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CONCEPTUALIZING THE IMPACT OF WORKAROUNDS – AN ORGANIZATIONAL ROUTINES' PERSPECTIVE

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Abstract

Employees' acceptance and resistance of new technology and social structure are frequently examined in Information Systems research. Resistance is expressed in various forms, including a lack of cooperation, workarounds, and physical sabotage. Workarounds, in particular, have a dual nature and can refer to both, undesirable behavior that contradicts organizational structure and to desired organizational innovation. While antecedents and different forms of workarounds have been explored, literature has remained silent on how and why workarounds of an individual employee can affect activities performed by other employees and thereby, change work routines on an organizational level. Since employees' day-to-day performances constitute the ostensive patterns of a routine, we argue that workarounds will not only impact performances of adjacent routines, but also transform the organization as a social structure. With a preliminary set of qualitative data from 24 interviews, we used a multiple case study design to conceptualize six patterns that illustrate how and why workarounds can spread through an organization. The patterns are systematized by a framework that considers three types of collaboration and two types of handoffs across routines. This first evidence points at the nature of complex desired and undesired consequences that can emerge through workarounds performed in an organization.

Keywords: Resistance, Workaround, Organizational Routines, Structuration Theory.

1 Introduction

Innovative technology is an enabler for simplifying day-to-day work and for performing complex business processes (Laumer and Eckhardt, 2010). However, while organizations are eager to implement new (digital) technology, Information Systems (IS) research has frequently noted that these organizations often fail to understand employee's perception during an IT adoption (Laumer et al., 2016). Low adoption and little usage of technology are barriers for its successful diffusion and routinization in organizations (Venkatesh and Bala, 2008). A failure to fully integrate IT into the entire organization can lead to a 'productivity paradox' and, ultimately, to tremendous financial losses (Venkatesh and Bala, 2008).

Employees often do not have a choice to not use a given technology or change activities in business processes (Bhattacherjee et al., 2018). However, forcing employees to do so may lead to dissatisfaction, low morale, and resistance of individuals (Bhattacherjee et al., 2018). Individual resistance is often used as a collective term to cover a multitude of active and passive behavior that is performed to cope with change (Laumer and Eckhardt, 2010). The report *Executive Perspectives on Top Risks* revealed that resistance to change is one of the top two perceived risks in organizations undergoing a digital transformation (Beasley et al., 2017).

When employees are faced with problems, they may abandon, work around, or change them (Orlikowski, 2008). Problems can be diverse, e.g., inadequate functionality of IT artifacts, cumbersome or slow processes, or other situational anomalies (Alter, 2014; Woltjer, 2017). Workarounds are deviations from defined business processes that are carried out in the employees' performances of routines in a work system (Röder et al., 2016). "A work system is a system, in which human participants and/or machines perform work using information, technology, and other resources to produce products/services for internal or external customers" (Alter, 2014, p. 1046). They are social structures that describe the "way in which a society is organized into

predictable relationships" (Schaefer and Lamm, 1998, p. 120). Social structure can change planned or unplanned through workarounds, which affect actors performing subsequent activities (Alter, 2017). Previous research found that an employee's decision for a workaround is based on a risk-benefit-analysis of the situational context (Röder et al., 2014). More specifically, recent studies point to the decisive role of technology, IT-expertise of individuals, and human workload (Fries et al., 2016; Woltjer, 2017). Generic types of workarounds have been conceptualized based on employees' types of behavior (Li et al., 2017; Outmazgin and Soffer, 2016; Beerepoot et al., 2018). These findings highlight the different effects of workaround behavior on individual performance (Pinto et al., 2018). There is neither research on how and why workarounds of individuals influence the work of other individuals nor on workarounds' effects on organizations as social structures.

