Understanding Heterogeneity in Post-Implementation Enterprise System Usage: Towards a Fit/Misfit-Experience-Outcome Typology

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Abstract

The overarching objective of this dissertation is to uncover why and how individually experienced fits and misfits translate into different outcomes of user behavior and satisfaction and whether these individual fit/misfit outcomes are in line with organizational intent. In search of patterns and possible archetype users in the context of ES PIPs, this dissertation is the first study that specifically links the theoretical concepts of the aggregated individual fit experiences with the individual and organizational outcome of these experiences (i.e. behavioral reaction, user satisfaction, and alignment with organizational intent). The case study's findings provide preliminary support for four archetype users characterized by specific fit/misfit experience-outcome patterns.

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List of Abbreviations

AST ..... Adaptive Structuration Theory

AVOR..... Work Preparation (Arbeitsvorbreitung)

BANF ..... SAP's Purchase Requisition (Bestellanforderung)

BC-BMT-OM..... SAP's Organizational Management module

BC-BMT-WFM..... SAP's Business Workflow module

CMUA..... Coping Model of User Adaption

CRM..... Customer Relationship Management

E-Business..... Electronic Business

E-Commerce..... Electronic Commerce

e.g. ..... for example (exempli gratia)

et al. ..... among others (et alii)

ERP..... Enterprise Resource Planning

ES. ..... Enterprise Systems

etc. ..... et cetera

FAM ..... Fit-Appropriation Model

FBST ..... Features-Based Theory of Sensemaking Triggers

FI ..... SAP's Finance module

FMEO..... Fit/Misfit Experience-Outcome

GSS..... Group Support Systems

HCM..... Human Capital Management

HR ..... Human Resources

i.e. ..... that is (id est)

IM ..... SAP's Invoice Management module

IS ..... Information Systems

IT ..... Information Technology

IWI ..... Institute of Information Systems (Institut für Wirtschaftsinformatik)

JMIS ..... Journal of Management Information Systems

LO..... SAP's Logistics module

M&A ..... Mergers & Acquisitions

MIS..... Management Information System

MISQ..... Management Information Systems Quarterly

MM..... SAP's Material Management module

OCR..... Optical Character Recognition

p(p) ..... page(s)

P2P ..... Procure to Pay

PAM ..... Post Acceptance Model

PIP ..... Post-Implementation Project

Q&A ..... Questions & Answers

RBV..... Resource-Based View

SBB ..... Swiss Federal Railways (Schweizerische Bundesbahnen)

TTF..... Task-Technology Fit

UK ..... United Kingdom

US..... United States

USA..... United States of America

1 Introduction

1.1 Problem Statement

Enterprise Systems (ES), such as Enterprise Resource Planning (ERP) systems or Customer Relationship Management (CRM) systems have become an indispensable part of the modern information systems (IS) environment. Convinced by the alluring opportunity to overcome the fragmentation problems of legacy systems by integrating various sources of data into a single software application and by generating a seamless information flow throughout the whole organization, a majority of large and medium-sized organizations have implemented ES solutions over the last decades (Bremicker 2013; Liang et al. 2007). However, the rollout of these primary ES revealed that the implementation concerns of an ES do not end once the system becomes operational (Nah et al. 2001a; Soh et al. 2003). Companies have become aware of the long-term nature of an ES investment. The initial implementation of an ES is now viewed as the beginning of a continuous improvement process. Even an established and accepted ES has to be adapted continuously to new business developments (e.g., mergers, globalization) and environmental changes (e.g., changes in legal and regulatory requirements) (Alshawi et al. 2004; Dalal et al. 2004; Scheer and Habermann 2000; Themistocleous et al. 2001). Due to the various challenges, ES consolidation and improvement is currently a hot topic in many companies (Detecon 2012). To ensure the success of their ES investment, organizations extend the initially defined functionality of their ES after the initial implementation by initializing post-implementation projects (PIPs) to extend the ES lifecycle. Even though an initial ES

has already been implemented, PIPs are not always successful and organizations face various related challenges (Seddon et al. 2010).

Extant research (Light 2005; Luo and Strong 2004; Markus 2000; Rosemann et al. 2004; Seddon et al. 2010; Sia and Soh 2007; Soffer et al. 2003; Soh and Sia 2004; Somers and Nelson 2003; Strong and Volkoff 2010; Wei et al. 2005) shows that the success of an ES project significantly depends on the achievement of organization-ES fit, which is defined as the degree of alignment between the ES and organizational needs (Hong and Kim 2002). It is measured by comparing the alignment both before and after the ES implementation or the post-implementation project. Existing fit literature implicitly presumes that the greater the fit, the more efficient and effective the organizational processes supported by the system will be and the more the system will help users across the organization get their jobs done (Seddon et al. 2010). Therefore, users are treated as a homogeneous mass with similar requirements. This view is fundamentally challenged by individual user experience research and ES fit-specifically by the recent research of Strong and Volkoff (2010) who provide first evidence that users' ES experiences are more heterogeneous than previously assumed in the ES fit context. The authors therefore state that understanding the nature of organization-ES fit "involves understanding not only the parts (i.e., the fit between the ES and various individual tasks), but also the sum of its parts, and the interaction between the parts" (Strong and Volkoff 2010, p. 732). Organization-ES (mis)fit is defined as an individually perceived (mis)match between the elements of the enterprise system and the elements of the organization utilizing the system compared to the pre-project situation. In their conceptual paper Maurer et al. (2012) subsequently accentuate that not only the individual fit experiences but also *their consequences* should be investigated to fully understand the overall context and the success of a PIP. Three different possible outcomes can be derived from extant literature. First, IT-induced changes such as PIPs are shown to provoke different user-specific *behavioral reactions* (Beaudry and

Pinsonneault 2005; 2010). It is also acknowledged in the literature that "the capability of organizations to fully leverage their current (and future) investments in installed IT are inextricably bound to the collective knowledge that exists regarding post-adoptive behaviors" (Jasperson et al. 2005, p. 549). Second, discrepancy based fit perceptions are shown to end up in different levels of *user satisfaction* (i.e., Chin et al. 2014). Depending on how users evaluate, i.e. make sense of their fit perceptions they are either more or less satisfied. And third, "cognizance of the various levels at which ES-organization fits and misfits occur is a critical component to identifying whether systems as a whole carry adverse consequences or if they may provide positive benefits" (Maurer et al. 2012, p. 4655). Therefore, not only the consequences at the individual level but also the *organizational outcome* and whether the individual outcomes are aligned with the organizational intent are essential. If users' aggregated fit experiences are as heterogeneous as indicated by Strong and Volkoff (2010), the consequences are also supposed to be heterogonous and might therefore conflict with the homogenization and standardization goal of ES PIP.

To find answers to the challenges that organizations face when carrying out a PIP, it can be concluded that it is essential to understand how fit is experienced by the users, how these experiences are aggregated and evaluated, and what the consequences of the aggregated experiences are. In the exploration of these linkages, *three main research gaps* become apparent. *First*, there is a lack of a holistic view on fit in ES literature. On the one hand, the existing conceptualizations of fit are mainly focused on the organization as their level of analysis. The only exception is the earlier mentioned research of Strong and Volkoff (2010), who take an individual perspective by understanding misfits as collective constructs composed of an aggregation of individual task-technology fit experiences. Although the totality of individually perceived fits versus misfits is considered to be essential (Maurer et al. 2012), Strong and Volkoff (2010) focus on misfit experiences only, in line with most of the other authors who

limit themselves to either fit or misfit. Because Maurer et al.'s (2012) contribution is limited to a conceptual nature, there is a lack of any empirical studies explicitly analyzing fit and misfit experiences in combination.

Second, there is little knowledge on the consequences of individually experienced fits and misfits. While Strong and Volkoff's study provides valuable knowledge about users' misfit experiences, it ignores the balance and the interplay between individually experienced misfits as well as the consequences of the misfits, although the authors explicitly mention the importance of the sum of the individual misfit experiences and the interactions between them. In accordance with other extant research they build on the longstanding assumption that fit and misfit always carry positive and negative consequences, respectively (e.g., Nevo and Wade 2010; Seddon et al. 2010; Strong and Volkoff 2010). However, the evaluation of an individually perceived fit or misfit might differ from one user to another. For example, an automated work process might be perceived as fit by two different users because work efficiency is (potentially) increased and their work load is reduced. One user might evaluate this fit as beneficial because it facilitates his or her individual work significantly and reduces cumbersome work steps. The same fit might frighten another user due to the fact that he or she fears losing the job due to the more automated workflow. Therefore, the basic assumption of fits being favorable and misfits unfavorable might not always be appropriate (Maurer et al. 2012). Additionally, ES fit literature rarely investigates the users' behavioral and emotional consequences of specific fits or misfits, although recent IS user adaption research highlights the importance of having a better understanding of individual users' reactions to IT-induced changes (Beaudry and Pinsonneault 2005; 2010). Beaudry and Pinsonneault (2005; 2010) illuminate users' adaption strategies based on different combinations of appraisal, but without specifically considering users' individual system experiences.

Third, the alignment of these individual outcomes (i.e., behavioral reaction and user satisfaction) with the organizational intent have been insufficiently investigated in the context of PIPs, although Jasperson et al. (2005, p. 549) highlighted in their conceptual paper that without including the users' individual cognitions and behaviors, "it is unlikely that organizations will realize significant improvements in their capability to manage the post-adoptive life cycle."

1.2 Research Focus and Research Questions

Consequently, this dissertation has the broad goal of uncovering why individually experienced fits and misfits translate into different outcomes of user behavior and satisfaction and whether these individual outcomes are in line with the organizational intent in search of patterns and possible archetype users in the context of PIPs. This dissertation is the first study that specifically links the theoretical concepts of individual fit experiences and their aggregations with the individual and organizational consequences of these experiences (i.e. behavioral reaction, user satisfaction and alignment with organizational intent). To get an overall understanding of all the connections between the users' fit and misfit experiences and the different outcomes, we gradually address the research gaps presented in the previous chapter.

The first step is to gain in-depth knowledge on the users' experiences of fit in the ES post-implementation context:

Research Question (1): *How do users experience fits and misfits between an ES and their individual workflows in the context of a PIP?*

In congruence with the process of discrepancy evaluation (Chin et al. 2014), fits and misfits are experienced in sequences. First, an individual recognizes the existence of, i.e. perceives a fit or misfit. Second, he or she proceeds to evaluate, or make sense of this cognitive perception by appraisals to form a summary evaluation. Therefore, research question (1) is specified by formulating research question (1a) and research question (1b):

Research Question (1a): *How do users cognitively perceive fits and misfits between an ES and their individual workflows in the context of a PIP?*

It is important to first explore which fits and misfits are cognitively salient to the users and whether there are differences among the users. It seems to be of great explanatory value to expand the research of Strong and Volkoff (2010) by analyzing the totality of fit versus misfit instead of the misfits only (Maurer et al. 2012). The misfit domains elaborated by Strong and Volkoff (2010) are estimated to be applicable for both the fit perceptions and the post-implementation context.

Research Question (1b): *How do users evaluate the perceived fits and misfits and form a summary evaluation?*

To understand why fit and misfit perceptions have different consequences, it is essential to first grasp how users make sense of the perceptions (Chin et al. 2014). Based on the coping model of user adaption (Beaudry and Pinsonneault 2005) the evaluation is influenced by the users' appraisals, i.e. how the users assess the (potential) consequences of the PIP. Thereby, it seems to be worth asking the question: is the longstanding assumption that fit is always beneficial and misfit always harmful valid (Maurer et al. 2012). To understand the nature of the collective fit construct, the evaluated fits and misfits have to be analyzed in sum by addressing the interactions between different fits and misfits.

In a second step the different consequences of the fit experiences have to be identified and illustrated to link the individual consequences with the consequences at the organizational level and to find out whether the individual outcomes are in line with organizational intent:

Research Question (2): *What are the individual consequences of the perceived fits and misfits in terms of behavioral reactions and level of satisfaction and how are the individual consequences aligned with organizational intent?*

On the one hand, users are supposed to *behaviorally (re)act* according to a specific adaption strategy as shown by Beaudry and Pinsonneault (2005). On the other hand, all perceived fits and misfits are combined by the user to form an *overall assessment of satisfaction* with the enhanced ES (Chin et al. 2014). These two individual consequences might interact, i.e. users might be more satisfied if they behave in a certain way, or they might behave in a specific manner due to their level of satisfaction. Although a satisfied user or an individually chosen behavioral reaction might be ideal at an individual level, this might not be the best option for the organization (Maurer et al. 2012). Answering this second research question should also provide a response to whether establishing a high number of satisfied users is in the interest of the organization and therefore an adequate project measure. Therefore it is important to reflect on the individual consequences critically regarding their alignment with organizational intent to better understand the challenges organizations face when enhancing ES.

Only linking the perceptions, evaluations and consequences of fits and misfits allows for an understanding of the overall context, thereby raising the last research question:

Research Question (3): *Is there any evidence for the existence of user archetypes characterized by specific fit/misfit experience-outcome patterns?*

We propose that, although every user perceives, evaluates, and reacts differently, some user archetypes with similar fit/misfit experience-outcome patterns will become evident. These patterns of interactions provide the basis for a general framework that helps explain user heterogeneity in the outcomes of ES PIPs. User archetypes might help organizations to better identify and understand their users and to elaborate user-adequate instruments and measurements to guarantee project and long-term system success.

In summary, this dissertation intends to make three valuable contributions. First, it provides a more holistic view on users' individual fit experiences by investigating the totality of fit versus misfit and by shedding light on the users' sensemaking of fit and misfit perceptions. Second, fit and misfit experiences are assessed within a broader context by exploring both their individual consequences and their alignment with organizational intent. Third, the identification of patterns of specific combinations of fit and misfit perceptions, evaluations, and outcomes is intended to reveal a number of definable user archetypes.

1.3 Overview of Research Methodology

An initial conceptual framework in terms of a pre-conception as suggested by Eisenhardt (1989) serves as basis for the empirical analysis. The Fit/Misfit Experience-Outcome (FMEO) model picks up on the concepts of the literature that was identified as most essential and consolidates these concepts to an integrative framework. The model evolved inductively and some of the aspects turned out to be relevant only in the course of data collection and data analysis. This very valuable interactive process between data collection and data analysis helped to progress toward a framework that integrates the fit and misfit experiences, the behavioral reactions, and user satisfaction. This progress towards an integrated framework al-

lows for studying – at the level of the individual – why certain fit and misfit experiences are associated with specific user behaviors and levels of user satisfaction and whether they are aligned with organizational intent.

A multi-perspective case study was deemed appropriate (Miles and Huberman 1994; Yin 2003) to study user behavior in the ES post-implementation context. More specifically, the research is based on a 14-month, in-depth exploratory qualitative field study of a PIP. The PIP comprised the replacement of an existing ES module with a new module that expanded the initially defined ES functionality. We separated the research process into three stages for clarity. We started by addressing research question (1). Data collection was guided by Strong and Volkoff's (2010) initial work in analyzing fit at an individual level. During data collection, it became apparent that first, in contrast to Strong and Volkoff (2010), not only were misfits salient in data, but also the individually perceived fits. Second, not every misfit was appraised as unfavorable and not every fit as beneficial, which was assumed by most of the researchers having addressed fit in the recent past. The existence of an evaluative component became evident. The preliminary findings brought us to the conclusion that fits and misfits have to be analyzed in a broader context and allowed us to raise research questions (2) and (3). Only after going back to the data again did we find that the "discrepancy evaluation process" presented by Chin et al. (2014) in combination with the adoption and coping behavior research (Beaudry and Pinsonneault 2005; Beaudry and Pinsonneault 2010; Day 1977; Jasperson et al. 2005) offers a lens for further explaining the diverging user behaviors and satisfaction levels.

1.4 Study Organization

The dissertation is divided into seven chapters. Chapter 1 has provided an overview of the research problem, the research focus, the research questions, and the methodology. In Chapter 2 the theoretical background is presented by giving an overview of the general concept of fit, determining its place in IS Research, and by introducing the relevant literature. This forms the basis for the development of the Fit/Misfit Experience-Outcome (FMEO) model presented in Chapter 3. In Chapter 4, the case study is described in detail followed by an explanation of how the data was collected and analyzed. The case study's findings are visualized in Chapter 5. First, the particular elements of the FMEO model are highlighted to give a deeper understanding of the construction of the chain of evidence. In a second step, the four fit/misfit experience-outcome patterns and the archetype users are presented and described in detail. In Chapter 6, the findings are discussed and interpreted. Furthermore, the limitations of the dissertation are addressed and an outlook into future research opportunities is given. Finally, the study is briefly summarized in Chapter 7.

2 Theoretical Background

In this chapter, the most essential concepts of fit are presented. They form the basis for the building of the theoretical framework and the development of the Fit/Misfit Experience-Outcome (FMEO) model (see chapter 3) that allows for examining the theoretical framework empirically (Bacharach 1989).

2.1 Concept of Fit

> *"An old fable of The Blind Men and the Elephant by John Godfrey Saxe tells about seven blind men who examine an elephant. One touches the trunk, the other his ear, the third his legs, and so forth. Each of them incapable of seeing the whole comes up with a completely different description. The elephant is variously a wall, a spear, a snake, a tree, a fan or a rope depending on which feature of the animal each man seizes. The notion of ERP fit is like the elephant in the fable, a complex, multivariate phenomenon […]."*
>
> *(Somers and Nelson 2003, p. 316)*

Up until the late 1950s, academic writing was dominated by the classic view that a single organizational structure was effective in all types of organizations (Donaldson 1999). In that decade, management research began showing a growing interest in explaining differences in organizational structure. Over the following decades, the concept of fit (also termed contingency, consistency, or co-alignment) has emerged as an important theoretical concept in strategic management, but also in many other areas of research (Venkatraman and Prescott 1990). The concept of fit was elaborated and defined by several authors using different meanings in various settings.

One central theory that appeared in the 1960s was the ***Structural Contingency Theory*** (e.g. Burns and Stalker 1961; Chandler 1962; Drazin and Van de Ven 1985; Fry and Smith 1987; Hofer 1975; Van de Ven and Drazin 1984), which applied the contingency approach to organizational structure (Donaldson 1999)[1]. The models developed using *Structural Contingency Theory* share the underlying premise that context and structure must fit together if the organization is to perform well: the better the fit among contingency variables, the better the performance of the organization (Drazin and Van de Ven 1985). Although the contingency idea was strongly supported by many other researchers, the theory has been heavily criticized, primarily because of its lack of a solid theoretical basis and the failed support of its predictions by new data (Dennis et al. 2001). Due to the criticisms and its inability to explain organizational performance, its use and influence gradually diminished in organizational research in the 1980s (Weill and Olson 1989). Nevertheless, many researchers built on the basic idea of fit between that context and structure by trying to develop updated "fit models" that overcame the shortcomings of the original theory.

Venkatraman and Camillus (1984, p. 513) were convinced that "the concept of fit has not been adequately clarified when employed in the various social science streams." Therefore, the authors developed a conceptual scheme to highlight the main differences among the approaches (Venkatraman and Camillus 1984). The findings served as a foundation for the *Fit Taxonomy* developed by Venkatraman (1989), which presents six concepts of fit within strategic management and links them to the available statistical schemes.

[1] The book Chapter written by Donaldson (1999) gives a detailed overview of the development and publications regarding Structural Contingency Theory.

2.2 Concept of Fit in IS Research

In the 1980s, the contingency approach was also adapted to the IS research field. Weill and Olson (1989) acknowledged that 70% of the reviewed empirical studies published in MISQ and JMIS from 1982 and 1988 employed some use of a contingency model. Following the premises of Structural Contingency Theory, IS contingency concepts suggest that a number of variables influence the performance of information systems: the better the fit between the variables and the design and use of the IS, the better the IS performance. The concepts also assume a fit between IS performance and organizational performance. The ideas of the contingency approach and its adaption to the IS research field contributed to the understanding of the relationship between information technology and organizations and served as the foundation for development of further theoretical "fit" frameworks. The most influential static and dynamic fit models are described in more detail in the following subchapters.

2.2.1 Static Fit Models

2.2.1.1 Task Technology Fit (TTF) Theory

Task-Technology Fit (TTF) theories are contingency theories arguing that the use of a technology may result in different outcomes at the individual or group level depending on the configuration of the technology and the task for which it is used (Goodhue and Thompson 1995). The theory acknowledges that the fit between task needs and technology functionality leads to performance and assumes that the users are able to evaluate the task-technology fit of the system they use (Goodhue 1998).

The basic model of TTF was developed by Goodhue (1988) – based on the theory of work adjustment (Dawis et al. 1968; Weiss et al. 1970) and a review of MIS attitude research – and

focused on the correspondence between task requirements and system functionality. The author describes the fundamental idea of TTF as follows: “The heart of the task-technology fit model is the assumption that information systems give value by being instrumental in some task or collection of tasks and that users will reflect this in their evaluations of the systems. Thus, the strongest link between information systems and performance impacts will be due to a correspondence between task needs and system functionality (task-technology fit)” (Goodhue 1998, p. 107). Task technology fit is therefore achieved “when a technology provides features and support that ‘fit’ the requirements of a task,” as Goodhue and Thompson (1995, p. 214) state in their paper. Goodhue (1998) tested the TTF model and found validity for 12 constructs measuring the degree to which an organization’s information systems and services meet the information needs of its managers.

Alongside Goodhue and Thompson’s (1995) model, which operates at the individual level of analysis, Zigurs and Buckland (1998) presented an analogous model that operates at the group level. Drawing on Venkatraman’s (1989) work in strategic management, they developed a set of propositions that link the fit between various dimensions of group support systems technologies and group task attributes with group effectiveness.

2.2.1.2 Swanson and Beath’s (1989) Relational Foundations Model of Maintenance

Swanson and Beath (1989) suggested a new view of IS maintenance by integrating organizational aspects. This perspective departed from the traditional view of maintenance as a technical, individual programming task. Their relational foundations model explicitly incorporated users into the maintenance equation. They hypothesized that “problems in the maintenance and development of application systems occur in substantial part because of *lack of fit* among and between the systems and those who share in the maintenance task as a whole”

(Hirt and Swanson 2001, pp. 375-376). Users were therefore seen as sharing in the task. The *fit perspective* of user relationships to systems (matching user skills and experience to system functionality and usability) and user relationships to IS staff (ensuring complementary background and expertise, allowing for effective communication in maintenance) was added to the maintenance equation (Hirt and Swanson 2001).

2.2.1.3 Henderson and Venkatraman's (1993) Strategic Alignment Model

Drawing on strategic management research (Chandler 1962; Venkatraman and Camillus 1984), Henderson and Venkatraman (1993) propose their conceptual Strategic Alignment Model, consisting of two main dimensions. The *strategic fit* between internal and external IT domains and the functional *integration* between business and IT strategy. Two different types of integration are distinguished: *Strategic integration* as the fit between the business strategy and the IT strategy, reflecting the external domains, and *operational integration* as the fit between organizational infrastructure/processes and IT infrastructure/processes, reflecting the internal domains. Based on the model developed, the authors present four dominant alignment perspectives: s*trategy execution* and *technology transformation,* where business strategy is the driver, and *competitive potential* and *service level,* where IT strategy acts as the enabler.

2.2.1.4 Nevo and Wade's (2010) Conceptual Model of Synergy

Having synthesized Systems Theory with the Resource-Based View (RBV), Nevo and Wade (2010) develop a conceptual model of synergy. It is guided by the proposition that a synergistic relationship between the system and the user is essential for the performance of an organization. Based on System Theory, the authors build their framework on the following definitions: (1) Systems possess *properties* that are derived from the interactions among their components; (2) System properties that emerge from the relationships among the components are

defined as *emergent properties*; (3) Systems that are formed through relationships between IT assets and organizational resources are called *IT-enabled resources;* (4) Emergent properties of IT-enabled resources are *emergent capabilities.* Drawing on these definitions, they state that "the full extent of IT assets' business value may not become apparent until they are placed in relationship with organizational resources and used to create IT-enabled resources" (Nevo and Wade 2010, p. 168). They said that emergent capabilities do not always lead to beneficial outcomes. They are only "considered positive or beneficial if they have potential to help an IT-enabled resource achieve organizational tasks or goals" (Nevo and Wade 2010, p. 168). In other words, the relationship has to be synergistic; (5) s*ynergy* is defined as "*positive* emergent capabilities". But a potential synergistic combination of the IT asset and an organizational resource may not automatically result in any realized synergistic benefits until some (6) *enabling conditions* are met. Therefore, organizational context plays an important role in the realization of synergy. Building on the findings of Orlikowski (2000), amongst others, the first enabler is *compatibility* between the IT asset and the organizational resource: "organizational resources and IT assets are compatible when the features and functionalities of the latter fit, or are congruent with, the working routines, level of expertise, and other characteristics of the former. Conversely, an organizational resource and an IT asset might be considered incompatible when they must be greatly modified before interactions can take place" (Nevo and Wade 2010, p. 170). Companies can partially compensate for low compatibility by instituting certain activities intended to assist with the IT asset implementation. Therefore, *integration effort* as a second enabler ensures that the IT asset and the organizational resource are properly combined and in line with the organization's goals. Nevo and Wade (2010) expect these IT-enabled resource properties to have a positive impact on a company's sustainable competitive advantage by extending their model using RBV.

2.2.2 Dynamic Fit Models

The general foundation of all these models is the *adaption process*, which is considered to be essential, as a technology almost never fits naturally into the user environment. The greater the misfits between the old and new structures in system implementation or adaption projects, the greater the turmoil and tension that exist around adopting them. Users may notice that they are less effective, less satisfied, or less cohesive when faced with misfits, but the misfits can be corrected by altering the technology or changing the environment (or both). The adaption process is interactive and dynamic, whereby IT may determine structure or vice versa. Therefore, IT implementation is considered to be a dynamic process of mutual adaptation between the technology and its environment. The various models of adaptation presented in the following section agree that adaptation is a process of modifying existing conditions to achieve alignment (Leonard-Barton 1988; Majchrzak et al. 2000).

2.2.2.1 Leonard-Barton's (1988) Model of Adaption

In Leonard-Barton's (1988) model, adaptations occur continuously in the form of cycles and in response to misalignments by gradually bringing technology into alignment with the delivery system and the performance criteria. Figure 1 illustrates the dynamic technology adaption process (characterized by small and large cycles) through which the misalignments between the technology and the user environment are corrected. One of the important distinctions from other models of the technology transfer process is the recognition that the same misalignment may be addressed through adjustments to either the technology or the organization. The fieldwork conducted showed that "the range of managerial options for achieving successful technology transfer includes changes in the user environment as well as in the technology itself and frequently the same misalignment can be addressed either way. Recognition of this

fact requires that developers acknowledge some responsibility for identifying adaptation options even after they have, at least in their option, brought the technology to an acceptable stage of development and, on the other hand, that users share some of the uncertainty and risk that new technologies involve. A major proposition implied by this framework is that change in both technology and user environment is more beneficial than holding one constant and changing the other" (Leonard-Barton 1988, p. 265).

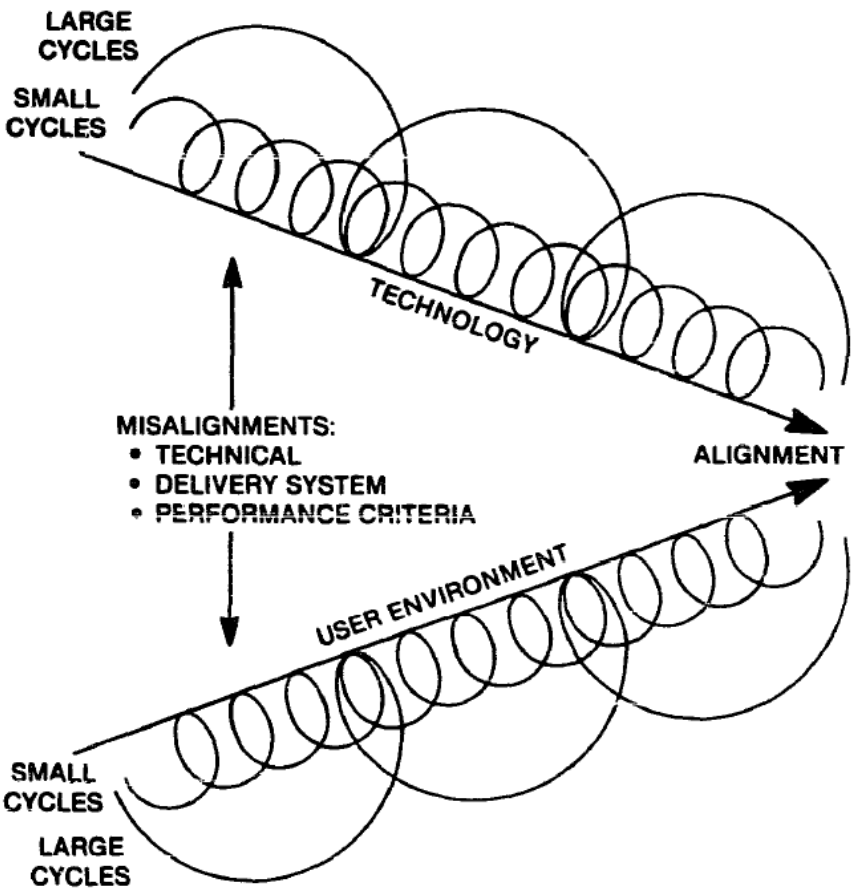

Figure 1: Model of Adaption (Leonard-Barton 1988)

2.2.2.2 Adaptive Structuration Theory (AST) & Process Models of Adaption

Structuration theory, largely associated with Giddens' (1984) institutional theory of social evolution, has been widely used to explain organizational adoption of IT (e.g. Barley 1986; Orlikowski 1992; Orlikowski and Robey 1991). Adaptive structuration theory (AST) extends

the structuration models by describing the interplay between IT, social structures, and human interaction (DeSanctis and Poole 1994; Poole and DeSanctis 2004) that is initiated by misfits between the functionality of an existing technology and users' needs. AST suggests that the implementation and use of new IT are not deterministic, but rather IT is structured by individuals in their use contexts. It refers to the processes through which users manipulate their technologies to accomplish work, and the ways in which such actions influence the particular social contexts within which they work (Majchrzak et al. 2000; Orlikowski et al. 1995).

Building on AST, several researchers relied upon a *process approach* to investigate the user's adaption process over time (Orlikowski 1996; Orlikowski et al. 1995; Tyre and Orlikowski 1994) and its impact on group performance (DeSanctis and Poole 1994). Other authors later consolidated the theory by combining Leonard-Barton's (1988) Model of Adaption and AST. Majchrzak et al. (2000) suggested an *extended model of structural adaptation* that integrates their findings – generated by analyzing the adaption process in a computer-supported virtual team – with the findings of DeSanctis and Poole (1994), Tyre and Orlikowski (1994) and Leonard-Barton's (1988) model of adaption. Griffith (1999) combined the adaption and AST perspectives with Louis and Sutton's (1991) sensemaking triggers to develop the *features-based theory of sensemaking triggers (FBST)*. The theory seeks to clarify the process of how users come to initially understand technology.

2.2.2.3 Fit-Appropriation Model (FAM)

Dennis et al.'s (2001) Fit-Appropriation Model (FAM) integrates the process perspective of adaption and the TTF idea (Zigurs and Buckland 1998). The conducted meta-analysis states that team performance is influenced by both TTF and adaption (called "appropriation" by the author). As a result of their field study analyzing the use of a group support system, Dennis

and Garfield (2003) found the appropriation process to be experimental, driven by misfits, discrepant events, and unanticipated events as described by Orlikowski (1996), rather than the seemingly rational process suggested by DeSanctis and Poole (1994). These findings led the authors to propose a *model for the appropriation of GSS*[2] that extends AST. Fuller and Dennis (2009) extend the FAM for their part by analyzing the boundary conditions under which TTF or adaption is more or less appropriate for explaining team performance, and how these two perspectives interact. The authors summarize one of the main findings as follows:

> *"FAM accurately predicted that the provision of a normative fit can initially cause differences in performance between fit and poor-fit teams. Therefore for new teams or teams with little experience with the technology, the level of fit between the technology and the task will be important for performance. However, contrary to FAM, poor-fit teams were able to overcome this lack of fit through appropriation. Over time, fit did not matter for team performance because poor-fit teams appropriated different technology and social structures to produce performance comparable to (and in some cases better than) fit teams […]. In summary, we see that the results of this research are mostly consistent with FAM in the short term. As predicted by FAM, initially, team performance is strongly influenced by the level of fit between the technology and the task. Better levels of fit were found to be associated with higher levels of performance over the first set of tasks, while appropriation (or changes in use) did not appear to be associated with higher initial performance. However, contrary to FAM and consistent with AST, we see that over a longer time period, teams can change the appropriation moves they make and improve performance, regardless of a poor level of fit between the technology and the task. While initial levels of*

[2] GSS stands for "Group Support Systems"

fit can influence the degree to which teams perceive the need to change, it is the appropriations undertaken over time that better predicts later team performance on task. This suggests that FAM is better applied in contexts where teams are new or working on single tasks; given that FAM was based on a meta-analysis of mostly single task studies, this is understandable. However, given a longer temporal lens, appropriation plays a strong role in predicting team performance and fit plays a smaller role." (Fuller and Dennis 2009, p. 13)

2.2.2.4 Beaudry and Pinsonneault's (2005) Coping Model of User Adaption (CMUA)

Drawing on coping theory, a contextual model in psychology (Lazarus 2000; Lazarus and Folkman 1984), Beaudry and Pinsonneault (2005) developed the Coping Model of User Adaption (CMUA) by integrating the findings of the process and variance approaches established to explain system users' adaption. The premise of CMUA is that the introduction of a new technology or the modification of an existing one can result in changes for the users and the organization. The users perform adaption behaviors to cope with the perceived consequences of the technological event. Therefore, coping can be understood as the "cognitive and behavioral efforts exerted by users to manage specific consequences associated with a significant IT event that occurs in their work environment" (Beaudry and Pinsonneault 2005, p. 496). The entire coping process can occur in what psychologists call the anticipation period, before the event actually occurs, the impact period, as the event happens, or the post-impact period, after the event has taken place. Because it explains users' adaptation behaviors conducted in response to changes that occur in their environment, coping theory offers a new lens through which to study how and why users adapt to IT in organizations. It also provides the conceptual foundation to enable the development of an integrative model that allows for a

richer understanding of the adaption behaviors to achieve individual fit (Beaudry and Pinsonneault 2005).

Following coping theory, users cope with IT disruptions by using two key subprocesses that continuously influence each other. In a first assessment, termed an *appraisal*, the users evaluate the potential consequences of an IT event. They assess the nature of the IT event and the individual importance and relevan*ce (primary appraisal*). In addition, the users determine how much control they have over the situation and evaluate their coping options given the resources available to them (*secondary appraisal*). In a second step, users perform different cognitive and behavioral actions, termed *coping* or *adaption efforts*, to deal with the situation. On that basis, the authors identified four adaption strategies: (1) benefits maximizing, (2) benefits satisficing, (3) disturbance handling, and (4) self-preservation. The strategies may result in different individual-level outcomes: restoring emotional stability, minimizing the perceived threats of the technology, improving user effectiveness and efficiency, and/or exiting the situation (Beaudry and Pinsonneault 2005). The CMUA is presented in Figure 2.

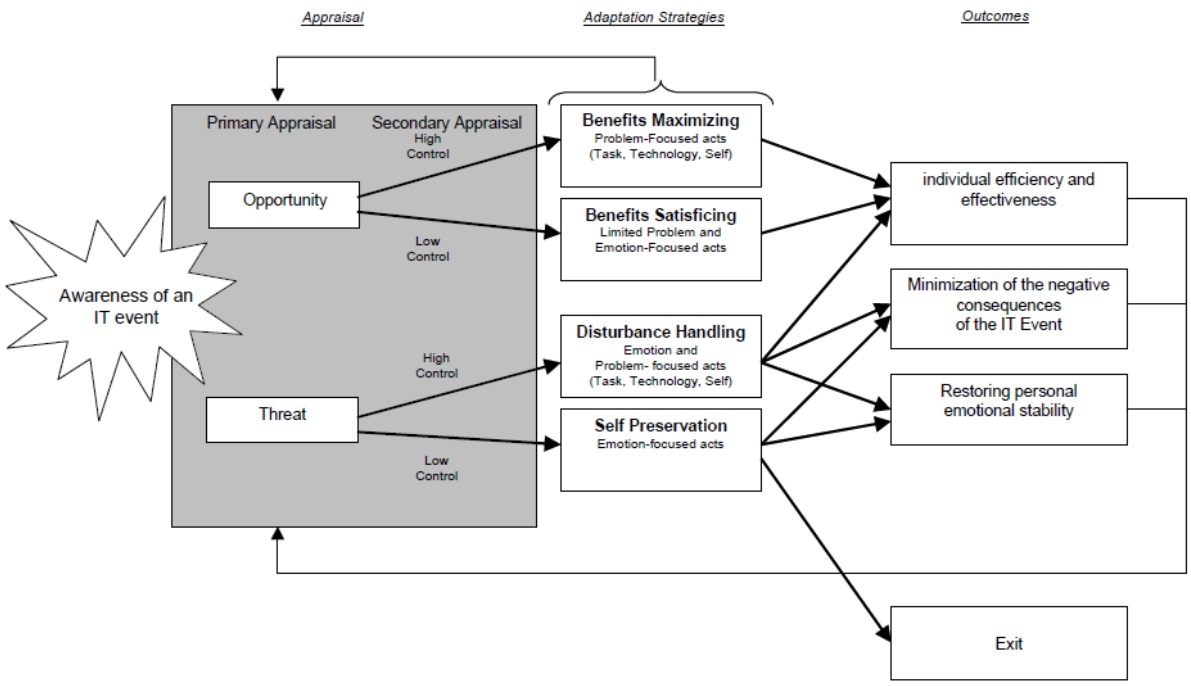

Figure 2: Coping Model of User Adaption (CMUA) (Beaudry and Pinsonneault 2005)

In a subsequent paper, Beaudry and Pinsonneault (2010) show how initial appraisals of a recently implemented IT system influence user adaptation and performance outcomes by studying how emotions occurring in the anticipation period of an implementation (i.e., prior to the deployment of a new IT system) affect IT use. The research specifically studies how emotions are related to the usage of a new IT system both directly and indirectly through adaptation behaviors. The authors found happiness to be weakly positively related to IT use and negatively related to seeking instrumental support and task adaptation. This led them to suggest that happiness, being a low activation emotion, may reduce the perceived need for adaptation. Alternatively, one could argue that happiness is triggered because respondents perceive the new IT to adequately fit with themselves and with their jobs. As a result, the users might not feel the need to perform adaptation behaviors. Still, the study indicates that highly happy individuals who sought instrumental support and adapted their task used the IT significantly more frequently than those who did not perform much adaptation behavior. The research further indicates that the direct relationship between emotions and IT use is somewhat limited

and that emotions are strongly related to IT use via indirect relationships through intermediate adaptation behaviors.

2.2.2.5 Chin et al.'s (2014) Process of Discrepancy Evaluation

In their recent paper, Chin et al. (2014) investigate the individual evaluation of discrepancies in the context of IS user service satisfaction. The authors define *perceived discrepancy* as the "difference an individual notices between two (mostly) latent constructs" (Chin et al. 2014, p. 9). In an IT context, they highlight "the discrepancy between a task and the perceived technological capabilities needed to solve this task" as the discrepancy construct of main interest (Chin et al. 2014, pp. 9-10). Such a discrepancy is therefore clearly linked to the concept of fit: a perceived discrepancy can be interpreted as a perceived misfit.

As a conclusion of their examination of the applicability of different comparative survey-based measures to capture perceived discrepancies or gaps, Chin et al. (2014) recommend assessing satisfaction through a *discrepancy evaluation process* (see Figure 3).[3] In a first step, an individual recognizes the existence of a discrepancy. Second, the individual evaluates the discrepancy cognitively or affectively (or both). Third, he or she forms a summary evaluation of the discrepancy that serves as a basis for his or her overall attitude about the discrepancy. Last, all perceived and evaluated discrepancies are combined to form an overall assessment of satisfaction with the IS or service.

3 The idea of a cognitive evaluation process is well established e.g., in psychology with the Theory of Reasoned Action (Fishbein 1980), in marketing with of the Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions (Oliver 1980) and in health research with the Health Belief Model (e.g., Becker 1974).

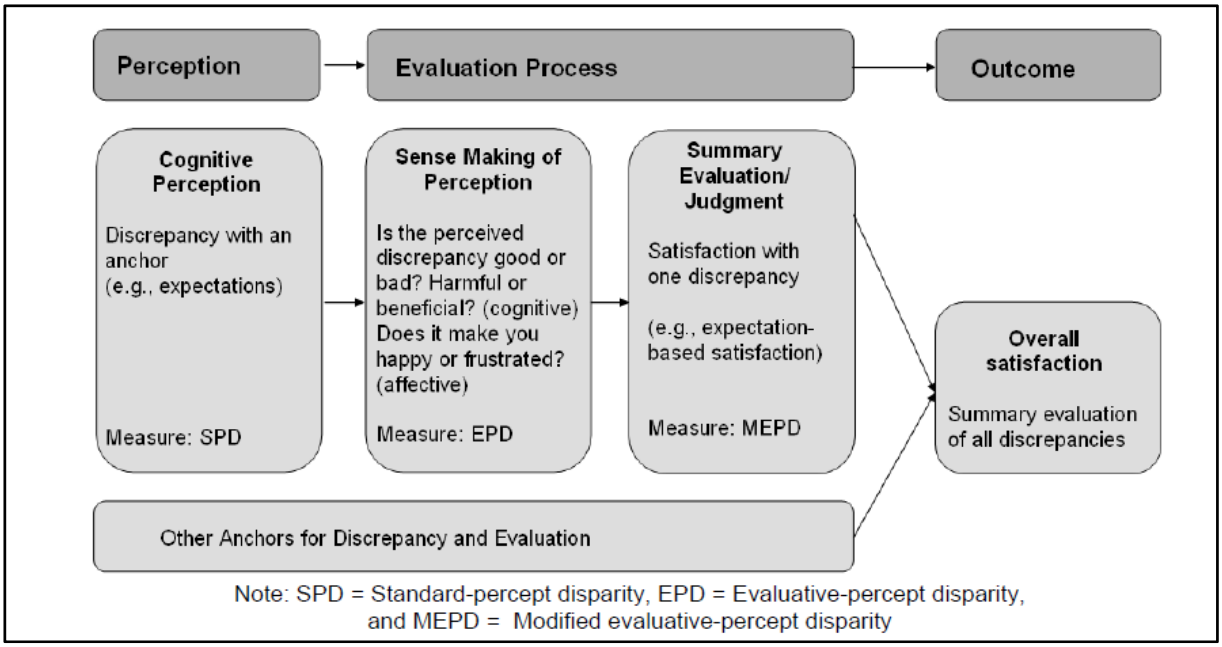

Figure 3: Discrepancy Evolution Process (Chin et al. 2014)

The process highlights the *evaluative component* in IS end-users' discrepancy judgment, whose impact has been underestimated in the extant models. By disregarding the evaluative component, the risk of fundamental misspecifications is taken. The authors give the following advice to IS researchers:

> *"Whenever confronted with measuring gaps, such as between IT and business strategies in order to test for alignment (Venkatraman, 1989), or between task and technology in order to test for task-technology fit (Goodhue and Thompson, 1995), IS researchers should pay close attention to the valence of the perceived gap—not only its magnitude. For example, if a discrepancy between a task at hand and the technology provided is large, but perceived as favorable (maybe because it provides the individual enough freedom to appropriate the technology), then the resulting perceived fit should be small. In other words, even though the technology might not fit the task at hand perfectly (in the traditional sense), it might still solicit favorable response from*

the individual. Thus, an evaluative component […] should be part of any task-technology fit instrument."(Chin et al. 2014, p. 21)

2.3 Concept of Fit in ES Research

In the 1990s, companies started to replace internally developed IT systems with packaged application software. Consequently, IS fit literature was increasingly adapted to the ES context in the early 2000s. One important reason for this fit awareness can be found in the design and external development of an ES (Davenport 1998; Gattiker and Goodhue 2002; Strong and Volkoff 2010). An ES is designed to fit in a generic, rather than a specific way and is unlikely to include all functionalities that an organization needs to cover. Unlike existing IS fit concepts (see Chapter 2.2), which focus mainly on individuals and/or specific tasks, the concept of fit in ES research is concerned with the fit between software and multiple elements of an organization's operations (Strong and Volkoff 2010). To better understand the ES fit, the specificities of enterprise systems are briefly explained in the next section before the relevant fit literature in ES research is presented.

2.3.1 Enterprise Systems (ES)

2.3.1.1 ES Definition and Background

Enterprise Systems (ES) are large, integrated, packaged software applications such as Enterprise Resource Planning (ERP) systems or Customer Relationship Management (CRM) systems, and re designed to cover and support a wide range of business and support processes of an organization. They strive for seamless information flow through the whole (or huge parts) of an organization by integrating various sources of data into a single software application

with one database. The aim of such an organization-wide software solution is to overcome the fragmentation problems of legacy systems. ES as standardized software applications are developed and sold by independent software providers and offer a defined "best business practice solution" that is designed to meet the needs of a class of organizations (Davenport 1998; Nah et al. 2001a).

The implementation of an ES creates an opportunity for the organization, as it entails "a nearly complete rearchitecting of an organization's portfolio of transactions processing applications systems to achieve integration of business processes, systems, and information – along with corresponding changes in the supporting computing platform (hardware, software, databases, telecommunications)" (Markus and Tanis 2000, p. 175). The reasons to implement an ES can be technical (e.g., the desire to harmonize the system landscape or reduce mainframe system operating costs, the need for increased systems capacity, or the pressure to solve the maintenance problems associated with aging legacy systems), but other organizations have primarily business reasons for adopting an ES. More specifically, globalization and the integration of other companies caused by M&A's force organizations to operate with a standard IT solution and to harmonize the business processes across different subsidiaries and countries. Many organizations have both technical and business reasons for adopting an ES.

Organizations from large to small might benefit from the best practice processes implemented in the ES to work in a more efficient and effective cross-functional manner without having to reengineer their processes independently. Additionally, the ES is maintained and supported by the vendor, who continuously updates the system by providing new releases; the ES is automatically adapted to environmental changes and the organization can profit by system improvements requested by other companies. Working with (ideally) only one integrated ES minimizes the number of interfaces between different IT systems: previously manually per-

formed work steps are reduced, duplication of activities is omitted, and media discontinuity is minimized (Brehm 2004; Gattiker and Goodhue 2005; Markus 2000; Nah et al. 2001a).

On the other hand, installing an ES is an expensive, complex and risky venture. Companies have spent a great deal of money to realize the technical and business changes associated with ES. There have also been several ES failures and ES projects that did not pay off. One reason for the struggle of an ES (or the decision to not adopt an ES) is a lack of fit between the integrated processes and the functionalities offered by the ES and the specific business processes of an organization. Although ES are customizable, they are difficult and costly to adapt to unique organizational procedures and may thereby lose its the migration capability. For this reason, the existing business processes must be adapted more intensively than expected to fit the new system. Even when the organization accepts the need for change, the process of implementing an ES can involve considerable change in organizational structure, job design, or workflows, etc. Additionally, vendors of standard software solutions do not know the specificities of the company, which is why ES adaption processes are typically supported by external consultants (Brehm 2004; Gattiker and Goodhue 2005; Markus 2000; Nah et al. 2001a). The consequence is that few organizational users understand the ES functionalities well enough to value the implications of adoption and therefore do not support the change process. Similarly, few ES consultants understand their clients' business processes sufficiently to highlight all critical areas of mismatches (Soh et al. 2000). Another difficulty that might emerge by implementing an ES is the loss of flexibility in doing business, which is especially difficult for companies that continually change their organizational structures and business models (Markus and Tanis 2000).

It is important for a company to consider both the benefits and risks before making the implementation decision because an ES is a long-term IS investment and the company has to

spend a lot of money to realize the technical and business changes involved. Additionally, the organization needs to be aware that the adoption of an ES differs in many ways from the adoption of an in-house developed software, namely that there is a greater dependency on external package vendors for assistance and updates, the acquisition of new IT skills is required, and the ES needs to be integrated with the existing system landscape of the organization. In the 1990s and 2000s, there have been several ES failures and ES projects that did not pay off (Markus and Tanis 2000). Learning from these negative experiences, ES have become the industry standard for the replacement of legacy systems. In the current ES market, a majority of the organizations in the US and Europe have implemented ES and therefore overcome the initial implementation challenges (Bremicker 2013; Liang et al. 2007). However, for the majority of these companies, one single ES software solution is (still) an illusion (Sandoe et al. 2001), integration benefit expectations are missed, and/or legacy systems and standalone solutions for special divisions, plants or subsidiaries persist and need to be interfaced (Alshawi et al. 2004; Dalal et al. 2004; Scheer and Habermann 2000; Themistocleous et al. 2001). Moreover, an established ES also has to be adapted continuously to new business developments (e.g., mergers and globalization) and environmental changes (e.g., changes in legal and regulatory requirements). In other words, system integration is not concluded upon completion of an initial ES implementation project (Soh et al. 2003). The ES lifecycle is therefore often extended by initializing ES post-implementation projects (PIP). The ES lifecycle and PIPs are further described in the following chapters.

2.3.1.2 ES Lifecycle

The ES lifecycle differs from the traditional software (development) lifecycle[4] in many ways. Rather than designing a system to accommodate specific ways of working, the adopting organization is forced to adjust its ways of working to fit the package and minimize the negative consequences of customization (e.g., reduced ability to benefit from vendors' continued development of the packages and increased dependency on external consultants and contractors specialized in ES customizations). Therefore, pre-implementation activities are less concerned with the independent definition of information requirements and business processes, but more about the challenges regarding the management of large-scale human and organizational changes. Furthermore, the implementation process is focused on adapting the generic functionality of a package to the needs of the organization and differs substantially from traditional software programming, which mainly involves creating new software functionality. In particular, the programming phase (that is handed over to the ES vendor) is replaced by activities to map organizational requirements to the processes and terminology employed by the vendor and the choice of the appropriate parameter setting. Because an ES is, on the one hand, a complex IT system that supports workflows all over the organization and on the other hand, connected with a high financial investment and risk, an ES lifecycle is stretched out far past the initial implementation phase. This is additionally reinforced by the long-term dependency on the vendor for continued package maintenance and expansion. The organization is obliged to upgrade the software periodically to avoid conversion problems. Consequently, the initially implemented ES is not a "finished product" and therefore, the lifecycle phases after the initial ES implementation are also highly critical (Ng et al. 2002). Additionally, given that an ES is

[4] Traditional software (development) lifecycle models focus on the design, implementation, and testing of application software that is developed "in-house". Well known representatives are the waterfall model, the spiral model and prototyping. For an overview see Pomberger and Blaschek (1993).

in use for a long time period, the organization bears the risk of their chosen vendor going out of business or lacking the resources for technical development after implementation. The lifecycle is also more dependent on market and environmental developments because the vendor is pressured by all his ES-using customers to adapt the best practice solution to the newest trends. In summary, the ES lifecycle is much more heteronomous than the traditional software lifecycle, meaning that close cooperation among the stakeholders and a high level of coordination, information, and knowledge sharing is essential (Law et al. 2010).

A number of ES lifecycle models were developed in the early 2000s. How the ES lifecycle is broken up into phases differs depending on the methodology applied (e.g., Esteves and Pastor 2001; Markus and Tanis 2000; Parr and Shanks 2000; Rajagopal 2002; Ross and Vitale 2000; Somers and Nelson 2004). The classifications can be consolidated by using an initial ES implementation project view that results in an ES project lifecycle with three main stages: the pre-implementation, the implementation, and the post-implementation phase. The consolidated model of the ES lifecycle is presented in Figure 4 and explained in detail in the following sections.

