

Chapter 7

Smart Workplace Technology Buzz

Siegfried Schallennmueller

Abstract During the last decade, technology at the workplace has changed. Real-time communication and collaboration capabilities such as video, instant messaging, presence management, and web sharing have been added to the workplace ecosystem as enterprises have started to introduce social media systems to shape a new way of knowledge management and employee communication and connectivity. Though the introduction of such workplace technology has often been driven from an executive level as part of a vision and optimization initiative with high expectations, adoption among the user community is varying from excitement to denial. The mentioned areas of technology are part of an open infrastructure, and in contrast to business applications (e.g., SAP), there is no dedicated business process guiding the adoption. The adoption is influenced both by technical features and the specific culture of the enterprise. Trust within teams and management actions has, among other factors, a strong impact on the outcome. Therefore, a multidimensional view on technology and organizational aspects, both on a group and an individual level, is needed to guide enterprises through the journey to a digital workplace. Within this chapter, we will present a framework capturing the various dimensions and discuss the application along a specific case. We will also suggest how to approach complex rollouts of workplace technology with a focus on real-time communication and collaboration in an enterprise and how a framework can support a structured way of implementation and community development fostering adoption.

Keywords Social collaboration technology • Digital workplace • Interdependence of technology and organizational change • Case study

S. Schallennmueller (✉)
Department of Information Systems / Interorganisational Systems,
University of Muenster, Muenster, Germany
e-mail: siegfried.schallennmueller@ercis.de

7.1 Introduction

7.1.1 *New Generations of Employees and Advanced Technical Capabilities Increase the Relevance of Workplace Technology*

The relevance of technology in the workplace has changed over the last decade. Until recently, workplace technology still focused on supporting standard work routines such as spreadsheet calculations, word processing, or accessing documents on an intranet. However, a whole new set of technical capabilities evolved during the last 5 years. Specifically, the rise of social technologies for the enterprise as Yammer, copying the concepts of social tools as Facebook, added new possibilities for employees to connect and share information. Social technologies and unified communication and collaboration technologies enable new ways of working such as sharing knowledge or connecting employees across time and geography. A strong driver for the discussion around the workplace of the future is the change of behavior and expectations of employees. Meister and Willyerd (2010) outline in their book on the workplace 2020 that "... never a generation has entered the workplace using technologies so far ahead of those adopted by its employer." The rise of social media in an enterprise environment supporting knowledge management and team building and the adoption of privately used capabilities such as the use of Skype or Facetime into the professional life have set the ground for new ways of working (Fenwick et al. 2011). The dependence on communication practices based on using Facebook became obvious during an outage of Facebook in August 2014 when users were calling the police to get help (Iain 2014).

During previous years, the introduction of workplace technology at enterprise level was focused on unified communication and collaboration such as video conferencing, chat, and presence management. Document management systems and social media platforms have also been seen as second stream of workplace technology driven by another set of stakeholders in the enterprise. Initiated by both the user community and the vendors, the two technology areas are converging in the digital workplace. Vendors have started to provide technical platforms unifying synchronous and asynchronous communication and collaboration. Thus, they are delivering their interpretation of Facebook or Skype for the enterprise world. As corporate e-mail systems or directories have been extended to capture profile information from social media platforms such as LinkedIn, the new solutions become more and more integrated with the existing infrastructure.

This development goes along with the deployment of powerful but complex use cases with a strong focus on support of "Bring your own device/application strategies" versus traditional desktop and communication technology.

7.1.2 *Emergence of Social Collaboration Infrastructure (SCI): Workplace Technology as Information Infrastructure*

As outlined before, workplace technology has significantly developed over the last decade. A core part of it is Real-Time Communication (RTC). RTC has its roots both in the telecommunications and the groupware market. Consequently, RTC systems integrate groupware functionality with (IP-based) communications media.

The following table summarizes the building blocks of RTC (Table 7.1).

Although enterprise social media systems such as Jive, IBM Connections, and MS Sharepoint and RTC systems have originally developed in parallel, recent development shows RTC functionality and social media systems merging.

All major vendors of social media systems have created interfaces and integrations with key RTC capabilities such as presence management, chat, web conferencing, and video. We refer to this bundle of capabilities as social collaboration infrastructure (SCI). In this sense, SCI is an emerging set of multiple technologies becoming more and more interlinked, which can be used in a flexible way by individuals, teams, or an enterprise, even at an interenterprise level. In contrast to RTC, social technologies add asynchronous communication and collaboration capabilities

Table 7.1 Building blocks of RTC systems (Riemer and Frößler (2007, p. 209))

Concept	Description
Unified Communications (UC)	Various media and communication channels
	Media and device integration
	Rule-based configuration of message routing and call diversion
	Definition of preferred media
	Unified messaging portal
Presence information	Presence awareness of people, media classes, and devices
	Aggregation of presence information on group, role, and object level
	Active buddy list management
	Individualized and automatic signalling
Contextualization	Embedding and customizing of RTC features to organizational processes
	Integration with office software and enterprise applications
	Context specific buddy lists
	Mobile RTC with location-based services
eCollaboration	Audio and video conferences, web seminars
	Ad hoc application sharing
	Joint whiteboards and discussion forums
	Team calendars and contact management
	Document folders

to the workplace. Social technologies also drive a different way of connecting with peers, colleagues, and managers by reducing formal hierarchies. Additionally, the way knowledge and information is shared between employees, management, and organizations changes from a formal process as known from intranets to an informal user-driven process, following implicit rules and policies.

SCI spans a broad range of technical capabilities to engage with individuals and groups inside and outside the enterprise. However, a dilemma evolves in deploying SCI within enterprises since the interpretation of how to use the technical capabilities does not follow a clear process such as using a SAP form to enter bookings in a travel reservation system. SCI needs to be seen as an infrastructure which requires different approaches to foster introduction and adoption.