Employees perform work by enacting organizational routines—hereafter referred to as routines—using technology and other resources to provide products or services for customers (Alter, 2002). Routines denote a set of rules or standard operating procedures (*ostensive aspect*), which are performed as repetitive and recognizable collective behavior (*performative aspect*). Hence, routines can be used as a predictor for how workarounds affect the work of co-workers and supervisors in an organization. The purpose of this paper is to provide a first answer to the research question: "*How and why do workarounds impact routines performed by other employees and the organization as a social system?"*.

The paper proceeds as follows: In Section 2, we present and discuss constructs of individual resistance and workarounds as well as dynamic effects within and between routines. In Section 3, we explain and justify a multiple case study approach for investigating how and why workarounds impact an organization. In Section 4, we use preliminary data acquired from 24 qualitative interviews of four cases to exemplify situations, in which individuals engage in workarounds that alter their routines or the IT artifacts they use. We derive a framework with six patterns that illustrate how and why workarounds impact the routines of other individuals and the organization as a social system. Section 5 concludes the paper.

2 Theoretical Background

2.1 Workarounds as Behavior of Resistance

Organizations invest more money in IT than ever, expecting improved firm performance. However, managers point out that there are some unexpected difficulties regarding the adoption of IT. One of them is user resistance, which has been gaining increased attention in research (Popovič, 2017). As a behavioral intention in routine performance, i.e., when "the IT system is employed in organizational work" (Cooper and Zmud, 1990, p. 124), resistance still lacks theoretical foundation in the IS discipline.

Resistance is "an adverse reaction to a proposed change which may manifest itself in a visible, overt fashion (such as through sabotage or direct opposition) or may be less obvious and covert (such as relying on inertia to stall and ultimately kill a project)" (Hirschheim and Newman, 1988, p. 398). It points at an individual tendency of preferring to keep well-known processes, technology, and structures (Laumer, 2011).

The relation between resistance and acceptance of change and the behavioral intentions of individuals has been conceived and empirically tested in several theories since the 1970s. Established theories comprise the theory of reasoned action (TRA) by Fishbein and Ajzen (1975), theory of planned behavior by Ajzen (1991), and self-efficacy theory by Bandura and Wessels (1997). Later, an extensive body of research has focused on examining users' attitudes towards technology, e.g., the technology acceptance model (TAM) by Davis (1989) and its extensions TAM 2 by Venkatesh and Davis (2000), TAM 3 by Venkatesh and Bala (2008), theory of acceptance and use of technology (UTAUT) by Venkatesh et al. (2003) and UTAUT 2 by Venkatesh et al. (2012) as well as the model of adoption of technology (MATH) by Brown and Venkatesh (2005).

Resistance is a two-phase process (Ferneley and Sobreperez, 2006). First, it is an individual cognitive process that ends with the decision to resist (Ferneley and Sobreperez, 2006). Second, resistance is expressed through behavior, such as lack of cooperation, workarounds, avoidance of IT, and physical sabotage (Ferneley and Sobreperez, 2006). A workaround is "[…] a goal-driven adaptation, improvisation, or other change to one or more aspects of an existing work system in order to overcome, bypass, or minimize the impact of obstacles,

exceptions, anomalies, mishaps, established practices, management expectations, or structural constraints that are perceived as preventing that work system or its participants from achieving a desired level of efficiency, effectiveness, or other organizational or personal goals." (Alter, 2014, p. 1044).

Workarounds develop bottom-up and are performed unofficially in an organization (Röder et al., 2016). For example, workarounds or unsanctioned deviations can arise when employees are faced with conflicting goals of IT and the defined business process (Alter, 2014; Fries et al., 2016; Woltjer, 2017). Three kinds of workarounds were identified: hindrance, harmless, and essential workarounds. Hindrance workarounds occur when an individual perceives IT usage as cumbersome or deem it as unimportant (Ferneley and Sobreperez, 2006). Harmless workarounds refer to using IT in an unintended way, which does not much affect the workflow (Ferneley and Sobreperez, 2006). Essential workarounds exist if employees do not follow a prescribed process, thereby strongly affecting its outcome (Ferneley and Sobreperez, 2006).