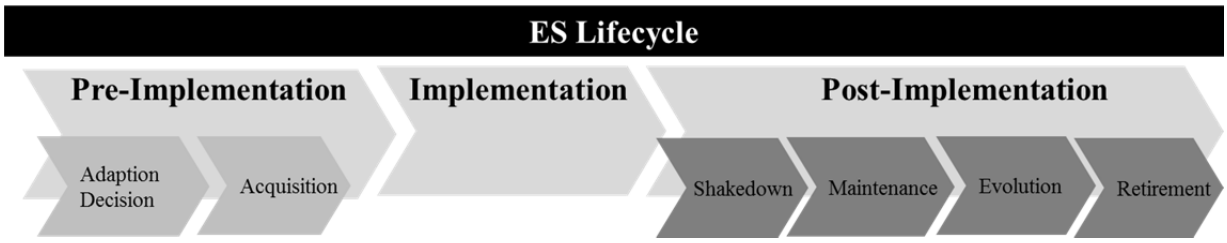

Figure 4: ES Lifecycle (based on Markus and Tanis 2000)

The *pre-implementation* phase comprises the adaption decision and the acquisition activities. A business case is built, the software package is selected, project goals are defined, the project head is selected, the budget and schedule is approved, and the consulting company is selected. Markus and Tanis (2000, p. 190) highlight the main challenges that can arise in this phase:

“The business case for investing in an enterprise system can be incomplete or faulty; the organization may seriously underestimate the need for business and organizational change in conjunction with the software implementation; objectives and metrics for the initiative may be left undefined.” The outcome of the pre-implementation phase is the decision to proceed with the ES by defining a contractual agreement, or to stop the implementation project (Esteves and Pastor 2001).

During the *implementation* phase (which is also called the “project phase” in some lifecycle models), the ES is configured and customized, if necessary, with the goal of getting the system up and running. The most important tasks are software configuration, integration with legacy systems, testing, data conversion, documentation, training, and finally the rollout of the system (Esteves and Pastor 2001; Markus and Tanis 2000; Nah 2006). Markus and Tanis (2000, p. 190) summarize the main problems that can occur during implementation: “Project teams may be staffed with inadequate representation; teams may lack requisite knowledge and skills; teams may embark on extensive, unnecessary modifications; data cleanup, testing, or training may be inadequate. In addition, of course, the business conditions characterizing the chartering phase may have changed: The company may have fallen into financial distress, it may have merged with another company, or it may have shifted business models. Some projects are terminated owing to cost or schedule overruns or severe technical problems. Others result in the rollout of the operational enterprise system functionality to one or more organizational units. If the latter, the enterprise system functionality, operational performance, and organizational preparation may be sufficient to fit the organization’s goals and/or needs, or they may be insufficient for ‘success’.” The implementation phase is completed with the ES system go-live.

After the go-live, during the *post-implementation* stage, the ES has to be stabilized, maintained, and possibly upgraded or expanded. As the ES post-implementation phase can last over a long time period, it is appropriate to split it up into different sub-phases. The first sub-phase, called the *shakedown* phase, begins at the point when the system is fully functional and accessible by the end-users and ends at the point when normal or routine use of the system is achieved. Bug fixing, performance tuning, retraining, and staffing up to deal with temporary inefficiencies are the key activities in this phase. Most problems from previous stages can be felt in the shakedown phase in the form of reduced productivity or business disruption. It is important to monitor and deal with the challenges that arise in order to stabilize the system, transfer the knowledge from the project team to the operational personnel, and achieve end-user adaption and acceptance (Markus and Tanis 2000; Nah 2006).

Most lifecycle models summarize maintenance, migration and upgrade activities, as well as all further integration efforts, into the same phase (e.g., Markus and Tanis 2000; Nah 2006; Parr and Shanks 2000; Seddon et al. 2010) or they make no clear distinction between the activities (e.g.Ross and Vitale 2000; Somers and Nelson 2004). In the presented consolidated ES lifecycle model (see Figure 4), a clear differentiation is made based on the scale of the activities. Revisions, changes and technical upgrades that are made after implementation (e.g. to fix bugs, to reach missed initial project goals, or to implement a new system version but *maintain the initially defined ES functionality* that lead to improvements in the ES infrastructure that are invisible to the business) are assigned to the *maintenance* sub-stage. System changes that *expand initially defined ES functionality* and integrate more capabilities into the ES are assigned to the *evolution* sub-stage. Such changes have an influence on the way that work is done in the business. These evolutionary changes are usually rolled out by initializing a PIP (see next chapter). As implementing packaged application software is typically a long-term investment, it has long-term maintenance implications and many potential functionality

expansion opportunities. Therefore, ES post-implementation is an essential part of the ES lifecycle (Seddon et al. 2010).

At the end of the ES lifecycle, in the *retirement* phase, the ES is prepared for substitution by another ES or a proprietary system solution as a consequence of an (emerged) misfit between the ES and the business needs or (new) technological requirements (Esteves and Pastor 2001).

The pre-implementation, implementation, and shakedown stages have been studied extensively in recent decades and a rich body of research exists examining critical success factors (e.g., Holland and Light 1999; Hong and Kim 2002; Law and Ngai 2007; Nah et al. 2001b), the impact of an initial ES implementation on firms' performance (e.g., Hendricks et al. 2007; McAfee 2002; Wang et al. 2005), and change management, including the impact on end-users (e.g., Boudreau and Robey 2005; Liang et al. 2007; Strong and Volkoff 2010; Volkoff et al. 2007). Some of the authors take a closer examination of ES shakedown (Bala and Venkatesh 2013; Häkkinen and Hilmola 2008a; Häkkinen and Hilmola 2008b). Limited literature can be found addressing the whole ES lifecycle (e.g., Akkermans and van Helden 2002; Nah 2006; Somers and Nelson 2004) or one of the subsequent post-implementation sub-phases. There are authors examining the activities carried out after ES shakedown whose studies are focused either on general changes (Nicolaou and Bhattacharya 2006; Sun 2012) or specific changes, such as ES maintenance activities (Gable et al. 2001; Hirt and Swanson 2001; Lopez and Salmeron 2014; Nah et al. 2001a; Ng 2001; Ng et al. 2002; Salmeron and Lopez 2010), ES upgrades (Beatty and Williams 2006), or the integration of diverse ES (Alshawi et al. 2004). Furthermore, Oseni et al. (2014a; 2014b) present a typology of ERP post-implementation modification initiatives and their impact on business process efficiency, effectiveness and flexibility. Some other authors take a closer look at ES continuance, focusing on the organization (Furneaux and Wade 2011) or the end-users (Chou and Chen 2009) by building on

Bhattacherjees' (2001) post acceptance model (PAM) of IS continuance, which is based on expectation confirmation theory. The continuance evaluation, together with a possible discontinuance decision, clearly links these studies to the retirement phase, which is specifically addressed by Haddara and Elragal (2011; 2012).

2.3.1.3 ES Post-Implementation Projects (PIP)

A closer examination of the ES lifecycle reveals that the implementation concerns of an ES do not end once the system becomes operational (Nah et al. 2001a). The initial implementation of an ES is instead viewed as the beginning of the development of an overall IT infrastructure. Different decisive factors (usually cropping up in combination) motivate organizations to modify an ES after the initial implementation:

(1) *New business opportunities*: Organizations become aware of new business opportunities that might be realized by expanding their ES (e.g., advanced planning and scheduling, data warehouse, CRM, and E-Business resp. E-Commerce expansions for an ERP system) (Duplaga and Astani 2003).

(2) *Environmental changes:* Organizations are forced to adapt their processes, together with the ES, to new regulatory requirements and tightened internal or external control mechanisms.

(3) *Integration problems*: The integration of the ES with the organization's particular package of hardware, operating systems, database management systems software, and telecommunications causes infrastructural or usability problems (Markus and Tanis 2000).

(4) *Replacement of legacy systems or manually performed activities:* Proprietary "legacy" systems (that were not replaced initially, but interfaced with the ES) or still manually performed work steps are planned to be replaced (Markus and Tanis 2000).

(5) *Pressure to harmonize IT infrastructure:* The complexity of the IT infrastructure causes high costs for operation, maintenance, and updates, while also limiting flexibility and agility. This pressure is usually reinforced by globalization, mergers and acquisitions.

(6) *Pressure to standardize business processes:* The existing processes are characterized by interruptions and heterogeneity, and are therefore not efficient, effective, and transparent.

Due to these various challenges, ES consolidation is currently a hot topic in many companies. This relevance is confirmed by a study conducted by Detecon Consulting (2012), which revealed that 50% of the large- and medium-sized companies in Germany operate with more than ten productive ES in parallel. A majority of them has the self-imposed aim to realize a Single vendor ES strategy with a minimal number of productive ES and a tendency to have only one ES on the long-term horizon.

Post-Implementation Projects (PIPs) have been studied occasionally, usually as a part of post-implementation activities (Nah 2006; Ng 2001; Ng et al. 2002). In contrast to the view of these authors, especially to the "ERP maintenance taxonomy" developed by Ng (2002), PIPs are assigned to the evolution sub-stage of the ES lifecycle, whereas maintenance projects belong to the maintenance sub-phase. Therefore, in PIPs, only system changes that expand initially defined ES functionality are realized. This is in line with Seddon et al.'s (2010) definition of "on-going major ES business improvement projects" as those projects "that lead to changes in the way that work is done in the business (as opposed to infrastructure changes

that are invisible to the business). Examples include implementation of a CRM system after an ERP system, an upgrade to an existing ERP system that leads to changed processes, or a new data warehousing project. […] This excludes infrastructure projects and technical upgrades that may lead to reduced cost, but don't deliver new functionality to the business. Our interest is in on-going major business improvement projects, as these are the projects that deliver significant new functionality to users (and typically involve the need for additional training, change management, and support)" (Seddon et al. 2010, p. 306).

A PIP runs through the same stages as an ES implementation project. It starts with the pre-implementation phase when the organization recognizes the need to modify or expand functionality of its ES. The end of this phase occurs when the company decides which expansion to realize. During the implementation phase, the organization determines what needs to be done to make a successful transition to the new ES solution. Once the new system solution goes live, the PIP will move on from the implementation phase to the shakedown phase. This phase ultimately ends once the upgraded system's usage becomes routine; the maintenance phase starts thereafter. The embedment of the expansion project in the overall ES lifecycle is visualized in Figure 5. During the last phase of the PIP, another system expansion might be planned. The subsequent PIP, much like the first, will cover the same four phases.

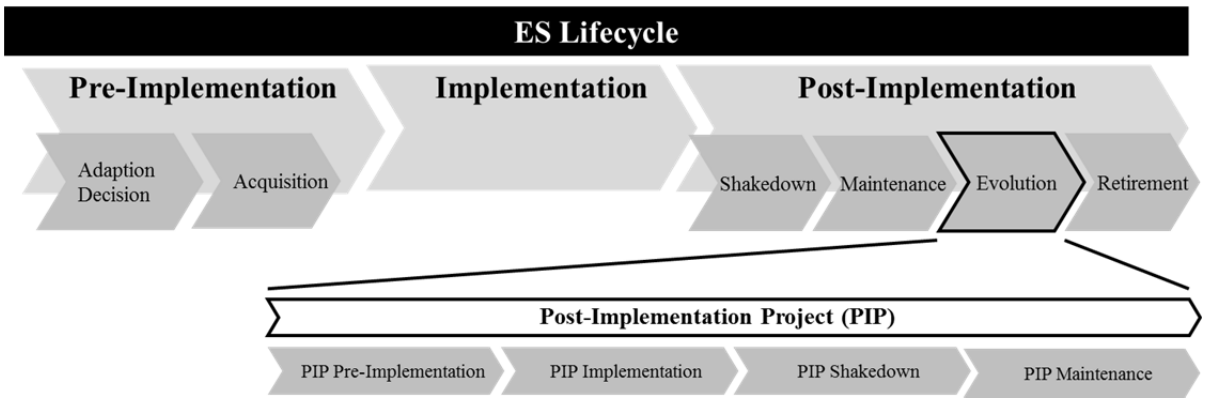

Figure 5: PIP Lifecycle

2.3.2 Review of Fit Literature in ES Research

Table 1 summarizes the most important ES research papers, of which the concept of fit is an essential part and which made a significant contribution to fit research.[5] By analyzing the relevant literature, three interesting aspects stand out. The extant ES fit literature (1) is focused on the organization as the unit of analysis, (2) investigates either fit or misfit, and (3) predominantly examines the implementation (including shakedown) phase of initial ES implementation projects. In the following sections, these research studies are consolidated by giving an overview of the essential research findings and results. The subchapters are structured by first presenting ES fit literature that analyzes fit and misfit at the organizational level. First, research is highlighted. Second, literature that analyzes fit and misfit at an individual level is discussed by presenting misfit-oriented research first.

[5] The "fit" element has to be an indispensable part of the theoretical framework and also be defined and further outlined (especially why the specific fit perspective was chosen and in which fit theory the authors' framework is grounded) in the selected papers; the mentioning of the importance of fit is not sufficient. It is well recognized that many other authors studying ES used an (aggregated) fit perspective to motivate their research, to build their theoretical framework or to explain their findings. For example, regarding linkages between business processes and the processes in ES in the field of business process modeling and redesign (Bingi et al. 1999; Dalal et al. 2004; Scheer and Habermann 2000; Soffer et al. 2003), tensions between the interests of an ES vendor and the interests of the ES users (Swan et al. 1999), cultural mismatches in the ES implementation context (Davison 2002) or ES maintenance (Hirt and Swanson 2001).

			ES Lifecycle				Fit/Misfit Focus	
Research Study	**Research Approach**	**Unit of Analysis**	**Research Focus**	**Data Collection Focus**	**Research Context**	**Theoretical Lenses**	**Misfit**	**Fit**
Brehm, 2001	conceptual	Organization	Implementation Post-Implementation	no data collected	Adaption Process / Customization	Soh et al.'s Misfit Categories ES Maintenance Literature		x
Gattiker and Goodhue, 2002	quantitative	Organization Subunit	Implementation	Post-Implementation	ES Impact / Value / Benefit	Task-Technology Fit (TTF) Theory		x
Gattiker and Goodhue, 2004	qualitative	Organization Subunit	Implementation	Post-Implementation	ES Impact / Value / Benefit	Task-Technology Fit (TTF) Theory Organizational Information Processing Theory (OIPT)		x
Gattiker and Goodhue, 2005	quantitative	Organization Subunit	Implementation Post-Implementation	Post-Implementation	ES Impact / Value / Benefit	Task-Technology Fit (TTF) Theory Organizational Information Processing Theory (OIPT)		x
Hong and Kim, 2002	quantitative	Organization	Implementation	Post-Implementation	ES Implementation Success	Structural Contingency Theory Leonard-Barton's Model of Adaption Adaptive Structuration Theory (AST) Process Models of Adaption	not specified	
Keil and Tiwana, 2006	quantitative	Organization	Pre-Implementation	not specified	ES Acquisition Decision	Sawyer's Consumer System Development Lifecycle		x
Light, 2005	qualitative	Organization	all phases	Post-Implementation	Adaption Process / Customization	Soh et al.'s Misfit Categories	x	
Luo and Strong, 2004	qualitative	Organization	all phases	Post-Implementation	Adaption Process / Customization	Hong and Kim's Critical Success Factors		x
Maurer et al., 2012	conceptual	Organization Subunit / Group Individual	all phases	no data collected	Nature and Sources of Misfits	Task-Technology Fit (TTF) Theory Leonard-Barton's Model of Adaption Adaptive Structuration Theory (AST) Process Models of Adaption Sia and Soh's Misalignment Assessment Framework Strong and Volkoff's Organization-ES Fit Theory	x	x
Roseman et al., 2004	conceptual	Organization	all phases	no data collected	Adaption Process / Customization	Sia and Soh's Misalignment Assessment Framework Wand et al.'s Ontological Model of IS Concept of Ontological Distance	x	
Sawyer, 2001	conceptual*	Organization	Pre-Implementation Implementation	not specified	ES Lifecycle	Theory of the Market Traditional IS Development Lifecycle	not specified	
Seddon et al., 2010	qualitative content analysis	Organization	all phases, focus on Post-Implementation	all phases	ES Impact / Value / Benefit	Task-Technology Fit (TTF) Theory Hong and Kim's Critical Success Factors		x

(continued on next page)

			ES Lifecycle				Fit/Misfit Focus	
Research Study	**Research Approach**	**Unit of Analysis**	**Research Focus**	**Data Collection Focus**	**Research Context**	**Theoretical Lenses**	**Misfit**	**Fit**
Sia and Soh, 2002	qualitative	Organization	Implementation	Implementation Post-Implementation	Nature and Sources of Misfits	Adaptive Structuration Theory (AST) Process Models of Adaption	x	
Sia and Soh, 2007	qualitative	Organization	Implementation	Implementation Post-Implementation	Adaption Process / Customization	Institutional Theory Adaptive Structuration Theory (AST) Process Models of Adaption Wand et al.'s Ontological Model of IS	x	
Soh and Sia, 2004	qualitative	Organization	Implementation	Implementation Post-Implementation	Adaption Process / Customization	Adaptive Structuration Theory (AST) Process Models of Adaption	x	
Soh and Sia, 2005	qualitative	Organization	Implementation	Post-Implementation	Adaption Process / Customization	Adaptive Structuration Theory (AST) Process Models of Adaption	x	
Soh et al., 2000	qualitative	Organization	Implementation	Post-Implementation	Nature and Sources of Misfit Adaption Process / Customization	Packaged Software Implementation Literature	x	
Soh et al., 2003	qualitative	Organization	Implementation	Implementation Post-Implementation	Nature and Sources of Misfits	Wand et al.'s Ontological Model of IS	x	
Somers and Nelson, 2003	quantitative	Organization	Implementation	Late Implementation Post-Implementation	ES Impact / Value / Benefit	Strategic Management Research		x
Strong and Volkoff, 2010	Grounded Theory approach	Organization Individual	Implementation Post-Implementation	Implementation Post-Implementation	Nature and Sources of Misfits	Venkatraman's Fit Taxonomy Sia and Soh's Misalignment Assessment Framework (used to reflect the developed Organization-ES Fit Theory)	x	
Wang et al., 2008	quantitative	Organization	Implementation	Post-Implementation	ES Implementation Success	Adaptive Structuration Theory (AST) Venkatraman's Fit Taxonomy		x
Wei et al., 2005	qualitative	Organization	all phases	all phases	Adaption Process / Customization	Sia and Soh's Misalignment Assessment Framework	x	

* supported by qualitative and quantitative data

Table 1: Review of the ES-specific Fit Literature

2.3.2.1 Fit-Oriented ES Literature at the Organizational Level

One stream of ES research adopted the fit concepts developed in strategic management research. The next sections outline that Structural Contingency Theory and the TTF model, combinations of them, as well as traditional Software Development Lifecycle concepts were transferred to the ES context to explain fit at the organizational (or subunit) level.

Structural Contingency Theory (see Chapter 2.1), in particular, was adopted to identify the critical success factors for ERP implementations under various business environments (e.g., Hong and Kim 2002; Somers and Nelson 2003; Wang et al. 2008). Hong and Kim (2002) combined aspects of Structural Contingency Theory with the misfit categories developed by Soh et al. (2000) (see details below), which they adapted to the fit context. They found ERP fit to have a significant effect on ERP implementation success. The results of their study have shown that ERP adaption is a quasi-moderator of this relationship, the process adaption level is a pure moderator, and organizational resistance has no moderating effect. Luo and Strong (2004) adapted Hong and Kim's (2002) framework to explain ERP customization choices. Somers and Nelson (2003) developed a *Conceptual Model of ERP Fit* by drawing on findings of fit studies in strategic management research. Their field survey of top-level IS executives in manufacturing firms revealed that it is essential to achieve a fit between the technology and the organization's strategy in order to implement an ERP system successfully. Wang et al. (2008) used Structural Contingency Theory as well as the "fit as covariance" perspective of Venkatraman (1989) to build their ERP-specific framework, stating that the better the fit among contingency variables among a firm's ERP facilitating factors, the better the performance of the firm. Their findings suggest that organizations that successfully implement ERP systems tend to match external factors with internal factors that pertain to their organizations.

Therefore, the authors propose to align internal and external aspects in order to successfully implement an ERP system.

Gattiker and Goodhue (2002; 2004; 2005) applied the TTF model (see Chapter 2.2.1.1) to analyze Org-ES fit problems regarding *organizational subunits*. In their first survey, Gattiker and Goodhue (2002) found evidence that ERP systems require substantial changes to business processes among the subunits, as packaged software is usually configured at an organization-wide level. As a result, an ERP system drives a lot of business process change and may have a positive business impact on subunits. However, they found no evidence for a positive relationship between the amount of change and the impact. The authors therefore challenge the general recommendation that it is always the best strategy to change business processes to fit the ERP system. Combining TTF with organizational information processing theory (OIPT), using a case study approach, they confirmed the former findings by showing that the integration of an ERP system in the presence of differentiation among subunits results in higher implementation costs (Gattiker and Goodhue 2004). In the subsequent survey (Gattiker and Goodhue 2005), the authors reconfirmed that ERP is a relatively better fit if interdependence is high and differentiation is low.

By building on the TTF-based framework of Gattiker and Goodhue (2005) and the contingency-oriented framework of Hong and Kim (2002) that was just presented in Chapter 2.3.2.1, Seddon et al. (2010, p. 312) selected functional fit as a key short and long-term organizational ES benefit driver: “The greater the functional fit, the more efficient and effective the organizational processes supported by the system *and* the more the system helps users across the organization get their jobs done.” Interestingly, fit aspects are analyzed in all ongoing ES business-improvement projects, i.e. not only in the initial ES implementation project. Conducting a quantitative content analysis, they found clear evidence for the achievement of func-

tional fit to be highly relevant in every ES improvement project in terms of realizing long-term ES benefits. Seddon et al.'s (2010) *Model of Factors Affecting Organizational Benefits from ES* is also the only ES-specific fit study that explicitly analyzes the benefits achieved by functional fit over time, i.e. that takes a *dynamic* perspective.

Sawyer (2001) analyzed the influence of packaged software on the traditional Software Development Lifecycle by adding a market perspective to the traditional view. He specifically argues that "gap-fit" analysis in the pre-implementation phase and the matching of product features to organizational needs in the implementation phase are increasingly important for the consumer-oriented ES development lifecycle. Keil and Tiwana (2006) enhanced these findings to illuminate the ES acquisition decision. The authors show that managers evaluate functional fit as selection criteria in the evaluation of packaged software as exceptionally important.

2.3.2.2 Misfit-Oriented ES Literature at the Organizational Level

Another branch of organizational fit literature in ES research mainly analyzes *misfits, misalignments* or *mismatches* at the organizational level. Soh et al. (2000) conducted the pioneering work in opening up the "misfit black box" by investigating the sources of misalignments between the organizational requirements and package features of large ES. Drawing on the traditional software application perspective, they came up with an initial classification of misfits using a data, process, and output category. The categories are presented in detail in Table 2.

Data Misfit	Data misfits arise from incompatibilities between organizational requirements and ERP packages in terms of data format, or the relationships among entities as represented in the underlying data model. Resolving these misfits is cumbersome, since this requires changing the structure and relationship of the table objects, which are viewed as prohibitive core changes to the ERP packages.
Process Misfit	Functional misfits arise from incompatibilities between organizational requirements and ERP packages in terms of the processing procedures required.
Output Misfit	Output misfits arise from incompatibilities between organizational requirements and the ERP package in terms of the presentation format and the information content of the output.

Table 2: Misfit Classification (Soh et al. 2000)

By further analyzing the tensions between the forces of integration and differentiation, process orientation and functional specialization, flexibility and restrictiveness, and packaged versus organizational domain specificity, they ended up with a more specified typology of six ES misalignments: data ownership, workflow changes, job scope, data entry, reports, and revenue processing (Soh et al. 2003). In further studies, the authors focused on the explanation and prediction of how organizations resolve misalignments. To begin with, they analyzed whether misalignments arise from deep or surface structures in ES (Sia and Soh 2002), and later whether misalignments arise from voluntarily assumed or externally imposed organizational structures (Soh and Sia 2004; Soh and Sia 2005). Building on these findings, they developed the *Misalignment Assessment Framework* (see Figure 6), which combines the institutional and ontological dimensions whereby they identified four types of misalignments with varying degrees of severity (imposed-deep, imposed-surface, voluntary-deep, and voluntary-surface) and included resolution propositions (Sia and Soh 2007). The results of Soh and her

colleagues were expanded by using a process approach (Rosemann et al. 2004; Wei et al. 2005) or by focusing on customization (Brehm et al. 2001; Light 2005).

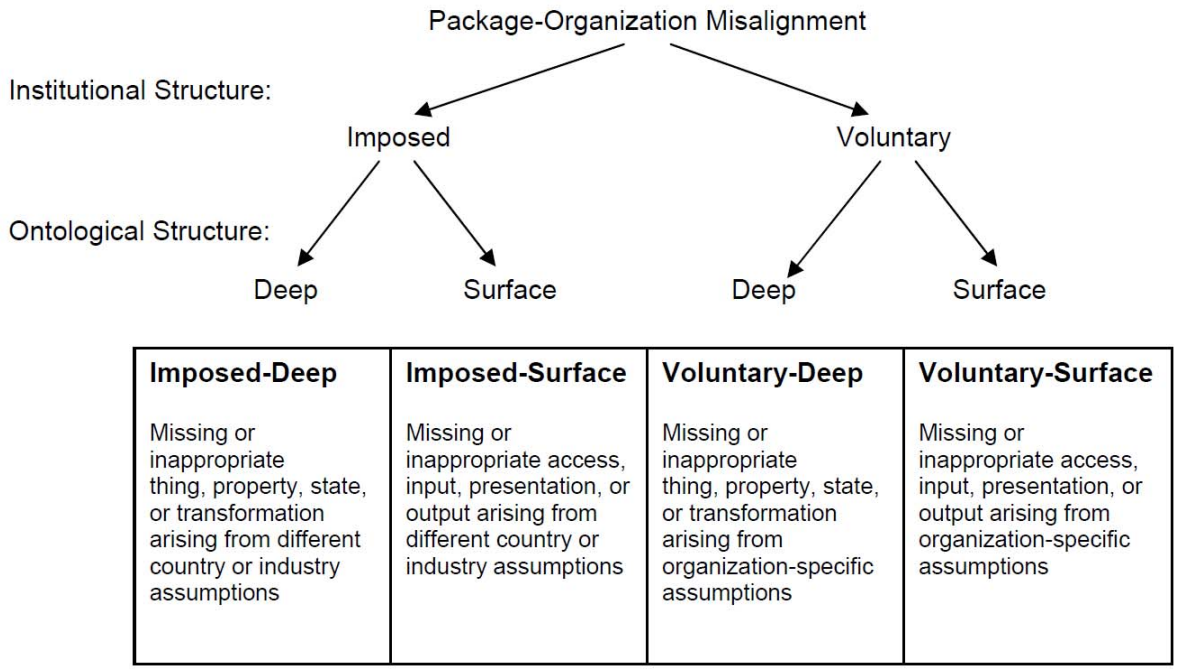

Figure 6: Misalignment Assessment Framework (Sia and Soh 2007)

2.3.2.3 Misfit-Oriented ES Literature at the User and Organizational Level

Based on the misfit research conducted by Soh and Sia (Sia and Soh 2002; Sia and Soh 2007; Soh et al. 2000; Soh and Sia 2004; Soh and Sia 2005; Soh et al. 2003), Strong and Volkoff (2010) wanted to gain a deeper understanding of the *nature* of the misfits between software and multiple elements of an organization's operations. Therefore, Strong and Volkoff (2010) analyzed mismatches between the elements of the enterprise system and elements of the organization by using grounded theory procedures. In contrast to earlier research, their study consciously incorporates the *level of the individual* based on their proposition that the organization-IS fit construct "is composed of an aggregation of individual task-technology fit experiences together with their interactions" (Strong and Volkoff 2010, p. 734). The authors ob-

served misfits that were immediately apparent, as well as some others that emerged over time within the first three years of a five-year phased SAP implementation project at a global corporation. They uncovered a set of six misfit domains (see Table 3).

Misfit	Definition
Functionality	*Functionality misfits* occur when the way processes are executed using the ES leads to reduced efficiency or effectiveness as compared to pre-ES outcomes.
Data	*Data misfits* occur when data or data characteristics stored in or needed by the ES leads to data quality issues such as inaccuracy, inconsistent representations, inaccessibility, lack of timeliness, or inappropriateness for users' contexts.
Usability	*Usability misfits* occur when the interactions with the ES required for task execution are cumbersome or confusing, i.e., requiring extra steps that add no value, or introduce difficulty in entering or extracting information.
Role	*Role misfits* occur when the roles in the ES are inconsistent with the skills available, create imbalances in the workload leading to bottlenecks and idle time, or generate mismatches between responsibility and authority.
Control	*Control misfits* occur when the controls embedded in the ES provide too much control, inhibiting productivity, or too little control, leading to the inability to assess or monitor performance appropriately.
Organizational Culture	*Organizational culture misfits* occur when the ES requires ways of operating that contravene organizational norms.

Table 3: Misfit Domains (Strong and Volkoff 2010)

Within each of the misfit domains, they recognized two theoretically different types of misfit: deficiencies and impositions. *Deficiencies* are "problems arising from ES features that are missing but needed", while *impositions* are "problems arising from the inherent characteristics of an ES such as integration and standardization" (Strong and Volkoff 2010, p. 737). As a final result, they aggregate the results found at the user level to theorize Org-ES fit by proposing two collective and multidimensional constructs: fit as coverage and fit as enablement (see Table 4). *Fit as coverage* "captures the extent to which the ES meets the requirements of the organization (i.e. the extent to which there are no deficiencies causing misfits)." *Fit as ena-*

blement "captures the extent to which the ES enables the organization to operate efficiently and effectively according to its needs" (Strong and Volkoff 2010, p. 752).

Fit	Definition	Associated Misfit Type
Coverage Fit	The ES meets the organization's requirements; it includes the features that the organization needs to operate and that users need to do their work.	Coverage fit corresponds to the absence of deficiency misfits.
Enablement Fit	The ES permits and enables the organization to operate more effectively, and users to do their work more efficiently, than was the case without an ES even after accounting for the negative effects of impositions.	Enablement fit is related to imposition misfits; they are not simple complements, but rather often emerge together from the same ES features.

Table 4: Multidimensional Fit Constructs (Strong and Volkoff 2010)

2.3.2.4 Fit- and Misfit-Oriented ES Literature at the User and Organizational Level

In their conceptual conference paper, Maurer et al. (2012) strongly advise researchers to analyze both fits and misfits at an individual and organizational level over time. They challenge the longstanding assumption that all misfits carry negative consequences and always lead to performance degradation. They argue that misfits are inevitable and that "investigating misfits in isolation from one another and without consideration of totality of fit versus misfit, or without consideration of the level at which individual fits or misfits emerge or the time they are identified can lead organizations down a path of needlessly addressing misfits and incurring costs that may not be necessary" (Maurer et al. 2012, p. 4654). An account of misfits that occur between an ES and an organization may give a limited picture; not every existing misfit is (identically) identified by users. Misfits perceived by one individual user or user group may lead to fit and greater performance benefits for another individual, group or the organization as a whole. Similarly, misfits that appear in one organizational unit may enable fit within another organizational unit. Furthermore, due to ongoing changes in the environment of an organization, misfits can create opportunities to adapt rapidly, whereas a perfect alignment of ES with the business processes may hinder organizational adaptability. Misfits may also have

different influences on organizations depending on the ES lifecycle phase in which they are identified. The authors motivate researchers to extend investigations regarding ES-organization fit beyond TTF due to the different interdependences, to analyze misfits over time, and to focus on the consequences of misfits.

2.3.3 ES Fit and Misfit Definition

In extant literature, diverse definitions of fit and misfit in the ES context are used. An overview is presented in Table 5 and Table 6.

Term	Definition	Source(s)
Functional Fit	"the extent to which the functional capabilities embedded and configured within an ES package match the functionality that the organization needs to operate effectively and efficiently. Saying that software has good functional fit is equivalent to saying that (1) the processes supported by the ES are efficient and effective for the organization, and (2) the software helps people in the organization get their jobs done"	Seddon et al. (2010, p. 307)
Fit	"pattern of covariation or internal consistency among a set of underlying theoretically related variables"	Wang et al. (2008, p. 1613) based on Venkatraman (1989, p. 435)
ERP Fit	"a proper 'fit' between the technology and the organization's strategy and implementation choices"	Somers and Nelson (2003, p. 316)
Organizational Fit	"the congruence between the original artifact of ERP and its organizational context", and more specifically "the degree of alignment between ERP model and organization needs in terms of data, process and user interface"	Hong and Kim (2002, p. 27)

Table 5: ES Fit Definitions

Term	Definition	Source(s)
Misfit	"mismatch between the elements of the enterprise system and elements of the organization utilizing the system: ranging from minor inconveniences to critical deficiencies in functionality"	Maurer et al. (2012, p. 4652) based on Strong and Volkoff (2010)
Misfit	"the gaps between the functions offered by ERP and the adopting organization's requirements"	Wu et al. (2007, p. 666)
Misfit	"significant gap [..] between the business processes that the plant needed to follow and the business processes supported by the ERP systems, as implemented"	Gattiker and Goodhue (2004, p. 440)
Misfits	"external manifestations of the differences between two worlds: that of the organization's needs on the one hand and the system's capabilities on the other"	Rosemann et al. (2004, p. 439)
Misfit	"the gaps between the functionality offered by the package and that required by the adopting organization"	Soh et al. (2000, p. 47)
Misalignments	"differences between the structures embedded in the organisation (as reflected by its procedures, rules and norms) and those embedded in the package"	Soh and Sia (2004, p. 376)
Misalignments	"conflict between […] opposing structural forces embedded in ERP packages and the implementing organization"	Soh et al. (2003, p. 98)

Table 6: ES Misfit Definitions

2.4 Conclusion of the Literature Review

In summary, the literature analysis highlights three main research gaps. First, fit between an ES and an organization is studied almost exclusively at the organizational level. Although research increasingly acknowledges the importance of the end-users, they are usually considered as a homogeneous mass with similar requirements. Fit is presumed to be beneficial for the organization and the users under the condition that they are well informed, trained and supported. "The greater the functional fit, the more efficient and effective the organizational processes supported by the system and the more the system helps users across the organization get their jobs done" (Seddon et al. 2010, p. 311). However, it has not yet been investigated in detail whether all of the users really perceive fit similarly, whether fit is always beneficial for them, and whether their individual way of dealing with the ES implementation or post-implementation project is always in line with organizational intent. Strong and Volkoff (2010) and Maurer et al. (2012) provide the first evidence that users' fit experiences in the ES context are more heterogeneous than previously assumed. Nevertheless, there is only a fragmented understanding of these individual fit experiences. Although the authors state that understanding the overall context of the fit experiences involves understanding the sum of and the interactions between them (Strong and Volkoff 2010), as well as their consequences (Maurer et al. 2012), there is lack of empirical research examining individual ES fit experiences in this overall context. On the other hand, authors analyzing users' responses to IT-induced change projects focus almost exclusively on the adaption process without specifically addressing the users' individual interaction with the system (Beaudry and Pinsonneault 2005; 2010). Furthermore, user-specific consequences, such as user satisfaction or a particular adaption behavior, are rarely contrasted with organizational intent.

Second, none of the research papers clearly distinguish between fit and misfit and explicitly investigate both aspects. Most of them concentrate either on fit or misfit, or do not specify their understanding of fit at all. The authors who expressly use misfit as a fit indicator (with the assumption that few misfits are associated with a high level of organizational fit) defend their decision with the argument that misfit is more salient in their data.

Third, initial ES implementation is still the main objective of investigation in extant fit research, although most of the medium- and large-size companies have already implemented at least one ES in recent years. A change of focus from implementation projects to functionality expansion projects has only just begun (e.g. Seddon et al. 2010).

In conclusion, there is lack of an integrated framework examining the *totality* of users' fit and misfit experiences in connection with their individual and organizational *consequences* in the context of *PIPs*. The Fit/Misfit Experience-Outcome (FMEO) model that we present in the next chapter explicitly addresses the gaps in extant literature in search of a more integrated framework. Therefore, the fragmented research views are extended and consolidated. As a first step, the valuable findings of Strong and Volkoff (2010) on individual misfit experiences are supplemented by fit experiences. Given that the authors do not explain how the experiences are summarized and what their consequences are, other research fragments have to be linked in a second step. On the one hand, the process of discrepancy evaluation (Chin et al. 2014) provides a valuable explanation on how cognitively perceived fits and misfits are evaluated, i.e. made sense of, by the users and how an individual forms a summary evaluation. On the other hand, the literature shows evidence for different but dependent consequences of the fit and misfit experiences: users' behavioral reactions, user satisfaction, and alignment with organizational intent. *Behavioral reaction* to IT-induced change projects in the form of adaption strategies are adopted from the Coping Model of User Adaption presented by Beaudry

and Pinsonneault (2005). Considering that they analyze coping behavior independently of the users' specific system interactions, our framework also contributes to their research. *User satisfaction* is the result of the summary evaluation of all fit and misfit evaluations (Chin et al. 2014). These two individual consequences are supposed to influence each other. To complete the picture and make a connection to both project and long-term ES success, research (Jasperson et al. 2005; Maurer et al. 2012; Seddon et al. 2010) recommends reflecting the individual consequences regarding their alignment with organizational intent. The integrated view of the individual perception, evaluation and consequences of fits and misfits in PIPs is supposed to allow for the identification of different fit/misfit experience-outcome patterns that characterize specific archetype users. The FMEO model is illustrated and explained in detail in the following chapter.

3 Fit/Misfit Experience-Outcome (FMEO) Model

In this chapter, we develop an initial conceptual framework in terms of a pre-conception as suggested by Eisenhardt (1989) that serves as basis for the empirical analysis. The Fit/Misfit Experience-Outcome (FMEO) model picks up on the concepts of the literature that was identified as most essential in the previous chapter and consolidates these concepts to an integrative framework. Even though the model evolved inductively and some of the aspects turned out to be relevant only in the course of data collection and data analysis, they are presented up-front to give an overview of the state of knowledge on the basis of which the in-depth data analysis was conducted.

The basic idea of the FMEO model is to explain why and how individually experienced fits and misfits translate into different outcomes of user behavior and satisfaction and whether these individual outcomes are in line with organizational intent. The model centers the users' fit and misfit perceptions, which are evaluated in an individual sense-making process and have consequences at an individual (they motivate users to respond behaviorally and let them form an overall assessment of satisfaction) and organizational level. From a theoretical point of view, the FMEO model is an extension of the organization-IS fit taxonomy presented by Strong and Volkoff (2010), as it includes the experience of fit and misfit as well as the users' responses to the experiences. Therefore, the organization-IS fit taxonomy is incorporated in the broader context of the coping model of user adaption (CMUA) (Beaudry and Pinsonneault 2005; 2010) by adding an evaluative component (Chin et al. 2014). The combination of the theories is illustrated in Figure 7.

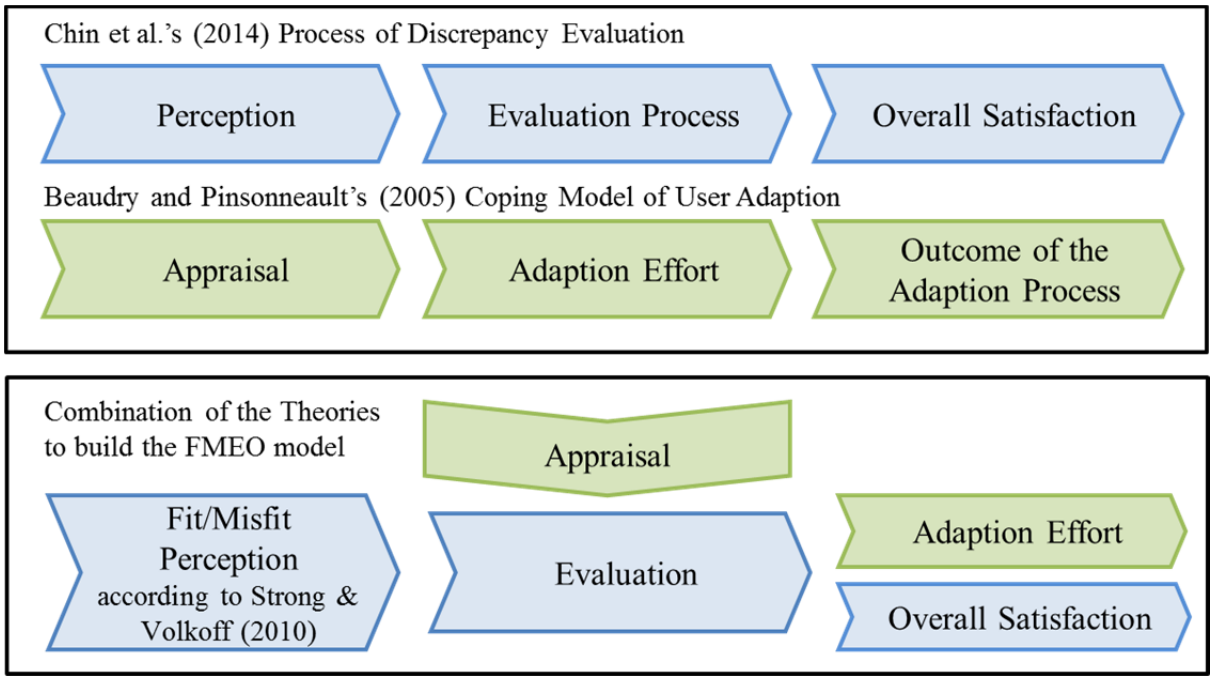

Figure 7: Combination of Theories

The combined FMEO model (see Figure 8) is subdivided into three major elements:

(1) *User's fit/misfit experience*:

a. *User's fit/misfit perception:* Individual recognition of the existence of fit and/or misfit;

b. *User's fit/misfit evaluation*: Cognitive and affective sense-making of the perception influenced by the *appraisal* of the consequences of the PIP; and

(2) *Fit/misfit Outcome/Consequences*: individual cognitive, affective and/or behavioral reaction to the evaluated perception in the form of both a) *users' behavioral reaction* and b) *user satisfaction*, which are interdependent. The behavioral reaction is more or less aligned with the c) *organizational intent*.

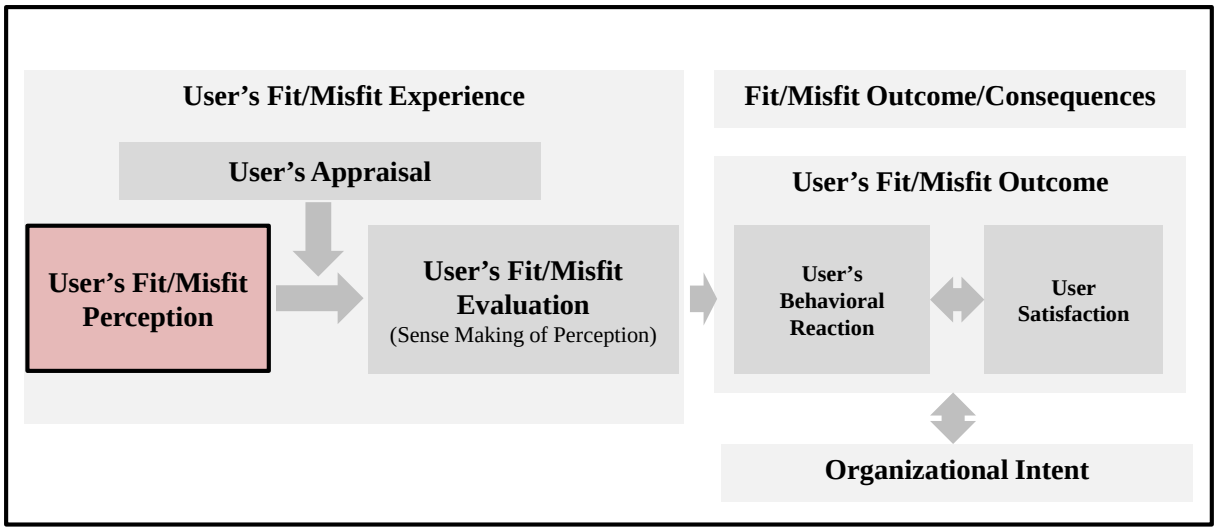

Figure 8: FMEO Model

The definite FMEO model assumes that every end-user perceives an individual number of fits and/or misfits. The specific adaption strategy and the level of user satisfaction depend on the individual evaluation of the various perceived fits and misfits, whereby the individual user's appraisal is essential. The combination of user satisfaction and behavioral response might be more or less in line with organizational intent. We introduce the elements of the framework in more detail in the following chapters. The values of the elements of the FMEO model are summarized in Table 7 to give an initial overview of the heterogeneity among the users.

Element of the FMEO Model	Heterogeneity in the Values	
User's Fit/Misfit Perception	• Fit(s) only • Misfit(s) only • Mixed Perception, i.e. Fits and Misfits	
User's Appraisal	Combination of • Opportunity(ies) only • Threat(s) only • Mixed feelings of Opportunity(ies) and Threat(s) • Neither Opportunities nor Threats (Disinterest)	• Area(s) of Low Control only • Area(s) of High Control only • Area(s) of Low and High Control
User's Fit/Misfit Evaluation	• Favorably Evaluated Fits • Indifferently Evaluated Fits • Unfavorably Evaluated Fits	• Unfavorably Evaluated Misfits • Indifferently Evaluated Misfits • Favorably Evaluated Misfits
User's Behavioral Reaction	• Benefits Maximizing Strategy • Benefits Satisficing Strategy • Self-Preservation Strategy • Disturbance Handling Strategy	
User Satisfaction	• Satisfaction • Dissatisfaction • Indifference	

Table 7: Heterogeneity in the Values of the Elements of the FMEO Model

3.1 User's Fit/Misfit Experience

3.1.1 User's Fit/Misfit Perception

As outlined in Chapter 2.3.3, several definitions of fit and misfit exist. Following the misfit definition of Maurer (2012) and Strong and Volkoff (2010), (mis)fits are defined as *(mis)matches between the elements of the ES and elements of the organization utilizing the system*. Fist or misfits between the organization and an ES are collective constructs and there-

fore composed of an aggregation of *individual* task-technology fit experiences. As fit or misfit can be experienced differently by different people, the perception at the individual level is relevant to understand the whole context (Strong and Volkoff 2010). Only individuals who directly interact with the ES are able to cognitively become aware of fits and misfits. Therefore, an end-user[6] is defined – deduced from the taxonomy presented by Cotterman and Kumar (1989) – as a person who has an *interaction with the ES* as a consumer and/or producer of information. However, an existing fit or misfit becomes only relevant if it is *identified* and its existence is acknowledged by the users of the ES (Chin et al. 2014; Maurer et al. 2012). Until a fit or misfit becomes visible and is recognized, it does not become assessable and actionable (Maurer et al. 2012). To understand the totality of end-users' fit perception, it is not sufficient to exclusively examine the misfits (Maurer et al. 2012) although they might be more salient to users (Strong and Volkoff 2010). As a consequence, individually perceived fits *and* misfits are part of the FMEO model. They are defined as follows:

	Definition	**Sources**
Perceived (mis)fit	Individually identified (mis)match between the elements of the ES and the individual workflow of the ES end-user	(Maurer et al. 2012) (Strong and Volkoff 2010) (Chin et al. 2014)

The perceived fits and misfits can be allocated to one of the six categories presented by Strong and Volkoff (2010), having initially studied ES misfits in detail at the individual level (see Table 8). The categorization is intuitive and comprehensive and includes roles, control, and culture, all of which were rarely mentioned in earlier literature.

[6] The terms "user" and "end-user" are used as synonyms in further discussions.

Misfit/Fit	Definition
Functionality Misfit*	*Functionality misfits* occur when the way processes are executed using the new ES integration solution leads to **reduced** efficiency or effectiveness as compared to pre-ES outcomes
Functionality Fit**	*Functionality fits* occur when the way processes are executed using the new ES integration solution leads to **enhanced** efficiency or effectiveness as compared to pre-ES outcomes
Data Misfit*	*Data misfits* occur when data or data characteristics stored in or needed by the new ES integration solution **leads to** data quality issues such as inaccuracy, inconsistent representations, inaccessibility, lack of timeliness, or inappropriateness for users' contexts
Data Fit**	*Data fits* occur when data or data characteristics stored in or needed by the new ES integration solution **reduce** data quality issues such as inaccuracy, inconsistent representations, inaccessibility, lack of timeliness, or inappropriateness for users' contexts compared to the pre-ES situation
Usability Misfits*	*Usability misfits* occur when the interactions with the new ES integration solution required for task execution are cumbersome or confusing, i.e. requiring extra steps that add no value, or introduce difficulty in entering or extracting information
Usability Fit**	*Usability fits* occur when the interactions with the new ES integration solution required for task execution are **less** cumbersome or confusing, i.e. less extra steps that add no value, or reduced difficulty in entering or extracting information
Role Misfit*	*Role misfits* occur when the roles in the new ES integration solution are inconsistent with the skills available, create imbalances in the workload that lead to bottlenecks and idle time, or generate mismatches between responsibility and authority
Role Fit**	*Role fits* occur when the roles in the new ES integration solution are more consistent with the skills available, reduce imbalances in the workload that were leading to bottlenecks and idle time in the pre-ES situation, or generate better matches between responsibility and authority
Control Misfit*	*Control misfits* occur when the controls embedded in the new ES integration solution provide too much control, inhibiting productivity, or too little control, leading to the inability to assess or monitor performance appropriately
Control Fit**	*Control fits* occur when the controls embedded in the new ES integration solution provide a more appropriate level of control, i.e. leading to the ability to assess or monitor performance more appropriately or enhancing productivity
Organizational Culture Misfit*	*Organizational culture misfits* occur when the new ES integration solution requires ways of operating that contravene organizational norms
Organizational Culture Fit**	*Organizational culture fits* occur when the new ES integration solution requires ways of operating that are better in line with organizational norms

* Fit definitions are adopted from Strong and Volkoff (2010)

* Fit definitions are adapted from the misfit definitions

Table 8: Fit/Misfit Categorization (based on Strong and Volkoff 2010)

3.1.2 User's Fit/Misfit Evaluation and Appraisal

Every fit and misfit can be evaluated as favorable, unfavorable, or indifferent. Solely measuring the magnitude of a fit or misfit is insufficient and should be accompanied by a cognitive-affective evaluation (Chin et al. 2014). By taking this evaluative perspective, the longstanding assumption that fit is always perceived as beneficial and misfit as problematic (recently supported by e.g., Nevo and Wade 2010; Seddon et al. 2010; Strong and Volkoff 2010) is challenged. This goes in line with the conclusion of Maurer et al.'s (2012) conference contribution, entitled, "Are Enterprise System Related Misfits Always a Bad Thing?" On the one hand, there might be an end-user, for example, who clearly identifies a misfit but does not really care about it or is even happy with it. On the other hand, a fit, even if it is perceived directly by the individual, does not always need to have a positive consequence for this end-user. Therefore, by adding an evaluative component, not only is the perceived magnitude identified, but also the valence of a fit or misfit (Chin et al. 2014). The evaluation of IS, especially packaged software, is complex, as such a system involves many different features, some of which may be highly satisfactory, while others may be unsatisfactory. Additionally, drawing on research in consumer marketing, an ES is used over a considerable period of time, so that the evaluation process is more or less continuous and the user's feelings about the IS may vary over time (Day 1977).

A PIP can bring about changes and is therefore a disruptive event. The end-users' evaluation of PIP's post-adoptively perceived fits and misfits might be influenced by the evaluation of the potential consequences of this event. Not only are the expectations regarding the ES-organization fit or misfit, as highlighted by the expectation confirmation theory (Oliver and Swan 1989), assumed to have an influence, but a broader perspective is also adopted by emphasizing emotions experienced by anticipation of an ES expansions. *Appraisal theories of*

emotions (e.g., Lazarus and Folkman 1984) state that an individual's evaluation of his or her circumstances plays a crucial role regarding adaptive responses to a disruptive event. An important element of coping theory (Lazarus 1966) is a proactive approach to appraisal, going beyond the immediate situation and assessing the probability of possible outcomes by considering the ability to change the situation and its consequences (Ellsworth and Scherer 2003). The sensemaking of the perceptions of ES fits and misfits is therefore assumed to be influenced by the users' *appraisals* in the PIP pre-implementation period (called the anticipation period by psychologists), and by *reappraisals* in the implementation (impact) and post-implementation (post-impact) phase.

