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# **Cross company comparison of the introduction and adoption of Real Time Collaboration infrastructure (RTC)**

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## **ABSTRACT**

The paper discusses the introduction and adoption of Real Time Collaboration (RTC) technologies at an early stage based on two cases in internationally operating high tech companies. The research question deals with the relevance of coordinated management activities and organizational design of RTC – seen as communication infrastructure – to achieve sustainable positive effects from its deployment. In the first part of the paper a framework for structuring management activities around the introduction is used and tested for capturing the findings from the two cases. Also the linkage of RTC to the overall enterprise strategy is reflected. Findings from structured interviews across all management levels will be presented and analyzed with respect both to role of enterprise strategy and the organizational design of RTC introduction. We discuss the required balance between management control and technology appropriation by the employees and the impact on effort and success of RTC adoption. Finally recommendations for introduction processes are derived from the observations.

## **KEYWORDS (REQUIRED)**

Adoption, unified communication and collaboration, alignment

## INTRODUCTION

During the last five years the potential impact of Unified Communication (UC) and Real Time Collaboration (RTC) Technologies have gained attention both in the enterprise market and in the academic community. Riemer states: *“Real Time Collaboration (...) presents itself as a new and emerging technology in the communication and collaboration systems market with a wide range of new products currently entering the market”* [1]. Nevertheless, enterprises still struggle with the introduction of RTC technologies not so much from a technical point of view but from an organizational point of view. Donald [2] reflects the dilemma around UC as follows: *“UC is in fact a very unique and organizational specific proposition that requires a thorough understanding of an organization’s business practices and requirements. Often this is overlooked and the leap into Unified Communications ends with confusion about how to use it, how to integrate it into business processes, and most importantly how to recoup the investment. (...) Technology in itself is an enabling tool. It helps to automate many complex tasks and it underpins many business processes. In general most business cases do not explore the need for process change, nor do many technology implementation project plans have business process change as part of the project deliverables. This is where UC is different. Without deep planning, consideration and targeted change management in business process, UC will FAIL!”* We agree with Donald’s assessment since RTC technologies are introduced – in contrast to e.g. ERP systems - as open infrastructures without a distinct set of processes to be supported. On the contrary, RTC technologies yield an impact based on their adoption on a team, enterprise or even inter enterprise / partner / customer level. The process of adoption of RTC therefore needs to be fostered through management activities while leaving scope for appropriation and experimentation, whereby “appropriation is ...the process by which people adopt and adapt technologies, fitting them into their working practices. It is similar to customization, but concerns the adoption patterns of technology and the transformation of practice at a deeper level. ...it is critical to the success of technology deployment. It is also an important research issue, since appropriation lies at the intersection of workplace studies and design.“ [18].

Hence we have studied how the introduction of RTC technologies can be aligned with the corporate strategy and how it contributes to the achievement of strategic targets of an enterprise. Porta [3] claims *“UC should be considered as a strategic solution and not simply adding another technology to your business infrastructure. (...) Without a UC strategy, businesses are unable to tap into the hidden potential of UC which can transform the way people work.”*. This is supported also by Kelly [4]: *“We believe companies that weave unified communication info the fabric of their organization will derive the biggest benefit from their UC investment. To achieve this benefit, however, they will have to develop a concrete strategy for deploying UC and collaboration.”*. This indicates an awareness in the business literature that management interventions and strategic foundation are key for the successful introduction of RTC technologies, ensuring that RTC functionalities become a sustainable part of working processes.

While we emphasize the role of the management, we on the other hand acknowledge a strong influence of the dynamics of appropriation on individual and group level. As Dourish [5] states: *“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.”*

The paper discusses the research question whether coordinated management activities and organizational design of RTC are relevant for achieving sustainable positive effects from its deployment. In the first part of the paper we will test a framework for managerial activities and link those activities to the overall enterprise strategy. In the second part we will analyze the findings from the two cases along the elements of the framework.

Empirical evidence will be provided both from interviews with senior and middle management and first feedback from the teams using RTC. Before we start the presentation of the cases and findings we will briefly conceptualize RTC and discuss the notion of RTC as an open infrastructure on the introduction and adoption process.