A holistic perspective on the facets of workarounds is provided by Alter (2014). The author systematizes the workarounds with five voices, including phenomena, types, direct effects, perspectives, and organizational challenges and dilemmas (Figure 1). *Phenomena (1)* describe a range of antecedents, e.g., anomalies, exceptions, mishaps, and other constraints. *Types (2)* provide a classification of the enacted workarounds, e.g., "overcome inadequate IT functionality" or "bypass an obstacle built into processes of practices" (Alter, 2014, p. 1048). *Direct effects (3)* systematize workarounds' consequences and implications, e.g. "continuation of work despite obstacles, mishaps, or anomalies" or "creation of hazards, inefficiencies, or errors." *Perspectives (4)* describe the business value or ethical value of workarounds. The phenomena, types, effects, and perspectives cause a multitude of organizational challenges and dilemmas (5) that are related to workarounds. These challenges refer to the workarounds' impact when diffusing from an individual to an organizational level, e.g., to "increase an organization's ability to operate despite obstacles" (Alter, 2014, p. 1048). The theory of workarounds provides a helpful conceptualization of how workarounds come about.

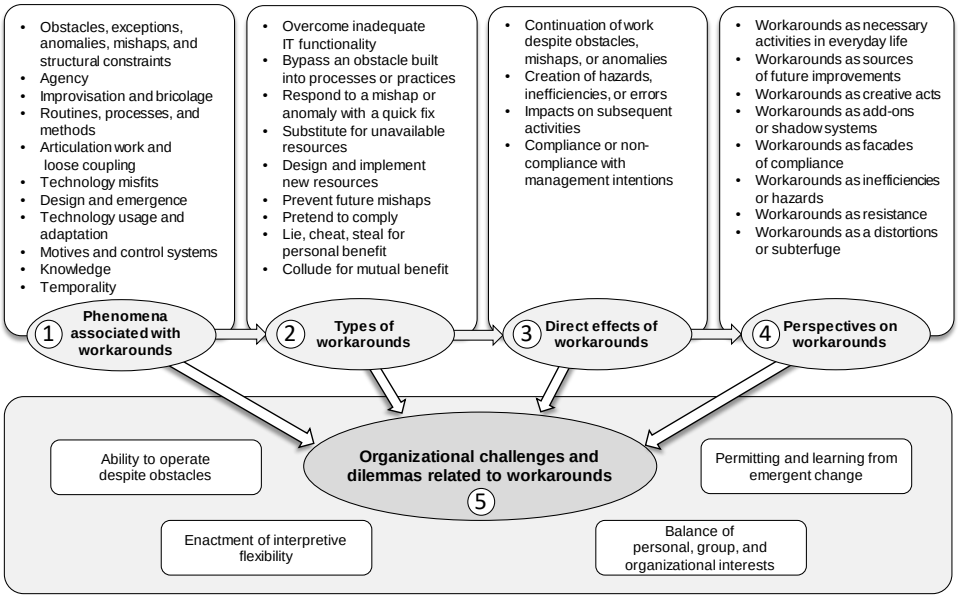

Figure 1. Summarizing the Theory of Workarounds (based on Alter, 2014).

Recent studies find a dual effect of workarounds. They can be a negative deviation from a standardized process, leading to information systems security violations (Arduin and Vieru, 2017). At the same time, workarounds can also be positive, since the workaround might identify a flawed system or might turn out to be functionally useful, e.g., to overcome technological shortcomings (Ferneley and Sobreperez, 2006; Li et al., 2017). Either way, digitalization is a special challenge for employees performing workarounds to bypass an obstacle or substitute unavailable resources (Merschbrock and Figueres-Munoz, 2015). However, it has remained unclear how and why a workaround might (a) impact routines of other employees and (b) impact an organization through structuration.

