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The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Overview. **7 Ideal Capabilities**

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Overview of the 7 Pillars

Most of the office productivity software in use today is focused on improving the productivity of the individual. However, this is out-of-step with team- and group-based approaches to delivering on shared project outcomes. Overall productivity takes a hit when teams are forced to use software applications that do not facilitate shared team activities. As an organization changes to embrace the project team as an organizing construct—specifically those with representation both from multiple internal functional areas and external experts—what are the key IT capabilities for enabling team productivity?

7 Key Pillars

Without talking about vendors and products, in an ideal world, teams need the following capabilities:

1. *Shared Access to Team Data*. A secured place is provided for storing data, documents, discussion threads, and other interesting things. Each person on the team can access the shared data, add new data or documents, and edit or revise existing data or documents depending on their level of access to the shared area.
2. *Location-Independent Access to Team Data, People and Applications*. Team members can read and write documents associated with the project from multiple locations; they are not tied to their desktop computer at their desk in the office. Access may be given through a wireless connection on a laptop, a secured web page through an Internet café, or via synchronization capabilities for disconnected usage.
3. *Real-Time Joint Editing and Review*. During the course of writing a new document or reviewing an existing one, team members often want input from others on the team. This ranges from the formal ("what do you think about the way I've written this line?") to the informal ("can we brainstorm on a response to this posting?"). Team members need a quick method of inviting someone else to view the same information on their screen, to jointly navigate through a document, and to permit the other person to directly change the text they've been writing.
4. *Coordinate Schedules with Team Aware Scheduling Software*. Teams need recourse to a calendaring and scheduling system that automatically balances personal appointments, enterprise-wide meetings, and project team events. Today's electronic calendaring and scheduling systems enable people within the same enterprise to set up meetings with a minimum of fuss and process wastage. However, these systems do not work well between organizations, eg, using a free or busy search to find the next available meeting time for all participants doesn't work across multiple calendaring systems. Neither do they work well within collaborative workspaces, as each individual team member has to manually cross-reference their electronic diary with a team meeting proposed in the calendar in the collaborative workspace.
5. *Build Social Engagement through Presence, Blogs and IM*. Systems that display the presence of others, systems that enable others to keep a running commentary on things that they are thinking about or reading, and systems that enable real-

time discussions go some way toward re-constructing the spontaneous opportunities afforded by in-person work. People working together in the same office have many spontaneous opportunities during the day to engage at a personal level—chance hallway meetings, coffee break catchups, and water cooler discussions. These personal engagements provide insight into the true character of others on the team, and they either build or diminish trust … with inter-personal trust being a critical factor for team productivity.

6. *Enterprise Action Management*. Teams need a way of tracking outstanding action points that gives shared visibility regarding who is doing what, and explicitly links next actions to team goals and enterprise mandates. Emails, meetings, threaded discussions and videoconferences give rise to tasks that team members have to do. There is a disconnect in today's systems, however, between the tracking and management of outstanding next actions at the enterprise, group, and individual levels. Individuals create their own next actions based on team goals, but have no simple way of associating their next actions with the mandates of the team. Put in reverse, the team manager or project leader cannot see a consolidated list of the next actions that individuals are working on in the context of the team's goals and priorities. Tasks and next actions are stored in different applications that do not communicate with each other.
7. *Broaden the Network through Automatic Discovery Services*. Teams need to be informed about other internal or external people who have expertise in the specific project matter under consideration. Internal automatic discovery services constantly scan the minute-by-minute chatter of the organization—the emails and IMs, the documents being written, the web pages being read—to build a sense of who knows what, and to create bridges for communication between distinct experts. External automatic discovery services are less mature, but enable people to track certain keywords or phrases of interest.

What's Next?

I will be expanding on these 7 ideas over the next couple of weeks. My intention is to build a frame of reference through which IT-enabled team productivity can be explored. In addition I will highlight features of today's team-oriented products and services that do or do not deliver on these required capabilities. I welcome your feedback on this topic, either by email or a comment.

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The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Pillar 1. **Shared Access to Team Data**

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Pillar 1: Shared Access to Team Data

> *"A secured place is provided for storing data, documents, discussion threads, and other interesting things. Each person on the team can access the shared data, add new data or documents, and edit or revise existing data or documents depending on their level of access to the shared area."*

The first pillar of IT-enabled team productivity is shared access to team data. Every person on the team needs to be able to view and work with the documents, ideas, mind maps and resources that other members of the team have prepared and contributed. Without this common pool of information, the work of the team is hindered.

It is vital to note upfront that this discussion of the 7 pillars is about information technologies and systems that enable teams to be productive, rather than the more commonly discussed human and relational factors vital for team productivity. I have deliberately not used the terms "collaboration software", "groupware" or "teamware" for this discussion, because those are widely used to refer to a raft of different things. I would venture to say, however, that if an organization fully embraces the 7 pillars that I am outlining, they will have a collaborative software "environment" to facilitate team productivity. And I think that's the goal.

The Situation Today

Team members today use a multitude of separate tools for providing shared access to team data.

- Word documents that people are writing are sent out for review by email. You have to be on the distribution list to get it. Or newer technologies, such as file transfer over instant messaging, are used.
- Emails are traded between different subsets of the group. Everyone stores the discussions in a uniquely named folder in their email client, or alternatively just deletes the message because the information has been committed to memory.
- Organizations using Microsoft Exchange may set up a Public Folder for hosting email discussions. This creates a permanent record of discussion items.
- Editions of documents are stored locally on hard drives or in private folders on the network file server. Each person has their own way of establishing a folder hierarchy for the project—some put everything into a single folder, whereas other "more organized" individuals create a number of separate sub-directories in which to store related documents. Of course, if there are two or more "more organized" individuals on the team, they will each see a different thread on which to base the relatedness claim.
- A shared folder on a network drive is created, and different members of the team start to populate it with documents from their local hard drive. Given the way that each person has saved the document to their local drive, multiple differently named copies of the same document end up being added into the folder. But no one knows that.

- Meeting minutes are distributed by email, along with a list of action points allocated to each team member. Some people file them, some people delete them, while others just ignore them.
- Organizations that use Lotus Notes for more than just email have one of the more mature platforms for shareable access to team data. A discussion database can be used for threaded discussions, with differing levels of access given to certain groups of documents. A bespoke database can be created for storing documents, meeting minutes, links, and other useful things.

Negative Effects on Team Productivity

The use of multiple separate tools for providing shared access to team data has a plethora of negative effects on team productivity.

- *People waste time looking for the latest stuff*. It is unclear whether the most recent version of a document is in their email, on a shared folder on the file server, or in their local folder used for storing files distributed over instant messaging. After searching for 10 or 15 minutes to find the latest edition, they may feel compelled to call the original author and check to see whether they have the most recent version. Time is lost on coordination and searching.
- *People have to do their stuff at their desk*. Since access to much of this shared data is predicated on being at their computer, team members have to physically be at a certain place to get the work of the team done. This means that a team member can't shift to a quiet meeting room for focused concentration on a specific team task, they can't use downtime on the train for getting things done, or they can't work from their home computer because access to their local drive on their work computer is not possible.
- *Extra manual steps are required for keeping external team members in the loop.* Where the team includes people from outside the organization, someone on the team needs to remember to send them the recent happenings of the team. It is unlikely that the external person will be given access to files stored inside the firewall, to Public Folders on Exchange, or that IT will permit the replication of the team's Notes database between two organizations.
- *People can only do work when connected to the network.* With the exception of those organizations using Notes, which does and always has provided an intelligent way of delivering disconnected usage, most of the products on the market today lack offline capabilities.

The Ideal Future Situation

The ideal product or service that facilitates shared access to team data needs to provide the following capabilities:

- *Support for multiple types of data*. Different types of documents and different sets of data are all supported within the shared area. Word documents, pictures, threaded discussions, and mind maps can all reside side-by-side, and can be viewed side-by-side, not in some artificial "folder" paradigm.
- *Single workspace packaging of the shared data*. The differing types of shared data are accessible through a single main screen. There is only one place to go to view the team's data, not a number of different and separate places.

- *Checking for document uniqueness*. When multiple people try to add the same document or text into the shared area, they receive a notification that the document already exists, albeit under a different file name. The system checks for duplication beyond a merely superficial file name comparison, eg, a checksum routine. Different versions of documents, however, can be added.
- *Users can set access privileges for documents*. By default, anyone in the group can view any document or data element in the shared area. Individual content contributors can, however, restrict access to a subset of team members for a duration of time or until a specific milestone is reached.
- *Support for disconnected usage*. Team members can access the shared documents and data while offline and disconnected from the corporate network. Changes or additions made while offline are synchronized back to the master shared area when a network connection is next available.
- *Digital rights managements*. Every piece of data added into the shared area is perpetually tied to a set of access rules. In other words, if a Word document is detached from the shared area, the set of access rules that specifies who can read and edit the document remain enforced. Access to documents can be revoked for a specific person on the team at any point, for example if they leave the project or the project is discontinued. This protects the intellectual property of the organizations involved.
- *Active archiving of documents and the team space*. Older and un-used documents within the shared area are automatically archived to a specific sub-area of the

Positive Effects for Team Productivity

If team members have shared access to team data in the way outlined above, the following productivity benefits accrue:

- No process time is wasted in checking for the most recent version of stuff. It is very clear what is new and current.
- No time is wasted checking multiple team data stores for different types of documents, and trying to cross-reference each store for a single overall view. It is all in one place.
- Team members can work from anywhere. They can access all of the information they require when connected to the network in the office, at Starbucks, or when they are disconnected on the train or at home.
- External people are automatically included in the shared area, thus eliminating manual efforts to keep them up-to-date. Effective digital rights management plays a big part in assuaging concerns over intellectual property rights.

Technologies to Consider

The following list is of key products and services to consider when aiming to gain productivity benefits from shared access to team data. Please note that this list is not exhaustive, and the following products do not necessarily deliver all of the capabilities outlined above.

- *Lotus Notes and Domino*. The product is widely used, has a definite future, and a strong and loyal base of business partners who support customers in the field. See www.lotus.com.

- *AfterMail*. AfterMail integrates with Exchange, Domino and other Internet-compliant email servers to capture a copy of every message sent or received. The copies are stored in a relational database, and a unique copy of every attachment is also stored. The capability to provide shared access to a specific subset of emails and documents is the one that stands out to me. This access can be via a Web browser (and thus potential supports cross-organizational teaming initiatives), or via an RSS feed to an RSS newsreader. The product appeals to me for its ability to deliver shared access without asking end users to change the way they use email today. See www.aftermail.com.
- *Groove Virtual Office*. Compared with AfterMail, Groove is at the opposite end of scale in terms of impact on the end user. Users must have the Groove Virtual Office installed, must do their work in one of the Groove shared spaces, and must use a Windows PC. If those restrictions can be embraced, the Groove Virtual Office offering delivers on the requirements for shared access to team data. See www.groove.net.
- *Xythos WebFile Server and Document Manager*. Among other things, the Xythos offering centralizes files in a shared document management system that is accessible from multiple locations. The documents can be edited without removing them from the centralized location. See www.xythos.com.
- *Interwoven WorkSite*. Although it is heavily focused on legal firms, WorkSite provides many of the capabilities required for shared access to team data. The soon-to-be-available offline access client will further flesh out WorkSite's capabilities. See www.interwoven.com.

What's Next?

This concludes my discussion on the first pillar of IT-enabled team productivity. Next time I will be discussing pillar 2: ubiquitous access to the team data, people and applications. The 7 pillars work together to increase team productivity, so the above discussion probably seems lacking in some areas. I aim to resolve those areas of limitation by the time that all 7 have been explored.

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The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Pillar 2. **Location-Independent Access to Team Data, People and Applications**

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Pillar 2: Location-Independent Access to Team Data, People and Applications

> *"Team members can read and write documents associated with the project from multiple locations; they are not tied to their desktop computer at their desk in the office. Access may be given through a wireless connection on a laptop, a secured web page through an Internet café, or via synchronization capabilities for disconnected usage."*

The key to buying real estate is Location! Location! Location! The key to being productive as a member of a team is Wherever! Wherever! Wherever! Or to be proper in my use of English, the changing geographical location of a person should not preclude them from having access to the data, people and applications they use for doing their work. The data is the documents, conversations and other digital assets of the team. The people are the team members, as well as supporting organizational structures such as divisional managers, advisory boards, and programme managers. The applications are the general computer software programs used by team members to read and write data, and those used for engaging at various levels in communication activities within the mandate of the team.