7.1.3 *SCI as Infrastructure*

We conceptualize SCI as an information infrastructure in line with Hanseth and Lyytinen's (2004) definition of an information infrastructure as "a shared, open heterogeneous and evolving socio-technical system consisting of a set of IT and their users, operations and design communities". They "...have the potential to transform how we work because the technology is built around improving relationships, not just heightening efficiencies." (Guinan et al. 2014).

Orlikowski and Iacono (1999, p. 358) also highlight that "technology is social, dynamic, and multiple". It is

- ... meant to be social because their form, function, and operation reflect the interests, assumptions, values, objectives, resources, materials, and skills of their makers;
- ... dynamic and provisional because new materials are invented, different features are developed, existing functions fail and are corrected, new standards are set, and users adapt the artefact for new and different uses;
- ... finally multiple. It does not consist of a single thing but is typically a multiplicity of tools and a variety of different configurations of often fragile and fragmentary components.

The authors emphasize both the social and functional element of technology and underline the evolving interaction between technical capabilities and the users. Deploying a similar set of functional capabilities in an enterprise can result in very different ways of adoption and establishment of use practices depending on how users adapt the concrete set of features within their environment, cultural background, and enterprise culture. Therefore, a nuanced, well-grounded understanding of the users and existing work practices becomes even more important since for the first time four generations of employees with a broad variety of values, beliefs, expectations, and capabilities work together in the workplace (Meister and Willyerd 2010).

7.1.4 Importance of Understanding the User Community Profiles and Structure

Lou et al. (2000) emphasize the unique challenges of introducing collaboration systems: "... social, collaboration-oriented technologies pose some unique challenges in terms of jumpstarting use and acceptance. Unlike individual productivity tools such as word processors, spreadsheets, or online databases, the value of social technologies is only evident when the technology is used by a critical mass of people to collectively get work done."

Mobilizing a critical mass of people requires an understanding of the user dynamics in an enterprise, covering both user profiles and group structures, in order to build an implementation strategy fostering a rapid adoption among the employee community. For instance, identifying highly creative teams within a larger group of employees can help to create quick successes which then can be used as an example for the broader employee community.

The reality of deploying SCI appears to be different. A recent study by Ovum and Dimension Data produced alarming findings from a survey with 1,320 enterprises in 2013 (DimensionData 2013). Emphasizing the role of workplace technology, the study emphasizes that 78 % of the CIOs have developed a workplace strategy. Unfortunately, the involvement of the user community in building the strategy is quite low. Over 70 % of enterprises make a UCC investment based on recommendations of their global IT directors with emphasis on technical requirements and needs. Only 20 % of the companies integrated input on functional requirements from users. The study also reports on the relevance of user profiling, stating that only 38 % of the large enterprises out of the sample profiled their users. The research also reveals that 21 % believe their users all have the same requirements, and 13 % don't see the value in profiling.

In light of these findings, it should not be surprising that workplace strategies and the introduction of SCI primarily focus on technical roadmaps and capabilities rather than user needs.

7.1.5 Success Factors for Introducing SCI

We believe that a successful introduction of SCI requires an integrated view of a technical and organizational perspective. Furthermore, we hypothesize that the organizational and managerial framing, as well as the process of implementation, will impact the outcome significantly. The discussion on introduction of new SCI, as in the case provided here, is led by two questions:

1. How is the use of these technologies introduced and framed by management? For example, is it part of a broader organizational transformation or organization development initiative? Have strategic goals been articulated? What does managerial action and support to "make it happen" look like?

2. What is the response of the employees, individually and in groups? That is, if the technology has been framed as social or collaborative technology, how does it become embedded into the work routines, into ways of collaborating?

Considering SCI as an open information infrastructure, the appropriation by the individual users or a group may be very different depending on the company's culture, team structures, and cultural environment. Therefore, the understanding of the introduction and adoption of SCI requires the analysis both of the characteristics of the technology and the organizational context established by management actions and employee behavior.

Based on a framework developed by Vehring (2014) which provides an integrated view of technology characteristics, managerial actions, and employee actions on an individual and group level and extensions around this framework, we present methods to support the introduction of SCI. Also, we use the framework and extensions to reflect the actions of the company presented in the case.

7.2 Conceptual Framework for Designing the Introduction of SCI

The simultaneous consideration of multiple perspectives of introducing SCI requires systematic approaches for managers to understand interdependencies and design the rollout process appropriately. The following figure presents a framework by Vehring and Kramer (2012). It outlines the interdependencies between managerial and employees' actions and how they are related to technology characteristics.

The effects and interdependencies develop along four facilitating factors: (1) cultural fit, (2) space for appropriation, (3) voluntariness, and (4) network/group externalities as outlined by Vehring (2014) below.

1. Cultural fit

Technology might be experienced as being culturally charged. Management needs to be aware of the existing culture and of a possible fit or conflict between values ascribed to the new technology and values and practices of the organizational culture.

2. Space for appropriation

SCI provides an open information infrastructure, which can be employed by the users in multiple ways. In case of open infrastructures, management needs to accept that users need time for understanding benefits and establishing new working practices both on an individual and group level. Specific actions of the management such as coaching or technology stewarding, but also dedicated communication of best practices, can support the appropriation phase.

3. Voluntariness

Often driven by a management attitude but also legal restrictions, the voluntary use of technology can both facilitate and hinder adoption. Presence management as part of modern collaboration platforms is often a critical element. Even if individuals adopt presence management as part of their working practice, only the use on a group level can unlock the full potential of the collaboration platform. If voluntariness is a leading principle of the rollout, dedicated measures need to address the benefits on a group or corporate level.

4. Network/group externalities

SCI fosters collaboration and needs to be adopted by a critical mass of users to be of value. Specifically in case of voluntariness, the adoption needs to be fostered through various measures as coaches, community management, and extensive communication.

