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CONCEPTUALIZING A VERY RICH USAGE CONSTRUCT TO MEASURE THE IMPACT OF ORGANIZATIONAL SOCIAL WEB SITE USAGE ON INDIVIDUAL PERFORMANCE

Philip Raeth

Stefan Smolnik

Maurice Kuegler

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Raeth, Philip, Institute of Research on Information Systems (IRIS), EBS Universität für Wirtschaft und Recht i. Gr., Söhnleinstr. 8D, 65201 Wiesbaden, Germany, philip.raeth@ebs.edu

Smolnik, Stefan, Institute of Research on Information Systems (IRIS), EBS Universität für Wirtschaft und Recht i. Gr., Söhnleinstr. 8D, 65201 Wiesbaden, Germany, stefan.smolnik@ebs.edu

Kuegler, Maurice, Institute of Research on Information Systems (IRIS), EBS Universität für Wirtschaft und Recht i. Gr., Söhnleinstr. 8D, 65201 Wiesbaden, Germany, maurice.kuegler@ebs.edu

Abstract

This paper describes a conceptual model investigating the impact of organizational social web site (SWS) usage on individual performance. Previous research on SWS usage offers rather lean measures, which do not account for the context (i.e. the task the system is used for). We address this research gap by constructing a very rich usage measure and introducing it in the context of organizational SWS usage. We propose that the elements of SWS usage, namely user, system, and task, impact individual performance through two forms of organizational learning – exploration and exploitation – as well as through user cognitions during usage. We further present a conceptual model as the foundation for future empirical research on the impact of SWS usage on individual performance. The theoretical contribution lies in constructing a very rich system usage construct and the resulting conceptual model. Our contribution to practice is providing an instrument to measure organizational SWS usage and its performance impacts.

Keywords: *IS usage, IS success, exploration, exploitation, organizational learning, flow theory, social web sites*

1 Introduction

The emergence of information and communication technologies (ICT) led to new opportunities to support and extend knowledge sharing and transfer in the workplace, so as to increase work performance (Ahuja et al. 2003; Alavi and Leidner 2001; Rice 1994). In particular, Web 2.0 applications – such as wikis, weblogs, really simple syndication (RSS), and tagging – have recently attracted the attention of organizations as they promise to strengthen capabilities for organizational learning and knowledge sharing (Majchrzak et al. 2006; Wagner and Majchrzak 2006). Nowadays, a diverse mix of Web 2.0 applications is bundled and integrated within social web sites (SWS). Such SWS are increasingly used within organizations (Kim et al. 2009; Majchrzak et al. 2009). Employees who use these platforms experience diverse benefits, such as better knowledge sharing with other business units, branches, teams, or communities (Raeth and Smolnik 2010). As knowledge sharing and access to new knowledge resources are known to improve employee performance (Cummings 2004; Hansen 1999), we argue that SWS establish opportunities to increase individual work performance.

However, the free form character and the large number of applications of SWS allow for a large number of usage scenarios (McAfee 2009). Employees might not only employ SWS to support collaboration, communication, and knowledge management (Andriole 2010), but also for non job-related topics, such as socializing with colleagues or scheduling the weekly get together with colleagues. Thus, not all tasks performed using SWS are job-related. Measuring the job-related performance impact of SWS therefore involves conceptualizing a usage measure, which takes the context (i.e. the task the system is used for) into consideration. Yet, current literature often employs limited system usage measures, which simply measure usage in terms of frequency or number of features used (e.g., Wattal et al. 2010). In this paper, we address this issue by constructing a very rich construct of SWS usage, which considers the task in which the SWS is employed, and the system's user. We draw on organizational learning (OL) (March 1991) to account for the task and flow theory (Csikszentmihalyi 1990) to integrate the user-oriented aspects into the SWS usage construct. OL involves the acquisition, retaining, and transfer of knowledge (Robey et al. 2000) and is known to be enabled by information technology (IT) (Kane and Alavi 2007). We adhere to this argument by stipulating that SWS usage enhances OL processes. Flow theory describes flow as a state of total concentration and enjoyment derived from engaging in an activity (Csikszentmihalyi 1990). A state of flow during SWS usage will thus enable employees to improve work performance. In sum, we contribute to the information systems (IS) usage literature in two ways. First, we conceptualize a very rich usage construct that overcomes the weaknesses of lean usage measures used to date by drawing on and combining several existing theories. Second, we propose a conceptual model to investigate the performance impact of SWS usage in organizations.

