

December 2000

Managing Intranet Technology in an Organizational Context: Toward a "Stages of Growth" Model for Balancing Empowerment and Control

Aidan Duane
Waterford Institute of Technology

Patrick Finnegan
University College Cork

Follow this and additional works at: <http://aisel.aisnet.org/icis2000>

Recommended Citation

Duane, Aidan and Finnegan, Patrick, "Managing Intranet Technology in an Organizational Context: Toward a "Stages of Growth" Model for Balancing Empowerment and Control" (2000). *ICIS 2000 Proceedings*. 23.
<http://aisel.aisnet.org/icis2000/23>

This material is brought to you by the International Conference on Information Systems (ICIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ICIS 2000 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

MANAGING INTRANET TECHNOLOGY IN AN ORGANIZATIONAL CONTEXT: TOWARD A “STAGES OF GROWTH” MODEL FOR BALANCING EMPOWERMENT AND CONTROL

Aidan Duane

Waterford Institute of Technology
Ireland

Pat Finnegan

University College Cork
Ireland

Abstract

A key aspect of managing modern organizations is the use of intranet technology as a fundamental element of IS infrastructures. An intranet is reported to increase in sophistication and in complexity as it evolves. This evolution of application leads to an increasing need for control over intranet use, development, and management. However, this is a rather contentious issue, as an intranet is deemed to be an empowering technology. Consequently, intranet related management control and empowerment activities must be balanced so as not to negate each other. However, there is a lack of research on the management of an intranet throughout its evolution in a manner that balances control and empowerment. This paper investigates intranet related management control activities and their effect on users' perceptions of empowerment throughout the evolution of an intranet in Hewlett Packard (Ireland). The growth of the intranet is charted as a six-stage model that illustrates an evolution of purpose, control, and empowerment. The control strategies implemented at each stage are investigated, and their success in managing intranet growth and empowerment evaluated. Overall, the study reveals the importance of balancing control strategies with empowerment initiatives in managing intranet environments. Based on the evidence available, the study recommends specific management controls at particular stages in the evolution of an intranet.

1. INTRODUCTION

An intranet is an application of Internet technology within an organization, which may have connections to external entities (such as partners) for the purpose of information dissemination, communication, integration, and collaboration (Hills 1996; Telleen 1997). Intranets transcend the linear model of information presentation as information is organized, stored, and accessed in a non-linear fashion through a network of links (Telleen 1997). An intranet evolves in application from a method of information dissemination to being extended to dispersed business units, business associates and customers via an extranet (Cullen 1997; Damsgaard and Scheepers 1999; Hills 1996; Hinrichs 1997; KPMG 1997; McNaughton et al. 1999; Shachtman 1998, Strom 1995). As an intranet evolves, it is reported to increase in sophistication and complexity (Hinrichs 1997; Scheepers and Damsgaard 1997; Romm and Wong 1998) and can be used for advanced applications such as “collaborative design, concurrent engineering, and workflow support” (Damsgaard and Scheepers 1999). Although many of the technical barriers to intranet development have been solved (Phelps and Mok 1999), one of the most significant constraints to further development is the ability to effectively manage an intranet environment (Hinrichs 1997).

Stage models of intranet technology implementation and management have been proposed by Damsgaard and Scheepers, Hinrichs, and KPMG. None have been empirically tested and the researchers suggest that further research should be conducted. According to Phelps and Mok, intranets are positioned for expansive growth once a predictable method for managing them can be devised. An essential element of this management approach will be balancing management control strategies with the need to empower users to “grow” the intranet.

The objective of this paper is to explore approaches for balancing control and empowerment in managing a corporate intranet. This paper examines the effects of intranet related management control activities on users’ perceptions of empowerment at Hewlett Packard (Ireland). The paper charts the evolution of the intranet through the development of a “stages of growth” model and utilizes existing research tools to measure the levels of perceived empowerment and management control throughout this evolution. The paper analyzes the effects of the empowerment and control techniques on intranet growth and presents a model for balancing empowerment and control within an intranet management strategy.

2. BALANCING CONTROL AND EMPOWERMENT IN MANAGING INTRANET ENVIRONMENTS

Although the importance of information has been stressed in empowerment literature, few studies have been conducted as to the role of information systems in empowering individuals. Clement (1994) and Psinos and Smithson (1996) considered the issue of empowerment as being quite important when studying the impact of information technology on the workplace. Frans (1993) also explored the relationship between empowerment and information systems, proceeding under the assumption that information technology mediates empowerment.

One of the most important benefits of an intranet is its ability to empower users by shifting the control of information flow between information creators and information users (Bidgoli 1999; Hinrichs 1997; James 1998; Telleen 1997). Empowerment is a process for developing an internal locus of control by “placing boundaries around an area of potentially acceptable behavior and allowing the individual to test and experiment with a variety of choices” (Fatout 1995). Rappaport (1987) believed that “empowerment refers to a process of becoming able or allowed to do some unspecified thing because there is a condition of dominion or authority with regard to that specific thing as opposed to all things. That is, there are limitations as well as powers.” While one of the reasons for the adoption of Web technologies is their ease of use and implementation, uncontrolled development and implementation of intranets by end-users can lead to an anarchic systems environment (Damsgaard and Scheepers 1999). However, organizations can stifle intranet adoption with excessive bureaucratic control. Consequently, the control issue is “one of the biggest impediments to the adoption” of an intranet (Ryan 1997).