The four facilitating factors (ellipsoids) in the framework (Fig. 7.1) provide a structured approach for reflecting the various dimensions of introducing SCI in an enterprise context. It supports managers aiming for an integrated approach introducing SCI versus overemphasizing the technical aspects.

Cultural fit and voluntariness play a significant role. An enterprise needs to be well aware of its own culture before designing the introduction process and governance structure. Voluntariness can have very positive effects for adopting new

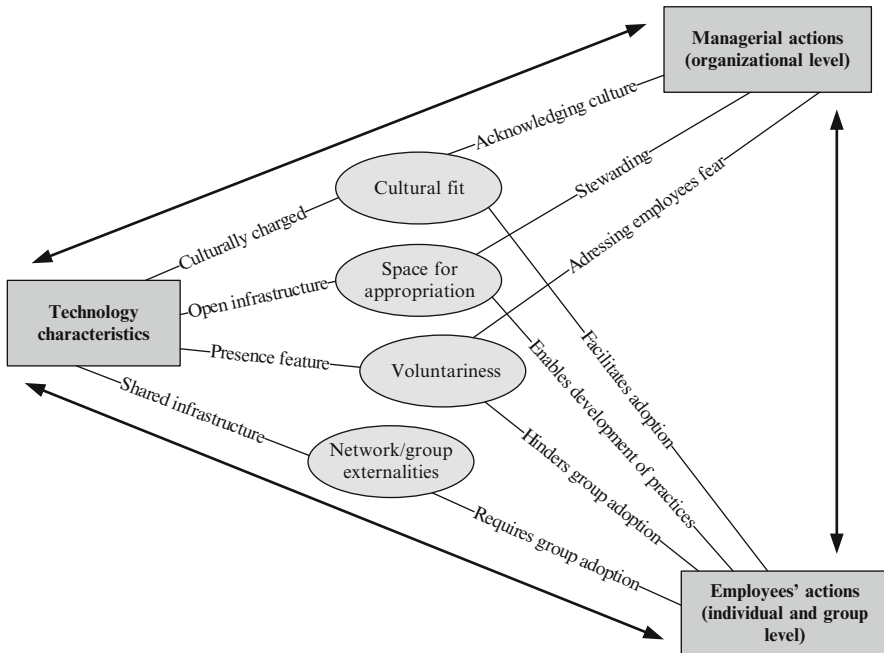


Fig. 7.1 Framework of socio-technical and multilevel dynamics (Vehring 2014, p. 63)

technologies, i.e., employees are used to having choices and can also shape interworking in other areas. It can cause uncertainty and negative effects in cases where employees are used to a strong set of rules and governance, not allowing space for individual practices.

Management also needs to understand the enterprise culture since the level of guidance and rule setting by the management needs to match culture of the employees. Here again, the level of rule setting in other areas of the enterprise is an indicator of whether the management sets tight rules on using the new technology vs. leaving room for experiments and development of individual practices.

The following figure details the dynamic interrelationship between managerial actions to facilitate rollout and adoption of technology referring to the right side of the framework in Fig. 7.1 on the one side and the employees' development of usage practices on the other side (Fig. 7.2).

7.2.1 The Organizational Level: How to Manage Rollout and Adoption?

While management often sets focus on control over business processes and technology by seeking for a strategic alignment of information infrastructure and business strategy, empirical examples have demonstrated that open information infrastructures are difficult to control. Ciborra and Hanseth (2000) refer to this effect as “technology

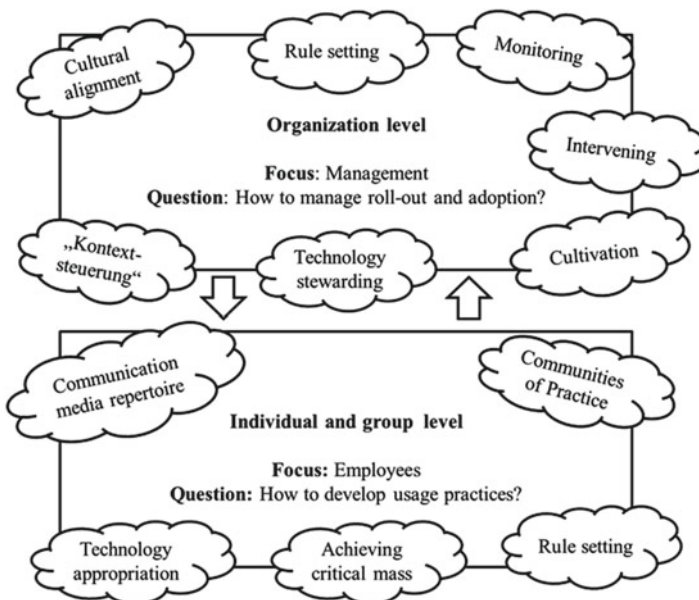


Fig. 7.2 Theoretical concepts and constructs (Adopted from Vehring 2014, p. 17)

drifting.” Facing this issue of having no full control of open information infrastructures requires a different set of approaches in contrast to traditional management instruments like setting policies and instructing how to use specific technology (i.e., “Each employee needs to set his presence status according to his current task.”). Metaphorical illustrations for such approaches focusing on guidance by the management versus instructing are cultivation or technology stewardship. Both cultivation and technology stewardship represent noninvasive activities from the management with different levels of intensity.

Ciborra and Hanseth (2000) position cultivation as interference with and support for a material that is in itself dynamic and possesses its own logic of growth. This concept differs fundamentally from the idea of rationally planning and designing a technical system. Rather, Saccol and Reinhard (2006) see the implementation of a new technology as a natural process which can be compared to cultivating a tree, where “there is no total control over its future shape and size, but it is possible to water it, fertilize it, prune the branches to adapt it to certain dimensions, or train it to grow in the right direction.” In this sense, management acts as guide or instructor in the early phase of the introduction process, “seeding” the ground and observing the evolution.