The Situation Today

The real estate dictum is too often the team dictum: thou shalt be on location in the office to do the work of the team. This is because the tools and technologies made available for teams prohibit access from anywhere else. Those tools are:

- Documents that team members create are stored on file servers. Due to a perimeter-based approach to security, IT will not permit access through the firewall to these documents from anything other than work-issued computers.
- Team members are tied to a physical desk since their work computer is a desktop PC. Desktop PCs signify that work can only be done in a certain place.
- Team members have to be in the office to see if others are available, either by looking into their office or calling over the partition. Being present means being there physically.
- Business systems used for doing the work of the team are tied to the office.

Negative Effects on Team Productivity

Location-dependent access to team data, people and applications crimps productivity in the following ways:

- Only people who can be physically present can be part of the team. Outside experts, independent contractors or consultants, and partners in other organizations are limited in their ability to fully contribute to the outcome of the team.
- Team members traveling on business are out-of-the-loop on team activities. They can't see what is being said and discussed, they can't contribute to such discussions, and their expertise is lost for the duration of the trip. If they are a key player in the team, the team's work may grind to a halt.

- Productive work on team products can only be done in the office. High leverage ideas that form outside of the office can not be captured immediately, having an effect on time-to-market, particularly when team members are spread across multiple time zones. For example, if a team member thinks of a brilliant idea on the train on the way home at night but has no way of adding that into the system until the next morning, other team members working 4-8 time zones away will not be able to use such insights for up to 24 hours.
- People needing access to the data of the team must normally be given full access to everything, eg, a password for entry into the secured team space. In the case of external contractors or independent experts, that can sometimes give away too much. Extra-ordinary measures must be taken to ensure that external people can't abuse confidential documents after they have been shared, eg, by mandating access only within a secured physical room, or alternatively merely trusting that the individual will delete such documents when the engagement has ended.
- Team members can't take advantage of the bursts of creativity that often arise from shifting temporarily to a different place. When ideas for project completion and next actions are stuck, being able to leave the confines of the office and get some fresh air and a fresh view is helpful.

The Ideal Future Situation

The ideal scenario is where team members can access shared data, other members of the team, and required applications from any physical location. The following are key capabilities:

- *Access from a variety of devices*. Data is accessible from desktop and laptop computers of various flavors, eg, Mac, Linux or Windows. Small form factor devices, such as a Pocket PC or Palm PDA with integrated wireless capabilities, can also provide access for those times when key people are out-and-about.
- *Access over a variety of networks*. Access to team data, people and applications is not tied to the physical office network. Team members can used wireless-equipped laptops when at the airport or a Starbucks, a CDMA or GPRS telecoms card when traveling between offices or out of range of a wireless hotspot, their in-home broadband Internet connection, or even a dial-up connection as a last gasp measure.
- *Digital rights management over team data*. The individual documents, discussion items and other digital assets of the team should be protected individually wherever they are, not just when they reside in the team's secured space (akin to a safe box at a bank). Documents or text composites should know their lineage, and enforce rights over reading, editing and printing based on the identity of the current user. Obviously this requirement relies heavily on a robust identity management framework and infrastructure.
- *Presence integrated into every team document, shared space and application*. The network presence of key people of the team, as well as supporting boards members and managers, should be shown in every team document, shared space and application. It is harder today for teams to be physically co-located, but the presence and availability capabilities made common by instant messaging clients have much wider applicability. By threading presence and availability into every

artifact used by team members, they have an immediate sense of connection with others, and when needed, can use one or more methods to communicate, eg, text chat, IP telephony call, or a videoconference.

- *Secure browser access.* Any time that team members are traveling without their own laptop or handheld device, some other form of access needs to be made available. The best alternative is secured browser access, either from an Internet café or perhaps a friend's house. Web-friendly applications for storing, reading and editing team data are essential.
- *Synchronization capabilities for offline or out-of-the-office access*. I used to be strongly of the opinion that some form of synchronization capability was essential for a team collaboration offering, but I'm wavering in that. With our increasingly wired and wireless world, it comes down to the traveling habits of members in the team. If team members are generally connected via a wired or wireless connection, they local replication is much less important as a key capability. However, if team members travel frequently, and in particular spend many hours on planes, then a local replication capability is very important. The airplane is one of the final frontiers for real-time network access, but that too is changing with airlines embracing in-the-air network systems.

Positive Effects for Team Productivity

The availability of tools and technologies to provide location-independent access to team data, people and applications enhances team productivity in the following ways:

- When a co-located team needs to leave the office for a day of strategic planning, they can do so without losing access to their shared data. Access is available via local replication on laptops within the room, or via a wireless link back to the office.
- Organizations can engage world-class experts to assist with specific deliverables within the team's charter. Since the expert is unlikely to live next door, they can access the data of the team from wherever they are. In addition to enhanced productivity, the organization also gains effectiveness benefits.
- Documents within the team space can be easily shared with external people because of post-sharing digital rights management. Those rights can even be changed after delivery, either to increase the level of rights (can print, can read for longer, can forward to others), or to immediately revoke access in part or whole.
- People are aware that the other members of the team are available or not, even for those not in the same room. They have quick recourse to document sharing (Pillar 3) and other interactive tools (Pillar 5). Time is not lost trying to dial someone down, or waiting until the next shared in-person meeting.

Technologies to Consider

Aside from digital rights management over team data, there are a number of well-placed solutions on the market to address this pillar of IT-enabled team productivity. As before, this just a sampling:

- *Laptops*. Instead of relying on desktop computers, issue laptops to your team members. Applications for creating and revising content within the charter of the team can be used anywhere.

- *Lotus Notes and Domino*. From the beginning of its life, Notes has offered the ability to replicate team data, discussion databases, and other Notes databases to a desktop or laptop for offline or disconnected usage. It's an out-of-the-box capability. For individuals without a laptop, access can be given through a Web browser, or via a mobile device. Starting with Domino 6.5, presence can be tightly threaded through applications.
- *Groove Virtual Office*. Groove works on the model of local synchronization of data, and has presence information threaded throughout. It doesn't support access from a Web browser (unless you sign up for a third-party service), nor access to Groove spaces from Palm or Pocket PC devices. If all team members carry laptops wherever they go, then Groove is a potential solution.
- *Documentum eRoom*. In my mind, eRoom is the grand-daddy of the collaborative workspace market, having been around for a long time. Data in an eRoom can be accessed from many locations, and the product has a strong history in the financial services market.
- *Socialtext Workspace*. The Socialtext enterprise wiki offering takes a new approach to meeting the majority of the requirements for location-independent access. Out-of-the-office access is available wherever there is a web browser; documents are not written with Microsoft Word, so contributions can be made from anywhere via a Web browser; and pages within the wiki are not generally detached and saved locally, thus negating the need for digital rights management. There are no offline access capabilities via synchronization or local replication, but wireless equipped mobile devices with a Web browser can also access the wiki. Workspace 1.5, released in early February 2005, added presence to the mix.

The use of digital rights management as a method for securing team documentation is in its infancy. In general, today's solutions are not integrated with collaborative environments, requiring instead a separate process for assigning rights. One of the cleanest implementations involves the combination of Documentum eRoom (a collaborative workspace) and Sealed Media's rights management offerings. The vendors have an established partnership for the automatic assignment of rights to documents put into an eRoom, and those continue to apply even if the document is subsequently detached from the eRoom.

What's Next?

Location independence is an important pillar of IT-enabled team productivity. Again, however, it is only one of the seven pillars. Next time I will be exploring pillar 3, real-time joint editing and review of documents. Until then, I'm open to a discussion on the points I've raised above, or on the seven pillars in general. Drop me an email, at michael.sampson@shared-spaces.com.

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The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Pillar 3. **Real-Time Joint Editing and Review**

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Pillar 3: Real-Time Joint Editing and Review

> *"During the course of writing a new document or reviewing an existing one, team members often want input from others on the team. This ranges from the formal ("what do you think about the way I've written this line?") to the informal ("can we brainstorm on a response to this posting?"). Team members need a quick method of inviting someone else to view the same information on their screen, to jointly navigate through a document, and to permit the other person to directly change the text they've been writing."*

Preparing documents, spreadsheets, presentations and other forms of communication can be an intensely collaborative experience. People meet to brainstorm the contents of the document, assign portions to respective team members to prepare, and coordinate write up and final editing. In a face-to-face setting, team members routinely bounce half-formed ideas off each other, taking advantage of physical proximity to gain feedback on what they are writing or preparing as they do so. In a distributed setting, we have a problem: we are physically and intellectually isolated from others who can give us quick feedback on the topic we are working on. This is because we have to rely on individual productivity applications that were not designed for intensely collaborative work processes. A key requirement for such collaborative work processes is the ability to jointly edit and review documents while they are still on-screen with colleagues irrespective of location. The remainder of this paper considers this requirement in depth.

The Situation Today

Team members seeking feedback from others on documents they are writing have to rely on the following approaches:

- *Documents distributed by email*. Once the document has been written, or a suitable draft prepared, it is attached to an email message and distributed to one or more people for their input and review. A "respond by" date can be set for the message, but it is up to the individual recipient whether they get to it in time, or even do it at all.
- *Serial or parallel review*. Draft documents put out for group review by email are generally handled in one of two ways: review in series, or review in parallel. If in series, the first reviewer enters their comments, saves their changes, and the system forwards the message to the next reviewer. If in parallel, everyone is asked to give feedback at the same time. There are problems with both approaches: in a serial review, one reviewer might sit on the document for a couple of days, and by the time they have responded, others in the reviewer list have become unavailable due to other commitments. In a parallel review, multiple people can be reviewing the same document at the same time without knowing that. There is no inherent technical problem with that, but the human factors issue is that both reviewers could potentially benefit from discussing their respective changes while they are

being made. Today's systems don't make it easy. Finally, the problem with both alternatives is that reviewers can retain copies of the document, which quickly become outdated by subsequent versions.

- *Quick feedback through a voice-only phone call*. In cases where immediate feedback is required, users rely on a voice-only phone call. Once they've tracked down the desired colleague, they read out the sentence they are thinking through, and ask for feedback. The called colleague can't see the sentence or paragraph in question, nor can they view the context in which it sits. They will either give a quick response, or put the person off by asking for an emailed copy.
- *Manual process for tracking document changes and current versions*. Authors have to keep track of the most current version of a document, and from whom feedback is still pending. As soon as changes are made to the master edition, authors have to decide whether to re-distribute it to the list of outstanding reviewers, or merely to wait for feedback on the older versions. If they choose to wait for feedback, reviewers may very well just go over ground that was already covered, raising items that have subsequently been revised out of the document. This wastes the reviewer's time in saying things that have since become unnecessary to say. The author's time is also wasted as they review and discount the feedback.

Negative Effects on Team Productivity

Today's approaches to securing feedback on in-progress documents result in the following negative impacts on team productivity:

- *Process time lost waiting for a response*. A team member writing a new product proposal requires insight on an aspect of the go-to-market strategy from a colleague. The colleague is not in the office, so the proposal is emailed off for comment and input. The response comes back 24 hours later, although actually the colleague was at a hotel with wireless access at the very time the team member needed the input, but wasn't checking email.
- *The formalized electronic approaches encourage formal-only requests*. People are put off asking for informal and quick feedback on in-progress documents for two reasons. Firstly, the process of requesting a serial or parallel review is rather formal, and doesn't lend itself to quick feedback. Secondly, if 1-2 days go past before the reviewer responds, momentum on the document can be lost. Hence time-to-completion is extended, making the team less responsive.
- *People respond to an outdated version*. When a document is distributed by email to a group of reviewers, people respond at different times. Those responding later in the process comment on the original edition, even though a more recent edition is available. Even if the original author has distributed yet another round of updates by email, there's a fairly decent chance that the reviewer will not see the revision and still comment on the original one.
- *Redundant copies are stored in multiple places, causing confusion*. Clarity on who has the most recent and up-to-date edition of a document is lacking. The

document itself has no sense of where it sits in a chain of versions, who is currently working on it, and whether a more recent edition is available. Thus people keep old copies on their desktop or in local project folders, outdated copies are stored in email folders, and network file servers have multiple copies of the same version with different file names. When it is time to refer to the document, people have to manually trace through the various editions and versions, correlating version numbers, last date/time changed stamps, and author names. It's a shambles that causes lost time and user apprehension.