2.2 Co-Evolution of Interdependent Routines

There has been a conceptual and methodological shift from analyzing standard operating procedures as fixed patterns to a more performance-oriented point of view, based on conceptualizing routines as effortful accomplishments performed by human actors. Routines are an acknowledged theoretical lens to understand how work is accomplished in an organization (Deken et al., 2016) and how these performances establish in the organization as a social structure. This lens seems particularly suitable since most of the work in an organization is carried out in a routinized way (Becker and Zirpoli, 2008).

Routines include ostensive (an ideal or schematic pattern of a routine) and performative aspects (specific actions performed by specific people in specific places and times), which form a mutually constitutive duality (Feldman and Pentland, 2003). As routines are performed on regular terms, they form ostensive patterns (Rerup and Feldman, 2011) through structuration (Giddens, 1984). In turn, ostensive patterns are social structures that enable and constrain performances (Rerup and Feldman, 2011). Routines are effortful accomplishments that are continuously and endogenously changing (Feldman and Pentland, 2003). For instance, routines change when individuals have to cope with a recurrent problem in an existing routine (Miller et al., 2012; Pentland et al., 2016), e.g., in a dynamically evolving environment (Feldman and Orlikowski, 2011). In this regard, the employees diagnose their environment and search for possible solutions (Miller et al., 2012), which they remedy by transforming their routine.

Routines and technology can be altered through the human agency of actors that are performing work activities (Leonardi, 2011). On the one hand, an individual has the option "at any moment and within existing conditions and material, to 'choose to do otherwise' (Giddens, 1993) with the technology at hand" (Orlikowski, 2008, p. 412). Routines can be intentionally changed by flexing (adapt existing familiar actions), stretching (stretching the application of actions of which not all participants are familiar), and inventing activities (new emerging patterns) (Deken et al., 2016). Then, the routine is enacted by a bricolage or an improvisation of activities without deliberate pre-planning (Miner et al., 2008). However, individuals can also reject a technology, use its features for other purposes than intended (DeSantis and Poole, 1994), or design new respectively alter existing technology by exerting human agency (Leonardi 2011). On the other hand, the material agency of IT artifacts can induce a change in the performance of routines when they perceive that IT constrains their leeway for actions (Leonardi 2011). Hence, there is a recursive relationship between routines and IT artifacts. While routines are enabled and constrained by IT artifacts, IT artifacts are also designed and shaped by routines (Beverungen, 2014; D'Adderio, 2011).

Routines are often studied in isolation (i.e., without a link to other routines), focusing on the micro-dynamics consisting of ostensive and performative aspects within a routine (Pentland et al., 2016). However, routines are seldom performed by just one individual, but rather result from a multiplicity of routines by several actors (Pentland et al., 2016; Kremser and Schreyögg, 2016). Routines are changed or renewed through the performance of an individual who carries out activities in a cluster of routines (Deken et al., 2016), making them "[…] patterns of interdependent actions, carried out by multiple actors" (Feldman and Pentland, 2003). The interdependence between routines can be sequential (uni-directional dependence) or reciprocal (bi- or multi-directional dependence) (Deken et al., 2016).

Clusters of routines have a significant impact on the stability, change, and innovation in an organization (Pentland et al., 2016). Passing work from one person to another is defined as a handoff (Pentland et al., 2017). Handoffs create coherence within in between routines as work is passed from one person to another (Pentland et al., 2017). When objects or activities are altered, a handoff represents the moment when a change between routines is enacted (Pentland et al., 2017). Since routines are closely tied to IT artifacts that can enable individuals to perform activities and social interaction with other individuals (Leonardi, 2011; Deken et al., 2016), a change of the performative aspect of one routine or an IT artifact affects the successive activity of another routine (Pentland et al., 2017; Leonardi, 2011). Hence, if an employee is avoiding IT or exerting resistance against it, he or she might (deliberately or non-deliberately) change the routine and impact the routine of another employee.

The interdependence of routines can be structured by three patterns: pooled, sequential, and reciprocal (Pentland et al., 2016). A pooled interdependence of routines is characterized by loosely coupled units that "act independently from each other, but all contribute to the entire system" (Pentland et al., 2016, p. 3).