Addressing the same type of issues, Wenger et al. (2009) introduces the metaphor/concept of stewardship as a more active and intense involvement of management. This concept is based on the idea of taking care of a community by helping to choose, configure, and use technologies to best suit its needs. According to Vehring (2014), the steward needs to understand their community well enough to be able to respond to its technology needs. Technology stewards also need to have enough awareness of technology developments to have a sense of what is available and possible. By combining community understanding and technology awareness, they should be able to help their communities make informed technology choices. Stewards shepherd their community through the process of adopting or rejecting the new technology. When a community changes technology, planning and facilitating the nontechnical aspects of the transition process is substantial. In the everyday use, stewards need to integrate the use of technology into the everyday practices of the community as it evolves.

Stewarding is a sensitive, highly interactive approach to guide users through the adoption process. The requirements for the role of a steward are high, therefore in some cases there might be no suitable managers available to fulfill the role. An alternate concept could be using dedicated user groups out of the user community as intermediary. In this case, managers can become stewards to this group, which then interacts with the broader user community.

For management, the challenge is to assess how applicable approaches such as cultivation and stewarding are. Here, access to the employees and understanding of the cultural background of the enterprise are key decision points.

Guinan et al. (2014) distinguish approaches of fostering the introduction of SCI based on different management styles and personalities. Their approaches can be seen as distinct instantiations of cultivation and stewarding. They state that “... some companies begin with a bottom-up strategy that relies on finding and enabling young experimenters to use social technologies to enhance their individual productivity while other companies start with a middle-out approach, finding and helping

corporate entrepreneurs in middle management to use social media to improve collaboration on teams and projects. Finally, others use a top-down strategy, finding enlightened executives who are open to new technology and the potential of social technologies to strengthen their organizational culture.”

The following table illustrates the characteristics of the approaches and can help academics to interpret the observations and managers to integrate this approach into their rollout design (Table 7.2).

7.2.2 The Individual and Group Level: How to Develop Usage Practices?

On this level, the change or establishing of existing or new communication repertoires is a key area to monitor. Often, understanding existing routines is important when providing new ways of technology support. We have observed cases (Schallenmueller 2010) when the introduction of new SCI failed (i.e., video conferencing) because voice conferencing had become a dominant and highly accepted way of working. The whole enterprise was familiar with voice conferencing, and effective support had been provided in the past. Managing change in the communication repertoire requires a profound understanding of existing practices and an adjusted communication and consideration based on new technology to be introduced. Regulatory constraints, such as labor participation, regulation, or privacy laws further restrict the use of SCI.

While fostering communities of practice during rollout of new technology and allowing space for appropriation helps to let bottom-up usage grow, the identification and nomination of role models is critical for success. This requires a careful selection of enthusiasts and evangelists for convincing users and driving the gain of user mindshare helping to build a critical mass of users.

With the presented framework and extensions, we provide a conceptualization of the various perspectives of introducing SCI. The adoption of SCI does not follow a strict process but requires a careful design of various elements to drive success.

In the next section, we present a case on the introduction of SCI in an enterprise with 500 employees and use the presented framework and extensions for reflecting the actions of the enterprise.

7.3 Case Study

7.3.1 Method

The case analysis is based on semistructured interviews with the executive sponsors of the SCI project and members of the user experience team. This group of 12 employees acted as a continuous nontechnical interface with the user community

Table 7.2 Approaches for introducing social technology in the organization (Guinan et al. 2014, p. 346)

Advantages	Young experimenters bottom-up	Corporate entrepreneurs middle-out	Enlightened executive top-down
	Familiar with social technologies	Established networks across the organizations for effective diffusion	Have the status to engage others
	Less training required	Vast institutional knowledge to seed platforms with engaging content	Can be role models for the organization
Challenges	Helps build personal corporate relationships quickly	Control projects, so can quickly apply and show value	Can control rewards and incentive systems to jumpstart adoption
	Lack status and credibility to influence others to adopt	Still may not be able to convince less tech-savvy executives	Often lack technical expertise to see social technology value
	Smaller network, so hard to enable wide diffusion	May not control incentives for adoption	May not be a good fit for ROI-driven executives
	Newer, fast growing organizations	May lack bandwidth	
When to use	Flatter organizations	Middle managers have influence with project management	Patient executives willing to invest time and resources
	Transparent BYOD policy	Large, dispersed organizations with many silos	Executives who have visibility and relationships with lower levels
			Very competitive settings where time-to-market is critical
Ensuring success	Frame benefits in terms of personal effectiveness	Pick the right middle managers	Show how social technologies can create value
	Give time to experiment	Pick the right projects	Provide a personal guide
	Highlight their personal successes	Provide real-time training and support	Create a cross-functional steering committee

during the rollout and over the first 9 months of adoption. Case data were collected in early 2013 and revisited in mid 2014. After the presentation of the case, we will use the framework and approaches to link the methodology to the actions and findings provided by the case.

7.3.2 Background

We present the case of a systems integrator with 500 employees working nationwide in a major European country. For further reference, we will name the company “Eagle.” The core business of Eagle is to provide technical services and solutions based on real-time communication technology to medium and large enterprises.

At the end of 2012, the management of Eagle took a decision to introduce SCI just after going through a phase of massive reorganization and restructuring. As a consequence, Eagle had reduced its workforce by 300 employees and changed the governance model from a regional setup into a fully centralized, functional organization with two core areas: sales, including presales, and services. The case information was collected from a series of interviews both with management stakeholders and employees. The semistructured interviews were conducted mid 2013 and focus group discussions led with the user experience team in March 2014. The user experience team is a dedicated group fostering the introduction process which will be described in the following case presentation.

The case of Eagle is characterized by two key aspects:

- Strong alignment of business goals with the planned introduction of SCI
- High awareness of management stakeholders on the sensitivity of adoption

SCI was seen as an important lever for achieving the business goals. Revenue and gross profit targets had to be accomplished with a massively reduced workforce and major changes in communication and organizational structures. By introducing a centralized organization, the need for collaboration across the country increased significantly. Employees who had never been in touch before suddenly had to start working together on proposals or bids while physically located in different cities or working from home. SCI was seen as a key lever for mastering the workload and making the new collaboration structures work.

