

2010

# Introducing Real Time Communication: Frames, Modes & Rules

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## Recommended Citation

Klein, Stefan; Vehring, Nadine; and Kramer, Malte, "Introducing Real Time Communication: Frames, Modes & Rules" (2010). *BLED 2010 Proceedings*. 1.

<http://aisel.aisnet.org/bled2010/1>

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## **Introducing Real Time Communication:** *Frames, modes & rules*

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### **Abstract**

*The paper reports on the implementation of Lotus® Sametime® in a large financial services company. The paper uses the distinction of application and infrastructure view to elaborate on distinct modes of RTC use. Moreover, it provides a classification of managerial tasks and responsibilities and reflects on the balancing act of the managerial dictum and space for experimentation and organizational learning. The case highlights organizational design choices as well as managerial challenges. It provides rich insights into the processes of organizational embedding and rule setting, complemented by individual appropriation and self-organization on a group level. Processes of managerial and organizational alignment unfold against the backdrop of the dynamics of implementation.*

**Keywords:** Real Time Communication, communication infrastructure, Lotus Same-time, system implementation

## **1 Introduction**

The paper discusses the managerial and organizational design of Real Time Communication (RTC) in a large financial services company. We are reporting on a case prior to the roll-out of a particular instance of RTC, IBM's Lotus® Sametime®.

While specific components and functionalities of RTC, such as instant messaging or chat, management of a buddy list etc. (Riemer & Frößler, 2007) have been identified and described, the technology itself is flexible and open to diverse modes of use. Because of this we are looking at RTC in this paper as a platform technology or infrastructure, which provides a rich set of affordances (Gibson, 1979; Norman, 1988). This view differs from the usual understanding of technology as an application with a predefined purpose and a clear defined task environment and comprises specific management challenges.

In contrast to other new technology implementations where the management follows an application view, we present a case where the management introduces RTC as an infrastructure. This means that the management surrenders assumptions about the concrete use and is open to emerging use patterns.

Nevertheless, managerial framing of the technology is crucial in organizational settings (Fröbner, 2008). In the following we want to elaborate on the specific management challenges which arise from the underlying setting.

In the second section we present the concept of RTC and illustrate some aspects of the existing research on managerial aspects in the RTC use. Based on these aspects we describe the case and its managerial challenges in the third section. We discuss our findings in the fourth section and end with a conclusion in the fifth section.

## 2 Theory and method

### 2.1 Real time communication

Real-time communication and collaboration technology (RTC in a broader sense) is an emerging genre of communication and collaboration systems (Fröbner, 2008). Resulting from a market convergence of the telecommunication and groupware market, RTC systems are a combination of communication technologies, like Voice-over-IP (VoIP) telephony and instant messaging, and various collaborative applications.

Riemer and Fröbner (2007) have identified four building blocks of RTC, namely unified communications, presence awareness, contextualization and eCollaboration portfolio (see Table 1).

Concept	Description
Unified Communication (UC)	<ul style="list-style-type: none"> <li>Various media and communication channels</li> <li>Media and device integration</li> <li>Rule-based configuration of message routing and call diversion</li> <li>Definition of preferred media</li> <li>Unified messaging portal</li> </ul>
Presence Information	<ul style="list-style-type: none"> <li>Signalling of people and communication channels</li> <li>Aggregation of presence information on group, role, and objective level</li> <li>Active management of buddy list</li> <li>Individualized and automatic signaling</li> </ul>
Contextualization	<ul style="list-style-type: none"> <li>Integration with office software and enterprise applications</li> <li>Context specific buddy lists</li> <li>Mobile RTC with location-based services</li> </ul>
eCollaboration portfolio	<ul style="list-style-type: none"> <li>Audio and video conferences, Web seminars</li> <li>Ad hoc application sharing</li> <li>Joint whiteboards and discussion forums</li> <li>Team calendars and contact management</li> <li>Document folders</li> </ul>

**Table 1:** Building Blocks of Real-Time Collaboration Systems (adapted from Riemer & Frößler, 2007, p. 209)

First, RTC is based on the concept of Unified Communications which refers to the integration of various information and communication channels. Second, the status information can give information about the availability of the user and his media and communication devices. Third, RTC systems can be integrated within the context of the user, e.g. with organizational processes and business applications. Finally, RTC systems can comprise features of groupware applications, e.g. team calendars or document folders. (Riemer & Frößler, 2007)