- *Continual coordination necessary to keep others up-to-date*. When the author revises the document, they must re-distribute it by email to reviewers who have not responded. This involves keeping track of who has and hasn't responded (additional time required), and wasted time if the email with the new version crosses with edits to an older version from a current reviewer.
- *The whole document is open for comment*. When distributing the document for review, the entire thing is open for comment. Reviewers spend unnecessary time reading through the entire document, rather than merely focusing on the portion of the document that they are most expert to address. Alternatively, if there are confidential portions of the document that the original author doesn't want to share with everyone, they must create multiple versions of the document, each with the subset of content for each person. It takes additional time to split the document, and additional time to reconcile and put the document back together at a later time.

The Ideal Future Situation

To deliver real-time joint editing and review of documents as a viable end-user capability, the following are ideal requirements:

- *Quick sharing of on-screen data with others*. Any document that is being worked on can be quickly shared with another team member. The author can see which team members are available, and if the appropriate member is online, the troublesome document can be shared between screens.
- *Simultaneous joint editing of a document by multiple people*. Two team members can change the document at the same time. Control over editing doesn't have to be handed back and forth between the two; one can be editing one sentence, while the other is working on another paragraph. Having to formally request control is too in-your-face; the process should work as invisibly as possible.
- *Proposed changes are displayed in real-time*. Changes made by either the author or reviewer are displayed on the screen as they are being typed. It is hopeless when someone is making changes and the other party can't see them until the document is saved. It causes a disparity between what is being heard over the phone ("I'm going to change this sentence to say this, and re-arrange these words in this way") with what is being seen on the screen (nothing!).
- *Document-based tracking of team member presence*. The presence and availability of team members is displayed within team documents. This shows the

author who is available for an instant sharing session, and who is not. The addition of presence could be an automatic setting if the team member normally worked with a set group of others, or the author could manually add a watch list of people as needed.

- *Works with multiple applications, not just Word or PowerPoint*. Every type of document needs to be capable of being shared, not just Microsoft Word or PowerPoint. In addition, the documents that are shared should be shared through the same underlying technology, so that users don't have to track and manage an assorted collection of sharing technologies. One thing should work for everything.
- *Tracking of changes by reviewer, not original author's name*. Changes made to the document are flagged according to the identity of the reviewer, not the person on whose computer the document resides. Otherwise it gets confusing when the author is trying to reconcile things after the sharing session, because they have to recall what changes they made and which ones were made by others.
- *Digital rights management over portions of the document*. Authors should be able to specify portions of a document that can be read by intended reviewers. For example, the author selects four paragraphs of text and sets the ability to read them to the name of one reviewer, selects another section of the document and gives editing rights to another reviewer, and finally notes that the recommendations section of the document can only be read and edited by the last reviewer. This means that a single document is distributed to all three reviewers, but each can only see and edit the specific portions the author wants their feedback on.
- *Document-based awareness of its lineage*. As a document, and its various copies, moves through its lifecycle—from initiation, through various draft revisions, into production, and finally into archival—it needs to be aware of who it is and where it stands within the lifecycle. Some sort of checksum calculation can determine when two copies of a document are exactly the same, but some form of lineage checking is additionally required. Such checking would notify users when a newer version of a document was available to read and edit.

Positive Effects for Team Productivity

Real-time joint editing and review tools create positive effects for team productivity in the following ways:

- *Immediate feedback when immediacy is essential*. When a team member absolutely needs immediate feedback on a current document (email, proposal, spreadsheet, presentation), it is given quickly. Rather than waiting for hours or days, if the appropriate team member is available, the issue is resolved within minutes. The author gets the feedback they need on the sticky issue, and can continue through to completion without having to find another task to fill in the time until a response comes back. Momentum is not lost.
- *Time not wasted responding to outdating document editions*. Questions, feedback, comments and push-backs from a reviewer are handled in real-time on the current

edition of the document. The reviewer doesn't even get a version of the document in their inbox to review, thus eliminating the possibility of responding to the wrong edition.

- *No confusion over current versions when searching for documents*. Since copies of the document have not been distributed by email, there aren't a plethora of copies lying around. The author has the current version, or it is stored in the shared team space. There's a single version of the truth, and no pretenders.
- *Higher quality output from discourse on the document*. Albeit an effectiveness rather than a productivity benefit, interactive discourse about a document and its contents will yield a higher quality result. As two or more people with different backgrounds and thus approaches to the world talk through a document, incremental value is created due to the incorporation of additional viewpoints.

There is a potential negative of real-time joint editing and review, although if it can be properly handled it doesn't preclude the wider benefits of such technology in appropriate situations. Here's the potential problem: some people give better feedback when they have had an opportunity to think about the proposed document without someone breathing down their neck for an immediate answer. When there are people like that on the team, the intelligent team member will create sufficient process space for such feedback, otherwise the team will miss out on a potential contribution. By all means, keep the person accountable for giving feedback by a specified and agreed time, but if a team member begs off an immediate response in favor of a more considered one, take the latter option; it will yield a response of higher quality.

It is important to note that users will have to get used to such capabilities. Experimentation will be required, as will formal training. Since people have lacked the capability as an easy-to-use alternative, it will feel strange and very different to see text suddenly appear within the document, or to have text suddenly change while watching the screen. Once the capability is available, and people have gained the productivity boost available through real-time feedback, it will become a natural part of working with their computer.

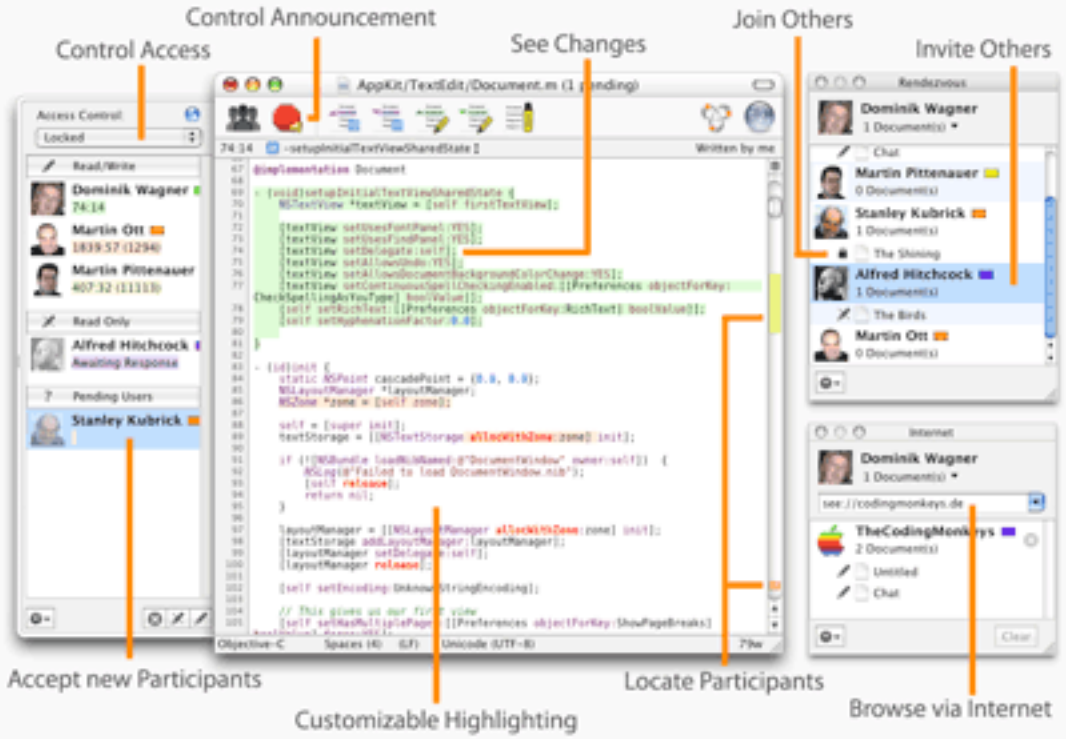
Technologies to Consider

There isn't a perfect technology on the market yet, but some offerings are getting close. Here are some general and specific things worthy of investigation:

- *Advanced Reality Presence-AR Platform and Proof-of-Concept Offerings*. Advanced Reality introduced a "data-centric" collaboration technology a number of years back. In essence, rather than using screen or application sharing to enable joint editing and review, the data itself was passed back and forth between applications running locally on collaborator's computers. Advanced Reality offers a development platform for building data-centric collaboration capabilities into business applications, as well as a number of proof-of-concept offerings. The latter demonstrate the capabilities of the platform in a packaged application. Two

are available on the market: one for collaboration-enabling Microsoft Excel, and the other for Microsoft PowerPoint. The Excel adapter is fantastic. For Windows only. See my review at www.shared-spaces.com/blog/2005/02/advanced_realit.html, and visit www.advancedreality.com.

- *Coding Monkeys SubEthaEdit*. SubEthaEdit is a collaborative text editor that enables joint editing and review of text documents across Intranets and the Internet. Active readers and editors are highlighted, and text changes are linked back to the individual author. Frequently used for joint development of software, SubEthaEdit can also be used for joint writing of conference notes or panelist conversations. For Mac OS X only. See www.codingmonkeys.de/subethaedit/.



- *InstaColl*. InstaColl is a forthcoming offering from an Indian-based startup of the same name, that delivers a client for joint co-editing and review of Word, Excel and PowerPoint documents. Both users require the InstaColl client, but it enables the real-time sharing of documents along with tracking changes by reviewer. See my review at www.shared-spaces.com/blog/2005/02/review_of_insta.html, and visit www.instacoll.com.
- *Citrix GoToMeeting*. Citrix GoToMeeting is a new offering from Citrix for online meetings. Among other things, it can be used for joint editing and review of documents, with shared control between two or more users. From one perspective, GoToMeeting is a strategic choice for joint editing and review, because it works with any application. From a second viewpoint, however, there is a strategic and fundamental flaw, because edits are attributed to the original sharer of an

application, rather than the individual who made the change. That does not work for sharing Microsoft Word documents. See www.citrix.com/gotomeeting and www.gotomeeting.com.

- *NextPage 1.5*. NextPage recently introduced Version 1.5 of its NextPage document collaboration service, which delivers document-based awareness of its lineage. It is definitely a worthwhile addition as a standalone offering, but ultimately NextPage needs to secure technology licensing partnerships with the document management vendors of the world to have this technology integrated tightly into their offerings. See www.nextpage.com.
- *Presence and availability*. Systems that display the presence and availability of team members provide the basis for being able to ask for real-time assistance on a document. Every business needs it. For businesses that view Microsoft Office as its strategic individual productivity suite, there is an entire line of new servers from Microsoft designed to add collaborative capabilities. Of particular note are Office Live Communications Server (for presence, availability and enterprise instant messaging), Windows SharePoint Services (for team collaboration workspaces), and SharePoint Portal Server (for building a corporate portal, along with enterprise search). It requires heavy lifting to get all this functionality, but Microsoft has done a sweet job of integration between Office 2003 and its back-end server products. See www.microsoft.com.

Finally, it has always amazed me that real-time collaboration around documents hasn't been an out-of-the-box capability of Lotus Notes. As a "collaboration platform" I have always wondered why Notes and Domino didn't have the capabilities I've outlined as an integrated offering. I understand that its real-time products for Web conferencing deliver screen sharing and the like, but that's a different way of addressing the problem.

What's Next?

This concludes the discussion of real-time joint editing and review, which is Pillar 3 of the 7 Pillars framework. Next time I will be discussing the Pillar 4, coordinating schedules via team aware scheduling software. I'd love to discuss your reaction to Pillar 3, or anything to do with the 7 Pillars model in general. Please leave a comment below, or send email to michael.sampson@shared-spaces.com.