Our paper is structured as follows. We start with an outline of what we consider the core assumptions and the role of SWS in organizations. We also note the accomplishments of past usage conceptualizations in the area of Web 2.0 research, outline the main criticism of such research, and describe how we plan to overcome these limitations. Further, we outline the basic tenets of organizational learning and flow theory to then outline the research methodology. In the main section of this paper, we present the conceptualization of the very rich SWS usage construct as well the hypotheses and the resulting conceptual model. The conclusion summarizes the results and outlines the implications for research and practice as well as the limitations and next steps.

2 Foundations

2.1 Social web site usage

Social web sites (SWS) are "those Web sites that make it possible for people to form online communities, and share user-created contents (UCCs)" (Kim et al. 2009, p. 216). In the organizational context, people are represented by employees of an organization, the community by a network of co-workers, UCCs by any kind of content like, e.g., photos, videos, bookmarks, user profiles, activity updates, or text. In short, organizational SWS are a mix of social networking sites, i.e. sites that hold personal profiles and communities, and social media sites, i.e. sites for sharing various media types (Kim et al. 2009). SWS are employed in organizations to address knowledge bottlenecks (Wagner 2006) and to allow for conversational ad hoc knowledge management (Wagner 2004; Wagner and Bolloju 2005). They thus offer the ability to discover communities and associated knowledge of users "germane to a users current context" (Raghavan 2002). In sum, SWS deliver collaboration, communication, and general knowledge management capabilities (Andriole 2010; Horowitz et al. 2010; Majchrzak et al. 2009; McAfee 2009). Following Nunamaker et al.'s (1991) classification, SWS provide process support (communication and collaboration), which fosters interaction among organizational members as well as task support in that users are able to search for specific job-related knowledge (e.g., documents) (Wagner 2004). Despite the number of tasks and usage scenarios possibly supported by SWS, current conceptualizations do not account for the various contexts of SWS usage. Wattal et al. (2010), for instance, simply operationalize system usage of a weblog by the number of posts the users of the system publish. Cummings et al. (2009) discuss two types of personal usage: Consumption and contribution. That is, they head in the right direction in adjusting for different usage types. However they miss out on personal attributes, such as cognitions, which have been found to significantly influence SWS usage (Shin and Kim 2008).

In order to account for the diverse possible usage scenarios, we draw back on the IS usage domain to conceptualize a very rich SWS usage construct. Burton-Jones and Straub (2006) reviewed different system usage construct types employed in IS research and found usage to encompass a wide array of measurement approaches. Conceptualizations of usage range from simple measures, such as duration and frequency, to a variety of criteria used. Oftentimes, such atheoretical approaches result in somewhat limited usage constructs (Burton-Jones and Straub 2006). In response to these oftentimes limited conceptualizations, they propose a framework for defining system usage. According to this framework, system usage is an activity composed of three fundamental elements: a system, a user, and a task. Burton-Jones and Straub (2006) further develop a staged approach for conceptualizing system usage in any given context. In this study, we draw on their two-staged approach (figure 1).