Senior management was facing the challenge that an earlier introduction of SCI had limited success since, on the one hand, the regional setup had limited the effects and the scope had focused on real-time communication only. Therefore, senior management was sensitive to the adoption process and the interplay of users and technology.

The following section provides a summary of Eagle’s situation in terms of the (1) cultural environment, (2) technical environment, and (3) key areas of organizational/process changes.

1. Cultural environment

Eagle's culture was built on a close interworking of regional teams. The company headquarters was focusing on a remote operation in the service area, controlling, and accounting. About 90 % of the operational tasks and decisions were performed within the regions including sales, consulting, and project management and system integration. Culturally, the employees were used to communicating and collaborating face to face in their regional offices, and information often was exchanged during lunch and a coffee break. Most of the employees have known each other for more than 10 years; therefore, collaboration was built on trust and an individual level of cooperation.

2. Technical environment

Due to the geographic proximity of resources and family-type culture, workplace technology played a minor role in the daily working routine. For collaboration with the headquarters, a telepresence system had been introduced in 2012 but was seen primarily for management and business review communication with a formal process to book sessions.

SCI was selectively put in place but not consistent across all employees or functions. Mostly technical people were using RTC technology from the key vendors of Eagle.

3. Key areas of change

With the full centralization of all functions within Eagle, key changes were needed to work with resources from other locations. This strongly affected Pre-Sales/Bid Management and Technical Experts. The daily routine of the sales unit did not change too much in terms of their client interfacing but in terms of the support structure they were used to working with.

For Presales and Bid Management and Technical Experts, the need to align and discuss customer situations and the joint creation of documents and proposals became a challenge across geography, which needed technical support.

Formerly, sales people did have assigned support resources in their region. Now, they needed to queue their request to a workflow system. While in the past people had understood each other working with the same client for ages, now the formal requirements to specify a request were raised to ensure any support engineer was able to help independent of location or previous involvement with a client.

7.4 The SCI Project

In this chapter, we will describe the project Eagle initiated in late 2012 in more detail and present the considerations of Eagle during the planning and implementation phase. We will focus on the role of the management since it assumed a significant role in shaping the outcome of the SCI project.

7.4.1 *Technical Scope of the SCI Project*

The technical scope of the project consisted of the deployment of SCI capabilities to all employees accessible within the company buildings and through mobile/home working infrastructure. With the new infrastructure, existing spot solutions were upgraded and harmonized with the new setup.

The following table shows the functionality provided to *all* employees (Table 7.3).

Part of the technical scope was also the tight integration of the core functionality with the users' desktop environment (e.g., MS Outlook plugins) and the usage of mobile apps for accessing conferencing or web sessions. Since the availability of a dedicated app for mobile phones was pushing the usage of new web conferencing capabilities, the need for entering codes and dial-in was replaced by an automated process. This process allowed the users to enter the conference just from their calendar and directly receive a call on their mobile or home office phone connecting the user to the conference.

7.4.2 *Eagle's Management Perspective*

The key challenge in the SCI project was to generate a critical mass of users across all departments. Specifically, users in back office functions or from the financial community had been used to working in the regional environment with very low technical support. With the new centralized setup, the organization had turned into a big virtual team where the command and adoption of the SCI was required for all users.

The management of Eagle was very much aware of this issue and therefore invested heavily in activities to make the adoption work. The next section outlines the managerial actions of Eagle's management.

The SCI project was announced at the end-of-year event 2012, which also marked the celebration of the successful turnaround of Eagle. Eagle had undertaken a massive restructuring and stabilized the business during this phase. After a long

Table 7.3 Technical scope of the SCI project

Software	Web based tools for screen sharing and multi party video conferencing for desktop and mobile devices
	Instant messaging and presence management
	Access to tele presence sessions through desktops and mobile devices
	Access to web based document management system with integrated workflows
	Sharepoint platform for document management, community support and internal networking (e.g. MyPage feature)
Hardware	High end HD web cam
	High end smartphone

period of negative results, the business had turned into a profitable business, and both from a mindset point of view and a structural point of view, Eagle was facing the beginning of a new chapter in its history.

The employees had gone through a phase of high pressure and workload, and the expectation that the announcements would come true were very high.

Senior management intended to position the SCI project as the beginning of a new era of workplace support and demonstration of Eagle's ability to make things happen. It should also give a strong signal to clients and key vendors that Eagle can master highly complex projects both technically and from a project management point of view.

Facing the described business challenges, the senior management of Eagle was trying to ensure maximum success of the project. Anticipation of the culture of Eagle and potential fears or concerns of the employees was a strong driver for management activities. Management of Eagle wanted to find the right balance between control and bottom-up development of the adoption. Eagle's management was very aware of being the critical transition point between technology on the one side and employees' new working practice on the other side.

7.4.3 Finding the Right Balance Between Control and Bottom-Up Development

Referring to Guinan et al.'s (2014) typology, Eagle decided to go for a combination of the "Corporate Entrepreneurs Middle-Out" and the "Enlightened Executive Top-Down" approach. The strong involvement of executive management allowed allocation of resources for the project. Reflecting the existing working practices and attempts of deploying new technology in the past, the senior management decided to involve a dedicated user experience team (UXT) next to the technical teams in the project. The UXT can be seen as a specific form of stewardship extending the reach of the management by having a dedicated team interacting with the community.

Part of the UXT were also middle managers out of the management team of the executive sponsor. They represented the majority of the employees, and the executive sponsor acted as a role model promoting the use of the SCI.

