JOURNAL OF OBJECT TECHNOLOGY

Online at www.jot.fm. Published by ETH Zurich, Chair of Software Engineering ©**JOT, 2007**

Vol. 6, No. 8, September-October 2007

Ask Not What Your SOA Can Do For You – Ask What You Can Do For Your SOA!

Mahesh H. Dodani, IBM, U.S.A.

1 NETWORKED KNOWLEDGE WORKERS ARE KEY TO ORGANIZATIONAL AGILITY

"Over the past two decades, businesses have largely focused on streamlining structured business processes. Today, the challenge is to optimize the flow of knowledge, streamlining unstructured, knowledge-intensive innovation processes and turning organizations into Collaborative Innovation Networks." – innovative Collaborative Knowledge Networks

Over the last few articles in JOT, I have focused on discussing the maturity of SOA, and the ever increasing need for a set of best practices to handle the complexities inherent in successfully implementing and realizing an enterprise architecture. As the enteprises' SOA matures, best practices are needed at many different levels encompassing a wide range of artifacts that need to target the appropriate (people, process, information) resources needed to establish SOA in an enterprise and continue to maintain its foundation as the enterprise architecture. These best practices are required to ensure that the enterprise can continue to derive value out of its SOA and take advantage of the complex service ecosystem to build applications that allow it to compete in the marketplace.

However, the big question is – how do we successfully implement such an enterprise architecture, and continue to derive value for the enterprise? The extensive research done at MIT by Jeanne Ross, Peter Weill and others provide the basis for a potential solution. To summarize, their research has defined several stages of maturity for enterprise architectures – moving from business silos and ending in a modularized business where reusable business components can be localized and adapted with great speed and efficiency. The success of the enterprise architecture as it matures through these stages is highly dependent on organizational agility – that is, the speed with which the organization and practitioners can adapt to the changing standards, technologies, methods and best practices of the established enterprise architecture. Organizational agility is

Cite this column as follows: Mahesh Dodani: "Ask Not What Your SOA Can Do For You – Ask What You Can Do For Your SOA!", in *Journal of Object Technology*, vol. 6, no. 8, September-October 2007, pages 33-38, http://www.jot.fm/issues/issue_2007_09/column3

directly related to the empowerment of networked knowledge workers. Therefore the success of an enterprise architecture is directly associated with how well the knowledge worker can adapt to the ever changing architecture landscape.

Figure 1 shows the differences in the times spent on activities between process-oriented workers and knowledge workers. Knowledge workers spend most of their time on unstructured work – both planned and unplanned. Their work is focused on planned, informal processes with a fair amount of interrupts due to others trying to leverage their expertise and authority. In order to be agile (i.e. effective and efficient) these knowledge workers need to rely on useful information and knowledge networks, along with automated support for collaboration in their day-to-day activities.

