Strategies for Managing EUC on the Web

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Beginning in the early 1980s, end-user computing (EUC) began to permeate organizations following the advent of the personal computer and a host of applications directed at the non-IS professional. Along with EUC came a whole new set of organizational opportunities and risks. Ten years later, the World Wide Web has opened the door to a yet more powerful set of EUC applications capable of reaching well beyond the boundaries of the organization. Indeed, Web technology permits end users to design applications that are immediately accessible by unlimited numbers of people from anywhere in the world. As a result, EUC using Web technology has introduced a whole new set of opportunities and risks for organizations. The purpose of this research is to examine what strategies organizations are using in their attempt to maximize the benefits of the Web for end users while mitigating the inherent risks. To this end, individuals from 12 major organizations were surveyed via the Web. The results indicate that while organizations seem to be doing an adequate job of establishing roles and standards, mechanisms for resource allocation, development management, and maintenance appear to be lacking. In fact, most firms seem to be relying on a monopolist control strategy at this point in time. While such a strategy may be the best approach given the relative infancy of Web technology, it could prove to be an unstable strategy in the long run given the reach, range and flexibility of access that Web technology provides. Organizations are encouraged to take a proactive, formal posture toward EUC development on the Web.

"Build it and they will come" ... the marketing department of a Fortune 500 retailer spends several million dollars developing a "virtual store front." They heavily promoted the initial system's launch and eager consumers hit the system heavy and hard in its initial hours of operation. Unfortunately, the system infrastructure couldn't handle the million plus hits they took in the first several hours. One customer sent in a comment to management that it appeared that, "this was a system running on a 286 in someone's basement." Not at all what was expected from this major retailer. Early problems with system access and use were so acute that usage dwindled over time. After six months, the system was getting only several hundred hits a day and generating only several thousand dollars in sales a month ... the system was shut down and the investment written off. Aside from the cost of the system, the firm noted that overall store sales had declined 4%, due in large part, to the damage to their reputation from the fiasco.

"Caution: user-developed Web sites can be hazardous to your organization" ... a senior manager within a financial services organization publishes a Web page with inaccurate stock quotes, financial information, and forecasts about various companies. This led to several hundred thousand dollars in sales to customers based on the erroneous information. When stock prices plunged, the firm was forced to make good on the losses to their customers. The manager lost his job.

"Breach of security" ... hacker uses a "sniffer" to steal 10,000 credit card numbers via a corporate Web site that was developed by an end user ...The system did not have security features in place to encrypt the transactions and they were sent as plain text. A large lawsuit is pending.

With the spread of end-user computing in the mid-1980s,
organizations became concerned with how to manage the use of information technology by non-IS personnel. There was a need to both leverage and protect an organization’s information technology investments. This led to the development of various end-user computing (EUC) strategies which to varying degrees tried to balance the need for slack resources to foster end-user initiatives with the controls needed to protect organizations against risk (Davis, 1982). These strategies set standards and established policy over technology acquisition as well as the assignment of specific roles and responsibilities within organizations for EUC-related activities. They also governed the planning, support and control tactics that were adopted within a given organization with respect to end-user computing.

Alavi, Nelson and Weiss (1987-88) identified five generic strategies that could be applied to the management of EUC in many organizations (see Table 1). These included the laissez-faire strategy, the monopolist strategy, the acceleration strategy, the marketing strategy and the operations-based strategy. The strategies differed in terms of their relative emphasis on expansion and control of EUC activities. The laissez-faire strategy, as the name suggests, was a “do-nothing” approach that neither encouraged nor discouraged end-user activity while the monopolist and acceleration strategies focused on control and expansion, respectively. The more mature marketing and operations-based strategies emphasized controlled growth, targeted at specific objectives, pursued while adhering to established organizational standards. As organizations evolved in their approaches to EUC, they were expected to gravitate toward these more mature approaches.

In part, the evolution of strategies within an organization reflected the need to manage end-user resources differently over time. Typically, starting from either a laissez-faire or monopolist position, firms evolved through acceleration, marketing and operations-based strategies. In particular, the increasingly interconnected end-user environment meant that the technology platform had to be run in an operations-based mode that emphasizes resource planning, control and the implementation of standards. At the same time, encouraging the development of novel application content on top of the technology platform required innovative approaches that might best be fostered by marketing-oriented strategies. Thus, blended strategies that included different approaches to managing technology and content were required. In addition, controlling risk may have been less critical as technology became more stable and users, in general, became more educated about information technology issues. Furthermore, risks associated with user applications were generally bounded within a specific job task, functional area or business unit.

With the advent of Web-based technologies, end users have suddenly been given a more powerful set of tools to reach out beyond the organization and build system components that do not respect organizational boundaries. As illustrated by the

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Laissez-faire</th>
<th>Monopolist</th>
<th>Acceleration</th>
<th>Marketing</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective</td>
<td>“Do nothing”</td>
<td>Contain and restrict Web activities</td>
<td>Encourage and expand Web activities</td>
<td>Expand Web activities in certain form and directions</td>
<td>Obtain integration and efficiency in Web activities</td>
</tr>
<tr>
<td>Emphasis</td>
<td>“Hands-off” approach</td>
<td>Implementation of explicit controls</td>
<td>Provide support and broad-based education</td>
<td>Provision of value-added products and services</td>
<td>Standards</td>
</tr>
<tr>
<td>Formal procedures</td>
<td>Not specified</td>
<td>Highly responsive to end-user needs</td>
<td>Shaping demand</td>
<td>Formal cost/benefit analysis</td>
<td></td>
</tr>
<tr>
<td>Organizational structure</td>
<td>No formal structure</td>
<td>IS dept. active in Web containment and control</td>
<td>Centralized general support facility</td>
<td>Centralized planning, prioritization, and monitoring</td>
<td></td>
</tr>
<tr>
<td>Level of control</td>
<td>Very low</td>
<td>Very high</td>
<td>Relatively low</td>
<td>Relatively high</td>
<td>High</td>
</tr>
</tbody>
</table>

Table 1: Characteristics of Different Web Strategies (adapted from Alavi et al., 1987-88)
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