Shared Spaces Research & Consulting
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The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Pillar 4. **Coordinate Schedules with Team Aware Scheduling Software**

Michael Sampson, michael.sampson@shared-spaces.com
March 2005

Pillar 4: Coordinate Schedules with Team Aware Scheduling Software

> *"Teams need recourse to a calendaring and scheduling system that automatically balances personal appointments, enterprise-wide meetings, and project team events. Today's electronic calendaring and scheduling systems enable people within the same enterprise to set up meetings with a minimum of fuss and process wastage. However, these systems do not work well between organizations, eg, using a free-and-busy search to find the next available meeting time for all participants doesn't work across multiple calendaring systems. Neither do they work well within collaborative workspaces, as each individual team member has to manually cross-reference their electronic diary with a team meeting proposed in the calendar in the collaborative workspace."*

Knowing where to be at a specific point in time during the day is fairly critical knowledge for everyone, regardless of whether they work at an executive, managerial or professional level. Electronic calendaring and scheduling capabilities built into email systems have fueled a move away from the limitations of paper-based diaries. Personal digital assistants enable users to synchronize their electronic calendar with a carry-around device, and Research In Motion's BlackBerry Enterprise Server goes a step further by proactively pushing revised calendar entries and details to the highly mobile worker. What seems utopian at first glance actually gives way to a feeble facade on deeper reflection. Reflecting deeper--in order to tease out what is really required for enabling productivity by team members today--is the purpose of this paper.

The Situation Today

Today's electronic calendaring and scheduling systems appear to be unaware of two rather essential things. Firstly, that people working in teams perform their work via tools other than email. Secondly, that teams are frequently composed of members from multiple divisions or organizations, few of whom are likely to be on the same physical email server. Thus we have a situation as follows:

- *Calendaring and scheduling capabilities are integrated with email servers*. The calendaring and scheduling capabilities used in an organization are tightly tied to their email server. While vendors have greatly profited from adding calendaring to their servers, and users have benefited to a degree through an integrated user experience, other applications are largely excluded from using the calendaring and scheduling capabilities available.
- *Free-and-busy searches do not work across organizational boundaries*. When a team member wants to schedule a meeting with external members of the team ... they have to use the phone to discover when would be appropriate. The tools

made available don't support free-and-busy searches across organizational boundaries.

- *Team workspace calendar functions are separate from email-based calendaring*. To enable team members to share a calendar, users embrace a team workspace product. It is used to track team events and commitments, and it supports cross-organizational meeting setup. But it functions totally separately from the calendaring and scheduling capabilities built into email, so that there is no prospect of a free-and-busy search across all participants, and there is no integration with the user's calendar in their email client.
- *Consolidated calendaring for users involves manual reconciliation*. In order for users to know where they are supposed to be at certain times, each individual has to manually add scheduled calendar events and reminders from team workspace products into their email-based calendar. If something changes in the team workspace product, and they get to hear about it in time, they have to update their calendar (and hope that it doesn't introduce a new time conflict).
- *Disparate calendar instances multiply rapidly*. Each team uses a separate team-based calendar. So for someone on four different projects or work teams, they face the challenge of coordinating meetings, events and deadline commitments across five different calendars ... the four project ones, and their email-based one.

For teams trying to get work done, today's calendaring and scheduling systems are horribly broken.

Negative Effects on Team Productivity

The situation faced by teams today trying to use calendaring and scheduling tools to coordinate shared action on team priorities has a multiplicity of negative effects on team productivity:

- *Recourse to multiple phone calls to schedule a meeting*. A user wanting to schedule a team meeting can not rely on the team calendar. It just doesn't have sufficient information to provide visibility into when other team members have existing standing commitments. They have to use the phone (and try and track down each individual ... which is often not a quick process), and ask each member in turn for a range of times that would work for an upcoming meeting. Once the coordinator has settled on a time (taking into consideration all those that were given), they set the meeting time and distribute advance confirmation.
- *Coordination time is wasted due to changing commitments*. Once the initial time is set, it is highly likely that in the time that has elapsed since they've talked with the second team member, another meeting has cropped up and that time now won't work. And so the process has to be repeated, wasting both the coordinator's time (yet another round of phone calls and interruptions), and that of team members (looking up and giving another round of freely available time slots).
- *Process time is expanded because it is too hard to find the earliest possible time*. More time elapses between when the meeting is first called and when it is held,

because it is so difficult to find the earliest possible time. Team members are reticent to share all of their available times, because it just overloads the meeting coordinator. Thus to simplify matters, and given that the next couple of days are usually highly scheduled, team members default to giving time slots four or more days away. Thus there is a delay in holding the meeting, and it takes the team longer to get their work done.

- *Explosion of coordinating emails*. Team members suffer a barrage of time wasting emails asking if they can meet at certain times. As they reply yes to one, they update their calendar, and then they discover a second proposed change in their inbox, which actually doesn't work for them. So they reply to that one, and change their calendar, and then find yet another proposed change that has to be coordinated. It wastes time, it dissipates passion, and it consumes energy.
- *Unintentional double booking of time slots, leading to missed meetings and deadlines*. If team members are not 100% diligent in coordinating their calendaring events across all existing calendars, they will double book themselves or forget commitments. This makes them look silly, it potentially causes the team meeting to be thrown off track (depending on how critical the person was to the desired outcomes of the meeting), and further extends the time needed to get the work of the team done.
- *Cross-time zone coordination is done wrong*. Manual coordination of available meeting time slots across disparate time zones is a difficult challenge. There has to be a constant awareness of when each person is speaking about available times in "their time" or in "the coordinator's time", and if there are team members from across the international date line, the people have to think about multiple days too. It can all get a bit confusing, and if the time is set wrong, team members will try to attend at the wrong time, leading to high frustration and the need to re-coordinate a new time slot.

The Ideal Future Situation

Things have to improve for team members, and the ideal set of future capabilities is outlined below:

- *Free-and-busy searches across all calendaring-dependent applications*. Every application that purports to schedule meetings and commitments for individuals should integrate with a master free-and-busy database. For example, in a collaborative workspace, a team meeting can not be scheduled until a free-and-busy comparison for every member of the team has been completed.
- *Free-and-busy searches across all participants, regardless of organization*. Free-And-Busy search works across organizational boundaries. People from different organizations who are working on a single team can permit--through appropriate access and security controls--a reference to their free-and-busy times.
- *Automatic calendar consolidation*. Commitments made on behalf of individuals--whether they are done via email calendar requests or within the calendaring component of a team workspace--are automatically added to the user's calendar.

When the user looks at their calendar, they see everything that they have been scheduled or requested to do, regardless of where the appointments have originated.

- *Access from multiple types of devices*. Users can view, modify and create calendaring entries from a variety of devices. They are not forced to use just one computer or device, but can use a diversity of tools for access and manipulation of their scheduled events.

The list of ideal characteristics is not very long, but in totality this area has proven difficult to resolve in the market place. I'm not saying that it is easy to resolve, just that it needs to be. If this truly is a valid set of widely held requirements--be they articulated or not--it is time for customers to agitate for vendors to deliver a better set of capabilities.

Positive Effects for Team Productivity

Team productivity will improve when the calendaring and scheduling fiasco of today is resolved, with benefits being felt in the following areas:

- *Meetings are scheduled electronically, without a multiplicity of phone calls or emails*. Team members can get on with the value-added work of the team, rather than spending time on the phone trying to find a next available time to meet. Coordination happens automatically, because free-and-busy times can be easily compared using electronic tools.
- *Process time is minimized, since the earliest time to meet can be easily found*. The elapsed time of the team work is minimized, because the next available time to meet can easily be discovered. The systems used by the team look up a definite reference of the free-and-busy time of each individual team member, and then decide which one works best.
- *Double booking is eliminated, adding certainty to scheduled events*. People are not inadvertently double-booked for meetings, because they have a single consolidated calendar against which free-and-busy searches are performed. Users do not need to manually reconcile their calendar--thus saving time and effort--because the system automatically keeps scheduled events and meetings coordinated across systems, and up-to-date with the latest information.
- *Cross-time zone calendaring is handled electronically*. Since the system handles the scheduling automatically--regardless of the application or the specific organization--time zone issues are handled without a team member having to keep a paper record of the different time zones and translations required. Calendaring capabilities built into email servers today do the same thing, but as the capabilities outlined above are built as platform-wide services, people won't have to do it for calendars in other applications.

Technologies to Consider

There are no calendaring products available today that meet the requirements I've noted above. This area requires vendor agreement on standard data formats and interchange methods, the first of which has been dealt with but the second of which is lacking.

- *iCalendar (iCal)*. The IETF iCalendar standard defines an agreed way of representing calendar events and to do items. It is in widespread use in email and calendaring clients today. There are two other standards related to iCalendar: the first deals with moving iCalendar objects by email (*iCalendar Message-based Interoperability Protocol*, or *iMIP*), and the second with performing calendaring operations such as responding to a meeting request and requesting free-and-busy information (*iCalendar Transport-Independent Interoperability Protocol*, or *iTIP*).
- *Calendar Access Protocol (CAP)*. The IETF Calendaring & Scheduling working group spent four years attempting to get agreement on a standard for real-time interoperability between calendar servers. CAP was intended to deliver the ability to access calendar events on other calendar servers, perform a free-and-busy search, and enable the scheduling of meetings. It went through 11 drafts, but no final agreement was struck.
- *CalDAV*. CalDAV is currently being developed as a standard for real-time interoperability between calendar servers. It builds on an existing extension to the HTTP protocol, called WebDAV (Web Distributed Authoring & Versioning), by adding some calendaring specific features. If CalDAV gets finalized, it will provide a true agreed standard for interoperability between calendar servers.

As I alluded to above, today's products are fairly immature in terms of what they deliver against the requirements I've outlined, even the leading email-server based offerings from Microsoft (Exchange Server) and IBM (Domino Server). Groove Virtual Office, which offers cross-organizational collaborative workspaces, does not at all deal with calendaring across multiple collaborative workspaces. The best action for customers to take today is to start asking their calendaring vendor about its plans for supporting CalDAV, and to explore other emerging alternatives if the vendor is nondescript in its response. In other words, vendors that offer a standalone calendar server as a key and essential part of their business should be seriously investigated, eg, Oracle (Oracle Calendar Server, acquired from Steltor) and Meeting Maker come immediately to mind, as does the work being done at the Open Source Applications Foundation.

What's Next?

This concludes my initial discussion of the fourth pillar of IT-enabled team productivity--the importance of robust and fully-featured calendaring and scheduling capabilities that are aware of the different places that team members coordinate their work. I'm interested in your feedback, and to learn how you have addressed these issues in your organization. Please drop me an email at michael.sampson@shared-spaces.com.

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The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Pillar 5. **Build Social Engagement through Presence, Blogs and IM**

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March 2005

Pillar 5: Build Social Engagement through Presence, Blogs and IM

> *"Systems that display the presence of others, systems that enable others to keep a running commentary on things that they are thinking about or reading, and systems that enable real-time discussions go some way toward re-constructing the spontaneous opportunities afforded by in-person work. People working together in the same office have many spontaneous opportunities during the day to engage at a personal level—chance hallway meetings, coffee break catchups, and water cooler discussions. These personal engagements provide insight into the true character of others on the team, and they either build or diminish trust … with inter-personal trust being a critical factor for team productivity."*

People engage with people when working on a project together—they talk about what's going on, they share war stories, and they talk about life beyond the cubicle or office walls. When carried out in balance with completing the work at hand, it is a good thing for people to be able to talk and share, because it helps them understand the other people on the team and how to work most effectively with them. While these discussions can form and disband freely in a face-to-face team environment, it is normally more difficult to create the conditions for appropriate sharing when team members are in a distributed environment. Pillar 5 of IT-enabled team productivity—Build Social Engagement through Presence, Blogs and IM—considers how new tools for real-time interaction (presence and instant messaging) and for free-form discussions and interaction (blogs) can be used to build social engagement between physically distributed team members.

The Situation Today

Physically distributed team members lack a way of keeping up with what is going on for each other. Being in physically distributed offices or home offices, they do not have the ability to see what the other team members are up to, or to hear during lunch or a coffee break what is happening. Hence, one or more of following normally takes place:

- *People distribute personal updates by email*. Team members wanting to establish a social connection with others on the team broadcast an email to all team members. Recipients have to decide what to do with it—and the resultant discussion thread—in context of an already overflowing inbox.
- *Personal round-robin at the start of weekly teleconferences*. If a weekly teleconference is held, people are given a chance to include what's going on personally during their "3 minute update". Since it is pretty hard to say anything of relevance in such a short time, people either go over their allocated time (leading to frustrated teleconference leaders), or say nothing (leading to frustrated and alone team members).

