Using Collaboration Technologies to Accelerate Innovation in Federally Funded R&D Programs[1]

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January 7, 2008

Background

I've been looking for ways to describe the different types of collaboration processes that technology can support. One of my goals is to understand how collaboration, which I define as "people working together to solve a common problem," can promote innovation within the context of Federally funded applied R&D programs.

Bounded Innovation

In his blog post **Bounded Innovation**[2] Jeffrey Phillips describes several ways to "bound" the innovation process in order to improve its focus and productivity in relation to an organization's strategic objectives. These approaches include:

- Inside out technology approach. In this approach you start with what you are good at and build out from there. This is sometimes called the "hammer looking for a nail" approach.
- Concentrate on unmet or undermet customer needs. In this approach you study your customers and develop something new to meet their needs.
- Project the future and anticipate trends. In this approach you define a future state for your market or customers and focus on innovations that support that future state.
- Disrupt an existing market based on a better mousetrap. This approach can have high risk and high payoff; to work for you, you must be able to take advantage of the "disruption."

Phillips' list attracted my attention since I have been thinking about ways to **promote the adoption**[3] of technology-enabled collaboration by Government-funded R&D programs. His list looks to me also like a list of the different ways people might promote innovation within a large program that spans multiple organizations.

[1] Web address for this paper: http://www.ddmcd.com/program.html
[2] http://innovateonpurpose.blogspot.com/2008/01/bounded-innovation.html
[3] http://www.ddmcd.com/managing-technology/what-social-media-adoption-model-are-you-following.html

Technology enabled collaboration

My particular interest is in accelerating the various processes that make up such programs, especially the processes involved in idea creation and innovation. I include in "technology enabled collaboration" the variety of communication or information management technologies that make it possible for people to (a) discover common interests, (b) exchange information about those common interests, and (c) build and maintain personal and professional relationships over time that reflect those interests. These categories include traditional technologies (e.g., phone, email, teleconferencing) as well as newer collaboration and social media and social networking technologies such as blogs, wikis, group messaging, social networking, and social bookmarking.

It is this "social networking" aspect of collaboration technologies that differs from more traditional forms of content and knowledge management that I believe has great potential value for fostering innovation.

Challenges

The challenges involved in managing collaborative processes using such technologies can be significant in the context of Federally funded R&D programs that involve many different types of organizations:

1. The different people and organizations involved may not be accustomed to communicating or collaborating to accomplish common objectives.
2. Competing business objectives may exist among these different groups, e.g., for-profit vs. nonprofit, academic vs. commercial sector, basic research vs. engineering, privacy advocates vs. law enforcement, etc.
3. Voluntary participation by the private sector can be an important factor in driving success of a Federally supported R&D program. For this to occur the private sector needs to understand and adopt a variety of public sector goals, objectives and — bureaucracy intrudes here — processes.

Collaborating to promote innovation

People from different backgrounds and organizations need to work together, pick each others' brains, and bounce ideas around. Breaking down barriers that prevent people from communicating, making it easier for people to discover others with common or complementary interests, and then building personal and professional relationships that foster ongoing idea exchange, all seem to be good ways to promote innovation.

Fortunately, technologies that allow people to communicate and collaborate are rapidly evolving. Social media and social networking technologies that allow people to rapidly establish and maintain communications that bypass traditional organizational and professional boundaries represent a significant source for collaboration and innovation opportunities.

It is the area of **expertise management**[4] that may provide one important tool to enable individuals in different organizations and professions to come together to communicate, collaborate, and innovate. Once people discover their common and complementary interests, they can pick and choose the communication channels that are most appropriate to the task at hand. (This focus on the sharing of expertise, which I describe in **this presentation**[5], is one focus for vendors such as IBM with its **Atlas**[6] product.)

But there are many challenges. Even when an agency's leadership provides a clear statement of policy goals and objectives that the R&D program must support, the view from "the trenches" may be different. For example:

In an academic institution that receives public funding to support certain types of research, a balance must be achieved among the institution's educational objectives, the objectives of individual faculty and students, and the R&D program's objectives. How can we use technology to accelerate the process buy which ideas generated in academia can be evaluated as the basis for possible beneficial products and services?

1. In a private sector organization whose commercial product development strategy parallels the development goals of the Government program, how much to invest of private funds in potentially competitive government procurement must be decided. Can we use technology to improve the way we communicate Government requirements to private sector organizations so they can accelerate their decisionmaking about their own investments?
2. In a government organization formed from the merging of multiple agencies, it may take years to integrate existing formal and informal communication channels that may be based on years of past loyalties, management structures, and multiple technologies. Can we use technology to break down the barriers that prevent valuable collaboration and innovation from occurring?
3. If there are security or national defense implications of the R&D program, how does one balance the need for secrecy with the need to foster communication and collaboration? Can we use technology to simultaneously protect what needs to be protected, and disseminate what can be safely disseminated?

Conclusions

I am optimistic how modern collaboration, social media, and social networking technologies can promote innovation within R&D programs that support important social objectives. Scientists, engineers, students, researchers, procurement, and information management professionals of all kinds are already accustomed to communicating and sharing information. People understand that ideas that are hidden or isolated can lead to dead ends.

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[4] http://www.ddmcd.com/managing-technology/category/expertise-management
[5] http://www.ddmcd.com/managing-technology/using-collaboration-technologies-to-accelerate-innovation-in.html
[6] http://www.collaborationloop.com/index.php?option=com_content&task=view&id=2359&Itemid=45

They also know that fostering both social and professional relationships among individuals with common interests, even if the professional backgrounds of these individuals are varied, can promote discovery, serendipity, and innovation.

Perhaps most important, opportunities for improved collaboration, especially if traditional organizational or professional barriers can be reduced, can accelerate the processes by which new ideas are generated, communicated, evaluated, and used as the basis for developing socially beneficial products and services.