Beaudry and Pinsonneault (2005; 2010) adapted appraisal from coping theory (Lazarus 2000; Lazarus and Folkman 1984) to the IS context. The assessment of a PIP starts with a *primary appraisal*: The user determines the expected consequences of the PIP and how they are likely to affect him or her both personally and professionally. Consequences can be categorized as opportunities or threats. Primary appraisal occurs in a specific context and is therefore likely to be influenced by some social and institutional factors (i.e. peers/superiors think of the PIP or ES, top management commitment and support of the PIP, subjective norms, or organizational culture). In a *secondary appraisal*, users assess how much control they have over the PIP and what their adoption options are, given the resources available to them. The interactions with the system and/or the outcome of a first behavioral reaction are likely to change the user's assessment of the PIP and might lead to a post-implementation reappraisal of the situation (Beaudry and Pinsonneault 2005). Therefore, we define the different types of appraisals as follows:

	Definition
Primary Appraisal	Pre-implementation assessment of the potential consequences of the PIP and its personal importance and relevance for the user.
Primary Reappraisal	Post-implementation reassessment of the (potential) consequences of the PIP and its personal importance and relevance for the user.
Secondary Appraisal	Pre-implementation assessment of the level of control the user will be able to exert over the situation and what he/she feels he/she will be able to do about it given the resources available.
Secondary Reappraisal	Post-implementation reassessment of the level of control the user exerts over the situation and what he/she feels he/she can do about it given the resources available.

Table 9: Types of Appraisals (based on Beaudry and Pinsonneault 2005)

Due to the fact that PIPS are multifaceted, they are likely to be assessed as containing both types of expected consequences, and it is their relative importance that influences fit/misfit evaluation. Such *ambivalent feelings* are highly acknowledged in change projects: Individuals are shown to often simultaneously support and resist change efforts (Ashforth et al. 2014). The examination of the totality of fit and misfit therefore necessitates an extension of the work of Strong and Volkoff (2010) by including the theoretical construct of ambivalence. *Ambivalence* is defined as "an individual's oppositional orientation towards an object" (Ashforth et al. 2014, p. 1455). In the context of the FMEO model, users' evaluation process is presumed to be characterized by ambivalence, especially if the users have mixed perceptions, i.e. perceive both fits and misfits.

3.2 Fit/Misfit Outcome/Consequences: User's Outcome and Alignment with Organizational Intent

The evaluative results of all fits and misfits are combined to form an overall assessment of satisfaction with the ES (Chin et al. 2014). This draws on the consumer view in marketing research where product satisfaction is known as the consumer's pleasurable level of consumption-related fulfillment response (Oliver 2010). User satisfaction is defined as "affective attitude towards a specific computer application by someone who interacts with the application directly" (Doll and Torkzadeh 1988, p. 261). Because users perceive fits and misfits, opportunities and threats, as well as areas where they have either high or low control, they might be highly ambivalent in their fit evaluation. Usually, actors experience ambivalence in the evaluation process as disorienting as it feels wrong for them to have more than one orientation towards an object. Therefore, ambivalence motivates users to take action to reduce the discomfort (Ashforth et al. 2014). As a consequence, ambivalent appraisals combined with mixed perceptions trigger users to *behaviorally respond.* Therefore, it seems appropriate to include the *behavioral reaction* in the conceptual process through which users arrive at feelings of satisfaction, indifference, or dissatisfaction (*user satisfaction*) (Day 1977). The existence of such an indirect path is also supported by Beaudry and Pinsonneault (2010, p. 705), who state that "emotions are strongly related to IT use via indirect relationships through intermediate adaptation behaviors." Therefore, satisfaction is not analyzed separately, but rather in combination with the behavioral reaction (Beaudry and Pinsonneault 2005; 2010). The four adaption strategies, which were identified by Beaudry and Pinsonneault (2010) by transferring coping theory to the IT environment, are adapted (see Table 10).

Adaption Strategy	Description (Beaudry and Pinsonneault 2005; Lazarus and Folkman 1984; Majchrzak et al. 2000)
Benefits Maximizing	When a user appraises the PIP as an **opportunity** and feels that she/he has **some control** over the situation, adaption efforts will be mainly problem-focused and oriented to take full advantage of the opportunities offered by the PIP and maximize personal benefits. Users achieve this goal by adapting the work system, the technology, and/or themselves.
Benefits Satisficing	In a situation where the consequences of a PIP are appraised as an **opportunity**, but users feel that they have **limited control** over the situation, adaption efforts are minimal. Emotion-focused efforts are limited because users do not feel the need to reduce tensions emanating from the IT event and problem-focused reactions are limited because users feel that they are not able to further exploit the ES and reap its benefits. Users satisfy themselves with the benefits the ES offers.
Disturbance Handling	When a user appraises the PIP as a **threat** and feels that she/he has **some control** over the situation, she/he relies on problem-focused adaption to minimize the expected negative consequences and restore emotional stability. Adaption efforts are oriented towards one's self, the technology, and/or the task. Because the PIP is threatening emotion-focused adaption, such as positive comparison, threat minimization, and positive reappraisal, is used. It is also possible that users are able to improve their individual efficiency and effectiveness by relying on benefit-oriented adaption efforts.
Self-Preservation	In a situation where the expected consequences are perceived as **threat** and users feel that they have only **limited control** over the situation, their adaption efforts are mainly emotion-focused. Their behavioral reactions are aimed at restoring emotional stability and reducing the tensions emanating from the PIP by minimizing the perceived negative consequences, positive comparison, self-deception and avoidance, selective attention, and/or distancing. If the circumstances are too demanding and overwhelming, users might totally withdraw from the situation, disengage themselves from them and exit the situation altogether.

Table 10: Adaption Strategies

However, the adaption strategies defined by Beaudry and Pinsonneault (2010) are used in the FMEO model with three main restrictions. First, most of the users appraise opportunities *and* threats, as well as areas where they have simultaneously high *and* areas where they have low control. As a consequence, users are typically ambivalent and the aggregated user's appraisal cannot be clearly allocated to one single class of emotions. Second, the embedded fit/misfit evaluation absorbs the appraisals to generate a summary judgment of the perceptions that *in combination* are associated with a user-specific behavior. Third, the in-depth analysis of fit and misfit perception and evaluation allows for distinguishing between a *fit-related* and *misfit-related behavior* that has not yet been explored by the authors.

In the end, ES projects are initiated at an organizational level and system expansions are expected to generate company-wide benefits. Therefore, the context within which the perceptions of the individuals are situated must also be considered to explore the totality of consequences of the users' responses to their perceptions of fits and misfits (Jasperson et al. 2005). Therefore, the users' responses, as well as the individually experienced work efficiency, are finally reflected regarding their alignment with the new routine/process and with the goals defined by the project team and the company's business objectives. This comparison offers the opportunity to gain insight regarding whether fit at the user level can be easily translated to the level of the organization. It allows for shedding light on how strongly the individual fit experiences correspond with the organizationally targeted fit (usually characterized by a high level of homogeneity, standardization and automation) and whether users' reactions to their individual and also heterogeneous fit experiences are in accordance with the intent of the organization.

4 Research Design and Methods

The objective of this study is to better understand why and how individually experienced fits and misfits translate into different outcomes of user behavior and satisfaction and whether these individual outcomes are in line with organizational intent. For this purpose, we chose an exploratory case study approach (Benbasat et al. 1987). Our research is based on a 14-month, in-depth exploratory qualitative field study of a post-implementation project. As suggested by Eisenhardt (1989), we entered the research field with pre-specified constructs drawn from existing research. The initial conceptual framework was further explored using an inductive analytical approach. To achieve this, an interactive process of data analysis und theory building was followed in which the findings of earlier stages informed later stages and vice versa (Miles and Huberman 1994). This allowed us to stay open-minded and enabled the conceptual framework to emerge during the course of study. Therefore, we started our research with the aim of achieving a deeper understanding of the individual perceptions of fits and misfits guided by categories that were derived deductively from the existing literature. The data collection and analysis revealed a *fit/misfit perception-satisfaction paradox*: users who perceived considerably more fits than misfits were not always satisfied and those who perceived more misfits than fits were not always dissatisfied, as was expected. Although fit was achieved from an organizational point of view, most of the users were not satisfied. This paradoxical finding led us to explore the perceptions in a broader context. Subsequently, the initial conceptual framework was refined and the Fit/Misfit Experience-Outcome (FMEO) model extended. With this upfront theory in mind, we further explored the research field. Therefore, interpretative methods were also applied, as they offer a lens to gain knowledge of how and why (Yin 2003) an ES influences and is influenced by the *social context* (Walsham 1993). The single

case study allowed us to develop a deep understanding of the IT artifact (Orlikowski and Baroudi 1991) in its socially embedded context and of users' actions related to its use (Klein and Myers 1999). Therefore, the researcher focused on subjective descriptions of users' perceptions and practices and their expressed thoughts and feelings about the new ES solution and the PIP.

4.1 Case Study Setting

The case study was conducted at the railway company SBB by examining the company-wide ES post-implementation project, "Procure to Pay (P2P)". The specific settings of this project were suitable for finding answers to our research questions for different reasons. The project had a wide range and influence on the whole procurement and payment process of the company, which involved different end-user groups and departments. Therefore, a high variety in perceptions was ensured and the dependencies of different perceptions and reactions were able to be analyzed. The end-users were mandated to work with the ES. Every user had to deal with the changes and consequences of the new ES solution and he or she had only very limited possibilities of avoiding interaction with the system. Nonetheless, the users had autonomy in the way they used the system. Additionally, the procurement and payment process had already been supported by SAP for over ten years and the end-users had been accustomed to the processes and the interaction with the ES. This set-up allowed for clear differentiation between the post-implementation project and the initial ES implementation project. This combination allowed focusing on the defined ES-specific process and the differences within this process. From a company point of view, due to the mandated environment, frequency of system usage was not a suitable indicator for system adoption. Therefore, measuring the success of the new ES solution at an end-user level was a challenge for the project team and led

the management to focus on user satisfaction. As the project team was not convinced that end-user satisfaction was an adequate measure, it was very open and supported academic research actively, but – very importantly – without influencing neither the setting nor the research process nor the results. The project leader allowed the doctoral student to follow the first project phase as an independent project team member. Being on site, the researcher had access to all the project documentations and meeting minutes, was allowed to participate in all project team meetings, round table and training sessions and could set up interviews with end-users independently.

4.1.1 The Company SBB

Swiss Federal Railways (SBB) is the largest travel and transport company in Switzerland. Every year, SBB transports 366 million passengers and over 50 million net tons of freight. The company is the fourth-largest employer in Switzerland with more than 31,000[7] employees. The SBB Group is subdivided into four main divisions: Passenger, Freight, Infrastructure and Real Estate. With over 40,000 suppliers, more than 300,000 purchase orders per year, and approximately 2,300 supplier invoices every day, SBB is one of Switzerland's most important purchasers. In 2012, a total procurement volume exceeding CHF 4.7 billion was turned over and around 550,000 supplier invoices had to be handled (SBB 2014).

4.1.2 SBB's IT and Enterprise System Environment

SBB's system environment consists of a remarkably large number of closely interlinked applications. SBB currently maintains over 1,000 such applications and the company employs over 400 developers in its software engineering section. Virtually all business processes are

[7] In 2012, at the time the research study was conducted, SBB had about 28,000 employees.

supported by IT, from timetabling and production planning to logistics, customer information and ticket machines. SBB supports a wide range of standardized technologies and platforms in order to run these applications. SBB's SAP installation is therefore one of the biggest in Switzerland. The SAP system landscape is illustrated in Figure 9.

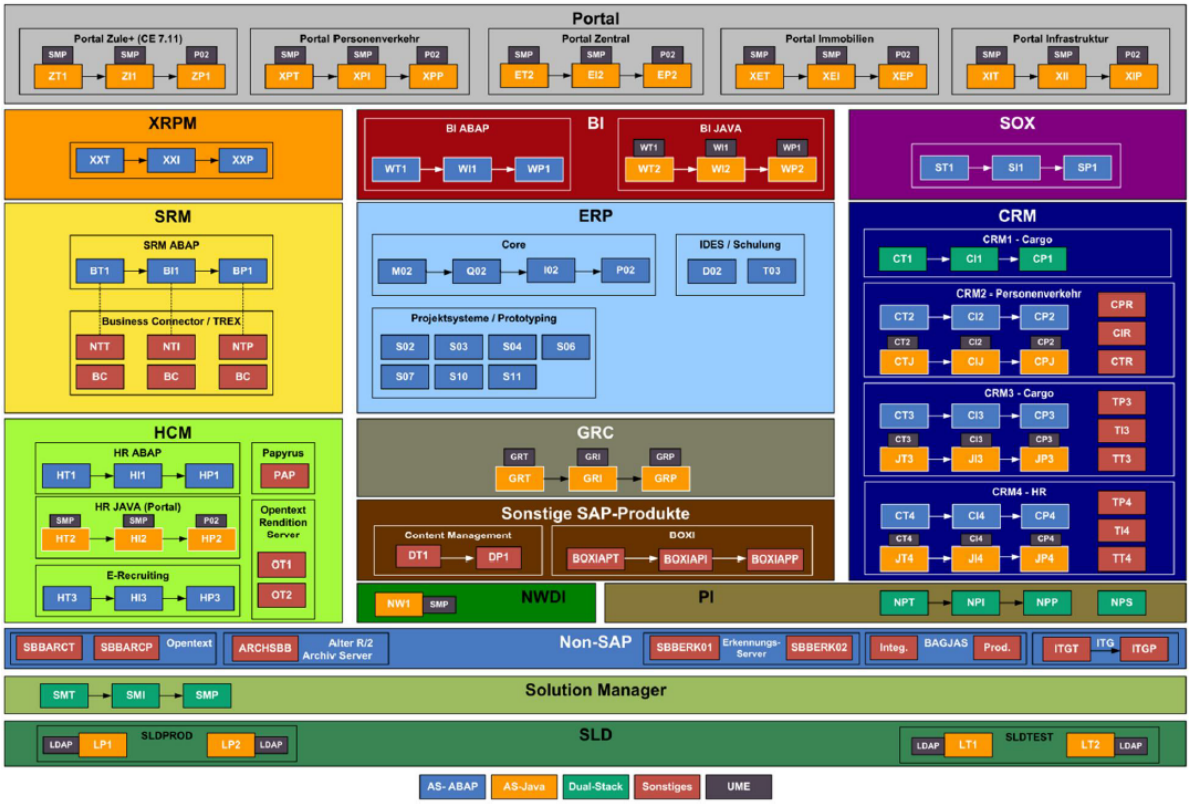

Figure 9: SBB's SAP System Landscape (SBB 2011)

4.1.3 SBB's E-Procurement and E-Payment Process

SBB has a long history of e-procurement and e-payment (see Figure 10). In July 2000, SBB launched its initial e-procurement solution. The goal was to simplify the procurement process to achieve clear reductions in purchasing costs. This included the definition of a new purchasing strategy, the elaboration of consistent master-agreements with suppliers, the review of internal stock management efficiency and effectiveness and the streamlining of the product

portfolio. E-procurement was implemented by launching SAP EBP 2.0c (Enterprise Buyer Professional) as an extension to the existing SAP R/3 platform.

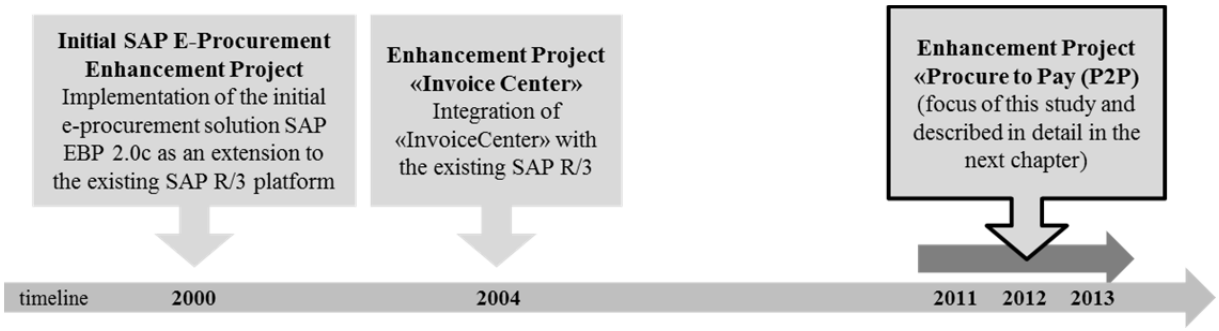

Figure 10: SBB's E-Procurement and E-Payment History (SBB 2011)

The introduction of the SAP EBP solution helped to significantly reduce procurement costs. It also eased the workload of operative tasks for the central purchasing department, as it allowed end-users to order articles locally using a simple and intuitive Internet user interface containing an electronic catalogue. The number of suppliers was reduced significantly. Due to decentralization, the purchasing department was granted the flexibility to concentrate on strategic activities, such as master-agreement management and supplier selection. The introduction of the procurement solution brought about many changes not only for the management, the sales department, and the suppliers but also for all the end-users. SBB learned from the challenges associated with the expansion of an ES that a change process must be actively supported by professional change management measures. Only an early and open information flow addressing all participants and a professionally established support structure could lead to the desired acceptance of a new system solution and consequently the planned benefits. With the introduction of SAP EBP, the company laid the foundation for the expansion of existing functionalities and the introduction of new functionalities.

In 2004, SBB implemented "Invoice CENTER" a system solution embedded in the SAP web flow that supports automated invoice processing. The system was integrated with the existing

SAP R/3 to optimize the workflows of the accounts payable department. Since then, all the payment work steps have been guided by the SAP workflow.

In 2011, SBB initiated the post-implementation project "Procure to Pay (P2P)". In a nutshell, "Procure to Pay" (or "Purchase to Pay") is the process of obtaining and managing the raw materials needed for manufacturing a product or for providing a service. It involves the transactional flow of data that is sent to a supplier, as well as the data that surrounds the fulfillment of the actual order and payment for the product or service. Procure to pay should be a seamless process from point of purchase to payment. ES solutions can assist this process. The goal of a procure-to-pay software system is to automate processes by introducing efficiency controls. For instance, to enforce buying controls, the software might cross-reference purchasing budgets to ensure compliance with pre-defined buying limits. A requisition that was within pre-defined limits would be programmatically routed for approval, converted into a purchase order once approved, and immediately sent to the accurate supplier by email.

4.1.4 Post-Implementation Project "Procure to Pay (P2P)"

4.1.4.1 P2P Settings and Goals

SBB's post-implementation project, "Procure to Pay (P2P)" was initiated in 2011 as a result of three main triggers. First, the "Invoice CENTER" system that processed supplier invoices reached the end of its service life in 2012, so SBB was forced to replace the invoice management software. Second, although SBB's procurement and payment processes had been automated for several years, the processes were still organized separately in every subdivision. The resulting disparities did not permit an overall process standardization and optimization. Across the years, cost-inefficiencies increased considerably. Also, many other shortcomings of the implemented procurement and payment process became apparent: e.g., 30% of the in-

voices were paid either too early or too late, 38% of the invoices were not referenced to a purchase order, 36% of the identified workflow activities were accomplished differently across the subdivisions, and the approval process was characterized by more than 50 media breaks. Third, SBB's external audit company called for a more transparent process including a formalized order approval strategy and a linkage to the internal control system to minimize loss risks.

Instead of settling for a purely technical solution for at least ten different processes, the P2P project was launched to develop a new solution to simplify and standardize the workflow throughout the SBB Group and to comply with the audit requirements. Therefore, SBB decided to implement a SAP-based solution that was able to automatically forward orders and invoices to the appropriate authorizers to harmonize the process and to discharge the (over 10,000) employees who purchase frequently. Additionally, the solution supports both electronic order processing and electronic invoicing.

The project targets were defined based on the results of an in-depth SWOT analysis. The main target was to build a company-wide standardized process chain by integrating formerly manually performed tasks or work steps supported by legacy systems with the existing SAP solution. An important secondary object was to reach a higher degree of process automation and system usability by also complying with the audit requirements.[8] An overview of the six defined project goals is presented in Table 11.

8 The P2P project was also loosely coupled to another project initiated in 2011 named "SSO" with the objective of establishing a shared service center organization in the accounting department. P2P was supposed to create ideal conditions to realize SSO in a further step.

Classification	Goal	Measures
Procedure	Replacement of the IT-system "Invoice Center for SAP" due to the end of its support lifecycle	• IT tool is implemented successfully on time
Standardization	Implementation of a company-wide consistent standard process without division-specific exceptions	• Standard processes are implemented successfully • Exceptions are eliminated
Standardization/ Automation	Implementation of a company-wide uniform approval procedure according to the internally defined competencies and responsibilities	Enhanced • Comprehensibility • Transparency • System integration • Automation • Uniformity
Automation	Increased level of process automation (efficiency gain)	• High number of automatically posted invoices
Quality	Improvement of data quality	• Manually performed data entries are minimized • Redundancy in system settings is reduced
Internal Controls	Internal controls are integrated in the system solution	• Internal controls are implemented successfully • Issues addressed in the Management Letter are eliminated

Table 11: SBB's P2P Project Goals (SBB 2011)[9]

P2P comprised three key elements: the standardized process model, the approval procedure and organizational change. The target *process model* consists of three key processes with seven subprocesses and workflows. The process definition was guided by the generally binding principle to use the same standardized workflow for similar business transactions across all different sub-divisions. A central component of the process model is the standardized *approval procedure*, with the goal of consistently handling all substantial and financial purchase orders and invoice approvals group-wide. The only excluded elements are authorization proce-

[9] These project goals are adapted one-to-one from SBB's P2P project concept paper to represent the organizational intent.

dures that require a personal signature due to legal reasons, such as budget, contract, and credit authorizations. The definition of the SAP-supported approval procedure included the application of harmonized authorization levels to allow transparent monitoring and to be simultaneously in line with legal requirements and internal control definitions. According to the standardized procedure, every purchase order has to go through two mandatory authorization steps and is therefore expected to be reviewed substantively and authorized financially before being sent to the supplier. The competences are clearly defined: the substantive review is done by the goods requisitioner or recipient; the financial approval is done by the supervisor, who is determined automatically by the system according to the organizational structure and budget competences stored as standardized rules. The organizational impact of the higher level of standardization and automation was identified as the third key element of P2P: *organizational change.* The system expansion brought about innovations with potential consequences at an organizational structure and culture level: e.g. responsibilities and competences had to be redefined according to the new roles, and potential workload imbalances and know-how gaps had to be addressed.

4.1.4.2 P2P Process Description and Modifications

SBB's procurement and payment process comprises three interdependent sub-processes: the procurement, the accounts payable and the payment process (see Figure 11).

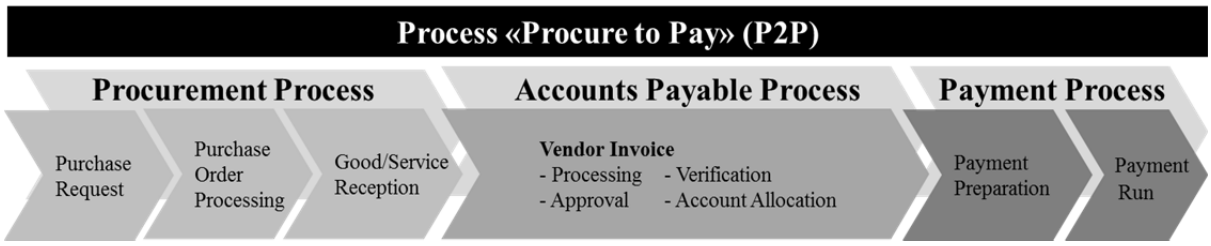

Figure 11: SBB's P2P Process (SBB 2011)

Due to the fact that the payment process had already been highly standardized, only the procurement and accounts payable sub-processes were affected by the project. The two processes, as newly defined by P2P, are described briefly in the next section. The payment process was transferred to the new environment without changes. The P2P process is (still) handled differently for three different procurement types:

- Order-related procurement with a good receipt
- Order-related procurement *without* a good receipt
- Procurement *without* an order relation (orders via phone or e-mail)

The first process type is the "real" P2P process leading to the maximum amount of automation and standardization. Some special cases that SBB was not able to fit into the standard process as well as deviations and faulty orders (that are not avoidable), resulted in the definition of the other two processes to handle these exceptional non-standard cases. As the use of SAP to set up purchase orders is mandated with P2P, the company expects procurements of the second and third types to decrease considerably in the shakedown phase of the P2P project.

In order to explain the P2P process in detail, the main process changes are highlighted first. Figure 12 illustrates the major *process modifications* triggered by P2P. Prior to the implementation of the new SAP module, purchase orders were set up by the enquirer via SAP and then processed immediately by the purchasing department. A substantive and financial review was done only after the invoice had been received. The enquirer had no opportunity to check the correctness and status of the purchase order in SAP. Furthermore, the financial approval process of purchase orders was executed manually varying across the sub-divisions and teams, i.e. in some subdivisions, project leaders approved the orders verbally, in other teams they

signed an order form, and some had no approval process at all. By implementing the standard system-integrated order approval procedure, the formerly performed *invoice* approval process was automatized and shifted to the beginning of the procurement process. Moreover, the invoices (with a valid order reference) are automatically posted afterwards if the invoice amount is equal to the order price. The main advantages of the new workflow are that wrong orders can be detected earlier, losses can be reduced by preventing misdeliveries, and invoices are paid earlier so that the company does not miss cash discount deadlines.

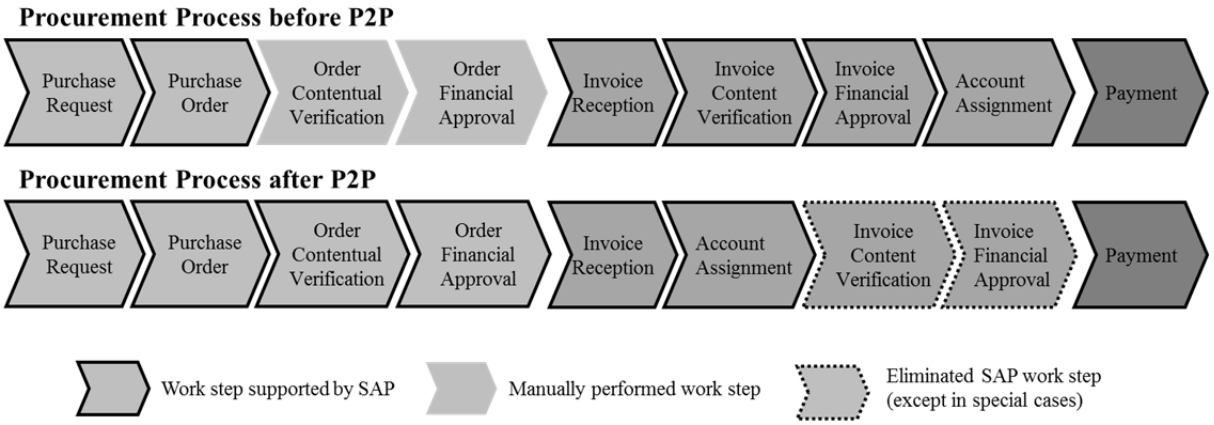

Figure 12: SBB's P2P Process Modifications

Figure 13 shows a comparison of the responsibilities assigned to the different departments and user groups before and after P2P. Major modifications are noticeable, especially by system users in the front teams and in the accounts payable department. These users are confronted not only with changes in their work routine, but also with newly assigned tasks. Front team employees with purchasing needs are affected by the shift of the review activities to the beginning of the process; therefore, the scope of the accounts payable role is extended by account assignment activities that the employees were not previously required to conduct. The user groups are described in more detail in the next chapter.

Procurement Process before P2P

	Purchase Request	Purchase Order	Order Contentual Verification	Order Financial Approval	Invoice Reception	Invoice Content Verification	Invoice Financial Approval	Account Assignment	Payment
Requisitioner / Project Office	x		(x)			x		x	
Manager / Project Leader				(x)			x		
Purchasing Department		x							
Accounts Payable Department					x				

x Assigned responsibility

(x) Not standardized or unstructured responsibily

Procurement Process after P2P

	Purchase Request	Purchase Order	Order Contentual Verification	Order Financial Approval	Invoice Reception	Account Assignment	Invoice Content Verification	Invoice Financial Approval	Payment
Requisitioner / Project Office	x		x				(x)		
Manager / Project Leader				x				(x)	
Purchasing Department		x							
Accounts Payable Department					x	x			

x No changes regarding responsibility but regarding the individual work routine

x Major changes regarding responsibility and regarding the individual work routine

(x) Responsibility assigned to handle defined special cases

Figure 13: Responsibilities Before and After the P2P Go-Live

In the next section, the three interdependent sub-processes of SBB's new procurement and payment process are described in detail.

Procurement Process. The procurement sub-process generally starts with a purchase request and ends with the reception of the requested goods or services. An employee (or a BANF specialist) who has a material or service requirement, fills out an *electronic purchase requisition (BANF)* form in SAP whereby he or she provides detailed information regarding the requestor, the goods/service recipient, the cost center, the material, the quantity and the delivery date. Data in the field "requestor" is highly critical, as it triggers the approval procedure. After the form is successfully filled out and confirmed by the employee, it is automatically transferred to the purchasing department. The purchase request appears on the BANF list integrated in the dashboard that is accessible for purchasers in SAP. If the purchaser does not agree

with the information transmitted by the BANF, he or she can reject the purchase requisition. The BANF can be reactivated, modified and resent by the employee or the BANF specialist. The purchaser converts accepted BANFs into purchase orders. As the following automated process steps and process efficiency are dependent on the purchase order information, the purchaser has to attach high importance to data quality and integrity. In particular, the purchaser has to complete the terms of payment and assign the account. After the completion of the purchase order, the approval process is activated.

As procurement is always combined with a commitment and obligations towards external suppliers, it is reasonable to verify and authorize the purchase order request early in the procurement process. A purchase order generally runs through a two-stage approval procedure (except for some purchase orders with an amount of less than CHF 1,000) that is completely managed by SAP reverting to an approver matrix. First, the order is transferred to the substantive reviewer automatically. He or she rechecks the correctness and completeness of the information regarding the material type, the quantity ordered, the delivery date, the place of delivery, the VAT-code, and the assigned account. By accepting the purchase order, it is automatically sent to the financial approver (usually the direct supervisor if he or she has the appropriate competences). To modify an incorrect purchase order, the substantive reviewer rejects the order by adding a comment that is used by the purchaser to make the relevant changes. The financial approver reviews the necessity and the amount of the order. He or she also checks whether the amount of the order is in line with the budget and whether the proper account is assigned. After authorization, the purchase order is sent automatically to the supplier using the system-integrated message control.

The supplier usually confirms the purchase order by sending a note to the purchasing department. The purchasers review the confirmation and, if no deviation is discovered, enter it in the SAP. If differences are detected, the purchaser has to contact the requester or supplier.

Upon receiving the ordered goods or services the procurement process is finished. Incoming goods are checked for quality and quantity and approved by the goods recipient ideally in SAP. Incoming services are tracked and approved by registration of the relevant working time, which is transferred automatically to SAP labeled as a good (or service) receipt. In the case of order-related procurements without a good receipt, this last process step is obsolete; procurements without an order relation do not go through the whole procurement process and the handling of these invoices starts with the accounts payable process.

The quality of the procurement is essential to realize the expected efficiency gains due to the fact that order-related invoices are automatically processed in the following accounts payable process. Procurements without an order relation or nonconforming issues (e.g., due to order/delivery or order/invoice deviations, unreadable or hand-written notes on invoices, or non-standard special cases) hinder the achievement of this goal.

Accounts Payable Process. The accounts payable sub-process starts with the reception and ends with the payment of the invoice. All the invoices come in at a central registration office. They are checked for formal correctness by the scan center employees. The invoices are scanned before going through an OCR (Optical Character Recognition) process. Identified information is transferred directly to the SAP to fill in the mandatory data fields. The accounts payable workflow is initialized automatically if the OCR software tool is able to read all the necessary information. However, if the OCR software has difficulty reading or transferring data, the invoice has to be validated and the workflow initialized manually. The controls embedded in the SAP check for data correctness, including if a corresponding order number ex-

ists or if the positions of the invoice match the positions of the purchase order. With OCR, a high degree of automation is realized regarding order-related procurements. Invoices are processed fully (procurements with a good receipt) or at least semi-automatically by taking advantage of the corresponding order that has already been approved. In the ideal case, SAP automatically compares the invoice data with the data of the good receipt and releases the posting and payment without manual intervention. In the case of procurement without a good receipt, the substantive reviewer has to confirm the reception in an additional step.

Only in the case of an invoice being transmitted without an order reference or if it is rejected after the system check does it have to be handled manually by the accounts payable team. Invoices without an order reference have to be assigned to an account and then have to go through the two-step approval process because these procurements were not yet authorized. Invoices that do not pass the system checks successfully pop up on the accounts payable SAP screen. The employees analyze the errors, adjust or complete the data, and assign the invoice (if necessary) to the substantive reviewer. If the accounts payable team is not able to locate or resolve the error, the invoice is forwarded (via SAP) to the purchaser by adding the relevant reference number in the comment field. The adjustment of faulty or rejected invoices and the authorization of invoices without a corresponding purchase order decelerate the accounts payable process. These orders are therefore posted later than the automatically processed invoices.

Invoices that are marked not to be posted automatically are analyzed and corrected by the accounts payable team. After posting, the system checks for differences in quantity or price or for exceeded limits. Divergences automatically lead to a blocking of the payment and a related entry on the blocking list with the respective blocking reason. Invoices with divergences are simultaneously forwarded for revision either to the substantive reviewer (in the case of

quantity divergences) or to the purchasing department (in the cases of price divergences and exceeded limits). The blocking list is monitored centrally. The payment can be released only by manually removing the blocking reasons. Invoices that successfully pass the system checks are paid immediately.

4.1.4.3 Affected End-User Groups

Three departments with different groups of employees were affected by the process and system changes: (1) the front office teams purchasing material, (2) the purchasing department, and (3) the accounts payable department.[10] The most essential roles of the employees working in the different departments are described briefly in Table 12.

[10] The department responsible for the payment transactions was not affected by the changes.

Department	Role	Competences & Responsibilities
Front Office Team	Requisitioner	• Initializing purchase orders in his/her area of responsibility autonomously or by providing a request form to the purchase requisition specialist • Final account verification including data completion e.g. order size, product description, date of delivery
Front Office Team	Purchase Requisition Specialist (BANF specialist)	• Opening up electronic purchase requisitions in SAP based on requisition forms • Confirmation of delivered goods based on the delivery notes if requisitioner/goods recipient has no system access • Posting and archiving of good receipts
Front Office Team	Substantive Reviewer	• Reviewing and (dis)approving purchase orders, invoices and contracts in his/her area of responsibility • Responsibility for the account assignment and the confirmation of good receipts • Resolving blocked payments
Front Office Team	Financial Approver	• (Dis)approving purchase orders and invoices in his/her area of responsibility by judging the correctness, necessity and the financial consequences • Verification of the assigned accounts and order values
Front Office Team	Good Recipient	• Decision on the quality and quantity of the delivery of goods • Signing the delivery note • Responsible for the posting of the goods receipt in SAP
Purchasing Department	Operational Purchaser	• Autonomous processing of purchase orders below a threshold value based on the contracts negotiated by the strategic purchasers by confirming or assigning price, terms of payment, class of goods, and date of delivery • Solving cases on the blocking list • Master data maintenance to enable a high degree of automation
Purchasing Department	Strategic Purchaser	• Negotiation and conclusion of master contracts with suppliers • Contract management in SAP • Extensive supplier and claim management
Accounts Payable Department	Invoice Preparation (AVOR) / Scan Center	• Decision on the formal correctness of an invoice • Identification of special cases • Complete and daily processing of the invoices
Accounts Payable Department	Accounts Payable Manager	• Account assignment • Data completion of invoices without order references • Processing, posting and clearing of exceptions and special cases

Table 12: Overview of Roles, Competences and Responsibilities (SBB 2011)

Most of the front office employees hold different roles. A requisitioner is usually the substantive reviewer and simultaneously the good recipient, while the accounts payable employees are still responsible for both invoice preparation and accounts payable work. These roles will be separated by realizing the shared service organization in a subsequent project.

4.1.4.4 P2P System Definition and Changes

Seven SAP R/3 integrated standard modules and application components were affected by P2P and therefore adapted and customized (see Table 13). Additionally, the SAP add-on Vendor Invoice Management provided by the company Open Text was implemented.

Product	Module Label	Description
ERP	BC	Basic Components
ERP	BC-BMTWFM	Business Workflow
ERP/HCM	BC-BMT-OM	Organizational Management
ERP	FI	Finance
ERP	MM	Material Management
ERP	LO	Logistics
ERO	SAP-IM	Invoice Management

Table 13: P2P Affected SAP Modules (SBB 2011)

Furthermore, P2P brought about the following changes in SBB's IT architecture, which are particularly relevant for the accounts payable team:

- *Recognition servers:* The physically independent servers were replaced by two new blade servers using up-to-date recognition software.
- *Scan stations and scanners:* The local installations of scanners and scanning computers were maintained, but both components and the new scan software were packetized as decentralized versions and the scan clients were harmonized.
- *Validation computers:* Local computers with the validation software are not necessary in the long run anymore. The validation software was planned to be accessible via CITRIX.

By standardizing and harmonizing the processes, various other smaller SAP integration adjustments were made.

4.1.4.5 Project Organization

More than 40 SBB employees took two and a half years to develop and launch the project. Besides IT, the subprojects for training and organizational change management, as well as the testing, were very demanding. The project was particularly challenging as it had inherited more than ten different processes for ordering and invoicing that were in use at the same time, all of which had to be simplified and standardized. The interdisciplinary project team worked together in close cooperation to roll out P2P across the SBB Group in four main phases between June 2012 and February 2013, starting with the sub-division Infrastructure.

Building on the experience gained in earlier group-wide IT projects, particular attention was paid to testing, training, support and, above all, change management combined with intensive

communication activities. SBB provided for the importance of top management support as a critical success factor by involving department heads early in the project. All the employees were updated about the project on a regular basis using the intranet, e-mails, team meetings and additional roadshows offered at the most important sites, where all the employees had the possibility to voluntarily participate. Users of the purchasing and accounts payable departments, as well as the purchase requisition specialists, were trained in half or one-day seminars. The project team tried to motivate as many purchasing and accounts payable employees as possible to support the project in the testing phase or at the help-line.

4.2 Data Collection

Data collection was conducted before, during and after the first implementation cycle of P2P in the Infrastructure sub-division (see Figure 14). The project roll-out at this specific sub-division provided an ideal research setting, as Infrastructure comprised a high variety of procurement requirements, affected more than 3,000 end-users and was the pilot roll-out of P2P at SBB. Data collection started four months before the go-live of the new SAP solution. In order to obtain a thorough understanding of the ES solution and the business processes, project concepts, presentations and project related communication documents were studied. The weekly project team meetings were attended and tape-recorded on a regular basis. Open questions and project developments were discussed with the lead project manager and the specific project stream leaders responsible for development, business process reengineering, training and support. To understand the end-users' perspective, particularly concerning the expectations and the challenges with which the end-users were confronted, an intensive exchange with the change management department of SBB was established.

Research Project "P2P" at SBB Infrastructure

Project Schedule

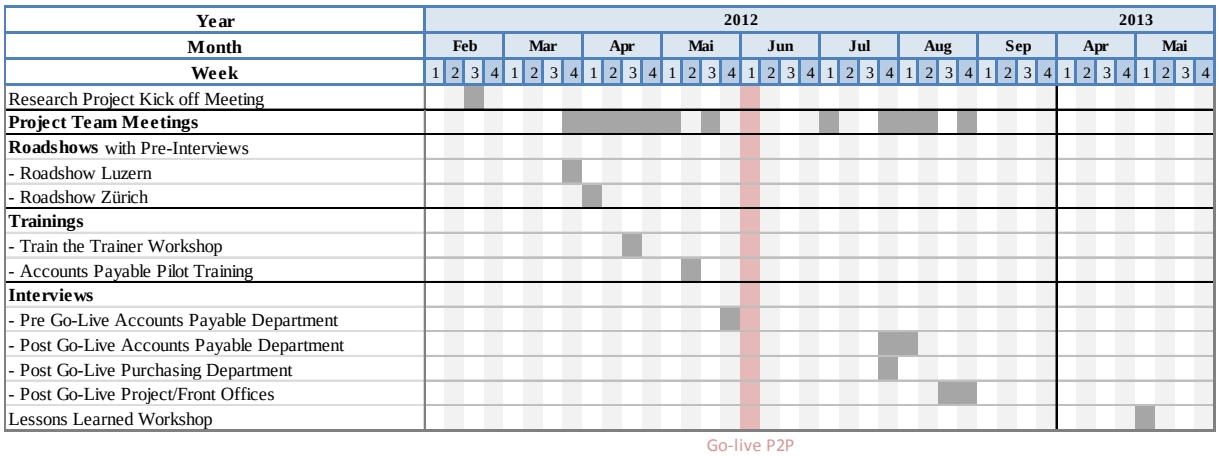

Figure 14: Research Project Schedule

Two months before go-live, research activities were intensified. Two roadshows, where all the employees were informed about the changes, were attended and preliminary semi-structured pre-interviews were conducted during these events. This allowed for a preliminary interview guide to be used and tested. The insights the users offered also helped increase understanding of the expectations, threats and opportunities being appraised in the run-up to the go-live. Additionally, the anonymized results of the interviews, together with the event feedback collected by SBB, were analyzed and discussed with the project team. Furthermore, the train-the-trainers event and the accounts payable training session were attended. Training allowed the researcher to not only better understand the technology, but also to witness users' interaction with the system, their difficulties and first reactions.

With the knowledge gained during the pre-implementation phase of the project and the preliminary interviews, the end-user sample (see Table 14) was defined. 18 end-users, six out of every affected department, were selected by paying attention to a high variety in role, project involvement, hierarchical position, age, and seniority. Out of Infrastructure's accounts payable department, six of approximately 70 employees were interviewed. They all perform both the invoice preparation and the accounts payable manager roles, but the distribution of tasks

varies. Furthermore, two primarily strategic purchasers and four operative purchasers out of the 110 purchasing employees were interviewed. The front office user selection was much more complex. About 3,000 employees either set up purchase requisitions or act as reviewers or approvers in the Infrastructure sub-division. To cover as many aspects as possible, the researcher chose the team responsible for large infrastructure building projects. Two main reasons led to this decision. First, these users are confronted with purchasing orders at least once a week and second, their requests have the broadest variety, ranging from MRO material like pencils to purchase requests in the context of construction contracts worth billions of Swiss francs. It was also difficult to convince the front office team heads to let their employees participate in the study: P2P was only a sideline for them and they were very busy with other projects. Therefore, they saw no benefit in investing valuable time for a research project that had no direct positive impact on their main activities. However, the research process was not materially affected by these difficulties. The head of the building project team supported the conduction of interviews after the researcher explained the goals of the study and her independence.

User	Department	Role	Age	Gender	Years in Company	Years in Team	Number of Interviews (Pre-Interviews)	Ob-serva-tion
AP1	Accounts Payable	Accounts Payable Manager	20-30	Male	4	4	2	
AP2	Accounts Payable	Accounts Payable Manager	<20	Male	1	1	2	
AP3	Accounts Payable	Accounts Payable Manager	40-50	Female	9	9	2	x
AP4	Accounts Payable	Accounts Payable Manager	<20	Male	4	1	2	
AP5	Accounts Payable	Accounts Payable Manager	30-40	Female	>10	5	2	x
AP6	Accounts Payable	Accounts Payable Manager	30-40	Male	5	2	2	
PU1	Purchasing	Operational Purchaser	20-30	Female	5	3	1	x
PU2	Purchasing	Operational Purchaser	>50	Male	>10	8	1	
PU3	Purchasing	Operational Purchaser	40-50	Male	9	2	1	x
PU4	Purchasing	Operational Purchaser	20-30	Female	2	2	1 (1)	
PU5	Purchasing	Strategic Purchaser	40-50	Male	3	3	1 (1)	
PU6	Purchasing	Strategic Purchaser	40-50	Male	>10	>10	1 (1)	
PJ1	Front Office	Team and Project Leader	40-50	Male	7	7	1	x
PJ2	Front Office	Project Leader	30-40	Male	>10	12	1	
PJ3	Front Office	Project Leader	40-50	Male	1	1	1	
PJ4	Front Office	Project Leader	40-50	Male	>10	>10	1	
PJ5	Front Office	Project Leader	30-40	Male	2	2	1	x
PJ6	Front Office	Team and Project Leader	30-40	Male	6	6	1	

Table 14: End-User Sample

To become acquainted with the daily workflows, two end-users of every department were observed to document the specific workflow. Due to the fact that the time until go-live was short and fell in the midst of the holidays, the researcher had no way of conducting interviews with every end-user prior to the system go-live. Therefore, only with the most affected user group, the accounts payable employees, two interviews, one before and one after go-live, could be conducted in a pre-defined semi-structured manner. The researcher was able to talk with three purchasers during a roadshow or the training sessions to experience their pre-implementation impressions and expectations. With the front office employees, a pre-implementations conversation was not possible due to their initial disinterest regarding the research project. The pre-implementation expectations and appraisals were therefore inquired about retrospectively. [11]

In a second step, the researcher conducted interviews with the specified 18 end-users three to four months after the go-live of the new ES solution. The interviews were held face-to-face, tape-recorded and transcribed. The documented workflow served as the basis for the interview discussions. To address the individual fit-satisfaction relation, the researcher started by addressing research question (1a). Data collection was guided by Strong and Volkoff (2010). In the first interview part, instances[12] in which the new ES solution worked well or poorly were discussed. Every end-user pointed out the perceived fits and misfits by using the provided workflow illustration. In the second interview part, end-users were asked about the effects and individual consequences of the perceived fits and misfits, and about their satisfaction with the new P2P system solution. During data collection, it became apparent that in contrast to Strong

[11] In retrospect, a pre-implementation conversation with the front office users would have been of negligible value, as they had not been aware of P2P (and the changes) till the go-live of the enhanced process and system solution.

[12] They are called “events” by Strong and Volkoff (2010).

and Volkoff (2010), not only were misfits were salient in the data, but also the individually perceived fits. Most of the users were characterized by mixed perceptions, i.e. perceived both fits and misfits. Additionally, not every misfit was evaluated as unfavorable and not every fit as beneficial, as previously assumed by most of the researchers having addressed the concept of fit in the recent past. The existence of an evaluative component became evident. The preliminary findings led the researcher to the conclusion that fits and misfits and the mixed perceptions regarding them must be analyzed in a broader context and allowed for research questions (1b), (2) and (3) to be raised. Only after going back to the data again did the researcher find that the "discrepancy evaluation process" presented by Chin et al. (2014), combined with the adoption and coping behavior research (Beaudry and Pinsonneault 2005; Beaudry and Pinsonneault 2010; Day 1977; Jasperson et al. 2005), offers a route to further explain the individual consequences of experienced fits and misfits and their alignment with organizational intent.

4.3 Data Analysis

The interview data, combined with the workflow illustrations, were carefully interpreted in order to explore if and how fits and misfits are perceived, evaluated and behaviorally addressed with the goal of explaining end-user satisfaction. Data analysis was done in four main steps.

4.3.1.1 First Step: In-depth Analysis of Fit/Misfit Perception

First, to answer research question (1a), the data obtained during the interviews was coded in order to analyze the fit and misfit perceptions of the end-users based on the fit/misfit catego-

ries derived from Strong and Volkoff (2010) presented in Chapter 3.1. A total of 127 fits and misfits emerged. Selected examples are presented in Table 15.

Misfit/Fit Category	Example	User
Functionality Misfit	The system and the standard process are not suitable for building projects spanning multiple phases.	PJ1
	Due to the now preceding system-supported approval strategy, the process is delayed and the goods arrive later.	PJ5
Functionality Fit	The whole work preparation (AVOR) process is faster and fewer capacities are tied up due to the fact that the invoices must no longer be labeled and validated manually.	AP1
	The end-user's workflow with the dashboard (instead of the excel spreadsheet) is more efficient and transparent.	PU2
Data Misfit	Data regarding indirect taxes is not consistent.	PJ5
Data Fit	Data quality of the purchase orders and especially the purchase value is much better. Purchase orders are only set up if all the information is available and the effective order price is known. This ensures that no order is sent out without having arranged a firm offer with the supplier. In the past, it was common to order goods with a fictitious price of 1 CHF.	PU4
	The system no longer allows purchasers to set up purchase orders using the data of other users.	PU6
Usability Misfits	On the screen, much more scrolling is needed, i.e. there are many rows between the name/number and the address.	AP3
	The layouts of the SAP standard contract and the automatically generated order form are unusable.	PU6
Usability Fit	With the dashboard, purchase orders can be checked, edited and forwarded faster from one screen. Validation was simplified: instead of typing names and numbers, mouse clicks on the invoice data are sufficient to fill out the mandatory fields.	AP2
	Everything is apparent on one screen: the assignment of the account, the accept/reject button and a comment field. It is easier and more transparent.	PJ4
Role Misfit	Many project and front office managers with the responsibility of approving purchase orders usually work on construction projects where they only have limited access to the computer.	PU4
	The assigned reviewer roles sometimes do not match people's responsibilities and lead to bottlenecks.	PU5
	Work was transferred from other departments to the project department. This led to an imbalance in the user's workload.	PJ1
Role Fit	Due to the clearly defined roles, the assigned authorities better match the responsibilities and are more consistent with their skills.	PU6
	It is appropriate that the responsibility to review the order data is assigned to the project department.	PJ1

Control Misfit	Balance discrepancies are not reported by error messages; therefore the end-user does not know whether the balance of the invoice is consistent with the balance of the purchase order. The result is that some invoices go through the workflow several times until the balances match.	AP3
	The validation software does not recognize all the inconsistencies that the end-user was able to find during the manually performed validation. As a result, more invoices are rejected and have to be adjusted later in the process.	AP4
Control Fit	Work is more transparent: it is clearly visible who executed which work steps.	AP2
	It is more appropriate to review the purchase order early in the process to avoid mistakes.	PJ6
Organizational Culture Misfit	Home working arrangements, a part of the company's organizational culture, are not possible with the new P2P process.	AP5
Organizational Culture Fit	The new P2P process requires reviewers to better justify rejections. This has a positive impact on the culture of communication and supports mutual understanding.	AP4

Table 15: Fit/Misfit Category Coding Examples

The coding was done by two researchers independently. The classifications were compared, differences identified, and then discussed. During the coding process the categories turned out to be very reasonable. Only two aspects had to be discussed in-depth after comparing the independent coding results. First, by going through issues that were assigned differently, it became evident that some fits and misfits were not entirely independent of each other. For example, some of the data-related fits and misfits seemed to have an impact on usability aspects because they led to additional search activities, screen scrolling or mouse clicks. Furthermore, most of the data-related fits and misfits were highly connected to the category “control”. Or, role-related fits and misfits, connected with strong dependencies among the roles, had an effect on process efficiency. As a consequence, the researchers decided to handle all these cases similarly by assigning the category that was identified as the trigger. If the trigger was not apparent in the data, then the category that the interviewee focused on more intensively was chosen. Therefore, for example, the category “data” was selected whenever data entry and data quality were the trigger or were focused on by the end-users, whereas “control” was chosen whenever monitoring or control aspects were featured. Second, a single end-user sometimes perceived more than one fit or misfit of the same category. It was determined that fits

and misfits were separated if they were independent of each other and clearly definable. Some examples are functionality issues, which were related to different steps in the end-user's workflow, role issues, which pertained to different role specifications, control issues, which were connected to different control mechanisms, or data issues, which were concerned with dissimilar data types. In contrast, indistinguishable fits or misfits of the same category, which were highlighted several times by an end-user, were counted only once. As a consequence, some fits and misfits are supported by many quotes spread across the entire interview. After going through the interviews again while applying these two additional specifications, no significant differences in coding were identified.

4.3.1.2 Second Step: Rough Description in the Form of Mini Cases

During the interviews and the initial analysis, it became apparent that an isolated examination of fit and misfit perceptions did not sufficiently explain the fit/misfit perception-satisfaction paradox and that the perceptions therefore had to be framed in a broader context. Specific individual appraisals trigger the users to evaluate their individual perceptions that lead them to behave in a specific manner. The individual level of satisfaction was observed to be a reaction to the user-specific evaluation and behavior. That is why the researcher decided to describe the individual users' context around the perceptions in the form of mini cases (see Appendix II). The same rough structure was applied to every mini case as a basis for the analysis of the content, together with the interview data, in a subsequent step.