- *Isolation and aloneness is amplified due to lacking a forum for engaging with others*. Team members who have no forum for being heard on a personal level become frustrated with the apparent insensitivity of other team members, and withdraw from being fully engaged in the work of the team.

Negative Effects on Team Productivity

Teams that do not have a forum or method for facilitating social engagement between team members suffer the following negative productivity effects:

- *People get personal update emails they don't want*. With people already having to deal with overflowing inboxes, yet another email—and a personal one at that—can be really frustrating. And the frustration can multiply if others start having an email discussion about factors in the personal update. Since the original message and subsequent discussion has been forced on them, they'll either delete the message and each resulting reply (wasting time in the process deal with "that" again), or send a reply-to-all that expresses their frustration (which gets people's backs up, and harms social engagement).
- *Teleconferences take longer while people give a personal update*. It is sufficiently difficult to schedule an in-person meeting when team members share an office, but is even more complex and involved when the team is composed of people from multiple geographical locations spread across different time zones. If teams do institute a personal sharing time at the beginning of a weekly teleconference, one or more reactions ensue: people come late because they don't want to waste time listening to the personal updates; people express anger during the call because they feel like they are wasting their time listening to specific updates; or finally, the personal sharing time is so successful that the transactional work of the team suffers and is left undone. Another teleconference has to be scheduled to get the work-related discussion points on the table and worked through.
- *People review personal emails from someone looking for the business content*. People sending personal updates by email may slip some business content into the message, thus forcing people to read through the entire thing to find that invaluable stray piece. When it is finally found, people get angry at having to wade through the personal sections of the message to get to it, or if it isn't found, they've wasted their time.

In summary, I advocate that team members do need an agreed way of personal social engagement, but it has to be done right.

The Ideal Future Situation

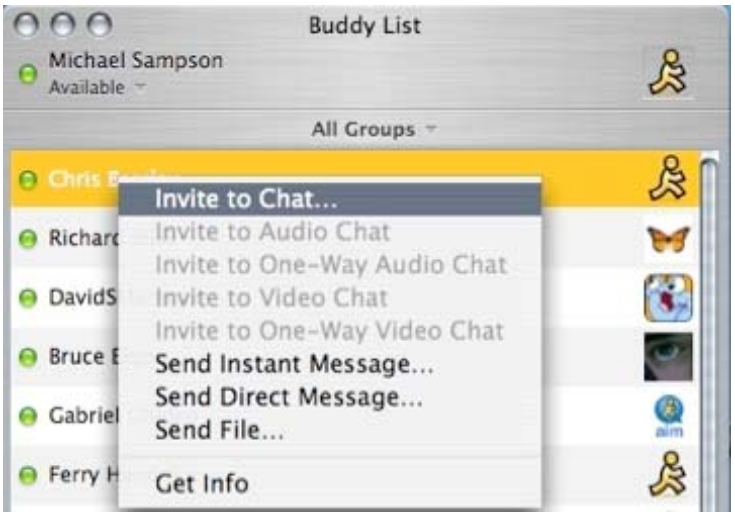
Attributes of the ideal future situation for building social engagement between team members are:

- *Personal updates are published in a separate communication channel*. The team gets great benefits in productivity and effectiveness through cultivating a shared understanding of points of interest, in knowing where people are at, and in being

able to easily begin free-form discussions. However, email discussions and teleconferences are not the right forum. Something different and separate is needed.

- *People can choose whether or not to read personal updates*. Since the agreed tools are separate from the existing channels used for communicating about the business of the team, there is a very clear delineation between work material and personal material. Individual team members can make the choice for themselves whether they want to read what is going on for others, and can engage further in discussions without impacting the shared data repository used by the team.
- *People know when other team members are present and available*. In a shared office situation, being able to see that others are around provides an opportunity to speak with them, either for a personal catchup or on a matter related to the work of the team. With a distributed team, observing physical presence is not possible, so a technological substitute is required. A presence platform—a system that displays whether someone is present (yes or no) and available (available, on the phone, away, at lunch, etc.)—provides real-time awareness of where people are at. If a conversation needs to take place, other team members can reach out using various tools for real-time interaction.
- *People have various tools for real-time interaction*. Based on the awareness of someone's presence, team members should have multiple ways to interact with that person. Options could include an instant messaging session, a voice-over-IP telephone call, a video conference, or a shared screen session (see Figure 1).

Figure 1. Various Tools for Real-Time Interaction in Apple iChat



Apple iChat shows that my friend Chris is currently present and available for a conversation. I have some options for real-time interaction with Chris, including Chat (instant messaging), and sending a file. If I plugged in an Apple iSight camera, I could also have an audio chat or video conference with Chris. Other IM clients offer these functions too, but since I'm a Apple switcher (hey, it just works!), I'll include this screen shot ;-)

Positive Effects for Team Productivity

Distributed team members that have an appropriate set of technologies for keeping up-to-date with what is going on for individual team members will discover the following positive effects for team productivity:

- *Reduced noise and chatter over email*. Team members have a choice of whether to read the personal updates that other team members post. They don't have to, because they are not pushed the updates in the form of an email message, but they can choose to because the Web location for each team member's blog is posted on the person's profile document. The number of irrelevant email messages that have to be read or reviewed are reduced, and people don't have to waste time thinking up a byzantine auto email rule that deletes personal-oriented updates from other team members while retaining their business-oriented ones.
- *Unknown expertise and interests can be tapped for the benefit of the team*. While a team member is scanning the latest posts from members of their teams, they come across a post that indicates expertise in a topic of mutual interest. A conversation can then take place about how that expertise can be leveraged for fulfilling the objectives and goals of the team.
- *Current reading and thinking can be leveraged to find common ground*. Perhaps two team members don't see eye-to-eye on a number of substantive issues, but they have to work together on a specific team. Each one's ability to read what the other is currently reading and thinking about gives them increased opportunities

to discover areas of common ground, and thereby break the logjam in their collaborative efforts for the team.

- *Cultivate a team spirit*. A team spirit—whereby everyone is pulling together for common objectives—can be strengthened when each member on the team knows how best to aid fellow team members. For example, when one team member has overall responsibility for a task, they can use their understanding of the social markup of other team members to involve those who have previously expressed aptitude and interest in similar tasks.
- *Immediate real-time notification of new important things.* When a team member posts an important revision of a document, according to their notification profile, others receive an immediate pop-up notification of the new revision. This means that they can quickly learn about new things that impact them without the author having to send a round of email messages. Additionally, if there are items in the document that they want to immediately discuss with the author, the author's presence is displayed within the document and a real-time IM conversation can ensue. Even if the IM exchange is merely three or four congratulatory sentences, the author gets good validation for their work, much as they would when handing out a document revision if the team was located in the same building.

Case Study: Michael Hyatt, President and COO of Thomas Nelson Publishers
With perfect timing for the publication of Pillar 5, Michael Hyatt, the President and COO of Thomas Nelson Publishers, introduced a new blog for sharing his thoughts on the world of publishing. As President and COO of a 600-strong organization, he was searching for a way to communicate with employees on a regular basis. After considering video-taped webcasts and regular emails, he decided on a blog, for five reasons:

- The blog is a familiar medium.
- The blog provides a mechanism for feedback. So does email, but imagine the horror of a "Reply-to-all" across 600 employees.
- The blog provides an automatic archive of communications (thus enabling new employees and team members to see what has been on Michael's mind). Email doesn't do that.
- Michael's leadership in starting a blog gives credibility to the idea, and shows others that they could do one.
- A hosted blog is cost-effective, eg, TypePad is $4.95 per month.

Since Michael has made his blog open to the world at large, rather than hiding it on an internal blog server, the only alternative for communicating directly with Michael is by email. My guess is that if it was an internal blog, he would advertise his IM and voice-over-IP address details too.

The comments on Michael's first post give testimony to how well received the idea is by Thomas Nelson employees. Brenda writes, "Nelson is so large and there are so many divisions and departments, it's easy to begin feeling disconnected". Mark expresses appreciation at being able to see what Michael is reading, and says how he "expectantly followed your conversion to [an Apple] PowerBook", by reading Michael's Working Smart blog.

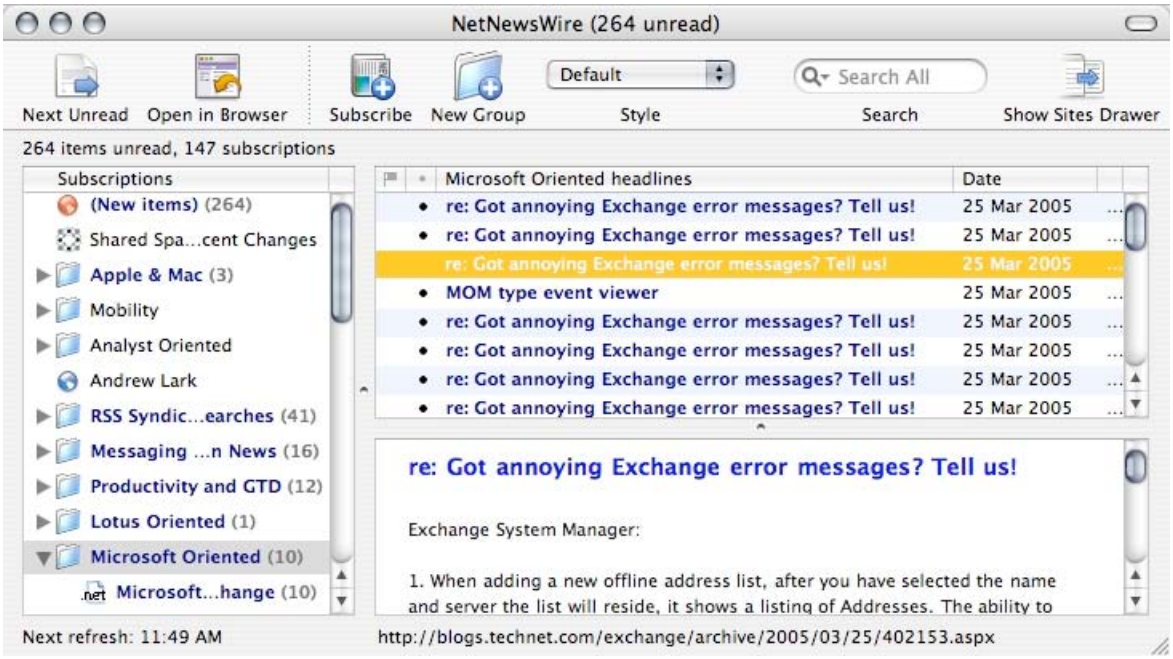
Major kudos to Michael, who obvious "gets it". You can read Michael's "From Where I Sit" blog online at http://michaelhyatt.blogs.com, or subscribe to its RSS feed.

Technologies to Consider
The technology to enable distributed teams to build social engagement through presence, blogs and IM is readily available at cost-effective prices:

- *Blogging Systems and Services*. There are a plethora of hosted blogging services available, which enable individuals or teams to maintain a blog. I personally use TypePad (www.typepad.com), which has a starting charge of $4.95 per month, although there are many others. For example, Blogger (www.blogger.com), Bubbler (www.bubbler.net), MSN Spaces (spaces.msn.com), and Blogware (www.blogware.com), to name just a few. Internal blog servers can be set up too.

- *Blog Newsreaders*. Most blogging products publish what's called an "RSS feed", which makes the most recent posts on the blog available in a special format for reading in a special piece of client software. The software periodically asks for the most recent edition of the RSS feed, and then breaks the feed down into a collection of posts (each with a title and body). Since I use a Mac, I purchased NetNewsWire (see Figure 2, www.ranchero.com/netnewswire/). For Windows users, there is FeedDemon (www.bradsoft.com/feeddemon/), NewsGator (www.newsgator.com), FeedReader (www.feedreader.com), and SharpReader (www.sharpreader.net), and others.