Simons (1995) wrote that “most writing on empowerment fails to recognize that empowerment requires greater control. The control systems used, however, must balance empowerment and control in such a way that empowerment does not lead to a control failure, and correspondingly, control does not lead to an empowerment failure.” Simons continues that “empowering employees, by moving decision making authority from higher to lower levels in the organization, is a necessary condition for building a responsive organization.” However pushing decision making to the lower levels is not all that is required, without some standards, organizations lose their ability to communicate effectively and to coordinate activities. The challenge is satisfying the need for control of coordination and efficiency without dissolving the independence of individual decision making and action that make organizations responsive and flexible (Telleen 1997). Simons’ argument is that “control implies managing the inherent tension between creative innovation, on the one hand, and predictable goal achievement, on the other, so that both are transformed into profitable growth. Effective control of strategy requires both the freedom to innovate and the assurance that individuals are working productively toward predefined goals.” As illustrated in Figure 1, Simons identifies seven types of controls that need to be in place before employees can be effectively empowered.

Nelson and Todd (1999) examined the strategies and tactics that organizations utilize to coordinate and control Web development by adapting the generic strategies of EUC management identified by Alavi et al. (1988). As illustrated in Table 1, Nelson and Todd revised this list of management activities to reflect Web related management activities that could be combined to form Web development strategies. Nelson and Todd reported that the majority of organizations examined had adopted a monopolistic Web management strategy. Further, organizations were attempting to “contain and restrict Web development within the end user community by implementing explicit controls and formal approval procedures while providing little in the way of direct support” (Nelson and Todd 1999). These findings were based on a survey conducted in 12 companies, all of which had intranets in a relative stage of infancy. Nelson and Todd contend that “as new products appear, as the skills of end users increase, and as the competitive environment shifts, the priorities that a company assigns to its various EUC Web applications, appropriately evolve as well.”

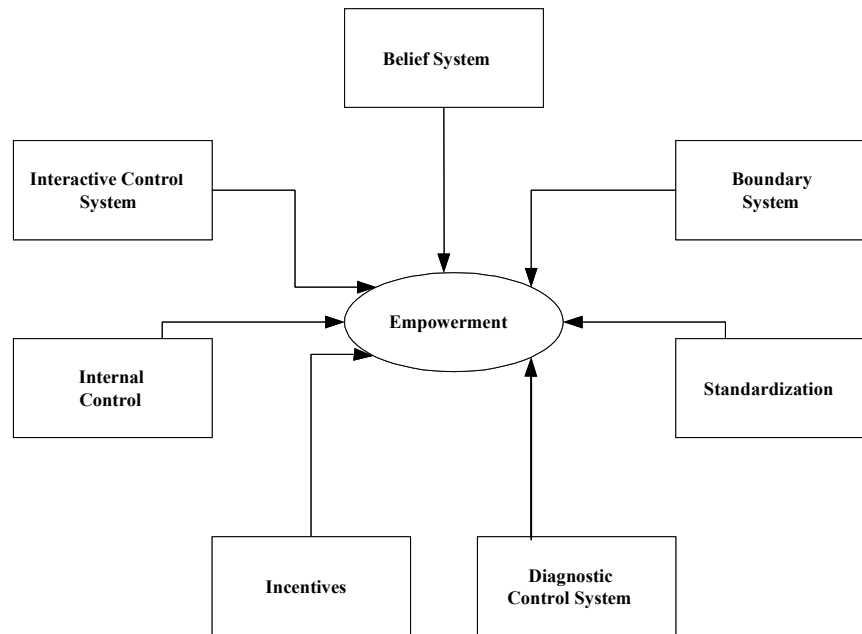


Figure 1. Balancing Empowerment and Control (Simons 1995)

Table 1. Web Related Management Control Activities (Nelson and Todd 1999)

