

Collaboration and Lessons Learned

Steve Olshansky
LuminaGroup
PO Box 7552
Boulder, CO 80306 USA
steveo -at- luminagroup.com

ABSTRACT

In this position paper, I briefly describe my experiences in supporting collaboration and knowledge management (KM) in research and education (R&E) and corporate environments, and observations and lessons learned informing my current and future work in this area. I have learned that without careful planning and consideration of how collaboration fits within an organization's strategy and culture, the introduction of Web 2.0 collaboration tools can be awkward at best, and counter-productive at worst. Conversely, properly implemented collaboration systems can be very beneficial. The implications for future incorporation into Enterprise 3.0 are encouraging, although clearly much work is yet to be done.

Keywords

Collaboration, knowledge management, virtual organizations

ACM Classification Keywords

H.5.3 Collaborative computing

INTRODUCTION

Building upon the early promise and intent of the World Wide Web, which was developed principally to support and enhance collaboration ("every client a server," i.e. information consumers can and should also be information providers), recent developments bode well for collaboration within and between organizations.

With the rapid proliferation of collaboration and social media tools, including both synchronous and asynchronous platforms, coupled with users becoming more comfortable with them in a variety of settings outside of work, many organizations have taken or are now considering taking steps to introduce and support these tools for their user populations. The common intent in doing so is reaping the benefits of becoming a collaborative organization (CO), which is simply any group or community wanting to utilize these tools effectively to support its work. As teamwork becomes more central to many organizations, both internally and increasingly with vendors, partners, and customers/clients, challenges arise in integrating and utilizing these collaboration tools to best effect.

Harnessing the creativity and serendipity stemming from the free flow of ideas, and reducing friction inherent in the use of collaboration tools to accomplish this, is becoming more practical as these tools mature and as organizations learn how to use them to best effect. However, deploying any of these tools into an organization without effective planning, implementation, and assessment processes in place can result in wasted time and resources at the best, and chaos at the worst.

Introducing these tools without a clear plan for fitting them into the organizational strategy and culture, and aligning them with core business processes, is far from optimal and usually doesn't produce the expected benefits. Building upon these tools to evolve and support the organization is an ongoing process, and requires a clear and flexible plan.

Collaboration tools introduce opportunities, not solutions. Enabling and enhancing collaboration is a good start, but it is not the end game. Yet when effectively integrated and utilized, they can bring extraordinary benefits to the organization.

Common obstacles: intra-organizational collaboration

1. Users are already very busy, and in many cases resistant to learning and using new tools and applications without a clear understanding of how they fit into and support the organizational goals, and how using these tools will benefit them and help them to be more effective and efficient in their jobs.
2. Often, especially in early stages, the tools end up having many more consumers than contributors of information. This can serve as a substantial demotivator to early adopters who are actively using the tools, and lead to diminishing enthusiasm about their use after the initial fascination subsides.
3. Usability: human factors and user interfaces are obviously key elements in successful collaboration systems, like any other business systems, but this is often neglected in the initial evaluation of collaboration tools, or in the case of internally developed tools, put off as a final "face lift" rather than being a core component of the design from the start.
4. Clear incentives for user participation (coupled with regular reinforcement), both as providers and as consumers of information, is often overlooked in early planning.

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Position paper submitted for the workshop *What to expect from Enterprise 3.0: Adapting Web 2.0 to Corporate Reality*, CSCW 2008, November 8, 2008, San Diego, CA

Common obstacles: inter-organizational collaboration

De-perimeterization is a word being used more frequently lately in some circles, and it refers to the fact that barriers are coming down between enterprises. Increasingly, collaboration is taking place between organizations, leading to the rise of the so-called “virtual organization” (VO). VOs are often project-based, and participants may be separated by geography and organizational affiliation. VOs may be formed and dissolved as projects begin and then reach completion, or they may be longer lived e.g. to support ongoing collaboration with vendors or customers or partners.

In order to facilitate this interaction, new ways of operating are rapidly evolving. A VO may consist of members who are in multiple security domains, each with its own policies and infrastructure, making it challenging to work together seamlessly. In addition, due to time zone differences it may be impractical to work together in real time, thus it is important to utilize both synchronous and asynchronous collaboration tools to their best advantage.

Collaborating beyond organizational boundaries, whether with partners, vendors, or customers/clients, introduces additional levels of complexity. Collaborating across national boundaries raises the complexity even more, although none of this is insurmountable. It just requires careful consideration of the issues and a willingness and flexibility to make mid-stream adjustments as circumstances warrant.