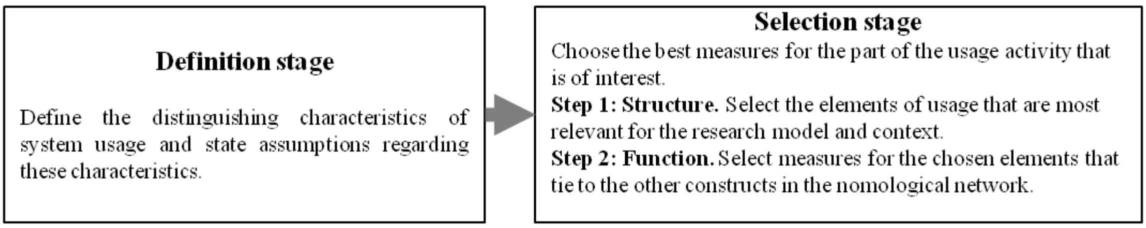

Figure 1. Staged approach for defining system usage and selecting usage measures (Burton-Jones and Straub 2006)

2.2 Theoretical foundations

Organizational learning (OL) involves the acquisition, retaining, and transfer of knowledge (Huber 1991; Robey et al. 2000). It may occur at multiple levels of an organization: "individual, group, and organization" (Crossan et al. 1999, p. 523). Two types of OL that have been shown to significantly affect organizational performance (e.g., Benner and Tushman 2003) are exploration and exploitation. Exploration is concerned with replacing existing knowledge or developing new knowledge within an organization's memory (March 1991). In contrast, exploitation involves incremental learning by means of diffusion, refinement, and reuse of existing knowledge (Kane and Alavi 2007; March 1991). "Organizational learning involves a tension between assimilating new learning (exploration) and using what has been learned (exploitation)." (Crossan et al. 1999, p. 523) Prior research shows that organizations, in order to be successful under given resource constraints, need to balance these two learning patterns (March 1991). OL researchers investigate this aspect under the label of ambidexterity (e.g., Gibson and Birkinshaw 2004; Gupta et al. 2006). "Ambidexterity is understood as the balanced combination of exploration and exploitation." (Mom et al. 2009, p. 1)

Research on ambidexterity at the individual level has been scarce leaving some questions unanswered and leading to contradictory results (Raisch and Birkinshaw 2008). For example, Gupta et al. (2006, p. 697) argue that "within a single domain (i.e., an individual or a subsystem), exploration and exploitation will generally be mutually exclusive." Just recently however, Mom et al. (2009) investigated the explorative and exploitive behaviors of managers and found that they are not mutually exclusive. Managers exhibited different degrees of ambidexterity with some engaging in either of the activities while others taking on high levels of action in both activities. Since our research focuses on employees in organizations, we argue in the same line: individuals are able to engage in a large spectrum of exploration and exploitation. Hence, we argue that individuals are also able to use IT in an explorative as well as in an exploitative fashion.

According to *flow theory* (Csikszentmihalyi and Csikszentmihalyi 1988), flow is a state of mind experienced by an individual who is deeply involved in an activity Csikszentmihalyi (1990). It is as a state of total concentration in an activity that goes along with perceived enjoyment from engaging in that activity (Csikszentmihalyi 1990). Researchers have used this concept to examine various activities from rock climbing to ordinary work. These activities involve such an intense focus on the activity itself that the individuals are able to encounter the experience in its highest form (Csikszentmihalyi and Csikszentmihalyi 1988). Flow theory includes multiple interconnected dimensions, which for example refer to affective, motivational, and cognitive states. The higher an individual would score on these dimensions, the closer he would be allocated to the state of flow (Massimini and Carli 1992). In IS research, flow theory has been employed as a trait and as a state (Webster and Martocchio 1992). Traits are fairly independent of the situation or task, while state-like individual differences are task-specific or situation-specific (Gist and Mitchell 1992). As a result, state-like individual differences are more closely connected to individual performance than traits, as their impact on performance is realized through the situation-specific states in question. Take the example of a concentrating person. Measuring whether someone is able to concentrate in general is different from asking whether s/he is able to concentrate in a specific situation. We believe that the latter measure in this example will mirror her/his actual cognition better, because it takes the specific situation into account, instead of making generalizations. As a trait, flow mainly provided insights on its impact on computer usage and technology acceptance (Agarwal and Karahanna 2000; Ghani and Deshpande 1994; Koufaris 2002; Shin and Kim 2008). As we aim to measure flow during usage of SWS for certain tasks (and not as an antecedent such as in technology acceptance research), we refer to flow as a state.