Standard and Role Setting	<p><i>Technical standards</i>—the setting of standards for Web related hardware, software, and communications technology purchased by end users.</p> <p><i>Design standards</i>—the setting of standards for end user development of Web applications (e.g., page design, navigation aids, etc.).</p> <p><i>Data management</i>—the establishment of policies on data accessibility, reliability, consistency, and security related to Web applications in the end user community.</p> <p><i>Data access</i>—supporting the end user community’s ability to obtain data for use by Web applications.</p> <p><i>Assignment of roles and responsibilities</i>—the establishment of policies for reducing role ambiguities between end users and information systems personnel with respect to Web related applications.</p>
Resource Allocation	<p><i>Acquisitions approval framework</i>—the setting of procedures and requirements for formal approvals of, as well as economic justification of, Web related tools and resources for use by end users.</p> <p><i>Setting priorities</i>—for Web related applications in the end user community; e.g., order of development or resource allocation.</p> <p><i>Planning for equipment, capacity, and manpower</i>—to ensure that sufficient resources for Web related activities exist in the end user community.</p> <p><i>Financial controls and charge-back systems</i>—for allocation and “fine tuning” of financial resources; may involve allocation (charge-back) of Web related costs to end user groups.</p> <p><i>Audit and review</i>—systems of checks and balances to ensure that appropriate controls and standards are developed, implemented, and adhered to by end users.</p>
Applications Development	<p><i>Scope of Web-related activities</i>—the development of clear distinctions between the applications that can be developed by end users and those that should be developed by IT professionals.</p> <p><i>Coordination across organizational boundaries</i>—for the management of Web related activities that cross functional lines (e.g., departments or divisions).</p> <p><i>Systems integration</i>—planning for and facilitation of the technological interdependence between end user and IT developed Web applications.</p> <p><i>Training and education</i>—of end user personnel in the development, management, and use of Web related technologies.</p> <p><i>Consulting</i>—providing ongoing support services to end users in the area of Web related technology.</p> <p><i>Development</i>—the design and implementation of Web related systems by end users.</p> <p><i>Documentation</i>—of end user developed Web applications.</p> <p><i>Operation and maintenance</i>—ongoing operation and maintenance of end user developed Web applications.</p>

3. THE RESEARCH APPROACH

The objective of this research is to empirically investigate intranet related management control activities and their resultant effect on users' perceptions of empowerment throughout the evolution of an intranet. Accordingly, this study is exploratory, focusing on discovery and theory-building. Case studies are identified as being appropriate research methods for exploratory research as they enable researchers to identify and discover important variables for hypothesis generation (Franz and Robey 1987; Galliers 1992; Marshall and Rossman 1989). The single case study method is considered to be a potentially rich and valuable source of data, while suited to exploring relationships between variables in their given context (Benbasat et al. 1987; Pettigrew 1985; Yin 1994). Furthermore, a single case study is appropriate where it represents a critical case (Yin 1994).

As the development of intranets within organizations is a relatively new phenomenon, locating and gaining access to a suitable environment is especially difficult. In order to satisfy the research objective, it was necessary that the research environment meet a number of requirements. While a number of other organizations were considered, Hewlett Packard (Ireland) was identified as meeting all of the criteria deemed necessary for successful attainment of the research objective as detailed in Table 2. Prior to commencing this study, the researchers had no relationship with H.P. Ireland and did not have any active involvement in the development or management of the intranet at any stage.

IS researchers who employ traditional research methods as a singular approach "have fallen short of being able to provide full and satisfactory accounts of the success, failure, effectiveness, efficiency, freedom, and subjugation that occur in instantiations of computer technology in everyday life" (Lee et al. 1997). Several IS researchers advocate the use of both qualitative and quantitative data gathering techniques (Benbasat et al. 1987; Kaplan and Duchon 1988; Lee 1989; Wynekoop 1992). Collecting multiple data types, using multiple methods, from multiple sources, provides a wider range of coverage and is more likely to result in a more comprehensive picture of the phenomena under investigation than would otherwise have been possible to achieve (Bonoma 1985). Consequently, this study utilized a number of complimentary data collection techniques. These were:

- Interviewing, which provides access to the context of people's behavior and provides a way for the researchers to understand the meaning of that behavior (Schutz 1967).
- Measurement instruments, which enabled the researchers to empirically evaluate and measure a number of predefined theoretical constructs of empowerment and control (Cavaye 1996; Lee 1989).
- Documentation, which allows the researchers to supplement and verify data from other sources (Remenyi 1998).

Table 2. Suitability of Hewlett Packard as a Critical Case Study

Requirements of the Study	Suitability of Hewlett Packard as a Critical Case Study
The organization must have an established intranet with a significant number of applications, users, and contributors and a firm commitment to the on-going development of the intranet.	The intranet was implemented in 1995. The intranet relies on a large network of content providers. Every system is accessible over the intranet. It is considered "critical" to the business. It is considered to be 'part of the organizational culture'.
There must be active managerial involvement and support of the intranet's development and management.	The organization operates in a common operating environment (COE), which is a very standardized environment. The intranet is also based on standards. The organization has partnerships to provide applications support for people.
End-user input to systems evolution should be considered important to the systems success and employee empowerment is a desired outcome by the organization.	Every person has access to the intranet. It is required because the information available is critical to their job performance. The standardized desktop infrastructure has helped HP to increase its desktop reliability, improve support and enhance information-sharing and employee empowerment.
The researchers must have suitable access to the organization, management, and other intranet users for a period of time sufficient to satisfy the research objective.	Access to the organization was gained through direct contact with the IT manager and a significant level and duration of access was agreed upon which was deemed satisfactory for the attainment of the research objective.
The researchers should have access to any relevant documentation and experience the intranet in operation.	Documentation was accessed through Hewlett Packard's intranet and from various other organizational sources and individuals. Various individuals also provided screen shots of the intranet.