While RTC has become a mass phenomenon as a result of systems, which integrate VoIP with instant messaging and presence signaling and can be downloaded and used for free, such as Skype, Google Talk and MSN Messenger, telecommunication system providers (e.g. Alcatel, Cisco, Nortel and Siemens) and traditional software companies like Microsoft and IBM are offering complex and large-scale integrated RTC systems. (Frößler, 2008)

One of these large-scale integrated RTC systems is IBM’s Lotus® Sametime®, portrayed as “the cornerstone of IBM Unified Communications and Collaboration (UC<sup>2</sup>™) solutions”, which “provides a core set of integrated real-time communications services - voice, data and video - that make it easy for people to find, reach and collaborate effectively with colleagues, customers and business partners.” (IBM, 2010) Following the descriptions on the IBM Website the Lotus® Sametime® software comprises the aforementioned building blocks of RTC (see Table 2).

Concept	Featured capabilities in Lotus Sametime software
Unified Communications (UC)	Enterprise IM - Chat and share files. Voice and Video - Use our high-quality voice and video. Telephony - Make your computer your phone.
Presence Information	Rich presence awareness - Know who can help right now and how to best reach them.
Contextualization	Platform - Integrate UC into your processes and apps.
eCollaboration portfolio	Enterprise IM - Chat and share files. Community Collaboration - Find experts you haven't met yet. Online Meetings - Work together on documents.

**Table 2:** Building Blocks of Sametime® (cf. IBM, 2010)

## 2.2 Prior work and research questions

Prior work on RTC has been focused on sense making (What is it? In which way is it different from prior communication technologies? Does it represent a unique genre of communication technologies?) (e.g. Burton et al., 2007; Lazar, 2006) as well as the adoption and appropriation of RTC on a group level (identification of communication genre; practices of use etc.) (e.g. Dourish, 2003; Riemer & Filius, 2009).

The latter emphasizes the (transformation of) routines of daily communication and work. Groups exhibit e.g. ways of incorporating RTC into existing practices of communication, sometimes extended by practices of outeraction (Nardi et al., 2000), i.e. negotiation about availability and the preferred communication channel.

### **Modes and rules of RTC use**

The number of available communication modes is rising quickly and the (relatively) new modes such as instant messaging, desktop video conferencing and application or desk-sharing are not substituting older modes of communication such as face-to-face conversations and meetings, written letters, phone calls or emails. Yet little is known about emerging communication patterns, drivers and issues of productivity (e.g. Cameron & Webster, 2005; Rennecker & Godwin, 2003). Riemer and Filius (2009) have developed an approach for contextualizing media choice based on a thorough communication analysis using genre analysis.

New communication media yield a level of uncertainty about the expected modes of use, protocols of communication and accepted or expected modes of signaling and related patterns of response (Cameron & Webster, 2005). RTC is typically used to signal availability (presence or availability status) and instant messages, some of which are used to negotiate availability and preferred channel (Nardi et al, 2000).

Therefore, the communication partners need to establish a sense about the mode of RTC use by the others (Riemer & Klein, 2009). A way of dealing with this uncertainty is to develop rules within groups or across organization units (Stegbauer, 1995) relating to questions such as:

- Who is expected to use RTC?
- Will RTC be running when the communication partner is online? Is RTC expected to active constantly on the workstation to create a sense of visibility across the organization?
- How is the presence status to be set?
- How and how often is the presence signal updated?
- Under which conditions is it accepted to overrule a busy status signal?
- How is the peer group (buddy list) to be selected?
- What are the rules for inclusion in or exclusion from an individual's buddy list?

While some of these answers will be given within small teams, for a large organization which intends to use RTC as part of the communication infrastructure, some ground rules are necessary in order to set mutual and reasonable expectations.

Fröbber (2008) has studied the use of Skype in a small company and identified a strong and active *role of management* in defining a set of rules for the organization. These rules were complemented by respective teams who refined, differentiated and invented rules according to their specific needs.

