strengthening of the driving forces – is required to produce the unfreezing that began a change. For the resulting change to become permanent after moving to a new level, refreezing is required to freeze at the higher level. Lewin (1947) sees work taking place within a system of roles, attitudes, behaviors, norms, and other factors, any and all of which can cause the system to be in disequilibrium. For Lewin, resistance to change is a system phenomenon, not a psychological one (although the psychology of the humans in the system certainly is an element of the total system) (Dent and Goldberg 1999).

Another early published reference to research on resistance to change in organizations is “*Overcoming Resistance to Change*” by Coch and French (1948). They claim that “*resistance to change is a combination of an individual reaction to frustration with strong group-induced forces*” (p. 521). Through a variety of experiments, they basically conclude that groups who were allowed to participate in the design and development of the changes have much lower resistance than those who do not. Moreover, they argue that “*participation through representation results in slower recovery than does total participation*” (p. 524).

In the 1950s and 1960s managerial psychology discusses based on Lewin (1947) and Coch and French (1948) a more individual and psychology orientated concept of resistance to change. This individual resistance to change has to be overcome by change agents during organizational change projects. In this context, researchers dealt

¹ <http://vhbonline.org/service/jourqual/jq2/>, ranking of the German Academic Association for Business Research (VHB)

with three major categories of resistance to change: identifying resistance to change, identifying causes of resistance to change and development of management strategies to overcome resistance to change. One of the first approaches to resistance to change has been proposed by Alvin Zander (1950). Zander (1950) introduces a different slant on resistance to change and defines resistance to change as “*behavior which is intended to protect an individual from the effects of real or imagined change*” (p. 9). Rather than providing a system model like (Lewin 1947), Zander (1950) equates resistance in organizations to that of a psychotherapist and a patient. He separates the cause and the symptom of resistance. Another approach has been published by Lawrence (1954). He points out that change and consequently resistance to change has both, a technical and a social dimension. He identifies the typical work change as occurring because a staff specialist (e.g., an engineer) takes a modification in a manufacturing procedure to a foreman or an assembly worker. Lawrence (1954) believes that resistance to change occurs primarily for two reasons: The staff specialist is so preoccupied with the technology of the change that he or she is oblivious to the social aspects and the staff specialist does not recognize production employees as being specialists in their own right. In addition, Flower (1962) as described by Dent and Goldberg (1999) point out that without change, there is no progress. However, people at work do not welcome change, and key people may resist it the most. He distinguishes between the employee and manager perspective. For managers, the change is often very straightforward and for employees, it might be not. Moreover, Flower (1962) highlights that additional resistance is often triggered by the way the manager reacts to the initial resistance. In his point of view, managers have to understand the change from the employees’ perspective.

Kotter and Schlesinger (1979) discuss different strategies for change indicating that “*in a rapidly changing world managers need to increase their skills at diagnosing resistance to change and at choosing the appropriate methods for overcoming it*” (p.106). In their point of view people resist changes because they have limited tolerance for change. Weisbord (1987) philosophy of change includes the notion that resistance to change can be painful or exhilarating but not avoided, and that resistance to change represents a “*little death*”, a “*letting go of the past to actualize a desired future*” (p.266). In his point of view, change agents should focus on an idealized future and thereby generating energy, enthusiasm, optimism, and high commitment of change recipients. Weisbord (1987) sees anxiety as energy being stored while the person or organization decides whether to invest it. Resistance can dissolve, when the person or organization chooses to channel the energy differently. In Weisbord’s (1987) point of view, resistance is a valuable passion. Spreitzer and Quinn (1996) suggest a view of resistance to change that change recipients’ resistance to support a transformational change initiative depending on individual and organizational characteristics. Individual characteristics include self-esteem, positive affect and high potential. On the other hand organizational characteristics include social support of change recipients, social support of change agents, perceived structural barriers and perceived imbedded conflict barriers. Goldstein (1994) views resistance as a temporary phenomenon of a system, which is tending toward equilibrium. Goldstein (1994) sees the challenge of organizations as “*not how to pressure a system to change, but how to unleash the system’s self-organizing potential to meet a challenge*” (p.9). In Goldstein (1994)’s point of view “*a work group as a natural system will spontaneously know how to reorganize*”. When employees are attracted to extant positive values rather than those represented by a proposed change, resistance is an attraction to come values, ideas, procedures, etc., which provide a benefit, not directly, opposition to the proposed change. This mental model of resistance “*conjures up a picture of employees as obstinate, stubborn, and willfully oppositional*” (p.55). Goldstein (1994) emphasize that people are put off by perceived threats to their sense of autonomy, integrity, and ideals. As a consequence, he argues that the question changes from how or what people resist to how or what people are attracted to. Other concepts of resistance to change include Brower and Abolafia (1995), who define resistance as a particular kind of action or inaction and as intentional acts of commission or omission. Diamond (1986) points out that the underlying nature of resistance is highly emotional. In addition, Vince and Broussine (1996) found out that responses to changes were often paradoxically emotional. Watson (1982) suggests that what is often labeled as resistance is in fact reluctance and Armenakis et al. (1993) define resistance in behavioral terms, but also suggest a cognitive state they call “*(un)readiness*”.