## CONCEPTUALIZATION OF RTC AND RTC AS AN OPEN INFRASTRUCTURE

Orlikowski's and Iacono's [6] characterization of information technology is appropriate for RTC specifically: "... 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 ...". It is "provisional because new materials are invented, different features are developed, existing functions fail and are corrected, new standards are set, and users adapt the artifact for new and different uses ..." and finally technology is also 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. In addition, the interconnections among these components are only partial and provisional, and they need bridging, integration, and articulation in order to work together."

RTC is an emerging set of multiple technologies, which can be used in a flexible way by individuals, teams or on an enterprise, even inter-enterprise level. In this way we conceptualize it as an information infrastructure in line with Hanseth and Lyytinen's [7] definition: "... 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. Such an information infrastructure, when appropriated by a community of users offers a shared resource for delivering and using information services in a (set of) community. Internet or industry wide EDI networks are examples of large, successful information infrastructures."

The work of Riemer and Froessler [8] demonstrates the character of RTC as an information infrastructure composing RTC as a series of building blocks as shown in table 1:

According to Riemer and Froessler, "RTC has its roots in both the telecommunications and the groupware market. Consequently, RTC systems integrate groupware functionality with (IP-based) communications media." [8]. This trend also has been confirmed early by analysts as Herrel [9] on collaboration requirements in enterprises: "You must consider the integration of voice applications with collaboration software from Microsoft and IBM for email, calendars, and instant messaging. Moreover, you should consider a plan for integrating voice on your PCs and other devices."

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 signaling
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 portfolio	Audio and video conferences, Web seminars Ad hoc application sharing Joint whiteboards and discussion forums Team calendars and contact management Document folders

**Table 1: Building Blocks of Real-Time Collaboration (RTC) Systems [8].**

Handling RTC as open an information infrastructure and taking the socio-dynamic outlined by Orlikowski and Iacono [6] into account, we suspect the introduction of RTC requires additional change and transformation management measures to coach the appropriation of the user community. Froessler, et. al. [10] point out that, the “*ability and willingness to collaborate cannot be taken as given; experts in their respective fields are not necessary talented team players. Moreover, the very characteristics of “virtuality” – namely computer-mediated communication, fluidity, limited time frame, changing teams – undermine the development of trust, investments in social capital as well as the development and maintenance of a shared context of experience and understanding*”

## METHODOLOGY AND RESEARCH SCOPE

The research presented in this paper has been conducted from January 2010 through August 2010 in two high tech / software companies. Both companies are employing approximately 150 employees and operate on an international level in a similar market space and client environment. The companies provided access to interview partners for the research across all business areas. Standardized interviews of 45 min to 60 min length with 25 employees (8 company A, 17 company B) both with management and team members from various units, such as sales, pre-sales and services, have been recorded and transcribed. NVivo 9 has been used to store and analyze the findings and cluster similar quotes. Additionally six interviews have been conducted with the CEO or senior management team members with focus on capturing the business strategy, understanding of the intended role of RTC and the planned communication / transformation activities. Moreover strategy documentation from the two companies were reviewed to improve the understanding of the business strategy

The research focuses on improving the understanding of adoption processes along the introduction on RTC technologies with a focus on management activities. As a theoretical foundation we refer to Henderson’s and Venkatraman’s work [12] on the strategic alignment of business strategy and information technology. Henderson and Venkatraman have identified four dominant alignment perspectives:

<b>Strategy execution</b>	Business strategy drives both organization design choices and logic of IS implementation. Priority is to improve business processes, which places focus on changing business infrastructure. IT focus is on application development, driven by need to support business infrastructure
<b>Technology Transformation</b>	Business strategy and infrastructure are aligned. IT strategy defines technologies integral to business strategy. Focus is aligning IT strategy and IT infrastructure
<b>Competitive Potential</b>	Assume: IT strategy and infrastructure are aligned. IT strategy necessary to build distinctive core competency. Business infrastructure needs to evolve to fit new business opportunities enabled by IT
<b>Service Level</b>	Focus is to enable business infrastructure by fitting IT infrastructure to IT strategy

**Table 2: Alignment perspectives by Henderson and Venkatraman [12].**

For further analysis we follow a two step approach. First we examine the linkage between business / enterprise strategy and RTC Vision. This is mainly derived from interviews with CxOs and senior management (table 3). Second we have analyzed the implementation of RTC and the effects on adoption along the framework presented in table 4.