Given that the research objective requires an understanding of the meaning that people make of their experience with an intranet, the researchers considered the semi-structured interviewing technique as the most suitable method for primary information gathering. By interviewing individuals able to offer insights from differing perspectives, the researchers acquired a clear understanding and a consistent view of how the intranet evolved. A semi-structured interview guide was used to elicit information from the informants in relation to the evolution of the intranet, intranet related management control activities, and the perception of empowerment. A total of 17 personnel were interviewed over a three month period, with a number of personnel interviewed on more than one occasion. The average length of each interview was approximately 90 minutes with management personnel and 60 minutes with user representatives. Interviewees were selected based on their experience of how the intranet had evolved and their degree of responsibility for its management and development. As recommended by Leonard-Barton (1990), sufficient time was allowed for analysis between waves of data collection in order to eliminate post-interview influences and to ensure that all relevant constructs were captured in the measurement instruments.

As stressed by Eisenhardt (1989), quantitative data “can keep researchers from being carried away by vivid, but false, impressions of qualitative data, and it can bolster findings when it corroborates those findings from qualitative evidence.” In this research, quantitative measurement instruments were developed to collect data to supplement the researchers’ interpretation of the data gathered from the interviewing process.

The first measurement instrument adopted by this study was based on Simons’ (1995) model for balancing empowerment and control. This model identifies seven controls that need to be in place before employees can be effectively empowered. Nelson and Todd’s (1999) list of Web related management activities was adapted to operationalize each of the seven controls according to Simons’ definitions as shown in Table 3.

As applied to this research, the model purports that the greater the intensity and complement of these specific control systems present, the more likely an intranet user is to experience empowerment. By adapting this model, the researchers were provided with a fully operational model of empowerment and control consisting of a number of empirically tested and validated management activities, which accurately described and complemented the control systems. The result was a structured quantitative measurement scale that measured the extent to which a number of pre-determined intranet related management control activities were practiced in the organization. All management personnel with responsibility for managing the intranet completed the instrument.

Table 3. Implications of the Seven Controls (Adapted from Simons 1995)

Control Systems	Implications for Intranet Management
Beliefs Systems	Users must clearly understand the basic purpose, goals, objectives, roles, and direction of the intranet. (Intranet Statement of Purpose) (Intranet Goals and Objectives)
Boundary Systems	Users have bounded freedom. Intranet boundary systems prescribe what users should not do and rely on individual creativity to seek out opportunities within these boundaries. (Intranet Policy Documents)
Reduced Standardization	Excessive standardization should not limit opportunities for creativity or the intranets responsiveness. Intranet standards and tools are based on support for an incorporation of diversity. It is the standardizing on content (or output) rather than the tools that create the content that matters. (Intranet Standards)
Diagnostic Control Systems	Empowerment does not mean giving up control, but it does change what is controlled. In the absence of control over inputs or process, individuals must be held accountable for outputs or performance. The use of an intranet statement of purpose, goals, objectives, content standards, and policy documents provides a basis from which performance can be evaluated and hence introduces an Intranet Diagnostic Control System.
Incentives	Empowerment means greater responsibility and this means greater risk. Users must be rewarded individually for their contributions, either financially or non-financially (e.g., recognition).
Internal Controls	Internal controls provide the procedural checks and balances that safeguard assets and assure the integrity of data. These are the systems that protect assets from theft or accidental loss and ensure reliable information systems and the validity of information.
Interactive Control Systems	Interactive control systems provide information conduits to transmit learning horizontally and vertically in the organization and thus capture the benefits of employee knowledge and experience.

Table 4. Contextual and Psychological Constructs of Empowerment

Empowerment Construct	Description of Empowerment Construct	Description of Empowerment Construct as Applied to Intranet Development, Management, and Use	Reference
Direction	One has direction setting and is oriented toward improving performance toward organizational goals.	One has direction setting and is oriented toward improving performance toward Intranet goals and objectives.	Clement (1994), Townsend and Bennis (1997)
Freedom	One has the freedom to operate within predefined boundaries of acceptable behavior	One has the freedom to operate within predefined boundaries of acceptable behavior in relation to the development, management, and use of the intranet.	Clement (1994), Fatout (1995), Pastor (1996), Rappaport (1987), Spreitzer (1995), Thomas and Velthouse (1990), Townsend and Bennis (1997), Zimmerman (1995),
Influence	One influences organizational decision making when decisions involve that individual's job function and working conditions.	One can influence organizational decision making when decisions involve that individuals job function and working conditions by using the intranet.	Benjamin and Scott-Morton (1992), Spreitzer (1995), Thomas and Velthouse (1990), Zimmerman (1995)
Meaning	One has fit between the needs of one's work role and one's beliefs and values	One has fit between the needs of one's intranet role and one's beliefs and values.	Spreitzer (1995), Thomas and Velthouse (1990), Zimmerman (1995)
Competence	One believes in one's ability to perform work activities with skill	One believes in one's ability to perform intranet activities with skill.	Benjamin and Scott-Morton (1992), Spreitzer (1995), Thomas and Velthouse (1990), Zimmerman (1995)
Support	One receives adequate support, resources, and incentives to fulfil their organizational responsibilities	One receives adequate support, resources, and incentives to fulfil their intranet responsibilities.	Pastor (1996), Townsend and Bennis (1997)
Accountability	One is held accountable for performance	One is held accountable for their performance of intranet related activities.	Clement (1994), Fatout (1995), Pastor (1996)