Based on these works discussing the psychological and behavioral aspect of resistance to change, Dent and Goldberg (1999) argue for retiring the phrase “*resistance to change*” as it fulfilled its original purpose. In this line, Piderit (2000) and Ford et al. (2008) propose a reconceptualization of the term resistance to change. Piderit (2000) advocates new research based on a reconceptualization of individual responses to change as multidimensional attitudes. She points out that the concept of resistance to change has been widely studied but it has limitations. She argues that in studies of resistance to change, researchers have largely overlooked the potentially positive intentions that may motivate negative responses to change and have oversimplified responses to change. Based on this analysis, (Piderit 2000) propose a multi-dimensional view of resistance to change, capturing employee responses along three dimensions: emotional, cognitive and intentional.

Oreg (2003) introduced the dispositional resistance to change concept and argued that each individual has a personality trait resistance making him/her resistant in a specific situation. Oreg (2003) suggested four dimensions for the dispositional resistance to change trait: routine seeking, emotional reaction, short-term focus,

and cognitive rigidity. The basic assumption is that those individuals in whom the character trait resistance is most strongly present will be less disposed to initiate changes for themselves and develop more of a negative attitude toward changes with which they are confronted. Following Piderit (2000) and his own dispositional resistance to change concept Oreg (2006) develops a model containing different aspects of resistance to change. The main part of the model is the tri-dimensional resistance to change construct. Oreg (2006) points out that using a tri-dimensional attitude towards change will, on the one side, make the investigation of antecedents and consequences more complex compared to earlier resistance studies. On the other side, however, it will enable “*a higher resolution that highlights the particular resistance that is associated with each of the antecedents and consequences*” (Oreg 2006, p.76) Furthermore, Oreg (2006) discusses context variables. Furthermore, he points out that the literature on resistance to change does not distinguish between the two types of resistance: reactions to change outcomes and reactions to the change process. Therefore, he suggests context variables modeling the change outcome and the change process. In response to his own developed dispositional resistance to change construct, the model contains this construct as well (Oreg 2006). As a consequence the model developed by Oreg (2006) is a first step towards a unified understanding of resistance to change containing most of the discussed conceptualizations of resistance to change.

The last research approach to resistance to change discussed within this section is Ford et al. (2008). They argue that revealing views of resistance to change tell a one-side story that favors change agents by proposing that resistance is an irrational and dysfunctional reaction located “*over there*” in change recipients. As a consequence, they point out that change agents contribute to the occurrence of resistance through their own actions and inactions and that resistance can be a resource for change. This “*change agent-centric*” view presumes that resistance is an accurate report by unbiased observers (change agents) of an objective reality (resistance by change recipients). Resistance is an interpretation assigned by change agents to the behaviors and communications of the change recipient. Based on his analysis of research on resistance to change, Ford et al. (2008) theoretically expands the understanding of resistance to change in three ways. First, by considering resistance as a self-serving and potentially self-fulfilling label for change agents sense making of recipients’ reactions to change initiatives. Second, by examining the ways in which change agents contribute to the occurrence of the very reactions they label as resistance through their own actions and inactions. Third, by considering that there are circumstances under which what agents call resistance can be a positive contribution to change. In Ford et al. (2008)’s point of view resistance is neither a sudden nor a direct response to a particular instance of change but a function of the quality of the relationship between agents and recipients in which change agents are and have been active participants and contributors.