3 Research Methodology

For initially setting-up the model, an exploratory study was conducted in two multinational IT firms in Germany (both with 50.000+ employees). Both organizations have launched internal SWS and provide it to all their employees. All SWS used in the organizations at investigation are off the shelf products with minor adaptations to the organizational IS landscape. To gain insight into the usage of SWS for exploration and exploitation, we conducted ten interviews with employees from varying hierarchy levels (six in one company, four in the other; both sales and project oriented). We followed a semi-structured interview guideline with the goal of exploring and understanding employees' SWS usage behaviors, especially with regard to task and process support. In addition, we interviewed two experts (one professor and one independent consultant) to gain independent insights into the field of interest. Based on literature and the results of the interviews we developed an initial item pool for measuring SWS usage and its impact on individual performance. To enhance content validity we used existing descriptions of organizational learning characteristics (Levinthal and March 1993; March 1991) as well as measures of exploration and exploitation on the individual level of analysis (Mom et al. 2009). We analyzed the data by coding usage scenarios via bottom-up coding using Microsoft Excel. The resulting list of usage scenarios was compared to existing literature (Aubry and Lièvre 2010; Gibson and Birkinshaw 2004; Levinthal and March 1993; March 1991; Mom et al. 2009; Raisch and

Birkinshaw 2008; Raisch et al. 2009; Tushman and O'Reilly 1996). This allowed assessing whether the given usage scenarios were either scenarios for exploration or exploitation.
The measurement instrument is based on established measures as proposed in literature[1] (Boudreau et al. 2001; Moore and Bensabat 1991) as well as the scales of SWS exploration and exploitation developed based on the interviews and existing literature. Given that our very rich usage construct has several dimensions, but belongs to the theoretical concept SWS usage, we propose an aggregate cause higher-order construct to measure SWS usage. Aggregate higher-order constructs are used to represent several distinct dimensions as a single theoretical concept (Edwards 2001). The constructs unite several dimensions into a common concept and can, for illustrative purposes, be regarded as similar to formative measures (Edwards 2001). The theoretical utility of such constructs is sometimes contested on the grounds of its inferiority to multivariate models. However, we think, along with Edwards (2001, p.149), that "this dilemma may be ameliorated by developing theories that incorporate multidimensional constructs along with their dimensions." Thus, we develop SWS usage as a multidimensional construct.

4 Conceptual Model

Adhering to Burton-Jones and Straub's (2006) two stage model (figure 1), we define the SWS usage construct according to its structure and function. *Structure* is defined by the elements that are most important in the theoretical context, while *function* refers to the results and effects of the phenomenon under investigation. We argue that all three elements proposed by Burton-Jones and Straub (2006), namely system, user, and task, are important in the context of SWS usage. Since users, while using a SWS, are influenced by cognitions and emotions due to their cognitive engagement in a task while using the system (Koufaris 2002), we argue that SWS usage is not only a behavior, but it is a cognitive behavior (Martocchio and Webster 1992). Hence, the SWS usage construct treats usage as a cognitive behavior (as opposed to most IT acceptance research that simply regards usage as a behavior).