We hypothesize that rule setting is contingent on the underlying assumptions about the specific IT artefact (Orlikowski & Iacono, 2001) and has to take the organizational culture into account.

**Understanding, conceptualizing and contextualizing the IT artefact**

Our analysis of RTC use (Riemer, Frößler & Klein, 2007) has yielded a diverse spectrum of perceptions of the technology-in-use and related design options. Depending on the dominant view – applications or infrastructure – different facets of RTC come to the fore (see Table 3).

	Application view	Infrastructure view
Functional scope	Defined purpose of the application. Especially in a commercial environment specialized functions (e.g. availability management).	Platform technology, open ended modes of use.
Mode of use	Clear defined task environment, roles and responsibilities (hotline, expert on duty).	Emerging modes of use including experimenting.
Customization	Task driven customization.	User driven customization.
Justification of use	Specific benefits/ efficiency gains, controlling of Return on Investment (ROI).	Employee satisfaction and productivity in a wider sense. Facilitating organizational capabilities and development.

**Table 3:** Applications view vs. infrastructure view

The application view can be illustrated by a hospital emergency room example: the availability of medical specialists, such as radiologist, haematologist, anaesthetist, is signaled. In case of need, calls are forwarded to the respective experts on duty. Individuals are assigned specific roles, which are then linked to their individual account.

The infrastructure view has been highlighted by Hanseth and Lyytinen (2004, see also Pipek & Wulf, 2009): "...information systems (IS), system functionalities and software tools have over time become integrated into complex ensembles of heterogeneous IT artefacts, which are increasingly connected with and dependent upon one another. Such a complex, evolving and heterogeneous socio-technical system we call here an information infrastructure (II). We define an information infrastructure as a shared, evolving, heterogeneous installed base of IT capabilities among a set of user communities based on open and/or standardized interfaces." (Hanseth & Lyytinen, 2004, p. 208)

Table 4 gives an overview of the characteristics of Unified Communication and presence and availability differentiated by the level of perspective or analysis: individual, group and organization.

	<b>Unified Communication</b>	<b>Presence &amp; availability</b>
<b>Individual</b>	Managing multiple integrated communication media & devices Definition of preferred media Unified communication platform Rule-based configuration of message routing and call diversion	Access control (buddy list) Differentiated signaling facility (for media and/or reference groups)
<b>Group</b>	Managing/ configuring (ad hoc set-up etc.) communication and collaboration services and presence-enhanced collaboration tools.	Presence awareness, seamless combination of outeraction and interaction Org. embedding (rules & practices) of availability stati (e.g. availability stati linked to documents, processes, groups etc.) Request for (immediate) attention
<b>Organization</b>	Integral part of communication & collaboration infrastructure (e.g. office software and enterprise applications)	Understanding the needs (and limits) for human presence Organizational routines, managerial practices and communication competencies carefully crafted to make good (and careful) use of precious attention

**Table 4:** Affordances of RTC (Frößler & Klein, 2008, p. 4)

The versatility of the technology creates a complex set of technical and even more importantly organizational design options. This poses numerous challenges for IT managers. (e.g. Berlecon Research, 2009, see also the hands-on business guide for IM in an US context by Flynn, 2004.)

### **Managerial challenges and tasks**

Communication technology and in particular RTC is often seen as a core part of the organizational infrastructure. The notion of infrastructure highlights the dynamics of adoption, appropriation and adjustment. Given the organizational impact of RTC and potential tensions between managerial rules setting and emerging rules and routines within and across groups, we see managerial opportunities and responsibilities. While one could argue for a hands-off approach, which relies on self-organization, appropriation and emerging forms of use, most organizations will take a more active stance of framing, contextualizing and embedding RTC (see Table 5).

<b>Managerial tasks</b>	<b>Specifically ...</b>
Framing	Vision of the communication environment and the strategic role of communication routines. Application or infrastructure: scope and modes of use.
Context setting	Management approach: corporate policies vs. hands-off, decentralized approach. Related organizational approach: operational integration and control vs. self organization.
Embedding	... into the organizational culture. ... into the organizational structure (responsibilities, mandates etc.) and relating to organizational levels (corporate, business unit, group, individual).
Rule setting	Defining the scope and level of policies and rule setting. Developing, negotiating, setting – and over time adjusting - rules.
Creating support infrastructures	.. for routine and emerging forms of use. Responding to user requests and needs.
Managing the implementation	Processual and developmental view: planned vs. emergent development, tactics of scoping and roll-out.