Coupling in a chronological sequence of activity, i.e., handoffs, are classified as sequential interdependence (Pentland et al., 2016). In routines with a reciprocal interdependence, the output of one unit becomes the input of another and vice versa in cyclical progress (Pentland et al., 2016). The current conceptualization of interdependent routines is valuable, but neither considers the multi-dimensionality of routines (including individual performance and IT artifacts) (Pentland et al., 2016), nor draws on the patterns of interdependence (uni-, bi-, or multidirectional) to describe how change ripples across routines.

3 Research Method

We performed a qualitative research method to answer our research question. Empirical research strategies are a valid methodology for gathering data on routines and understanding the context in which workarounds arise and spread (Warglien, 1995). According to Yin (2014, p. 16), a case study "investigates a contemporary phenomenon (the "case") in depth and within its real-world context." We used a holistic multiple case study design, as proposed by Yin (2014), in the field of public institutions and organizations. Multiple-case designs, as opposed to single-case designs, have the advantage of revealing whether findings vary by context, thus yielding more robust, compelling results (Yin, 2014).

Based on considerations of theoretical sampling, we identified four cases that represent different types of organizations in various industries (Table 1). Each case was carefully selected and predicts contrasting results, while it still meets the requirements of a theoretical replication (Yin, 2014). To identify the impacts of workarounds on other routines and the organization, we considered multiple stakeholders, including the initiators of workarounds, their co-workers, and supervisors, as well as IT administrators. We followed a snowball logic when identifying additional informants. This approach can reveal different perspectives of the stakeholders, which substantiates the significance of the data collected.

Case	Industry	Employees	Interviewees	Duration	Status
A	Healthcare Service	8,500	3	71 minutes	In progress
B	Consulting Service	260,000	12	313 minutes	In progress
C	IT Services	50	4	107 minutes	In progress
D	Media Group	119,089	5	112 minutes	In progress

Table 1. Overview of the Cases and the Preliminary Set of Qualitative Data we Collected.

We collected the data through performing 24 semi-structured interviews, covering questions on informants' day-to-day routines, their usage of IT artifacts, any deviations and workarounds, and workarounds' impact on the routines performed by other employees. The interviews were conducted face-to-face and via telephone, providing us with 603 minutes of raw audio data. The interviews were anonymized and transcribed to extract all useful information from the notes, audio recordings, and collected documents.

We mainly applied qualitative content analysis (Mayring, 2010) to gain meaningful insights on workarounds' impact on the routines of other individuals (performative level) and on the patterns of routines that constitute an organization (ostensive level). We performed one content analysis for each case. Then, we conducted a cross-case analysis to identify common topics that hold across the entire dataset and to increase the robustness of our study through triangulation (Yin 2014). We applied a selective coding strategy, using a computer-assisted qualitative data analysis software (CAQDAS), namely MAXQDA. Then, the data were aggregated and rearranged to patterns identified within and across the cases.

4 Six Patterns for Conceptualizing the Impact of Workarounds

Since qualitative data analysis is an open and iterative process (Ferneley and Sobreperez, 2006), we enriched and modified the coding scheme—taken from Alter (2014)—by extending, filling in, bridging, restructuring, and surfacing it (Lincoln and Guba, 1985). We renamed *phenomena* into the *trigger*, *perspectives* into *perception*, and *organizational challenges and dilemmas* into *challenges and opportunities* to ensure appropriate mapping of the data. Further, we restructured and summarized the *triggers* (formerly: phenomena) associated with workarounds.