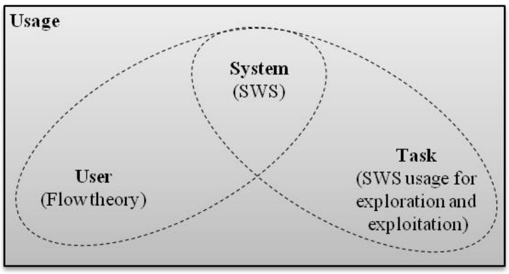

Figure 2. Conceptualization of the very rich SWS usage construct

We conceptualize two measures: the first measure captures the user cognitions during system usage via flow theory and the second measure represents SWS usage (in a task) for exploration and exploitation (figure 2). As the function of the SWS usage construct refers to individual performance impacts, we substantiate the usage-performance relationship by theoretically mapping all usage dimensions to individual performance impact (Burton-Jones and Straub 2006). We will thus first define individual performance, then establish a theoretical link between user cognitions and performance, and thereafter connect SWS usage for exploration and exploitation to performance. Finally, we identify task characteristics and virtuality as contextually important elements. Figure 3 depicts the final conceptual model.

[1] We are aware that such practice is not superior to revalidating or creating new construct measures. Our rationale derives from theoretical considerations such as assuring comparability and cumulating knowledge (Boudreau et al., 2001).

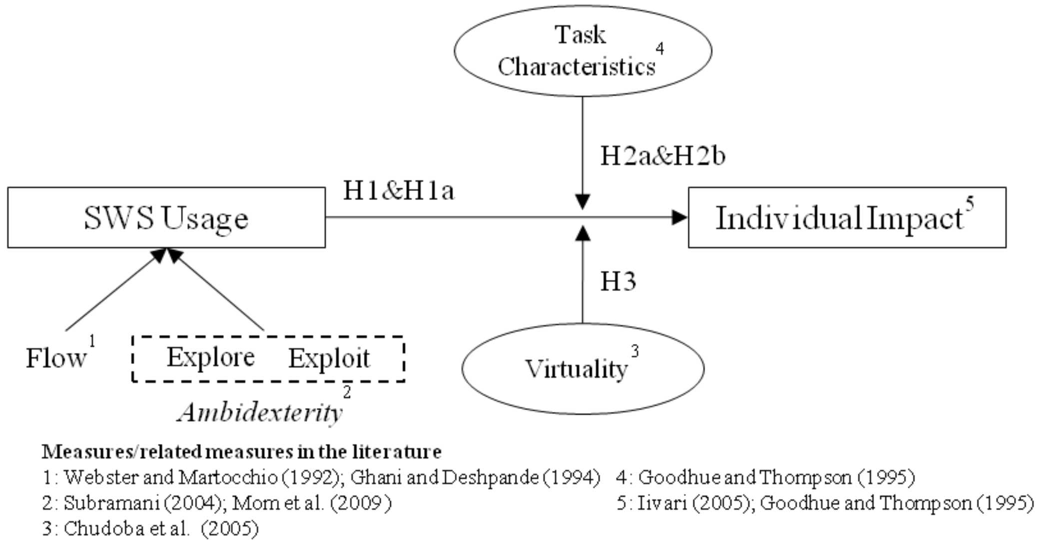

Figure 3. Conceptual model

4.1 Individual performance impact

According to DeLone and McLean (2003), IS success consists of six dimensions: information quality, system quality, service quality, user satisfaction, system use, and net benefits. Empirical tests of the model find support in a large amount of empirical studies (DeLone and McLean 2002; DeLone and McLean 2003; Petter et al. 2008; Urbach et al. 2010). Our field of interest is the last dimension of the DeLone and McLean success model, namely net benefits, which represents an overall category for several benefit types, for example individual benefits, group benefits, and organizational benefits (DeLone and McLean 2003). As the level of analysis of the conceptualized model is the individual, we focus on individual benefits or individual performance. Researchers have measured individual performance diversely, e.g., in terms of job productivity, job performance, decision quality, time savings, and effectiveness (DeLone and McLean 1992; Goodhue and Thompson 1995; Igbaria and Tan 1997; Iivari 2005). We follow Goodhue and Thompson’s (1995) approach and define individual performance as the accomplishment of a portfolio of tasks by an individual. Higher performance thus implies a mix of improved efficiency, improved effectiveness, and/or higher quality (Goodhue and Thompson 1995).

