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# **The Implementation of Intranets to Support Corporate Distributed Computing Strategy: Some Hong Kong Experiences**

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## **Introduction**

Intranet is a private corporate network based on internet's protocols and technologies, including Transport Control Protocol/Internetworking Protocol (TCP/IP), HyperText Transport Protocol (HTTP), Simple Mail Transport Protocol (SMTP), Multipurpose Internet Mail Extensions (MIME), and HyperText Markup Language (HTML) [Benett 96]. At the foundation of the intranet is a Web server, which is used as a central, internal clearing house to manage and disseminate information within the organization. Using a standard Web browser as an interface, employees can exchange corporate information seamlessly without the concern of heterogeneous computing environment. With organizations under immense pressure to empower employees and to better leverage internal information resources, intranets can serve as a highly effective communications platform to disseminate information for the entire organization, including its remote offices.

The successes of intranet applications [Bernard 96, Hills 96] are proving to many organizations that intranet technology is a more cost-effective and efficient approach in supporting corporate distributed computing strategy. Increasingly, proactive corporations are taking advantage of intranets to disseminate company documents, forms, news, policies, phone directories, product specifications, and pricing information. A recent survey conducted on Fortune 1000 companies indicated that twenty-two percent of them were already using Web servers for internal applications; while another forty percent were considering the implementation of intranets to make their information more readily available [Bruno 96]. Another survey conducted in 1995 also reported that the sales of web servers for intranet use has exceeded those sold for Internet use [Levitt]. The survey also projected that the sales of intranet server will continue and is expected to account for more than ninety percent of all web servers sold in the year 2000, indicating a rapid adoption rate of this new information delivery paradigm among businesses in the next few years [Carr, Levitt].

In order to reap the full benefits of intranets, organizations are extending their intranets to reach their key customers, suppliers, and/or trading partners [Passmore 96]. Some

organizations even move a step further and implement intranets to support team-oriented collaboration, including file sharing, information exchange, document publishing, and group discussion. Seemingly, these new intranet applications are competing directly with the conventional groupware products such as Lotus Notes. So far, intranets still have significant limitations, such as limited integrated databases, few integrated applications, and lax security, in supporting collaborative computing. However, their intrinsic advantage as a powerful and cost-effective approach to support internal and external applications for both internal information sharing and external marketing on the Internet will give them an edge over groupware, which are purely an internal application. Recently, there have been signs indicating that webware and groupware technologies are starting to merge. This suggests that in the future webware will also support the functionalities of today's groupware [Bruno 96, Ubois 96]. This will enable intranets to better serve team collaborations.

In addition to using intranets to integrate individual, group, departmental, and corporate communications, business managers in a number of industries are beginning to identify strategic opportunities for using intranets to shift the balance of power and competitive position of their organization. Some are thinking of adopting intranets as a tool to unify their geographically dispersed work force, empowering them (especially telecommuters and sales forces on the road) with a complete communication tool for collaboration, interaction, and real-time sharing of information across functional boundaries and organizational levels. This new form of distributed information infrastructure may even enable corporate managers to redefine their computing strategy and organizational control to better accommodate the challenges of managing speed and complexity in today's business environment.

### **Research Objectives and Questions**

Although many organizations have already set up intranets or are considering its implementation, many others are still grappling with fundamental questions. Among the many critical issues about intranet, four questions are found to be of particular interest: (1) What technical issues need to be resolved to evolve to intranet? (2) What are the impacts of intranets on organizations? (3) How have intranets been used to reengineer business operations? (4) What experiences can be drawn from early intranet adopters to guide potential adopters in implementing this technology? Unfortunately, little has been done to explore these research issues. We need empirical research to draw on the experience of successful intranet implementors to guide organizations in the management, planning, and development of intranets. To contribute to this research effort, we surveyed intranet implementors and users in Hong Kong to investigate the following research questions:

1. What proportion of organizations in Hong Kong has already implemented intranets to support distributed access to corporate data?

2. What are the technical and managerial issues that must be resolved to evolve to intranet technology? These include database access, security, and document management techniques that are needed to manage intranet's hypertext documents.
3. How do organizations use intranets to disseminate corporate data in the distributed processing environment? Do they have any formal or informal strategy to determine the suitability of migrating different types of corporate data from the existing database to web pages?
4. Have organizations reengineered their business processes while implementing intranets to streamline and integrate their business operations? If so, how is intranet used as a process improvement tool?
5. What are the impacts of intranet application on organizational performance? Have intranets affected the business relationship with the customers and the work habit of the employees?
6. What are the experiences of organizations in intranet implementation? These include problems encountered, solutions adopted, issues resolved, and lessons learned.

### **Research Method**

The major objective of this research is to explore the status of intranets in Hong Kong, including their impact and implementation experience. To fulfill these expectations, a two-stage data collection plan was adopted. The first stage involved identifying companies which are already using intranets to support their information exchange. This was achieved by calling the IS administrators of all stock trading companies, which represented the largest corporations in Hong Kong. The next stage of the study was to invite the IS administrators of the intranet companies to participate in a user survey to provide feedback on intranet implementation, use, and impact.

To support data collection of the second stage, two survey instruments were developed -- technical and usage. The technical instrument was targeted at the IS administrator, while the usage instrument was to be responded by the users. The first step in instrument development was to derive relevant validated survey items from past research and supplement them with new items designed for the unique purpose of this research. The preliminary instrument was then extensively pretested by several business faculty members whose research interests were in MIS, technology management, electronic commerce, business process reengineering, and internet/intranet. The structure, content, and design of the instruments were revised based on their feedback. The revised instruments were then administrated to 5 senior IS administrators, who were in charge of intranets in the companies not participating in this study. Their comments, suggestions, and impressions on the instrument design were carefully reviewed and selectively incorporated to the final instrument. This multi-stage process of instrument development has resulted in significant improvement to our questionnaire and provided support for content validity for an empirical study.

One technical and thirty usage questionnaires (finalized version) will be mailed to each IS administrator of participating companies, who agreed to distribute the usage instrument to their intranet users. We plan to contact the non-responding companies through telephone after three weeks to facilitate responses.

### **Conclusion**

We are in the early stage of getting this empirical study done. The questionnaire to test the hypotheses has already been validated. We expect to have the initial results presented in the conference.

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