Voluntariness as one of the facilitating factors (ellipsoids) from the framework in Fig. 7.1 was the leading principle with the deployment of the workplace technology. Therefore, the work of the UXT was highly relevant to trigger and foster a self-adoption process driven by self-motivation, curiosity, and passion. This was mostly achieved through a regular and intense interaction of the UXT and the user community.

The UXT manager stated, "A shift from technology centric to people centric. In the triangle of technology, processes and people historically technology always came first. The restructuring brought a shift to put people first."

7.4.4 *User-Driven Use Case Development*

This shift resulted in an extensive definition of use case scenarios. These use cases were created with UXT members from various areas of the company. The use cases were developed with the relevant subcommunity. For example, bid management and proposal development became an important use case involving users nationwide. Here, the combination of MS Sharepoint with real-time collaboration tools, such as WebEx for document sharing and video, became highly relevant. Video added a new dimension to the use case especially during the initial phase of users working together across various locations. With the use case development, traditional work practices were discussed. Instead of sending multiple e-mails with attachments on bid and planning documents, the group switched to storing documents in a central web-based system and shared the same instance during meetings with the new tools.

Another use case centered around team meetings. While those had been mostly face to face in the old regional setup, the new collaboration tools supported virtual meetings with multiparty video capabilities. The use case included setting up these team meetings and aligning rules for virtual meetings including agenda setting. Here, the focus was on understanding the dynamics of virtual sessions compared to a face-to-face session and how practices from face-to-face sessions evolve in virtual sessions (as private vs. public chat or timekeeping).

The use cases were moderated by the UXT together with users across various departments. The UXT facilitated both training and sample runs of the use cases to understand issues and capturing information for ongoing communication on the SCI project.

The UXT consisted of 12 mostly nontechnical employees across all departments and locations and worked on use cases and support of working practices. The UXT also assumed responsibility for creating the training materials, webinars, and early acceptance testing. Right from the start of the activities, a pilot user community was nominated by management. This community of 50 employees was selected from all departments and was involved in the communication from the very beginning. Therefore, almost 10 % of the workforce became involved in the pilot rollout. Creating a community was another important mechanism to promote and collect feedback.

The following figure summarizes the various roles of the project organization (Fig. 7.3).

The design of the organizational setup was key to the project, and by the selection of specific users into the various role areas, the intent was to reduce barriers from the very beginning. The following table provides the reasoning for driving the organizational design of the project setup (Table 7.4).

7.4.5 *Communication Strategy*

The UXT moderated forums and communities on MS Sharepoint to promote best practices and collect feedback. The UXT discussions with the technical expert community generated suggestions and, even more importantly, provided immediate feedback to the user community, fostering an ongoing dialogue.

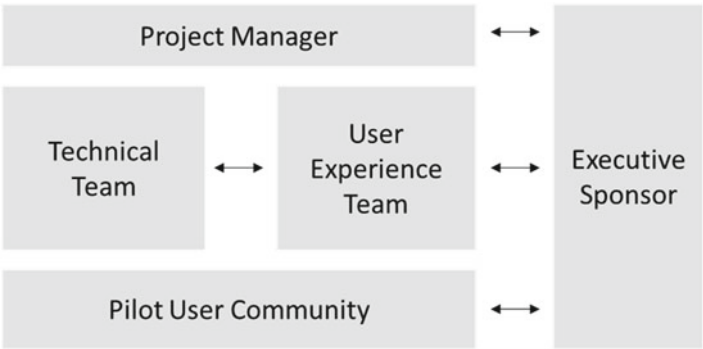


Fig. 7.3 Organizational set up of the workplace project

Table 7.4 Organizational design – roles, competencies, rationale

Role	Competencies and rationale
Executive sponsor	Represented the biggest group among the user community
	High affinity to the workplace technologies
	High need for communication and collaboration across the company and all locations
	Good communication/presentation skills as ambassador among the management team and the company
Project manager	Strong communication skills and both technical and user focus
	Technical skills are sufficient to anticipate issues and provide guidance to the two sub teams
Technical team	Lead: High technical skills across various vendors involved, no dedicated focus on one vendor
	Team: members with both technical and good communication skills, include sponsors of “competitive” tools and vendors to embrace discussion within the focus group
User experience team	Lead: low technical level, high communication skills and network within the company with various departments, user among users, no management role
	Team: low to medium technical level, members from all departments, including workers council and employees with a distinct working practice or vendor preference to anticipate discussions within the focus group
	Integration of middle manager
Pilot user community	Mix of users across all departments, multi-generational, capture cross department teams (e.g. controlling, sales, bid management in various locations) in order to capture realistic pilot scenarios – both on an individual and group level

Adopted from Wenger et al. (2009)

Wherever possible, small podcasts were produced to share feedback and best practices in an appealing way. There was a clear understanding from the very beginning that the distribution of tons of manuals would fail to reach the user community.

7.4.6 Technology Stewarding as Dedicated Management Activity

Next to the promotion of the SCI through extensive communication by the senior management, one of the key sponsors invested time and resources heavily into guiding his team into the use of the new collaboration infrastructure. Additionally, the key sponsor who also represented the largest group of employees in Eagle acted as steward as described in the next table (Table 7.5).

The actions of the management of Eagle show a high awareness of the challenges of adoption of SCI as an open infrastructure. Even if the management was not following an academic model, key building blocks from the framework presented in Fig. 7.1 and the extensions can be identified and observed. In the next section, we describe how the employees perceived the SCI and started acting on an individual level and group level.

7.4.7 Employee Actions

The SCI was deployed to *all* employees. On the one hand, this decision allowed high flexibility from whichever location an employee was able to work (office, home office, mobile); on the other hand, Eagle’s management set a clear expectation by investing in advanced and costly infrastructure and devices independent of role and hierarchical level. Before outlining the activities of the employees, a short description of the rollout to the employees is provided.