4.3.1.3 Third Step: Definition and Coding of the Elements of the Chain of Evidence

The data-triggered observations structured in the form of mini cases allowed the researcher for going back to theory to build the Fit/Misfit Experience-Outcome (FMEO) model presented in Chapter 3. The interview data was reviewed on the basis of the mini cases to code the

user's appraisal of the (potential) consequences of the PIP, the evaluative components, and the behavioral reactions by using an adequate coding scheme.

User's Fit/Misfit Evaluation and Appraisal. Every *evaluative statement* assigned to a specifically perceived fit or misfit was highlighted and one of the codes "favorable", "unfavorable" or "indifferent" was applied to every perception. Some coding examples are illustrated in Table 16. For most of the perceived fits and misfits, an associated evaluative component could be identified; in the few cases where no clear evaluative statement was obvious in the interview data, it was decided to assign the code "indifferent", as the user did not really attach value to these perceptions.

Evaluation	Fit/Misfit	Coding Example
favorable	fit	"Yes, I am pretty happy that [manual] validation is not necessary anymore." (AP1) "I think this is a good thing." (PU2)
favorable	misfit	"It may be a bit more responsibility for me [...]. Since our task expansion, we have been in contact with external project managers as well. I find this interesting." (AP4) "We still have a lot of invoices, thank God." (AP3)
unfavorable	fit	"[It is more monotonous,] because you make the same [thing] all day long really only the same." (AP6)
unfavorable	misfit	"It is really tedious." (AP3) "In my view, it is needless." (PJ1)
indifferent	fit	"We have not felt any […] of the increased efficiency yet, or I can't verify it." (AP5) "I can't assess that; I am a user only." (PJ3)
indifferent	misfit	"There is an interruption. But it is a bit a matter of attitude. That's not a problem for me." (PU6) "It looks a bit different but it's actually manageable." (PJ6)

Table 16: Fit/Misfit Evaluation Coding Examples

The *appraisals* were coded referring to the work done by Beaudry and Pinsonneault (2005; 2010). First, the data obtained was coded into the two broad categories "primary (re)appraisal" and "secondary (re)appraisal" defined in Chapter 3.1.2. In a second step, quotes relating to primary (re)appraisal were further categorized into perceived opportunities or

threats. Those related to secondary (re)appraisal were categorized into perceived high or low control with regard to the system know-how, project involvement and hierarchical position. Quotes that expressed neither an opportunity nor a threat or neither high nor low control, but rather indifference or disinterest, were assigned to the corresponding newly built category “indifferent or unconcerned” after discussion with the second coder. Coding examples are presented in Table 17.

Appraisal		Coding Example
Primary Appraisal	opportunity	"The whole [process] should go faster. It should run more smoothly. It should be more obvious who is responsible for what." (AP6) "But the advantage is, of course, that it runs automatically if it's proper." (PU4)
	threat	"However, this is a little scary, because it then also needs fewer people." (AP3) "But there also are many, many things that will be more difficult for us." (AP5)
	indifferent or unconcerned	"But you fool yourself by saying that everything will be […] much better, because the process remains the same by and large in the end." (AP1) "I perceive it all as a process where changes happen constantly and you never know […] exactly what's caused by what […]. This has not sustainably affected our daily office life so far." (PJ2)
Secondary Appraisal	high control	"We had a training session; we have people like me [...]. If there is a problem, we can solve it." (AP1) "It is up to each individual to make the most of what he or she is interested in. So I thought that was good. Nothing was spoon-fed; you could pick and choose what you were interested in, what scared you or what you enjoyed." (AP6)
	low control	"In the end, you just have to accept it." (AP1) "Therefore, I would have already been happy if I had been consulted or could have given some input." (AP5) "We have brought it up several times, but it was ignored. It's a pity." (PU6) "I would have at least expected someone to tell me: 'for you as a project manager, this and that is interesting.' And the training sessions never took place." (PJ1)
	indifferent or unconcerned	"We had the introduction one time, and there everything possible was told and a lot was not really understood. But it also did not affect me because many things did not concern us. This is certainly different in other divisions. We don't care about it." (PJ2)

Table 17: Appraisal Coding Examples

User's Behavioral Reaction and Alignment with Organizational Intent. The mini cases and interviews were looked through again to assign codes for the users' *behavioral reactions*. Because the end-users' behavior usually addressed several fits and misfits simultaneously, the behavior could only be analyzed at an aggregated level and not individually for every single fit and misfit. As described in Chapter 3.2, a differentiation was made between fit-related and

misfit-related behavior. User *satisfaction* with the new ES solution was highlighted using the codes “satisfied”, “indifferent”, and “dissatisfied” based on Day (1977).

To identify the *alignment with the organizational intent*, three aspects were analyzed: (1) the individual *efficiency*, (2) the *alignment* of the users’ outcomes with the *target processes, routines and the project goals* defined by SBB in the project concept (SBB 2011), and (3) the *alignment* with the overall *long-run organizational intent to increase productivity*. There is a high variation in alignment and different combinations of the alignment aspects are possible. Some combinations with coding examples are presented in Table 18.

Examples of Different Types of Alignment with Organizational Intent	**Quotes**
Alignment with (by adapting to) the new processes and routines but (still) working at a low individual efficiency level	“If you find a way to reach your target, then you continue doing it that way until someone tells you that [what] you are [doing is] really complicated.” (PJ2)
Working around target processes and new routines (low alignment) at the expense of individual efficiency but in line with the overall long-run organizational intent (user saves business in the short-run with the clear intent to solve the problem)	“According to the definition, I am doing tasks that I actually don’t need to do. But I know that if I don’t do them […] for example, [opening and distributing] the mail [then they won’t get done]. According to the definition I am not supposed to do that anymore […]. But I still do it.” (AP1)
Working around target processes and new routines (low alignment) at a low individual efficiency level	„Additionally, I make a list and write down the number, the purchase order number […]. Or I need to print it out. I cannot memorize every purchase order number. […] I always think that the [data] field must have a purpose. But if you try it out, you lose a lot of time […].” (PU1)

Table 18: Alignment Coding Examples

In a final step, the findings were aggregated and a table (see Appendix III) was constructed to organize all the data related to the users’ experience-outcome path and to illustrate the chain of evidence for every end-user. The table was used to identify different fit/misfit experience-outcome patterns that link the perceptions of the users with the behavioral reaction, satisfaction and the alignment with organizational intent.

4.3.1.4 Fourth Step: Pattern Identification and Illustration

The aggregated table was used to identify the four fit/misfit experience-outcome patterns that result in different levels of satisfaction and in divergent outcomes regarding alignment with organizational intent. Users with similar experience-outcome paths were grouped and characterized by an archetype user. Consolidated tables for archetype users were made, which are presented in Chapter 5.6 by simultaneously illustrating the pattern-specific linkages between the elements of the chain of evidence.

5 Case Study Findings

In this chapter, the findings of the study are presented. The first five subchapters present the different elements of the FMEO model and the specific results. The combination of the elements to a chain of evidence revealed four fit/misfit experience-outcome patterns, which are illustrated in the last subchapter.

5.1 User's Fit and Misfit Perception

The users perceive 127 fits and misfits, consisting of 43% fits and 57% misfits. The numerous fits the end-users mentioned demonstrate that, contrary to Strong and Volkoff (2010), not only the misfits, but also the fits were salient in our interview data. While interviewees were asked about instances in which the new ES solution worked well and poorly, and they highlighted both fits and misfit. In accordance to earlier research, they had a tendency afterwards to elaborate on problems. However, 54 fits became obvious during the data analysis and form an interesting basis to be analyzed separately (in addition to the misfits) or in combination with the misfits.

5.1.1 Fit and Misfit Identification

By keeping in mind that only identified fits and misfits become assessable and actionable, it is very valuable to see how many and what kind of misfits are visible for the end-users. The overview presented in Figure 15 shows that the number of fits and misfits varies considerably and also that the fit-misfit-combination differs from one end-user to another.

	Functionality		Data		Usability		Role		Control		Org. Culture	
Enduser	Fit	Misfit	Fit	Misfit	Fit	Misfit	Fit	Misfit	Fit	Misfit	Fit	Misfit
AP1	2	-1		-1			1	-1		-1		-1
AP2	2				2	-1	1	-2		-1		
AP3	2	-1		-4	1	-4			1	-1		
AP4	2			-3	2			-1	1	-1	1	
AP5	2			-1		-2		-1		-3		-1
AP6	1			-1		-1		-1				
PU1	1	-1		-1				-1	2			
PU2	1			-1	1							
PU3	1	-2			1	-2	1	-1	2			-1
PU4	1	-1	1		1	-2		-2				
PU5	1	-2						-1				
PU6		-1	3	-1	1	-2	1	-1	1			
PJ1		-2	1			-1	1	-1	1			-1
PJ2	1							-2		-1		
PJ3	1					-1	1					
PJ4	1				1							
PJ5	1	-1		-1		-1			1	-1		
PJ6	1	-1				-1			2			
	21	-13	5	-14	10	-18	6	-15	11	-9	1	-4
	34		19		28		21		20		5	

Figure 15: Overview of the Individually Perceived Fits and Misfits

The quantity of perceived issues ranges from a maximum of 14, identified by AP4, to a minimum of two, recognized by PJ4. Thus, the range of variation is high. The end-users perceiving 10 or more issues are in touch with the ES several hours every day, but there are also frequent users only perceiving limited fits and misfits. The project managers, in particular, who usually use the ES only once a day at most, perceive relatively fewer issues. This relation is not surprising, due to the fact that frequent users typically have access to a wider range of system functions and have deeper system know-how due to their sustained system interaction. Interestingly, other user-specific biographical context factors (i.e. age, period of employment within the company or the team, and IT know-how) do not help explaining the quantity of perceived fits and misfits. With the exception of PJ4, all end-users perceive fits as well as misfits. It can therefore be concluded that some of the fits the company intended to realize by

initiating P2P are recognized by the end-users, but, on the other hand, the project also triggers individually perceived misfits.

5.1.2 Fit and Misfit Categories

Figure 15 shows that the end-users perceive fits and misfits across the six categories. Three end-users identified issues in all different categories; other perceptions are more focused on two or three categories. However, most notably, the perceptions are extremely diversified and not very comparable even within the three departments. This finding supports the research approach to observe fits or misfits at the individual level, as they are collective constructs composed of an aggregation of individual task-technology fit experiences (Strong and Volkoff 2010). Therefore, the individual fit and misfit perceptions are presented in the next section by giving an insight into every category.

5.1.2.1 Functionality Fits and Misfits

The way processes are executed and their effect on efficiency and effectiveness are clearly perceived by the end-users. All of them bring up either functionality fits or misfit (or even both). Independent of the intensity of ES use, the functionality of the new P2P system solution seems to be an essential part of end-user's perception. They highlight a total of 21 functionality fits and 13 functionality misfits.

Functionality Fits. Regarding the defined goals of the P2P project team to achieve a better fit between the system and the work processes by simultaneously reaching a higher efficiency and effectiveness output, it is not surprising that end-users perceive functionality fits. The new process better matches the daily workflow due to the ES-enabled process integration, standardization, and automation. Manually performed work steps, duplication of work, and

media breaks are perceptively reduced in the end-users' daily workflows. With P2P, there is only one workflow in a single platform to coordinate all purchase orders and invoices.

Due to the integration of the new validation software, submitted paper invoices no longer have to be labeled by hand and invoice data is automatically read by the new OCR technology and transmitted directly to the ES. The end-users of the accounts payable department are absolved from manually validating every invoice. Only invoices that failed to be read correctly by OCR or were not transferred properly to the ES have to be reviewed. As the validation software does not recognize hand-written notes to fill in the four mandatory fields, labeling and stamping of the invoices has become redundant. Additionally, the standard process, where everyone has to handle every invoice type without having special responsibilities anymore, superseded manual invoice sorting. AP4 perceives the situation as follows. The new option to relabel the invoices with no assigned order numbers is perceived as a further functionality fit. In the past, these "anonymous" invoices had to be printed out, deleted in the ES, and afterwards scanned and validated again. The following quotes illustrate the perceptions.

> *"The [new] AVOR process is less time-consuming due to the fact that all invoices […] had to be stamped and sorted according to reference numbers and order type before. Today, we only have to check if a correct reference number is noted […]. Afterwards, the invoices are already prepared for scanning." (AP4)*

> *"There are certain things that are more efficient. For example, the type of receipt can be changed. An invoice can be changed to a credit voucher or you can enter an order number in an FI receipt […]. Of course we don't have to print and scan anymore." (AP5)*

With P2P end-users from all departments coordinate (almost) the whole workflow with the integrated dashboard. They get notified if new purchase orders or invoices are assigned and are able to edit or forward them directly via dashboard. No separate spreadsheets have to be maintained and additional e-mails no longer need to be sent. One example is the error file, which reports amount deviations, that the purchasers have to handle: This report was sent daily by e-mail in the form of an excel file, and every error had to be commented on by writing a notice in the excel file and then sent back by e-mail to the accountants to let them modify the data in SAP. With the new process, purchase orders with amount deviations pop up automatically in the dashboard overview and modifications can be made directly in the SAP by the purchasers. Project and line managers are also able to change account data directly in SAP, whereas in the past, they had to send messages to the accounts payable department to have an account be changed.

> *"That is much faster. In the morning, I can send the invoice directly without somehow working through the revocation list [the excel file]." (PU1)*

> *"I am able to assign [a purchase order] to an account by myself now […]. Previously, we had to reassign [the purchase order] to the accounts payable department together with a written message to explain where to fill in which value. Now I can do it on my own. This is more efficient. [...] Previously, it took around one week until it came back again. Now I can handle it immediately." (PJ5)*

Altogether, the whole work preparation (AVOR) process ties up fewer capacities (AP1) and is perceived as more efficient (AP5, PU2, PJ5), faster (AP3, PU1, PU2, PU3, PU5), less time-consuming (AP4, PJ5), inter-divisionally more consistent (AP3) and stable (AP5).

Functionality Misfits. Besides the organizationally intended matches between the elements of the enterprise system and the workflow of the end-users, misalignments were identified. The reasons for these individually perceived functionality misfits can be summarized in three broad subcategories[13]: process dependency, special cases, and redeployment of workload.

(1) *Process dependency.* Because ES-enabled process integration entails linking tasks together in a predefined order, P2P produces misfits for end-users by increasing the interdependence among tasks of different end-users that had been loosely coupled and thus relatively independent. Due to the system-supported approval process, the efficiency and effectiveness of end-users (PU1, PU3, PU4, PU5, and PJ5) are more dependent on the process handling of others. In contrast to the past, where end-users could schedule their work on their own, they now perceive a lot of waiting time and process delays due to the new dependencies. As a result, purchasers have to handle far more complaints because the goods are not being delivered on time. The line or project managers as requesters are themselves dependent on the supervisors' approvals before the purchasing department can coordinate the purchase orders. PU3 described the problem as follows:

> *"Before, I created a purchase order on my own and could […] print it out afterwards or send it via e-mail or whatever I wanted directly after I created it. [...] This is no longer possible […]. It has to be examined substantively and financially first [...]. The effect is that the lead time is longer again. Before, I knew that when I made an order, it got to the goods provider within minutes. Now, due to the approval pro-*

[13] These subcategories are not clearly delimited and may overlap each other.

cess, the lead time is in addition dependent on other people […] so it might take a week or two or even more before an order gets to the goods provider."

(2) *Special cases.* Some end-users working in different departments have to deal with non-standard purchase orders or invoices. They highlight that it is less efficient and effective to handle those special cases. One example is the legal requirement that every purchase order with a value higher than 50,000 CHF needs to be signed by one's own hand; an approval via SAP is not sufficient. In contrast, the new SAP solution is designed to send out the purchase order automatically via fax or e-mail after receiving the final approval via the system. This misfit issue is highlighted by PU3, who is responsible for a division where most of the purchase orders exceed this value limit. For him, the new integrated system solution causes a lot of additional double work. He has to print out these purchase orders before they run through the SAP approval process and he has to collect the signature in person. Another example is highlighted by AP3, who handles most of the special invoices in the accounts payable department. In these exceptional cases, the standard process is not appropriate, so each of these special invoices have to be consequently checked and adjusted manually after the automated validation. Also, for projects in the building sector, the standard SAP procurement process does not work: the building projects last over several phases and the process is not designed to span multiple phases. Additionally, a paper file is still needed for every project with all legal offers and contracts. Double work is the result, because the end-user as project leader has to review and sign the official documents and then approve everything again in the system. *Legal issues* are identified to be a major driver for special cases and subsequent misfits.

(3) *Redeployment of workload.* One aspect is the favored higher degree of automation that leads to less efficient and effective process steps. For AP1, this results in a clear misfit. The work steps after the accelerated invoice preparation and validation are now more time-consuming. Incorrectly recorded invoices are not detected at the beginning of the process, but only after they are too late. These invoices have to be canceled and sent through the whole process again, resulting in a lot of lost time. In the past, these invoices were corrected in the manual validation process before the system generated an invoice number. Another aspect is the standardized approval strategy that leads to workflow interruptions (PU6) and workload shifts from the end to the beginning of the individual work process (PJ6).

In summary, the stricter process sequencing in the ES can cause dependency problems and slow operations. These effects were also identified by Strong and Volkoff (2010). Additionally, ES-induced process changes might trigger shifts in the workload that do not match properly with the individual workflows of the end-users.

Regarding functionality, fits seem to be very salient for the end-users. As a process-driven project, P2P's intensions to optimize workflows resulted in progress on an individual level, which was also well recognized. Regarding the overview of all fit and misfit perceptions it is striking that eight end-users simultaneously notice both functionality fits and functionality misfits. In other words, the end-users experience effectiveness and efficiency gains in some parts of the process, but, they also recognize deteriorations in other parts. An example is PU3, who perceives work with the new dashboard as being much faster, but in contrast, he notices time-losses due to new duplication and dependencies.

5.1.2.2 Data Fits and Misfits

More than half of the end-users pointed out that data or data characteristics, stored in or needed by the new ES solution, enhance or reduce data quality. Significantly more data misfits than fits are mentioned by employees of all departments, but mainly by the users working with the ES many hours a day, especially from the accounts payable team.

Data Fits. End-users (PU4 and PU6) acknowledge that the overall data quality of the purchase orders increased because the data has to be entered at a proper quality level at the beginning of the purchasing process. In the past, it was common to place orders without knowing the exact order price or without having discussed the conditions with the supplier. Therefore, orders with a fake value of one Swiss Franc were often entered. This made clear planning and budgeting impossible. With P2P, "1 CHF orders" are no longer supported, because the later received invoice (with the correct value) would not match the order (with the incorrect value) and could therefore not be handled automatically by the system. Additionally, every purchase order has to be authorized substantively and financially before transmission, which once again increases data quality. Another important fit recognized is the fact that it is not possible to place an order in someone else's name or to choose the reviewers manually; there are effective data quality checks incorporated in the new ES system solution. Most of these data-related fits are highly connected to fits out of the "control" category.

Data Misfits. End-users of all departments notice misfits that limit the previously mentioned increase in data quality and appropriateness.

(1) *Standardization-triggered Data Misfits.* The first trigger for data misfits is the more standardized P2P system solution that no longer allows for free text entries. In the past, the accounts payable employees, in particular, used two free text fields to fill in essen-

tial extra information: invoice priority and invoice-specific comments. The priority number was especially important, as it was used by the end-users as the main filter to prioritize their daily work:

> *"In the past, I had 'P1' and 'P2' […]. And this is not working anymore. If an invoice […] takes a little bit longer to process, it might not be handled before the terms of payment have expired." (AP4)*

Regarding the new system solution, prioritization is much more difficult. As a work around solution, the employees use the invoice date for filtering, but the problem is that this date is updated every time someone else edits the invoice in the system. Also, the data field ZB00 (i.e. all invoices that are payable immediately) as a filter option is not ideal. The missing prioritizing option is seen as a clear data misfit, leading to inaccuracy and a lack of timeliness. The other aspect raised by the end-users is the abolishment of the possibility to leave unstructured, free text comments in the system. AP3 explained the problem as follows:

> *"In the past, it was possible to write down [our] names to let [everybody] know that you had put back something. In this reference field, it is not possible to write down anything anymore. That is the way it is […]. Filtering accordingly is no longer possible." (AP3)*

The end-users of the purchasing department have no data field in which to write a comment if they forward a purchase order to another person. In all of these cases, important information is not stored or is not available in an adequate data format. These misfits are clearly linked to usability issues as they may lead to, for example, more extensive searches and mouse clicks. The data in the system is not consistent and there-

fore difficult to review. Although more process steps are covered by the SAP, some important data is still missing. One example is reported by PU6 regarding project data gathered in the open bidding process preceding the conclusion of contracts with specific purchase orders:

> *"Today we only have the winner in [the system], [the person] who has won the contract. The losers disappear in the SAP history or they are not recorded at all. And often, within supplier management, during discussions about quality or how satisfied they are with the collaboration, some information is still missing." (PU6)*

(2) *Automation-triggered Data Misfits*. The second trigger for data misfits is automation as the automatized scanning and validation process leads to data inaccuracies. The new software has frequent problems recognizing invoice numbers with characters separated by spaces or fails to read the payment date. As a result, many scanned invoices have to be edited manually and data inconsistencies remain undetected. AP3 explains that additional costs, i.e. transportation charges, are not recognized in the validation process and the data has to be entered manually afterwards to guarantee data correctness. Project manager PJ5 complains about the fact that sometimes the invoice value includes value-added tax and sometimes not, another consequence of the automated validation process. AP6 misses the option to write important information on the invoice that was recognized during scanning or validation. This data is ho longer transferred and standardized data validation prohibits submitting or storing such additional information. As a consequence, this information is lost or has to be searched again for later.

In summary, higher standardization leads to higher data consistency but might restrict data availability and transmission, making double checks or work-around solutions necessary. Automated data quality checks incorporated in the new ES system solution obviates individually

made mistakes, but data quality is strictly limited by the reading quality of the software (also see control misfits described in Chapter 5.1.2.5).

5.1.2.3 Usability Fits and Misfits

Usability is mentioned in 28 concrete fits and misfits by 14 of the 18 end-users interviewed. Interaction with the ES seems to be relevant for end-users of all departments using the ES with varying frequency.

Usability Fits. In particular, the dashboard as an integrated platform with information presented in a much more aggregated way is seen as a clear fit by more than one third of the end-users due to a wide variety of individually perceived user-friendly aspects. The reduced clicks, screen switches, and necessary logins, as well as the higher information clarity are a better match for the workflow requirements of the end-users. PU2 describes his simplified and optimized workflow as follows:

> *"We are able to have an overview of the purchase order […]. Then we can forward it directly to where it needs to go. […] The handling especially saves time [...]. Where we [used to have] to change from one session to another earlier, we can now check [everything] in one [place] quickly today. So I can say: it is faster now." (PU2)*
>
> *"Especially when handling [the system], we save time." (PU2)*

For project and line managers, the new user interface is also more user-optimized. PJ4 explains that all the information he needs is on one screen: the assignment of the account, the accept/reject button, and a comment field. The interaction is easier and more intuitive. The accounts payable team additionally highlights the usability consequences of the system-

integrated invoice validation. They do no longer need to change workplaces, as the paper invoices are scanned in centrally and validated automatically, they can stay at their own workplace and do not have to log in to the system several times each day.

Usability Misfits. However, there is also a downside to the integrated P2P platform from a user point of view. The fits are counter-balanced by an accumulation of misfits. Although daily work with the dashboard is clearer, it is more difficult to find specific invoices or purchase orders because all of them are coordinated via one single pool. There is no functionality to label or prioritize them. As a result, much more search effort is needed and, in the worst case, invoices are paid too late. Given that the employees of the accounts payable department have specific discount payment goals this aspect has a major impact on their performance.

(1) *Overall Information Complexity and Overload.* The information available in the ES overstrains some end-users, especially those who do not use the system every day. Four out of the six project managers are confused by the new system solution and find the interaction too complex. They complain about additional time-consuming search efforts illustrated by the following two quotes.

> *"What one should consider with such a system is who the user was. How should the interface be designed to support frequent users in their system handling? We are not finance people. We are project managers. We have little to do with finance. It is a complex system […]. That takes time and expenses. It adds up if several thousand people need 5 minutes more with the system. That is my point of view as a project manager […]." (PJ3)*

„[It is useful] especially if I see the interface, how it is designed. [If] I only see numbers and figures, [then] I […] don't know which project is meant. That is a bit difficult." (PJ1)

Furthermore, more than half of the employees of the purchasing and the accounts payable department, who use the ES every day, are confused when interacting with the ES. They do not understand the different views and do not know which fields are relevant and have to be filled in; therefore they sometimes navigate randomly through the system. AP3 exemplifies that interaction with the ES became more complicated due to the additional clicks or scrolling that is necessary to find relevant detail information. Another example is stated by purchaser PU4:

"There are 10,000 different views. Every time I go to the dashboard, I see another view. I don't know exactly where to find what." (PU4)

(2) *Missing or Incomprehensible Error Messages.* Two end-users (AP3 and AP5) miss deviation reports regarding automatically processed reliability checks and the appearance of (comprehensible) error messages:

"There are also error messages we don't understand […]. These are messages we as users can't make any use of, but we should know them in order to correct mistakes."(AP3)

(3) *Layout inappropriateness*: Purchaser PU6, who has to send a lot of purchase order contracts, is disappointed by the layout of the automatically generated purchase order form. The quality is so bad that its use would harm his and the company's reputation. Since the system generates a PDF file, he has no possibility to adjust the layout:

"These are things, which the layout provides for today, but [that] we don't need, and cannot be clicked away. They remain. That is really a pity for the efforts we put in." (PU6)

(4) *Performance Problems:* Interaction with the ES, especially the dashboard, is slow, as explained by PU4 who states, "access to the workflow is very slow" and "the dashboard is catastrophically slow; it is too slow, extremely slow."

Five end-users (AP2, AP3, PU3, PU4 and PU6) perceive both usability fits and usability misfits. For all of them, work with the dashboard is clearer, more intuitive, and less time-consuming. On the other hand, every one of them highlights smaller mismatches caused by the integrated, standardized dashboard solution that are less appropriate regarding usability, be it wrongly read invoices, error messages that fail to appear, difficult information searches, the counter-intuitiveness of the user interface, or performance issues.

5.1.2.4 Role Fits and Misfits

P2P caused some major role changes that are reflected in the 21 perceived role fits and misfits shared over all departments. Generally, the roles are both more interconnected and more distinct.

Role Fits. The end-users recognize that the roles were generally reviewed and the responsibilities are new more defined.

(1) *Clearly Defined Roles and Responsibilities*. The end-users of all the departments appreciate that the roles are well defined and responsibilities are clearly assigned. PU6 explained that in the past, everyone could have set up a purchase order: no one had to review it until the invoice had to be paid. There were many situations in which the end-

user was made responsible for wrongly ordered material or approved purchase orders by having an uncomfortable feeling. With the approval strategy, the responsibility is where it has to be and the roles are clear: *"Everyone who approves it [a purchase order] takes on responsibility for the content."* Project manager PJ3 supports this view, as the roles are comprehensible now: the material-oriented review is assigned to the project leader and the financial approval to the cost center manager. In the past, they handled it in an arbitrary manner.

The employees working in the accounts payable department also perceive role fits. Formerly, every accounts payable employee was responsible for a specific business division. By abolishing these areas of responsibilities and by handling all invoices via one single pool, imbalances in the workload are clearly reduced. There are less process bottlenecks, it is easier to act for someone else in the case of absences in the team, and idle time can therefore be minimized. AP6, for example, noted that he supports this role change because he is now able to work more quickly. A similar advantage highlighted by PU3 is that the roles within the purchasing team are now more consistent. With the new system solution and the more standardized work process the end-users are obliged to handle their tasks in a more standardized way. Coordination among the team is thereby improved.

(2) *Inter-divisionally Consistent Workflows.* The workflows of all employees in one department, but also inter-divisionally, are now harmonized. The advantage is that with the new role definitions, everyone has to think about the process as a whole and deputies have to be defined and instructed. In the past, many employees worked as they liked to the best of their knowledge, but were definitely not coordinated. Work delegation and balancing the volume of work can now be facilitated:

"Before, each [team responsible for a] product group worked to the best of its knowledge and belief, in a way which suited it the most. The advantage now is that we work the same way across the operation's divisions. This causes us to think about the process, because suddenly one has to deputize for some. That's why I think it's good." (PU3)

Role Misfits. Despite the role matches described above, some assumptions built into the new P2P SAP solution require role changes that create problems for the end-users' daily work. Because of increased integration, as previously identified by Strong and Volkoff (2010), end-users in each role need more understanding and knowledge of the network of tasks to be performed and need to spend more time performing coordination activities. The issues regarding role can be distinguished in six major sub-categories that may overlap each other.

(1) *Bottleneck Situations due to Mismatches between Responsibility and Authority*. Given that the reviewer matrix is a cascade and the authority to review purchase orders is therefore assigned to only few team heads, the new role assignment results in bottleneck situations: purchase orders of expensive projects all need to be signed by project team heads or even the department leader. The responsibility for the construction sites is still assigned directly to the project leaders, who are no longer able to directly authorize their own purchase orders. This new role definition leads to situations where the authorizers do not know the special circumstances and concrete needs of the specific projects. Because of the new authority restrictions, people are no longer able to reassign the review work to other team members. As a consequence, review requests accumulate at a senior hierarchical level, especially during the vacation period. One example is reported by a purchaser:

"He is the head of several project leaders, altogether around 17 […] and now he receives all their purchase orders to review and approve due to the fact that the project leaders are the purchasers themselves [and are therefore not allowed to do the review themselves]. And he has no idea what they need for their construction sites. And in this case, this [standard rule] is somehow stupid, because every project leader should be able to release his [own] order." (PU1)

(2) *Shifts in workload across departments.* As a consequence of the new role definition, some individuals and whole departments are overloaded with work. The accounts payable department and the purchasing department have to deal with many more questions from the line managers that bring about further inquiries:

"This of course requires clarification. Are the divisions ready to hire someone only for this? He or she would have to give up his or her previous job activities." (PU3)

The line and project managers themselves are faced with more administrative system work that had been done by the support departments in the past.

"That is the disadvantage if one takes advantage of such support services. While reducing the activities in the department that is involved on a daily basis, we need to build up the activities with the support of some specialists […]. At the end, I have to work [around it] by creating shadow accounts and additional tables to have a better overview." (PJ1)

(3) *Mismatch between Responsibility and System Access.* The other problem identified by one end-user (PU4) is that some of the reviewing line managers involved in large building projects work on the construction site and out of the main office most of the time.

Therefore, they do not have unlimited access to the system to perform the reviews. This leads to delays and idle time in other departments.

(4) *Mismatch between Role Expectations and Individual Competences.* In the past, accounts payable employees were only responsible for setting default dummy accounts, while the line manager added the correct account. Through the embedded P2P process, their role was extended to an accountant role. They are now responsible for choosing and setting the appropriate account for every invoice they handle. The team leader reports that the whole team is overstrained by the new requirement profile. Many more mistakes are reported because the employees lack the accounting know-how that is necessary. The employees confirm that they need more time to select the account and that it is difficult for them to choose the right one. One project manager, PJ2, confirms these statements:

> *"[Regarding] the centralized purchasing department, there are x people involved in the process who do not know the business at all. They do not know what it costs; it is just an invoice [to them] […]. If the process is cut into pieces, the people are separated and if the responsibilities are [assigned in a] process-oriented [manner] only, work is more difficult. I just wanted to say that people often forget about it and play it down." (PJ2)*

(5) *Missing Role Awareness.* End-users working in the accounts payable and the purchasing department report process delays and bottleneck situations because they are more dependent on the reviewers who are unaware of the time sensitivity of their role. The reviewers are also not conscious of how to give a review feedback via the system. AP1 describes the situation as follows:

"To some extent, they just click on something. Sometimes it works. Others just try to reject the error messages. And yet others do know what they have to do […].The fact is that a lot of faulty things are sent [via the system]. That is why errors occur." (AP1)

Additionally, some of the line and project managers are only responsible for checking the correctness of the purchase orders. They are no longer allowed to personally set up purchase orders. With P2P, the competences are clearly allocated to specific groups. The problem is that the project managers are not aware of these role changes and are confused by the new situation. Therefore, the employees of the supporting departments need a lot of time to explain the adjusted allocation of responsibilities to the line managers.

(6) *Unclearly Assigned Responsibility due to Shared Work Pool.* AP6 states that the responsibilities of the accounts payable department are interpreted differently by the employees because the invoices are not assigned individually, but are instead handled via an overall shared invoice pool. No one has the incentive to work through more complex invoices, so they remain unprocessed. Another problem is that rejected invoices reappear in the overall invoice pool. The employee who picks up such a rejected invoice often lacks any information regarding the history of the invoice. He or she has to think through the whole case again. Working with a shared invoice pool can lead to employees feeling less responsible for the quality and success of the team's overall work.

In summary, P2P results in role fits and misfits. On the one hand, a more flexible definition of the roles, as was established in the accounts payable and purchasing department, can balance the workload within those teams, but may lead to situations where the end-users are unable to cope with these extended roles due to additional understanding and knowledge. If people fail

to handle these challenges, more mistakes are produced and transferred. In the end, other departments are confronted with a higher workload by checking with other end-users, inquiring and correcting mistakes. On the other hand, a clear allocation of responsibility, as in the case of the reviewer role, leads to a more balanced workload because everyone is aware of his or her duties; however, this may result in bottleneck situations within the teams. These dependencies help to explain why five end-users perceive both role fits and misfits at the same time. All of these employees notice a clear fit regarding their own role, but feel more dependent on the outcomes of the role changes in the other departments. The interplay between fits and misfits is presented in more detail in Appendix I.

5.1.2.5 Control Fits and Misfits

The end-users perceive a total of 20 control fits and misfits whose quantities are almost balanced. Even though fits are perceived across all departments, purchasers do not notice any control misfits. They seem to benefit most from the new control mechanisms embedded in the ES.

Control Fits. The controls embedded in the new ES solution provide a more appropriate level of control regarding two main aspects.

(1) *Process Transparency*. The first main advantage is the enhanced process transparency enabled by the system. All work steps that a purchase order or an invoice goes through are tracked. The completed work steps and the related documents are archived and accessible whenever needed. Supplier requests regarding order status can be answered more precisely and faster. As PU1 notes:

> *"It is more transparent now, [...] I am able [to see] in the system if the order was sent out [...]. [In the past,] when we set up an order […], we didn't know what hap-*

pened. Has it been ordered? [...] And now we know: the order has been sent out now [...]. And then we know that it has arrived [...] and […] is just being dispatched." (PU1)

(2) *Error Prevention due to Standardized Review Rules:* The integrated standardized reviews help to find mistakes early in the procurement process. Misorders and misdeliveries can be reduced, thereby saving a lot of money. These measures are part of the purchasers' agreement on objectives.

"The possibility to review the orders enables one to find mistakes or to avoid them." (PJ6)

"There, they already see if we have made a mistake and thus we have less erroneous deliveries […]. And this […] is an improvement because the whole exchange process takes time and effort. Also [the situation is better] for the supplier, because he has to take back [the materials], cancel the invoice, issue the credit vouchers, [and] store the materials again. This can be avoided now […]." (PU1)

In addition, the control mechanisms make subsequent work steps less time-consuming as already authorized orders are automatically processed the moment the invoice is received. The system checks this without someone having to review it manually for a second time. Particularly for purchase orders that trigger many small invoices, the new review standard is much more appropriate:

"Especially at year-end we receive many invoices from companies, engineering offices, and third parties, which we always have to approve a second time. This falls away now. I approve the limit of the order and the project manager makes sure that the services within the order are assigned correctly. At year-end, I do not need to

approve invoices related to new orders anymore […]. On the whole, it should ease our work." (PJ6)

Control Misfits. Misfits regarding control occur when the controls embedded in the ES either provide too much control, thereby inhibiting productivity, or too little control, leading to the inability to assess or monitor performance appropriately. In situations where the control mechanisms do not provide an appropriate level of quality, the defined control measures are inflexible or the monitoring reports provided by the system are incomplete, the end-users in the P2P context perceive control misfits.

(1) *Insufficient Quality of Control:* Standardized, automated control mechanisms are not able to ensure the same quality as manually performed quality checks. One example is the automatized invoice validation process (based on a check of four mandatory fields), which does not lead to the same data quality as the manually performed validation process provided in the past. The accounts payable department is particularly compromised by this control misfit. AP1 depicts the situation by focusing on a concrete example:

"A good example is the ordering of a toolbox. The order was placed containing: 1 toolbox. The vendor sent an invoice with a detailed listing of the contents of the toolbox: 1 hammer, 1 screwdriver, etc. This doesn't work. However, it was entered that way and the book entry was accepted by the system, even though the invoice didn't comply with the order. This means a lot of effort [is needed] to resolve. [Instead,] the system should reconcile the purchase order with the invoice. From my point of view, this is essential. In the example mentioned before, everything was entered under order item [number] 10. Originally, there was one unit entered on order item [number] 10. There were 85 pieces booked. The system booked it that way. In

the background, an error message was generated. However, it was too late. The invoice had not been paid yet, but a document number had been generated so we had to cancel [it][...]. This happens due to the fact that we do not [personally] check all the invoices scanned. We were not aware of the problem to this extent." (AP1)

All the other end-users working in the accounts payable department confirm this misfit by highlighting the additional work that results. In particular, the team leader and the rest of the team accept the responsibility for the mistakes not discovered by the system controls. Project manager PJ5 also acknowledges the higher number of inconsistencies resulting from the automatized invoice validation and the loss of control by the system.

(2) *Inflexible Rule Specifications.* The rules stored in the system lead to mismatches. The assigned reviewer roles, which revert to a standard reviewer matrix, are specifically highlighted by the end-users. Some of the reviewers selected automatically by the system rule do not know the content of the purchase order in detail, which makes a review extremely difficult. The end-users are not able to override the system-based review role assignment. Work-around solutions are necessary by contacting the project team to let them know that the rule stored in the system is inappropriate. Or, even worse, the reviewers do not want to bear the extra work and just accept the purchase orders without examining it substantively. The tendency of project and line managers to complete their control job in a sloppier way than before is revealed by PJ2. Due to the fact that the whole process is perfectly supported by the system and they only have to click on a button, they can simply approve a purchase order without looking at the details or thinking it through:

"This has to do with P2P and the release process, which is relatively rigid and leads to a process, which at the end doesn't make sense […]. Many colleagues have con-

firmed this [i.e., my impression]. One is already happy when everything is formally correct so that one doesn't check content that well anymore. Unfortunately, it is like this. In the past, more attention was paid to the content of the invoice. Today, the formal part of the process is so time-consuming, that, in the end, checking the content becomes secondary." (PJ2)

Essentially, the much better designed control process in the system can lead to an unfortunate situation in which users take the manually performed, but very important, approval step less seriously.

(3) *Inappropriate Monitoring Reports.* A minor individual issue was brought up by the team leader of the accounts payable department. By handling all invoices via an overall invoice pool it is much more difficult for her to have an overview of the work done by every single accountant. The control reports available in the system only show the number of invoices handled by each accountant, but the characteristics of the invoices handled are no longer identifiable. Therefore, she has a suspicion that some of the accountants pick out the invoices that are easy to handle, but there is no control mechanism offered by the system to monitor this development.

On the one hand, the end-users acknowledge that ES-integrated control mechanisms lead to higher transparency and the stored standard rules help to prevent errors. On the other hand, they feel constrained by the inflexible rules and fully exploit the innovative features of the automated control mechanisms. In summary, the controls embedded in the ES are a better match for the purchasers' workflow; misfits are mainly perceived by the accounts payable team, and generally relate to the standardized validation software and the control rules applied.

5.1.2.6 Organizational Culture Fits and Misfits

The organizational culture category features fewer fits and misfits than the other categories. Only a small number of organizational culture aspects are mentioned by the end-users – four misfits and one fit. A reason for the minor relevance of this category, in contradiction to Strong and Volkoff (2010), who highlighted essential mismatches in this category, might lie in the *post-implementation context* of the ES expansion. Since the implementation of SAP, the organizational culture in recent years has absorbed the handling of higher standardization, automation and integration. The end-users have had time to acclimatize to the ES, are used to ES-supported workflows, and are practiced in their interaction with SAP. Employees not willing to adapt to a certain degree have been transferred within the company or have left the firm. A PIP is therefore connected with less distinct organizational culture adjustments for the end-users compared to the ones they were exposed to in the initial ES implementation. The perceptions are presented in the following section.

Organizational Culture Fit. The new P2P process requires the reviewers to better justify rejections. AP4 acknowledges the impact of this development on the culture of communication, effectively leading to a better mutual understanding:

> *"Since we are simple accountants now, the auditors checking the content and financial aspects of the invoices have to justify more thoroughly why they are rejecting something. This is because they are required to fill in a comment box. That's how we get in touch with these people and are able to comprehend the problem." (AP1)*

Organizational Culture Misfits. The adjustment of the whole purchasing process requires a considerable shift in attitude by every end-user. As a consequence, four end-users emphasize that the P2P system solution requires ways of operating that contravene organizational norms.

(1) *Change in Business Logic:* The ES PIP involves an adjustment of business logic. To be successful, P2P requires employees to change their philosophy of work. This situation leads to mismatches both for end-users who have already adopted the new philosophy and for those not yet at ease with the new logic. AP1 explains the organizational culture mismatch as follows:

> *"As I already said before, it's based on a totally different philosophy […]. The existing philosophy was completely turned around. We have to trust the system and if something goes through, no one will notice. [For example,] this item has already arrived at the person issuing the first visa. The person was used to being spoiled by us and [was used] to everything being correct. That's why the person just clicked through everything, but if everything is not correct, then the first mistake has already been made. That's what I mean by the change in philosophy. One can no longer assume that everything is correct." (AP1)*

The reviewing line mangers do not yet fully appreciate the importance of an in-depth assessment of every purchase order and of all the related consequences. PU3's statement, very closely linked to the statement of AP1, claims that the project and line managers have not realized that every purchase has to be planned and as entered correctly and in advance. In reality, the line and project managers still do business as usual and place their purchasing needs ad-hoc. This is one hundred percent contradictory to the philosophy of the P2P process and system solution. PJ1 additionally confirms the project managers' unadjusted work approach by stating that the workflows induced by the new ES solution do not agree with the existing business logic:

> *"But, from my point of view, this contradicts […] the 'SBB' logic used elsewhere […]." (PJ1)*

(2) *Mismatch With Company's Policies:* The system-supported work processes might not be in line with some policies that apply to the whole company. One example in the context of P2P is mentioned by AP5. According to the SBB's corporate Human Resources policy, every employee has the opportunity to work from a home office with remote access. This was also common and well accepted in the accounts payable department. With the shared invoice pool, it is more difficult to get an overview of the work efficiency and therefore, working from home is not generally applicable anymore. Such a shift would clearly be at odds with the existing human resources policy.

The detailed examination of the fit and misfits assigned to the organizational culture category confirm the previously stated presumption that the end-users are only exposed to minor organizational culture issues in a PIP. Most of the end-users do not recognize salient cultural changes in connection with the new ES solution. The support departments already went through a cultural rethinking process, intensified by the company's intention to organize all support functions as shared service centers in the long run. End-users unable to come to terms with the organizational culture development took on other jobs, mainly within the company, but also externally. Only the project and line managers had to or still needed to adapt to the culture of discipline embodied in the more integrated ES solution. They are used to working in a less structured way, such as by placing purchase orders ad-hoc and without authorization, and by only superficially reviewing system-based requests.

5.1.2.7 Summary

As a fit or misfit can be experienced differently by different people, the perception at the individual level is relevant for understanding the whole context. However, one may generalize by observing a number of regularities:

- *Functionality* issues are well recognized by end-users across all departments, probably because standardization and automation connected with an improvement in efficiency were the main goals of P2P and those are well in line with the definition of the functionality fit/misfit category.

- Regarding *data*, misfits are perceived, above all, by the accounts payable team. With the new SAP solution, new data formats according to standards were implemented. Due to the project requirements users were only allowed to deviate from the new SAP standard versions if absolutely necessary. The accounts payable department is most severely affected by the P2P-induced SAP-specific data changes because the valuation as a main workflow was integrated.

- *Usability* fits and misfits are perceived as a result of the users' interaction with the ES. Although interactions seem to be perceived very individually, project managers recognize a lot of misfits due to their specific needs. They use the ES less frequently than the others and have not been working according to a standardized system-based purchasing workflow before. Therefore, they are not as familiar with the technicalities of the ES.

- The support departments perceive the *role* definitions rather as a misfit, as they are more dependent on the review work of the project managers who themselves are less aware of role issues.

- Inappropriate *control* mechanisms are mainly perceived in the accounts payable department. The reason might be that they are not only confronted with the new standardized approval process, but also with the automated validation incorporating additional control mechanisms.

- *Organizational culture* fits and misfits are not as salient as issues from the other five categories. This finding suggests that these aspects are not highly relevant in a PIP.

In summary, the in-depth examination of fits and misfits identified by the end-users in the P2P project confirms the comprehensiveness and applicability of the six domains of Org–ES misfits revealed by Strong and Volkoff (2010). Besides supporting their results, the earlier findings are expanded in two directions. First, the categories are analogously defined in order to additionally classify individually perceived fits. By observing both fits and misfits, the mixed perception and the interdependencies between fits and misfits become evident and more comprehensible (see Appendix I). Second, the adaptability of the categories to PIPs is confirmed. However, the researcher reveals that organizational culture fits and misfits are of minor importance in the post-implementation context.

5.1.3 Consequences of Perceived Fits and Misfits

The perception of fits and misfits is expected to have consequences for the users. The consequence the least onerous to measure is the level of satisfaction, i.e. the "affective attitude towards a specific computer application by someone who interacts with the application directly" (Doll and Torkzadeh 1988, p. 261). So, does the number of perceived fits or misfits, respectively, help to explain user satisfaction? The bar charts presented in Figure 16 (green indicates "satisfied", black "indifferent", and red "dissatisfied") show that an independent analysis of the number of fits or misfits only explains the satisfaction of users with a high number of perceived (mis)fists, but does not give a reliable indication for all the users, who perceive a lower number of (mis)fits. One interesting example is PU3. Counting the number of perceived fits only, the question is why he is not satisfied, despite perceiving five fits (as AP2 and AP4). Having a look at the misfits only, the question is, on the contrary, why PU3 is not dissatisfied,

despite perceiving six misfits. This example highlights that the traditional research approach gives a limited picture. Therefore, the *totality of perceived fit and misfit* is supposed to provide a better indication of whether the users are satisfied with the new ES solution.

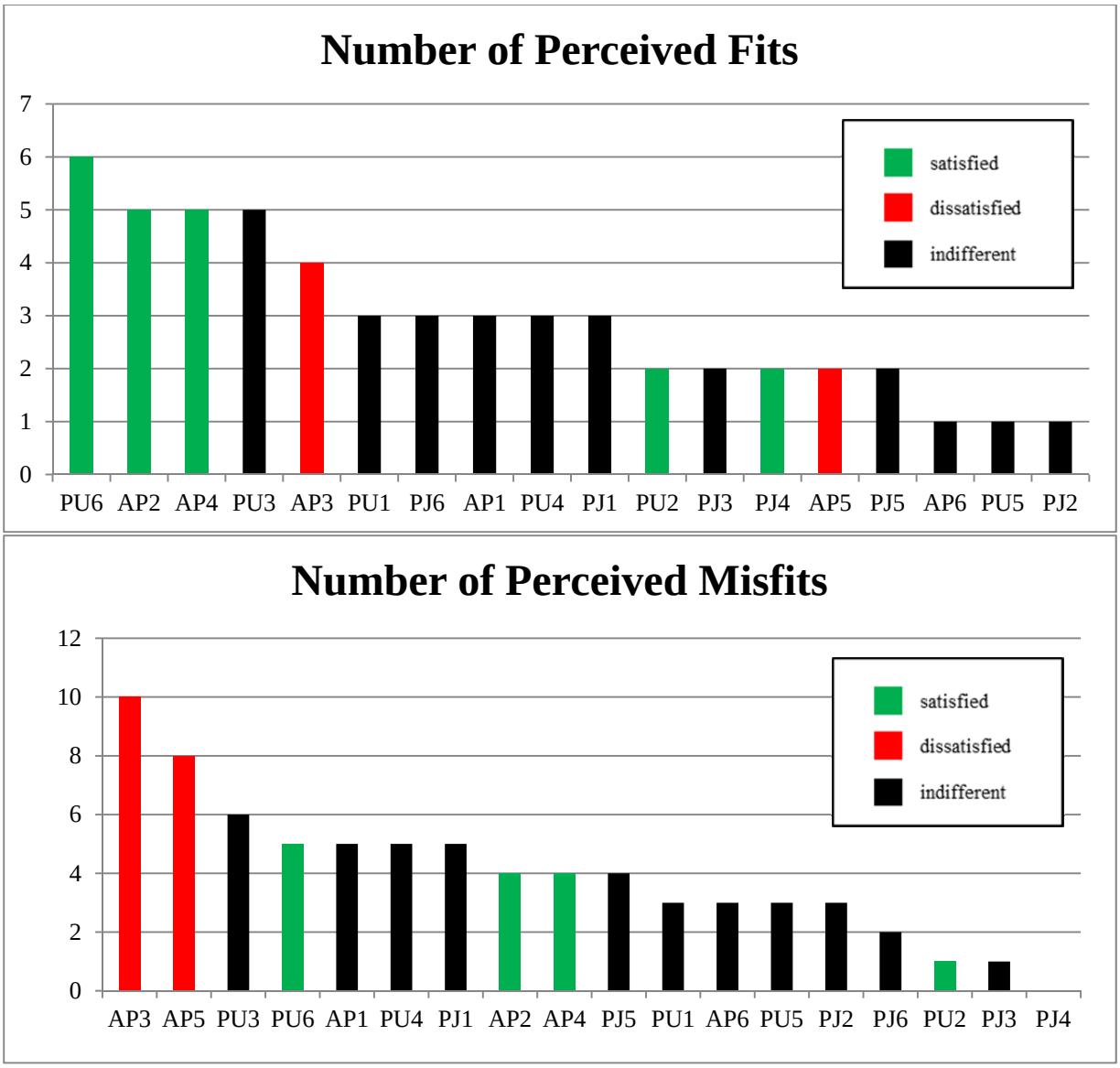

Figure 16: Number of Perceived Fits and Misfits in Relation to Satisfaction

The scatterplot in Figure 17 shows the combination of fit and misfit. The axes indicate the perceived number of fits and misfits and the diagonal signals where the number of fits is equal to the number of misfits. The scatterplot confirms that most of the users (except PJ4) perceive both fits and misfits. Thus, it can be concluded that users are typically characterized by *mixed*

perceptions. Therefore, the observation of both fits and misfits is presumed to better explain user satisfaction than a sole count of either misfits or fits.