From the interviews we outline the linkage to the strategic role and contribution of RTC together with specific RTC affordances. We are looking at RTC as a platform technology or open information infrastructure, which provides a rich set of affordances. The notion of affordance was introduced by Gibson [17] who states that the world is perceived not only in terms of object shapes and spatial relationships but also in terms of possibilities for action (affordances). This view emphasizes our understanding that use of RTC technology is driven by the perception of the user in contrast to pre-defined purposes of traditional IT systems.

<b>Business / Enterprise Strategy</b>	<b>Strategic role/ contribution of RTC</b>	<b>Relevant RTC affordances</b>
Specific strategic goals	... and the potential contribution of RTC to achieve those goals	... and which RTC affordances specifically are relevant

**Table 3: Link between enterprise strategy and contribution of RTC, relevant RTC affordances**

The following table describes a framework which captures the activities of the management, translates strategic goals into an organizational design and – subsequently – outlines an implementation process adapting the structure introduced by Klein et al. [14]. We will apply this framework for the documentation and analysis of the two cases.

The managerial tasks outline the scope of activities, which are expected to have a positive influence on the adoption of RTC technologies. Our case analysis will focus on the strategic fit between enterprise strategy and the vision for RTC.

	Managerial tasks	Specifically ...
Strategic orientation	Framing	Vision of the communication environment and the strategic role of communication routines.  Application or infrastructure: scope and modes of use.
Organizational design	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.
Implementation process	Managing the implementation	Procedural and developmental view: planned vs. emergent development, tactics of scoping and roll-out.

**Table 4: Managerial tasks and responsibilities, adapted from [14]**

## THE CASE COMPANIES

The case companies have been selected because both companies decided to introduce RTC with a comprehensive functional scope and level of functional integration compared to a step by step approach (e.g. instant messaging only) and provided access across all management levels and functional units.

Company A is based in Switzerland and develops e-commerce software. While the development teams are distributed across Eastern Europe and Germany, sales and consulting capacity is present in eight European countries plus the US. An aggressive growth strategy in the Asian market is a key element of the strategy. The sales and delivery model shows a 35% / 65% direct / indirect channel ratio. Hence, communication and collaboration with channel partners is one of the key drivers of introducing RTC technology.

Company A's corporate culture is still "start-up" driven. A flat hierarchy and spontaneous communication are important elements of the daily work culture. Maintaining the specifics of the culture while pushing a growth strategy entering new markets and integrating additional channel partners is a key requirement of company A's stakeholders.

Company B is a subsidiary of an established global player in the software market, operating in Southern Europe and integrated in a global organizational setup. Company B focuses on sales, design and implementation of software solutions – software development units are part of the global setup and hosted in Europe and the US. The corporate culture is process driven and standardization is a key requirement. Although informal communication is working very well, a clear organizational setup with distinct communication procedures has been established for years. 80% of the sales and delivery activities are provided in a direct model, so communication and collaboration activities are very much focused on collaboration among the various departments (sales, pre-sales, consulting, service, product management, development) whereby 75% of the communication is within the Southern country cluster. 25% are related to participation in global process initiatives, central reporting, managing global account activities and escalation management.

Both companies employ approximately 150 sales people, consultants, system specialists and developers.

## DESCRIPTION AND RECONSTRUCTION OF CASE COMPANIES' IMPLEMENTATION APPROACHES

In the following section we describe major elements of the implementation process chosen by the two companies. Especially we describe the linkage between the enterprise strategy and the RTC vision. After the descriptive part we will discuss feedback from the interviews conducted in an early phase after roll out of the RTC technology. We will structure our key findings and discussion along three elements: Enterprise Strategy / RTC contribution (1), organizational design including management communication (2) and support during roll out and early adoption (3).

### Company A: Enterprise Strategy and RTC Contribution

From a strategic point of view, company A's dominant target is growth by increasing market share and global reach. Also, accelerating time-to-market for new products has become a top priority as additional revenue driver. Therefore, company A on one hand is looking into utilizing rare skills globally in a effective way and ensuring a fast ramp up of new channel partners. Also quality assurance becomes a crucial element for developing the RTC vision, since development specialists need to be involved at new locations in Asia with almost no existing channel partner structure. Over the last ten years a strong ad hoc driven collaboration culture has evolved which needs to be framed in a broader set up facing a strong growth with new employees. Finally maintaining a proper cost structure - in terms of travelling, delivering internal and external training, pre-sales efforts - is an overall constraint.

Building on a clear strategic path, CEO, CTO and senior vice president product development have created a RTC vision reflecting the key needs and cultural elements of company A.