4.2 User cognitions during system usage

A large number of theories suggest a relationship between cognitions and performance impact. For example, research in psychology has investigated the influence of cognitions on performance (e.g., Humphreys and Revelle 1984; Matthews et al. 2000). IS researchers have investigated user cognitions using flow theory (Ghani and Deshpande 1994; Koufaris 2002; Shin and Kim 2008; Trevino and Webster 1992). Flow has been found to be an antecedent to attitudes such as ease of use and satisfaction (Agarwal and Karahanna 2000; Koufaris 2002; Sandeland et al. 1983), computer use (Ghani and Deshpande 1994), perceived usefulness (Agarwal and Karahanna 2000), learning (Webster and Martocchio 1992), and performance (Burton-Jones and Straub 2006; Trevino and Webster 1992). We thus use flow theory to incorporate the user into our very rich usage measure. As flow is a multi-dimensional and interdependent construct (Trevino and Webster 1992), we adopt three dimensions examined in flow-related IS research: control, concentration, and exploratory usage. We make this decision based on earlier IS related flow research, which uses similar dimensions to measure flow (Ghani and Deshpande 1994; Trevino and Webster 1992).
Our first dimension of flow, namely control, has been subject to investigation in various theories, including the theory of planned behavior (Ajzen 1991) and the motivation theory (Atkinson 1964).

Moreover, it has been found to relate to trust concepts (Bijlsma-Frankema and Costa 2005). In flow theory, *control* is defined as the sense of control over an environment, which leads to a "sense of exhilaration, a deep sense of enjoyment" (Csikszentmihalyi 1990, p. 3), in which one loses perception of time. Such an experience leads to an eased perception of the difficulty in task performance (Agarwal and Karahanna 2000). Furthermore, positive sensations of SWS usage represent rewards of intrinsic motivation, such as enjoyment and excitement.

Individuals experiencing such intrinsic motivation are likely to stay engaged in the experience and therefore remain fully concentrated on the activity they are currently engaged in. Such immersion in an activity can progress to a state of perceived timeliness, in which individuals excel in their tasks and develop a sense of mastery (Csikszentmihalyi and Csikszentmihalyi 1988; Mainemelis 2001). As a result, the state of focused immersion (Agarwal and Karahanna 2000), or *concentration* (Ghani and Deshpande 1994), in an activity describes our second dimension of flow.

Finally, individuals who experience flow while using SWS tend to experiment more with the diverse features of a SWS (*exploratory usage*), which leads to better knowledge concerning the suitability of the SWS for specific tasks. Flow also implies high absorption and concentration, which allows for better information processing during a task (Humphreys and Revelle 1984) as the person is more attentive to the task (Matthews et al. 2000). Taken together, the three dimensions of flow will increase the output of tasks, thus leading to a higher individual performance impact for individuals in a state of flow.

4.3 Usage of the system in a task

We seek to link the task dimension in the system usage construct to individual performance impact by measuring the degree to which SWS features are used by employees to support job-related tasks. Breadth of use has often been the measure of choice to measure employment of a system in a task. However, it has offered a weak link to individual performance (Burton-Jones and Straub 2006; DeLone and McLean 2002; Petter et al. 2008). As a result, we follow recent recommendations from IS research that propose employing a task-specific measure (Burton-Jones and Straub 2006; Subramani 2004). Adaptive structuration theory (AST) proposes that technological artifacts inherit structural features, which are represented by an IS's rules, resources, and capabilities (DeSanctis and Poole 1994). These structural features are evidenced through an appropriation process of the specific technology at a certain point in time (DeSanctis and Poole 1994). That is, users may choose to use a SWS based on its rules, resources, and capabilities to further form interaction patterns that, "given […] sources of social structure and ideal appropriation processes that fit the task at hand" (DeSanctis and Poole 1994, p.131), will result in the desired outcomes. Bearing in mind that SWS can be used in various ways to support a large spectrum of tasks, a task-centered measure incorporating a sub-set of SWS rules, resources, and capabilities should be defined (Jasperson et al. 2005).