Each of the discussed work has made an important contribution to the area of change management. Coch and French (1948) confirmed Lewin’s work on the importance of participation by all people in proposed changes that will affect them. Zander (1950) suggested that managers use signs of resistance as an indicator of a cause that needs to be addressed. Lawrence (1954) proposed that the existence of both technical and social dimensions of change. Most problems occur when the social aspects are not addressed. The phrase overcoming resistance to change as used by these works implicitly suggests that the source of the problem is solely within the subordinates and that the supervisor or more senior executive must overcome this unnatural reaction. Each author assumes that supervisors foster and implement change and that subordinates resist change.

In the majority of work on resistance to change, researchers have borrowed a view from physics to metaphorically define resistance as a restraining force moving in the direction of maintaining the status quo (Lewin 1947). Furthermore, most scholars in management literature have focused on the various forces that lead employees away from supporting changes proposed by managers. Initially envisioned as a systemic phenomenon, resistance has been seen largely as a psychological phenomenon located in change recipients. Piderit (2000) argue that the label of resistance could be used to dismiss potentially valid employee concerns about proposed changes. In most research on resistance to change, researchers have taken the perspective of those in charge of implementing change, and so less has been written about the perspective of those with less power. In general, empirical research on resistance to change reveals three different emphases in conceptualizations of the concept: as a cognitive style, as an emotional state, and as a behavior (Piderit 2000).

In addition to Piderit (2000), Ford et al. (2008) suggest a extended understanding of resistance to change containing of three elements. One element is “recipient action”, which is any behavior or communication that occurs in response to a change initiative and its implementation. The second element is “agent sensemaking”, including agents’ interpretations of and meanings given to actual or anticipated recipient actions as well as the actions agents take as a function of their own interpretations and meanings. The third element is “agent-recipient relationship” that provides the context in which the first two elements occur and that shapes, and is shaped by agent-recipient interactions.

In the next section, information systems research understanding of resistance to change will be presented. Afterwards it will be discussed, how information systems research can benefit by the outlined concepts of resistance to change from management and psychology literature.

4.2 Resistance to Change in Information Systems Research

Beside managerial psychology information systems research has also recognized the importance of employees' resistance to change as a barrier to successful implementation of IT-induced organization projects (Klaus and Blanton 2010). IS research recognize that better theories or models of user resistance would lead to better implementation strategies and desired implementation outcomes (Markus 1983). Among key factors associated with IT project failures, users' resistance is one of the most salient because it is related to human resistance to change (Jiang et al. 2000). In the following, major user resistance theories and models will be discussed in order to outline their understanding of employees' resistance to change. The starting point is Lapointe and Rivard's (2005) multilevel model of resistance to information technology implementation, followed by the four articles identified by Lapointe and Rivards (2005) and seven articles identified by ourselves following the methodology described above. Once again, we discuss selected papers out of the total identified ones of information systems research that offer different perspectives on users' resistance to change, although other choices from the list could, perhaps, equally be used to justify the argumentation. We focused on the once identified by Lapointe and Rivards (2005) and the ones published in the AIS senior scholar basket journals.

Lapointe and Rivard (2005) describe behavior as the primary dimension of resistance. In this sense, behavior is a reaction to a present or ingoing situation perceived as being negative (Ang and Pavri 1994), as inequitable (Joshi 1991), as a threat (Dent and Goldberg 1999), or as stressful feeling (Marakas and Hornik 1996). User can express resistance in an active form (visible and relatively easy to detect), or a passive form (harder to detect and difficult to deal with) (Kim and Kankanhalli 2009). Lapointe and Rivard (2005) propose a model of resistance to IT implementation, where resistance behaviors occur following perceived threats that results from the interaction between initial conditions and a given object. The model recognizes the potential of presence of multiple instantiations for antecedents related to perceptions about technology leading to user resistance.

One of the early studies identified by Lapointe and Rivard (2005) is the work on power, politics and MIS implementation by (Markus 1983). She explains resistance in terms of interaction between the system being implemented and the context of use. Her model portrays resistance as resulting from the interaction of system features with the intra-organizational distribution of power.

Joshi (1991) examines the issue of information systems implementation and resistance to change from an equity theory perspective and develops an equity-implementation model that explains resistance to change. The model is based upon the premise that there is no fundamental resistance to every change and describes a three-level process employed by users to evaluate a change in terms of change impact on their equity status. He posits that "in any exchange relationship, individuals are constantly concerned about their inputs, outcomes, and fairness of change" (p.231.) and therefore, after an evaluation of this net gain user resistance could occur, when the result is negative.