Figure 2. NetNewsWire for Reading Blogs without a Browser



An RSS newsreader enables users to subscribe to RSS feeds, which then get displayed as a collection of posts. In this instance, the Microsoft Exchange team blog (blogs.technet.com/exchange) has a number of messages about annoying Exchange error messages. Windows users can get RSS newsreaders too.

- *Presence and Instant Messaging*. Instant messaging clients from ICQ, AOL, MSN and Yahoo popularized the benefits of presence, but presence does not have to be tied to an IM client. Corporate deployments can use Jabber (www.jabber.com), Microsoft Live Communications Server (www.microsoft.com), or IBM Lotus Instant Messaging (www.lotus.com/sametime), among others.
- *Skype*. Skype is a free Internet telephony service, enabling computer-to-computer calling for free. The voice quality is the best I've experienced in voice-over-IP services. Skype also offers the ability to call normal telephones at minimal cost, and even to get a normal telephone number so people can call in. It comes with my high recommendation. See www.skype.com.

What's Next?

This concludes the discussion of Pillar 5, on Building Social Engagement through Presence, Blogs and IM. I'd love to hear how you are working to build social engagement in your organization for distributed teams. Please drop me an email, at michael.sampson@shared-spaces.com. Whilst you're writing that, I'll start on Pillar 6, Enterprise Action Management. Until next time, kind regards, and all the best for your endeavors toward making your teams more productive through the appropriate use of IT.

Shared Spaces Research & Consulting
www.shared-spaces.com

The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Pillar 6. **Enterprise Action Management**

Michael Sampson, michael.sampson@shared-spaces.com
April 2005

Pillar 6: Enterprise Action Management

> *"Teams need a way of tracking outstanding action points that gives shared visibility regarding who is doing what, and explicitly links next actions to team goals and enterprise mandates. Emails, meetings, threaded discussions and videoconferences give rise to tasks that team members have to do. There is a disconnect in today's systems, however, between the tracking and management of outstanding next actions at the enterprise, group, and individual levels. Individuals create their own next actions based on team goals, but have no simple way of associating their next actions with the mandates of the team. Put in reverse, the team manager or project leader cannot see a consolidated list of the next actions that individuals are working on in the context of the team's goals and priorities. Tasks and next actions are stored in different applications that do not communicate with each other."*

For people to get things done at the office, they need to know what they should be getting done. This self-evident truth applies even more when a group of people are working together toward a jointly agreed outcome. If they don't know what they should be doing, or if there is a lack of clarity as to who should be doing it, then the team's efforts will be stymied. For the benefit of the individuals on the team, the team itself, the management structure around the team, and whoever else has an interest in what the team is supposed to be delivering, clarity about intended actions is vital.

Pillar 6 of the IT-Enabled Team Productivity series considers how tasks and action items are managed in today's enterprises. It is based on the assumption that having a single consolidated task list for each individual is a good idea because it enables the person to select the most appropriate thing to do next.

The Situation Today

People and team members attempting to track and manage tasks in the enterprise today face the following situation:

- *Tasks are created in multiple applications*. To do items for people are created in lots of different software applications. Personal tasks are created in Outlook or Notes, work team tasks are created in a collaborative workspace or project management database (and make that plural for people involved with many teams), and various workflow databases have next actions for individuals too.
- *Tasks do not consolidate into a single list.* People have to manually create a consolidated list of tasks that they have committed to get done, or have been asked to get done. Tasks created in all of the different applications have to be manually duplicated in the application that the individual is using for maintaining a unified list of things to do.

- *Manual reconciliation is needed to keep the unified list up-to-date.* Let's say that the user creates copies of all their outstanding tasks from all their different task sources in Outlook, so that they can synchronize those with a Palm or Pocket PC. Whenever an item is completed, they have to remember to also visit the original source of the task--eg, a Microsoft Project task list--and mark it as being complete there too. If the task is marked as being completed on their handheld device while they are away from their desk, it is highly likely that they'll forget to update the Project list when they are next at their desk. The status of items get out-of-sync with reality. If there are dependent tasks to be done, other team members do not realize that they can proceed with the next task.
- *Tasks become invisible to the wider group.* Individual team members can see the specific tasks that they are working on, but are unable to see what others are doing with respect to the common project they are working on. Committed next actions become hidden from everyone else.
- *Managers can not see the tasks their people are working on.* Team and project managers need visibility into the things that their people are working on. Whilst they can see the complete collection of delegated tasks for a specific project if the project is managed entirely in Microsoft Project (or something similar), they lack any visibility into what people are working on if they subsequently create a set of individual tasks in another task management tool. If Project or something similar is not used, then there is no shared sense of what people are working toward.

Negative Effects on Team Productivity

The productivity of team members is negatively affected as a result of lacking an enterprise-class action management system:

- *People become overloaded since there is no visibility into everything they're already committed to*. Well-meaning individuals take on more than they are capable of delivering due to an inability to see the totality of what they are already committed to. Deadlines get missed, people get their backs up, and the individual in question becomes harried as they breathlessly rush from task to task, delivering an "only just good enough" result.
- *Update request emails multiply*. People that lack visibility into what others are working on and the status thereof start a stream of emails requesting updates. This consumes time for both writing the original update request and responding to it.
- *Tasks get left undone because of lack of visibility*. Sometimes people don't do an assigned project tasks because they don't want to; in order words, they deliberately attempt to sabotage the success of the project. At other times, they are genuinely passionate about the range of projects they are involved with, but because there are so many things to do and so many different places to check for things to do, that assigned tasks fall through the cracks. They turn up at a meeting thinking that they've done everything, and then realize that they were expected to bring a draft report for discussion.

- *Lack of clarity leads to two people doing the same task*. Two or more people work on the same task without realizing that someone else is doing it too. Lack of clarity as to who was given the task originally, associated with an inability to see the list of tasks that others are doing in context of the higher-level projects and objectives, leads to duplicated effort for no incremental return.
- *Tasks remain outstanding even after the original driver has been completed*. Since there is no explicit linkage between a specific task and the wider project, process or problem that created the need for the task in the first instance, people keep working on tasks that are no longer needed. This consumes energy that could have been devoted to more profitable and useful endeavors.

Case Study: Microsoft Shows How Not to Do Task Consolidation
There is a really pathetic example of task consolidation in Microsoft's current generation of Office products. Project 2003 and Outlook 2003 both enable task tracking. Users can import Outlook 2003 tasks into Project 2003 through a wizard-based interface, but there is no ongoing synchronization between the two things. In other words, once the Outlook tasks are in Project, they have to be independently marked complete in both applications. What is truly pathetic, however, is the way Microsoft Project Tasks are added to Outlook. Users are instructed to select the title of the Project task they want to add to Outlook, copy it to the clipboard, and then open Outlook and paste it into a new task entry.

For a company that controls both pieces of software, has sufficient dollars in the bank to pay for getting it right, and owns the underlying operating system that both run on, one would expect the demonstration of a bit more intelligence.

It is clear that the needs of users for task and action management are at odds with the capabilities available and in use today.

The Ideal Future Situation
Optimizing the productivity of team members with respect to tracking and managing committed actions requires the following key product capabilities:

- *Automatic task consolidation into a single unified list*. Tasks created in any application or project plan automatically consolidate into a single unified list for each individual. There is a single list of all outstanding tasks automatically created for each individual, and a corresponding single master list of all completed tasks across all projects and areas of responsibilities.
- *Automatic task reconciliation for an up-to-date single unified list*. When a task description, due date, priority, status, or assignee is changed in any of the originating applications, the individual's single unified list is automatically updated. The individual does not need to undertake any manual reconciliation efforts, because the system sees to it. Likewise, when the individual updates the

status of the task in their single master list, it is automatically reconciled with the originating application.

- *The individual can personalize the task details without losing the wider context*. For each task, an authoritative description, due date, and priority will be established in the originating application. Those details are important within the context of the project or area of responsibility, so the assignee should not be able to change those details directly. However, the individual should have the ability to write their own personalized description for the task (to put it into their words, or to make it more meaningful for them), the due date that they are actually working for (because the originating due date falls during the time that the individual is on vacation), and a priority for completion (so that the individual can prioritize all of the tasks that are assigned or delegated to them). If entered, these personalized details are the ones that show in the individual's single unified list, otherwise the originating details are displayed.
- *Explicit linkage between tasks and project drivers*. Whenever the individual looks at a task in their single unified list, contextual information about that task should be displayed in parallel. This means that four key pieces of information need to be shown to the individual: the name of the originating application, the name of the project to which the task relates, the associated milestone or bigger thing that the task helps to fulfill, and percentage completed status information for all other tasks that have been created to aid in the completion of the milestone. This means the individual knows where the task has come from, what it relates to, specifically what it is contributing toward, and whether they are holding up wider completion of an area of responsibility or not.
- *Access rights to tasks maintained based on project permissions, workspace rights, and managerial oversight*. A multiplex of rights are automatically applied to individual tasks, for governing who can and can not view and edit a specific task. Whilst the rights multiplex would be configurable, a default set would be that people working on the same project can view all of the tasks in their given project, and a manager can see all of the tasks that their people are working on.
- *Automatic expiration of tasks when the associated driver is completed*. There comes a time in the life of a project when a bigger chunk of work is completed. A milestone is reached, and sign-off is given. When the project manager formally recognizes the completion of that milestone, all associated tasks should be automatically closed out. Since there is explicit linkage between tasks on the individual's single unified list and the originating application and project, every related item can be closed. Tasks on individual people's lists are directly and explicitly linked to a milestone, rather than being standalone.
- *Consolidated display of outstanding tasks associated with a document or project item*. Whenever a document or project item is reviewed, all outstanding tasks associated with the document or project item are listed, subject to the access rights multiplex. This means that readers can gauge the status of the document or project item by reviewing the list of tasks that remain outstanding. The key point is that

these are shown in context to the document or project item, not listed in a separate area or place.

- *Users can create personal and private tasks*. Individuals retain the right and ability to create personal and private tasks. These are not shared with anyone else, and remain visible only to the individual. However, when an individual creates a task, they have the ability to associate it with a project, milestone, document, or other such thing that is current and active within their area of responsibility. So whilst a personal and private task can be created, the individual equally has the ability to associate a task with an existing entity.

Positive Effects for Team Productivity

An enterprise action management system delivers the following productivity benefits for teams and the individuals who work there:

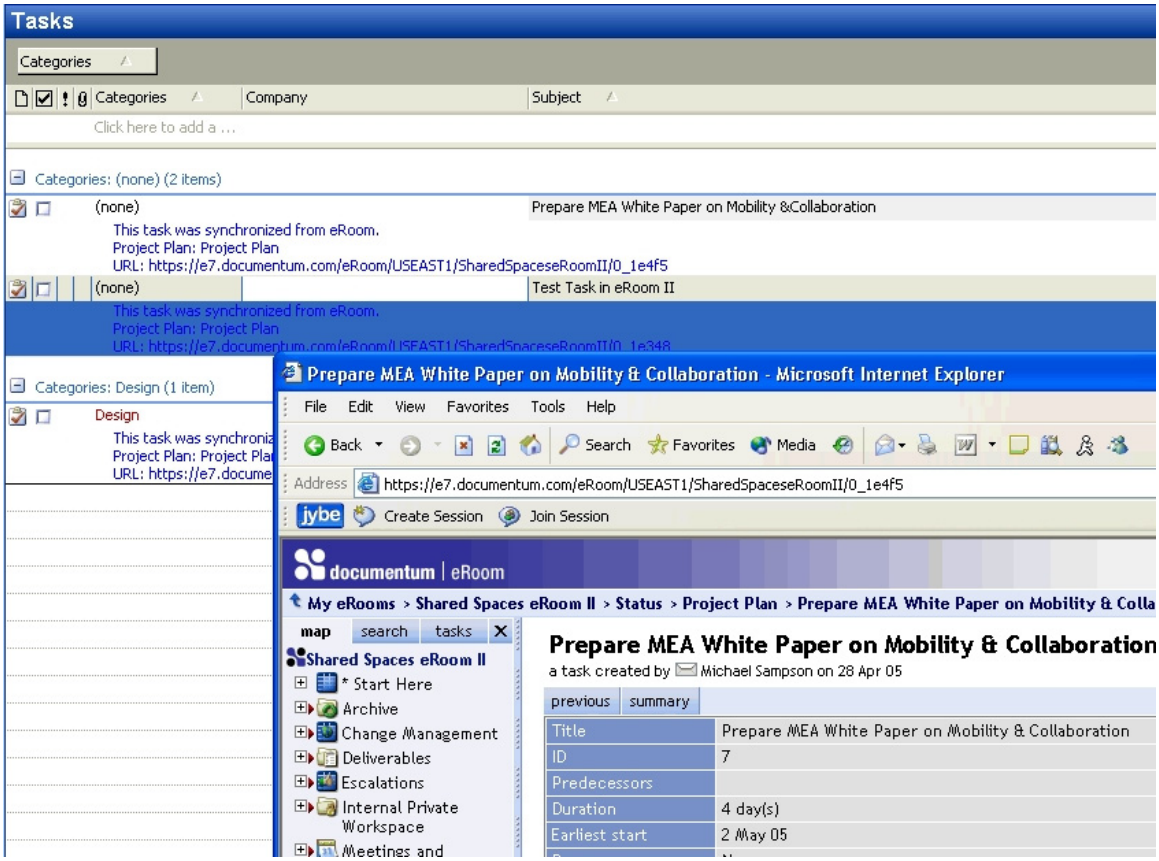
- *Time and effort is not wasted maintaining a list of things to do.* Rather than spending time developing and maintaining a single unified list of things to do, the team members can actually do the work that is required of them. They do not have to fret about whether their system has an up-to-date list of outstanding items; it just does. Each person's energy can then go into prioritizing the various items on their list, and then actually getting the work done.
- *Energy is not wasted on already completed things*. When a project milestone is reached, every associated task is automatically closed out. Individuals don't keep working on tasks that are no longer required.
- *Motivation for completion is heightened through linkage to the wider context*. Because individuals see contextual information that links what they do to the efforts of the wider team, the motivation to complete the task is higher. I don't have a plethora of data points to back up this assertion, but when I recognize that other people are relying on me to get something done so that they can move forward, motivation is stirred.
- *People have a complete picture of what they have to do*. Outstanding tasks do not languish in some infrequently visited place; rather they are front-and-center on the individual's single unified list. They know what they have to do, and they can make appropriate prioritization decisions between the items that they have been asked to do. When they decide not to do something by a requested due date, the decision is made in an informed way within the wider context of everything they've been asked to do.
- *Tasks can be re-assigned if the original assignee can't meet the deadline*. Each individual can see the totality of what they've been asked to do, across all of the projects, working groups, and areas of responsibilities they are involved with. When they intentionally decide not to complete a task by the original requested due date, the project manager or working group leader can elect to assign it to a new person. The task disappears from the original assignee's list, meaning that they won't then work on it at a later time.

Technologies to Consider

The task capabilities in the widely deployed Microsoft Exchange and IBM Lotus Notes and Domino products do not meet the requirements outlined here for enterprise action management. But here are two examples of products that make a good start:

- *Documentum eRoom*. eRoom (now owned by Documentum, which in turn is owned by EMC) has been an active player in the collaborative workspace market for a long time. And it shows with their intelligent integration into other products. Of specific interest here, is that tasks created in any eRoom space that an individual belongs to can be automatically consolidated into a single unified list in Microsoft Outlook. The individual doesn't have to visit multiple places to find out what they are supposed to do; it's all in one place. There are some conditions and restrictions depending on which eRoom database template the team is using, but the basic idea works. See www.documentum.com.

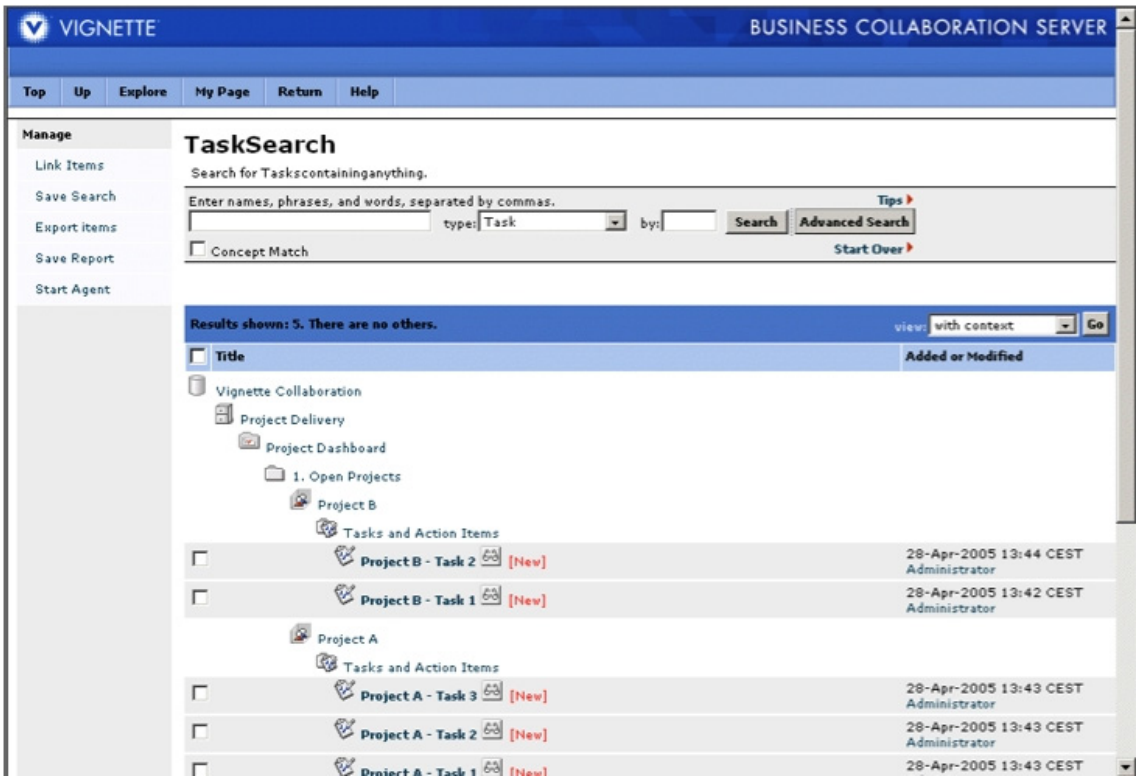
Figure 1. Task Consolidation from eRoom to Microsoft Outlook



Tasks created in the eRoom called "Shared Spaces eRoom II" are automatically consolidated into the task list in Microsoft Outlook 2003. Outlook displays the task description (subject), due date, and category information from eRoom, and puts a text description into the body of the task to remind the individual that it has come from eRoom.

- *Vignette Business Workspaces*. Vignette acquired Intraspect Software for its collaborative workspace offering, and then tied it into the wider Vignette content management and portal products. Tasks can be created in project workspaces, and individuals can consolidate tasks from across all of their project workspaces using a couple of different approaches. Approach one is to use a "dashboard", which gives the individual the ability to select the project workspaces from which tasks are consolidated. Approach two is to construct a Vignette-wide search on all active task assignments, and then to subscribe to that as a saved search (so that it is automatically run and automatically updated on a frequent basis). See www.vignette.com.

Figure 2. Vignette-wide Search for Task Consolidation



Users of the Vignette Business Collaboration Server can create a consolidated list of tasks across all of their Vignette project workspaces, using the Advanced Search capabilities of the product. Tasks are shown in the context of the project. While tasks don't synchronize out to Outlook (or something similar, although this isn't a hard-and-fast requirement), at least a Vignette-wide view can be easily achieved.

What's Next?

There is one final Pillar to address in this series on what teams need from IT systems in order to be productive in their work, and that's Pillar 7 about broadening the network through automatic discovery services, finding new people who possess appropriate skill, expertise and focus to contribute to the team. As I write that, please feel free to drop me an email (michael.sampson@shared-spaces.com) if you have feedback or comments on this Pillar. In particular, does your organization have an enterprise action management system that meets the requirements I've outlined here?

Shared Spaces Research & Consulting
www.shared-spaces.com

The 7 Pillars of IT-Enabled Team Productivity: What Teams Need from IT Systems to Be Productive

Pillar 7. **Broaden the Network through Automatic Discovery Services**

Michael Sampson, michael.sampson@shared-spaces.com
May 2005
Release 2 on May 18, 2005

Pillar 7: Broaden the Network through Automatic Discovery Services

> *"Teams need to be informed about other internal or external people who have expertise in the specific project matter under consideration. Internal automatic discovery services constantly scan the minute-by-minute chatter of the organization—the emails and IMs, the documents being written, the web pages being read—to build a sense of who knows what, and to create bridges for communication between distinct experts. External automatic discovery services are less mature, but enable people to track certain keywords or phrases of interest."*

Teams that converge around a specific purpose need to get the job done to the highest standards of quality within the shortest possible duration of time. The initial composition of the team is often determined by mandate, managerial direction, or simple geographical proximity, however organizations often contain many other people who could make an equally valid and constructive contribution. How does a team find out "who knows what" in the organization for the purpose of ratcheting up the quality of their deliverable? How do they discover who has prior experience in the matter at hand, or know who has expertise that could be used to the advantage of the team, its deliverable, and hence the overall organization? Pillar 7 is concerned with driving higher quality outputs over a shorter duration of elapsed time by making visible the other people inside and outside of the organization who could be tapped to contribute to the team's objectives.

The Situation Today

Discovering other people in the organization who can contribute to the team's objective is left up to *a priori* known reputation, chance, or intentional search of codified knowledge.

- *Finding people via a priori known reputation*. When a team is formed, or when it faces a log-jam issue that it can't resolve by recourse to the existing skills and knowledge of the current team members, one team member may know someone else in the organization who can help. These pre-existing relationships can be used to deal to the issue at hand.
- *Finding people via chance*. Chance encounters in the corporate cafe, around the water-cooler, or in hallway meetings can bring to light people that could help. A team member may be bemoaning an issue that is proving elusive for the team to resolve, but the third party may know someone by experience or reputation who can help. Again, the team can reach out to this person and seek their assistance.
- *Finding people via intentional search of codified knowledge*. Some organizations make an intentional effort to capture best practice ideas from known internal experts in knowledge databases. This codification ranges from the types of

challenges faced on a project, all the way up to a high level summary of the most effective way to complete a range of tasks.

Negative Effects on Team Productivity

These ad hoc ways of broadening the network of people who can contribute to the team have worked to varying degrees of success across a range of projects. A reliance on them, particularly in a distributed team environment, leads to the following negative effects on team productivity:

- *The best person to help resolve the issue may not be known*. Leaving the ability to find people up to chance encounters or *a priori* knowledge has a high likelihood of not identifying the very best person to speak with about an issue. Given that the team is going outside of its existing structure, the team members should know who is best qualified to address an issue, and then decide who is most appropriate to contact. It may be that the team would still select the person who would have been identified via traditional approaches, but at least by being able to see the range of alternatives they have the ability to make an informed choice.
- *Intentional search on codified knowledge misses much*. The final write-up of a project in a knowledge database lacks the issues at the day-to-day nitty-gritty level. Often that is the level at which a team needs assistance--not the higher order sound bites. Hence an intentional search of a codified knowledge database will not necessarily return the best grouping of potential people to help out. If the right person is not identified, then misleading information may be given by the identified expert, pushing the team down a path that is doomed to failure or suboptimal outcomes.
- *Robust debate on view points is missed or minimized*. If the team is unable to avail itself of skilled and expert input from external people at opportune moments, then the quality of its work may suffer. Because external people have no direct vested interest in the outcome of the project, they are likely to bring an independent and impartial view that is so helpful to stimulating debate and driving higher orders of thinking. Work of a poor quality may be rejected by the internal or external client, and if it is, either the team has to do it a second time, or another team is formed to address the issue. Either way, cost is increased, elapsed time expands, and customer satisfaction drops.
- *The team has to create wheels that have already rolled*. Re-invention of the "wheel" is a costly exercise for organizations. Expert human brain power doesn't come cheap, and the pace of business doesn't lend itself to teams working in a myopic environment blinded to the prior work of others. The overall productivity of the team is hampered when members have to re-create ideas or re-construct processes that have been previously thought through and developed at great cost. Projects take longer to do because of this re-creation.
- *People are blind to the help that is available for the asking*. Organizations with a geographically dispersed workforce--spanning multiple time zones, geographies and cultures--have a rich vein of people on which to call for input into targeted

projects. Experts may be known within a local area, but exposure to others of equal or greater expertise is likely to be lacking. Therefore project team members are blind to the help that is available to them within the current organization, when the expertise of local people is exhausted. If that's the case, then additional monies will probably be invested in engaging an external consultant to assist, or else the quality of the work is left to suffer.