Case	Workaround	Collaboration	Handoff	Five Voices (adapted from Alter 2014)					#
				Trigger	Workaround Type	Direct Effect	Perception	Challenge / Opportunity	
Healthcare (A)	Instead of using the MS Outlook calendar to see availability of pool cars, the nurse calls the gatekeeper to look up which cars are free to use.	Communication and exchange of information// bi-directional	Ask gatekeeper // person	“I haven’t done car booking for a long time and forgot how to do that.”// organizational misfit	“I’m just not good in MS Outlook” // compensate for skills shortage	“Co-workers look into the system and book the car” // continuation with subsequent activities	“Sometimes, the gatekeeper reminds me to use outlook instead of calling”// in-efficiencies or hazards	“If I need it urgently and there's nobody to ask, I try to manage it by phone.” //ability to operate despite obstacles	II
Consulting Service (B)	For a few analyses, the data from SAP are extracted and consolidated in an MS Excel file to extract important information for the project team.	Collaborate in project management// multi-directional	Share information in project meetings // person	“We needed data for project monitoring from June, but SAP provides data only for fiscal year starting in July”// technology misfit	“You still have to customize the data extracted from SAP.”// overcome inadequate IT functionality	“Sometimes you can't avoid creating and modifying your own list.”// modification of single-user artifact	“This information is also interesting for project controlling”//as sources of future improvements	“With the list we can see how many work hours are left for the respective employees to do project activities.”//ability to operate despite obstacles	III
	A new e-mail client was launched. Client order data, e.g. prices were easily extracted from the old e-mail client. With the new e-mail client, it does not work. Employees ente and update the data manually into SAP. The data is used for automatic invoicing.	Project workflow //uni-directional	Enter data in SAP based web frontend // IT artifact	“New e-mail program does not provide all features of the old one.”// technology misfit	“We have to save the e-mails and enter the data manually in SAP web frontend ”// substitute for unavailable resources	“Missing or outdated data leads to incorrect automatic invoicing, which has to be corrected manually.” // collides with subsequent activities	“This generates more effort for other employees”// inefficiencies or hazards	“If there is something missing I have to handle this information gap”//balance of personal, group, and organizational interests	IV
	Use Google Connect to save files, which authorized persons can edit and access centrally. A new password is generated for each access to Google Connect, to ensure data security but which also creates workload. Employees tend to use traditional ways, e.g. e-mails to share documents.	Cross-company document exchange // multi-directional	Share and collaborate via Google platform //IT artifact	“Employees are annoyed to always remember and enter a new password.”// technology misfit	“Assign tasks via comments in the files and sent them back and forth via e-mail.”//bypass an obstacle built into processes	“Management expects secure data exchange and access by sending new passwords for each login ”//non-compliance with management intentions	“We can't exploit the many features of the platform.”// resistance	“Employees can use traditional way of document exchange, e.g. via e-mail “//enactment of interpretive flexibility	VI
IT Service (C)	Change management process needs to be approved by a supervisor. Some supervisors critically check all requirements for the process, which is time-consuming. Employees choose other supervisor to release the process faster.	Release a process // uni-directional	Ask certain person to check requirements // person	“It's not necessarily about not wanting to get a permit. It is simply a matter of time.” // organizational misfit	“Some supervisors thoroughly check requirements. I don’t have the necessary time” //collude for mutual benefit	“Avoiding the four-eyes-principle speed up the process”// continuation with subsequent activities	“There is no control for correct process performance” // inefficiencies or hazards	“We can do a workaround at the moment” //enactment of interpretive flexibility	I
Media Group (D)	First level support is handled via Skype for Business with desk-sharing. However, some business units don’t have Skype. They communicate via phone and additional software Citrix GoToAssist.	Service desk management // bi-directional	Use telephone and Citrix GoToAssist for support // IT artifact	“Skype for Business implementation takes several years due to necessary confirmance of different committees" // strategic misfit	“No simultaneous rollout of Skype in all departments”// substitute for unavailable resources	“To help clients faster, I am using an additional software for desk-sharing”// modification of a collaborative system	“The application of a session with Citrix is somewhat more complicated” // add-ons or shadow systems	“I have to send an e-mail with a link to allow desk-sharing, but the client needs permission to run this software “// permitting and learning from emergent change	V

Table 2. Workarounds and their Impact, as Coded from our Qualitative Data.