Marakas and Hornik (1996) introduce passive resistance misuse and extend the understanding of different forms of resistance an individual could perform. They explain resistance behavior as passive-aggressive responses to threats or stress that an individual will – rightly or wrongly – associate with a new system. Their explanation is among the first to focus on resistance as a resulting behavior during IT implementation projects.

Martinko et al. (1996) offer a theoretical explanation for resistance on IT implementations at the individual level. They argue that the variables and dynamics associated with the rejection of IT can be conceptualized within an attributional perspective of achievement and motivation. External stimuli combined with individual differences cause individual attributions, which will lead to affective reactions and resistance behaviors. This approach conceptualizes resistance in terms of beliefs and attitudes towards IT-induced organizational change and is one of the first ones providing an explanation, how individuals develop these beliefs and attitudes.

Cenfetelli (2004) use this approach as an underlying theory for his dual factor model of technology usage. He propose a theory for existence, nature, and effects of system attribute perceptions that lead solely to discourage usage. This categorization of enablers and inhibitors is one of the first theoretical explanations of beliefs and attitudes like perceived threats related to user resistance.

Bhattacharjee and Hikmet (2007) present a theoretical model of physician resistance to healthcare information technology using Cenfetelli (2004)'s dual-factor model and (Lewin 1947)'s concept of resistance to change. They argue that incorporating resistance to change into theoretical models of technology acceptance will enable

researchers to better understand, why individual resist using technologies. This model is one of the first ones integrating the concept of resistance to change from management research in technology acceptance and resistance research.

Eckhardt et al. (2009) describes resistance as non-adoption behaviors of individuals and identified social influence as a major driver for non-adoption behaviors. (Kim and Kankanhalli 2009) develop the construct “user resistance” as the resulting behavior of a status-quo bias. They use the Theory of Planned Behavior (Ajzen 1991) to integrate relevant concepts from resistance theories.

In one recent article, Klaus and Blanton (2010) focused on user resistance determinants and the psychological contract in enterprise system implementations. User resistance is defined in this paper as “*the behavioral expression of a user’s opposition to a system implementation during the implementation*” (p.3). Klaus and Blanton (2010) identified resistance categories and their respective resistance determinants.

Meissonier and Houze (2010) consider resistance as a behavioral dimension of conflict: the way a person expresses a conflict. Referring to the Theory of Reasoned Action (Fishbein and Ajzen 1975) they consider resistance as an actual behavior preceded by conflict, and conflict as a form of attitudinal beliefs corresponding to an affective or evaluative judgment of a person about the likelihood of the object or event consequences. Conflict is defined as a disagreement of persons or groups of persons perceiving a situation as being inconsistent with their own interests. While acts of resistance concern forms of behaviors, conflicts are about the object of resistance and perceived threats. Three conditions of conflict: interdependence, interference and disagreement. According to Klaus et al. (2010), it seems reasonable to expect that in any given system environment, not all system users have adopted the system willingly and not all non-users have resisted. They conclude that it is necessary to undertake research to develop an understanding of the nature of user resistance that may subsequently serve as a basis for research concerning effective management strategy (p.92). User resistance is defined in this paper as “users” opposition to system implementation.

The discussion of information system articles dealing with user resistance reveals that IS research like management and psychology research offers different conceptualizations for resistance to change. Most of the articles focusing on behavioral aspects of resistance to change and some discuss resistance to change as an attitude.

The majority of these studies treats users’ resistance as a component of an organizational system at the individual and group level and discuss resistance to change as a behavior or attitude. Based on the analysis of resistance to change in managerial psychology and information systems research the following section compares the different concepts in order to suggest an updated view of individual resistance to IT-induced organization change.

5 DISCUSSION AND IMPLICATIONS

Based on the literature analysis of managerial psychology and information systems research this section discusses implications for information systems research and especially research about resistance to IT-induced organizational change efforts. The analysis reveals, while the literature often tends to portray resistance as the normal reaction to change, that it is clearly a complex phenomenon, which cannot be described in a simple causal fashion. The leading question in this regard is: “How can we balance the organizational need to foster ambivalent attitudes toward change and the individual need to minimize the potentially debilitating effects of ambivalence?”

