The Impact of the Internet on IT and the Enterprise

Based on a presentation by Glenn Kapetansky, Rahul Argade, and Krishna Sankar of MCI Systemhouse

1. Overview

Internet, Intranet, Extranet, WhatsNextNet….. As the commotion over emerging Internet technologies begins to fade, businesses are left with some basic questions about risk and reward, strategic direction and implementation strategy for Internet technologies. The September ISRC session brought together a team of experts from MCI Systemhouse to address these issues. The risks involve trying to exploit a constantly changing technology in the context of shifting alignments among customers, partners, competitors, and vendors. Everyone is scrambling to find out how to take best advantage of the technology often without adequate attention to strategic direction, coordination and integration.

Firms know that the stakes are high. The payoff for a sound, well thought out implementation can be a simultaneous increase in revenue and decrease in costs. For example, *Dell Computer* has no widespread geographical presence, yet is one of the largest suppliers of PCs. Its order process is now shifting from a labor intensive 1-800-operation to an Internet based ordering process, which currently generates $1 million *per day* in sales. *Cisco Corporation* does over $1 *billion* worth of sales annually through its web site while reducing the cost and complexity of order taking and configuration. *Chrysler* has opened a direct sales channel to individual customers using the Internet, freeing its sales force to concentrate on more complex and profitable fleet and leasing deals. *Boeing* uses the Internet to manage its huge aftermarket service and maintenance operations.

All of these examples include two essential ingredients; they use the Internet to generate revenue streams, and at the same time reduce the cost of doing business. They do this by driving information and processing capabilities through the value chain and out to customers. To make such applications work companies need to focus on some essential strategic issues relating to technology deployment, coordination and control and applications integration.

Technology deployment:

- Infrastructure architecture is critical to Internet deployment, but usually moves at a much slower pace than application development or user demand. Lead times of 18 months for “rearchitecture” projects are typical. Thus, organizations need to be thinking well ahead of the applications curve.
- Organizations must plan for ubiquitous access, including multiple forms of communication such as cell phones, fax machines, personal digital assistants and pagers in addition to desktop and portable PC’s.
- Ultimately, good architecture is the foundation for success. Plan for long-term reusability, maintainability, and scalability.

Coordination and control:

- Many organizations have multiple evolving Internet efforts on a department by department basis, but will need a coordinated corporate effort to truly integrate applications through the value chain. Collaboration between people and across processes is essential.
- The future is business-to-business transactions, which will require enhanced inter-organizational coordination and collaboration.

Application Integration:

- Integrating legacy systems with the Web should be part of a larger business process re-design project.
- Integration of Internet and legacy systems requires a vision for the long-term evolution of Internet technology and should aim for transparent access and an integrated environment, regardless of platform or application.
- Integration requires the use of Very Large Scale Web Servers to handle legacy applications.
- Use web-enabling databases, including mainframe versions, to facilitate access, reliability, and acceptable response times.
- Ensure that your applications are scalable and plan for demand levels well beyond your initial estimates

2. Access and Security Design Principles

Internet based applications sharpen the traditional division between the need for ease of access to systems and the need for security of access and transmission. Internet security is an especially troubling issue for most firms. There is a temptation to look to advances in technology to solve security problems. Such a technology-based security mindset should be avoided. Security should not be a separate technical concern, but should be built into each element of the corporate network and its related business processes. Designing for security must also be balanced with designing for accessibility. With that in mind, some of the issues that need to be considered include:

Accessibility:

- Think outward from your business processes. Don't be limited by today's technologies. Your information-receiver might be e-mail, fax, printer, pager, or all of the above. You need to evolve towards ubiquitous access.
- To avoid unpleasant surprises, always design for the most remote end-user (e.g., telecommuters or road warriors).

Security:

- Security is always an inconvenience to someone, but is a necessity for everyone. In a distributed environment, each resource should protect itself and trust others to do the same. For example, operating systems should control identification and authentication to ensure that a user is who he says he is, while applications should control access to data.
- Perceived security is often more important than real security. For example, most people will hand over their credit card to a bartender, waiter or store clerk without thinking twice, but few will use it on the Internet, which is likely more secure. Manage the perception of risk.

3. Tips, Tricks, and Traps

Planning for Internet application deployment is challenging. It is critical to ground your Internet application development using the same solid thinking that you would for other projects and applications. The trick is to do that on top of the shifting technological sands and to do it in so-called 'Internet time'. Our presenters offered some of the following suggestions in the form of planning tips and application development tricks to make the process work as well as implementation traps to be avoided.

Planning Tips:

- Develop a corporate Internet policy for strategic, tactical, and operational issues. This plan should look outward from your business processes keeping in mind that the Internet is not just about technology - it is a medium, marketplace, community, and more.
- Map web applications onto business processes, not organization charts.

- Use a cross-functional planning team that integrates business and technological issues.

Development Tricks:

- Be sure to attack problems, not symptoms. Symptoms include unhappy users, poor communication between IT and other departments, and development backlogs. Problems may relate to the organizational structure and IT's position, pricing policies for IT services, lack of a business perspective in IT, or lack of metrics for quantifying IT benefits.
- Follow the Microsoft model and build for growth. Determine the smallest acceptable functional subset of the desired product and implement it well. Add more features and improvements in successive versions.
- Make sure that security is integral to the design process, not treated as an implementation issue to be managed with technology.

Implementation traps:

- Forgetting the people. Provide 'net training for all levels of IT *and* users. Not only will this make the organization more productive, it will help attract and retain quality employees.
- Stagnant sites. Keep the information accurate and current. Nothing is more frustrating to users than misleading or out-of-date information.
- Lack of measurement. Benchmark the business processes, not just the applications, before and after implementation.

4. Closing Notes and Coming Attractions

We would like to thank MCI Systemhouse for sharing their knowledge with the ISRC membership. The September session provided a wealth of information. One of the key takeaways was an extensive handout of slides and supporting documentation. If you did not receive one, contact us and we'll forward a copy to you.

The next ISRC seminar is scheduled for Thursday October 16th on the Hiring and Retention of Information Systems Personnel, to be led by Linda Pittenger of the Hay Group. Sandi Fitch of Shell Services will also discuss some of their specific experiences with IS staffing issues.

5. For Additional Information

Below is a short list of books, articles and web sites that may be of interest for those of you looking for more information on this topic.

Books and articles

- M. Cronin (ed.), *The Internet Strategy Handbook: Lessons from the New Frontier of Business*, Harvard Business School Press, 1996.
- M. Cusamano and R. Selby, "How Microsoft Builds Software", *Communications of the ACM*, June 1997.
- J. Rayport and J. Sviokla, "Exploiting the virtual value chain", *Harvard Business Review*, Nov-Dec. 1995.

Web Sites

- www.w3.org -*The World Wide Web Consortium provides, a repository of information about the World Wide Web for developers and users including various prototype and sample applications to demonstrate use of new technology.*
- www.commerce.net -*CommerceNet's mission is to accelerate the growth of Internet Commerce, and create business opportunities for its members. It focuses on pre-competitive global and industry-wide issues so that members can benefit from economies of scale and avoid competing on the wrong things.*

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Welcome to the first edition of ISRC Notes. In each issue of ISRC Notes we will present a condensed version key points and action items from our monthly seminars. In addition, the Notes will include a list of articles and Web addresses relevant to the seminar topic. We hope the Notes will provide a useful summary of the seminars and references for the topic.

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