The Ideal Future Situation

Teams need a more intentional and proactive way of discovering experts and other resources that are available to them for the purpose of driving higher quality project deliverables over a shorter duration of time. Here are the key attributes of what is required by project teams everywhere:

- *A background system that builds expertise and interest profiles across the organization from multiple systems*. At the corporate level, a system is needed that builds profiles of people's expertise and interests as a result of their day-to-day electronic comings-and-goings. The system would monitor the emails they write, the documents to which they contribute, the blogs to which they subscribe, the blog content they author, the searches they execute, and the meetings and seminars they attend, all in order to build a summarized listing of front-and-center issues. An appropriate algorithm would look for the similarities in wordings and topics to build an up-to-date person-specific knowledge taxonomy.
- *Proactive alerts for teams working on current troublesome issues*. Team members working on troublesome issues should be proactively alerted as to help that is available in the wider organization. Linguistic analysis would be used to determine when people are writing about topics or phrases that are already amassed in the knowledge taxonomy for the organization. An appropriate alerting mechanism would be displayed to the user showing links to people who could help address a current issue. Users would have the ability to tailor the alerts, both in format (transparent onscreen help box, blue squiggly underline of key phrases, or a Microsoft SmartTag on the phrase) and for specific content ("keep alerting me about this phrase" or "don't alert me anymore about this phrase").
- *Recommendation as how best to make contact*. If the team decides to initiate an interaction with an expert, the system should recommend the best way in which to make contact. By this I mean that a social network style analysis would be undertaken to discover common intermediaries between the team and the expert, or a degrees of separation analysis would signal who to talk to if there were more than two degrees separating the team and the expert. This allows the team to approach the expert in the most appropriate way given the current flow and state of existing relationships.
- *Integrated presence and availability to drive real-time interaction*. If the suggested expert is actually known to the team, presence and availability information should be displayed alongside the recommendation to engage with them. This enables the team member to follow up the recommendation with a

"quick question" to the expert, clarifying and confirming whether the individual can indeed help or not. If yes, the expert will either want to continue immediately with a real-time engagement using a variety of digital media (eg, whiteboard, shared application, conferencing, or instant messaging), or may request a "one-page brief" to consider offline in their own time.

- *Privacy settings for the expert to prevent overloading*. People with an expertise in a common area of interest will get quickly overwhelmed by requests for assistance. They need some way of setting limits on how and where their expertise is requested, and for what specific taxonomy phrases or topics they are willing to be consulted on. In terms of receiving requests for assistance, the identified expert needs the ability to choose the communication channel over which they are willing to receive requests, eg, email, instant messaging, or email via another person. In terms of specific expertise topics or areas, the expert should be able to opt-out of being an expert in that area, so that they are not considered for those areas again in the future.
- *Intentional opt-in for ongoing monitoring of key areas across the extended enterprise*. Team members working on a given area for an extended period of time will want to keep up with what others in the organization and across the globe are writing. They need ways of requesting frequent updates on matters that align with their interest profile, or indeed just with people that they want to learn from on an ongoing basis. Team members should have the ability to establish and maintain an active notification mechanism about new content and people of interest. One way of doing this is to enable the user to request ongoing notifications of a specific phrase or topic of interest.
- *Suggestions for ongoing involvement in communities of practice or interest*. People should be alerted if the organization offers structured areas of communication for communities of practice and interest that align with specific phrases or topics. This means that if the current team member wants to ramp up their expertise in an area over a longer duration of time, they can join (or apply to join) a group where sharing of knowledge and expertise is already taking place.

Positive Effects for Team Productivity

Teams that have an automatic method of discovering other people inside the organization, and external to it, who can assist with current issues or problems will experience the following productivity benefits:

- *Issues get resolved quicker*. Team members facing a log-jam on a project have the knowledge as to who is the best external-to-the-team expert to engage with, based on the identified area of need and the availability profile that the expert has embraced. The issue can be resolved as quickly as possible, without facing periods of inaction due to a lack of clarity on who is able to help.
- *The quality of the team's work improves*. The inclusion of an external expert for a short duration contributes to the overall quality of the team's work. Key assumptions can be questioned when needed, and issues of log-jam can be

resolved with expert insight. Dialogue and debate around the assumptions and issues can be undertaken while the team is still working on their overall objective, enabling multiple perspectives to be taken into consideration earlier in the process.

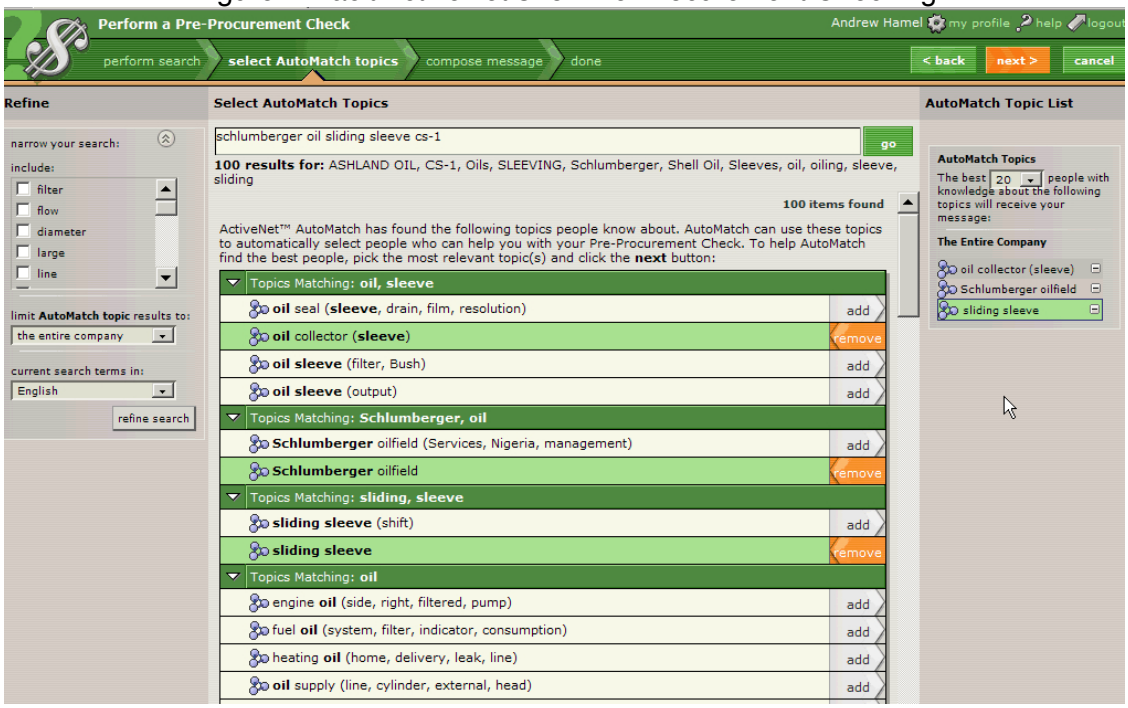
- *Experts are able to consolidate their expertise over a larger population of examples*. As well as benefits to the team itself, the experts inside the organization will be able to consolidate and further their expertise as they consider new scenarios, constraints, and environmental factors. Having visibility into new situations will challenge their thinking, and ensure that their positions are well tested against a plethora of data points.

Technologies to Consider

There is not a perfect technology on the market to facilitate broadening the network through automatic discovery services, but here are some technology options that go some way toward addressing the issues raised herein, or pointing the way toward an overall solution:

- *Entopia.* Entopia offers a range of applications that build off a repository of data about people, topics, and areas of expertise. Its Expertise Location application uses multiple data sources--such as email, documents and current readings--to build and maintain an up-to-date profile of expertise. Users can discover expertise areas via search, and can contact experts by instant messaging, among other channels. See www.entopia.com.
- *Tacit ActiveNet 3*. Tacit Software recently released ActiveNet 3, a collaboration auto-discovery platform for the enterprise market. It trawls through multiple enterprise systems--such as email conversations, Lotus Notes databases, document management systems (eg, Documentum), file servers, portals, and even Groove Virtual Office--to develop what Tacit calls a “table of contents” for each person, that being a listing of noun phrases on which the person has a degree of expertise. Version 3 emphasizes three vertical applications for the ActiveNet technology: pre-procurement, research and development, and business development, although the underlying platform can be used for a multitude of processes. A user can initiate an intentional search of the ActiveNet system to find appropriate experts, or they can subscribe to “hotlists” which push out notifications of new content or new people as they are discovered . See www.tacit.com, and my review at www.shared-spaces.com/blog/2005/05/tacit_software_.html.

Figure 1. Tacit ActiveNet 3 for Pre-Procurement Checking



A user that has Tacit ActiveNet available can query the system for people that know the most about a certain phrase or set of words. ActiveNet maintains a real-time profile of people, based on inputs from multiple systems. People can search ActiveNet for experts to engage with, or can subscribe to topics of interest.

- *AskMe Enterprise.* AskMe Enterprise builds a profile of expertise for internal people based on the documents they have authored, where this includes emails, Office documents, and Web postings. AskMe offers specific departmental solutions, as well as a company-wide implementation. See www.askmecorp.com.
- *Feedster, PubSub and BlogPulse.* RSS is a way of publishing new information from a web site, and is most often used in the world of blogging. There are a number of services--such as Feedster, PubSub, and BlogPulse--which capture and index RSS posts. People can subscribe to a phrase or collection of words, for delivery to an RSS reader. This means that people can track what others are writing about in a certain area of expertise, and link back to the original posting to review the new material. See www.feedster.com, www.pubsub.com, and www.blogpulse.com.

What's Next?

This brings us to the end of this seven part series on the key IT components of an overall environment for facilitating team productivity. I will be refining this material through workshops and seminars during the remainder of this year, and through discussions with people that share an interest in helping organizations to be effective through a productive deployment of collaboration technology. Please drop me an email to discuss any of this material, either as it relates to your organization, or to your collaboration technology product strategies. I'm available at michael.sampson@shared-spaces.com. All the best for your collaboration endeavors on behalf of internal teams.

About Michael Sampson

Michael Sampson has been an active researcher, analyst and consultant in the messaging and collaboration market since 1994, working with an international client base in the United States, the United Kingdom, Europe, Australia, and New Zealand, his country of residence. Michael is passionate about helping businesses and government agencies leverage the power of collaborative technologies in the context of their day-to-day work processes for business success and outstanding government results.

Michael established Shared Spaces Research & Consulting to work closely with interesting businesses and government agencies working to develop an all-encompassing collaboration infrastructure by leveraging the power of shared spaces to overcome the limitations of today's inadequate individual communication technologies.

Contact Michael at michael.sampson@shared-spaces.com, or phone +64 3 317 9484.

About Shared Spaces Research & Consulting Ltd

Shared Spaces Research & Consulting fulfils two complementary objectives in the market: to publish thoughtful self-funded vendor-neutral independent research on how businesses and government agencies can leverage the power of shared spaces for enterprise collaboration, and to provide consulting services on shared spaces. Key technologies explored through research include:

- Collaborative Team Workspaces
- Real-Time Interaction Technologies
- Collaborative Business Portals
- Presence & Availability in Business Applications
- Wireless Collaboration & Messaging
- Collaboration Auto-Discovery.

Shared Spaces offers consulting services that help clients cultivate marketplace advantage:

- For Organizations
  - Collaboration Infrastructure Strategy and Architecture
  - Evaluating the Effectiveness of a Collaboration Infrastructure
- For Vendors of Collaboration Products
  - Product Strategy Input and Review
  - Ongoing Competitive Intelligence Briefings
  - Snapshot Competitive Intelligence Projects
- For VARs of Collaboration Products
  - Building a Business Case to Justify Investment in a Collaboration Environment
  - How to Understand the Collaboration Marketplace

Visit www.shared-spaces.com for daily coverage of interesting happenings in the messaging and collaboration industry.