The following table documents the link between strategic elements and RTC:

Enterprise Strategy	Strategic role/ contribution of RTC	Relevant RTC affordances
Grow revenue by 50% over the next two years in the US and Asia.	RTC will ensure access to pre-sales and technical experts globally to support sales activities (especially in new territories).	Seamless integration of mobile users globally
Achieve best in class time-to-market-cycle for new product lines and enhancements.	RTC supports the communication between sales, marketing, development centers and quality assurance – providing more flexibility in meeting planning and indecency from fixed locations.	integration with document management systems
Become leader in indirect channel management by attracting key partners in new markets and providing superior knowledge management and support within the partner and customer community.	RTC becomes a key lever in communication and collaboration with out channel partners. Access to experts and online training will be delivered to the highest standard building on companies RTC environment, each employee becomes customer facing and manages personal presence status (signals availability) properly.	integration with document management systems, integration of trouble ticketing, integration of chat, video, audio conferencing into customer, partner support sites
Maintain high level of employee motivation / satisfaction growing the employee base by 25% globally over the next two years.	RTC supports flexibility in working mode, location and time. New hires at new locations feel integrated through RTC from the very beginning – location does NOT matter! Teams benefit from international exchange and tasks are driven globally.	full teleworking / mobility integration as part of standard working equipment
Maintain and nurture “ONE company” spirit.	RTC will support the notion of working in the same virtual place and become accepted as a normal way of co-working.	integration of RTC into social networking and community platforms

**Table 5: Company A - Alignment between key elements of enterprise strategy and RTC vision**



### Company A: Management communication & support

Company A does have a strong linkage between strategic goals and the usage of RTC technologies, even senior management has been involved in the communication and design of the RTC implementation. For company A, RTC is a core requirement to achieve the company's overall strategic goals. Specific communication and organizational design elements have been developed by management and the deployment team to ensure a successful roll out and traction of the RTC infrastructure.

Table 6 provides an overview of the activities and measures referring to the structure of managerial tasks described above:

	Managerial tasks	Specifically ...
Strategic orientation	Framing	Senior management has created a vision document which is communicated across the company and part of the CEOs regular management addresses. Every employee gets a CEO invitation to become part of Global ONE company approach. It is clearly outlined that RTC is business driven vs. technical infrastructure driven.
Organizational design	Context setting	<p>Major transformation activities take place in the area of linking the development teams to the pre-sales and partner channel through RTC (e.g. partner can access development directly through partner portal). Although RTC technology is provided as an open infrastructure specific design elements are in place to support the vision of RTC as integral part of the working processes as:</p> <ul style="list-style-type: none"> <li>• Each employee gets a personal web conference room with audio/ video integration.</li> <li>• Each employee gets a personal conference bridge.</li> <li>• Each physical meeting room gets a virtual instance both on audio / video and web conference platform.</li> </ul> <p>All RTC functions are accessible from the office space, home office and mostly for mobile workers.</p>
	Embed-ding	RTC technology and usage is declared part of company's pulse fostering the idea of open collaboration and communication. Every employee and manager is visible and accessible. Management meetings are held virtually and travel management takes care of communicating savings which are spend on training and employee skilling.
	Rule setting	Due to the tight linkage between business operation and the intended usage of RTC a set of policies is defined as: managing presence status becomes mandatory, tooling for specific user scenarios is defined and supports management of costs (e.g. restricted use of mobile phones for conference dial in vs. Skype usage for dial in).
	Creating support infra-structures	Support structure is provided through central IT help desk and champion concept.
Implementation process	Managing the implemen-tation	Implementation builds very much on the existing experience of the product development teams with heavily using Skype and web meetings platforms in the past. The implementation process starts with a pilot phase introducing the RTC functionalities in the development teams and adding pre-sales and consulting units as early movers. From the very beginning CEO and CTO become power users and act as champions. Also members out of the administrative office community are part of phase one to ensure a proper alignment with cross functional tasks and travel / meeting management.