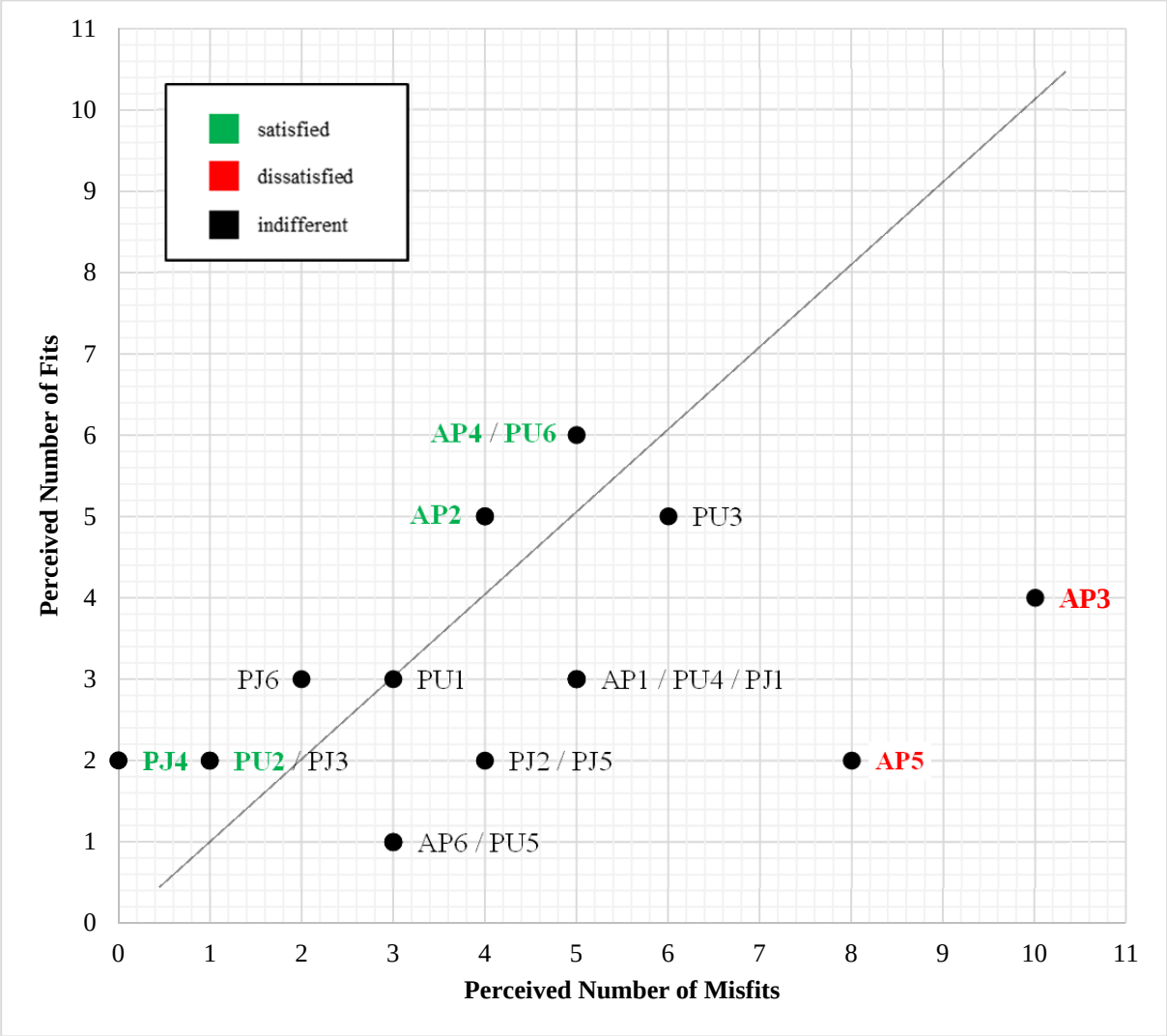

Figure 17: Scatterplot of Perceived Fits and Misfits per User

By applying the assumption that fits and misfits carry positive and negative consequences, respectively, users located above the diagonal in Figure 17 should be satisfied and users located under the diagonal should be dissatisfied. The scatterplot confirms that the satisfied users (colored in green) perceive more fits than misfits, and the dissatisfied users (colored in red) perceive more misfits than fits. In other words, to be satisfied, a user has to perceive more fits than misfits. To be dissatisfied, he or she has to perceive more misfits than fits.

However, the opposite conclusion cannot be drawn. Not every user located above the diagonal is satisfied, while not every user located under the diagonal is dissatisfied. Many users are neither satisfied nor dissatisfied, but actually indifferent (colored in black). Important questions are left unexplained: Why are some users with a fit-dominated perception (located above the diagonal) not satisfied but indifferent? Why are many users with a misfit-dominated perception (located under the diagonal) indifferent and not dissatisfied? PU2 and PJ3, for example, perceive the same number of fits and misfits, but PU2 is satisfied (as supposed) and PJ3 is indifferent.

The mixed perceptions might help to find an answer to these questions. Figure 17 allows for the conclusion that users located near the diagonal with a *pronounced mixed perception of fit and misfit* (usually with a small predominance of misfits) tend to be *indifferent*, i.e. neither satisfied nor dissatisfied. PU3, our previous example, is characterized by a distinct mix of perceived fits and misfits. This gives rise to the presumption that fits and misfits may interplay and influence each other.

5.1.4 Perceived Interplay Between Fits and Misfits

The interview data supports both dependencies between two misfits (respectively two fits), and dependencies between a fit and a misfit (see Appendix I). There are fit and misfit interplays that are either a) end-user specific, or b) emerge between end-users across different departments. The data show that end-user-specific fits and misfits may interact in different combinations either within or across different fit and misfit categories. A fit perceived by a user is able to simultaneously generate a misfit, strengthen another fit, or diminish a misfit of the user. On the opposite side, an individually identified misfit might strengthen another misfit or diminish a fit perceived by the same end-user. No combination was found where a misfit leads to, supports or strengthens a fit. Fits and misfits may also influence each other cross-

divisionally between different users. Furthermore, there are different interplay combinations within or across the fit and misfit categories. Fits perceived by one user may lead to or strengthen both fits and misfits perceived by other users. Misfits, on the other hand, are able to influence other misfits, but also fits perceived by other users (in contrast to the user-specific perspective). Appendix I illustrates each of the different interplay types with a salient example.

Interview data indicates that interaction between fits and misfits, either user-specifically or between users across different departments, are recognized primarily by users with mixed perceptions. Cross-departmental interrelations are most exclusively salient to users with a distinct system and/or process understanding, or easy access to this know-how, e.g. due to their project involvement or hierarchical position. AP1, for example, who was involved in the P2P project and who is a super user, mentioned numerous cross-divisional fit and misfit dependencies during the interview. PU6, as another example, is also aware of the cross-divisional interplay, especially due to his process understanding and strategically oriented purchasing role. These findings suggest that a pronounced mixed perception of fit and misfit permits the users to not only notice interactions between two fits or two misfits, but also between a fit and a misfit. Although mixed perception and interplay between fits and misfits might provide an answer to why many users are neither satisfied nor dissatisfied, but indifferent, the decisive criteria for users on the border between (dis)satisfaction and indifference are left unexplained.

In summary, the results show evidence that the total number of perceived fit and misfit helps to better understand user satisfaction. The examination of this totality draws attention to the users' mixed perception of fits and misfits. This is an essential contribution to the research done by Strong and Volkoff (2010), but does not suffice to entirely explain user satisfaction. Although the satisfied users perceive more fits than misfits, and the dissatisfied users perceive

more misfits than fits, the opposite conclusion cannot be drawn. Users who virtually perceive an equal number of fits and misfits vary in their level of satisfaction. Similarly, vice versa, users who are indifferent in their satisfaction perceive a diverging number of fits and misfits. However, users' mixed perceptions are shown to be a promising *starting point* to explain the satisfaction outcome, but the (mixed) perceptions have to be analyzed in a broader context as proposed by the FMEO model to precisely *understand why and how they result in a specific level of satisfaction*. Following Beaudry and Pinsonneault (2005; 2010), the users' attitude towards a PIP is supposed to have a relevant influence, since measuring the magnitude of the fit or misfit is insufficient and should be accompanied by a cognitive-affective evaluation (Chin et al. 2014). The users' assessment of the (potential) consequences of the PIP P2P and its explanatory power is described in the following chapter.

5.2 Appraisals: Assessment of P2P's Consequences

The results (presented in Table 19) confirm the users' different assessments of the (potential) consequences of P2P and how they are likely to affect them both personally and professionally (*primary appraisal*). Consequences are categorized as opportunities or threats. If the users mentioned a significantly higher number of opportunities than threats or vice versa, Table 19 contains the terms "opportunity-dominated appraisal" or "threat-dominated appraisal", respectively. If the primary appraisal is balanced (i.e., the user mentioned nearly an equal number of opportunities and threats), then the term "balanced appraisal" is used. If the end-users assessed P2P to have no or only insignificant consequences, the table includes the term "disinterest". The users are also shown to differently assess how much control they have over P2P and what their adoption options are, given the resources available to them. This *secondary appraisal* features three aggregated levels of control: "high", "medium", and "low". Moreo-

ver, some of the users *re*appraise the situation differently after the system go-live (see Table 19: remarks in *italic*).

Interestingly, the majority of users appraise P2P as consisting of challenges *and* threats, as well as containing areas with high *and* low levels of control. In other words, the typical user has, besides a mixed perception, *ambivalent feelings* regarding the consequences of and his or her control over P2P, i.e. he or she has simultaneously positive and negative cognitive and/or emotional orientations towards P2P (Ashforth et al. 2014). Such ambivalent feelings are highly acknowledged in change projects: individuals are shown to often simultaneously support and resist change efforts (Ashforth et al. 2014). [14]

The data presented in Table 19 allows a number of interesting observations. *First*, satisfied users not only perceive more fits than misfits (as already shown in the previous chapter), but they also assess P2P more as an opportunity than a threat. *Second*, dissatisfied users are characterized by threat-dominated appraisals and a low level of control. The first and second observations seem to indicate that a disproportionately high perception of fits in combination with an opportunity-dominated appraisal results in satisfaction. Also, a disproportionately high perception of misfits in combination with a threat-dominated appraisal results in dissatisfaction. Unfortunately, these indications are not valid in all the cases. PU6 and PJ6 are not satisfied, and AP6, PU4 and PJ1 are not dissatisfied, as these indications would suggest. *Third*, a fit- or misfit-dominated perception can be counterbalanced by an appraisal that points in the other direction (see, for example, AP1 or PU5, where the high level of control seems to balance the misfit-dominated perceptions). Under the condition of the discovered ambivalence, varying appraisals may therefore cause similar perceptions to be evaluated differently,

[14] This possibility of an ambivalent assessment was already mentioned by Beaudry and Pinsonneault (2005) but not analyzed further.

as users do not weight certain perceived fits and misfits identically. *Fourth*, disinterest in the consequences of P2P seems to result in indifference, independent of perception (see PJ2, PJ3, PJ5 and PJ6).

In summary, the analysis of the users' appraisals is a very valuable step to better understanding the link between perception and user satisfaction, but still does not fully explain the interrelation between fit/misfit perception and satisfaction. It is also apparent that, by including the totality of, and therefore mixed, fit/misfit perceptions, the impact of the appraisals, which are also influenced by ambivalent feelings, is much more complex than investigated thus far.

To understand why there are still exceptions to the conclusions drawn above, the FMEO model proposes to additionally investigate both (1) how the users evaluate the perceived fits and misfits triggered by their appraisals and (2) how individuals behaviorally respond. On the one hand, the combination of ambivalent feelings towards P2P and a mixed perception of both fits and misfits might lead to an atypical evaluation of some fits and misfits. If a user's appraisal contains threats or feelings of low control, a clearly perceived fit might not be evaluated as favorable and might therefore not influence satisfaction positively. Also, an appraised opportunity or a high level of control might shed additional light on a misfit so that it might not be dissatisfying. These evaluating or sensemaking mechanisms are presented in detail in Chapter 5.3. On the other hand, actors experience ambivalence as disorienting, as it feels wrong for them to have more than one orientation towards an object. Therefore, ambivalence always motivates the users to take action to reduce their discomfort (Ashforth et al. 2014). As a consequence, the users' behavioral reactions, presented in Chapter 5.4, might additionally be associated with the satisfaction outcome.

User	Totality of Fit and Misfit	Primary (Re)appraisal	Secondary (Re)appraisal	Satisfaction
AP1	**38% fit**	balanced appraisal	high control	**indifferent**
AP2	**55% fit**	opportunity-dominated appraisal	medium control *low control*	**satisfied**
AP3	**29% fit**	threat-dominated appraisal	low control	**dissatisfied**
AP4	**54% fit**	opportunity-dominated appraisal	high control	**satisfied**
AP5	**20% fit**	threat-dominated appraisal	low control	**dissatisfied**
AP6	**25% fit**	balanced appraisal	medium control	**indifferent**
PU1	**50% fit**	balanced appraisal	medium control *low control*	**indifferent**
PU2	**66% fit**	balanced appraisal *opportunity-dominated reappraisal*	medium control	**satisfied**
PU3	**45% fit**	opportunity-dominated appraisal	medium control	**indifferent**
PU4	**38% fit**	balanced appraisal	low control	**indifferent**
PU5	**25% fit**	balanced appraisal	high control	**indifferent**
PU6	**55% fit**	threat-dominated appraisal *opportunity-dominated reappraisal*	medium control	**satisfied**
PJ1	**38% fit**	threat-dominated appraisal	low control	**indifferent**
PJ2	**25% fit**	disinterest	Indifferent *low control*	**indifferent**
PJ3	**66% fit**	disinterest	medium control *low control*	**indifferent**
PJ4	**100% fit**	opportunity-dominated appraisal	medium control *low control*	**satisfied**
PJ5	**33% fit**	Disinterest *opportunity-dominated reappraisal*	low control	**indifferent**
PJ6	**60% fit**	Disinterest *opportunity-dominated reappraisal*	low control *medium control*	**indifferent**

Table 19: Totality of Fit and Appraisals in Relation to Satisfaction

5.3 Appraisal-Driven Evaluation of Fits and Misfits

To fully understand why a specific combination of perceived fits and misfits are related to a specific level of satisfaction, it seems important to understand how the users evaluate the perceived fits and misfits. The users' sensemaking of their perceptions depends on their assessment of the potential consequences of P2P (described in the previous chapter). If a fit is combined with an opportunity or a high level of control, it is supposed to be evaluated as favorable. In contrast, if a misfit is connected to a threat or a feeling of low control, it is assumed to be evaluated as unfavorable. However, what results if a perception and an appraisal are not as consistent or if the feelings regarding a fit or misfit are ambivalent?

The interview data reveals that, consequently, not every fit is evaluated as favorable and not every misfit as unfavorable. Some of the perceived fits are evaluated as neither positive nor negative (indifferent) or even as unfavorable. Moreover, some of the misfits are not evaluated as harmful, but eventually seen as an opportunity. The different categories of evaluated fits and misfits are presented in detail below and illustrated with examples.

5.3.1.1 Favorably Evaluated Fits

A user evaluates a perceived fit as favorable if the new system solution facilitates his or her daily work by reducing cumbersome and routine tasks, or if the working speed is increased. AP4 evaluates the perceived functionality fit as follows: *"Yes, I am pretty happy that [manual] validation is not necessary anymore […]. Moreover, [this is true] because validating was not necessarily my favorite work step."* AP2 also comments on his functionality fit by stating, *"This is way quicker; therefore I think the new validation [process] is pretty well done."* If the users understand the purpose and the logic behind the new P2P-based processes, the fits are also perceived as favorable. To become aware of and (potentially) realize these benefits,

the users need to have at least some control. For users with a limited level of control, a fit is evaluated positively especially if the process or system lets them feel more secure in doing their job. PJ1 explains that the perceived control fit *"is control in the sense that you cannot just play around with a position, [because] it's under the control of a project accountant."* PU3, as another example, reported that the project manager's double check of the purchase order gives him the feeling that he does a good job. In the past, he sometimes was in the position where he had to decide on his own and felt unsure if the order details he added were correct. He illustrates his evaluation as follows: *"Personally, I think it's a very good thing that it goes back to the line manager before it goes to the supplier. This way, the people still have the possibility to check it substantially and financially. In the end they know whether it's all good."*

Furthermore, a fit is perceived as favorable if an expected opportunity is realized, or if a threat does not materialize. One example is the data fit perceived by PU6, who was skeptical regarding the mechanism embedded in the system and data quality. After go-live he stated: *"But if I look at the release strategy, which indeed is the focus for me, [it] apparently works all the time. There are always the right names listed and the line [manager] is correct as well. Nothing gets mixed up. This works well."* The threats he appraised were unjustified in the end. Furthermore, for AP4, the organizational culture fit leads to a higher job variety, which was/is (re)appraised as an interesting opportunity.

In summary, our data shows that, in the majority of cases, fits are evaluated as favorable if either opportunities are confirmed (or threats disconfirmed), or if the job is facilitated due to the possibility of exercising control.

5.3.1.2 Indifferently Evaluated Fits

In one-third of the cases, fits are regarded with indifference by the users. The data shows that the users evaluate fits indifferently if they do not see any opportunities in P2P, or if the appraised befits (or the expected beneficial outcome) are not (yet) verifiable. In many cases, the evaluation is a result of anxieties among the user due to a low level of control. One example is PJ3, who saw no opportunities in P2P and has limited control. He evaluates the perceived role fit indifferently by stating: *"I am not able to judge because I'm only a user."* A similar example is AP5's evaluation of the perceived functionality fit:

> *"We have not noticed any improvement in efficiency yet, or it's just not verifiable to me. Definitely, we do not have to print out and scan anymore, and we can change the document type. But regarding the whole organization, there is no significant time saved [...]. On the one hand, I do not see how many [of the invoices] are processed automatically. I only hear about the success [...]. On the other hand, we have a huge amount of invoices on average. I do not perceive that there are fewer invoices that we have to post ourselves. It is not noticeable yet. I only hear them say that not everything that is posted directly is optimal."*

For timid and powerless users who have no confidence in the new routines, the fits imply an undesired necessity to change their routines. They interpret the fit as an organizational sign of distrust in their previous work. These aspects again reduce the (potential) benefits of the perceived fits. PJ1's benefits from the role fit, for example, are neutralized, as he regards the fit as a lack of trust by the company in his abilities. He also feels as though he is being kept under surveillance: *"In the beginning, we asked ourselves why it [a review] was necessary. Now, it is somehow a step back with regard to the [present] level of trust."* In summary, a threaten-

ing assessment of the situation and a feeling of low control both negatively influence the visibility of a positive impact of a fit.

However, forceful users with a positive attitude also sometimes evaluate fits indifferently, especially if the benefits are not verifiable due to a time lag or if a fit has no noticeable positive impact on their individual workflow. For example, the advantage of the functionality fit is not yet visible for AP1, as he is more dependent on other people, who are not aware of their new reviewer role (connected role misfit): *"I wouldn't say that we are more efficient now […]. I think it will take time […] before everyone involved has reached a 60% to 70% level of understanding."* Another example is AP4 who is characterized by an opportunity-dominated appraisal and a high level of control, but nevertheless evaluates the perceived control fit with indifference: *"I can't say for sure because when I get started, I don't know whether they [the invoices] have been validated by a person [already] or whether they just got through."*

Some of these fits might be evaluated more favorably in the future because their impact is only visible with a time lag or because the users need to establish a routine in using the new ES module.

5.3.1.3 Unfavorably Evaluated Fits

Three fits are perceived as unfavorable by the users AP1, AP4 and AP6. By taking a look at the appraisals, all of the users perceive both, opportunities and threats, and feel as though they have some control: They all are highly ambivalent in their perceptions and feelings. The reason for the negative evaluation lies in confirmed threats that are linked with the fit. AP1 sees a clear potential increase in efficiency due to the role fit he is not able to realize due to his threat that came true. AP1 also highlights the quality risks that come along with automation and with an insufficient process understanding of other end-users. The salient ambiguity in his

perception and appraisal let him see the downside of the fit, which dominates his evaluation in the end. As a consequence, the role fit has negative implications and is perceived as unfavorable:

> *"Before, we all had our own area of work. Everyone had his own department. He knew the people in the department and knew exactly how and which account and assignment to use if person A received an invoice. Now, everyone is doing everything. Basically, this idea makes sense, but there was neither an exchange of ideas nor information. We were just thrown in at the deep end. We were just told to start. The result was pretty much what I expected. It was […] chaos at the beginning because everyone could do everything."*

The other users see some of the fits as a restriction of their individual freedom. Because they do not have to change their workplaces anymore (usability fit) and the invoices do not have to be validated manually, their work became monotonous. AP6 states that, *"if you have a look at the workflow, it is rather boring. It is getting monotonous [...] because we do the same [thing] the whole day, really the same [thing]."*

5.3.1.4 Unfavorably Evaluated Misfits

Misfits are usually evaluated as unfavorable if the individual work of the end-user is impeded by additional, more laborious, complex, or cumbersome work steps. The negative evaluation is reinforced by threats in the form of negative expectations that come true, or opportunities, positive expectations and ideals that do not materialize. One example is AP1's control misfit, which he evaluates as problematic: *"The system should compare the invoice with the order. In my view, this is essential. However, the system should not automatically do that. That's one of the big problems here."* If the level of control is limited, misfits are instead evaluated as unfa-

vorable, as the misfits cannot be corrected by these end-users due to feeling powerless. Often, the negative side of a misfit is strengthened further by unsettling negative client feedbacks. PU3's evaluation of the perceived usability misfit shows his confusion and a lack of understanding: *"Sometimes, things important to me are missing. Or maybe I just don't know where to look […]. One really has to first find out what's the reason, what has to be done now. Sometimes it is not clear what I have to do."* Opportunity-driven and empowered users especially evaluate misfits as unfavorable if the misfits not only impede their work, but also restrict their work flexibility; they feel limited in their actions to exploit the benefits. PU3, for example, evaluates the functionality misfit negatively because he is not able to decide how and when an order is processed due to higher dependencies on other departments and users.

5.3.1.5 Indifferently Evaluated Misfits

Misfits are particularly evaluated with indifference and harmless if the individual consequences are not verifiable or noticeable for the user. AP2, for example, clearly perceives a control misfit and also the potential negative consequences. However, because they do not affect him personally, the misfit is not evaluated as unfavorable:

> *"I think there might be a possibility of mistakes happening that wouldn't [have happen] with labeling and stamping. But I believe that we do not have a case of a complaint that it was totally wrong yet. That is why it is alright the way it is, I think."*

Another example is PU5, who does not evaluate the signature that has to be collected twice, manually and simultaneously via system approval, as unfavorable, because his own workflow is not affected negatively: *"It does not matter at all for us, since an approval in SAP and P2P occurs only at the level of project management […]. That does not affect us."* For PU6, the potential negative consequences of the functionality misfit are neutralized because his work-

flow is not more complicated or time-consuming; instead, the workflow is only interrupted: *"There is an interruption. But it is more a matter of people's attitudes. That is not a problem for me."*

Also, misfits that are judged as resolvable are evaluated as not really harmful by users who have at least some control. AP1, for example, does not consider the harm done by the role misfit to be very severe, as he is convinced that he will find an answer to the problem: *"This is indeed understandable. The question is how we deal with it."*

5.3.1.6 Favorably Evaluated Misfits

Our data reveal only two cases where misfits are evaluated as favorable. In the first case, the extra work resulting from the functionality misfit saves AP3's job, because she is responsible for the special cases: *"The invoice posting itself is more complex and time-consuming, but there are maybe more [invoices] that go through automatically. This, I can't judge. We still have a lot of invoices, thank God!"* The other example is a role misfit that is seen in a positive light by AP4, as it gives him the opportunity to take on more responsibility and to take a step forward in his career: *"I receive slightly more responsibility because there is no verification check afterwards, and I am the last one besides the substantive and financial reviewer to take a look at these invoices."*

In summary, although most of the fits are evaluated as favorable and most of the misfits as unfavorable, the exceptions are not negligible and the longstanding assumption that all fits and misfits carry positive and negative consequences, respectively, for the users is disproved by the evidence: 39% of the evaluated fits and 19% of the evaluated misfits conflict with the traditional assumption (see Table 20).

Evaluated as	**Favorable**	**Indifferent**	**Unfavorable**	**Total**
Fit	33 (61%)	18 (33%)	3 (6%)	54 (100%)
Misfit	2 (3%)	12 (16%)	59 (81%)	73 (100%)

Table 20: Results of Fit and Misfit Evaluation

The examples show that a fit or misfit can carry different (potential) consequences and might therefore be evaluated differently by the users. The individual assessment of the nature of a post-implementation project and its personal importance and relevance are essential in the evaluative process, which is also influenced by the users' appraised ability to cope with the fits and misfits. Most of the users perceive fits and misfits, opportunities and threats, and areas where they feel that they have high and low control. Therefore, fit-misfit-evaluation is a multiple sensemaking process with a lot of dependencies subject to the intensity of ambivalence. Closer investigations of how fits and misfits are evaluated help to better understand why a higher number of perceived fits (or misfits) is not automatically associated with user satisfaction (or dissatisfaction) in every situation. AP1, for example, has a misfit-dominated perception, but sees clear opportunities in the fits and feels able to resolve the misfits. Therefore, he derives above-average benefits from the few fits, and the misfits are less harmful due to his high level of control. This is a possible explanation for why he is not dissatisfied, but only indifferent. Another example is PU3, whose opportunity-dominated appraisal very positively influences his view of the perceived fit. Therefore, he is even prepared to accept some of the linked misfits. On the other hand, PJ3 is not satisfied, despite perceiving more fits than misfits. His disinterest in P2P, together with his feeling of low control, causes him to not evaluate the fits as favorable. This might be the reason why he does not appreciate the benefits of the fits.

In summary, the multiple individual sensemaking process offers a valid explanation for many fit- or misfit-dominated ambivalent perceptions that result in indifference. Moreover, the evaluative component provides a basis for a better understanding of why a specific combination of perceptions is associated with a specific level of satisfaction. Nevertheless, some of the satisfaction outcomes are left unexplained: AP6, PU4 and PJ1 are not dissatisfied, despite a misfit-dominated perception combined with few appraised opportunities and low levels of control. Why? Might the consideration of user satisfaction as the exclusive outcome of the evaluation process be too restricted? It might be advisable to additionally examine the users' *behavioral reaction*, since ambivalence motivates the users to take actions to reduce the discomfort (Ashforth et al. 2014). Therefore, the behavioral reaction, together with user satisfaction as the users' fit/misfit outcome, is presented in the next section.

5.4 Users' Fit/Misfit Outcome

User satisfaction as an outcome of the evaluated fits and misfits cannot be analyzed without including the behavioral reaction of the user: the evaluative outcome might lead the user to react in a specific manner that would then influence his or her individual satisfaction. On the other hand, a preliminary level of satisfaction might lead the user to behave accordingly. The full picture can only be seen by understanding the interplay between satisfaction and behavioral reaction.

5.4.1 Users' Behavioral Reaction

Users' behavioral reactions are supposed to play an important role as an outcome of the evaluative process (presented in the previous section), especially as a result of mixed perceptions and ambivalent appraisals. Usually, actors experience ambivalence as disorienting, as it feels

wrong for them to have more than one orientation towards an object. Therefore, ambivalence motivates the users to take action to reduce the discomfort (Ashforth et al. 2014). As a consequence, ambivalent appraisals combined with a mixed perception trigger users to behaviorally respond.

The analysis of the data shows that all the users chose one of the four adaption strategies presented in Table 21. As shown, the reactions of the users with regard to P2P varied within and across the different departments. In contrast to Beaudry and Pinsonneault (2005), we did not find evidence for a pure self-preservative and a pure disturbance handling strategy, but only a hybrid form we call a “self-preservative disturbance handling strategy”. The reason might be found in the PIP setting. Given that people already know the basic system SAP and have worked with it for some time, no one feels that they have absolutely no control over the new situation. There are always some fits or misfits, over which every user feels at least some control and is able to react to in a certain way. In addition, we identified two different types of benefit satisficing strategies: an active and a passive one. The explanation might be that we identified some users who appraised P2P in an indifferent or unconcerned manner. This sort of user type was not identified by Beaudry and Pinsonneault (2005). If a user is disinterested in the system expansion, he is less interested in acting actively than if he assessed some fits or misfits as opportunities or threats.

Adaption Strategy	Fit/Misfit Related Behavior	Description	Users	Examples
Benefits Maximizing	*Fit-related behavior:* active opportunistic benefit maximization *Misfit-related behavior:* active misfit resolution	The users following a benefits maximizing strategy want to take full advantage of the favorable fits offered by P2P. They therefore actively adapt the work system, the technology, and/or themselves and try to find the best solution personally, but also for their broader work environment, by maximizing their benefits. Misfits, which seem to be resolvable, are actively addressed by using their system know-how, their role in the project team, or their hierarchical power.	AP1, PU3, PU5, PU6, PJ6	*"Yes, we noticed that we cannot continue [working] with the old system, unless we kept changing the requestor, meaning that we would manipulate the system. We reflected on alternatives […]. It is a win-win-situation for the project manager, for the consumer, for us, [and] for the suppliers. We might be processing even faster." (PU3)* *"At some point I just called and told them that there is a field to change the type of receipt." (AP1)*
***Active* Benefits Satisficing**	*Fit-related behavior:* self-interested personal benefit maximization *Misfit-related behavior:* personal harm reduction or harm disregarding	The adaption effort of these users is focused on getting the best out of the favorable fits personally; the effects of their actions on other users or the company are not taken into account. Misfits are addressed only if their resolution has a personal, beneficial impact; all the other misfits are disregarded. Users actively seek support and training if it helps them to exploit their benefits.	AP2, AP4, PU2, PJ4	*"You have to concentrate on these four things only. This is much faster; that is why I like the new validation process." (AP2)* *"Then we got in touch and together we solved the problem of how to assign the invoice. And that was not a big deal. We just called for help from wherever we could get it. Pretty simple." (PJ4)*
***Passive* Benefits Satisficing**	*Fit-related behavior:* limited personal effort *Misfit-related behavior:* misfits acceptance	Users satisfy themselves passively with the benefits that P2P offers. Their adaption efforts are therefore very limited and reduced to a minimum. They wait for the fits to be exploited and the misfits to be resolved by others. Due to the fact that they decide intentionally to stay very passive, they accept unsolved misfits by making the best of the situation. They wait to be supported and trained.	PU1, PJ2, PJ3, PJ5	*"I always think that the [data] field must have a purpose. But if you try out, you lose a lot of time […]." (PU1)* *"Usually there are many ways to achieve the same result if you have a program […]. If you find a way to reach your target, then you continue doing it that way until someone tells you that [what] you are [doing is] really complicated." (PJ2)*

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Adaption Strategy	Fit/Misfit Related Behavior	Description	Users	Examples
Self-Preservative Disturbance Handling	*Fit-related behavior:* limited or no personal effort *Misfit-related behavior:* emotion-focused, opposed reaction or resignation	These users focus on minimizing the expected negative consequences. Their fit-related adaption effort is limited because they see almost no benefits in the fits. If they have the technical know-how or the hierarchical power, they avoid harmful and preserve favorable misfits. If their level of control is low, they react emotionally by blaming others for the misfits or positive comparison (e.g., comparing one's situation with other situations that are worse off). Because every user fells to have at least little control, their misfit-related behavior is always a mixture between both self-preservation and disturbance handling. If the circumstances are too demanding and overwhelming, users totally withdraw from the situation by disengaging emotionally, by delegating all system-related work, or by quitting their job.	AP3, AP5, AP6, PU4, PJ1	*"We feel like firefighters. We do what we have to do but we are completely overburdened." (AP3)* *"We also got no input from the credit or debit teams who forced us to prioritize. But I have to admit that we are not able to prioritize. We can only work on the basis of the inputs we get. That is all we can do." (AP5)* *"The fear is probably […] legitimate to a certain extent [...]. But I always tell them [i.e., other team members] that they are useful due to their experience." (AP6)* *"I am more the kind of person who accepts such tasks. There are people who have a more extreme [negative] attitude towards it." (PJ1)*

Table 21: Strategies of Behavioral Reaction

5.4.2 User Satisfaction

The users respond to the fits and misfits perceived and evaluated during the PIP P2P with an individual level of satisfaction: they feel satisfied, dissatisfied or indifferent. To be satisfied, the users have to make at least some effort to benefit from favorable fits or misfits. Users only adapting minimally and failing to address misfits are indifferent regarding satisfaction if they accept the result, or are dissatisfied if they resist emotionally or resign. In Table 22, the different levels of satisfaction are specified and linked with the interview data. It is important to note that user satisfaction is always a snapshot at a given instant. If a user, for example, takes some action due to his or her dissatisfaction, he or she might be indifferent or satisfied after a certain period of time. Similarly, if satisfied users realize that the misfits they ignored have a negative influence on their benefits, they might later become indifferent or dissatisfied.

Satisfaction	Description	Examples
Satisfied Users	Users feel satisfied, if they… • perceive **more fits than misfits,** • assess **significant opportunities,** and • stay **passive** or **already benefit from their active behavior** invested to exploit the favorable fits	*"I think I am more satisfied than before with P2P because the higher [level of] responsibility we have now is good and important."* (AP4, who focuses on a favorable misfit)
Dissatisfied Users	Users feel dissatisfied, if they… • perceive **more misfits than fits,** • assess more **threats** than opportunities, • feel **restricted in their control** over the situation, and • **stay passive** These aspects cumulatively result in a resignation, as unaddressed, unfavorable misfits are dominating. Dissatisfied users do not see a way out of this unpleasant situation.	*"Basically, I am less satisfied. We were promised a super system sort of a super car that runs automatically. Now I have a Trabi [i.e., outdated, most common vehicle in East Germany]. I don't know what it's doing anymore. There are no error messages anymore. Sometimes you don't know which [account] you have to assign and you are not able to verify the error messages. In the past, I had at least my VW Polo with a fuel indicator and I knew when the turn signal was on. Now I drive a car that will stop some day without me knowing why."* (AP5, who resigned)

(continued on next page)

Satisfaction	Description	Examples
Indifferent Users	Users feel indifferent, if… • their perceptions are characterized by ambivalence, • they are just **slightly affected by P2P,** as they therefore do not invest anything to exploit benefits, or • their **active behavior to exploit the benefit**s, either by fit-oriented adaption or misfit-addressing, **does not make a considerable impact (yet)**, or • they were dissatisfied with P2P, but **found a way out of the unpleasant situation**	*"The old [system] was bad and this one is less bad."* (PJ5, who is affected by P2P only slightly) *"We are not perfect yet, but we are getting there." (PU3,* who sees further potential in exploiting the benefits of the fits) *"There is certainly room for improvements [...].You could still do better."* (PU6, who sees further potential in solving misfits) *"A project like this is never ending. The sustainability must be ensured. Someone has to be there in order to promote and to optimize [the project]. But someday it has to show monetary benefits. Can we get something through faster? Can we ensure something? Etc. In the end, we have to prove the benefits. It's important that we work on that."* (PU5, who does not see any beneficial results from his effort) *"It is the same as before. I was not dissatisfied before. But I do not jump for joy. But I am not dissatisfied. Everything works and the system runs. I trust in the company that they thought about what they did and that it is reasonable. Such a complete makeup needs time. This is natural. That it is difficult for the people or that they badmouth someone is usual too. I know people who have worked here for 30 years. Maybe it is not so easy for them."* (AP6, who found a way out of resignation by accepting the situation using positive comparison) *"I actually don't [care] if I'm working that way or this way, I adapt myself […]. I will soon get rid of P2P, hence I no longer need to deal with P2P every day."* (PU4, who found a way out of the unpleasant situation by asking for an internal transfer to another department) *„I am actually a reasonably good-natured person. I have to admit that the implementation was very annoying to me and it's still bothering me. You probably carry [such a grudge] forever. In the end something might change in the way [of doing things], but it will not be worth the time and effort."* (PJ1, who found a way out of the unpleasant situation by delegating all P2P-related work)

Table 22: User Satisfaction

5.5 Alignment with Organizational Intent

Because P2P was initiated at an organizational level and was expected to generate company-wide benefit, the alignment of the users' fit/misfit outcome with the target processes, with the goals defined by the project team, and the company's business objectives is important for the company to reach a global understanding of P2P's organizational impact. SBB's main interest was to achieve the six defined project goals by simultaneously reaching high end-user satisfaction. But the data presented in Table 23 shows that there is a trade-off between the different goals. The routines of satisfied users are not always in line with the project goals, and working in line with the project goals does not always lead to satisfaction.

For the company, it is important that users do not follow the new routine blindly. The users must also employ P2P in an efficient manner, not only for themselves, but also across the teams and group-wide. Furthermore, the company relies on users who call attention to misfits that the project team did not anticipate or those that evolved after implementation. Only by being aware of potentially harmful or risky misfits is the company able to invest in resolving them. As illustrated in Table 23, most of the users acting in accordance with the organizational intent are not yet satisfied with P2P. However, they help the organization further develop both the system and the processes; under exceptional circumstances, this is even achieved by deviating from the new routine for a short time (see AP1 or PU6). On the other hand, satisfied employees are found to not always act according to the organizational intent, although they increase their individual efficiency, as they show a tendency of ignoring misfits that might represent a risk for the company (see AP2).

User	Totality of Fit and Misfit	User Satisfaction	Individual Efficiency (from user-perspective)	Alignment withP2P Processes/Routines	Alignment with Organizational Intent
AP1	**38% fit**	indifferent	equally efficient	no, helps out by not acting according to the role definition	yes
AP2	**55% fit**	satisfied	more efficient	yes	no, high risks due to ignored misfits
AP3	**29% fit**	dissatisfied	less efficient	no, uses old routines	no
AP4	**54% fit**	satisfied	equally efficient	yes	no, unfavorable fit is avoided by selective behavior that is a risk for the organization
AP5	**20% fit**	dissatisfied	less efficient	no, uses old routines	no
AP6	**25% fit**	indifferent	less efficient	yes	no, does not advise anyone of the misfits and does not address them
PU1	**50% fit**	indifferent	less efficient	yes	no, inefficient process handling by creating additional, inefficient work-around processes
PU2	**66% fit**	satisfied	more efficient	yes	yes
PU3	**45% fit**	indifferent	equally efficient	yes	yes
PU4	**38% fit**	indifferent	less efficient	yes	no, misfits are not addressed
PU5	**25% fit**	indifferent	equally efficient	yes	yes

User	Totality of Fit and Misfit	User Satisfaction	Individual Efficiency (from user-perspective)	Alignment withP2P Processes/Routines	Alignment with Organizational Intent
PU6	**55% fit**	satisfied	equally efficient	no, developed a user manual independent of the official training documentation	yes
PJ1	**38% fit**	indifferent	less efficient (after delegation of P2P work: more efficient)	no, uses old routines	no
PJ2	**25% fit**	indifferent	less efficient	yes	no, inefficient process handling
PJ3	**66% fit**	indifferent	less efficient	yes	no, inefficient process handling
PJ4	**100% fit**	satisfied	more efficient	yes	yes
PJ5	**33% fit**	indifferent	less efficient	yes	no, inefficient process handling
PJ6	**60% fit**	indifferent	more efficient	yes	yes

Table 23: Users' Alignment with Organizational Intent

5.6 Four Fit/Misfit Experience-Outcome Patterns

By combining the elements of the FMEO model, the data provided evidence for four fit/misfit experience-outcome patterns presented and discussed in this chapter. Every pattern is illustrated by means of a typical user. The patterns help to understand how different groups of users experience and deal with fits and misfits. The elements of the FMEO model, which were introduced in the previous chapter, are linked to form the specific chain of evidence for every pattern (see Appendix III).

5.6.1 Solution Provider

The solution providers perceive both fits and misfits with a tendency towards a high number of misfits compared to the number of fits. The ES PIP is appraised as an opportunity, or new opportunities are noticed after the system go-live. This (re)appraisal puts the advantages of the fits within reach and thus in the center of the users' evaluation. Therefore, the fits are evaluated as favorable opportunities and the misfits as disturbing factors. Because the users feel that they have potential or actual control through their system know-how, project involvement, or hierarchical position, the potential of the favorable fits is evaluated as not yet exhausted and the unfavorable misfits are judged to be surmountable. This evaluation prompts the users to take advantage of the opportunities. They put effort into both maximizing the fits and solving the misfits with an above-average level of commitment. They actively adapt to the new routine implied by the ES with the clear goal of benefiting from the fits by investing personal effort beyond the optimization of their own workflow. As the misfits seem to be resolvable, they have a clear interest in actively eliminating them (if they have the know-how) and/or to call the organization’s attention to them (if they feel involved or have the hierar-

chical power). They spare no expense, even if the effort does not pay off in the short term. They are interested in finding the best long-term solution by challenging, but accepting, the given system restrictions. Thus, individual efficiency suffers, especially in the short term. Furthermore, user behavior may deviate from the standard processes in a first adaption phase, because the modified ES processes are challenged and not adapted blindly. On the other hand, these users help the organization to exploit the full potential of the fits, to become aware of potential risks hidden behind unidentified misfits, and to improve the overall system and processes considerably. The users are satisfied only after they see the positive impact of their efforts. As most of the behavioral reactions take time to generate visible results, most of the users are not satisfied yet. The solution providers' chain of evidence is summarized in Table 24.

<table>
<tr><th colspan="4">Solution Providers Users: AP1, PU3, PU5, PU6, PJ6</th></tr>
<tr><td>Perception

both fits and misfits with a tendency to a high number of misfits</td><td rowspan="2">Evaluation

• Fits are evaluated as favorable because they bear opportunities with potential benefits that are not realized or exhausted yet
• Misfits are evaluated as unfavorable but as resolvable due to the control the users are able to exercise</td><td>Behavioral Reaction

Benefits Maximizing
• Fit-related behavior: self-motivated active and rapid adaption
• Misfit-related behavior: active resolution-oriented misfit addressing</td><td>Satisfaction

• Satisfied, if the effort already has a visible impact
• Indifferent (not yet satisfied), if the impact of the effort is not visible yet, because the user still has higher expectations</td></tr>
<tr><td>(Re)appraisal

• opportunity
• high control</td><td colspan="2">Alignment with Organizational Intent

• Individual efficiency is not increased (yet)
• Limited alignment with new routine, but deviation is beneficial for the organization
• High alignment with organizational intent, because they help to further develop the ES</td></tr>
</table>

Table 24: Solution Providers

The chain of evidence of the solution providers is exemplified by end-user AP1, who was thoroughly briefed about P2P and knew what could be expected of the new system solution due to his involvement in the project and his role as a power user of the accounts payable team. As a consequence, his primary appraisal was very balanced: he did not see clear opportunities or clear threats, but was instead realistic. Due to his project involvement, he was already aware of the benefits of the new system on which he concentrated. However, he was skeptical – but not threatened – in a positive manner by noting that it would have been an illusion to expect major changes.

> *"Either you can turn upside down, which is no solution in the long run, or you can just accept and try to cope and work with the advantages that are certainly present with the new P2P system. That's why I think the acceptance is there and certainly also some curiosity, which is good."*

AP1 stated that as a power user, he had control over the new technology due to his system know-how and was also willing to help other team members to achieve the same control. However, regarding the adaption behavior they – in the end – had to accept the new system as well and the new work processes as defined by the project team.

From AP1's point of view, the way processes are executed using the new ES integration solution leads to enhanced automation and consequently to an essential improvement in efficiency and effectiveness. Besides these functionality fits, he also perceives a better match between the ES solution and his role: by handling all the incoming invoices via an invoice pool, the imbalances in the workload that had been leading to bottlenecks and idle time are reduced significantly. On the other hand, P2P implicates some new mismatches for AP1 at a functionality, role, control and organizational culture level. The two main issues he raises are, first, efficiency losses due to intensified dependencies on other people who are not aware of their

new role and the cultural changes and, second, quality issues and delays due to automatically processed faulty invoices. The perceived fits and misfits are presented in detail in Table 25.

(Mis)fit Type	Description
Functionality Fit	The whole work preparation (AVOR) process is faster and fewer capacities are tied up due to the fact that the invoices must not be labeled and validated manually anymore.
Functionality Fit	Purchase order numbers that are not noted on the invoice can be completed in SAP. Before, these invoices had to be scanned again.
Functionality Misfit	The work steps after the accelerated invoice preparation and validation are more time-consuming. Incorrectly recorded invoices are not detected at the beginning of the process, but only very late. They have to be canceled and sent through the whole process again. A lot of time is lost. In the past, most of these invoices were detected and corrected manually before the system generated an invoice number.
Data Misfit	Invoice numbers separated by spaces are not read correctly by the validation software.
Role Fit	Invoices are handled via an overall pool. There are no departments or types of invoices assigned to pre-defined accounts payable employees anymore. Work is shared and the workload is much better balanced.
Role Misfit	The approvers are not aware of their role change, especially their increased responsibility. There is a lack of process understanding that generates additional work.
Control Misfit	If the invoice value is in accordance with the order price, the system automatically triggers the payment, regardless of whether the amount is correct. In cases of an error, great effort has to be made to reverse the invoice and re-enter data again. In the past, every invoice was manually checked during validation and data quality was verified.
Organizational Culture Misfit	The intended shift in work philosophy did not happen in the line managers' minds yet: instead of an in-depth assessment of every purchase order, they still have the attitude of 'I just trust the data entered in the system, as I am able to correct mistakes later'. As a result, the end-users' data entries more prone to faults, with the consequence that manually performed corrections are necessary.

Table 25: Solution Provider's Perceived Fits and Misfits

AP1's evaluation is characterized by a differentiated problem-focused approach, as he is highly involved in the project as a power user of the team, which gives him a noticeable lead in knowledge. The fits and misfits that AP1 perceives are in strong accordance with the anticipated potential consequences. He was looking forward to the implementation of the new ES solution by having confidence in his control over the ES. However, he feels limited in his actions due to dependencies on other teams and project/company decisions. His appraisals and fit/misfit evaluation are mainly problem-focused and characterized by foresight. Therefore, quite a few of the potential benefits of the fits are neutralized. For example, the advantage of the functionality fit is not visible yet, as AP1 is more dependent on other people now who are not aware of their new reviewer role (connected role misfit): *"I wouldn't say that we are more efficient now […]. I think it will take time […] until everyone involved has reached a 60% to 70 % level of understanding."* He also highlights the quality risks that come along with automation and the insufficient process understanding of other end-users. As a consequence, the role fit has negative implications and is not perceived as favorable:

> *"Before, we all had our own area of work. Everyone had his own department. He knew the people of the department and knew exactly how and which account and assignment to use if person A received an invoice. Now, everyone is doing everything. Basically, this idea makes sense, but there was neither an exchange of ideas nor information. We were just thrown in at the deep end. We were just told to start. The result was pretty much what I expected. It was […] chaos at the beginning, because everyone could do everything."*

On the other hand, AP1 does not consider the harm done by the role misfit to be very severe as he is convinced that the misfit is resolvable: *"This is indeed comprehensible. The question is how we deal with it."*

In summary, AP1 is clearly aware of the dependencies between fits and misfits. Some benefits are generated only at the expense of some new misfits: *"It's certainly more automated. But I dare to doubt that it is more reliable or efficient now."* However, he recognizes a high potential for getting benefits from resolved misfits as they are connected to favorable fits.

Although he does not yet see performance improvements due to the neutralized functionality fit, he is optimistic that his commitment can influence the future development positively (despite the constraints he has to accept). AP1 is therefore a very active end-user. His role as a power user helps him to discuss problems directly with the IT department or the project team. He also supports the line managers by answering questions and assisting them, while helping out his own team with tasks that were originally not assigned to him. He invests in resolving the role misfit across his own area of work, as he knows about its connections to the beneficial fits: *"At some point, I just called and told them that there is a field to change the type of receipt. That works pretty well."* In his role as a power user, he supports his own team as well as also people from all the other departments:

> *"Many people ask me. It's not as bad anymore as it was in the beginning. At that time we received many requests from all the offices. At some point, I was completely annoyed. I don't mind explaining [things], but [I do] not [like explaining] the same thing three times. The collaboration with IT is great. I know the employees there and I call them if necessary. I always get responses very quickly."*

In doing so, he tries to minimize the misfits over which he has influence, especially the role and organizational culture misfits. Simultaneously, he reluctantly accepts the misfits resulting from the higher standardization and automation by showing emotions and pointing out the risks. However, he knows that he has no influence on the decisions that have already been made. To overcome these resentments, he focuses on the advantages of the opportunities of

the system and helps to ensure future progress of the ES. AP1 even switches back to the old routines to keep up the processes that are not well defined yet:

> *"According to the definition, I am doing tasks that I actually don't need to do. But I know if I don't do them […] for example, [opening and distributing] the mail [then they won't get done]. According to the definition I am not supposed to do that anymore. […] But I still do it."*

Essentially, he violates the intentions of the project team by working around misfits, but as he simultaneously invests in a long-term resolution of those misfits, this divergent behavior is in the best interest of the whole company.

As a consequence of his actions and the very balanced and problem-focused evaluation of the fits and misfits, together with the expectations being reappraised as realistic, AP1 is not satisfied (yet):

> *"It is hard to tell whether it has become better now. This question can only be answered by a 'yes' or 'no'. I would say that it's different now. There are different priorities [now]; the focus is on automation and speed. In terms of quality. I don't see any improvements at the moment. The question is how we define efficiency. Is efficiency defined as speed or quality? That's why I think that one cannot say if it became better or worse."*

He points out that adaption still needs time in order to benefit from the fits:

> *"I've seen the process at the time when not much was present yet. At that time, it [the system] was at the development stage and testing phase. Compared to that, the system is capable of facilitating our day-to-day work or at least of not complicating it*

[…]. Personally, I can handle the system. Many aspects [that are] not working at the moment are of an organizational nature."

5.6.2 Self-Optimizer

The Self-Optimizers perceive more favorable fits than unfavorable misfits. These users either view the ES expansion as an opportunity from the beginning or opportunities become apparent during the usage. Therefore, the opportunity-related fits are evaluated as extremely favorable, as they facilitate work. In contrast to the Solution Providers, Self-Optimizers have only limited influence and also feel as though they have low control over the situation. As a result, the harm of the misfits is neglected. Similar to the Solution Providers, they adapt to the new routines. However, because they are only interested in maximizing the direct, personal benefits, they only optimize their own workflow. Due to the beneficial evaluation outcome, unfavorable misfits are only of interest if they are connected to a beneficial fit. The personal harm of these misfits is minimized by seeking training and support, especially to close know-how gaps, but the users do not further invest in solving these misfits. All the other misfits are ignored to avoid any harmful personal consequences. As they only make an effort if they are able to additionally enhance their advantages or profit by new opportunities, they feel satisfied. Although the behavior of this user group appears to be in line with project intentions, these users do not help in exploiting the opportunities of the ES expansion for the organization; their self-interested behavior regarding misfits even represents a potential risk for the organization (e.g., if bad data quality resulting from omitted manual controls due to automation is recognized, but not actively addressed). The self-optimizers' chain of evidence is summarized in Table 26.

Self-Optimizer	Users: AP2, AP4, PJ4, PU2		
Perception More fits than misfits	**Evaluation** • Individually essential *fits are evaluated as favorable* and therefore dominate the evaluative outcome • *Indifferently evaluated misfits* as a result of (partial) harm disregard or neglecting	**Behavioral Reaction** *Active Benefits Satisficing* • *Fit-related behavior:* self-interested active benefit maximization • *Misfit-related behavior:* personal misfit harm reduction or disregarding misfits	**Satisfaction** *Satisfied*
(Re)appraisal • opportunity • low to medium control		**Alignment with Organizational Intent** • *Increased individual efficiency* • *High alignment with the new routine* due to the adaption effort • *Low alignment with organizational intent* as the workflows are optimized only individually and the self-interested end-user behavior regarding the misfits represents potential risks	

Table 26: Self-Optimizers

The chain of evidence is illustrated by the example of AP2, who assessed both positive and negative consequences of P2P before the system went live. On the one hand, he viewed the new system as a chance to improve his work efficiency – more specifically, as an opportunity to get his work done faster and go home earlier in the evening. On the other hand, he was afraid of being more dependent on other people due to the new approval process and, therefore, of losing his efficiency gains. AP2 felt control over the situation, especially with regard to the information he received and his ability of learning to use a system. Only after the go-live does he admit that he overestimated his level of control.

After the system go-live, AP2 clearly perceives functionality fits. The manner in which processes are executed, especially the validation process and invoice handling, lead to enhanced efficiency, so he is faster in doing his job. Nonetheless, he also notices mismatches between the new ES solution and his workflow. Much more search effort is needed to find unlabeled invoices (usability misfit) and there is a higher risk of faulty invoices not being recognized during the validation process (control misfit). Furthermore, his role was extended to an accountant role, although he lacks the necessary accounting know-how. In addition, most of the line managers he deals with are not aware of his role change, which leads to confusion regarding the assigned responsibilities. All the perceived fits and misfits are summarized in Table 27.

(Mis)fit Type	Description
Functionality Fit	The invoice validation process is much easier, faster and more focused. Data is transferred automatically, not every number has to be typed in manually anymore, and only four mandatory fields have to be checked.
Functionality Fit	The invoice type can be changed directly in SAP now. In the past, the end-user had to print it out, delete, and scan it again.
Usability Fit	Validation was simplified: instead of typing names and numbers, mouse clicks on the invoice data are sufficient to fill out the mandatory fields.
Usability Fit	After entering the e-mail address of the reviewer, the invoice is sent to this person automatically. In the past, every invoice had to be sent out of SAP manually every evening.
Usability Misfit	Invoices with a missing order number are not shown in the new workflow overview and, if no one is searching explicitly for these invoices, they are not paid and delays result.
Role Fit	Validation activities, necessary if invoices cannot be validated automatically, are clearly assigned to two specific end-users.