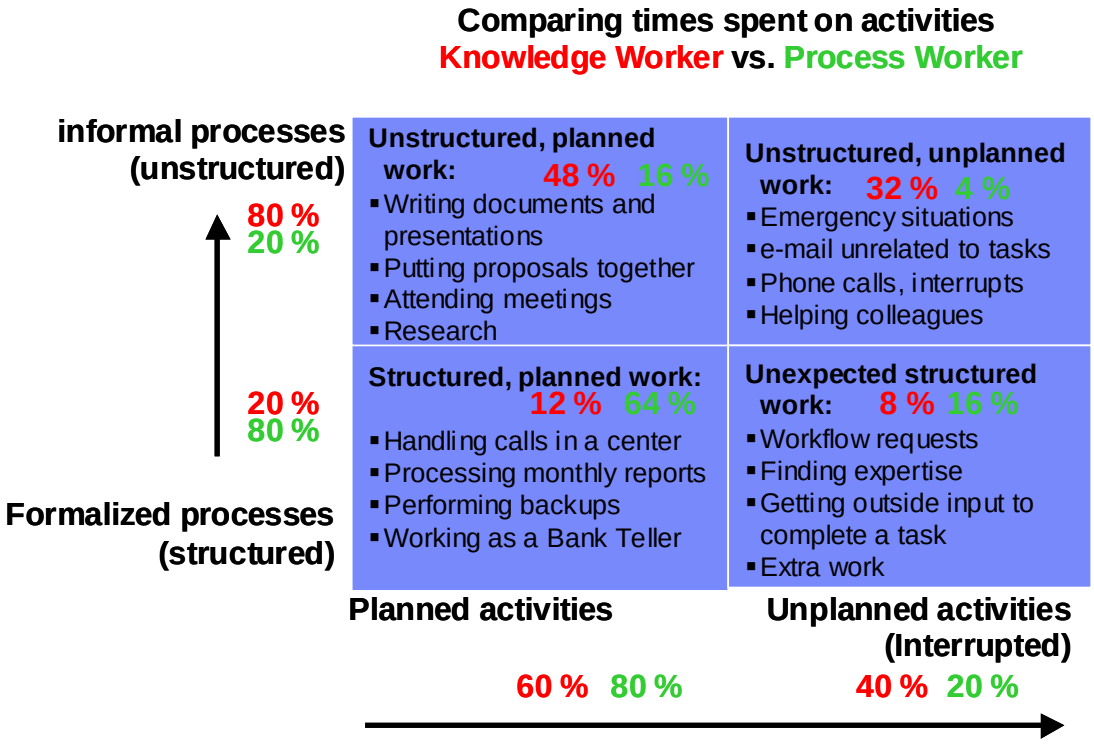
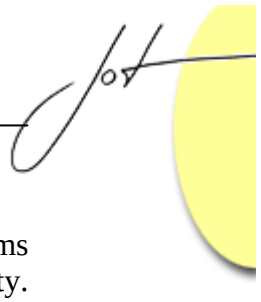


Figure 1: Comparing Process-Oriented vs. Knowledge Workers

Let us look at the two aspects of supporting knowledge workers – collaborative environments and knowledge networks in a little more detail.

2 COLLABORATION ENVIRONMENTS

To make knowledge workers effective and efficient, we must provide them the capabilities they need to create more value for the organization. These capabilities include faster access to actionable information, tools that make collaboration easier and



more straight forward, and communications capabilities that allow individuals and teams to work when, where, and how they choose, without sacrificing security or productivity. Collaborative environments provide knowledge workers these capabilities through the following support:

- Intelligent Personalized Environments: Knowledge workers need faster access to relevant, timely information. They need the ability to deploy new people-facing applications faster and at a lower cost. Typically, they struggle to improve their quality of work and workforce responsiveness, and they need real-time business process management with the ability to extend applications directly out to clients and partners. Intelligent personal environments transform the knowledge workers' complex user environment into a streamlined work experience for doing day-to-day business. These solutions provide them with unified work environments that are personalized experiences based on their role and help them be more proactive and effective.
- Collaborative Communities: Collaborative Communities provide knowledge workers tools to share information, knowledge and ideas across the extended business environment. The main issues that are being addressed include employees that are not adequately collaborating or not adequately sharing information. A related issue is the need to increase a common understanding of the business throughout the organization in terms of structure, measurements, goals, product information, etc. The end goal is the establishment of collaborative knowledge networks that foster innovation by better leveraging information and expertise to optimize business models and processes. Collaboration tools help employees effectively communicate, collaborate and share relevant information with colleagues, clients and business partners. These standards-based collaboration tools include an array of capabilities—from e-mail, calendar and group scheduling to instant messaging, advanced voice and Web conferencing and customized team workspaces.
- Anywhere Communications: Knowledge workers are increasingly faced with the challenge of connecting to people, applications, and information with any device anytime and anywhere. They need a mobile infrastructure that supports work in non-traditional environments, in terms of locations and devices. To increase organizational flexibility and agility, the collaborative infrastructure should be extended to new clients and locations as well as enable the workforce to act quickly regardless of where they are located. Always-on mobile or wireless solutions can help increase workforce productivity, flexibility, and responsiveness. These solutions enable the organization and key individuals to act quickly, regardless of their location. Furthermore, these solutions improve the ability of people to connect to applications, data, and to each other anytime, anywhere. They create a more attractive and flexible work environment and they are designed to provide a flexible infrastructure that reduces existing communications expenses and lowers support costs for these mobile workers.