**Table 5:** Managerial tasks and responsibilities

In consequence we see an interdependent set of management decisions with particular emphasis on the early stages of the RTC implementation. Building on Frößler's (2008) work, we are trying to reconstruct and understand the scope of ex ante rule setting and indeed negotiation of rules. Managing the implementation of RTC appears like a balancing act between the characteristics of RTC, organizational goals and organizational culture.

We hypothesize that the organizational and managerial framing as well as the process of implementation will shape the outcome.

### **2.3 Method**

We are using a case study about a medium-sized financial services firm, identified by the pseudonym MUFIN, in order to illustrate managerial considerations and specifically the configuration of scoping, organizational embedding, rule setting and managing the implementation process.

Over the years, we have collaborated with MUFIN on a number of occasions. For the past 12 months we have had several meetings to discuss the collaboration in the context of the implementation of Sametime®. In February we conducted an extensive interview with the responsible manager, identified by the pseudonym Carl, for the implementation of Sametime®. To get a deeper understanding of the implementation process and possible implications for the employees we subsequently have interviewed representatives of the workers' council, the HR, the IT compliance and data protection office and the line management. Furthermore, we had access to some of the employee training materials, i.e. chat etiquette and functionality and user guide. These materials are placed at the employee's disposal on the intranet.



Obviously we are aware that this is a limited empirical base and early stage finding. Yet we have been intrigued by the opportunity to capture a snapshot of considerations and early feedback on the Sametime® trial implementation and the related organizational and managerial design of RTC deployment from a company perspective.

### **3 The case setting**

#### **3.1 Company background and related challenges**

MUFIN is a financial services company operating in a tightly regulated, yet highly competitive market. The services can be characterized as information products and services, which explains the prominent role and indeed size of the IT department for the company. The operating logic is very much an administrative process or processing logic. Automation potential for front office and customer relationship functions is limited. Instead MUFIN pursues what can be described as an informatization approach:

*„Information technology ... generates information about the underlying productive and administrative processes through which an organization accomplishes its work. It provides a deeper level of transparency to activities that had been either partially or completely opaque. ... Activities, events, and objects are translated into and made visible by information when a technology informs as well as automates.” (Zuboff, 1988, p. xii)*

Information systems are ubiquitous in the organization and are provided as working environment for knowledge workers, to support their daily work and to foster productivity as well as employee empowerment, work enrichment and flexibility.

MUFIN has a long tradition as an employee-focused company (see also Rosenbluth & Peters, 2002). MUFIN is regarded as a family friendly employer and has supported telework for years.

Management accepts its responsibility towards the workforce and pursues a participatory management style. It is not only regularly involving the workers' council but tries to achieve consensus with the council prior to organizational changes.

MUFIN operates a total of 10.000 workstations, 6.000 of those are run by the sales organization, which is spread around the country, and 4.000 are concentrated in two locations several hundred km apart from each other. The IT department has a staff of about 500.

MUFIN uses IBM Lotus® Notes across the company and had introduced Sametime® in the early 1990ies in the IT department. However at the time, Sametime® was seen as too expensive and was eventually discontinued. About a year ago, the IT department started to run Sametime® pilots, which eventually were rolled out to their 500 workstations. The change of mind was eased by IBM's modified license policy, which had significantly lowered the price tag for Sametime® clients. From a technical point of view, the IT department had developed a single sign-on access to IBM Lotus® Notes and Sametime®. The fact that MUFIN is operating in a competitive environment and that the first trial was stopped for cost reasons, begs the question how the functionality of Sametime® has been positioned in order to justify it economically? What has been articulated as the organizational vision for the use of Sametime, if indeed any such vision has been articulated?