Rappaport (1987) describes empowerment as a multilevel construct and argues that the concept of empowerment suggests “*the study of people in context.*” Zimmerman (1995) suggests that a more comprehensive measure of empowerment would take into account the intrapersonal as well as the interactional and behavioral components of psychological empowerment. Inherent in the term empowerment is a sense of the relationship between an individual and his/her community, environment, or something outside one's self. Part of the task then must be to specify what these relationships are like for people and organizations. In addition, one must also establish the nature of the settings in which empowerment is developed or inhibited (Rappaport 1987). The second measurement instrument employed by this study was a comprehensive measure of empowerment based on both contextual and psychological constructs drawn from a number of research studies as shown in Table 4.

The result was a structured quantitative measurement scale that measures individual perception of empowerment by measuring the extent to which an individual identifies with the characteristics indicative of the various facets of empowerment. Fifty non-management personnel with considerable experience using the intranet completed this measurement instrument. The interview guide and measurement instruments were extensively pre-tested in order to ensure the clarity of the questions and statements. The documentation gathered as part of the study was only used to supplement data gathered from interviews and measurement instruments and provides little primary data.

This research was conducted during 1999. Consequently, real-time data gathering was impossible as the intranet had been evolving over the previous four years and was at a stage where it had become “institutionally absorbed.” Recognizing this

limitation, two tactics were adopted in this study to increase construct validity; reconstruction of events using multiple respondents and having key informants review final versions of the research. This research approach provided the researchers with information value laden and rich in context while potentially improving the validity of the results with which to satisfy the research objective.

4. THE EVOLUTION OF THE INTRANET AT HEWLETT PACKARD (IRELAND)

As a decentralized organization, Hewlett Packard (HP) needed to overcome the physical boundaries that separated employees in an organization of its size. Increasing pressure to bring products to the market faster reinforced the need to interconnect geographically dispersed HP sites, especially engineering laboratories and manufacturing facilities. Although PCs in HP Corporate were connected over a TCP/IP network, integrating applications and providing support for its diversified operations was a significant challenge. The emergence of Web tools facilitated HP Corporate's objective for rapid development and deployment of a wide range of network applications. Today, HP maintains the world's largest corporate intranet, with over 150,000 computers at 400 sites world-wide transmitting eight to nine terabytes of information every month and over 1.5 million mail messages every day.

HP Ireland's intranet was established in May 1995. The intranet was instigated by members of the IT department because many of the initial IT managers had been transferred to Ireland from HP sites abroad where intranets had already been established. These IT personnel had experienced the learning phases and benefits of an intranet and were quick to initiate the development of an intranet for HP's Irish manufacturing site. An analysis of the evolution of HP Ireland's intranet by the researchers illustrates the existence of six distinct growth stages, as identified in Table 5. These stages are titled and described in order to illustrate how the intranet evolved. The stage titles are descriptive labels considered appropriate to describe the function of each stage. As Figure 2 illustrates, each stage is characterized by an increasingly sophisticated application of the intranet. It is evident that the intranet becomes more mission critical and the organization becomes more dependent upon it as it evolves.

5. MANAGEMENT CONTROL ACTIVITIES IN THE INTRANET ENVIRONMENT

Although HP Ireland experienced organic growth with little control over the intranet's development in the early stages, intranet-related management control activities intensified during the latter stages of the intranet's evolution as the application of the intranet increased in sophistication and became more mission critical. The intranet related management control activities implemented in each of the growth stages of HP Ireland's intranet are shown in Table 6. These are categorized according to Simons' (1995) model of management control systems for balancing control and empowerment as operationalized for intranet environments in this study. Several managers believe that the implementation of some intranet related management control activities was mistimed. With the benefit of hindsight, they now identify other intranet growth stages to be more appropriate for the implementation of a number of these intranet related management control activities.