Although the individual solutions to address the above issues are currently available, the key issue that is being addressed is how to bring these solutions together into a comprehensive set of capabilities that empower and support the knowledge worker in their day-to-day activities.

Figure 2 shows the capabilities needed to integrate the social networking and collaboration capabilities with the existing tools that support day-to-day activities of the practitioner. All of the collaboration services should provide a web interface and simple APIs providing universal access and simple extensibility and embeddability, facilitating integration to the tools that practitioners already use.

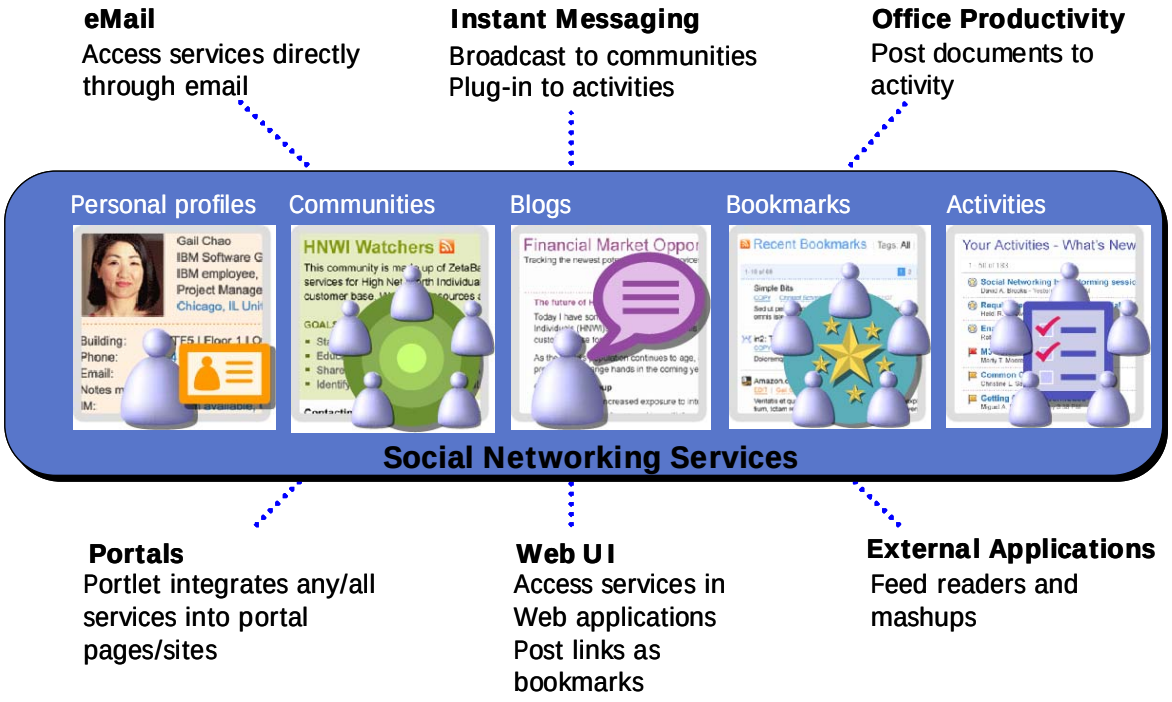
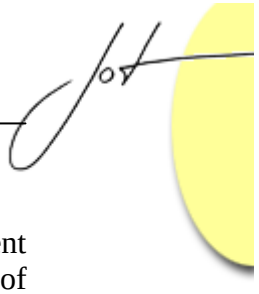


Figure 2: Integrated Collaborative Environments

It is important to integrate these services seamlessly with email, as email has become the collaboration tool of choice with current workers. This tight integration is also needed with the instant messaging tools, especially to support community collaboration around activities – providing the ability to broadcast questions or information to a community and to find related activities or save a chat directly to an activity without leaving the chat window. The ability to post documents directly from office productivity tools (e.g. word processors) to an activity streamlines the transformation of work from the document-centric world to the more natural activity-centric environment. The portal integration should allow all of the services to be added to a portal page or composite application. The wiring and parameters supported should allow the content to be filtered by service, tag, user and other properties. For example, a composite application that manages a particular process can show only activities with a particular tag, enabling the use of activity-centric



computing specifically targeted to the application at hand. Universal and consistent support for feeds in all of the services allows any feed reader to connect to any or all of the services, showing, for example, a feed of new entries to high priority activities.