While we adopted *technological misfit* (Alter, 2014) (i.e., constraints regarding the functionality of an IT artifact and activity performance on an individual), we added *organizational misfit* (i.e., a discrepancy between the defined process and the actual performance), and *strategic misfit* (i.e., a discrepancy of an IT artifact with an organization's strategy and operations) as new triggers for workarounds. This extension was necessary since our data illustrated that many workarounds have organizational causes, which were not part of the theory of workarounds.

Based on coding the data we collected (as exemplified in Table 2), six patterns emerged that explain how and why workarounds spread in an organization. All described scenarios within the cases could be assigned to one of the six patterns. The patterns enable the analysis of workarounds from a multi-dimensional perspective considering routines as activities that are performed by multiple actors who use one or more IT artifacts. Each pattern describes a different trajectory of a workaround that is conveyed across interdependent routines constituting an endogenous change in organizations. The arrows between the elements represent the directions of workarounds that are directly or indirectly impacting another routine. Depending on whether the IT artifact is used to move a routine forward to another routine or is only accessed for a certain activity, the workaround is transferred differently. The patterns can be structured in a 2x3 matrix, based on (a) the type of collaboration among employees (i.e., whether employees work in an uni-, bi-, or multi-directional way), and (b) the type of handoffs between routines (i.e., if handoffs are performed from person-to-person or via an IT artifact) (Figure 2).

Pattern I points at routines that stand in sequential order, while handoffs are performed from person to person. Employees can use the same IT artifact for performing their routines, as long as the handoff is not performed by using the artifact. An example from our data is a change management process that needed to be approved and signed by a supervisor. Some supervisors were known to check all information critically, which is time-consuming. Since the employees have the flexibility to choose a supervisor, they just asked a different supervisor who was known to release a change process more easily.

Pattern II frames bi-directional collaboration between employees, who are each using an IT artifact. Since the IT artifact is not part of the sequence flow, handoffs are performed personally. Hence, the workaround spreads via the personal interaction between an employee and a co-worker, supervisor, or customer. Our data indicate that a nurse called a gatekeeper to look up which cars are free to use and let him book the car instead of using the MS Outlook calendar to identify the availability of pool cars. She said that she hadn't "done car booking for a long time and forgot how to do that" in MS Outlook.

Pattern III highlights a multi-directional collaboration between employees, while each of them uses their own IT artifacts. Thereby, a workaround is spread through personal handoffs, but not through an IT artifact. For example, a project manager extracted data from SAP and consolidated them in an MS Excel file to derive business insights. The insights were then shared with the project team in a meeting.

Pattern IV shows a uni-directional collaboration using an IT artifact to hand off work. A workaround made in an IT artifact will be passed from one routine to another. A consulting company reported that they changed their e-mail provider. Client order data, e.g., contract details, were extracted from the old e-mail client. The new one does not offer this functionality. As a workaround, employees first saved the files from their e-mails and then entered them manually into a web frontend of a SAP database. Importantly, the data must be correct and updated to create an accurate invoice. Since prices are not updated automatically anymore, the shared service center may receive a wrong invoice that had to be corrected manually.

Pattern V illustrates a bi-directional collaboration among employees using the same IT artifact. A workaround in one routine would impact another routine through the artifact. In first-level support, most users used the desk-sharing functions of Skype for Business for fixing problems of clients. However, the implementation process was not finished, such that Skype was not available for all business units, yet. First-level support needs to phone their clients and install an additional software named Citrix GoToAssist that also allows desk sharing. This software also needs to be installed on client's PCs.

Pattern VI shows a multi-directional collaboration between employees who cooperate via an IT artifact, e.g., a collaboration platform like MS SharePoint. In this type of collaboration, multiple employees access data of the same system. A workaround is transferred via the IT artifact from one routine to another routine. For example, a consulting company used Google Connect to save files, which authorized persons could

edit, use for creating work groups, and accessing data. A new password was generated for each access to ensure data security, which also created an additional cognitive load for their users. Therefore, some employees referred back to using other tools to share documents, e.g., e-mail.