HP Ireland did not formulate an intranet mission statement or set goals and objectives until work had begun to integrate the intranet with other organizational applications. However, the IT Manager believes that these should be introduced from the beginning, as by *"concentrating on what you want to achieve in the early stages, you are more likely to get an early success that can then be used to show other departments how the intranet can work."* Twelve months after the intranet's introduction, HP Ireland implemented guidelines to reduce the role ambiguities between users and IT personnel with respect to intranet development. Up until this stage, users had been concentrating *"on the soft end of the Web technology, that is, compiling the information and doing the structuring and layout"* while the IT department had provided *"the technical Web services"* according to the HR Manager. The IT Manager believes that such guidelines are unnecessary until user development becomes an issue. These guidelines became necessary because user attention was moving from publishing to creating more interactive Web sites. Consequently, there was a significant risk of a proliferation of poorly designed user developed intranet applications that would be of little benefit to anyone but the individual. The IT Manager commented that *"if you define who should do what at this stage, you spend less time policing mavericks in the latter stages."*

When HP Ireland introduced a central Web page in mid-1996, they also decided to structure intranet development standards. The IT Manager believes that by introducing agreed upon developmental standards in the early stages, users are more likely to accept them. At this time, they also implemented standards and policies for technological interdependence of user and IT-developed intranet applications. These standards and policies became necessary to ensure that applications developed by users were compatible with IT developed applications. The implementation of policies for the order of intranet application development was not considered necessary until HP Ireland began to integrate the intranet with the existing systems as a considerable amount of intranet application development did not occur before this.

Table 5. The Evolution of Intranet Applications at Hewlett Packard Ireland

Stage	Stage 1 Introduction	Stage 2 Customized Interaction	Stage 3 Collaborative Interaction And Communication	Stage 4 Process and Systems Integration	Stage 5 External Value Chain Integration	Stage 6 Institutional Absorption
Time Period	May 1995 to August 1995	September 1995 to February 1996	March 1996 to February 1997	March 1997 to June 1998	July 1998 to July 1999	August 1999 to present
Description of the Stage	The intranet is introduced into the organization. The technology is “localized” and “intra-departmental.”	The intranet accelerated in growth as a number of other departments and users came online. The technology becomes “organizational” and “inter-departmental.” The number of content providers increased but with little coordination. A certain amount of personal publication (e.g., sports and social club news) begins to appear.	A central WebPage is introduced to provide a focal point for information access on the intranet for the entire organization. Information is very formal and critical. All internal manuals are available only on the intranet. The intranet is more functional and becomes more interactive with the introduction of more sophisticated applications. Use of the intranet is becoming a necessary part of the job. The intranet becomes very important for internal communication.	The intranet is integrated with the existing financial, manufacturing and production systems. The intranet becomes a universal platform and an integral part of business processes. Extensive training is required to educate users on how to use these integrated systems interfaces for maximum productivity and return. Access to information is completely browser based and information is not considered to be “the latest revision” if it is not on the intranet. The intranet is becoming more mission critical.	Limited access to the intranet is extended to key suppliers, customers and business partners in order to integrate supply and distribution chains. The intranet also provides external access for some internal personnel.	The intranet becomes “translucent” and “second-nature” to users. The quest for discovery of more effective and efficient means of managing knowledge becomes the center of attention. Stages 3, 4, and 5 are revisited with new communication and collaboration technologies being introduced, more modular application design for interfacing with financial, manufacturing, and production systems is introduced, while extending the intranet via an extranet to an increasing number of customers and business partners. Ongoing support and consultation is also provided for fine tuning and maintaining the intranet.
Intranet Applications at Each Stage	Static information publishing is the main application. The publishing is of a “marketing nature” such as this is “who we are and this is what we do.” Information is basic and limited to contact names, e-mail addresses, and phone numbers.	Publishing is still the main application but it increased significantly in volume with an increasing attention to how the information is being structured and organized due to the increasing formality and organizational relevance of the information. A basic search engine is introduced to allow key word searching but only by department. The existing electronic mail application is adapted with a Web interface. Information retrieval from a number of organizational databases and directories is facilitated. An online phone directory is introduced.	A number of departments begin to use the intranet for audio and video communication and collaboration. A more advanced search engine is introduced capable of searching the entire intranet by various criteria. Electronic discussion groups and newsgroups begin to appear. Software downloads are now available with the click of a button. Online presentations also begin to appear. There is an increasing use of the intranet to facilitate file transfers. Electronic forms are also introduced and access to existing databases and directories increases dramatically. The intranet is also used to train new staff members using published documentation, manuals, and video files of maintenance and operation procedures for certain equipment.	The organization has moved from purpose built application software to Web based applications in order to integrate the entire internal organizational supply chain and to support business processes. Mission critical financial systems such as SAP, are now accessed through the intranet. Information, such as production line figures, that was once only accessible from certain points in the organization is now accessible from anywhere in the organization.	Secure transaction, encryption and authentication technologies are introduced. Initially only access to the SAP system is extended to the “channel partners” but access is eventually extended to production systems by inventory management partners in order to facilitate JIT manufacturing. Inter-organizational text, audio, and video conferencing is also facilitated.	Specialist search tools and information management applications are introduced in order to facilitate the capture, sharing, storing, and management of knowledge. An internal electronic news service is introduced with live video and audio feeds with the latest industry and organizational news and information. Information “tickers” are introduced so that rapidly changing information, such as production figures and share price, is fed directly and constantly to the users’ computer screen.
Effect of the Stage	The effect of this stage is to explore the use of the intranet and to educate other departments of its potential benefits.	The effect of this stage is to acquire information, to publish it in an organized and structured way, and to provide rapid access to information via a search engine.	The effect of this stage is to centralize access to information while facilitating interactive electronic communication and fostering electronic collaboration.	The effect of this stage is to integrate the intranet with other computer-based systems and network applications in order to integrate work processes.	The effect of this stage is to integrate the external supply and distribution chains in order to maximize the synergistic benefits of strategic alliances and information sharing.	The effect of this stage is to “institutionalize” the intranet in the organization and to continue to explore ways of capturing, sharing, storing and managing tacit information.