### **3.2 The plan: Companywide implementation of Sametime®**

Currently, MUFIN is planning to roll-out Sametime® across the remaining workstations (about 3.500) of the two central organizations in 2010. The main rationale is to provide the infrastructure for chat and presence signaling as additional functions to the existing Lotus® Notes environment.

Subsequently, they plan to include the sales & service organization (customer front-end with 6.000 workstations) and to establish linkages between sales personnel and internal experts.

MUFIN is also running a customer portal in order to provide product and contact information, company information but more importantly editorial content for the customers and from a customer's perspective. Chat functionality is being considered as an option to extend the interactivity and customer value of the customer portal.

### **3.3 The approach: Framing Sametime® - Managerial and organizational design of RTC**

The implementation and eventual roll-out of RTC is positioned in line with the overall philosophy and IS approach of MUFIN. The purpose and intended effects are to increase the visibility of individuals for their team and peer group and to provide chat as an additional channel or medium of communication. Sametime® is seen as a complement to and well embedded in the existing Lotus® Notes infrastructure. In Carl's words "it is about providing 'shortcuts' for the users", e.g. name fields in documents are Same-time® enabled and allow users to contact the respective colleagues seamlessly.

However, given the relationship between management and workforce, the implementation and eventual roll out of RTC is posing numerous challenges, which need to be addressed at an early stage. The *intended effects* of increasing the visibility and to providing chat coincide with extended opportunities for monitoring and surveillance, which are in contrast to the company's culture. Communication logs – if stored – provide lasting evidence of communication episodes, often beyond what the communication partners intended. Moreover, the logs could be used as vehicles for management to undermine the privacy of their team.

#### **Conceptualizing and contextualizing Sametime®**

Traditionally, workplaces would be equipped with the hardware and application software relevant for the task. Employees had to claim additional software. With the proliferation of open source software, MUFIN has extended the range of applications which are provided for everybody, ready to be used as needed.

Along this line, Sametime® has been identified as part of the infrastructure, which will be rolled-out throughout the organization without specific requests, ready to be used by individuals and groups voluntarily and as needed. Emphasis is on support, on providing a professional work environment and facilitating communication across the organization.

"The implementation of Sametime® will stay close to the standard", so Carl, in order to avoid continuing cost of adaptation of style sheets, CI standards etc. with every new release. However, "if employees have reasonable requests for adaptation, we will consider it", e.g. Sametime® provides the option to send alerts, which pop-up on the screen

for a few seconds. Employees moaned that these alerts regularly went unnoticed, as the addressees simply had not focused on the screen at the time. Hence, it was suggested to change the function and add an acknowledgement button.

In that way Sametime® is also seen as tool to increase productivity and employee satisfaction as many of the little daily routines which in sum take a lot of time, concentration and energy will be eased and run more seamlessly (finding contact details, getting in touch, finding out about availability, getting an immediate answer etc.). Users can select entries in the internal staff directory and select them for their Sametime® buddy list. As the “name” fields in emails and documents will be Sametime® enabled, it becomes easier to contact colleagues throughout the organization as part of routine work.

Management provides space for experimentation, adaptation and appropriation in order to encourage use and adoption (Dourish, 2003). Management’s expectations regarding the use have been signaled by providing the functionality for free and voluntary use, without any performance metrics or controlling rationale attached. While Sametime® has been conveniently integrated into the workplace infrastructure, it has not yet been integrated into the operational applications and services processes.

In terms of positioning, MUFIN has distinguished four *stages of use*, which involve different groups of users and also underlying distinctions between different modes of use (2 - 4):

(1) Pilot test in the IT department

The purpose of the first step was to test the infrastructure, to observe the uptake and employees’ responses and to prepare the organization for a role out. In this way the commitment and support of the IT department was achieved and support structures prepared.

(2) Roll-out as communication infrastructure across the core organization

The functionality will be provided to everybody. It is expected that individuals and groups will be self-organizing and exploring productive modes of use. The IT department will monitor and support the implementation but hopes for grass root support activities, such as user fora, instead of centralized support infrastructures. Initially no integration into (external) service processes or operational functions is planned.

(3) Roll-out to the service organization.