Table 7.5 Executive sponsors stewarding activities

Activities	Description
Community understanding	Being in charge of the largest unit within Eagle, the steward was very familiar with the daily routines and processes.
Technology awareness	The steward himself had long-term experience in using SCI with a strong focus on video and virtual meetings. He was very skilled in the command of the collaboration platform.
Selection and installation	The steward actively shared his view on working practices with the new SCI and suggested various settings of use according to the meeting scenarios
Adoption and transition	The steward was very well aware of the different groups using technology before in the unit and issues which had occurred in the past. I would not use a comma here. If the sentence sounds awkward, you can write "...unit as well as issues which had..."
	He shared his positive and negative experiences openly with the team and motivated ongoing use of the collaboration platform
Everyday use	The steward made the new SCI both part of his daily work and of his team. He utilized the technology in every contact with his team and employees of the unit – also actively asking how the users perceived the use and sharing his own experience.

7.4.8 Rollout Procedure

The implementation took place within 4 months from January to April 2013. Before the rollout, an extensive test period had been performed by the UXT followed by an initial rollout to the pilot community. The feedback was used to tune the final rollout. The rollout was done location by location. This decision was taken to maximize the use of a local support employee who was recruited either from the UXT or pilot community. Prior to the rollout, webinars had been created, and a dedicated Sharepoint community was established to provide a single point of information.

Additionally, a continuous flow of information during 2 months before rollout was driven by the UXT, and eight webinars had been offered to prepare for readiness. The focus of the webinars had been the presentation of the overall tools set and basic training along major use cases such as discussing the creation of a bid.

Nevertheless, the project team was well aware that webinars, training, and a Sharepoint site would not be sufficient to make the rollout successful.

Therefore, the local coaches had an important role both providing face-to-face support and stimulating the users. They also had the task of actively approaching home office workers and salespeople, who were traveling most of the time and had lost touch with a brick-and-mortar location.

The actual rollout was done within 1 week in order to ensure consistent availability to most of the employees in a short time frame.

During the roll out and 2 weeks after, a dedicated remote support team took care of technical questions and handling issues.

7.4.9 Status 12 Months After Rollout

In terms of the adoption of various technology areas among the user communities, the following section provides an overview by key technology areas.

7.4.10 Instant Messaging

The instant messaging functionality was adopted quite consistently throughout the company. One reason was the partial deployment of an instant messaging (IM) system previous to the rollout, therefore the usage was known to 20 % of the employees, which acted as an accelerator.

IM is used for quick informal communication. One of the key use cases is knocking on someone's door or interrupting someone when he is shown as busy or on the phone. In the technical area, IM is used for supporting the management of onsite resources as part of a dedicated business process.

7.4.11 Web Conferencing

Web conferencing has become a broadly used functionality across all departments. It was very much driven by the geographic split of the resources. Apart from the accounting teams, which work mostly in one place, all other departments have adopted web conferencing as daily work practice. Access is highly integrated with MS Outlook.

The use of multiparty video conferencing as an element of the web conferencing system was popular during the first 3 months. Especially when people had never met before in the former setup, they were curious to get to know “face to face” by video. The drop of video usage was common across all departments. Only teams where “sponsors” were actively pushing video during web meetings kept usage on a higher level.

7.4.12 Video (Telepresence)

In this section, we focus on the telepresence-based video. While this had been a “privilege” of the management team in the past, the broad initiative on workplace technology accelerated a broader usage across departments and employees. Another enabler was the deployment of desktop clients for accessing the telepresence systems from home. In line with a rise of home office users after the rollout, the booking of the telepresence systems boosted by 75 %. Departments with regular management calls and strongly distributed locations made videoconferencing a standard practice within their meetings.

Usage of video in the senior management team also increased. About 30 % of regular board meetings were moving to video meetings, relaxing the need to be at the headquarters.

7.4.13 Presence Management

Presence Management turned out to be a difficult feature to adopt. Various policies have been established within individual teams. The status is coupled with the outlook scheduler, yet only 25 % of the employees use the presence status as a meaningful indicator of availability. The majority still picks up the phone or checks out the calendar of the party they want to contact.

7.4.14 Document Management

The availability of a web-based document repository was quickly adopted. The need was high, therefore turning from a regional to a central setup resulted in a high demand for easy access to documents (offers, contracts, documentation), which was key for working across regions.

7.4.15 Community Support

The community support functionality was quickly adopted within the technical teams familiar with technical forums. A broader use of community support functionality took time. The creation of communities on the SCI was driven by individuals. The sales management started to build communities for specific customers, and also the project management team used communities for documenting procedures and best practices.

7.4.16 “MyPage”

The MyPage function allowed each employee to share details of his background and interests. This function was used very rarely. The basic information was uploaded automatically as name, department, and phone number. Only 10 % percent of the employees extended their profile with additional information.

The effort of the UXT helped very much to drive a successful rollout. Specifically, the regular exchange with the user community and the use case development had the highest impact. The use community in every department and location knew someone to reach out to for support or simply discussing new working practices. Therefore, a continuous buzz on the SCI project could be maintained during the first months. After this strong effort, the adoption process was left to the user community. The UXT focused on selective user support and managing the SCI community site on MS Sharepoint.

7.5 Findings and Discussion

The key observation is that early adopters were those who had a real need which was met by the SCI. Driven by the high pressure of the reorganization, the group of employees working in a distributed environment had grown significantly.

Another smaller group was established by technical gurus who critically evaluated the new SCI in terms of added functionalities from the very beginning. They became “power users” driving the continuous development and improvement of the platform.

The impact of the management sponsor and the UXT became tangible when the time and resource effort of the UXT and the management sponsor slowed down. At this stage, the usage of the SCI focused on the core functionality.

Speed and success of the SCI project were highly important, given the transformation the enterprise had been facing.

Therefore, Eagle had decided to go for a top-down approach jumpstarting the adoption mixed with middle management involvement. The executive manager both

represented the majority of the user community and had the power to assign resources to the project to ensure speed and focus. A good practice would have been driving the adoption by the middle management by gathering a broader community of evangelists with existing networks. In the specific case, the executive sponsor was aware of the technical implications and found a balance between ROI and operational benefits. The direct access to budget and resources was key to make the critical timeline happen.

