An overflow crowd attended the January ISRC roundtable event to participate in a discussion of the barriers to successful technology implementation and diffusion and how to overcome these barriers. Dr. Michael Ahearne, a marketing professor at Penn State University, also shared his experiences gained from his research focusing on the adoption and use of technology by salespeople.

Introduction And Overview

Business value is supposed to directly result from investment in IT. Unfortunately this concept is lost in the bright light of reality. In any given year $81 billion is spent on projects that will soon be cancelled; 31 percent of all corporate software development projects are cancelled before completion, and more than half of projects have budget overruns of 189% and time overruns of 222% of plan. These are just a few of the dismal statistics that demonstrate the difficulty of implementing new systems and in promoting their subsequent diffusion throughout the organization.

Barriers To Successful Deployment And Effective Usage

Three types of failures can interrupt the path from IT investment to the realization of business value.

- Failures in conceptualization – it was a bad idea to begin with, not in alignment with the business strategy, not possible to achieve

- Failures in implementation – inadequate training, changing needs, lack of support

- Unintended consequences – failures resulting from negative unanticipated results or chain reactions

Participant Thoughts
1. Shrink the development cycle time by breaking projects into smaller bites and making sure that value is delivered at each bite.
2. Don't get caught in the "throwing good money after bad" trap. If value isn't being delivered, ignore the sunk costs and look only at future dollars versus benefits

The participants itemized the barriers to successful implementation of systems:
- Lack of or poor user training
- Lack of management support

- Failure to get customer buy-in
- Inadequate resources applied to projects
- Poor communications with users
- Exceeding the capacity of users to change
- Improper managing of user expectations
- Adopting the wrong technologies
- Lack of follow up (declaring victory too early)
- Changes in users or user requirements
- Failure to integrate with the existing infrastructure
- Implementing before the user is ready

Once an information system has been implemented, focus is turned to the diffusion of the technology to other potential users within the organization. The process involves the communication of an IT through certain channels over time among the members of the organization. The rate of diffusion is affected by the potential adopter's perception of the new technology's relative advantage over what he/she is doing currently, perceived complexity, compatibility with business processes, how easy it is to "just try it" and what sort of an image of the user can be generated because of becoming an adopter. In addition there are organizational influences and facilitating factors such as sufficient infrastructure, knowledge, and ability.

The participants itemized the barriers to the diffusion of effective systems usage throughout the organization:

- Bad reactions from the early adopting users
- Lack of business drivers
- Lack of willingness to change on the part of the users
- Lack of experts to aid subsequent users
- Lack of documentation
- Cultural barriers
- Perceptions of lack of value
- Demonstrated or perception of lack of reliability
- Imperfections in the system
- Having alternative parallel processes
- Changes in user focus

> **Participant Thoughts**
> 1. *Focus attention on the opinion leaders and the change agents*
> 2. *Vendors and business partners can help in diffusing technologies*
> 3. *Customers may sometimes serve as a change agent*

4. Be sure you understand the current state completely before attempting to introduce change
5. Demonstrate the value of the systems by using the worst critics as the earliest adopters
6. Know who you are selling to
7. Have proper incentives for adoption
8. Take advantage of beta testing opportunities
9. Make sure you understand company culture and the degree to which you will be affecting it
10. Make your systems as reliable as is possible within the given restraints
11. Develop measurement/reporting processes to monitor the success of diffusion

Summary

As evidenced by the large turnout for this roundtable; installing a new technology in an organization and then encouraging the diffusion of the use of that technology is probably the most challenging opportunity that an IT professional faces. The solutions for achieving this success is obviously contextual to the particular organization, but the sharing of ideas and understanding the process from early adoption through internal diffusion into routinization and ultimately to producing business value, gives the IT function the ability to anticipate the barriers and hopefully overcome them.

Additional Information

http://www.tecweb.org/vault/bail0.html
> A master thesis on the understanding of what administrators see as barriers to the adoption of technology for learning and intervention measures to overcome the barriers.

http://www.informs.org/Conf/NewOrleans95/TALKS/WA10.html
> Factors affecting the process of adoption and diffusion.

http://www.fit.qut.edu.au/PACIS97/NET2.X/FRAMES/SCHEDULE/farhooma.htm
> Factors motivating and influencing organizational adoption of IT and the reasons why some organizations are more predisposed to IT adoption than others.

http://hsb.baylor.edu/ramsower/ais.ac.97/papers/thompson.htm
> Factors influencing the adoption of one new technology, specifically Microsoft's Access Database Management System