As a third step it is envisaged to establish an expert communication mode between sales organization and experts in the back office. However, this will involve an extension into operational process. While not all employees will be involved in this third mode, those who will, will have to engage in a profoundly different regime. Expert roles will be established to which individuals will be assigned and there rules will have to be established who is on-duty, proxies will have to be defined etc., in order to ensure, that expert advice will be available during the agreed hours. The expert mode involves clear commitment, mandatory use of Sametime® and more centralized organization. Eventually it might also lead to an integration into the ERP system.

(4) Integrating chat functions into the customer portal

The fourth mode involves an extension of Sametime® (or chat) use beyond the boundaries of the company. Technically this means extending and opening parts of the infrastructure to outside users. Organizationally this involves organizational rules similar to (3), however, in relation to customers whose expectations need to be managed, but who cannot be exposed to a tight regime of rules.

Sametime® provides a much wider set of functionality as is been introduced by MUFIN. Desktop video links or conferencing have been excluded for the time being for cost reasons (10.000 workstations have to be equipped with cameras) but also as desktop video conferencing is not seen as adequate in the given work environment. For video conferences between the two main locations, professional conferencing rooms are under consideration in order to create a professional working environment.

Lotus® Connections, which features social software functionality for business such as Wikis, Blogs, Bookmarking, community building is examined for a later stage. Given the increasing use of mobile devices, options for providing Sametime® access for mobile users are currently explored.

### **Managing the implementation**

Given the potential conflicts between the organizational culture and ways of using Sametime, management involved and consulted the workers' council and the HR department at an early stage to discuss the plans and to build consensus on ground rules.

The step-wise approach and the positive feedback during stage (1) have helped to build support. As users gained familiarity with the system, trust was built also.

The pilot test in the IT department focused on testing the infrastructure and preparing the support team. In this way the technical roll-out and smooth routine operation have been prepared. On the other hand, this phase provided space for organizational learning. The uptake and initial responses of users could be observed. Moreover line managers (outside the IT department) and their personal assistants were solicited as pilot users in order to prepare the wider organization and to solicit early feedback. This yielded positive responses, such as "We need this for the whole department."

In consequence adoption has not been an issue, on the contrary, many employees are eager to get Sametime. Yet, use of Sametime® is voluntary and a few employees have opted out.

### **Rules for Sametime® use**

As a result of the conversation with the workers' council a few ground rules for the use of Sametime® have been established.

#### **(1) Voluntary use**

Sametime® will be provided for everybody, however its use is voluntary. Management commits itself not to use Sametime® for monitoring or surveillance. Chat logs will be kept but not used by management without prior consent of the communication partners. The IT compliance and data protection manager has been involved throughout the project to ensure compliance with corporate guidelines and data protection regulation.

(2) Chat etiquette

Based on existing templates, a company specific list of behavioral rules (etiquette for chat) has been phrased. This is meant to overcome uncertainty regarding accepted behavior and conduct, and to manage mutual expectations of the communication partners. The rules translate organizational and ethical principles of respect, confidentiality, responsiveness etc. into the realm of chat.

(3) Functionality and user's guide

This section contains an implementation into Sametime® and guidelines for its use. Colleagues can be added to the individual's buddy list from an internal staff directory without their explicit consent, which reflects both the professional context as much as the culture in the company.

The users are free to set the availability status and the periods for refreshing the signal. The availability status is linked to the employee ID card as most workstations are equipped with an ID card reader. It is planned that the phone status (on hook – off hook) will also be linked to the availability status.

Carl noted that the sequence of the rules has been chosen deliberately and in consultation with the workers' council: before learning anything about the functionality users shall be assured that use is voluntary. Second, they shall understand some ground rules in order to position chat, to manage mutual expectations and to avoid interpersonal conflicts as a result of ignorance or negligence. Only then will the specific functionality of Sametime® be explained.

In one case, employees had complained that a group manager had given orders to his group to use Sametime® and moreover to log-in every morning as soon as they commence their work. Immediately management asked the group manager to report to them and gave clear orders to stay in line of the rules that have been set. Management commented "Sametime® provides us with unique insights into the practices of our group and middle management, which we didn't have before. It reveals leadership practices, which are against our policies and corporate culture."