**Table 6: Alignment between key elements of enterprise strategy and RTC vision**

### Company B: Enterprise Strategy and RTC Contribution

Company B is part of a global set up with strong relations to a headquarter organization and the strategic directions are focusing on profitability compared to aggressive growth. This is triggered mainly by an overall global strategy pushing focus on specific portfolio elements and strict profitability on a project level. For company B managing complexity and cost effective delivery of projects is a key target contributing to a global stabilization process the company is going through as a whole. Table 7 presents the linkage between company B's strategy as part of the global organization and the RTC vision which is adopted locally by company B. Key functional elements of RTC extending the standard scope of RTC according to this vision are outlined. Strategic elements listed are referring to the level of company B. On the one hand they are part of the global strategy, on the other hand they are specific targets set local management of company B.

Enterprise Strategy	Strategic role / contribution of RTC	Relevant RTC affordances
Excel in implementing global processes for maximum quality and reliability across sales, pre-sales and delivery.	RTC is the key enabler to support seamless communication and collaboration across country limits ensuring global alignment and certification procedures adding enhanced interaction to standardized workflows (e.g. escalation management).	Integration with order management, pre-sales support tools and design tools
Increase the profitability of projects by utilizing global skills, templates and procedures in the bid and implementation phase.	RTC becomes the key resource to integrate skills seamlessly into proposal development, bid management and quality assurance. Facing an increased complexity in project setup and delivery, the involvement of skills from HQ or special units located in other countries is crucial to achieve profitability targets.	Integration with order management, pre-sales and design tools
Grow channel partner / integrator community by 30% over the next two years and ensure best in class channel enablement and support.	RTC is a prerequisite to smoothen the communication and training processes for existing and new channel partners. It is key to live up to the promise that doing business with company B is much easier and more effective than with other vendors.	Integration with training and community platforms
Become leader in implementation of social responsibility (e.g. work life balance).	RTC reduces travel effort and increases flexibility in meeting (time wise and location wise). Part time workers or employees from rural areas become integrated with full time staff and major city inhabitants. The implementation of RTC avoids unnecessary travel, time efforts and saves natural resources and supports a healthy energy balanced working environments. RTC will drive a new way of thinking: content and interaction before modus of a meeting.	full tele working / mobility integration as part of standard working equipment
Become best in class utilizing unified communication / RTC solutions within our working procedures creating enthusiasm around the products and solutions of the company.	From a high tech software vendor point of view we will achieve that RTC becomes standard equipment of each employee across all management levels demonstrating innovative working procedures internally and externally (image). RTC enters into the blood stream of the company and our managers and employees will use and promote RTC with full conviction due to the penetration throughout all working processes	

**Table 7: Company B - Alignment between key elements of enterprise strategy and RTC vision**

### Company B: Management communication & support

Company B's management exhibit a strong technical and operational view on RTC, which eventually also drives the organizational design and implementation.

	Managerial tasks	Specifically ...
Strategic orientation	Framing	Senior Management on a global level is promoting and supporting the implementation of RTC within company B and the global sister companies project from a purely technical and delivery point of view. Key motivation is standardization and management of a global rollout of technology. No vision communication beyond "lets drink our own champagne" and we can manage global implementation of RTC has been released. RTC is seen as an infrastructure with strong cost saving potential. Key elements from the strategic link to the RTC vision have not been pushed in the initial communication. Local management activities in company B fix the issue by creating an application driven approach to the RTC introduction and promoting the social responsibility aspects.
Organizational design	Context setting	Corporate policies are driven by standardized rollout procedure of the infrastructure. RTC introduction at the beginning is limited on replacing the existing audio / audio conferencing capabilities with a new RTC landscape and the introduction of chat and presence management. Introduction is focused cross department scenarios around conference calling and home office / mobile user integration from a technical point of view.
	Embedding	Since the introduction is focused on providing technical capabilities in the area of audio / audio conferencing with presence and chat as add-on features no specific organizational integration takes place. Extensive room is left for appropriation of the RTC technology by individuals and teams.
	Rule setting	Presence is introduced but no policies are set to drive behavior. The one number service is a key element in the introduction phase and the usage of one number services becomes a general policy.
	Creating support infra-structures	Support is provided through the central IT helpdesk on a technical level. Company B adds specific training measures (scenario training) after the roll out is completed.
Implementation process	Managing the implementation	The implementation is driven by a global deployment team making technical capabilities available for each employee. Therefore the rollout process focuses on software deployment and technical functionality. No transformation measures are part of the deployment process. Users are informed on their new phone numbers and credentials. Manuals are distributed via e-mail / intranet. Globally all users get a distinct set of RTC capabilities as a replacement for existing technology.