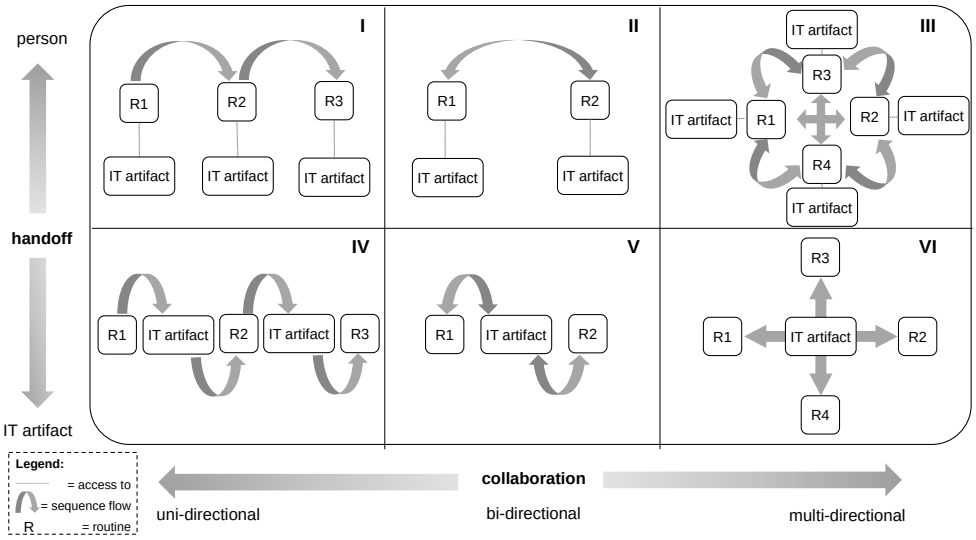

Figure 2. The Impact of Workarounds on other Routines, IT Artifacts, and the Organization.

5 Conclusion and Outlook

Workarounds represent deviations from established routines. Though they can be a source of flexibility and innovation, they can also impede the efficiency of routines. Analyzing data from 24 qualitative interviews, we identified six patterns showing how and why workarounds affect performances of related routines. This effect might occur directly or mediated through IT artifacts. If workarounds are performed frequently enough, new ostensive routines are structured, altering an organization as a social system. With the data analyzed from our interviews, it becomes clear that interconnected routines display high transformative potential, which highlights a strong need to trace and direct the (co-)evolution of routines.

Researchers can build on our results by using the patterns to understand the co-evolution of routines due to workarounds. The patterns provide a new perspective on workarounds as it extends the prior micro-dynamic perspective, shifting the research focus from an individual to a collective level. Further, links between the theory of workarounds and the conceptualization of interdependent routines have been established to provide a unified research perspective. We provide managers with a nuanced understanding regarding the power of workarounds and how they spread across through interdependent routines in their organizations. Managers are reminded to keep track of workarounds in their organizations since the effect of workarounds on networked routines can significantly exceed the reach of workarounds and lead to a dynamic—and potentially undesired—transformation of an organization as a social system. The patterns can serve as base for deciding whether to tolerate, discard, or embrace workarounds.

In the further progress of our research, we aim to continue data collection to challenge and conceptually extend our preliminary results. We already identified two additional cases and secured commitment from more informants in the current cases to triangulate our understanding of the impact of workarounds. We chose two medium-sized companies as additional cases since smaller organizations are not represented in our current dataset. Mainly, we will examine further effects of workarounds, e.g., what reactions co-workers and supervisors show apart from adoption (annoyance, avoidance, sanctions, etc.) and how power distance influences the spread of workarounds. For example, we assume that a workaround performed by a supervisor is more likely to be adopted (top-down) than a workaround of a subordinate employee (bottom-up). Additional data might also point at the organizational impact of workarounds beyond their immediate effects on other routines.

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