We thus establish a task-centered usage measure on two concepts from OL (Argyris and Schön 1978), namely exploration and exploitation. IS may influence organizational learning in general (Robey et al. 2000) and exploration and exploitation in particular (Attewell 1992; Kane and Alavi 2007). Table 1 presents the main ideas of exploitation and exploration in terms of SWS usage and introduces the belonging items examining SWS usage for exploration and exploitation.

Research suggests that ambidexterity, which is understood as the balanced combination of exploration and exploitation (Mom et al., 2009), spurs stronger performance than the pursuit of either activity on its own (Gibson and Birkinshaw 2004; Raisch and Birkinshaw 2008; Tushman and O'Reilly 1996). Research has mostly regarded and conceptualized ambidexterity as a characteristic of an entire business unit (Mom et al., 2009). However, "it manifests itself in the specific actions of individuals throughout the organization" (Gibson and Birkinshaw 2004, p.211). Thus, a business unit, which allows its members to engage in adaptive and aligned actions will enable individuals to distribute their time according to their own judgment (Gibson and Birkinshaw 2004). Based on AST and OL, we argue that usage for exploration and exploitation increases individual performance in two ways. First, following AST, an individual using structural features of SWS increases the cognition in the task because interaction processes will be consistent with the technology's structural potential (i.e. SWS) and, thus, usage fits the task at hand.

SWS usage for exploration	SWS usage for exploitation
Goals: Finding and creating new solutions to business problems based on knowledge and expertise found via the SWS **Outcomes**: New solutions to existing business problems resulting in new capabilities or knowledge	**Goals**: Enhance collaboration, communication, and coordination processes among employees in the organization **Outcomes**: Intangible benefits such as better coordination within projects/activities, enhanced collaboration
Please indicate to what extent you use SWS to support activities characterized as follows.	
a. The extent to which you use SWS to search for new information/documents/data b. The extent to which you use SWS for knowledge-sharing of long term strategic developments c. The extent to which you use SWS to acquire new knowledge and skills	a. The extent to which you use SWS for collaboration on ad-hoc short term projects and meetings b. The extent to which you use SWS for knowledge-sharing of information concerning existing products/services c. The extent to which you use SWS for sharing of information concerning existing internal and/or external customers

Table 1. SWS usage for exploration and exploitation and corresponding initial items

As a result, outcomes will be more favorable and more predictable (DeSanctis and Poole 1994). Furthermore, users who are aware of an organization's SWS and their features are also able to better understand how the IS supports their tasks and therefore the quality of their output increases. Second, SWS usage impacts individual work performance through features that support exploration and exploitation.

Hypothesis 1 (H1). Considering all SWS usage dimensions, SWS usage will be positively related to individual performance impact.

Hypothesis 1a (H1a). A balance between usage for exploration and exploitation will result in higher individual performance impact.

4.4 Context

We include several moderators to account for the usage context. We consider two things when examining the context of usage: the elements of usage (system, user, and task) and the time scale (Burton-Jones and Gallivan 2007). Knowledge workers encounter a wide spectrum of knowledge needs, which depend on different institutional and individual application adoption decisions in real world settings (Jasperson et al. 2005). For example, employees bound to follow strict process parameters will probably not be inclined to frequently exchange or seek knowledge. Their tasks mainly center on well-defined processes that usually do not require flexible knowledge exchange. Thus, the tasks are mostly static and well structured, which makes the need for new knowledge rare once employees have learned to perform their job tasks. On the other side of the spectrum, employees who have to deal with novel or unstructured business problems are tied to their access to knowledge resources and thus depend on exploring other people's knowledge. Hence, SWS are used in various different contexts within an organization. Owing to that, the context needs to be reflected accordingly when examining the usage of SWS within organizations.