### **Support infrastructure**

In addition to preparing the IT department, decentralized IT staff assigned to the various departments and organizational units have also been trained. Moreover, quarterly meetings have been arranged in order to solicit feedback and discuss necessary adaptations.

Discussion fora have been established to provide immediate and collegial support for users, but also to facilitate the process of learning and exchange in particular in the early stages of the Sametime® roll out. These fora are also the platforms to discuss necessary adaptations of the system or additional functionality.

Line managers have been encouraged to adopt organizational routines around Sametime® and to facilitate the process of developing organizational rules for its local use.

## 4 Discussion and analysis

### 4.1 Business alignment: Infrastructure and application mode

Electronic communication becomes more salient for both employees, who expect a professional working environment that matches their private communication environment, and customers, to whom electronic modes of communication are offered as additional option and as part of Customer-Relationship-Management (CRM).

MUFIN presents itself as innovative and professional service organization, which embraces technology as integral part of the service provision and productive work environment, highlighted by the notion of infrastructure. Technology use has been designed and managed in order to support employees and to foster the relationship with customers. In addition, distinct applications are under development, which require a high level of organizational discipline and complement the infrastructure view. Stage (1) and (2) are important steps in their own right. However, they can also be seen as part of and indeed a preparation for stage (3) and (4).

In this way, the implementation of Sametime® can be seen as part of a broader development or transformation of a networked organization to make it fit for the age of Internet, mobile communication and new media environment.

### 4.2 Implementation and organizational alignment

#### Appropriation, learning and organizational development

*“For a technology to evolve and become better adapted to its users needs and ever more important to their social and economic development, something more than mere adoption is needed. The long-term, innovative effects occur when users appropriate the technology, when they make it their own and embed it within their lives. ... Users re-invent the technology while they try out its features, tweak devices and applications so they better answer their needs, come up with different ways to use services, and develop new social, economic and political practices around the possibilities open by new technological systems.”* (Bar et al., 2007, p. 2)

The process of this transformation has been carefully managed and aligned with the organizational culture (employee focused), based on consensus and support from workers' council, HR department, IT compliance and data protection management. Management seems to have followed Bar et al.'s (2007) reflection on the innovative and indeed political dynamics of technology appropriation by providing space for experimentation and self-organization.

#### Ground rules

The transformative power of RTC can lead to unintended and dysfunctional effects for organizations; the fear of surveillance and control can have a negative impact on the organizational climate.

MUFIN's management obviously have earned the trust of their employees by a history of participation and consultation. The way the ground rules have been developed and phrases exhibit not only trust in the employees not to abuse RTC for private or unproductive uses, but also an acute sense for the need to manage expectations and provide guidelines.

The rules primarily apply to the organizational level while leaving space for appropriation on the group and individual level (cf. Table 4).

### **Implementation process and stage plan**

The planned implementation process is an intriguing example of balancing the infrastructure characteristics of RTC, the culture of participation and consultation and managerial vision and guidance. The staged implementation has created momentum of interest and demand for RTC. Management seems to anticipate that the fairly unregulated use and appropriation of Sametime® will prepare the ground for an extension into a more structured and regulated use in stage (3) expert mode and ERP and (4) customer portal for part of the organization.

## **5 Conclusions**

The paper elaborates on the managerial configuration of RTC. We have shown the complexity of design issues by level (organization, group, individual), along the dichotomy of application (or integrated into applications) and infrastructure, and in terms of business and organizational alignment (Henderson & Venkatraman, 2003), each taken in a dynamic view.

Against this backdrop, the case provides intriguing insights into the balancing act and indeed diligence shown by MUFIN's management:

- Conceptualizing RTC as infrastructure for knowledge workers and a service company in the Internet age;
- identifying distinct organizational modes of use, which will be pursued in a stage approach;
- aligning with the organizational culture of participation and consultation;
- defining ground rules while providing space for experimentation and appropriation and finally
- balancing managerial and organizational design (corporate level) and self organization and experimentation (organizational unit or group level) as well as individual appropriation (employee and group level).

In this way, the paper aims at clarifying an embedded view of RTC as infrastructure and application, aligned with the strategic vision of the firm as well as the organization, including organizational culture.

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