Role Misfit	The end-user's role was extended to an accountant role, but the end-user lacks the required accounting know-how.
Role Misfit	The line managers are not informed about the role changes in the accounts payable department, so they are still doing things that are actually now assigned to the end-user's field of responsibility.
Control Misfit	Invoice data is error-prone as the invoices are no longer labeled and stamped manually.

Table 27: Self-Optimizer's Perceived Fits and Misfits

The fit and misfit perceptions show that the new system solution achieved his positive expectations regarding efficiency. In the course of the conducted interviews, the researcher got the impression that these efficiency benefits are extremely important for AP2 and they therefore seem to be overweighted. This impression is confirmed by several statements in which AP2 discusses the new system solution making the process easier and letting him do his job much faster. Regarding the misfits perceived, he neglects or downplays the possible negative consequences. As long as he works faster due to the automated validation process, quality issues (control misfit) are not in his focus:

> *"I think there might be a possibility that mistakes happen that wouldn't [have happened] with labeling and stamping. But I believe that we do not have a case where we got a complaint that it was totally wrong yet. That is why it is alright the way it is, I think."*

His disinterest in the negative consequences of his actions and in the risks connected to the perceived misfits leads him to focus on the benefits of P2P. As a consequence, he adapts his workflow only in the way that allows him to benefit most from the appraised opportunities with the conviction to have control over the new system and the new role.

He chooses an account (sometimes randomly) being well aware of the consequences: if his choice was wrong, the line manager would reject it and the invoice would come back to the invoice pool. Due to the fact that the accounts payable employees are handling this pool together, the invoice would not be directly assigned to him again, so his personal efficiency is still optimized:

> *"If it was the wrong account, they would reject it and it would come back to us, to our dashboard, and it would have to be done again. But you still would not know which account you have to select; you would only know that the previously chosen one was the wrong choice."*

AP2 takes his time to familiarize himself with the new ES solution before performing any adaption efforts. Although he recognizes that the handling of the system is not as easy as expected (contrary to his first appraisal) and that he lacks accounting know-how, he does not make any attempt to actively fill his knowledge gaps:

> *"P2P has gone live now and at the beginning you had some difficulties because it was something new. You didn't know by heart how things worked. What bothered me the most was the issue with the accounts. Before, we were not obliged to enter them while posting [the invoices], and now we have to pick them ourselves from a list. There are many accounts and at the beginning you don't have any idea [what you're doing]; you are sitting in front of these lists and you are thinking: 'Uh, which account might be the [right] one? But now I think that it's just a matter of practice."*

He adapts to the new ES solution only as much as necessary. From his point of view, after all, the system implementation did not change much. By only focusing on his specific workflow and by not thinking outside of his box, he satisfies himself with the benefits that the new ES

offers, even at the expense of negative performance or efficiency outcomes for other team members or departments and by accepting faults in automatically validated invoices:

> *"I haven't noticed anything in particular […]. For me nothing really changed. That is why I can't tell what really changed with the automated posting; I actually don't see behind the curtain."*

> *"You have to concentrate on these four things only. This is much faster; that is why I like the new validation process."*

The benefit-oriented evaluation, together with his behavioral reaction, leads to satisfaction after an acclimatization period:

> *"At the beginning, at the time it changed, I was not really satisfied […]. But now, actually, I am satisfied and I think it is almost better than before. But I am only able to say this after I worked on it a little bit."*

5.6.3 Passive Beneficiary

These users perceive few fits and misfits. They are either not significantly affected by the system functionality expansion or just unconcerned. As a consequence, they are comparatively uninterested in the consequences. Simultaneously, they are characterized by a low level of control: their system know-how is low, they have no important hierarchical position, and were not involved in the project. Only by using the system, they reappraise their control to be low, because they did not really care about the new ES solution before go-live. The disinterest combined with the low level of control leads to an evaluation outcome of more unfavorable misfits than favorable fits. In this combination, the benefit resulting from the few favorable fits is marginal and a reduction of misfits would not considerably influence the benefit out-

come either. Therefore, the users adapt as they are expected to without the investment of any additional personal effort, as they see no significant benefit in exploiting favorable fits. They simultaneously accept misfits, work around them if inevitable and wait for them to be solved by others. Altogether, they show a passive or, if necessary, reactive behavior with the clear strategy to benefit without having to invest anything. They appear to act in line with project intentions, but their behavior might result in inefficiency at a company level. The passive beneficiaries' chain of evidence is summarized in Table 28.

Passive Beneficiary	Users: PU1, PJ2, PJ3, PJ5		
Perception Both fits and misfits but only a limited amount	**Evaluation** • *Few favorable fits* • *Predominant number of unfavorable misfits*	**Behavioral Reaction** *Passive Benefit Satisfying Strategy* • *Fit-related behavior:* benefit passively by adapting minimally • *Misfit-related behavior:* accept or work around misfits	**Satisfaction** *Indifferent* because the PIP has no real influence on their level of satisfaction
(Re)appraisal • Unconcerned about the consequences and have no specific expectations • low control		**Alignment with Organizational Intent** • *Decreased individual efficiency* • *Alignment with new routine,* but in an inefficient manner • *Limited alignment with organizational intent,* as the handling of the workflow is inefficient, but these inefficiency risks are restricted if there are some Solution Providers who optimize the workflows	

Table 28: Passive Beneficiaries

PJ2 is a typical Passive Beneficiary. He appraises the changes regarding P2P from the sidelines and the consequences are therefore only of minimal interest to him. He perceives neither clear opportunities nor threats: *"I perceive everything as a process where changes happen over and over again and where you never know exactly what is triggered by what."* Having little control over the situation does not bother him much. He is involved in the procurement and payment process just two to three hours a week and only during a fraction of this time does he interact directly with the system. Before the system went live, he was completely unconcerned about his system know-how and influence and only afterwards does he reappraise his control level to be low.

PJ2 perceives only few issues (see Table 29): one functionality-related fit and three misfits regarding role and control.

(Mis)fit Type	Description
Functionality Fit	The process of setting up a purchase order is easier and less bureaucratic.
Role Misfit	The purchasing and accounts payable department do not have the project know-how.
Role Misfit	Workload is concentrated around the reviewers.
Control Misfit	In the past, invoices were reviewed in more detail. Due to the fact that the standardized approval procedure is more time-consuming, the review of the invoice content has taken a backseat.

Table 29: Passive Beneficiary's Perceived Fits and Misfits

Due to his indifference and his relaxed attitude, he does not evaluate the positive effects of the fits and the negative consequences of the misfits as significant. He only states that P2P *"didn't affect our office life sustainably till now."*

PJ2 uses the system as he is required (*"because I use it when I have to"*), but he does not actively put in any personal effort to maximize the benefits or reduce the risks resulting from the misfits. He is just muddling through without any motivation to find the easiest way to handle the system. He waits for the misfits to be solved by others:

> *"Usually, there are many ways to achieve the same result if you have a program. One might be doing it this way, someone else that way […]. If you find a way to reach your target, then you continue doing it that way until someone tells you that [what] you are [doing is] really complicated."*

> *"Here we have the system and if there is a problem, then either an accountant or some super user […] who is more involved [comes to help]. It is important that we receive assistance and that we can ask [for it]. This is also much more efficient than if we muddle through ourselves."*

As the functionality fit provides only very limited benefit to PJ2, he reacts only passively. As a consequence, his actions combined with his evaluation have no significant influence on his individual overall satisfaction with P2P. PJ2's passivity, together with his disinterest, does not lead to an optimal outcome for the company. In particular, the control misfit that he fails to address, because it is only of minor relevance for him, might be a potential risk for the company.

5.6.4 Surrendering Quitter

The ES functionality expansion project is a threating situation for these users, on which they feel that they have no influence. These users perceive more unfavorable misfits than favorable fits. Their threats are confirmed with the go-live of the new ES solution and they feel powerless about the whole situation. As a result of the threatening circumstances, potential benefits

of the new ES solution become insignificant upon evaluation. Because the individual users' benefits are very limited, their system- and process-oriented adaption effort is very limited. The users adhere to old routines by creating inefficient work-around processes. Emotion-focused reactions, such as positive comparison, blaming or selective attention, are used predominantly to cope with the appraised threats. Although harmful issues are perceived, they are not addressed actively (due to cognitive or mental overload and/or despair) and misfits are even preserved.

In the medium term, the users try to find a personal solution to cope with the threatening situation. Their resignation leads to dissatisfaction. Only if they find an individual way out of the situation, such as quitting their job or delegating most of their required system interaction, are they not dissatisfied anymore. Because the users adapt only where forced by the new processes and the system, the preservation of old routines is harmful for the organization. The resulting inefficiencies and the mental opposition are only solvable with high investment by the company. The surrendering quitters' chain of evidence is presented in Table 30.

PJ1 is an example of a surrendering quitter, who first reacted emotionally by blaming others and by using positive comparison. This behavior resulted in dissatisfaction. Then, PJ1found a way out of his miserable situation and stabilized his level of satisfaction. His perception-satisfaction chain of evidence is described in detail in the following section.

Surrendering Quitter	Users: AP3, AP5, AP6, PU4, PJ1		
Perception More misfits than fits	**Evaluation** • *No/ few favorable fits,* (potential) benefits are diminished as a consequence of the threatening and uncontrollable situation • *Predominant number of unfavorable misfits*	**Behavioral Reaction** *Self-Preservative Disturbance Handling* • *Fit-related behavior:* limited or no personal effort • *Misfit-related behavior:* emotion-focused, opposed reaction, or resignation (depending on the level of control)	**Satisfaction** • *Dissatisfied* if there is no individual way out of misery available • *Indifferent (not dissatisfied anymore),* if an individual way out of the uncomfortable situation is foreseeable
(Re)appraisal • Threat • Low to medium control		**Alignment with Organizational Intent** • *Lower individual efficiency* • *Low alignment with new routine,* only where the users are forced to work in line with the new processes or the system • *Low alignment with organizational intent* because operational risks and inefficiencies result due to the preservation of old routines and due to end-user frustration and/or opposition	

Table 30: Surrendering Quitters

PJ1 negatively appraised P2P. He sees himself to be at the receiving end of the P2P related reorganizations in other departments, especially in relation to the process optimization in the accounts payable team. He feared that work would be transferred from the support departments to him as a project manager:

> *"Not only the accounts payable department, but also other divisions optimize continuously. But in the end, everything depends on the project manager because he is responsible and he has to do everything. After all, we probably will have to scan everything on our own and send it to Bern [where the accounts payable department is lo-*

cated,] I don't know. I suspect that [is the situation] already. It is not a big rearrangement, but it is one more [task]."

His negative attitude is reinforced by his uncertainty about the potential impact of P2P. Additionally, he sensed that he had low control. On the one hand, he lacks the specific system know-how. On the other hand, he felt that he was being forced to manage his specific multi-phased construction projects according to the standard process, which is not applicable to the special requirements of such projects:

"But I'm worried that we now have to do some of the work of the accounting department. They are cutting staff because they say the system is now running automatically. Now I am concerned that we will have to do the project accounting job as well."

As a consequence, he feels powerless and at the mercy of the P2P project team. Although his negative appraisal seems to be due to the unimportance of P2P regarding his daily project work, for him P2P is just another IT system change he has to handle. Ultimately, he uses the SAP only for a few minutes every day.

PJ1 perceives data, role and control fits: the control mechanisms embedded in the system are adequate, the responsibilities are assigned properly, and process transparency is higher. As a result, he feels more comfortable setting up purchase orders because the content is reviewed again so that incorrect deliveries and later discussions can be avoided. However, he also highlights several misfits. The standardized P2P process is not flexible enough to cope with his long-term construction projects that are split up in several building phases and are subject to significant and often unpredictable changes. Rolling wave planning is technically not feasible (yet). The construction projects are also accompanied by several legal offers and contracts

that have to be signed manually. The standardized system review procedure and approval process often results in a duplication of work. Additionally, support tasks were transferred from the back office to the front office departments. This leads to imbalances in the workload of PJ1 and his team. He also criticizes the usability of the system and the organizational logic of the approval procedure. All the perceived fits and misfits are summarized and described in Table 31.

(Mis)fit Type	Description
Functionality Misfit	The system and the standard process are not suitable for building projects spanning multiple phases.
Functionality Misfit	A paper file for every project with all legal offers and contracts is still needed because this information is not stored in the system. Double work is the result because the project leader has to check and sign the official documents and then check and sign them again in the system.
Data Fit	The new automated validation mechanism for checking invoices is working.
Usability Misfit	The information on the screen is sometimes not comprehensible. The user only sees numbers and figures and does not know which project they relate to.
Role Fit	It is appropriate that the responsibility to review the order data is assigned to the project department.
Role Misfit	Work was transferred from other departments to the project department. This leads to imbalances in the user's workload.
Control Fit	The finance department is monitoring the projects.
Organizational Culture Misfit	The new approval process is not in line with organizational logic.

Table 31: Surrendering Quitter's Perceived Fits and Misfits

The evaluation of the fits and misfits is strongly influenced by PJ1's negative appraisal of P2P and his negative attitude towards SAP and system implementations in general:

"We are generally not very happy with SAP."

"It's not only P2P; we had many software implementations that were so-called green bananas, which only ripen after they get to the end-user. Nowadays, it [the new system] is rather like a banana sapling, as it only grows once it gets to us. But this is a general statement. I think I have never experienced a good implementation yet. I don't know if it can be done better."

As a result, most of the misfits are evaluated as unfavorable and only one fit as favorable. The data fit is neutralized, as no direct positive influence is visible for PJ1 and the benefits of the role fit are neutralized because he regards the misfit as a lack of trust in his abilities by the company. He also feels that he is being kept under surveillance*: "In the beginning, we asked ourselves why it [a review] was necessary. Now, it is somehow a step back with regard to the level of trust."* Nevertheless, the unfavorable effects of the evaluation are alleviated by the unimportance of the new P2P system solution in PJ1's daily work.

PJ1 behaves very defensively and is only willing to cooperate to the extent that he cannot fulfill his procurement duties without using P2P. He excuses his passivity by blaming others of being even less committed. He pushes off the work with the system to a specialized person in the team by admitting that he lacks the necessary system know-how:

"I think, looking at my department, I am more the kind of person who accepts such tasks. There are people who have a more extreme [negative] attitude towards it. You notice that while you work; they avoid the system wherever possible. That's not just the case for P2P, but generally for SAP. But[it is] also[true of] implementations in general. We have another such tool. The consequence is that we have a specialist now who is doing everything, and when he is away, there is no one who understands

it. That's the disadvantage when such support services are used. We are cutting down [the resources] of the department that is working with it [the system] on a daily basis and we have to rebuild it [the support function] together with individual specialists supporting us."

The appraised know-how gaps leading to unfavorable misfits are not addressed actively as he deems it not to be his task: "I would have expected someone to tell me, 'For you as a project manager, this and that might be very interesting.' Additionally, the training session never took place." He uses it as an excuse to completely rely on the work of the specialized super user within the team: "The [power user of the team] attended to it and wrote down further instructions and tried to collect additional information in order to build up a support." By the same token, he also does not take the time to try out new functionalities or get used to the new process. He waits to be informed and trained by the project team and he calls the hotline only as a last resort:

"I admit I am believe that the system contains all the data one should see, but I am not sure if the interface is user-friendly enough to see it [the information] without clicking through five times. I cannot tell because I've never tested it."

"I don't see how it makes sense even if it's described somewhere, but I would have expected to get user-specific training. A construction project manager might have to know and look up different things than [someone] ordering material in the central office. That is simply a different thing. We also have our peculiarities."

Therefore, PJ1 does not consider it to be his task to actively occupy himself with P2P. He is not motivated to lead the way and even promotes passivity within his team:

"I tell my people not to think about it too long, maybe try [things] out two to three minutes and if it still does not work, then call the hotline."

As a conclusion, PJ1 does not make any attempt to actively minimize the harm of the misfits and does not seem to reappraise P2P more positively after implementation. He therefore tries to avoid working with the system whenever possible. Due to his hierarchical position, he is in the comfortable position to have a team to which he can delegate most of the procurement work. His "way out" of the unfavorable situation is to limit his system interaction as much as possible. His contact with P2P is so loose now that P2P does not really influence his individual overall satisfaction anymore:

"I am actually a reasonably good-natured person. I have to admit that the implementation was very annoying to me and it's still bothering me. You probably carry [such a grudge] forever. After all, something might change in the way [things are done], but it will not be worth the time and effort."

6 Discussion

The overarching objective of this dissertation is to uncover why and how individually experienced fits and misfits translate into different outcomes of user behavior and satisfaction and whether these individual fit/misfit outcomes are in line with organizational intent. In search of patterns and possible archetype users in the context of ES PIPs, this dissertation is the first study that specifically links the theoretical concepts of the aggregated individual fit experiences with the individual and organizational outcome of these experiences (i.e. behavioral reaction, user satisfaction, and alignment with organizational intent). The case study's findings provide preliminary support for four archetype users characterized by specific fit/misfit experience-outcome patterns. The four patterns are summarized in Table 32 and discussed in the following chapters. First, the elements of the patterns are highlighted. We discuss how differently fits and misfits are perceived and how heterogeneously the users evaluate their perceptions associated with the opportunities, threats, and the level of control they appraise. Then, the miscellaneous consequences, i.e. behavioral reaction, satisfaction and alignment with organizational intent, are illustrated. Second, the archetype users and their specific fit/misfit experience-outcome patterns are presented. Third, a critical view on satisfaction is presented. In the following chapters, the theoretical and practical implications and the study's limitations are discussed, and main avenues for future research are suggested.

Archetype User	Solution Provider	Self-Optimizer	Passive Beneficiary	Surrendering Quitter
Fit & Misfit Perception	Either fit-dominated, or misfit-dominated	Fit-dominated	Either fit-dominated, balanced, or misfit-dominated	Misfit-dominated
Appraised Opportunities & Threats	Mixed	Opportunity-dominated	(Virtually) none, due to disinterest	Threat-dominated
Appraised Level of Control	Above-average	Below average	Below average	Average
Evaluation	*Evaluates fits as favorable* because they bear opportunities with potential benefits that are not realized or exhausted yet *Evaluates misfits as unfavorable* but as resolvable due to the control that the users are able to exercise	*Evaluates individually essential fits as favorable* and therefore dominate the evaluative outcome *Evaluates misfits indifferently* as a result of a (partial) harm disregard or neglecting	*Evaluates few fits as favorable* *Evaluates misfits predominantly as unfavorable*	*Evaluates no/few fits as favorable*, (potential) benefits are diminished as a consequence of the threatening and uncontrollable situation *Evaluates misfits predominantly as unfavorable*
Behavioral Reaction	Benefits maximizing	Active Benefits Satisficing	Passive Benefits Satisficing	Self-Preservative Disturbance Handling
Satisfaction	Indifferent (not yet satisfied)	Satisfied	Indifferent	Dissatisfied / Indifferent as soon as a solution is visible
Process Alignment	Mixed	High	High	Low
Long-term Organizational Alignment	High	Low, due to potentially undetected risks for the company	Mixed, due to adaption but inefficient process handling	Low, due to a lack of adaption and/or preservation of old routines

Table 32: Characteristics of the Archetype Users

6.1 Users' Individual Perception, Evaluation and Consequences of Fits and Misfits

6.1.1 How Users Experience Fits and Misfits

6.1.1.1 How Users Perceive Fits and Misfits

Strong and Volkoff (2010) were among the first to systematically study the perception of ES fit at the user level. By concentrating on misfits only, as they were more salient in their data than the fits, the authors found six dimensions of misfit that users perceive when interacting with an ES. Despite the very valuable contribution of Strong and Volkoff (2010) , Maurer et al. (2012) recently raised the question of whether the investigation of misfits in isolation without consideration of the totality of fit versus misfit may present a distorted picture.

To the best of our knowledge, this dissertation is the first organization-ES fit study that simultaneously examines users' fit and misfit experiences. The dissertation enriches the findings of Strong and Volkoff (2010) by incorporating the critical arguments of Maurer et al. (2012). Fits and misfits are shown to be experienced differently by different people. Therefore, the conclusion Strong and Volkoff (2010) drew that experiences at the individual level are relevant to understand organization-ES fit is supported. The analysis of the totality of fit and misfit revealed that most of the users simultaneously perceive both fits and misfits, i.e. have mixed perceptions. The six misfit domains elaborated by Strong and Volkoff (2010) are found to be easily adaptive for categorizing fits and are highly reasonable for PIPs. Functionality, data, usability, role and control fits and misfits are particularly salient. Only the organizational culture category seems to be of minor relevance for the context of PIPs, as the users already went through the major cultural changes during the initial ES implementation. Three end-

users identified issues of all different categories; other perceptions are more focused on two or three categories. However, most notably, the perceptions are extremely diversified even within the departments.

In addition, the analysis of the totality of fit versus misfit allows for discovering the interplay among fits and misfits that the users perceive. Interplay is particularly and consciously noticed by users with a pronounced mixed perception of fits and misfits. Such interdependencies (e.g. a role fit that leads to a functionality misfit, a control misfit that strengthens a functionality misfit, or two control fits perceived by different users that strengthen each other) were already adumbrated by Strong and Volkoff (2010), but not further investigated. Our findings thus acknowledge that a sole observation of misfits may actually distort the picture , effectively hiding whether a perceived misfit might be counterbalanced by a perceived fit or several fits. These interdependencies attain central significance in connection with the subsequent evaluation of the perceptions.

6.1.1.2 How Users Evaluate Fits and Misfits

Convergent with the process of discrepancy evaluation (Chin et al. 2014) and sensemaking literature (e.g., Griffith 1999), the dissertation's findings confirm that every individual evaluates the perceived fits and misfits, i.e. not only the number of perceived (mis)fits, but particularly the valence[15] an individual attaches to them, is essential (Chin et al. 2014). The study confirms that the individually assessed (potential) consequences of a PIP have an important influence on the evaluation of the perceived fits and misfits. In line with the CMUA (Beaudry and Pinsonneault 2005; 2010), the personal importance and relevance of a PIP, as well as the

[15] Valence is defined as a subjective feeling of pleasantness or unpleasantness (Feldman Barrett 1998).

coping options available to the individual user, play an essential role during the evaluation process, and also in terms of the actions a user will take to deal with the new situation. Most of the users notice both opportunities and threats, as well as areas of both high and low control. Comparable to the perceptions that are prevailingly mixed, the users also assess the PIP with mixed feelings: they are *ambivalent*, i.e. have simultaneously positive and negative orientations toward an object (Ashforth et al. 2014). These predominantly mixed cognitions and feelings are neither unusual nor surprising given the high level of change and uncertainty connected to a PIP, and they expand the "pure appraisal forms" (i.e., users only appraising either opportunities or threats, and either low or high control) presented by Beaudry and Pinsonneault (2005). Furthermore, the investigation of the evaluation process reveals another user group that was not mentioned by Beaudry and Pinsonneault (2005). Actors who are only slightly affected by the PIP are shown to assess the project with either unconcern or disinterest, articulating neither opportunities nor threats.

The analysis of how the users evaluate the individually perceived fits and misfits shows, interestingly, that not every fit is evaluated as favorable, and not every misfit as unfavorable. Depending on their appraisal, some users evaluate certain fits as personally insignificant or constraining. Other users see no harm in a perceived misfit or are even happy about its existence. This finding challenges the longstanding assumption that fits and misfits always carry positive negative consequences, respectively (e.g., Nevo and Wade 2010; Seddon et al. 2010; Strong and Volkoff 2010). One user, for example, evaluates a perceived functionality fit that makes him both more efficient and balances his workload much better as not favorable, as he sees the potential to be even more efficient and misses the client contact that is no longer necessary with the new automated workflow. On the other hand, he evaluates a role misfit that makes the work more complicated as not unfavorable because he is convinced that the misfit is resolvable.

The totality, including the interplay of fits and misfits together with individual evaluation of every fit and misfit, is essential to understand how users experience organization-ES fit. An appraised opportunity or threat is shown to be associated with both the valence of a fit or misfit and the level of control the user feels that he or she has in order to exploit the benefit of a favorable fit or solve an unfavorable misfit. If fits are seen as opportunities und misfits are likely to be solved, the user has a positive attitude towards the PIP, despite the number of perceived misfits possibly being higher than the number of perceived fits. In contrast, threats and a low level of control are shown to be capable of destroying the individual value of a fit, allowing a misfit to appear unsolvable, and consequently being extremely harmful for the user. Our data therefore clearly supports the essentiality of an evaluative component as part of a task-technology fit instrument (Chin et al. 2014). Furthermore, perceived interdependencies among fits and misfits may play an important role for the users' summary evaluation of their fit and misfit experiences, as well as for the individual consequences. The results show that beneficial fits perceived to be associated with unfavorable misfits may counterbalance each other. The result might be different in a case where the fit is not evaluated as favorable or the misfit not as harmful. Two linked fits (or two linked misfits) might reinforce each other if they are both evaluated as favorable (harmful). Or, a user who is aware of interdependence between a misfit that diminishes a (potentially) beneficial fit may be more interested in resolving this misfit than a user who does not notice this interplay.

6.1.2 How Different Behavioral Reactions Can Be Explained

The evaluation process typically triggers users to behaviorally (re)act to deal with the PIP, specifically with the perceived fits and misfits. The users are shown to perform different coping methods (Beaudry and Pinsonneault 2005; 2010). Ambivalence additionally motivates individuals to take action because users experience ambivalence as disorienting, as it feels

wrong for them to have more than one orientation towards an object (Ashforth et al. 2014). The different coping strategies we observed during our analysis are very congruent to the ones presented by Beaudry and Pinsonneault (2005). They do not perfectly match because Beaudry and Pinsonneault (2005) limited themselves to the "pure" forms of adaption, which they derived by combining the extreme cases of appraisals. In contrast, our data emphasizes that such extreme cases of appraisal are rare because most users show ambivalent feelings regarding the PIP. However, the strategies we found during our analysis can be derived from the ones presented by Beaudry and Pinsonneault (2005). Strategy (3) clearly corresponds to the authors' strategy of the same name. Strategies (1) and (4) specify the "benefits satisficing strategy" by subdividing it into an active and passive form. Strategy (2) is an integration of "self-preservation" and "disturbance handling" as we could not identify one of those strategies in pure form but only in combination. The strategies our data revealed are described in the following sections.

Users with a fit-dominated perception combined with a predominant assessment of opportunities, but a low level of control, choose an *(1) active benefit satisficing strategy*. They adapt to the new routines with the exclusive interest of maximizing the personal benefit of the favorably evaluated fits. Misfits are addressed only if they are connected to a fit and if the users' investment results in an additional personal benefit. Other misfits are ignored or worked around.

Users with a misfit-dominated perception, who mainly assess threats, handle the situation by adopting a *(2) self-preservative disturbance handling strategy*. Because they see insignificant benefit in the PIP, they still stick to the old routines and work around the disturbing misfits with the intent of finding either a solution to cope with or an individual way out of the threatening situation.

If users evaluate the PIP as a clear opportunity and simultaneously feel control over the situation, they are especially aware of the ambivalence between the perceived fits and misfits and the dependencies among the perceptions. Therefore, these users try to get control over the benefit that the fits provide and simultaneously solve the harmful misfits to improve the overall process. In doing so, they follow a *(3) benefits maximizing strategy*.

Unconcerned or disinterested users feel a low level of control, so they see no real benefit in the few perceived fits the PIP brings about and therefore stay passive. They adapt to the new routines only minimally without personal effort, arrange or work around misfits, and wait for them to be solved by others. They choose a *(4) passive benefits satisficing strategy*.

The ambivalent perceptions and appraisals, shown as an essential contribution to existing ES implementation literature, were the trigger to compare the four behavioral reaction strategies with the *actor responses to ambivalence in organizations* presented by Ashforth et al. (2014). Interestingly, all the observed behavioral reactions explicitly match a specific ambivalence response pattern (see Table 33).

Archetype User	**Behavioral Reaction to P2P**	**Associated Action Response to Ambivalence in Organizations** (Ashforth et al. 2014)
Solution Provider	**Benefits Maximizing**	**Holism**
Passive Beneficiary	**Passive Benefits Satisficing**	**Compromise**
Self-Optimizer	**Active Benefits Satisficing**	**Domination**
Surrendering Quitter	**Self-Preservative Disturbance Handling**	**Domination**

Table 33: Behavioral Reaction vs. Associated Action Response to Ambivalence

Benefits maximizing is closely associated with *holism*. “Holism involves the complete, simultaneous, and typically conscious acceptance of both opposing orientations” (Ashforth et al. 2014, p. 1465). Our findings show that these users proceed in a very proactive manner, consciously aware of their opposing orientations, and are willing to embrace complexity. Their mindfulness clearly facilitates actions that address the misfits so that fits and misfits can better be harmonized. These users are acknowledged to actively respond to both fits and misfits, not just focus on one of them (as in domination, explained below).

Passive benefits satisficing is comparable to approaching ambivalence with *compromise*. Users acknowledge “the simultaneous existence of the orientations and recognize the desirability of partially honoring each” (Ashforth et al. 2014, p. 1464). These users are shown to moderately focus on both fits and misfits.

Active benefits satisficing and self-preservative disturbance handling is characterized by *domination*. Domination is defined as a defense mechanism and/or coping mechanism through which actors bolster one orientation so that it overwhelms the other (Ashforth et al. 2014). The study’s results confirm that users who follow an active benefits satisficing strategy, consciously ignore or downplay the importance of the negative orientations (misfits), while those who a follow self-preservative disturbance handling strategy exaggerate the negative orientations towards the PIP.

6.1.3 How Different Outcomes of User Satisfaction Can Be Explained

The users responded to the fits and misfits they experienced during the PIP P2P with an individual level of satisfaction: they felt satisfied, dissatisfied, or indifferent. By finding an explanation for the different outcomes of user satisfaction, the comparison of the individual fit and misfit perceptions with user satisfaction (see Table 32) reveals inconsistencies that we speci-

fied as the *"fit/misfit perception-satisfaction paradox"*: users who perceive considerably more fits than misfits are not always satisfied, and those who perceive more misfits than fits are not always dissatisfied as expected, based on existing literature (Dalal et al. 2004; Hong and Kim 2002; Scheer and Habermann 2000; Seddon et al. 2010; Soh et al. 2000; Soh and Sia 2005; Soh et al. 2003; Somers and Nelson 2003). This paradoxical finding can only be explained by taking an overarching perspective. Users' predominantly mixed perceptions are shown to be only a *starting point* to explain the satisfaction outcome.

The users' attitude towards a PIP (Beaudry and Pinsonneault 2005; 2010) and thus how the users evaluate the fits and misfits (Chin et al. 2014) help to better understand the paradoxical situation. The results presented in Table 32 show that satisfaction is always linked to a fit-dominated perception combined with an opportunity-dominated appraisal. This means that *satisfied users typically perceive a relatively high number of fits compared to misfits and simultaneously assess the PIP as an opportunity*. Similarly, dissatisfaction is always connected to a misfit-dominated perception and a threat-dominated appraisal. In other words, *dissatisfied users always perceive more misfits than fits and assess the PIP as a threat*. These findings are consistent with previous research that repeatedly demonstrated how fit helps users across the organization get their jobs done and, conversely, that misfit causes problems (Dalal et al. 2004; Hong and Kim 2002; Scheer and Habermann 2000; Seddon et al. 2010; Soh et al. 2000; Soh and Sia 2005; Soh et al. 2003; Somers and Nelson 2003). However and very importantly, *the reverse conclusion cannot be drawn*. More specifically, not every user who perceives more (less) fits than misfits and predominantly opportunities (threats) is satisfied (dissatisfied). The reverse conclusion is only valid for users characterized by both a limited level of control and a particular interest in the ES functionality expansion. Therefore, there are combinations where a simple conclusion cannot be drawn and/or where users are neither satisfied

nor dissatisfied. The findings on the appraisals and the evaluation process give greater clarity, but cannot fully explain the paradox.

Fortunately, our findings on the behavioral reactions shed some light on these more complex interrelations. User satisfaction and the consequent behavioral reaction are shown to interact considerably. To be satisfied, the users have to make at least some effort to benefit from favorable fits. Users only adapting minimally and failing to address misfits are either indifferent, if they accept the result, or dissatisfied, if they resist emotionally or resign. Nonetheless, users who are highly motivated to solve misfits are also typically not satisfied. In contrast, if the users find an individual solution to cope with or run away from an unfavorable evaluative assessment, they are no longer dissatisfied. In consequence, the reasons why users are indifferent are extremely diverse and only identifiable by investigating how individuals evaluate fits and misfits and why they behaviorally respond to them in a specific manner.

6.1.4 How Behavioral Reactions and User Satisfaction Are Aligned with Organizational Intent

Due to the fact that PIPs are initiated at an organizational level and are expected to generate company-wide benefit, the alignment of the users' fit/misfit outcomes with the target processes, the goals defined by the project team, and the company's business objectives is essential. The findings summarized in the last two rows of Table 23 show that the consequences of experienced fits and misfits are not always aligned with organizational intent. In particular, the reactions of dissatisfied users are neither in line with the new processes nor with the long-term intent of the organization. Not surprisingly, their very passive self-preservative disturbance handling strategy does not move the system forward or even hinders overall efficiency and performance gains. However, more surprisingly, satisfied users also do not act inevitably

in the interest of the organization. Although they comply with the new routines and maximize their individual efficiency, their benefits satisficing behavior leaves the company in the dark about misfits that the project team did not anticipate or that evolved after implementation. Only by being aware of potentially harmful misfits is the company able to assess the degree of risk and invest in the misfit resolution. For the organization, it is important that users do not follow the new routine blindly. The users also have to employ the new system solution in an efficient manner, not only for themselves, but also across the teams and group-wide. Our findings show evidence that only those users whose summary evaluation contains both favorable fits and unfavorable misfits (and who are typically neither satisfied nor dissatisfied) help the organization to further develop both the system and the processes in the long run. These users can act *wisely*, meaning that they are able to make issues conscious to others and leverage small wins to organize collective action (Ashforth et al. 2014). Therefore, they support less active, but open-minded, actors to adapt quicker and in a more efficient manner, and to profit from solved harmful misfits. However, as long as these users are aware of process steps where adaption can be optimized and misfits that can be solved, they remain not yet satisfied. Under exceptional circumstances, they even deviate from the new routine for a short while. In other words, users' interim deviations from new routines may also be in the interest of the company, as these users maintain the operations in the short term until a long-term improvement is implemented. Therefore, it is important to not only track these process deviations, but also to understand the individual deviation reasons in order to judge whether the users' fit and misfit outcomes are aligned with the long-term organizational intent.

6.2 Four User Archetypes and Their Fit/Misfit Experience-Outcome Patterns

The data provides evidence for four fit/misfit experience-outcome patterns that are characterized by specific combinations of fit and misfit perceptions, evaluations, adaption behaviors, levels of satisfaction, and divergent outcomes regarding alignment with organizational intent. Each pattern is characterized by an archetype user. The specificities of the archetype users summarized in Table 23 are linked and discussed in the following sections.

(1) Yet Indifferent Active ***Solution Provider***: Our findings show that, in general, if users are characterized by an above-average level of control, they may act as solution providers. These users feel that thy have potential influence through their system know-how, project involvement, or hierarchical position. They perceive both fits and misfits, with a higher number of misfits compared to fits. The PIP is appraised or reappraised as an opportunity and they feel control over the situation. The opportunistic appraisal puts the advantages of the fits within reach and therefore in the center of their evaluation. From their point of view, at least some of the misfits are resolvable and the fits are not yet optimized. Therefore, the perceptions and primary appraisals are subordinated because they feel confident in their ability to further optimize the process. As a consequence, they actively adapt to the new routine implied by the ES with the clear goal of benefiting from the fits through investing personal effort beyond the optimization of their own workflow. As the misfits seem to be resolvable, they have a clear interest in actively eliminate them (if they have the know-how) and/or to address them within the organization (if they feel involved or have the hierarchical power). Although they have a great deal of influence and are able to modify the system, these users are often not satisfied. The reason for this may be found in the ability of those actors to make sense of the totality of fit and misfit and the dependencies. Thereby, the ambivalence they experience is coupled with

a high discomfort that needs time to be reduced. As Ashforth et al. (2014, p. 1469) highlighted, “the effectiveness of holism is often only revealed over time, holism may lead to the actor being perceived as indecisive, inconsistent, or hypocritical, at least in short term.” Our data confirms that solution providers evaluate the potential of the ES as not exhausted yet and expect the system to get even better. Therefore, they are typically indifferent and not satisfied yet. Only if their actions already have a visible impact do they feel satisfied. However, all of them clearly state that, if, at a later date, the expected benefits were realized, they would achieve a state of satisfaction. They mainly act in line with project intentions and their deviations can even be beneficial for the organization. Although these users are not satisfied (yet), they are great assets for the organization to further develop the ES and exploit new opportunities.

(2) *Satisfied* ***Self-Optimizer*****:** These users also see the PIP as an opportunity or they reappraise it as a new opportunity during their usage of the system when they discover unexpected potentials. In contrast to the Solution Providers, they have limited influence and feel low level of control over the situation. All of them perceive more favorable fits than unfavorable misfits. Similar to the Solution Providers, they adapt to the new routines but only optimize their own workflow to maximize their personal benefits. Due to the beneficial evaluation outcome, unfavorable misfits are only addressed if they are connected to a beneficial fit (especially know-how gaps) by seeking support and training to minimize personal harm, but they do not further invest in solving the misfit. In contrast to the solution providers, self-optimizers are satisfied due to their “domination” behavior: they limit their personal effort to adapt to the favorable fits, while unconnected and potentially harmful misfits are avoided. The favorable aspects of the PIP are emphasized, and the negative ones are played down so that the positive aspects outweigh the negative (Ashforth et al. 2014). Although the behavior of this group of users appears to be in line with project intentions, they do not help in exploiting the opportunities of

the ES functionality expansion for the organization; their self-interested behavior regarding misfits represents a potential risk for the organization (e.g., if bad data quality resulting from omitted manual controls due to automation is recognized, but not actively addressed).

(3) Indifferent ***Passive Beneficiary****:* These users have little influence, as they are all characterized by low system know-how, have no important hierarchical position, and were not involved in the project. Simultaneously, they are comparatively uninterested in the consequences of the PIP. Therefore, they perceive few fits and misfits. Due to the fact that they did not really care about the new ES solution before go-live, most of them appraise control to be low only by using the system. The result of their evaluation is more unfavorable than favorable. The benefit resulting from more fit is marginal, and the reduction of misfits would not considerably influence their benefit outcome. Therefore, the users adapt minimally without personal effort investment, as they see no significant benefit in exploiting favorable fits and they simultaneously accept misfits, work around them if inevitable, and wait for them to be solved by others. In summary, such unconscious users who remained uninvolved and disinterested in the PIP seem likely to conclude the evaluation in a state of indifference, feeling neither satisfied nor dissatisfied. Many of the fits and misfits are neither evaluated as favorable nor unfavorable and they also adapt their behavior solely to find a personal compromise. Altogether, they act passively regarding fits and reactively at most misfits with the clear strategy of profiting without investing anything. This finding is congruent to user satisfaction research in the field of consumer experience (e.g. Day 1977; Oliver 2010). They appear to act in line with the project intentions but their behavior might result in inefficiency at the company level.

(4) Dissatisfied ***Surrendering Quitter***: These users perceived the PIP as a threat and had little influence on it. They perceive more unfavorable misfits than favorable fits. Their threats are confirmed with the go-live of the new ES solution and they feel powerless about the whole

situation. As a consequence, potential benefits of fits are neutralized in evaluation and misfits are mostly appraised as harmful. The users react by adapting only minimally and adhering to old routines, which results in inefficient work-around solutions. Although harmful issues are perceived, they are not addressed actively (due to cognitive or mental overload and/or despair). The users try to find a personal solution to cope with the threatening situation. Their resignation leads to dissatisfaction. Only if they have found a personal way out, such as quitting the job or delegating most of their system interaction to others, do they find a way out of dissatisfaction. As the users adapt only where forced by the new processes and the system, the preservation of old routines is harmful for the organization. The resulting inefficiencies and the mental opposition are only solvable with high investment by the company. Additionally, the company risks the users to become frustrated.

Our findings raise the question of whether every user archetype does not act according to a heterogeneously predetermined set of objectives that were lacking to be represented in the FMOC model. However, the detailed examination of the users' aims reveal that *the overarching goal of every user* observed in our study was to *optimize his or her individual workflow*. The solution providers were not recognized as more benevolent regarding the organization than the other user archetypes. They are basically interested in facilitating their own job and seem to act altruistically only at first glance. Because they are able to see the larger context of the PIP, they are aware of many more factors that have both a direct and indirect influence on their own workflow than the other users. They recognize far more interdependencies between fits and misfits among different departments and are therefore aware of the benefits realized by addressing issues outside their direct area of influence that other users are not even able to notice. On the other hand, surrendering quitters are also interested in optimizing their own workflow, but they struggle greatly with the new routines and the adaption to the new processes. By sticking with the old routines, they are convinced that their individual short-term

work efficiency is still better than if they tried to work strictly according to the new process. Due to their threat-determined attitude and the lack of control, they see no benefit in the PIP to make their workflow more efficient in the future. That is why their behavior is passive, not because they have other goals than solution providers or other archetypes. Based on these observations, the user archetypes are not supposed to have heterogeneous goal systems, but are characterized by *heterogeneous ways to optimize their individual workflows*.

6.3 A Critical View on User Satisfaction

The dissertation clearly reflects that satisfaction is only a snapshot in a dynamic PIP. Solution providers may initially be indifferent, but then satisfied a few months later. Surrendering quitters may find a personal way out of the unpleasant situation and may no longer be dissatisfied. Some triggers may call the attention of earlier disinterested passive beneficiaries, converting them to solution providers. Therefore, it is very important to be aware of these possible shifts both in the level of satisfaction and between the patterns over time.

As companies increasingly measure the success of ES modifications or a PIP by inquiring about user satisfaction, the question must be raised whether satisfaction is an adequate indicator for the long-term success of ES modification. Self-optimizers are the users who quickly arrive at a high level of satisfaction, but they do not actively invest in moving the system ahead. They just emphasize favorable aspects and play down negative ones. They adapt almost blindly to the predetermined new process by bypassing potentially harmful misfits. They indeed maximize their own work efficiency, but fail to consider the potentially negative influence of their behavior on other users, teams and the whole company. They neither support the improvement of the organization-ES fit nor help to find and solve harmful misfits. Such self-

interested user behavior is tied to high risks and cannot be in the best interest of a company or in any case be worth pursuing. Therefore, based on our findings, we clearly challenge user satisfaction as an adequate measure for the success of a PIP. On the other hand, this definitely does not suggest that a company should strive for dissatisfaction. Dissatisfied users refuse to even adapt to the new processes. Instead, the *source* of user satisfaction should be crucially questioned. For example, solution providers, who are identified as extremely valuable users, are not satisfied as long as they are aware of process steps where adaption can be optimized or misfits that can be solved.

In summary, instead of measuring the level of satisfaction with a large-scale survey, a company should invest in understanding more deeply why certain user groups arrive at a specific level of satisfaction. Our four identified user archetypes are an excellent starting point for such an analysis and may help to take appropriate measures at the user level to increase the success of a PIP.

6.4 Theoretical Implications

The FMEO model as well as the four fit/misfit experience-outcome patterns make a number of contributions to research. First, they support the misfit categories elaborated by Strong and Volkoff (2010) and confirm their applicability for PIPs. Furthermore, the Strong and Volkoff (2010) framework on misfit dimensions is extended by evaluating not only misfits but also the totality of fits and misfits by putting Maurer et al.'s (2012) proposed approach into action. Only by observing both fits and misfits does it become evident that most of the users actually simultaneously perceive fit and misfit. This reflects that the one-sided observation of only misfits falls short of the mark because those mixed perceptions and the interdependencies be-

tween fits and misfits are not visible. A holistic view on fit/misfit perceptions is important to understand the users' reactions and handling of the situation and challenge them regarding their alignment with organizational intent. Therefore, this study makes a valuable contribution to a better comprehension of the heterogeneous user-specific fit experiences.

Second, by analyzing organization-ES fit as the totality of fit and misfit, a close connection to organizational research on ambivalence (Ashforth et al. 2014) is discovered. Due to the fact that most users perceive both fits and misfits and are torn between them, the average users' ambivalence is observed to be intense and acknowledged as playing a crucial role. By taking a closer look at the archetype users' reactions, three of the four ambivalence response strategies (holism, domination and compromise) were recovered. This is the first known study that specifically highlights and analyzes ambivalence in the context of organization-ES fit.

Third, the four fit/misfit experience-outcome patterns might help to shed some light on how users' fit perception, evaluation and behavioral reaction are associated with user satisfaction and how they are aligned with organizational intent. The examination of these chains of evidence expands Beaudry and Pinsonneault's (2005) CMUA by combining the appraisals with the fit/misfit perceptions and by considering the coping behavior in the interplay with satisfaction and organizational intent. The dissertation also contributes to the authors' following paper (Beaudry and Pinsonneault 2010), which explores how users' emotions arising during the appraisal process of an implementation affect IT use. The direct and indirect linkages between appraisals and IT use are concretized and embedded in the context of fit and misfit perceptions, evaluations and consequences.

Fourth, we found evidence for the importance of the evaluative component to explain user satisfaction in PIPs, as premised by Chin et al. (2014). The users are shown to make sense of their perception by attaching valence to every perceived fit and misfit. The users' individual

evaluation of ES fit and misfit and the heterogeneity in sensemaking has not been investigated in the ES fit literature so far.

Fifth, we also found evidence for variation within and across individuals' post adoptive behavior and its influence at the organizational level, as presumed by Jasperson et al. (2005). Our study supports the statement of the authors that without investing in the understanding of users' individual cognitions and behaviors, "it is unlikely that organizations will realize significant improvements in their capability to manage the post-adoptive life cycle. […] the capability of organizations to fully leverage their current (and future) investments in installed IT are inextricably bound to the collective knowledge that exists regarding post-adoptive behaviors" (Jasperson et al. 2005, p. 549). Our data confirms that each individual exposes a unique pattern of post-adoptive behavior and also indicates an evolution over time of individual post-adoptive behavior. As suggested by the authors, we illuminate the relationships between adaption that occur at the individual level and the macro-behavioral outcomes at the organizational level.

Sixth, the dissertation adds a critical stance to the study on user satisfaction by contrasting it with organizational intent. Our study highlights a paradoxical relationship between user satisfaction and the implications of user behavior for the organization. Satisfied users can be harmful and indifferent users can be highly beneficial for an organization, depending on how they behaviorally respond to perceived and evaluated fits and misfits of ES functionality expansions. Satisfaction has to be considered within an overall context by keeping its heterogeneous causality and users' different satisfaction benchmarks in perspective.

6.5 Practical Implications

In addition to the implications for research outlined in the previous section, the results of this dissertation also bear a number of important implications for managerial practice. The fundamental contribution of this research to practice is to highlight inappropriateness of user satisfaction as a reliable indication for the success of a PIP. One of the most essential reasons is the finding that not every fit is perceived as favorable (e.g., if it is connected with higher monotony) and not every misfit as unfavorable (e.g., if it saves the user's job). Hence, this research demonstrates the need for managers to understand how users perceive and evaluate fits and misfits and behaviorally respond to them. Only with this deeper knowledge are managers able to take the right actions to reduce the harm of (potential) misfits and help users to adapt optimally to the new routines in order to achieve PIP success.

The evaluation of fits and misfits is considerably influenced by the users' assessment of the PIP's consequences and their ability to handle possible challenges. Therefore, the FMEO model deepens the implications on management of IT-induced changes presented by Beaudry and Pinsonneault (2005; 2010). It helps managers to proactively manage PIPs in anticipation periods, before the modified system solution is implemented, but also after go-live. To reduce unfavorable user reactions, opportunities have to be visible but also realizable. To maximize alignment with organizational intent, the organization needs to reduce the threats users connect to the system and enhance system know-how along with the influence the users feel that they have. Therefore, it is very important to recognize that hiding misfits or playing down negative consequences is counterproductive. It leads to unfavorable overestimation and self-optimizing behavior. The possible organizational activities to prevent this include providing individually adjusted user training sessions and support, addressing the consequences of the PIP to enhance the understanding and reduce both risks and threats, mentoring, or temporarily

reducing individual performance or productivity targets (to ease the burden of threatened users with a lack of control). Our data indicates that users who feel individually understood and supported commit themselves to the organizational intent. Additionally, managers have to pay attention to monotony that fits may create at an individual level when processes are perfectly harmonized and standardized (Zuboff 1988). The organization may counteract the risk of losing good employees by enriching the users' job to compensate for monotony. In our study, one of the accounts payable employees, whose job became considerably more monotonous with P2P, had the opportunity to take over the role as apprentice trainer, which he appreciated very much. A key role of managers is to offer a platform for the users to share and discuss their assessments and experiences amongst each other, but also with the project team and the management. Therefore, management has to have confidence in the users and take their concerns seriously.

Furthermore, the dissertation indicates that users' perceptions, evaluations, behavioral reactions and satisfaction are very heterogeneous and vary from one individual to another. This is contrary to the homogenization and standardization aim of an ES, generally, and a PIP, specifically. For an organization it is essential to find the right balance between pushing standards and considering the users' individual ways of dealing with the consequences of a PIP. The four user archetypes developed in this study can be of valuable use for the organization to choose appropriate management approaches. Basically, the organization has two options to actively handle the archetypes: either it tries to create the ideal environment for the specific user archetypes or to shifts the users from one archetype to a more desired or required one. However, not every option is equally appropriate for every user type. Solution providers are highly beneficial for organizations, especially when they are not satisfied yet. The organization needs to keep alive and foster this creative tension (Ashforth et al. 2014), where the users actively address fits and misfits. Therefore, an intense dialogue with this user group and ac-

tive support is necessary. From an organizational point of view, this is a high investment, but pays off in the long run. On the other hand, not every user has the necessary qualifications to act as a solution provider. This is not a problem, as long as there are at least some in the whole population who are able to think ahead, uncover and address inefficiencies, and resolve misfits. They help other users to work more efficiently and become aware of risks. The passive beneficiaries wait for support not only from the solution providers, but also from the organization. To create the optimum environment for passive beneficiaries, managers should proactively provide them with instruments that allow them to straightforwardly benefit from the fits. This might include individual training or Q&A sessions after go-live, user guides, and/or on-site support (e.g., by a solution provider). Because these users are disinterested, combined with a low level of control, this effort is important to prevent them from becoming threatened and dissatisfied. On the other hand, it would be a very difficult endeavor to motivate and enable the low-involved passive beneficiaries to act as solution providers. Self-optimizers are a real challenge to manage. They initially seem to be ideal users, as they adapt to the new routines quickly and do not complain. In addition, their individual work efficiency is high and they are satisfied. There is a high probability of overlooking the group's inherent risks, the consequences of which may only become apparent in the distant future. Only by being aware of self-optimizing behavior is management able to minimize the potential risk. It is therefore important for a company to identify self-optimizers by proactively sensitizing the direct line managers or solution providers within the team. They are close enough to uncover and monitor potentially harmful activities. It also might help, but only to a certain extent, to call their attention to the negative consequences of their behavior. To reduce the harm of surrendering quitters, which is caused by sticking to the old routines, inefficiently working around or even preserving misfits, and by negatively influence team members, the organization has to decide whether or not an intense effort to motivate and train these users is worth-

while. By taking on the extra effort, the organization has the chance to benefit from the profound examination of the critical issues or misfits that the users fear or struggle with. In all cases, it is a bad choice to simply accept their attitude and behavior without taking action or wait for them to find a solution themselves. During this period of time, they can cause a great deal of damage and hinder other users in adapting to the modified system solution and the expanded functionality. In addition, it gets much harder for the management to identify these users once they have somehow arranged with the situation, because afterwards they are not dissatisfied anymore and can no longer be kept apart from other user types. In a case where the expenses are estimated as being too high for some users, managers should actively approach them to find a mutually acceptable solution at an early stage.