Given our focus on the usage-performance link, we first investigate for task-technology fit. It is argued that impact on individual performance results from fit (Goodhue and Thompson 1995), which means that IS "have a positive impact on performance only when there is correspondence between their functionality and the task requirements of users" (Goodhue and Thompson 1995, p. 214). We thus integrate Goodhue and Thompson's (1995) task characteristics measures, which describe *task equivocality* (i.e. uncertainty) and *task interdependency* (the extent to which the task relies on relations with other individuals) as moderators. We expect employees who carry out tasks, which exhibit high equivocality, to derive greater benefits from SWS usage than employees performing tasks of low equivocality. That is, employees exposed to ill-defined, ad hoc or new business problems will experience higher performance impacts from SWS usage than employees who do not work within such a flexible job environment. Additionally, employees working with several business units or functions will also derive greater benefits from collaboration capabilities than employees who only work with their local co-workers.

Hypothesis 2a (H2a). SWS usage leads to a higher individual performance impact with employees carrying out tasks with high task equivocality than employees carrying out routine tasks.

Hypothesis 2b (H2b). SWS usage leads to a higher individual performance impact with employees carrying out tasks with high task interdependency than employees carrying out non-interdependent tasks.

Today, employees are increasingly geographically dispersed. They work from home or from different geographical locations. Hence, they must rely on information and communication technology to accomplish their work (Chudoba et al. 2005; Kanawattanachai and Yoo 2007; Kankanhalli et al. 2007). Given the capabilities of SWS, employees in virtual workspaces will benefit more from SWS than collocated employees. Thus, we adopt three dimensions of Chudoba et al.'s (2005) virtuality measures, namely geography, work practices, and organization, to incorporate this effect into our model.

Hypothesis 3 (H3). SWS usage will be more strongly associated with individual performance impact in a virtual work environment than in a traditional work environment.

5 Conclusion and Outlook

On the basis of the approach put forward by Burton-Jones and Straub (Burton-Jones and Straub 2006), we proposed a conceptual model for measuring the impact of SWS usage on individual performance. Our theoretical contribution lies in the conceptualization of a very rich system usage construct as well as our outline of an initial model for measuring the performance impact of SWS usage. We contribute to practice by providing an instrument for organizations to measure the performance impacts of SWS usage in their organization.

This model is a component of a more comprehensive research project that seeks to investigate the phenomenon from a multi-level team-based perspective (Morgeson and Hofmann 1999). Next steps involve an in-depth validation of the survey instrument prior to the actual field study. We will add additional items in case important aspects of a construct's content domain are not covered. To ensure *content validity* of the item pool, we will discuss the choice of items with a group of IS experts. Our next step targets the further refinement of the items into scales with a high level of *construct validity*. We will use a card-sorting and item-ranking approach for achieving that (Davis 1989; Moore and Bensabat 1991). In order to ensure the quality of the survey instrument design and presentation, we will discuss the draft with a number of experts and, if necessary, modify it according to the interview feedback. As a final pre-test prior to using the survey in the field, the draft instrument will be tested with a group of trial users. Based on their feedback, the instrument's appearance and instructions will be finalized. For the empirical validation of the measurement model, we will launch the survey instrument in the field. Using the survey's empirical data, the instrument's psychometric properties will be explored by applying second-generation modeling techniques. Following the validation guidelines of Straub et al. (2004) and Lewis et al. (2005), we will test the measurement model for reliability, convergent validity, discriminant validity, and predictive validity. Given an adequate measurement model, the structural model will be analyzed to test the associations hypothesized in the research model. In order to further test and challenge the model, additional field studies will be conducted in several organizations in different countries. Future research will investigate the structure and function of collective SWS usage, while accounting for interdependencies-in-use as well as cross-level effects.

Our research is limited in that it is only based on exploratory semi-structured interviews, literature, theory, and our own experience. Thus, it needs further elaboration in order to increase its relevancy for practice. Finally, our approach is currently limited to the individual level, which is a definite limitation when studying collective phenomena such as SWS.

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