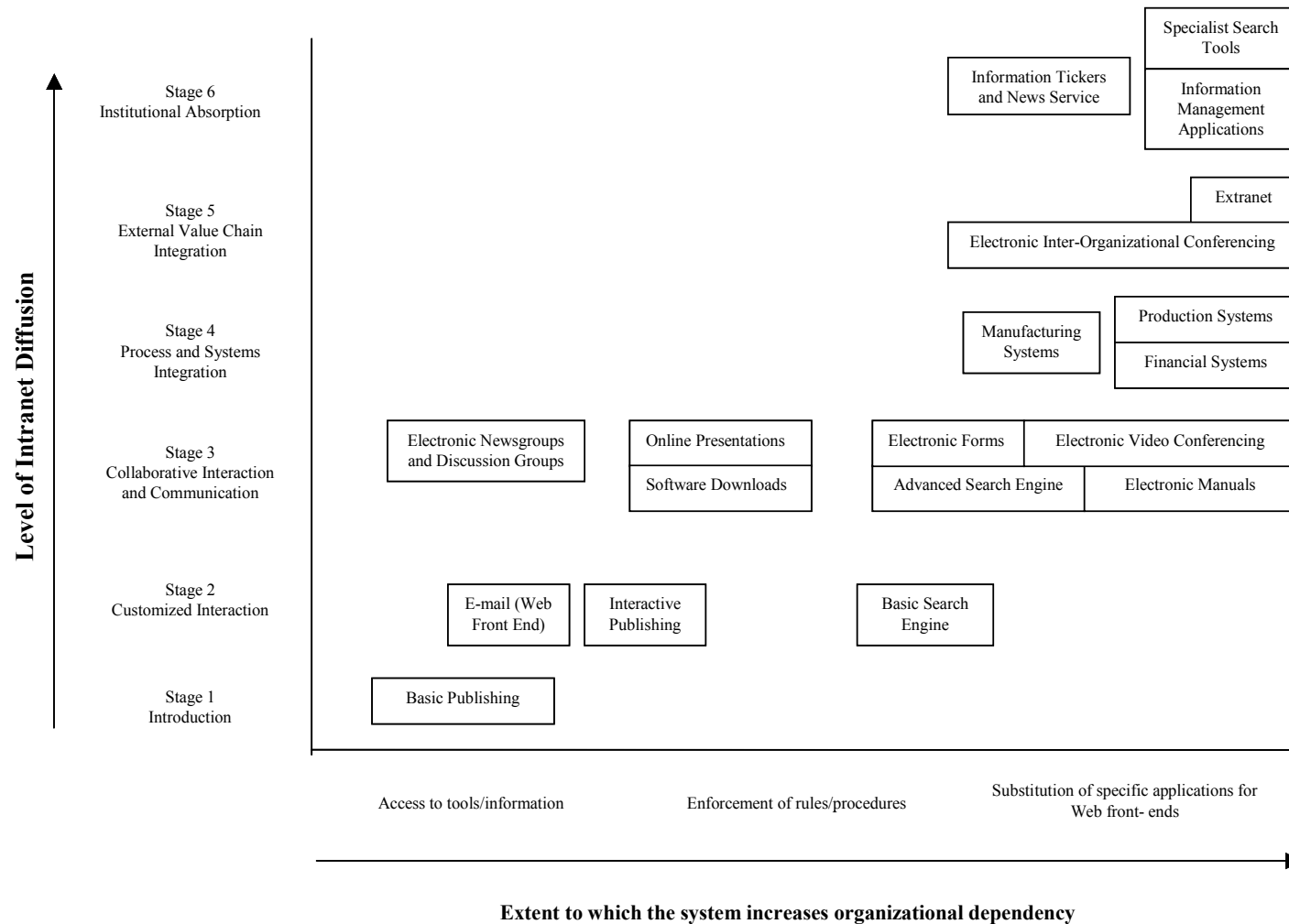


Figure 2. Increasing Importance of Intranet Applications to the Organization's Success (Model Based on Theories Proposed by Alter 1992)

Table 6. Extent to Which Intranet Related Management Control Activities are Performed in Hewlett Packard Ireland