**Table 8: Company B - Alignment between key elements of enterprise strategy and RTC vision**

## ANALYSIS AND DISCUSSION

So far we have reconstructed the linkages between key elements of the enterprise strategy and the RTC vision of company A and B and outlined the organizational design the companies have chosen to introduce RTC. The research shows some limitations comparing two cases only and needs further validation by extending the number of cases. Nevertheless the companies offered a broad access to interview partners and stakeholders allowing a detailed multi-dimensional view.

Discussing the findings we will explore the relevance of strategy and RTC vision for the implementation process and implications of a strategic embedded implementation approach vs. an infrastructure driven approach. Furthermore we discuss reflections of the teams on the approaches and potential damages from an infrastructure based approach.

The framework used for documenting the cases supports very well the identification of commonalities and differences along a set of dimensions relevant to the introduction of information technology. The application of a framework urges the management to consider critical issues and follow a systematic process. Its application might help to avoid pitfalls during the introduction of new technology by closing the loop between strategic intent and organizational implementation. This becomes even more relevant in the area of open information infrastructures in contrast to the introduction of traditional IT systems due to the lack of a specific business or technical process.

Nevertheless this framework focuses on the management activities and does not support a full discussion of all dimensions of adoption or fully reflect the technology acceptance model discussion. Due to the focus of this paper – primarily dealing with the management dimension – we regard this framework as a very useful structure for multi case comparison.

### Comparison of the implementation approaches

Both, company A and B, do have a clear intent to utilize RTC technologies in achieving their strategic goals. Especially in the area of developing partner and channel communities and employee satisfaction / attractiveness they share the similar targets. They are both looking for RTC as key lever to improve communication and collaboration. RTC is seen as an important lever for facilitation collaboration and making it more flexible. Also, both companies look into a tight integration of operational IT systems and RTC (e.g. sales support systems, knowledge management platforms). Global access to skills is regarded as a special resource and as key enabler for growth and quality enhancement.

Nevertheless, we find two different approaches to the organizational design and involvement of the management. Company A pursues a consistent route communicating the strategic relevance of RTC and introducing specific design elements and policies to make the usage of RTC an integrated part of the working processes. So an employee in company A communicates his RTC capabilities on his business card and within his e-mail footer by referring to his individual meeting room (e.g. [http://www.company\\_A.com/meetbobsmith](http://www.company_A.com/meetbobsmith)). This simple measure can also be found in companies actively promoting employees' Skype name in a similar way. It signals to colleagues, partners and customers a certain working culture and style. This does have both a positive influence on the employees' awareness of his RTC capabilities and simplifies for partners the process of getting in touch through RTC. Since company A is already using Skype heavily among the product development units, cultural specifics have evolved as the head of product development states: *"we decided not to separate private Skype accounts and business Skype accounts, so every member of the development group manages one presence status and is either available or not available both for colleagues and his family and friends."* Both examples illustrate the linkage between the RTC vision of company A and a specific organizational and implementation design: making RTC technologies part of the standard communication procedures. This sort of organizational implementation refers to the position of Dourish [5], emphasizing the relevance of appropriation on the individual level to foster long-term, innovative effects of RTC usage. Enterprises should consider to promote actively the availability of RTC technology also for private usage to nurture the appropriation of the individual (e.g. mobile phone vs. smart phone policies).

Due to the lack of specific organizational design elements during the roll out of RTC in company B, a disconnect between the strategic intention and the implementation has occurred.

Initially the rollout is focusing on making RTC functions available for each employee. Company B misses an important momentum during the early stages of the rollout, since the employees feel a lack of orientation: *"... when we started using RTC ... we come to use building these new offices, we ... suddenly find on the desk a new phone, we found that we have to install an application on our PC. ...and we have some pretty well designed papers, but with not so much information. A majority of the interviewees had problems understanding the overall strategy associated with the RTC infrastructure and were looking for more guidance (e.g. use cases, scenarios).*

Also the absence of policies and rules especially in the area of presence has created uncertainty how beneficial presence management is on an company B level: *"(presence) most people try to use it, but are frustrated by others inconsistent*

*behavior ... setting presence status is often forgotten and in the consequence mostly ignored and seen as 'overrated' - but is not mandatory".*

In discussions with the team members of company B it was also mentioned that a more extensive training related to scenarios instead of technical functionality should be added during the roll out phase: *"... If you want the people to use it, first they need to be trained, then they need to make a personal change and to instead use their e-mail and their phone in their daily life. Also they have to have the experience to experiment, which are the benefits for themselves and also to make it in their daily."* Of course also 'power users' have adopted the RTC technologies in company B very rapidly and pushed within their teams or with their colleagues for the usage of the new functionality. But their reach is limited to a small number of employees due to the missing overall guidelines and principles. Therefore company B had to invest on a local level additional efforts into training and rule setting after the first months. Specific training sessions were created where the strategic elements as social responsibility were communicated and scenario oriented training classes were added to achieve a broader usage and a deep integration of RTC use within the organization.