Finally, from a *strategic point of view*, the availability of a consistent platform for all employees initially clearly created a high motivation and ability to demonstrate to clients and partners how innovative technology was empowering internal processes. Promoting the complex integration of multiple technologies in the partner community was very successful, and a lot of positive feedback was gathered to build future projects on.

From a *tactical point of view*, the availability of a consistent SCI turned out to be highly important to establish new communication routes among the employees. The new SCI had been adopted by those departments which had been affected most by the reduction of workforce and faced a nationwide need for interaction on an intra- and interteam level. Pressure from the daily operation created a massive pull of using SCI in these departments.

7.5.1 *SCI Introduction Is a Balancing Act*

The introduction of SCI appears as a balancing act between corporate requirements, technological affordances, and managerial and employee (inter)action. From our point of view, there is no one size fits all: different approaches may be successful depending on the corporate culture and the cautious “management” – monitoring, coaching, and stewarding mixed with prescribing where necessary – of the process.

7.5.2 *Value of the Framework to Management and Enterprises*

The framework provides a methodical foundation, which creates high value for managers facing the introduction of SCI. It helps managers to understand the various aspects beyond technology and can be used as checklist for discussion with internal stakeholders on budget and involvement in order to design the overall implementation. Understanding the framework takes the discussion around an enterprise workplace project far beyond a technical rollout and related user training. Taking the frameworks seriously requires spending efforts on user profiling, understanding the culture in the enterprise, and developing a strategy on adoption with the same effort as planning overcoming technical challenges.

The frameworks do not provide a recipe for the management but provide a systematic collection of ingredients to cook a meal fitting the specific enterprise. This

process is the key value of the frameworks and will improve the quality and sustainability of the rollout and consequent adoption. Driving the process within an enterprise starting a workplace project or initiative requires a high level of openness of the decisions made and team members to the ideas and concepts. The application will likely require external experts or moderators to explain and train the use of the frameworks.

7.6 Contribution to Research

The research presented here summarizes a coherent set of related frameworks for understanding and guiding the introduction of workplace technology. Facing an increase both in complexity and variety of workplace projects, researchers need to continue to develop the understanding of the interdependences between the technology itself, activity of the management, and the inter-/intra-team level. Driven by a continuing education of users in the private life through new devices and increasingly more complex interactions through Facebook, WhatsApp, Skype, or Google Hangouts, the role of the individual becomes more relevant and needs further research as the impact on existing teams and established culture in the enterprise is concerned.

The frameworks support the understanding of *multilevel and dynamic concepts*, like culture and voluntariness, which played an important role during rollout and adoption of the case presented. Vehring (2014) outlines “...understanding technology as infrastructures and socio-technical systems has several implications for its organizational roll-out and adoption. As such technologies need to become embedded into social and organizational *practices* (technology-in-practices) adoption is not primarily about a task-technology-fit.”

The research presented is a call for deepening the understanding of these interdependences along various industries and cultural environments. Further research needs to explore how interdependences can be quantified and compared to a pure qualitative approach. This would help to refine the frameworks and create more sensitive instruments for explaining and guiding effects. Still, there is a risk that research cases are too specific and findings cannot be generalized. Therefore, broadening the application of the frameworks along a broader case library will provide more clarity on the effects during rollout and post rollout phase.

References

- Ciborra CU, Hanseth O (2000) From control to drift. The dynamics of corporate information infrastructures. Oxford University Press, Oxford, pp 2–11
- DimensionData (2013) Strategic, user-driven, and managed: the future of unified communications and collaboration

- Fenwick N, Leaver S, Paderni LS, Blackburn L (2011) Social business strategy—an empowered report: rethink your enterprise approach to social technology. Forrester Research, Cambridge
- Guinan PJ, Parise S, Rollag P (2014) Jumpstarting the use of social technologies in your organization. *Bus Horiz* 57:337–347
- Hanseth O, Lyytinen K (2004) Theorizing about the design of information infrastructures: design kernel theories and principles. *Work Pap Inf Environ Sys Organ* 4(4):207–241
- Iain T (2014) Facebook goes down, people dial 911. *Business Media*. Retrieved August 3, 2014, from http://www.theregister.co.uk/2014/08/01/facebook_outage/
- Lou H, Luo W, Strong D (2000) Perceived critical mass effect on groupware acceptance. *Eur J Inf Syst* 9(2):91–103
- Meister JC, Willyerd K (2010) *The 2020 workplace: how innovative companies attract, develop, and keep tomorrow's employees today*. Harper Collins, New York
- Orlikowski WJ, Iacono SC (1999) The truth is not out there: an enacted view of the “Digital Economy”. In: *Understanding the digital economy: data, tools, and research*. MIT Press, Cambridge
- Riemer K, Frößler F (2007) Introducing real-time collaboration systems: development of a conceptual scheme and research directions. *Commun Assoc Inf Syst* 20:204–225
- Saccol AZ, Reinhard N (2006) The hospitality metaphor as a theoretical lens for understanding the ICT adoption process. *J Inf Technol* 2(3):154–164
- Schallenmueller S (2010) Cross company comparison of the introduction and adoption of Real Time Collaboration Infrastructure (RTC). DIGIT 2010 proceedings. Paper 12
- Vehring N (2014) Roll-out and adoption of corporate communication and collaboration platforms: exploring multilevel dynamics and management implications. Doctoral Dissertation, University of Muenster
- Vehring N, Kramer M (2012) Exploring the dynamics of culture in the roll-out and adoption of eCollaboration technology: a case study comparison. Americas Conference on Information Systems (AMCIS), Muenster: Seattle
- Wenger E, White N, Smith JD (2009) *Digital habitats: stewarding technology for communities*. CPsquare, Portland