Research Report

Dealing with Information Overload in the Financial Services Industry

IN RECENT YEARS, ELECTRONIC COMMUNICATION EXPERIENCED SIGNIFICANT IMPROVEMENTS THROUGH NEW WEB 2.0 SOLUTIONS. HEREBY, NEW ELECTRONIC COMMUNICATION SYSTEMS OPENED COMPLETELY NEW POSSIBILITIES FOR COMMUNICATION. HOWEVER, NEW RISKS (E.G., INFORMATION OVERLOAD) EMERGED AS WELL. THIS ARTICLE PRESENTS AN EMPIRICAL INVESTIGATION ON THE USE OF ELECTRONIC COMMUNICATION SYSTEMS FOR INFORMATION SHARING AND ON THE INFLUENCE ON EMPLOYEES' PERFORMANCE.

Sven Weber
Roman Beck
Wolfgang König

Introduction

During the last 10 to 15 years, communicating through electronic communication systems, such as e-mail, became the de-facto standard within organizations for exchanging information. Moreover, e-mails have not only gained tremendous importance in the business domain but became a household standard for private communication as well. In more recent years, new communication channels and platforms emerged in the form of new social media, such as Microblogging, Wikis, and Online Communities. This has led to a new era of communication, commonly referred to Web 2.0. Thereby, not only the communication systems have changed and improved significantly but also the attitudes and behaviors of their users. Being "always on" became a basic need which not only has accelerated the way business is conducted nowadays but also how individuals communicate with each other in their private time. With the increasing number of new communication channels and platforms, the volume and intensity of communication has increased significantly as well (Eppler and Mengis, 2004). This creates new challenges for individuals but even more for organizations not knowing how to deal with all the information. In this context, we see a fading between the formerly strict barriers of business and private life requiring new solutions to meet the growing demand of users for flexible yet easy-to-use communication solutions.

As a consequence, one can observe a trend towards unified communication solutions within organizations to meet and manage the aforementioned challenges while at the same time being able to benefit from these developments. Given the ongoing blossoming of all kinds of communication solutions, enterprises are confronted with the question which technology to adopt and how to integrate it into the corporate environment. At the same time, they need to identify which business value these communication solutions really have and how they affect business process performance and ultimately enterprise success.

Information Overload in the Business Environment

Information overload occurs when the volume of the information supply exceeds the limited human information processing capacity. Given the "always on" state of modern office workers, dysfunctional effects, such as stress and confusion, can be the result (Eppler and Mengis, 2004).

The basic meaning of information overload is that an individual person receives too much information in a certain period of time which cannot be handled anymore. Therefore, the individual is stressed by an information (and task) overloading. This overload depends on two main factors: information processing capacity (IPC) and information processing requirements (IPR). IPC is defined by every individual and depicts the amount of information that an individual can deal with. IPR is defined by the amount of information that an individual has to deal with to complete an assigned task. Hence, information overload is measured by the following inequation (Eppler and Mengis, 2004):

$$IPR > IPC \rightarrow \text{information overload}$$

Therefore, the individual performance depends directly on the emerging information. The performance rises with an increasing portfolio of information until it reaches a maximum. Thereby, the synchronic processing of several tasks might not directly lead to an information overload. The individual can handle several tasks at the same time until the IPC is reached. Information overload comes into place with a further increase of information which has to be processed. At this point, the individual IPR is higher than the IPC and the performance starts to decline.

In summary, information overload arises through a loss of control of incoming, outgoing, and already processed messages (Bawden, 2001). Hence, the problem of information overload exists for all electronic communication systems, such as e-mail, instant messaging, smart phones, etc. (Reeves et al., 2008).

Empirical Investigation

In order to empirically analyze the impact of information overload on the employees' individual performance, a questionnairebased field study was conducted. The study aimed

at employees of a bank in the US which are using electronic communication systems in their daily business. In order to measure the impact of information overload on the employees' performance, we identified information sharing among employees and the individual performance as dependent variables for our investigation.

We posit that employees' individual and collective behaviors affect information sharing. Behavior towards individualism is basically guided by personal goals. In contrast, behavior towards collectivism is basically guided by the goals of the collective (Srite and Karahanna, 2006). As a consequence, people who live in an individualistic culture or organization are less concerned about the opinions of others. In contrast, people who live in a collectivistic culture or organization commit themselves to the values and opinions of their groups (Srite and Karahanna, 2006). Hence, sharing information among employees requires a collectivistic behavior of the staff. Thus, we claim the following hypothesis:

H1: Behavior towards collectivism positively affects the sharing of information among employees.

Based on the work of Bruque et al. (2008), the technological accessibility of electronic communication systems influences the cooperation and coordination of employees. The goal of this construct is to explore whether internal electronic communication systems are accessible to a sufficiently large extent and therewith increase information sharing among employees. Thus, we propose:

H2: The accessibility to the electronic communication systems positively affects the information sharing among employees.

Moreover, we posit that extrinsic rewards as well as intrinsic benefits are influencing the information sharing among employees (Wasko and Faraj, 2005). In this context, the motivation to help others positively affects the contribution and information sharing of people in electronic networks. In addition, the individual willingness to try out new communication systems and to help others with these technologies is of high importance for their motivation to share information or cooperate with employees. At the same time, external rewards (e.g., to receive a gratification) can help motivating the employees to share their information. Thus, the following hypotheses are proposed:

H3: The intrinsic motivation of individuals positively affects the sharing of information among employees.

H4: The extrinsic motivation of individuals positively affects the sharing of information among employees.

The perceived advantage of the employees by sharing their knowledge with colleagues with the help of electronic communication systems (Bock et al., 2005) is related to the following hypothesis. Sharing knowledge leads directly to an increased performance of the individual because of an increased repertoire of available information. Hence, we propose:

H5: Information sharing among employees positively affects the individual performance.