### Key findings

We distinguish two areas of key findings. First (A) we summarize the findings from the interviews, second (B) we discuss which alignment perspective describes best the actual activities of the case companies.

Reflecting the results from the two cases at an early stage after introduction we have observed:

(A)	<ul style="list-style-type: none"> <li>• Strategically motivated organizational design supports the adoption process. It provides a framework for orientation which is beneficial both for coaching processes of the (team) management and provides orientation for (self) appropriation within the user community.</li> <li>• Communication of a clear strategic intent by management frames the introduction and supports building a cultural context around the usage of RTC (e.g. communication of capabilities on a business card).</li> <li>• Policies and guidelines in specific areas (e.g. presence management) are relevant to ensure adoption and intended organizational performance.</li> <li>• Even an immediate adoption of RTC by power users cannot replace a fully framed systematic management approach building on organizational design.</li> </ul>
(B)	<ul style="list-style-type: none"> <li>• Company A and B follow different alignment perspectives introducing RTC. Company A assumes the perspective of Strategy Execution while company B seems to be described best as an instance of the "Service Level perspective". Although both companies have formulated an enterprise strategy and elements of an RTC vision the actual implementation was done in very different ways.</li> <li>• A possible explanation which was partially validated through discussions with company B's management is the enormous business pressure during the introduction phase. Management capacity was very limited and the regional activities could not compensate the shortcomings of the global initiative.</li> </ul>

## CONCLUSION

The paper contributes to the understanding of adoption of RTC in organizations in three ways. Firstly we have re-constructed and compared the linkage between strategy and RTC vision from interviews and discussion with the senior management teams for the two enterprises. Secondly we have outlined the activities of the management introducing RTC along a standardized framework and tested the usability of this framework which structures the management tasks and supports the comparison of introduction approaches. Thirdly the paper discusses the impact of a missing link between strategy / RTC contribution and design / implementation.

Comparing the two cases and reflecting the feedback from the team members we conjecture that the lack of consistency between strategy, intended RTC contribution and organizational implementation has led - at least initially - to lower adoption levels and exploitation of the potentials provided by RTC technologies. Additional training activities and communication from management were necessary to promote a broader usage of RTC within company B. The initial approach of voluntary use with no rules was creating uncertainty among the user community, especially the early adopters, and slowed down the integration of new working mode into the daily working processes. From a general perspective companies need to find a balanced approach between a consistently managed introduction process and providing room for evolving appropriation within the user community. The level of control is clearly depending on a corporate culture. System vendors and suppliers of RTC technology seem to have understood that they need to support management and to provide transformational concepts as part of their offering. A recent example is Google and their transformation concept for Google Apps. Google provides a full set of templates, project time lines and video tutorials as part of a self configurable learning center in order to smoothen the introduction process [15]. Reflecting the contributions of Donald [2] and Porta [3], we confirm that consistency between strategic intent and implementation into an appropriate organizational design supported by the management (communication, rule setting) is a key factor for making RTC implementations successful ensuring enough space for self appropriation. This is also supported by findings from the introduction of groupware technology. Orlikowski [16] conducted a study on adoption of groupware stating: *“... this research study suggests that in the early adoption of a technology, cognitive and structural elements play an important role in influencing how people think about and assess the value of the technology. And these significantly influence how they choose to use the technology”*. .

Since the effects during the introduction of RTC as a complex open information infrastructure are rarely monitored in detail there is still need to enlarge the body of research in this area. The concept of strategic alignment and managerial tasks as introduced in this paper have proven to be helpful in structuring findings and yielded insightful results. Nevertheless referring to Orlikowski's [6] work we need to acknowledge that due to the nature of technology and the related socio dynamics there is not a single truth or pattern to be monitored or recommended. Future research will have to extend our understanding of the adoption of RTC and explore the linkages to strategy, management behavior and corporate culture.

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