6.6 Study Limitations

This dissertation has limitations that should be acknowledged. First, we studied only one organization and one ES, which may limit generalization to other organizations and ES packages. Evidence from our observation in another company with another ES suggests, however, that other companies with other systems also face the fit/misfit perception-satisfaction paradox in PIPs and their users also perceive, evaluate, and behaviorally respond to fits and misfits very differently. Second, the retrospective nature of the interviews with the procurement and front office departments might have left room for a recall bias from the respondents. Despite careful attention to this issue, it is possible that some of these users recalled their appraisals incompletely or in a distorted way. On the other hand, we attached high importance to the ideal interview timing. It was essential that the interviews were not conducted too long after the go-live, so the users still recalled their interaction with the old system solution, but also not too early, so teething troubles did not distort the picture. Third, it is important to em-

phasize that the perceptions, evaluations, the behavioral reactions and satisfaction are individual snapshots from three to four months after system go-live. They may have changed over time. We tried to include these shifts whenever a user mentioned them, but we cannot guarantee that the users addressed all changes, especially the ones they might have experienced unconsciously or misremembered.

6.7 Future Research

This dissertation suggests three main avenues for future research. First, more research is needed to further explore, test and refine the FMEO model with different users and systems. Also, more work needs to be done to further understand the effects of certain social factors. Our findings suggest that every user archetype acts according to a heterogeneously predetermined set of objectives. The organization seems to be limited in influencing such a value system that is so deeply rooted in the users' heads. Furthermore, monotony seems to be an essential reason why users do not evaluate fits as favorable. On the other hand, misfits are seen as opportunities to enrich the job or increase variety. The investigation of these social aspects that were already highlighted by Zuboff (1988) would help to even better understand users' fit and misfit evaluation process. Second, our study offers a snapshot of the users' perceptions, behavioral reactions and levels of satisfaction. The findings suggest that the factors may change over time for a number of reasons, including individual behavior, external triggers, or personal decisions. It might be very interesting to analyze those specific changes over time. Longitudinal studies are thus required to examine shifts in the fit/misfit experience-outcome patterns in depth. Third, the mixed perceptions of fit and misfit, the interdependencies between fits and misfits and the ambivalence in the assessment of the consequences of a PIP provide a starting point to further examine ambivalence in the context of Org-ES fit.

7 Conclusion

In conclusion, this dissertation analyzes fit in the context of ES PIPs at a user level. The main finding of the study is four archetype users, each of which is characterized by a specific fit/misfit experience-outcome pattern. The four archetype users differ in user satisfaction and in the alignment of their fit/misfit outcome with organizational intent. *Solution Providers* behave very actively and in the overall interest of the company, but are not satisfied yet. *Self-Optimizers* are satisfied due to their explicit focus on beneficial fits and their disregard of harmful misfits, but such a strategy is not valuable for the organization. *Passive Beneficiaries* are affected slightly by the changes and wait for fits to be exploited and misfits to be solved by others. They are neither satisfied nor dissatisfied, and work according to the processes defined by the organization, but not efficiently (yet). *Surrendering Quitters* fear the consequences of the PIP and feel helpless, so they see no real value in adapting to the new routine. As long as they do not have a solution for their unpleasant situation, they are dissatisfied and act as an encumbrance to the organization. The in-depth analysis of the archetype users and the fit/misfit experience-outcome patterns show that satisfied users are not always beneficial for the organization.

The underlying FMEO model additionally allows for a better understanding of how users generally perceive fit and misfit, how they evaluate these perceptions, and how they behaviorally react. The findings show that heterogeneity is high. Not every user perceives an equal number of fits and misfits. For some of the users, the consequences of the PIP are threatening, while others notice opportunities and feel that they have the system under control. As a consequence, a perceived fit or misfit can be evaluated differently by different users and does not always have to be favorable or unfavorable, respectively. Most of the users are ambivalent in

their evaluation of the perceptions, meaning that they have mixed feelings and are torn between the fits and misfit, but they differ in their intensity and awareness of the ambivalence. To handle the consequences of the PIP and the experienced mixed feelings, the users chose a specific behavioral reaction to make themselves more comfortable with the situation and re-optimize their workflow.

The four archetype users, as well as the FMEO model, indicate that users cannot be treated as a homogenous mass to understand whether fit is beneficial at the organizational level. Researchers and organizations are advised to contrast organizational fit with individual fit perceptions, the sensemaking, and the reactions to the individually perceived fit. Only by making this effort can the right conclusions regarding long-term success of an ES be drawn and adequate management strategies can be elaborated for specific user groups. Not every managerial or communicational instrument is equally appropriate for every user type. Being aware of the user archetypes' specificities can help improve the ES with a minimum of wastage. Therefore, a high user satisfaction may not always be the appropriate indication for the success of an ES and a PIP.

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Appendix I: Interplay among Fits and Misfits

Interplay Type	Examples
End-user specific Fit-Misfit Interplay[16] (within a category)	The whole work preparation process is faster and fewer capacities are tied up due to the fact that the invoices are not labeled and validated manually anymore (AP1's **functionality fit**). But the work steps after accelerated invoice preparation and validation are more time-consuming now (AP1's **functionality misfit**). ➔ **a functionality fit leads to a functionality misfit** A more flexible definition of the responsibilities of a role can balance the workload within a team (AP2's **role fit**) but may lead to situations where the end-users are over-challenged because these in-depth roles need more understanding and knowledge (AP2's **role misfit**). If the people are not able to handle these challenges, more mistakes are produced and transferred. In the end, other departments are confronted with a higher workload by checking with other end-users, inquiring and correcting mistakes. ➔ **a role fit leads to a role misfit**

[16] Interplays between two fits or two misfits of the same category are not possible due to the mutually exclusive definition of different fits or misfits within the same category regarding one end-user.

End-user specific Fit Interplay (across categories)	The work of all employees of the purchasing department is inter-divisionally consistent now. The advantage is that everybody has to think about the process and deputies have to be defined and instructed. In the past, everybody worked as he or she liked it and to the best of knowledge but absolutely not coordinated (PU3's **role fit**). Anomatous behavior is visible in the system due to the fact that it monitors all changes by tracking the date and the name of the editor (PU3's **control fit**). ➔ **a control fit strengthens a role fit** With the new ES supported approval strategy the way the procurement process is executed enhances efficiency and time can be saved at the end of the process (PJ6's **functionality fit**). Since the purchase orders now have to be authorized, generally no second approval is necessary due to the control mechanisms embedded in the ES that automatically process the invoices matching a purchase order. (PJ6's **control fit**). ➔ **a control fit strengthens a functionality fit**

End-user specific Misfit Interplay (across categories)	Due to the new process definition incorrectly recorded invoices are not detected at the beginning of the process but only if it is already too late. These invoices have to be canceled and sent through the whole process again. A lot of time is lost (AP1's **functionality misfit).** If an invoice value is in accordance with the order price, the system automatically triggers the payment regardless of whether the amount is correct. In cases of an error great effort has to be made to reverse the invoice and re-enter data again (AP1's **control misfit**). ➔ **a control misfit strengthens a functionality misfit** Home-working contracts are not generally possible anymore (**AP5's organizational culture misfit**) as work efficiency is much more difficult to monitor (AP5's **control misfit**). ➔ **a control misfit strengthens an organizational culture misfit** There is no priority data recorded by the ES anymore (AP3's **data misfit**) so that extracting information regarding priority is much less user-friendly, scrolling and much more clicks are necessary (AP3's **usability misfit**) ➔ **a data misfit strengthens a usability misfit** The workflow of the purchasers is more dependent on other people (PU 1's **functionality misfit**). Since the reviewer matrix is a cascade and the authority to review purchase orders is therefore assigned to only few team heads, the new role assignment results in bottleneck situations as purchase orders of expensive projects all need to be signed by project team heads or even the department leader (PU1's **role misfit**). ➔ **a role misfit strengthens a functionality misfit**

End-user specific Fit-Misfit Interplay (across categories)	The responsibilities regarding purchase order reviews are clearly assigned (PU6's **role fit**) but due to the new approval strategy the purchasing process is interrupted for about three days and therefore the process duration is extended (PU6's **functionality misfit**). ➔ **a role fit leads to a functionality misfit** Generally, less system transactions are needed to search the ES to find certain invoices or suppliers (AP4's **usability fit**). Since there are no options available to prioritize invoices and to keep new and rejected invoices apart, much more searches have to be run (AP4's **data misfits**). ➔ **a usability fit diminishes data misfits (and vice versa)**

Interplay Type	Examples
Cross-divisional Fit Interplay (within a category)	With the project manager's double-check of the purchase order there is an additional quality check of the purchasers' data entries (PU3's **control fit**). It is more appropriate to review the purchase orders substantively early in the process to avoid mistakes (PJ6's **control fit**). ➔ **two control fits, one perceived by a purchaser the other one by a project manager, strengthen each other**
Cross-divisional Misfit Interplay (within a category)	If the people fail to have the necessary know-how and the skills to fulfill their new role (AP2's **role misfit**), more mistakes are produced and transferred. As a consequence, other departments, which suffer from the lack of knowledge and process understanding, are confronted with a higher workload. (PJ2's **role misfit**). ➔ **a role misfit perceived by a accounts payable end-user leads to a role misfit perceived by a purchaser**
Cross-divisional Fit-Misfit Interplay (within a category)	Due to the clearly defined roles in the ES, the authorities assigned match better the responsibilities and are more consistent with the skills. (PU6's **role fit**). But due to the constriction of some support roles, work is transferred to the purchasing department. This leads to imbalances in the workload of the purchasers (PJ1's **role misfit**) ➔ **A role fit perceived by a purchaser strengthens a role misfit perceived by a project manager (and vice versa)**

Cross-divisional Fit Interplay (across categories)	The overall data quality of the purchase orders has increased because the data have to be entered in a proper quality right at the beginning of the purchasing process (PU4's **data fit**). Properly entered order data lead to workflow effectivity and efficiency as the related invoices are processed automatically (PJ6's **functionality fit**). ➔ **a data fit perceived by a purchaser strengthens a functionality fit perceived by a project leader**
Cross-divisional Misfit Interplay (across categories)	With the project manager's double-check of the purchase order there is an additional quality check of the purchasers' data entries (PU3's **control fit**). But the additional review work at the beginning of the procurement process makes the project manager's workflow less efficient (PJ6's **functionality misfit**). ➔ **A control fit perceived by a purchaser leads to a functionality misfit perceived by a project manager (and vice versa)**
Cross-divisional Fit-Misfit Interplay (across categories)	The invoice validation process is more efficient as data is transferred automatically, not every number has to be typed in manually anymore and only four mandatory fields have to be checked (AP2's **functionality fit**). Due to the higher automation the purchase orders and invoices that project managers receive to approve contain more inaccuracies than in the past (PJ5's **control misfit**). ➔ **a functionality fit of a accounts payable end-user leads to a control misfit perceived by a project manager**

Appendix II: Mini Cases

End-User AP1

Appraisal

AP1 was well briefed about P2P and knew what was likely to be expected of the new system solution due to his involvement in the project and his role as power user of the accounts payable team. As a consequence, his primary appraisal was very balanced: he did not see clear opportunities or clear threats but was rather realistic. Due his project involvement he was already aware of the benefits of the new system on which he concentrated. However, he was skeptical but not threatened in a positive manner by noticing that it would have been an illusion to expect major changes.

> "Either you can turn upside down, which is no solution in the long run, or you can just accept and try to cope and work with the advantages that are certainly present with the new P2P system. That's why I think the acceptance is there and certainly also some curiosity which is good."

AP1 stated that he as a power user had control over the new technology due to his system know-how and was also willing to help other team members to get control too. But regarding the adaption behavior they in the end had to accept the new system as well as the new work processes as defined by the project team.

Fit/Misfit Perception

From AP1's point of view the way processes are executed using the new ES integration solution leads to enhanced automation and therefore to an essential improvement in efficiency and effectiveness. Besides these functionality fits he also perceives a better match between the ES

solution and his role: by handling all the incoming invoices via an invoice pool the imbalances in the workload that were leading to bottlenecks and idle time are reduced significantly. On the other hand, P2P implicates some new mismatches for AP1 at a functionality, role, control and organizational culture level. The two main issues he raises are first, efficiency losses due to intensified dependencies on other people who are not aware of their new role and the cultural changes and, second, quality issues as well as delays due to automatically processed faulty invoices.

(Mis)fit Type	Description
Functionality Fit	The whole work preparation (AVOR) process is faster and fewer capacities are tied up due to the fact that the invoices must not be labeled and validated manually anymore.
Functionality Fit	Purchase order numbers that are not noted on the invoice can be completed in SAP. Before, these invoices had to be scanned again.
Functionality Misfit	The work steps after the accelerated invoice preparation and validation are more time-consuming now. Incorrectly recorded invoices are not detected at the beginning of the process but only very late. These invoices have to be canceled and sent through the whole process again. A lot of time is lost. In the past, most of these invoices were detected and corrected manually before the system generated an invoice number.
Data Misfit	Invoice numbers separated by spaces are not read correctly by the validation software.
Role Fit	Invoices are handled via an overall pool. There are no departments or types of invoices assigned to pre-defined accounts payable employees anymore. Work is shared and the work load is much better balanced now.
Role Misfit	The approvers are not aware of their role change and especially their increased responsibility. There is a lack of process understanding that generates additional work.
Control Misfit	If the invoice value is in accordance with the order price, the system automatically triggers the payment regardless of whether the amount is correct. In cases of an error great effort has to be made to reverse

	the invoice and re-enter data again. In the past, every invoice was manually checked during validation and data quality was verified.
Organizational Culture Misfit	The intended shift in work philosophy had not yet happened in the line managers' minds: instead of an in-depth assessment of every purchase order they still have the attitude of "I just trust the data entered in the system as I am able to correct mistakes later". As a result, the end-users' data entries are faultier with the consequence that manually performed corrections are necessary.

Fit/Misfit Evaluation and Balance

AP1's evaluation is characterized by a very differentiated problem-focused approach as he is highly involved in the project as power user of the team that gives him a noticeable lead in knowledge. The fits and misfits AP1 perceives are in strong accordance with the anticipated potential consequences. He was looking forward to the implementation of the new ES solution with a reserved confidence having control over the ES but by being limited in his actions due to dependencies on other teams and project/company decisions. His appraisals as well as his fit/misfit evaluation are mainly problem-focused and characterized by foresight. Therefore, quite some of the potential benefits of the fits are neutralized. For example, the advantage of the functionality fit is not visible yet as AP1 is more dependent on other people now who are not aware of their new reviewer role (connected role misfit): *"I wouldn't say that we are more efficient now. I think it will take time […] until everyone involved has reached a 60% to 70 % level of understanding."* He also highlights the quality risks coming along with automation and with an insufficient process understanding of other end-users. As a consequence, the role fit has negative implications and is not perceived as favorable:

> "Before, we all had our own area of work. Everyone had his own department. He knew the people in the department and knew exactly how and which account and assignment to use if person A received an invoice. Now, everyone is doing everything. Basically, this idea makes sense. But there was neither an exchange of ideas nor information. We

> were just thrown in at the deep end. We were just told to start. The result was pretty much what I expected. It was […] chaos at the beginning, because everyone could do everything."

On the other hand, AP1 does not consider the harm done by the role misfit to be very severe as he is convinced that the misfit is resolvable: *"This is indeed comprehensible. The question is how we deal with it."*

In summary, AP1 is clearly aware of the dependencies between fits and misfits. Some benefits are generated only at the expense of some new misfits: *"It's certainly more automated. But I dare to doubt that it is more reliable or efficient now."* But he realizes a high potential of getting benefits from resolved misfits as they are connected to favorable fits.

Behavioral Reaction and Individual Overall Satisfaction

Although he does not see performance improvements due to the neutralized functionality fit yet, he is optimistic that his commitment can influence the future development positively (despite the constraints he has to accept). AP1 is therefore a very active end-user. His role as power user helps him to discuss problems directly with the IT department or the project team. He supports the line managers by answering questions and assisting them, and helps out in his own team doing tasks that were originally not assigned to him. He invests in resolving the role misfit across his own area of work, because he knows about its connections to the beneficial fits: *"At some point I just called and told them that there is a field to change the type of receipt. That works pretty well."* In his role as super user he supports his own team as well as people from all the other departments:

> "Many people ask me [for help]. It's not as bad […] as it was in the beginning. At that time we received many requests from all the offices. At some point I was completely annoyed. I don't mind explaining [things], but not the same thing three times. The collaboration with IT has been great. I know the employees there and I call them if necessary. I always get responses very quickly."

In doing so he tries to minimize the misfits over which he has influence, especially the role and organizational culture misfits. Simultaneously, he reluctantly accepts the misfits resulting from the higher standardization and automation by showing emotions and pointing at the risks. But he knows that he has no influence on the decisions already taken. To overcome these resentments he focuses on the advantage of the opportunities of the system and helps to ensure future progress of the ES. AP1 even switches back to old routines to keep up the processes that are not well defined yet:

> "According to the definition, I am doing tasks that I actually don't need to do. But I know if I don't do them […], for example, [opening and distributing] the mail [then they won't get done]. According to the definition I am not supposed to do that anymore […]. But I still do it."

Thereby, he violates the intentions of the project team by working around misfits but as he simultaneously invests in a long-term resolution of those misfits this diverging behavior is in the interest of the whole company.

As a consequence of his actions and the very balanced and problem-focused evaluation of the fits and misfits together with the expectations reappraised as realistic, AP1 is not satisfied (yet):

> "It is hard to tell, whether it has become better now. This question can only be answered with a 'yes' or 'no'. I would say that it's different now. There are different priorities [now]; the focus is on automation and speed. In terms of quality I don't see any improvements at the moment. The question is how we define efficiency. Is efficiency defined as speed or quality? That's why I think that one cannot say whether it has become better or worse."

He points out that adaption still needs time in order to benefit from the fits:

> "I've seen the process […] when not much was present yet. At that time, it [the system] was at the development stage and testing phase. Compared to that, the system is capable of facilitating our day-to-day work or at least of not complicating it. […] Personally, I can handle the system. Many aspects [that are] not working at the moment are of an organizational nature."

End-User AP2

Appraisal

AP2 assessed positive as well as negative consequences of P2P. On the one hand, he experienced the new system as a chance to improve his work efficiency; especially as an opportunity to get his work done faster and go home earlier in the evening. On the other hand, he was afraid of being more dependent on other people due to the new approval process and, therefore, of losing his efficiency gains. AP2 felt to have control over the situation, especially with regard to the information he got and his ability of learning to use a system. Only after the go-live he admits that he overestimated his level of control.

Fit/Misfit Perception

After the system go-live, AP2 clearly perceives functionality fits. The ways processes are executed and, especially, the validation process and the invoice handling lead to enhanced efficiency so that he is faster in doing his job. Nonetheless, he also notices mismatches between the new ES solution and his workflow. There is much more search effort needed to find unlabeled invoices (usability misfit) and there is a higher risk of faulty invoices not being recognized during the validation process (control misfit). Furthermore, his role was extended to an accountant role although he lacks the necessary accounting know-how. In addition, most of the line managers he deals with are not aware of his role change, which leads to a confusion regarding the assigned responsibilities.

(Mis)fit Type	Description
Functionality Fit	The invoice validation process is much easier, faster and more focused. Data is transferred automatically, not every number has to be typed in manually anymore and only four mandatory fields have to be

	checked.
Functionality Fit	The invoice type can be changed directly in SAP now. In the past, the end-user had to print it out, delete and scan it again.
Usability Fit	Validation was simplified: instead of typing names and numbers, mouse clicks on the invoice data are sufficient to fill out the mandatory fields.
Usability Fit	After entering the e-mail address of the reviewer, the invoice is sent to this person automatically. In the past, every invoice had to be sent out of SAP manually every evening.
Usability Misfit	Invoices with a missing order number are not shown in the new workflow overview and, if nobody is searching explicitly for these invoices, they are not paid and delays are resulting.
Role Fit	Validation activities, necessary if invoices are not able to be validated automatically, are clearly assigned to two specific end-users.
Role Misfit	The end-user's role was extended to an accountant role. But the end user lacks the required accounting know-how.
Role Misfit	The line managers are not informed about the role changes in the accounts payable department. So they are still doing things that are actually assigned to the end-user's field of responsibility now.
Control Misfit	Invoice data is error-prone as the invoices are not labeled and stamped manually anymore.

Fit/Misfit Evaluation

The fit and misfit perception shows that the new system solution came up to his positive expectations regarding efficiency. In the course of the conducted interviews the researcher got the impression that these efficiency benefits are extremely important for AP2 and seem to be overweighted. This impression is confirmed by several statements where AP2 talks about the new system solution making the process easier and letting him do his job much faster. Re-

garding the misfits perceived, he neglects or downplays the possible negative consequences. As long as he is faster due to the automated validation process, quality issues (control misfit) are not in his line of focus:

> "I think there might be a possibility that mistakes happen that wouldn't [have happen] with labeling and stamping. But I believe that we do not have a case where we got a complaint that it was totally wrong yet. That is why it is alright the way it is, I think."

Behavioral Reaction and Individual Overall Satisfaction

His disinterest in the negative consequences of his actions and in the risks connected to the perceived misfits leads him to focus on the benefits of P2P. As a consequence, he adapts his workflow only in the way to benefit most from the appraised opportunities with the conviction to have control over the new system and the new role.

He chooses an account (sometimes randomly) being well aware of the consequences: if his choice was wrong it would be rejected by the line manager and the invoice would come back to the invoice pool. Due to the fact that the accounts payable employees are handling this pool together, the invoice would not be assigned to him directly again, so his personal efficiency is still optimized:

> "If it was the wrong account, they would reject it and it would come back to us, to our dashboard, and it would have to be done again. But you still would not know which account you have to select. You would just know that the previously chosen [one] was the wrong choice."

AP2 takes his time to familiarize himself with the new ES solution before performing any adaption efforts. Although he recognizes that the handling of the system is not as easy as expected (contrary to his first appraisal) and that he lacks accounting know-how, he does not make any attempt to actively fill the knowledge gaps:

> "P2P has gone live now and at the beginning you had some difficulties because it was something new. You don't know by heart how things work. What bothered me the most was the issue with the accounts. Before, we were not obliged to enter them while posting [the invoices]; and now we have to pick them ourselves from a list. There are many accounts and at the beginning you don't have any idea [what you're doing]; you are sitting in front of these lists and you are thinking: 'Uh, which account might be the [right] one? But now I think that it is just a matter of practice."

He adapts to the new ES solution just as much as he needs to. From his point of view, after all, the system implementation did not change much. By only focusing on his specific work-flow and not thinking outside of his box, he satisfies himself with the benefits the new ES offers at the expense of the negative performance or efficiency outcomes for other team members or departments; he also accepts the faults in the automatically validated invoices:

> "I haven't noticed anything in particular […]. For me nothing really changed. That is why I can't tell what really changed with the automated posting. I actually don't see behind the curtain."

> "You have to concentrate on these four things only. This is much faster; that is why I like the new validation process."

The benefit oriented evaluation together with his behavioral reaction leads to satisfaction after an acclimatization time:

> "At the beginning, at the time it changed, I was not really satisfied […]. But now, actually, I am satisfied and I think it is almost better than before. But I am only able to say so after I worked on it a little bit."

End-User AP3

Appraisal

The consequences of P2P were assessed as multifaceted by AP3. A faster validation process together with a better data quality and less manually preformed work steps were the expected benefits. On the opposite side AP3 feared the organizational restructuring and was therefore

afraid of losing the job: *“However, I'm a bit scared, because then less people are needed.”* One reason for the threats experienced is AP3’s age: the generation 50+ is not flexible in finding another job and AP3 has already gone through a lot of reorganizations in her career. She therefore admitted that *"we, the ones over fifty, are not as open as the young ones towards the whole situation.”*Although AP3 testified that the opportunity of a more efficient workflow prevailed, she was talking much more about her fears and the negative consequences. She tried to persuade herself that the challenges regarding P2P were an opportunity for her. But talking to her left the feeling that she was not really convinced of her own statement. AP3 was just waiting for the new system solution to come with the feeling to have low control over the system usage due to the fact that she did not know how to use the system in which role yet. The doubtfulness is demonstrated by this statement:

> “[The team leader] is not able to tell us how many people are needed in the specific roles […]. Nothing is known yet. Organizationally, we are just in a vacuum.”

Fit/Misfit Perception

AP3 has been working in the team for nine years and therefore knows the processes very well. She is the end-user (out of the ones interviewed) who perceives the highest number of fits and misfits. She sets the focus on many details and explains the changes very profoundly. Due to a better match regarding functionality and usability, manually performed work steps can be avoided, the work with the standard dashboard together with following a standardized process saves time and increases consistency. Additionally, process and system transparency is enhanced. AP3 highlights aspects where usability does not fit with the operation: more clicks and scrolling are necessary to work off the invoices and some of the error messages are not comprehensible. Because of the higher standardization of the system solution the handling of

special cases is much more time-consuming and less efficient; especially due to connected data misfits. Overall, the number of misfits outweighs the fits.

(Mis)fit Type	Description
Functionality Fit	The omission of manual validation saves time and the invoices do not have to be labeled manually anymore.
Functionality Fit	The whole process is handled more consistently in the accounts payable team and inter-interdivisionally.
Functionality Misfit	The posting work step of not automatically handled invoices, for which she is responsible, is more complicated and time-consuming. The new system solution is not laid out for non-standard special cases.
Usability Fit	Work with the integrated dashboard is clearer and less time-consuming.
Data Misfit	As an invoice is datestamped every time someone opens it, filtering according to the invoice date is not helpful anymore.
Data Misfit	If the validation software is not able to read the invoice payment date correctly it is labeled as "payable immediately".
Data Misfit	There is no free text field anymore. In the past, such a field was used to write down the payment priority or the name of the employee who worked on the invoice to mark an assigned special case or to give some additional information.
Data Misfit	Ancillary freight charges are not captured by the validation software. These data have to be entered manually afterwards.
Usability Misfit	The item text is not apparent; the end-user has to click on the purchase order every time to see the details.
Usability Misfit	On the screen, much more scrolling is needed, i.e. there are many rows between the creditor's name/number and the address.
Usability Misfit	Some of the error messages are incomprehensible and confusing.
Usability Misfit	Balance inconsistencies are not visible and evident; they have to be

	checked using the Analytics tool.
Control Fit	Work is more transparent: it is clearly visible who executed which work steps.
Control Misfit	Balance discrepancies are not reported by error messages, therefore the end-user does not know whether the balance of the invoice is consistent with the balance of the purchase order. The result is that some invoices go through the workflow several times until the balances match.

Fit/Misfit Evaluation

Although the expected opportunities came true regarding the more automated and standardized handling of the invoice process, AP3's negative perceptions are stronger. Due to her high anxiety the achieved fits are just accepted in an unimpressed manner and potential benefits are therefore neutralized during evaluation. Even the misfit emerging from the complex handling of special cases is seen positively by AP3: the extra work makes her feel useful and helps save her job.

> "The invoice posting [process] itself is more complex and time-consuming. But there are perhaps more [invoices] that go through automatically. This I can't judge. We still have a lot of invoices, thank God!"

The misfits connected with a perceived loss of control are judged as even more harmful. For example, the option to individually mark invoices by setting priorities or leaving a comment using free text fields gave AP3 autonomy over her job, which is lost in the new environment. Data misfits are also evaluated as clearly unfavorable, especially because AP3 knows every process step in the old workflow and the associated change of these routine is laborious.

Behavioral Reaction and Individual Overall Satisfaction

As the adaption to the new routines is troublesome for AP3, even if she perceives fits, she only reluctantly adapts to the new system solution and processes. She invests no personal effort to exploit potential benefits; she does not refuse to adapt but her adaption efforts are extremely limited. For example, if line managers have questions regarding the new process or the handling of the system she supports them but only with a pitiful attitude. AP3 does not point out the misfits very actively due to the fact that they somehow save her job. She expects them to be noticed and handled by the project team or the IT department. In the meantime, she still uses the old routines to work around misfits.

Simultaneously, she recognizes that the only long-term option to keep her job is to modify her tasks and adapt to the new environment. But she is not able to deal with the situation and she sees no way out:

> "We feel like firefighters. We do what we have to do but we are completely overburdened."

The resulting resignation lets her act very passively by accepting her fate. Instead of actively seeking training, discussing the problems or taking adaption efforts she accuses the project team for the insufficient training. Additionally, the IT department is her scapegoat for still switching to the old system solution:

> "The training session was not sufficient. They refer us to the internet. We do not have time for that."

The resignation reinforced by the passive behavioral reaction and the hopelessness lead to dissatisfaction which is not likely to change in the future:

> "Now it is better than it was in the beginning, but I do not have the feeling that I will ever say that I am only half as satisfied with it."

End-User AP4

Appraisal

AP4 admitted honestly that, at first, he had to force himself to be positively attuned to the change. Upon a closer look he saw the implementation of the new system solution as a clear opportunity to work faster and to improve collaboration with the front office managers by shortening the lines of communication. He only had some doubts regarding undetected faulty invoices that might result in quality and efficiency losses:

> "Certain special cases may be overlooked [...]. If everything runs well it should be faster than it is at the moment. But if a mistake creeps in, many areas are involved in correcting the invoice. I also think it leads to slower processes or delays again, [such as] invoices that are paid too late, if the processes and the interfaces are not precisely coordinated. That is why I'm a bit afraid."

AP4 felt he had control over the situation, in particular with regard to his ability to learn and use the system. The information exchange and mutual support within the team increased his confidence.

> "We support each other. One [person] may know this, [while] someone else may know that and that, is how we complement one another. This is certainly good."

Fit/Misfit Perception

The fits perceived by AP4 are concentrated on functionality and usability aspects of the new system solution. Standardized and automated work process steps together with a more user-friendly system interaction and interface, improve AP4's work efficiency. On the other hand, he also recognizes the downside of the automation: fewer mistakes are recognized in the validation process and as a result more faulty invoices are sent to the line managers and have to be rejected and corrected in an additional work step. Another challenge is the new accountant

role AP4 has to take on. The mismatch between his know-how and the requirements of the new role makes the booking work step more time-consuming. Additionally, minor data and organizational misfits limit the efficiency gains.

(Mis)fit Type	Description
Functionality Fit	The work preparation (AVOR) process is considerably less time-consuming. Manual stamping, labeling and double-checks fall away and only four mandatory fields have to be checked.
Functionality Fit	Validation quality is good.
Data Misfit	An invoice is datestamped every time it is edited in the system. Sorting by the original invoice date is not possible anymore.
Data Misfit	No option available to prioritize the invoices.
Data Misfit	No option is available to keep new and rejected invoices apart.
Usability Fit	The work place has to be changed less often and thereby SAP system log ins and offs are reduced.
Usability Fit	Less system transactions are needed to search SAP.
Role Misfit	The role change towards an accountant is linked with more time and effort needed to do the job.
Control Fit	Inconsistent invoices are rejected by the system and have to be checked again.
Control Misfit	The validation software does not recognize all the inconsistencies the end-user was able to find during manually performed validation. As a result, more invoices are rejected and have to be adjusted later in the process.
Organizational Culture Fit	The new P2P process requires the reviewers to better justify rejections. This has a positive impact on the culture of communication and supports a mutual understanding.

Fit/Misfit Evaluation and Balance

The expected opportunities AP4 highlighted prior to the go-live of P2P came true. The fits are therefore evaluated as favorable by AP4 if they are observed to have a positive influence on his workflow or workload. Only one usability fit is evaluated as unfavorable. In the past, the changes of the work places and work with different computers gave variation to his workflow that is lost due to the harmonized and integrated software solution.

His positive reappraisal of the situation after implementation overrules the whole evaluation process. His positive attitude gives him the chance to reveal new opportunities in perceived fits. Acting as part of the new process and in the new role intensifies the interaction with the other departments and front office managers helps him to better understand their problems and needs. As an additional benefit, the reviewers have to better justify why they reject an invoice and as a result, the overall information quality gets much better:

> "Because we are accountants now, the external substantial and financial reviewers have to better justify why they reject something by using a comment field. We get into a conversation with these people and are able to better understand their problems. For the external people it is easier to understand what problems we are confronted with and vice versa [...]. Since our job enlargement, we have also been exposed to the external project leaders. That is what I find exciting."

Interestingly, even one misfit is evaluated as favorable due to his positive attitude. The role misfit is seen in a positive light as it gives him the opportunity to take on more responsibility and to make a step forward in his career:

> "[...] I receive slightly more responsibility because there is no verification check afterwards; and I am the last one besides the substantive and financial reviewer to take a look at these invoices."

Behavioral Reaction and Individual Overall Satisfaction

AP4 adapts the new routines to maximize the benefits resulting from the favorable fits and to minimize his personal harm of (potentially) unfavorable fits and misfits. One example is the

monotony coming along with the more standardized process. He is aware of this negative side of the functionality fit, but he reorganized his daily workflow including the additional handling of more complicated invoices to make his job more interesting and diverse:

> “Yes, there are people in the team who have less variation now. But it certainly depends on the invoices that are posted. By handling only the normal invoices and not the special ones, the job is less diversified than before. Therefore, I still take responsibility for the old or oldest invoices [...]. As they were rejected first and have to be checked back you do something else automatically. So you can set it up yourself.”

Therefore, he invests time to analyze the situation and is interested in the view of other end-users to find areas for improvement. He initiates and actively participates in a team and cross-department exchange discussing difficulties and problems regarding the new system solution.

> “Because we are a large team we were able to complement one another. When I was not here they arranged smaller meetings to discuss ambiguities. Therefore, it was possible to benefit from each other. With these two aspects together it was no problem at all. I think that the training session was the basis. But I would not have been able to get into it directly after the training because it was still too abstract and I would have needed more time. But, together with the team, it was no problem.”

AP4’s fit/misfit evaluation taking into account the individual appraisal of the situation results in overall satisfaction. His functionality and usability expectations that were exceeded by P2P in particular explain his positive attitude:

> "And then I was well disposed to it and I was also surprised with how well it worked out in the beginning. [Our power user] was in the project team too and I talked to him several times. Shortly before go-live it really didn’t sound good. But afterwards, I was positively surprised with how well everything worked. There were no big system interruptions or anything else. And now, I am really rather satisfied.”

The challenges he encountered, reinforced by his actions to exploit fully the potential of P2P, and invigorate him positively. Because he notices the positive influence of his behavior, he also highlights future potential to be even more satisfied in the long run:

> "I think I am more satisfied than before with P2P because the higher [level of] responsibility we have now is good and important. But some aspects such as, […] the priorities could still be improved."

End-User AP5

Appraisal

AP5's primary appraisal was threat-determined and she also felt to have low control although she has a higher hierarchical position than the other end-users interviewed. The efficiency gains appraised as an opportunity of P2P were counterbalanced by negative expectation of AP5 regarding special cases that would cause extra work and a deterioration of the working environment. She also felt responsible for softening the fears that existed in the team by saying *"I hope I can motivate the people in the team."*

Additionally, she felt to have very low control over the new system and her job. She stated that she did not expect the system to work as she and the team had imagined and that they had a lot of open questions due to missing training possibilities. In addition, she criticized that she was not involved in the project definition more deeply and that she was informed about all the changes only very late in the process. Altogether, she felt alone:

> "The project [team] says that you have to do it accordingly. But how you have to do it, and when, you have to decide for yourself. Unfortunately, that is how it went back and forth with many things."

Fit/Misfit Perception

AP5 only mentions two functionality fits. First, the new scan process, and second, the possibility to change the document category without having to scan the documents again making both the process more efficient. But, on the other hand, she highlights eight misfits limiting these efficiency gains. Usability issues are raised regarding the invoice pool: rejected invoices

are found much later and the problem is increased by having no possibilities to give individual priorities (data misfit) to the invoices anymore. Another aspect is the new accountant role assigned to her and the team that overstrains everybody. Most of them lack the accounting know-how and they were not familiarized and trained accordingly. Additionally, AP5 recognizes control misfits. Invoice information quality is much more difficult to check due to missing error messages and the automated validation. She and her team bear the blame for the higher number of mistakes recognized by the reviewers and for the need to handle the additional work to make the necessary corrections. To make matters worse the new invoice pool complicates the monitoring of the individual work performance.

(Mis)fit Type	Description
Functionality Fit	The invoice type can be changed directly in SAP. In the past, the end-user had to print it out, delete and scan the invoice again.
Functionality Fit	SAP is stable.
Data Misfit	No option is available to prioritize invoices. The end-user has to run searches to find the invoices that have to be paid immediately.
Usability Misfit	If an invoice is rejected it is gets back to the invoice pool and the end-user has to search the whole pool to find it.
Usability Misfit	Some of the error messages are confusing.
Role Misfit	The end user and the whole team are overstrained by the new accountant role. It is difficult for them to choose the right account without having the appropriate know-how.
Control Misfit	No error messages for price differences or wrongly assigned accounts are displayed so SAP allows for sending out an incorrectly recorded invoice. Only the approvers receive these error messages and have to decline and send the invoices back to the accounts payable department.

Control Misfit	The end-user has no chance to check the data quality anymore due to the automatically transferred and recorded invoices. At the end, there is a long error list with the cases where the goods receipt does not match the amount automatically recorded by the system. The end-user and the team bear the blame for these errors.
Control Misfit	Due to the fact that work with the dashboard is a pool solution it is more difficult for the end-user to monitor the working speed and the working amount handled by the employees. The end-user only recognizes that the overall working speed has not increased and suspects that some employees use the pool solution to hide their inactivity.
Organizational Culture Misfit	Home working arrangements, a part of the company's organizational culture, are not possible with the new P2P process.

Fit/Misfit Evaluation

The benefits of the two fits are neutralized during the evaluation especially as a result of the missing control over the system and situation. Considering the whole process and regarding the performance of the whole accounts payable team, the efficiency benefits are (still) not noticeable. She states:

> "We have not noticed any improvement in efficiency yet, or it [is] just not verifiable to me. Definitely, we do not have to print out and scan anymore, and we can change the document type. But regarding the whole organization there is no significant time saved. [...] On the one hand I do not see how many [of the invoices] are processed automatically. I only hear about the success [...]. On the other hand, we have a huge amount and lot of invoices on average. I do not perceive that there are fewer invoices that we have to post ourselves. It is not noticeable yet. I only hear them say that not everything that is posted directly is optimal."

She evaluates all the misfits as unfavorable. In particular, she stresses her perception of missing control and simultaneously uses it as explanation for the inadequate performance of the whole team. She focuses mainly on the negative impact of the misfits on her and the team. The efficiency gains are acknowledged but not seen as real opportunity to make the whole

work process of the accounts payable team faster. She also states that greater involvement in the implementation process would not have changed the negative outcomes:

> "But how it will be dealt with is not known at the moment. If I had been involved earlier I would have called attention to it earlier. But I think that the problems would have been the same. It would not have made any difference. It would have been nice to be aware of some things earlier. But I think the daily handling of the invoices would not have been really different from what it is at the moment."

Behavioral Reaction and Individual Overall Satisfaction

It is sensible that AP5 feels uncomfortable and really lacks the necessary control over the new situation and system. That is why she does not see any point in acting proactively by arranging the system and environment accordingly. Because she fears the consequences of P2P she rather resigns by sticking to the old routines. She adapts only minimally as she sees no benefit in the perceived fits. As a consequence, she is not acting offensively; she stays very passive and acts reactively. Also regarding her own team, she seems to be relieved that they are handling the difficulties themselves with the support of AP1 as a super user:

> "But I only heard from two to three people 'it's enough to make you weep' in the sense of 'it is painful'. But it never resulted in negative energy within the team. They all demonstrate solidarity with one another. Everyone who found out something showed it to the others. The support was good. For us it was definitely positive that [AP1] was involved in the testing; and that is why we had an advantage. I always have to say […] that we all are in the learning process."

In her difficult situation, she denies any wrongdoing of herself and her team. Despite approaching the issue of the misfits by contacting the project and IT team, she is only waiting for them to solve the problems. One example is her expectation regarding reporting*: "I hope that I'll get a tool that makes it possible."* The passivity supports her in shifting the potential blame for the unrealized performance benefits. The following statement shows her strategy of just (unwillingly) accepting the new system configuration where priorities cannot be set indi-

vidually anymore without really trying to adapt the work processes of her team to the new circumstances. She shifts the blame to the project team which did not consider this aspect and waits for them to become aware of their “mistake”:

> “We have to get used to it. We have no other option than to decide on the basis of the terms of payment payable immediately. We also received no input from the credit or debit teams who forced us to prioritize. But I have to admit that we are not able to prioritize. We can only work on the basis of the inputs we get. That is all we can do. The system is not designed to allow prioritization at any time. For us, this is really critical. I think this will likely become an issue sometime in the future."

She also takes the performances issue of her team to prove that the new system solution does not match with the established processes and team organization. Another example of her “wait and see” attitude is illustrated by her explanation related to the automated validation process:

> “We were told to trust the system and to complete data fields only if the signal lights were red. But some time later we were told to check [the data] anyway. Up to the present it was either me or another employee who has been responsible for a wrong invoice. Now, suddenly, [data quality] should be irrelevant if [the invoices are] executed by the system. This is not fine for me. At the beginning you had to review it. At the beginning we were told to complete [things] instead of doing accuracy controls. But now we have to do the controls anyway.”

Altogether, her personal adaption effort is minimal and focused on doing what she is told to. Only one example can be found in the whole interview, where she talks about adapting herself to the new P2P process by simultaneously highlighting the difficulties she has and the time she and the team will still need to get used to the new system solution:

> “I am one of those people who are in the learning process. In the morning I am simply working through the rejected invoices over one to two hours to detect the rejection reasons. I think a lot can be improved there. It happens that people reject [invoices] although they could do [the changes] themselves. It is important that we take the time to call someone to explain it. This just takes time. Sometimes it would be easier to change and resend the invoice ourselves. But you must be careful not to do it too frequently although it would be much easier than explaining it to someone.”

As a result of the benefits that are not visible for AP5 and her passivity in resolving the harmful misfits, she is less satisfied with P2P than with the old system solution. She describes her feelings by comparing the new system solution to a car:

> "It depends on the particular perspective. Basically, I am less satisfied. We were promised a super system of a super car that runs automatically. Now I have a Trabi [i.e. an old electronic car]. I don't know what it is doing anymore. There are no error messages anymore. Sometimes you don't know which [account] you have to assign and you are not able to verify the error messages. In the past, I at least had my VW Polo with a fuel indicator and I knew when the turn signal was on. Now I drive a car that will stop some day without me knowing why."

End-User AP6

Appraisal

AP6 had a very balanced appraisal. He hoped that fewer mistakes would be made with P2P and that work would be done faster: *"It is supposed to be faster, the whole [process]. It is expected to run more smoothly. It needs to be defined more precisely who is responsible for what."* On the other hand he was worried that the opportunities he appraised could result in a higher number of repetitive tasks:

> "So that everybody has only his or her own tasks and has to stick to them. Maybe an automatism that is likely to increase, I'm not sure [...]. If it is always the same, then you are not interested in it anymore. If you are open-minded and you have variety on the job, then it isn't something usual and you keep an eye on it. Generally, monotony would not be great. But I'm not afraid of it."

He also saw a risk of being made redundant due to process automation. He dealt with these feelings by stating that *"It is not as easy. We will wait and see. I'm curious whether it will turn out positively."* AP6 felt that he had great autonomy to organize his job and in handling the new system solution but he still would need more experience to be comfortable with using the system.

Fit/Misfit Perception

The fit and misfits AP6 perceives express the high importance he attaches to the change in his role. Also data and usability issues regarding the handling of the system are highlighted.

(Mis)fit Type	Description
Functionality Fit	Most of the invoices do not have to be validated manually.
Data Misfit	Due to the standardized validation process, no comments can be written on the invoice. If an invoice is a special case it is complicated to work on it without any additional information.
Usability Misfit	The end-user needs to get used to the new screen and experiences interaction as difficult.
Role Misfit	The end-user's role is defined only imprecisely due to the fact that nobody is really responsible for the invoices in the pool. If there is a problem with one invoice and it is getting back to the pool the end-user does not know any details about the original problem and about what has been done already.

Fit/Misfit Evaluation

AP6's appraisal clearly influences his fit and misfit evaluation. As expected, the work with the invoice pool increases the efficiency but his scope of duties got considerably less diversified. He states that *"If you have a look at the workflow, it is rather boring. It is getting monotonous [...] because we do the same [thing] the whole day, really the same."* Although he does his work faster and more flexible, he does not positively value the development. On the other hand, the negative consequences of the misfits are relativized by AP6 due to the fact that he feels to have some control over the situation and is able to adapt to the new processes individually. He is also aware that such a change needs time to adapt.

Behavioral Reaction and Individual Overall Satisfaction

AP6 acts only passively by accepting his fate. He does not actively invest to benefit from the fit as this would result only in monotony. But he also does not actively address this monotony or the unfavorable misfits. His adaption effort can be described as somehow an emotionally active self-preservation strategy. With his "wait and see" attitude he tries to calm himself and the other team members who fear losing their jobs.

> "It is their age they are afraid of. That is how I feel it. They think that they are already too old and that [the company] does not want the old ones anymore that they want the young ones who are cheaper and have better learning ability. And now P2P is coming, a new system, a new screen [...]. You suddenly realize how fast the young ones know how it works. The older ones do not manage it a quarter as well. The fear is probably even legitimate to a certain extent [...]. But I always tell them that they are useful due to their experience."

Although he feels some relief due to the realized fits his feelings are clouded by the unfavorable side of the fit and by the misfits he fails to approach. That is why he reacts with resignation and is therefore not really satisfied with the new system solution:

> "It is the same as before. I was not dissatisfied before. But I do not jump for joy. But I am not dissatisfied. Everything works and the system runs. I trust in the company that they thought about what they did and that it is reasonable. Such a complete makeup needs time. This is natural that it is difficult for people or that they badmouth someone […]. I know people who have worked here for 30 years. Maybe it is not […] easy for them."

End-User PU1

Appraisal

The consequences PU1 evaluated were mainly positive. She saw P2P as an opportunity to work faster and to profit from the improved system solution. Her way to get used to the new system was to try out the new functionalities although she missed the official training session. So she felt to have some control over the new system.

Fit/Misfit Perception

PU1 perceives functionality and control fits. She is relieved that manually performed work steps with excel files are now supported by the system and media breaks are therefore reduced. The content of purchase orders and invoices is of a better quality due to the fact that front office managers have to review the order content and do not have to wait until the invoice is sent. Another fit is the order status that is visible all the time for everyone and increases the process transparency. On the other hand, she is less flexible due to dependencies on the reviewers and their reliability. By automatically choosing the reviewer using a standardized reviewer matrix the system sometimes does not allocate the person who has the adequate know-how to check the order substantively. As a consequence, the order has to be sent back to the purchaser and has to be handled manually which causes extra work and delays. An additional data misfit is noticed in the case of forwarding a purchase order to another department: the system shows a list of all available people instead of only the ones who are responsible.

(Mis)fit Type	Description
Functionality Fit	P2P is relieving the end-user's work burden. Invoices can be sent to the accounts payable department directly via system. In the past, the end-user had to check the Excel spreadsheet with all the deviations and manually add a comment to every "error case" before sending the file back to the accounts payable team to let them handle the changes.
Functionality Misfit	The workflow is dependent on the work of the line managers and how fast they approve the purchase orders. The end-user has to handle a lot of complaints regarding late deliveries and can't work independently anymore.
Data Misfit	If a purchase order is forwarded to another department, the system shows a list of all available people instead of displaying only the ones who are responsible.

Control Fit	Project and front office managers are able to check the order details at the beginning of the procurement process so that mistakes are detected early and wrong deliveries are reduced.
Control Fit	The system tracks the order status that is visible anytime.
Role Misfit	By following the standardized system-based approval procedure, purchasing orders are automatically sent to people, who sometimes do not know the content of these specific orders and therefore are not able to check them in detail.

Fit/Misfit Evaluation

PU1 sees a high potential in P2P to save time and assure a higher order quality. But this potential cannot be fully tapped due to the higher dependencies on other people and standardized definitions of responsibilities. The loss of flexibility and process control relativizes the positive consequences of the perceived fits as PU1 reappraises her control to be low after go-live.

Behavioral Reaction and Individual Overall Satisfaction

PU1 is really committed to get the best out of the functionality and control fits. But her activities are limited by her system know-how she reappraises to be low. Although she is aware of the potential of P2P she does not know the concrete options offered by the system. That is why she creates work-around-solutions producing new excel files or hand written notes. One example is a notepad she puts in all the order numbers because she does not know how to get an overview out of the system:

> "Additionally, I make a list and write down the number, the purchase order number […]. Or I need to print it out. I cannot memorize every purchase order number."

As a consequence, she adapts to the new routine in a limited and inefficient manner. She is not willing either to invest much time and personal effort to adapt her workflow:

> "I always think that the [data] field must have a purpose. But if you try [it] out, you lose a lot of time. But that can lead you to discover new transactions, which might help when one has to generate a specific report."

On the other hand, she feels to be powerless in handling the misfits especially as she reappraises her control to be low. Although she points out the misfit and the problems they generate, she does not address them actively. She works around the misfit with the best of her knowledge and she only asks for help and support if she feels completely lost. For example, she points to the new dependencies that she perceives to constrain her efficiency and effectiveness and to possible solutions. But instead of actively trying to optimize the interfaces to minimize the unfavorable misfit, she only states that she and the support lacks the know-how:

> "I also always check if it's possible to send purchase orders via email [...]. Yet maybe the know-how is not there at the support [desk], which should know how it works. The possibility should be there. I believe that much more is possible within the purchasing department or […] within the support [team] than we are aware of."

As PU1 is aware of the opportunities in the functionality and control fits and also identifies options to reduce mismatches but fails to act accordingly due to the missing system know-how and by not being convinced that her actions would change anything. Because she adapts just as much to benefit from the fits without having to invest more than needed, the satisfaction outcome is balanced.

End-User PU2

Appraisal

PU2 was aware of the changes coming along with the implementation of P2P but did not regard them as opportunity or threat but more as a further step in a transformation process al-

ready under way in the last years. He took it as it came without having any specific expectations. Regarding the control aspect, he knew that his system know-how was not as good as required but he was convinced that he would have been able to handle P2P with the support of the other team members: *"If someone doesn't know something, there are people, who know much more about SAP. You can ask them."*

Fit/Misfit Perception

The P2P system is a fit for PU2 regarding functionality (higher integration due to a reduction of media breaks and manually performed work steps) and usability. Alongside, he only notices one data misfit. Obviously, the fits and the misfit he perceived are very strongly coupled to his daily work. He seems to be really focused on his handling of the system. In contrast to his team colleagues, he does not highlight the dependencies across the different departments.

(Mis)fit Type	Description
Functionality Fit	The end-user's workflow with the dashboard (instead of the excel spreadsheet) is more efficient and transparent.
Data Misfit	If invoices are forwarded there is no data field to add any comment with important information for the other person.
Usability Fit	The handling of the purchase orders via dashboard saves time. The end-user does not have to click through many system screens, everything can be looked at, corrected and forwarded directly. Therefore, transparency is higher.

Fit/Misfit Evaluation

Due to his neutral and balanced appraisal, he is open to the new system and reappraises the interaction with the system positively after the implementation. He is clearly aware of the personal benefit he is able to take advantage of:

> For me it is really new and I have started to work with it and I have managed pretty well. But of course there was a change […]. I look at the positive side."

On the other hand, he evaluates unfavorably the data misfit as he is used to work according to the old routine he misses now.

Behavioral Reaction and Individual Overall Satisfaction

PU2 adapts to the new routines by optimizing his own workflow in order to maximize his personal benefits. The adaption effort is focused on closing his know-how gap to better handle the system. He does not follow a "trial and error" strategy but asks other team members and calls the support hotline to minimize his personal effort. Therefore, his adaption behavior does not result in bringing up new ideas but in adapting the best practice approach of other team members to optimize his own workflow. He is therefore active in getting information but passive in sharing it.

> "With everything coming to one's desk you can go [to the people] here or go to the [people in the] office next door. There are people everywhere who have good SAP know-how and I have learned all [I need] operationally in this way."

> "Before I start searching, I also tell [people] to ask someone. For me, word-of-mouth recommendation comes first. And if I still don't know then I go to P2P and receive a response."

As he perceives more favorable fits than misfits, the personal harm of the misfit is limited and the misfit is not connected to a beneficial fit. PU2 has no big motivation to address the data misfit and does not further invest in solving the misfit. The improvements regarding the functionality and usability of the system are reinforced by his own actions and satisfy PU2: "*Yes,*

[I am more satisfied]. But let me put it this way, I was satisfied before as well. Every time I have to go to the workflow, that's for sure." Because PU2 is pleased with the new situation he has even less incentive to address or even resolve the misfit.