3 KNOWLEDGE NETWORKS

The old adage – "a fool with a cool collaborative environment is still just a cool fool" – applies in this context. The success of organizational agility is highly dependent on the practitioner and how effective and efficient they are in leveraging the information and best practices and collaborating with other knowledge workers in their network. We can look at how to make knowledge networks successful by considering each of the components that make up a knowledge network: the content or information that is available for the knowledge worker, the metadata that is needed to organize and structure the content, the synthesis of the content into meaningful and useful information that can be leveraged effectively and efficiently by the worker, and the communities that facilitate the consumption and ongoing currency of the knowledge.

Knowledge networks must define mechanisms to establish trusted, quality content that is useful for the practitioner. This implies some mechanism of governance and a mechanism to rate content based on practitioner experience. Any solution must include asset management systems, e.g. the Rational Asset Manager, that provide the capabilities for managing a set of assets based on a well defined taxonomy, governing assets through their lifecycle, searching and using assets based on the taxonomy, collecting user experiences and ratings based on asset usage, and accessing the assets. To be successful, such asset management systems must be combined with physical organizations that have the responsibility for managing the assets. Clearly, one of the well established best practices in this area is the concept of Center of Excellence (CoE) or related organizational structures (e.g. Architecture Boards, Design Authorities, etc.) As I have mentioned in previous articles, these CoEs have the responsibility along with well defined processes, templates, and best practices to socialize the knowledge, ensure conformance to best practices, ensure the evolution of the knowledge to address changes in the enterprise, and to govern the knowledge and assets. The main problem that organizations face is how to establish such an organizational structure across the enterprise and ensure that these organizations continue to provide usable content to the community of knowledge workers.

In discussing content, we talked about metadata in the form of a taxonomy for assets, and as assets along with their metadata get populated in the asset management system it should become more efficient and effective for the practitioners to find and reuse appropriate content. However, as we indicated above, we need a similar approach of applying a consistent semantic framework around all the knowledge within an enterprise – not only the assets. A promosing approach in this context is the work around semantic wikis, which are wikis along with a well defined ontology that defines the model of the knowledge (e.g. entities and their relationships) captured in the wiki. The approach of

capturing the content and metadata through wikis facilitate the knowledge workers to participate in creating and maintaining the content. Most organizations will want to use such semantic wikis to provide a single "source of truth" for the content that can be used consistently across the enterprise. Bringing more content into this well defined semantic confluence, makes all content more useful. Semantic wikis are key to organizational agility, and my next article will discuss this topic in greater detail.

To be useful and meaningful, the content (along with its metadata) need to be sythesized within the context that they will be used. A common issue that most enterprises' deal with is making their content as easy to search as Google. They usually find that the technologies for indexing, manipulating and searching the data is not enough to provide good results. A deeper understanding of how Google achieves its search results may provide a glimpse into the missing ingredient. A little known fact is that Google has as part of its business model the ability to synthesize the content/results through human editors (by some reports, they have 10,000 editors working on this effort!) Enterprises need to understand how to establish a corporate-wide mechanism and organization to synthesize content – this requires a special kind of editor skills, and usually can not be pushed as a responsibility on knowledge workers.

We have already talked a lot about communities, including the supporting technologies and tools. The big problem for most enterprises is how to change the culture among their practitioners, moving them from passive community participation, to proactive practitioners. The success of this effort can easily be measured by the number of active participants in wikis, the move of active discussion threads from emails and meetings into wikis, and the fact that practitioners spend as much time actively participating in these communities of interest as they do answering emails!

Join your communities now and proactively contribute to your organizational agility!

About the author

Mahesh Dodani is a software architect at IBM. His primary interests are in enabling communities of practitioners to design and build complex business solutions. He can be reached at dodani@us.ibm.com.