Our last hypothesis deals with the information overload of the employees. The sharing of information has a strong impact on the individual information overload. For instance, asynchronous communication systems used to share information (e.g., e-mail) can lead to lower information overload than synchronous technologies (e.g., instant messaging) through the possibility of the participants not to answer directly to incoming messages. Therefore, information overload arises through a loss of control of incoming, outgoing, and already processed information and reduces the performance of the individual. Thus, we test the following hypothesis:

H6: The individual information overload lessens the relation between the information sharing of employees and the individual performance.

Discussion of the Results

In April 2010, 1000 randomly selected employees of a bank in the US were invited by e-mail to participate in the survey. The employees were asked to respond to the survey by filling out an online questionnaire. In addition, the potential participants were asked to completely fill out the questionnaire to avoid missing values that can cause bias due to systematic differences between observed and unobserved data. Overall, 130 valid responses were completed, indicating a response rate of 13%.

The results of our empirical investigation (depicted in Figure 1) illustrate how the relation between sharing information among employees and the resulting individual performance is negatively moderated by information overload (H6). We discovered that information overload is driven by uncontrolled and extensive information sharing among employees as well as use of electronic communication systems which has a significant and negative impact on their performance.

Exploring the relation more closely, the empirical results indicate that a controlled use of electronic communication systems to share information is needed to hinder an overloading of the employees. The study revealed that most employees feel overloaded with information and are skeptical when it comes to handling even more information than today. If more communication systems are added without considering how to minimize the number of messages by applying communication rules and filters or by integrating existing communication channels and platforms in order to hand control back to the employees rather than being driven by communication systems, information overload can occur, leading to reduced performance.

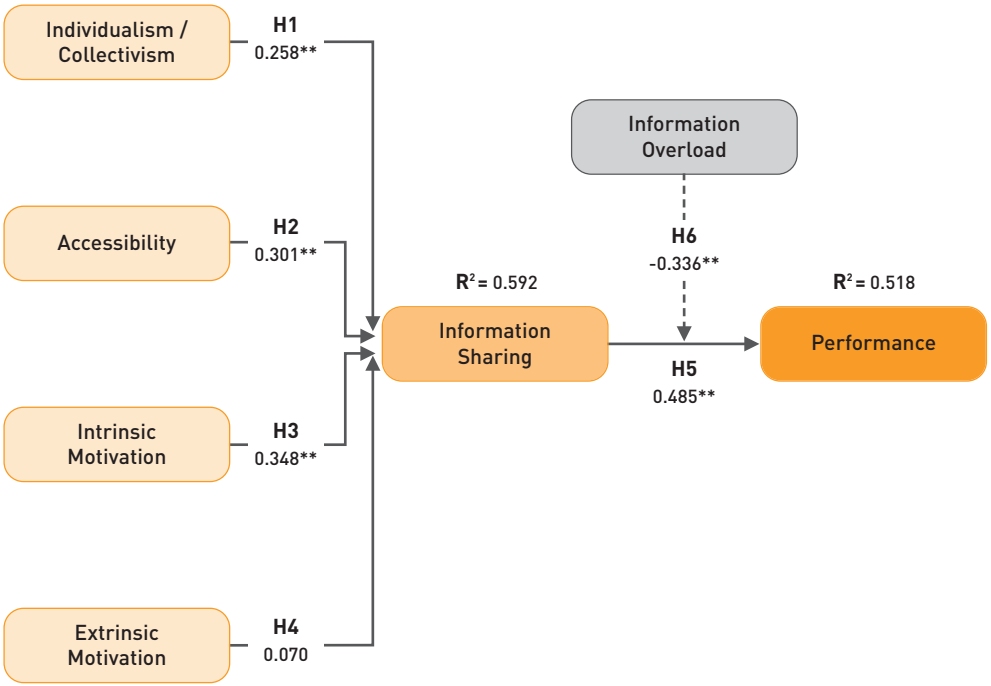

Figure 1: Empirical Results; ** p < 0.01, * p < 0.05 (two-tailed)

Before launching new electronic communication systems, enterprises should thoroughly pretest these systems in controlled environments with employees. This will not only result in a better understanding of the potentials of new systems but also provide an indicator about the willingness to accept these systems. Furthermore, potential roll-out problems or negative second-order effects, such as misaligned communication systems, can be prevented to ultimately avoid an increase in messages and subsequent information overload.

In addition, one potential solution could be to implement more integrated, parsimonious communication systems in a mashup fashion to minimize the information overload of the employees by limiting or minimizing the variety of electronic communication systems. Figure 1 reveals that sharing of information among employees is influenced by several factors illustrated through H1 to H4. However, H4 is not significantly supported by our survey data. Thereby, we found that especially the self evaluation based on social competence and social acceptance is of high importance for an individual, and at some time more important than external rewards (Wasko and Faraj, 2005).

With regard to the financial services industry, the results indicate that it is relatively easy for banks to motivate their employees to share information but they have to take care of the information overload of their employees.

In this context, the perception of received irrelevant information and sent out irrelevant information is of high importance. On the one hand, employees are contributing to the information overload by sending irrelevant information to their peers, such as "Have you received my last e-mail?" On the other hand, messages, such as "Thanks a lot for this information", are important for the social contact between employees and should not be left out of the conversation.

Reeves et al. (2008) recommended a solution to the problem by providing employees the opportunity to attach a synthesized currency to important e-mails. However, the receiver of the messages should have the opportunity to indicate if the message was important for him or not. As a consequence, the sender receives feedback about his or her sent messages and thereby gets sensitized to the meaning of "importance" in different situations, cultures, and business lines.

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