The different approaches to explain user resistance are categorized in Figure 1 showing that information systems research has focused mainly on identifying and discussing perceived threats. Furthermore, it conceptualized resistance either as an attitude and belief or as behavior. Less research has been conducted to investigate resistance to change in particular. Only one approach could be identified discussing resistance to change. Bhattacharjee and Hikmet (2007) established their approach on Lewin’s work from 1947. Furthermore, one approach could be identified discussing individual differences and personality in relation to user resistance (Klaus et al. 2010). As a consequence, it is beneficial for IS research to evaluate concepts of resistance to change, which were discussed and evaluated by managerial psychology research in order to extend the understanding of individual resistance to IT-induced organizational change. Figure 1 shows the possible implications of management and psychology research for information system research (red arrows).

The most important implication might be an adaptation of the conceptualization provided by Ford et al. (2008). Information systems research might discuss the three categories of resistance to change as discussed by Ford et al. 2008. Therefore, user resistance research can be distinguished by change recipients beliefs and actions, change agents’ sense making and the recipient agent relationship. As Figure 1 shows, most of the research in information system research has been conducted to discuss change recipients beliefs and attitudes and less

research has been conducted to discuss change agents' sense making (one example is Markus (1996) and the recipient agent relationship. Therefore, transferring approaches from managerial psychology research investigating change agent sense making and the relationship will extend the understanding of resistance to IT-induced organizational change. Especially, as Ford et al. (2008) discuss that this "change agent-centric" view presumes that resistance is an accurate report by unbiased observers (change agents) of an objective reality (resistance by change recipients) and that "it tells a one-side story that favors change agents by proposing that resistance is an irrational and dysfunctional reaction located "over there" in change recipients". Information systems research will benefit by following this new understanding of resistance to change in general and update the one-side story by the three dimensions discussed by Ford et al. (2008). This will enable researchers and practitioners to see resistance as a source of change in order to improve IT-induced organizational change projects. However, neither in managerial psychology nor in information system research this conceptualization has been researched in deep, thus future research might focus on it.

One of the first implications for change recipients beliefs and actions research is that resistance to change can be conceptualized as a cognitive style, as an emotional state, and as a behavior (Piderit 2000) as an extension of Lewin's resistance to change construct. Although these conceptualizations overlap somewhat, they diverge in important ways. Finding a way to bring together these varying emphases with classical technology acceptance variables should deepen our understanding of how employees respond to IT-induced changes. Early social psychologists argue that attitudes are structured along three dimensions that correspond with the three definitions that have dominated research on resistance to change. Piderit (2000) labels these three dimensions of attitudes the cognitive, emotional and intentional. This conception is known as the tripartite view of attitudes (Ajzen 1984). The cognitive dimension of an attitude refers to an individual's belief about the attitude object, the emotional dimension of an attitude refers to an individual's feelings in response to the attitude object, the intentional dimension represents a plan or resolution to take some action, rather than a plan to try to achieve some goal (Piderit 2000). In this category-based view the global attitude is viewed as primary; changes in the global evaluation are modeled as causes of variation in the cognitive, emotional, and intentional dimensions (Ajzen 1984). In general, social psychological research clearly supports a multidimensional view of attitudes that can be used to integrate the inconsistent definitions of resistance that have been found in information system research and also discussed in management research.