1. Collaboration silos: as people increasingly collaborate across organizational boundaries (or even sometimes between departments within a single organization), they are often faced with a collection of disconnected collaboration tools, designed to support a specific project or group. This inevitably leads to knowledge fragmentation and can be extremely counter-productive. In addition, this approach poses substantial security risks because users are forced to maintain login information (username/password) for multiple systems, and commonly default to insecure passwords reused across multiple systems, or crude and insecure methods for keeping track of them (e.g. Post-It notes at workstations or clear text files).
2. Regulatory compliance issues in an inter-organizational context: as data moves beyond your organizational boundaries in a collaboration context, particularly in collaboration with users and organizations in other countries, which regulatory framework applies? Is it the union of all concerned? Or the intersection? Or is there some other useful way of approaching this potentially thorny problem?
3. Jurisdiction: as data moves beyond your organizational boundaries (e.g. in a collaboration context), and if you are served with a subpoena or similar demand, or if other conflicts arise, what are the obligations of the concerned parties? What is the governing contractual and legal framework?

4. Intellectual Property Rights (IPR): as data moves beyond your organizational boundaries in a collaboration context, who owns the resulting data and other artifacts created? What usage rights are conveyed?

Key Elements to Successful Collaboration

There are several elements which work together to form a thriving collaboration ecosystem. These include:

1. Ramping participation: deploying collaboration tools across an entire organization all at once can be overwhelming and counter-productive. It is often best to start small, with a limited user base and project scope. This serves to both work out early kinks in the systems before more widespread deployments, and in the best cases to create a “buzz” and curiosity among other potential users, leading to added eagerness to participate in their use when the tools are eventually made available to them as part of a wider rollout.
2. Internal champions: peer leaders who are early adopters of these systems, who understand the landscape, and who will help to nurture the collaborative culture within their groups.
3. Continual assessment, with a clear feedback loop to collaboration leaders.
4. Creating and nurturing a collaborative “mindset” and coupling it with the culture can be challenging, but must be a core element in the planning and implementation.
5. Links to (and integration with, where possible) related business systems, domain science tools, etc. where appropriate such that users are able to seamlessly move between tasks and concentrate on the work at hand.
6. Incenting participation: I have seen organizations tie employee performance reviews and bonuses to active contribution and participation, with varying degrees of success. This needs to be carefully considered in the light of the organizational culture and realistic expectations.
7. Building and supporting community: at the core of successful collaboration is the nurturing of a sense of community, and encouraging user investment in the outcomes.
8. Start with low-hanging fruit, evaluate, then iterate, iterate, iterate...

Collaboration and Knowledge Management (KM) Systems

Harvesting lessons learned and other useful artifacts produced in the course of system use, vetting them for future use and wider dissemination, attaching proper metadata, and populating a well-designed and easily accessible KM repository for easy access is a logical outgrowth of a thriving collaboration system. Asynchronous tools are particularly amenable to connection to KM systems due to their inherent data

structure characteristics, but even synchronous tools such as instant messaging (IM) which produce logs can be similarly situated for harvesting KM artifacts. Some common aspects of artifacts harvested from collaboration systems which become even more important in a KM context are:

1. Context: how does this fit into the project or task at hand? What other areas might it also be relevant in?
2. Provenance: what is the history of documents or other artifacts?
3. Reputation: who contributed to a particular document or artifact, and what level(s) of credibility can be attributed to it as a result?
4. Metadata: have the parties involved agreed upon a common metadata vocabulary? How is metadata assigned and managed?
5. Search and retrieval: what processes are in place to facilitate the effective and efficient search and retrieval of knowledge elements?

On the horizon: Federated Identity and Access Management (IAM)

Knowledge and collaboration silos are the natural result of disconnected systems, and the logical evolution of inter-organizational collaboration tools entails unification through federated identity and access management (IAM), which is rapidly maturing. The benefits are many, including:

1. Attribute-based interactions – access decisions may be based upon attributes of the requesting user or system, as appropriate, which is a continuum ranging from the most general (e.g. employee of Acme Corp.), through intermediary steps (e.g. member of ProjectX team, supervisor of ProjectX team,

manager with \$10K approval authority, CFO, etc.), all the way up to and including a user's identity.

2. Preserving access control decisions for resource holders – i.e. not surrendering control but enabling more informed and efficient access control.
3. Future direction – user-centric control of attribute release rather than administrator control, i.e. the user may be able to control which attributes s/he is willing to release in return for access to a particular resource.

On the horizon: Collaboration Management Platforms (CMPs)

Work is underway to develop a platform which integrates the management of a suite of collaboration tools into a unified whole, leveraging a common flexible and extensible authentication and access control infrastructure, and enabling extensive customization to meet the needs of a particular collaborative organization. This same platform has the potential to support other key business systems and domain science applications as well, utilizing the same authentication and access control infrastructure

On the horizon: Virtual Worlds

Although still in the early stages, the development of 3D virtual environments and rich media applications, coupled with the proliferation of high-speed networks able to support them, shows early promise for the next generation of collaboration systems. While several hurdles remain before these enter the mainstream, including steep learning curves and primitive software, many organizations are taking steps to evaluate these platforms in a variety of arenas, including as collaborative environments. Early experiences are mixed, and some organizations have deferred further experimentation after early awkward experiences, waiting for the tools and platforms to mature to the point where they are more viable.