End-User PU3

Appraisal

PU3 has high system know-how and is also interested in the system and the P2P environment beyond the boundaries of his own area of work. He appraised P2P as a clear opportunity to work faster and in a less complicated manner. His expectations were and are still high. He stated that the information and training he got before the go-live were sufficient regarding the standard workflow, but he lacks the know-how regarding the handling of special cases.

Fit/Misfit Perception

PU3 perceives a lot of fits and misfits among all categories. In summary, work with the new platform is much faster, media breaks are reduced and usability is increased. Work among the different departments and within the team is more consistent and transparent now. He also has a much better feeling sending out a purchase order to a supplier because every order he sets up is verified by the project or front office manager. One consequence of this safer ordering process is a delay regarding lead time and a higher dependency on the reliability of other people who are not always aware of their new role and the necessary culture change. Some special cases cannot be covered by the system; new inefficient and time consuming work-around solutions are necessary which are not optimized yet. The user interface and the information stored in the system are sometimes cumbersome.

(Mis)fit Type	Description
Functionality Fit	The work with the new dashboard is faster. It is an advantage to have only one workflow in a single platform to coordinate all purchase orders and invoices: no separate spreadsheets have to be maintained and no additional e-mails have to be sent anymore. In the past, the end-user had to work with at least two media.
Functionality Misfit	One consequence of the new approval procedure is that the lead time is dependent on other people especially if they are absent and deputies are not assigned correctly.
Functionality Misfit	Another misfit emerges regarding purchase orders with a purchase value higher than CHF 50'000. From a legal point of view, the system based approval of these orders is not valid. Therefore, extra work is needed: the user has to print out, sign, scan and send all of these purchase orders manually.
Usability Fit	All the information is stored in the dashboard where all purchase orders can be spread through the system following a single workflow.
Usability Misfit	Some information i.e. the reason why an invoice was rejected is missing or not apparent.
Usability Misfit	The user interface is cumbersome sometimes. The user does not know which of the fields are mandatory to be filled out.
Role Fit	The work of all employees of the purchasing department is interdivisionally consistent now. The advantage is that everybody has to think about the process and deputies have to be clearly defined and instructed. In the past, everybody worked as he or she liked and to the best of their knowledge but absolutely uncoordinated.
Role Misfit	Not every project leader or front office manager can set up a purchase order anymore, there is only a defined group of people who has access. The project leaders are confused because they are not aware of this change in their role and the new "group of purchasers" has not been trained yet.
Control Fit	The project manager's double check of the order gives the user the feeling that he did the job correctly. In the past, the user had to decide on his own and was sometimes unsure if the order details he filled in

	were correct.
Control Fit	It is apparent who changed what in a purchase order or in another document.
Organizational Culture Misfit	A rethinking by the project and front office managers is necessary: they need to plan their purchases instead of determining purchasing needs ad-hoc.

Fit/Misfit Evaluation

Due to the expectations PU3 evaluated the anticipated fits as beneficial. Although he is pleased by the better match between the system and his workflow, he clearly notices room for improvement. He is also convinced that some of the unfavorable misfits are connected to some of the fits and could be eliminated without a huge effort. That is why his evaluation is quite balanced.

Behavioral Reaction and Individual Overall Satisfaction

PU3 adapted to the new process quickly and has gained experience as fast as possible with a view to benefitting greatly from the advantages. On the other hand, he takes his time to find the best ways of handling the system (*"But I think it takes time to find the particularities."*) and to share best practice approaches within and beyond the team. Simultaneously, he actively reduces the harm of the perceived misfits. He realizes that he misses some basic SAP knowledge; as a consequence he actively asked internally for a basic SAP training and thereby addresses the misfit actively to benefit personally also from the connected fits. Furthermore, he addresses misfits in public if he feels to have control, even if the resolution is not beneficial for him personally.

Since he has much to invest and cannot yet see the results, he is not satisfied. From his point of view, the situation is currently more or less the same as before, still SAP with some minor changes that *"meet the expectations too."* But he is clearly aware of the future potential of P2P, together with his adaption efforts, which may enhance his satisfaction in the long run: *"We are not perfect yet, but we are getting there."*

End-User PU4

Appraisal

End-user PU4 recognized an opportunity in the automation of the workflow but he also feared that the process would take longer: *"The procurement process lasts longer. That is the disadvantage, but the advantage is that it runs automatically if it is [entered] properly."* He appraised his level of control to be low. He would have been better prepared if the new user interface had been explained in more detail. His flexibility and control was expected to be restricted by the higher dependencies on the reviewers and their lack of system know-how.

Fit/Misfit Perception

Especially regarding functionality, usability, control and data quality, PU4 perceives a better fit between her daily workflow and the new system solution. The dashboard as the new integrated user interface, together with the automated work steps, facilitate the handling and coordination of the purchase orders. P2P also ensures that the goods requester sets up an order only if he or she has all the necessary information regarding the good to be bought. Data and information quality is therefore much higher. The downsides of P2P are the process delays,

the higher dependency of the own work on the reviewers and the complexity of the user interface.

(Mis)fit Type	Description
Functionality Fit	With P2P it is only necessary have a look at the dashboard and check if there are new invoices assigned. The end-user had to work with excel files before. The process is much more automated, correctly labeled invoices run through the system without the users having to do anything.
Functionality Misfit	The purchasing process in slowed down due to dependencies on other people.
Data Fit	Data quality of the purchase orders and especially the purchase value is much better. Purchase orders are only set up if all the information is available and the effective order price is known. This makes sure that no order is sent out without having arranged a firm offer with the supplier. In the past it was common to order goods with a fictitious price of 1 CHF.
Usability Fit	With the dashboard, purchase orders can be checked, edited and forwarded faster from one screen.
Usability Misfit	It is confusing that the dashboard has so many different views and so much information. It is not obvious which purchase order is assigned to whom.
Usability Misfit	Interaction with the dashboard is slow.
Role Misfit	Many project and front office managers with the responsibility to approve purchase orders usually work on construction projects where they only have limited access to the computer.
Role Misfit	The roles are not defined properly in SAP.

Fit/Misfit Evaluation

In summary, the misfits are all evaluated negatively and most of the fits positively. The expectations she had before go-live came true. The stronger dependencies (due to her low level

of control), along with the higher automation, cause some troubles in her daily work. Should the invoices be scanned and validated wrongly by the accounts payable team, the process does not work independently although it is automated. In such situations, the system is not able to find the corresponding purchase order and the matching has to be done manually:

> „There I have to say that even clean purchase orders are not useful if the invoices are not recorded correctly […]. We are editing many invoices that were wrongly recorded from the beginning […]. It is a mistake from the recording system or rather from the people who are recording. Sixty percent of the invoices I get […]. I mean, if they are recorded correctly right from the beginning, then we wouldn't have to ask the accounts payable [department] to reassign [the account]. We could pay them directly. This step wouldn't be necessary if it was recorded correctly […]. I don't know if it's the system or the people recording [the data]. I don't know how that works."

As a consequence, her negative appraisal of the control aspects influence her perception of the functionality fit negatively. The low level of control also neutralizes the functionality fit due to know-how she lacks. The misfits are also perceived as unfavorable especially due to the know-how gaps and her feeling unable to take charge of the situation. Although she is aware of the potential benefit of the perceived fits she is overwhelmed by the current situation and does not feel up to the upcoming challenges. The threats and the low level of control predominate her evaluation:

> "What's behind it […]? Is it only with me? [How should I] forward [to someone else]? Where can I find out with whom it is? Who is doing the approval? How long has it already been in the approval [process]? Why is there a difference in quantity now? Why [is there] a difference in price? We find out about these kinds of things every day. It's sometimes my colleague who [explains] something to me. That's a pity because we could learn this in a training session. That way everyone would be at the same level, because there are people in the team who care and are interested to know more about the background. In order to tell the customers for example that it's late because it was in the approval process for two weeks [or] to provide better information."

Behavioral Reaction and Individual Overall Satisfaction

PU4's behavioural reaction can be described as passive resignation: *"I actually don't [care] if I'm working that way or this way, I adapt myself."* Instead of actively working on the resolution of the current problems she decided to leave the team by asking for an internal transfer to another department. Therefore, her motivation to adapt to the new routine is low: *"I will soon get rid of P2P, hence I don't need to deal with P2P everyday anymore."* She adapts her own workflow only minimally to the best of her knowledge and tries to live with misfits as an end of her misery is foreseeable. She is ready to go through some difficulties in the beginning by stating that *"obviously, if something is new, people are thrown in at the deep end. This is normal."* She mentioned that she would have expected to feel more comfortable. She waited for an additional training session and stronger support (she did not ask for either actively) as she wanted to understand the "whole picture" and did not like the "learning-by-doing" approach. But by staying passive nobody got aware of her lack of control and her resignation and she missed the chance to actively improve her situation by facing the challenges. As she found a way out by leaving the team the implementation of P2P has no influence on her level of satisfaction (anymore).

End-User PU5

Appraisal

PU5 appraised P2P as a further step towards an optimal procurement and payment process. He clearly sensed the benefit of the new process for the whole company. He slightly feared some additional work for the project and front office managers and also some duplication of work. For himself and his workflow the impact he expected was only minor. From his point

of view the system is only a support instrument that does not constrain him. As a consequence, he feels to have high control over his workflow regardless of the system solution. He also went through a lot of system changes before in his professional career so he is relatively relaxed regarding the consequences*: "I know that from the private sector."* Information and training was exaggerated from his point of view. He is used to system implementations being based on a "big bang" approach with a news announcement only one day before go-live.

Fit/Misfit Perception

PU5's fit and misfit perception is focused on functionality and the new reviewer roles. As already mentioned, he is interested in the overall process and plays down system details, with which he has already a lot of experience. Due to his hierarchical position, he is also supported by an assistant who is responsible for the main system interaction. He acts more on a strategic level and the fits and misfits he notices are therefore clearly focused on the view of the company.

(Mis)fit Type	Description
Functionality Fit	Only the project leader has to sign an invoice. In the past, two signatures were necessary. Therefore, the company can take better advantage of discounts because the invoices are paid faster. This has a positive influence on the achievement of the user's performance goals.
Functionality Misfit	Because more people are involved in the review process the more time is needed.
Functionality Misfit	Regarding some of the end-user's special projects, a two-fold strategy is pursued with the new SAP solution: the system-based approval procedure has to be followed but, additionally, every order contract has to be signed by one's own hand.
Role Misfit	The assigned reviewer roles sometimes do not match people's responsibilities and lead to bottlenecks.

Fit/Misfit Evaluation

As he appraises P2P as just another change project his assessment of the situation is rather realistic and most of the fits and misfits are neutralized by his evaluation. The functionality fit is a slight improvement for the company but from his personal point of view *"it is still equally complicated."* Besides, the negative consequences of the misfits are moderated by his awareness and his experience. The signature that has to be collected twice now, manually and simultaneously via system approval, is not evaluated as unfavorable as his own workflow is not affected negatively: *"It does not matter at all for us, since an approval in SAP and P2P occurs only at the level of project management […]. That does not affect us."* The greater dependence on the reviewers also just interrupts and does not disturb his workflow. Due to the fact that the additional time needed to do the reviews is irrelevant for his large-scale projects and quality is much more important than efficiency, the consequences do not influence him negatively: *"Here, we have plenty of time. We have to take [time] in order to complete the necessary steps. One cannot accelerate a construction project in a simple fashion."* Only the role misfit is evaluated as unfavorable due to the bottleneck problems and the effort required to solve these problems.

Behavioral Reaction and Individual Overall Satisfaction

He adapts actively to the new routine by acting as a role model. With his experience he calms down his team colleagues as well as the project leaders. He enjoys helping and interacting with people all over the company. PU5 actively addresses the harmful role misfit in close contact with the relevant front office project leaders and managers:

> "Of course, we work together. You know each other and you talk to each other. We get in touch more often if something is not working. We know the contact persons who a project manager might not know. We then take over those tasks. We have actually become the contact people for certain questions."

In summary, PU5 actively addresses the misfits, over which he feels he has control (also if they are quite relevant for the efficiency of his own workflow), and he accepts the misfits that he is unable to solve or those that he feels restrict his actions.

As PU5 appraises P2P only as a further step towards an optimal procurement and payment process, he is not satisfied with the current situation (yet). But he is convinced that his actions together with the effort of others will have a positive effect in the long run:

> "A project like this is never ending. The sustainability must be ensured. Someone has to be there in order to promote and to optimize [the project]. But someday it has to show monetary benefits. Can we get something through faster?
>
> Can we ensure something? Etc. In the end we have to prove the benefits. It's important that we work on that."
>
> "With such a huge step in the process, it's obvious that it takes some time until things work as desired."

End-User PU6

Appraisal

PU6 stated that, prior to the implementation of P2P, he knew very well what he could expect of the new process and system solution. He saw no major opportunities but was not really concerned either. Only during the last days before go-live, he became annoyed because he had no opportunity to test the new system. However, he always felt to have control over his direct interaction with the new system thanks to the training sessions he attended and the information offered by the project team. Due to the fact that his input regarding some special cases was ignored by the project team, he sensed that his control level was limited although he pointed it out several times.

Fit/Misfit Perception

The whole process better matches PU6's workflow as the responsibilities are properly defined and all system activities are more transparent with P2P. Data quality is increased by the new system solution and the redefined procurement process. On the other hand, there are process delays due to the review procedure, system handling is more complicated and the available standardized SAP contract layouts are neither applicable nor individually customizable.

(Mis)fit Type	Description
Functionality Misfit	Due to the new approval strategy the procurement process is interrupted for about three days and the process duration is extended.
Data Fit	The names of the reviewers are correctly picked by the system.
Data Fit	Data quality is much better due to the fact that purchase orders are entered only once with the proper data.
Data Fit	The system no longer allows the purchasers to set up purchase orders in the name of other people.
Data Misfit	There is important data regarding supplier management missing in the system.
Usability Fit	Information including invoice and order history is integrated in one user interface.
Usability Misfit	The layouts of the SAP standard contract and the automatically generated order form are unusable.
Usability Misfit	The end-user is confused by the navigation: he has to click through many fields and screens.
Role Fit	Due to the clearly defined roles, the assigned authorities better match the responsibilities and are more consistent with their skills.
Role Misfit	Work was transferred from other departments to the purchasing department. This leads to an imbalance in the end-user's workload.

Control Fit	Work is more transparent: it is apparent who executed which work steps.

Fit/Misfit Evaluation

As PU6 was very well prepared, the result did not surprise him. Anyway, his expectations regarding process and system quality were outperformed and the concern turned out to be unfounded: *"It worked better than I had expected."* Due to the positive reappraisal of P2P after the go-live he highly appreciates the benefits resulting of the fits. The potential negative consequences of the functionality misfit are also neutralized due to the fact that his workflow is not more complicated or time-consuming now; instead, only the workload is interrupted: *"There is an interruption. But it is more a matter of people's attitudes. That is not a problem for me."* Although there are some unfavorably evaluated misfits, the overall assessment is positive.

Behavioral Reaction and Individual Overall Satisfaction

Because PU6 is aware of all the benefits P2P comprises, he has already adapted the routines by reorganizing his team according to the fits with the goal to benefit best from the new process:

> "What we did in the procurement section: we divided [tasks] between small-scale purchases and […] large-scale purchases. I think it needs practice and routine. We need to get to work with this system."

He brought up suggestions for improvement by trying to maximize the benefits by also actively addressing misfits. He talks about different ideas:

> „Yes, we noticed that we cannot continue [working] with the old system unless we kept changing the requestor, meaning that we would manipulate the system. We reflected on alternatives […]. It is a win-win-situation for the project manager, for the consumer, for us, [and] for the suppliers. We might be processing even faster. Up until now we had sent such things by [physical] mail."

> "At the moment we are also trying [to see] whether we can [handle] such tasks through an interface to SAP. In principle, [one should be able] to process the allocation decision there […]. We are trying to get more access to SAP. That's why we have [assigned] someone, who is in charge of this task in the purchasing department […]. We are currently working on this. That doesn't have to do anything with P2P specifically, but we are trying to get closer to SAP."

He also took the extra effort to get used to the system. If he lacks the system know-how he actively delegates the tasks within the team. Misfits are a challenge for him to further optimize the procurement process. Although he is satisfied at the moment he clearly highlights the potential to be more satisfied by continuously improving the system:

> "There is certainly room for improvements [...]. You could work on the layout to make it more user-friendly [...]. [At the moment] we have to jump back and forth a lot. That is like an [entry] form. If I book a hotel room somewhere, I can fill out seven fields one after the other. SAP's disadvantage is that you have to target different fields mentally [...]. It is not comprehensible at all that we still need to work like that in this day and age. Because we have to jump back and forth so many times, information is also partly missing. Of course, SAP checks a lot of things: 'This is missing'. This should help you find 3 to 4 things. But we surely have to do better. I already addressed the layout because of the print-out. If we consider [implementing] direct shipment, I would reach a [score of] 7 [out of 10] today, but we could bring it up to a 9. But that is actually already good today. You could still do better."

He is willing to be part of this improvement process and ready to invest personal effort. He additionally addresses the role misfit by interacting with the other departments to discuss the imbalances in the workload: *"They are currently getting more active […] more than before, when one did less."*

End-User PJ1

Appraisal

PJ1 negatively appraised P2P. He sees himself to be at the receiving end of the P2P related reorganizations in other departments, especially of the process optimization in the accounts payable team. He feared work would be transferred from the support departments to him as a project manager:

> "Not only the accounts payable department, but also other divisions optimize continuously. But in the end, everything depends on the project manager because he is responsible and he has to do everything. In the end we probably will have to scan everything on our own and send it to Bern [where the accounts payable department is located]. I don't know. I suspect that already. It is not a big rearrangement, but it is one more [task]."

His negative attitude is reinforced by his uncertainty about the potential impact of P2P. Additionally, he sensed to have low control. On the one hand, he misses the specific system know-how. On the other hand, he felt that he was being forced to manage his specific multi-phased construction projects according to the standard process, which is not applicable to the special requirements of such projects:

> "But I'm worried that we now have to do some of the work of the accounting department. They are cutting staff because they say the system is now running automatically. Now I am concerned that we will have to do the project accounting job as well."

As a consequence he feels powerless and at the mercy of the P2P project team. Although his negative appraisal seems to be due to the unimportance of P2P regarding his daily project work, for him P2P is just another IT system change he has to deal with. And at the end he uses the SAP only for some minutes every day.

Fit/Misfit Perception

PJ1 perceives data, role and control fits: the control mechanisms embedded in the system are adequate, the responsibilities are assigned properly and process transparency is higher. As a result, he feels more comfortable setting up purchase orders due to the fact that the content is

reviewed again so that incorrect deliveries and later discussions can be avoided. However, he also highlights several misfits. The standardized P2P process is not flexible enough to cope with his long-term construction projects that are split up in several building phases and are subject to significant and often unpredictable changes. Rolling wave planning is technically not feasible (yet). The construction projects are also accompanied by several legal offers and contracts that have to be signed manually. The standardized system review procedure and approval process often results in a duplication of work. Additionally, support tasks were transferred from the back office to the front office departments. This leads to imbalances in the workload of PJ1 and his team. He also criticizes the usability of the system and the organizational logic of the approval procedure.

(Mis)fit Type	Description
Functionality Misfit	The system and the standard process are not suitable for building projects spanning multiple phases.
Functionality Misfit	A paper file for every project with all legal offers and contracts is still needed because this information is not stored in the system. Double work is the result because the project leader has to check and sign the official documents and then check and sign it again in the system.
Data Fit	The new automated validation mechanism for checking invoices is working.
Usability Misfit	The information on the screen is sometimes not comprehensible. The user only sees numbers and figures and does not know which project is concerned.
Role Fit	It is appropriate that the responsibility to review the order data is assigned to the project department.
Role Misfit	Work was transferred from other departments to the project department. This leads to imbalances in the user's workload.
Control Fit	The finance department is monitoring the projects.

Organizational Culture Misfit	The new approval process is not in line with the organizational logic.

Fit/Misfit Evaluation

The evaluation of the fits and misfits is strongly influenced by PJ1's negative appraisal of P2P and the negative attitude towards SAP and system implementations in general:

> "We are not very happy with SAP generally."
>
> "It's not just P2P. We had many software implementations that were so-called green bananas, which only ripen after they get to the end user. Nowadays it [new systems] is rather like a banana sapling, as it only grows once it gets to us. But this is a general statement. I think I have never experienced a good implementation yet. I don't know if it can be done better."

As a result, most of the misfits are evaluated as unfavorable and only one fit as favorable. The data fit is neutralized as no direct positive influence is visible for PJ1 and the benefits of the role fit are neutralized as he regards the misfit as a lack of trust by the company in his abilities. He also feels like he is being kept under surveillance*: "In the beginning we asked ourselves why it [a review] was necessary. Now, it is somehow a step back with regard to the level of trust."* Nevertheless, the unfavorable effects of the evaluation are alleviated by the unimportance of the new P2P system solution in PJ1's daily work.

Behavioral Reaction and Individual Overall Satisfaction

PJ1 behaves very defensively and is only willing to cooperate to the extent that he cannot fulfill his procurement duties without using P2P. He excuses his passivity by blaming others to be even less committed. He pushes off the work with the system to a specialized person in the team by admitting that he does not have the necessary system know-how:

> "I think, looking at my department, I am more the kind of person who accepts such tasks. There are people who have a more extreme [negative] attitude towards it. You notice that while you work; they avoid the system wherever possible. That's not just the case for P2P, but generally for SAP. But also implementations in general. We have another such tool. The consequence is that we have a specialist now, who is doing everything and when he is away there is nobody who understands it. That's the disadvantage when such support services are used. We are cutting down [the resources] of the department that is working with it [the system] on a daily basis and we have to rebuild it [the support function] together with individual specialists supporting us."

The appraised know-how gaps leading to unfavorable misfits are not addressed actively as he deems it not to be his task: *"I would have expected someone to tell me 'for you as a project manager this and that might be very interesting'. Additionally, the training session never took place."* He uses it as an excuse to completely rely on the work of the specialized super user within the team*: "The [power user of the team] attended to it and wrote down further instructions and tried to collect additional information in order to build up support."* By the same token, he also does not take the trouble of trying out new functionalities either or to get used to the new process. He waits to be informed and trained by the project team and he calls the hotline only as a last resort:

> "I admit I believe that the system contains all the data one should see, but I am not sure if the interface is user-friendly enough to see it [the information] without clicking through five times, I cannot tell because I've never tested it."

> "I don't see how it makes sense even if it's described somewhere. But I would have expected to get user-specific training. A construction project manager might have to know and look up different things than [someone] ordering material in the central office. That is simply a different thing. We also have our peculiarities."

Therefore, PJ1 does not consider it to be his task to actively occupy himself with P2P. He is not motivated to lead the way and even promotes passivity within his team:

> "I tell my people not to think about it too long. Maybe try [it] out two to three minutes and if it still does not work, then call the hotline."

As a conclusion, PJ1 does not make any attempt to actively minimize the harm of the misfits and does not seem to reappraise P2P more positively after implementation. He therefore tries to avoid working with the system whenever possible. Due to his hierarchical position he is in the comfortable position to have a team to which he can delegate most of the procurement work. His "way out" of the unfavorable situation is to limit his system interaction as much as possible. His contact with P2P is so loose now that P2P does not really influence his individual overall satisfaction anymore:

> „ I am actually a reasonably good-natured person. I have to admit that the implementation was very annoying to me and it's still bothering me. You probably carry [such a grudge] forever. In the end, something might change in the way [things are done], but it will not be worth the time and effort."

End-User PJ2

Appraisal

PJ2 appraises the changes regarding P2P from sideline and the consequences are therefore only of minimal interest to him. He perceives neither clear opportunities nor threats: *„I perceive everything as a process where changes happen over and over again and where you never know exactly what is triggered by what."* Having little control over the situation does not bother him much. He is involved in the procurement and payment process just two to three hours a week and only a fraction of this time he interacts directly with the system. Before the system went live he was completely unconcerned about his system know-how and influence and only afterwards he reappraises his control level to be low.

Fit/Misfit Perception

PJ2 perceives only few issues: one functionality related fit and three misfits regarding role and control.

(Mis)fit Type	Description
Functionality Fit	The process of setting up a purchase order is easier and less bureaucratic.
Role Misfit	The purchasing and accounts payable department do not have the project know-how.
Role Misfit	Work load is concentrated around the reviewers.
Control Misfit	In the past, invoices were reviewed in more detail. Due to the fact that the standardized approval procedure is more time-consuming, the review of the invoice content has taken a backseat.

Fit/Misfit Evaluation

Due to his indifference and his relaxed attitude, he does not regard the positive effects of the fits and the negative consequences of the misfits as significant. He only states that P2P *"didn't affect our office life sustainably till now."*

Behavioral Reaction and Individual Overall Satisfaction

PJ2 uses the system as he is required (*"because I use it, when I have to"*), but he does not actively put in any personal effort to maximize the benefits or reduce the risks resulting from the misfits. He is just muddling through without any motivation to find the easiest way to handle the system. He waits for the misfits to be solved by others:

> "Usually there are many ways to achieve the same result if you have a program. One might be doing it this way someone else that way […]. If you find a way to reach your target, then you continue doing it that way until someone tells you that [what] you are [doing is] really complicated."

> "Here we have the system and if there is a problem, then either an accountant or some super user comes, who is more involved. It is important that we receive assistance and that we can ask [for it]. This is also much more efficient than if we muddle through ourselves."

As PJ2 has only limited benefits from fits, he reacts passively with a strategy of profiting without having to invest anything. As a consequence, his actions together with his evaluation have no significant influence on his individual overall satisfaction with P2P. PJ2's passivity together with his disinterest might be a hidden risk for the company. Especially the control misfit he fails to address, because it is only of minor relevance for him, might be a potential risk for the company.

End-User PJ3

Appraisal

PJ3 appraises the implementation of P2P primarily as interference because he has to adapt to new routines and because such changes are always connected with extraordinary personal expenses. During the roadshow he had the opportunity to discuss open questions. *"But the questions arrive only once you deal with it [the system],"* and therefore he does not feel that he is adequately prepared. That is why he appraises to have only limited control over the new situation.

Fit/Misfit Perception

PJ3 perceives only few issues. The process changes are reasonable and the roles are clearly defined with P2P and are aligned with the responsibilities in the daily work. He perceives a

clear misfit regarding usability: the interaction is too complex and not intuitive especially for users not interacting frequently with the system.

(Mis)fit Type	Description
Functionality Fit	The whole process is more comprehensible and reasonable.
Usability Misfit	The screen is not user-friendly. There is too much information on it and it is too complicated for someone using the system not every day.
Role Fit	The clearly defined roles are comprehensible: the substantial review is assigned to the project leader and the financial approval to the cost center manager. In the past, the roles were not clearly defined.

Fit/Misfit Evaluation

The potential benefits resulting from the perceived functionality and role fits are neutralized. First, he is not able to evaluate the influence of the fits due to a lack of understanding and comparison (as he had no expectations): *"I am not able to judge because I'm only a user."* Second, his major usability problems (usability misfit) are connected to the fits. Therefore, his difficulties regarding usability and his appraisal predominate his fit/misfit evaluation.

Behavioral Reaction and Individual Overall Satisfaction

He feels lost in the interaction with the system and reappraises his control to be very low. He has a lot of open questions and does not know where to find the relevant information: "*When opening an order I don't see [...] I don't know where I have to start looking, who is affected, who is the purchaser […]. It's incredible that it is untraceable."* PJ3's struggle with the system finally results in a resignation. He tries to handle the process as he is expected to, but his actions are very limited. He clearly depends on the support of others but does not ask for help

voluntarily: *"We have to deal with our accountant and consult with him."* He only made the effort of seeking for help actively during the time period he had to act as a deputy for his supervisor. He does not take any initiative to actively reduce the harm of the usability misfit. As a result of his passivity he is not able to benefit from the fits and is less satisfied with the new system solution, but this does not weigh him down considerably: *"That is why I am less satisfied, but this is not something that makes me miserable."*

End-User PJ4

Appraisal

PJ4 welcomes P2P and sees the higher degree of standardization and automation as an opportunity to reduce his workload and improve his efficiency. For him, P2P implies a step forward in the right direction:

> "I think that is a huge step forward to standardize [and] automate even more, but in my own opinion it is not a quantum leap. It is more kind of a development, maybe an evolution but not a revolution."

He feels to have control over the situation although he underestimated the system change. But he is absolutely convinced that he has the ability to learn and use the new system functionalities and to adapt to the new routine:

> "But I'm confident that we can do it. There is also no way back, because we are moving forward. Basically it's a good accounting system. We are happy about anything that makes life easier for us."

For PJ4 the project is unimportant *("This is a side show")* as well and he admits that this is the reason why he missed some pre-implementation information and communication sessions so that he has to follow a "learning-by-doing" strategy now. He has to adjust his level of control downwards by reappraising the situation after the system go-live:

And I'm not sure, personally, if I've judged it correctly when I thought that I'd be able to do it […]. In this regard I cannot speak for the others; probably I have to blame myself for whether I assessed it correctly or not. I would […] say no now. And I'm not that sure now, if I've missed something. Maybe there was a newsletter you should have read. Maybe there was even a manual on the intranet I cannot tell precisely."

Fit/Misfit Perception

The new system solution better matches PJ4's workflow regarding functionality and usability. He perceives no misfits at all.

(Mis)fit Type	Description
Functionality Fit	The process is simplified due to the possibility of assigning the accounts directly. System messages to the accounts payable department are not necessary anymore. Work is therefore more standardized and automated.
Usability Fit	Everything is apparent on one screen: the assignment of the account, the accept/reject button and a comment field. It is easier and more transparent.

Fit/Misfit Evaluation

Due to the positive appraisal, the functionality fit is clearly perceived as an opportunity. He is not able to evaluate the long-term consequences of the usability fit yet. That is why this potentially positive effect is neutralized in the evaluation. Additionally, the favorable outcome is undermined by the limited importance of P2P for PJ4:

„Even if this happens every now and then, it's dealt with within 5 minutes. It is 'nice to do'. It's negligible. It is not bad. It just comes with it and there is nothing to argue over for these 5 clicks. That is not a problem at all; there are so many other thing we need to take care of."

Behavioral Reaction and Individual Overall Satisfaction

Before the system implementation PJ4 reacted passively due to the fact that he was convinced to have control over the consequences of the system change. After go-live he detected some know-how gaps, and he actively tries to fill them now in order to benefit the most from the functionality and usability fits.

> "Then we got in touch and together we solved the problem of how to assign the invoice. And that was not a big deal. We just called for help from wherever we could get it. Pretty simple."

He is aware that system adaption needs time and that he has to acquire the new routines: *"The system exists now and we are going to adapt slowly and we [will] get used to it like all the other systems too."*

PJ4 was satisfied with the old system solution and, together with the low relative importance of P2P for his daily work, the minor improvements do not significantly increase his level of satisfaction. But he is absolutely comfortable with the situation and shows no interest to invest further effort to be more satisfied. An easy handling of the system and, a simple process are the most essential aspects for PJ4. This is what the old and the new system solution had/has to offer:

> "I was also satisfied before. We have 2 to 3 advantages now and if we can benefit from them I certainly don't think that the satisfaction is going to decrease. At the minimum we have to stay the same or increase a little. That would be the whole idea in order to improve the interaction with the whole system."

End-User PJ5

Appraisal

PJ5 did not talk about any opportunity or threat he perceived before go-live. He did not have any specific expectations. He only stated that he was not fully satisfied with the old system solution as it was not user-friendly: *"I think a system should be self-explanatory these days."* The information he received before go-live did not answer his questions and he felt to have low control over the new system also because there were no training sessions offered for the front office managers.

Fit/Misfit Perception

The user notices higher efficiency in how processes are executed with the new system. The automated processing of the invoices together with the possibility of directly adjusting data in the order forms saves time. On the other hand it lasts longer until a purchase order arrives at the goods provider because the order has to be reviewed and authorized first. The interaction with the new P2P solution is sometimes confusing and extra clicks are needed to find the relevant information. That is why he notices a misfit regarding usability. Due to the more automated process steps more mistakes are transmitted and he has to do more correction work (control misfit). In addition, data regarding indirect taxes is not presented consistently.

(Mis)fit Type	Description
Functionality Fit	There is a new option to assign the accounts directly. Changes of order or account numbers are therefore handled immediately. In the past, the end-user had to send invoice with wrong data back to the accountant by adding a text message. It lasted around two weeks until the changes were made.
Functionality	Due to the now preceding system-supported approval strategy the pro-

Misfit	cess is delayed and the goods arrive later.
Data Misfit	Data regarding indirect taxes is not consistent.
Usability Misfit	The screen is confusing, it is not indicated whether something is new and whether it is completed already and the status of the order is not apparent without searching.
Control Fit	The automated processing of the incoming invoices without having to review and authorize them again saves time and effort, and the invoices are paid faster by this disposal of a double review.
Control Misfit	Due to the higher level of automation, the orders and invoices the end-user receives for approval contain more inaccuracies than in the past.

Fit/Misfit Evaluation

The way the procurement and payment process is executed with P2P is perceived as beneficial, on the one hand (functionality fits), but on the other hand also as unfavorable (connected functionality misfit). Because usability, control and data misfits are perceived as really time-consuming the advantages of the functionality fit are reduced. Weighing up the pros and cons against each other the result is positive for PJ5:

> "But as a whole [the process] is advantageous because normally there are several invoices but only one purchase order. Bottom line, there is less effort needed."

Behavioral Reaction and Individual Overall Satisfaction

PJ5 adapts to the new routine as he exploits the beneficial fits but his actions are limited by his lack of know-how and the usability issues. Furthermore, he does not want to give too much effort on the adaption either. Trying out the new functionalities is too costly as the system should be intuitive. He falls back on the help of the support team:

> "Yes and then you can't proceed and you have to ask [for help]. We are 25 people. If one needed half an hour to find something out, multiplied by 25, this is a big loss of time."

> "It also happened that it didn't work and we had to call the support desk where we were told to save [the item] first. There shouldn't be things like that, where you cannot find out things on your own."

He does not know that he could review the orders in more detail to avoid mistakes. Up to now he was used to trust the purchasing department. Due to the limited involvement and information, he is not aware of the control function he should perform. His limited interest and know-how could be a risk for the company as is apparent in the following statement:

> "I wasn't aware of that until now. I just recall that there was only a mask with 'approve' or 'reject'. But I didn't realize that you have the possibility to check the order's correctness […]. If there was an occasional mistake, I would recognize [it] when reviewing the contract. At that point in time you could still react. But actually I expect it to be entered correctly."

PJ5 mentioned that he would be more satisfied if the misfits were eliminated. He does not actively address the misfits since the potential benefits are too small and he is just equally satisfied as before:

> "If there weren't any erroneous inputs, I would be much more satisfied. But if it stays like this and wrongly entered invoices come through again and again, then I would be rather dissatisfied or as satisfied as before. But with the system I am slightly more satisfied. But at a low level. The old [system] was bad and this one is less bad."

End-User PJ6

Appraisal

PJ6 positively appraises P2P and sees it as an opportunity to reduce the amount of work. Although he has some hierarchical power, he feels to have limited control. The project team nev-

er asked for his input or feedback so that his concerns were ignored. The information he got about the changes and the new system handling were not sufficient from his point of view.

Fit/Misfit Perception

PJ6 states that with the new approval procedure, review work is better distributed and there will be no accumulation of open invoices at the end of the year anymore. This matches much better the workflows of the project management team. By the fact that every purchase order has to be approved, no second approval is necessary when the invoices come in. Especially at the end of the year, in the past the end-user received a lot of invoices Now, much less work is accumulated. In addition, it is more appropriate to review the purchase orders earlier in the process to avoid mistakes. The controls embedded in the new system solution are therefore perceived as fit by PJ6. On the other hand, the standardized approval procedure causes additional work at the beginning of the procurement process and interaction with the system is not very user-friendly and too complicated.

(Mis)fit Type	Description
Functionality Fit	With the new approval process time can be saved at the end of the procurement process.
Functionality Misfit	There is additional work at the beginning of the procurement process.
Usability Misfit	The interaction with the system is too complicated.
Control Fit	By the fact that the purchase orders have to be approved, no second approval is necessary when the invoices come in. Especially at the end of the year, the end-user in the past received a lot of invoices. Now, much less work is accumulated.
Control Fit	It is more appropriate to review the purchase order early in the process to avoid mistakes.

Fit/Misfit Evaluation

The functionality fit weighs more strongly than the misfit. The reason is the omission of the approval pressure at the end of the year, together with the fact that with the authorization of *one* purchase order several invoices are handled automatically by the system now:

> "Especially at year-end we receive many invoices from companies, engineering offices and third parties, which we always have to approve a second time. This falls away now. I approve the limit of the order and the project manager makes sure that the services within the order are assigned correctly. At year-end I no longer need to approve invoices related to new orders […]. On the whole, it should ease our work."

> "The approval of the order is a next step after the request for awarding the contract. This is the document that is important for setting up an order […] .Afterwards it's all about setting up and approving the order. That is the next step after it has been set up. Currently I am doing one additional step after the report of awarding the contract, which I didn't have to do before: the approval of the order. Instead I had to approve the invoice half a year later. If several invoices are coming in, the number of second approvals add up. This falls away now."

One of the control fits is perceived as favorable but the other is neutralized as he is not aware of a concrete case of a mistake being avoided due to the controls yet. The usability misfit is a minor issue for PJ6 due to the fact that he only uses the system three to five times a week and *"it looks a little different, but it's actually manageable."* Therefore, PJ6's evaluation of the fits and misfits is balanced. In summary, PJ6 highlights more favorable fits than unfavorable misfits.

Individual Overall Satisfaction and Coping Efforts

PJ6 adapts his workflow to the new routine but his own actions are limited. However, he is motivated to find the best solution to work with P2P by trying out and optimizing his own workflow. Due to his usability problems he has some adaption difficulties but with his positive attitude and by being aware of the (potential) benefits he motivates his team and is also open to try out some functionalities himself.

„The […] SAP itself is not that handy, but that does not have anything to do with P2P. It is a large system and it is complicated. But it is doable to find out how to approve, forward, or cancel [things] (laughing)."

He clearly states that the project team missed to train him and his team sufficiently. But in contrast to most of his front office colleagues, he does not capitulate but tries to maximize the benefit of the functionality fit by letting his team fill the know-how gaps the project team missed to fill. He actively supports his team in working out a user manual and in building a task force to optimize system use:

> "The manual we created contains difficulties we noticed. Maybe there are still problems which we don't know about. I would say that it was not implemented in a pragmatic manner. Indeed there was a brochure and a manual where a certain workflow is described, but it was not user-oriented […]. Most of the people already have some reluctance towards SAP. The best thing to do would be to make a checklist (step by step) for everyone, with which 80% to 90% of the cases are easy to handle. For the majority of the cases there could and should have been better manuals."
>
> "Apart from that, we have created various manuals on our own […]. If you find a suitable guide you can help yourself."
>
> "Otherwise, we wouldn't have had to make a manual on our own and, second, there wouldn't have been the need for a task group to reduce problems and errors."

He also likes to share their solutions across his own team: *"I don't know if the manuals for P2P are going to be collected afterwards. We from the project office gathered everything. I don't know to what extent the P2P [project team] received this feedback."*

Since he had to invest much and to adapt to the new routine, PJ6 is not as satisfied as expected. But he is clearly not unhappy and mentions the potential to be more satisfied in the future if he sees the positive results of the fits and his actions:

> "If you ignore the past few months, then I don't have more or less to do. At the end of the year or maybe next year, we will experience a reduction in effort, hopefully. The order has to be created today. That means the effort arises now."

Appendix III: Chains of Evidence

End-User	Individual context	Perception	Appraisal before go-live	Reappraisal	Evaluation	Behavioral Reaction (Coping Strategy)
AP1	high system know-how high project involvement low hierarchical position	3 fits 5 misfits	Balanced opportunity/threat expectations high control but restricted by dependencies	confirmed appraisal	1 favorable fit 4 unfavorable misfits	**Benefits Maximizing Strategy** Fit-related behavior: active self-motivated overall benefits maximization Misfit-related behavior: active misfit reduction to enhance benefits
PJ6	low system know-how medium project involvement high hierarchical position	3 fits 2 misfits	no opportunities/treaths low control	appraises new opportunity in a fit medium control	2 favorable fits 1 unfavorable misfit	**Benefits Maximizing Strategy** Fit-related behavior: active self-motivated overall benefits maximization Misfit-related behavior: active misfit reduction to enhance benefits
PU3	high system know-how low project involvement low hierarchical position	5 fits 6 misfits	opportunity medium control	confirmed appraisal	5 favorable fits 5 unfavorable misfit	**Benefits Maximizing Strategy** Fit-related behavior: active self-motivated overall benefits maximization Misfit-related behavior: active misfit reduction to enhance benefits
PU5	medium system know-how high project involvement medium hierarchical position	1 fit 3 misfits	opportunities and threats high control	confirmed appraisal	0 favorable fits 1 unfavorable misfit	**Benefits Maximizing Strategy** Fit-related behavior: active self-motivated overall benefits maximization Misfit-related behavior: active misfit reduction to enhance benefits
PU6	medium system know-how medium project involvement medium hierarchical position	6 fits 5 misfits	treath determined expectations medium control	appraises new opportunities that exceeds expectations	6 favorable fits 4 unfavorable misfits	**Benefits Maximizing Strategy** Fit-related behavior: active self-motivated overall benefits maximization Misfit-related behavior: active misfit reduction to enhance benefits
AP3	high know-how low involvement low hierarchical position	4 fits 10 misfits	threat determined expectations low control	confirmed appraisal	1 favorable fit 9 unfavorable misfits	**Self-Preservative Disturbance Handling Strategy** Fit-related behavior: no personal effort to exploit benefits Misfit-related behavior: opposed passive reaction / resignation
AP5	medium know-how medium involvement medium hierarchical position	2 fits 8 misfits	treat determined expectations low control	confirmed threats, opportunities not confirmed yet	0 favorable fits 8 unfavorable misfits	**Self-Preservative Disturbance Handling Strategy** Fit-related behavior: no personal effort to exploit benefits Misfit-related behavior: opposed passive reaction
AP6	medium know-how low involvement low hierarchical position	1 fit 3 misfits	Balanced opportunity/threat expectations medium control	new threat	0 favorable fits 2 unfavorable misfits	**Self-Preservative Disturbance Handling Strategy** Fit-related behavior: no personal effort to exploit benefits Misfit-related behavior: resignation
PJ1	low know-how low involvement high hierarchical position	3 fits 5 misfits	threat determined expectations low control	confirmed appraisal	1 favorable fit 4 unfavorable misfits	**Self-Preservative Disturbance Handling Strategy** Fit-related behavior: no personal effort to exploit benefits Misfit-related behavior: opposed passive reaction / resignation
PU4	medium know-how low involvement low hierarchical position	3 fits 5 misfits	opportunities and threats low control	confirmed appraisal	2 favorable fit 5 unfavorable misfits	**Self-Preservative Disturbance Handling Strategy** Fit-related behavior: no personal effort to exploit benefits Misfit-related behavior: resignation

End-User	Individual Review of Behavioral Reaction	Satisfaction		Alignment with New Routi	Alignment with Overall Organizational Intent
AP1	Assesses the potential of the system as not fully taped yet and notices that his actions might have an impact so that he is motivated to contribute actively.	equally satisfied, potentially more satisfied	0	generally yes, but temporarily works around misfis using the to old routines till a solution is found to solve the misfits	yes
PJ6	Assesses the potential of the system as not fully taped yet and notices that his actions might have an impact so that he is motivated to contribute actively.	equally satisfied, potentially more satisfied	0	yes	yes
PU3	Because he feels to have a potential inpact due to his actions together with his awareness of the advantages of both realized fits and reduced harmful misfits he chooses an active behavior.	equally satisfied, potentially more satisfied	0	yes	yes
PU5	He is used to adapt to new routines from other projects he went through in the private sector and he likes to support and interact with others.	equally satisfied, potentially more satisfied	0	yes	yes
PU6	Assesses the potential of the system as not fully taped yet and notices that his actions already have had an impact so that he is still motivated to keep on contributing.	satisfied, potentially more satisfied	+	generally yes, but he initiated a user manual that was not coordinated with the project team	yes
AP3	No way out of the situation is visible because the advantages of the (potentially) realized fits are clouded by the threatening but not addressed misfits. The result is a dissatisfied passive resignation.	dissatisfied	-	no, uses old routines	no
AP5	No way out of the situation is visible because the advantages of the (potentially) realized fits are clouded by the threatening but not addressed misfits. The result of the emotional defense behavior ((that has no impact) is a dissatisfied resignation.	dissatisfied	-	no, uses old routines	no
AP6	Because the advantages of the (potentially) realized fits are clouded by the threatening but not addressed misfits the result is a passive resignation	dissatisfied mainly because of a new threat	0	yes, but does not address misfits	no
PJ1	Accepted his fate from the moment a personal way out of the initial passiv resignation was found in avoiding the harmful misfits by using his hierarchical position	was dissatisfied in the beginning but is indifferent now	0	no, uses old routines	no
PU4	Living with the misfits leads to dissatisfaction. But no way out of the situation is visible because the advantages of the (potentially) realized fits are clouded by the threatening but not addressed misfits. The result of the emotional defense behavior,t(hat has no impact) is a dissatisfied resignation she does not accept and decides to take the chance to move internally to another department.	was dissatisfied in the beginning but is indifferent now	0	yes, but does not address misfits anymore	no

End-User	Individual context	Perception	Appraisal before go-live	Reappraisal	Evaluation	Behavioral Reaction (Coping Strategy)
PJ2	low know-how low involvement low hierarchical position	1 fit 3 misfits	unconcerned / no expectations	low control	1 favorable fit 3 unfavorable misfits	**Passive Benefits Satisficing Strategy** Fit-related behavior: limited personal effort to exploit benefits Misfit-related behavior: acceptance / arrange around
PJ3	low know-how low involvement low hierarchical position	2 fits 1 misfit	no expectations medium control	low control	0 favorable fits 1 unfavorable misfit	**Passive Benefits Satisficing Strategy** Fit-related behavior: limited personal effort to exploit benefits Misfit-related behavior: acceptance / arrange around
PJ5	low know-how low involvement low hierarchical position	2 fits 4 misfits	unconcerned / no expectations low control	appraises new opportunities that exceeds expectations	2 favorable fits 4 unfavorable misfits	**Passive Benefits Satisficing Strategy** Fit-related behavior: limited personal effort to exploit benefits Misfit-related behavior: acceptance / arrange around
AP2	low know-how low involvement low hierarchical position	5 fits 4 misfits	opportunity determined expectations medium control	low control	5 favorable fits 1 unfavorable misfit	**Active Benefits Satisficing Strategy** Fit-related behavior: self-interested personal benefits exhaustion Misfit-related behavior: acceptance / personal misfit harm reduction
AP4	medium know-how low involvement low hierarchical position	6 fits 5 misfits	opportunistic attitude high control	appraises new opportunities that exceeds expectations	3 favorable fit 4 unfavorable misfits	**Active Benefits Satisficing Strategy** Fit-related behavior: self-interested personal benefits exhaustion Misfit-related behavior: acceptance / personal misfit harm reduction
PJ4	low know-how low involvement medium hierarchical position	2 fits 0 misfits	opportunity medium control	low control	1 favorable fit 0 unfavorable misfits	**Active Benefits Satisficing Strategy** Fit-related behavior: self-interested personal benefits exhaustion Misfit-related behavior: acceptance / personal misfit harm reduction
PU2	medium know-how low involvement low hierarchical position	2 fits 1 misfit	no opportunities/treaths medium control	appraises new opportunities that exceeds expectations	2 favorable fit 1 unfavorable misfit	**Active Benefits Satisficing Strategy** Fit-related behavior: self-interested personal benefits exhaustion Misfit-related behavior: acceptance / personal misfit harm reduction

End-User	Individual Review of Behavioral Reaction	Satisfaction		Alignment with New Routine	Alignment with Overall Organizational Intent
PJ2	Does not perceive and believe that his behavior has / would have any influence.	indifferent / no influence	**0**	yes	resolvable inefficiencies
PJ3	Does not perceive and believe that his behavior has / would have any influence.	indifferent / no influence	**0/-**	yes	resolvable inefficiencies
PJ5	Would be more satisfied if the misfits were addressed but the user does not want to invest any personal effort.	indifferent / no influence	**0/+**	yes	resolvable inefficiencies
AP2	Work is faciliated due to high benefits of many fits with a low investment of personal effort	satisfied	**+**	yes	no, high risks due to ignoring misfits
AP4	Opportunity-driven attitude	satisfied	**+**	yes	no, unfavorable fit is avoided by selective behavior risky for the organization
PJ4	Realized benefits convince user.	satisfied / potentially more satisifed	**0|+**	yes	yes
PU2	Active behavior has positive personal influence.	new opportunities visible due to adaptive activities	**+**	yes	yes

User Archetype

Solution Provider	potential power through either system know-how, project involvement or hierarchical position	both fits & misfits but high number of misfits compared to fits	opportunity-dominated appraisal… control due to system expertise…	…or opportunity-dominated reappraisal …or control due to exerting an influence	Evaluate the beneficial potential of fits as not realized/exhausted yet and/or Evaluate unfavorable misfits as (partially) resolvable	**BenefitsMaximizing Strategy** Fit-related behavior: active self-motivated overall benefits maximization Misfit-related behavior: active resolution-oriented
Surrendering Quitter	limited potential power through either system know-how, project involvement or hierarchical position	misfits > fits	threat-dominated appraisal… low control…	…that is confirmed or threat-dominated reappraisal …that is confirmed and let the user feel powerless	(Potential) benefits of fits are neutralized in evaluation Misfit are mostly evaluated as harmful	**Self-Preservation & Disturbance Handling Strategy** Fit-related behavior: addapt reluctantly with no personal adaption effort Misfit-related behavior: opposed passive reaction / resignation
Self-Optimizer	limited potential power through either system know-how, project involvement or hierarchical position	fits > misfits	opportunity-dominated appraisal… medium-high control…	…or opportunity-dominated reappraisal …reappaised control is rather lower	Fits are evaluated as very beneficial Harm of misfits is (partially) neutralized	**Active Benefit Satisficing Strategy** Fit-related behavior: self-interested active benefit maximization Misfit-related behavior: active personal addressing if beneficial
Passive Beneficiary	low potential power through low know-how low involvement low hierarchical position	both fits & misfits	few expectations / unconcerned	low control	More unfavorable misfits than favorable fits	**Passive Benefit Satisficing Strategy** Fit-related behavior: profit passively from adaption benefits Misfit-related behavior: acceptance / arrange around

User Archetype

Solution Provider	The user's extra adaption effort already has an impact or the user is convinced that his/her effort will make an impact.	If effort already had an impact = satisfied If effort will potentially make an impact = not yet satisfied because he/she still has higher expectations	0(+)	Mainly yes, short-term deviations are beneficial for the organization	These users are a great asset for the organization in order to further develop the ES and to exploit new opportunities
Surrendering Quitter	Resignation because they see no way out, reinforced due to the user's passive behavior.	If no way out is visible = dissatisfied If a way out is visible = not dissatisfied anymore	-(0)	Only where forced by the new processes / system, preservation of old routines is harmful for organization	Inefficiencies due to preservation of old routines, opposition, risk due to end-user frustration
Self-Optimizer	By adapting to the new routine the user perceives new opportunities that he/she tries to exploit if they are beneficial (also by reducing misfits).	satisfied	+	Yes, optimization within the new routines	Opportunities are not visible and self-interested user behavior regarding misfits is a potential risk for the organization
Passive Beneficiary	As the user sees only limited benefits resulting from the fits he/she acts passively with the strategy to potentially benefit without having to invest anything.	no real influence on satisfaction	0	Yes, but inefficiantly	Only minor resolvable inefficiancy risks

Statement of Authorship

Ich erkläre hiermit, dass ich diese Arbeit selbständig verfasst und keine anderen als die angegebenen Quellen benutzt habe. Alle Koautorenschaften sowie alle Stellen, die wörtlich oder sinngemäss aus Quellen entnommen wurden, habe ich als solche gekennzeichnet. Mir ist bekannt, dass andernfalls der Senat gemäss Artikel 36 Absatz 1 Buchstabe o des Gesetzes vom 5. September 1996 über die Universität zum Entzug des aufgrund dieser Arbeit verliehenen Titels berechtigt ist.

Lachen, 29 November 2015 Daphne Rich