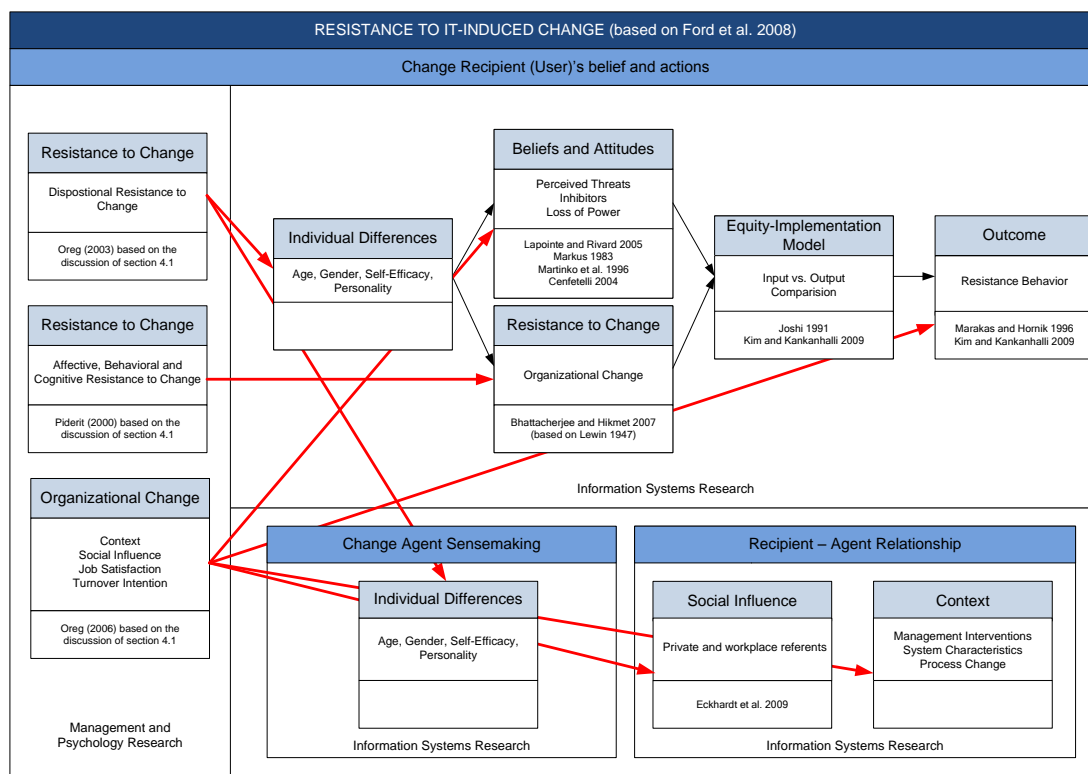


Figure 1: Resistance to IT-induced change

A second implication is Oreg's (2003) dispositional resistance to change, which can extend IS research's understanding of individual differences and user resistance. According to Klaus et al. (2010), there are groups of employees that show higher resistance intentions and behaviors compared to other groups within an organization. Transferring Oreg's (2003) dispositional resistance to change concept to IS research in order to

research the relationship between individual's reactions to change and individual personality might be beneficial to extend our understanding of resistance to IT-induced organizational change.

Also an adaptation of the provided conceptualization of context and organizational change variables in general (Armenakis and Bedeian 1999; Oreg 2006) to information systems research will extend the understanding of IT-induced organizational change. First of all, different outcome variables like job satisfaction, organizational commitment and turnover intentions might be discussed in relation to IS implementations. Second, these variables might help to understand the context of the recipient agent relationship as variables like trust in management, etc. describes the context an change project is implemented and how the relationship between change agents and change recipients is.

In general, the analysis and the discussion of implications for information systems research shows that managerial psychology research provide a lot of explanations and different concepts of resistance to change, which might help to understand user reactions to IT-induced organizational change projects. Future research might use this discussion as a starting point to investigate the explanation power of these managerial psychology concepts in relation to IT projects and will therefore provide deeper insights into the still open question: Why do people reject technologies?

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Appendix

Journal List for literature review

Academy of Management Journal	Journal of International Business Studies
Academy of Management Perspectives	Journal of Management
Academy of Management Review	Journal of Management Information Systems
Administrative Science Quarterly	Journal of Management Studies
Applied Psychology. An International Review	Journal of Managerial Psychology
California Management Review	Journal of Occupational and Organizational Psychology
Communications of the ACM (CACM)	Journal of Information Technology
Communications of the AIS (CAIS)	Journal of Organizational Behavior
DATA BASE for Advances in Information Systems	Journal of Organizational Change Management
Decision Support Systems	Journal of the ACM
Electronic Markets - The International Journal	Journal of the Association of Information Systems
European Journal of Information Systems	Journal of Vocational Behavior
European Journal of Work and Organizational Psychology	Management Science MS
Harvard Business Review	MIS Quarterly
Human Relations	MIS Quarterly Executive
IEEE Transactions on Engineering Management	MIT Sloan Management Review
Information and Management	Omega. The International Journal of Management Science
Information Resources Management Journal	Organization
Information Systems	Organization Science
Information Systems Frontiers	Organizational Behavior and Human Decision Processes
Information Systems Journal	Personnel Psychology
Information Systems Management	Personnel Review
Information Systems Research	Research in Organizational Behavior
Journal of Applied Behavioral Science	The Journal of Strategic Information Systems
Journal of Applied Psychology	Wirtschaftsinformatik
Journal of Applied Social Psychology	Zeitschrift für Betriebswirtschaft ZfB
Journal of Behavioral Decision Making	
Journal of Business and Psychology	
Journal of Business Research	
Journal of Economic Behavior and Organization	