Control System	Intranet Related Management Control Activities	Extent to Which Management Control Activity Is Performed 1 (Not Performed) to 5 (Performed Extensively)	Stage at Which Management Control Activity Was Implemented
Belief System	1. Implementation of a clearly stated intranet mission or statement of purpose that denotes the direction of its development.	4	4
	2. Implementation of specific intranet goals and objectives.	4	4
	3. Implementation of guidelines for reducing the responsibilities and role ambiguities between users and IT personnel with respect to intranet development.	4	3
	4. Implementation of guidelines which distinguish between the intranet applications that can be developed by users and those that should be developed by IT professionals.	4	3
Standardization	5. Implementation of standards for the development of the intranet (e.g., page design, navigation aids)	3	3
	6. Implementation of technical standards for intranet hardware, software and communications technology purchased.	5	1
	7. Implementation of standards and policies for the technological interdependence of user and IT developed intranet applications.	5	3
Boundary System	8. Implementation of policies for data accessibility on the intranet.	5	3
	9. Implementation of policies for information reliability and currency on the intranet.	4	4
	10. Implementation of policies for data consistency on the intranet.	1	Not Implemented
	11. Implementation of policies for data security on the intranet.	5	1
	12. Implementation of policies for the order of intranet application development.	4	4
Incentives	13. Implementation of economic rewards for intranet contributors.	1	Not Implemented
	14. Implementation of non-economic rewards for intranet contributors.	1	Not Implemented
Interactive Control System	15. Implementation of a training and education program for users in the development, management, and use of the intranet.	4	4
	16. Implementation of consultation and ongoing support services for users in the development, management, and use of the intranet.	4	6
	17. Implementation of support for users in their ability to access/obtain data for use in developing the intranet.	5	2
Diagnostic Control System	18. Implementation of a system of checks and balances to ensure that appropriate controls and standards are developed, implemented, and adhered to by users of the intranet.	3	5
	19. Implementation of procedures to ensure that user developed intranet applications are properly documented.	3	3
Internal Controls	20. Implementation of financial controls for fine-tuning and allocation of financial resources for the intranet.	5	4
	21. Implementation of charge back systems for the costs related to intranet development by user groups or departments.	5	4
	22. Implementation of a system of checks and balances that safeguard assets and assure the integrity of data.	5	4
	23. Implementation of acquisitions procedures and requirement for formal approvals, as well as economic justification, of intranet related tools and resources for use by users.	5	3
	24. Implementation of planning for intranet related equipment, capacity, and manpower to ensure that sufficient resources for intranet activities exist in the user community.	5	4

HP Ireland's policy regarding data accessibility on the intranet relates to two issues: (1) individual's access rights and (2) details of the information accessible on the intranet. The HR Manager explains that *"HP Ireland has always had a standard classification system for information, and access is controlled in accordance with this classification."* However, the implementation of this management control activity is *"dependent on the nature of the information being published and the pervasiveness of the intranet in the organization,"* according to the IT Manager.

HP Ireland implemented policies for information reliability and currency in mid-1997. It is the IT Manager's belief that such policies should have been implemented when they were implementing standards for the development of the intranet. At that time the volume of information and links had increased dramatically and the nature of the information on the intranet was considered to be critical to job performance. HP Ireland does not have any policies regarding data consistency as they implemented guidelines to reduce the role and responsibility ambiguities between users and IT personnel. As the Financial Controller explains, *"there is unlikely to be too much duplication of information, so consistency of information is not a problem. This is because each person is responsible for different information and there is no duplication of these responsibilities."* However, the IT Manager concedes that these would be necessary if there were a larger volume of contributors to the intranet. The IT Manager argues that by implementing policies for data security when you first introduce the intranet, *"you are ensuring the security of information on the intranet, and people will therefore publish more freely."* There are three underlying areas to which the security policy relates: (1) security of internal access, (2) security of access by external partners, and (3) security of access by employees working from home.

The IT Manager and the HR Manager believe that intranet contributors should not be rewarded, either economically or non-economically. The IT Manager comments that there is *"so much healthy internal competition with regard to the best developed intranet site that it can be harnessed, making incentives and rewards unnecessary."* He concludes that *"if you have people contributing for the money rather than for value, it defeats the organizational purpose of the intranet. It is part of every person's job, and they should not need additional reward for doing their job."* In addition, an engineer remarked that *"the administration of any economic reward system would be difficult as users contribute in different ways, and it would be impossible to assess whether one contribution is greater than another."*

HP Ireland did not implement an intranet training program for users until they had begun to integrate the intranet with financial, manufacturing, and production systems. However, the HR Manager believes that *"training is important when you are setting up an intranet especially if you want users to contribute."* The IT Manager believes that when users have gained a little experience of publishing basic departmental information, providing them with access to corporate information and allowing it to be published is important for the intranet's development. The HR Manager claims that supporting users in their ability to access data for use in developing the intranet was appropriate in the early stages as *"there was now little risk from putting this information on the intranet because the data security policy ensured that the intranet was pretty tightly controlled, and this really enabled us to publish information quite freely within the organization."*

Documentation procedures were extremely beneficial when HP Ireland were integrating the intranet with other computer based systems and network applications in order to integrate work processes. According to the IT Manager *"the tendency for users to try developing applications for themselves increased as the intranet evolved. As attention was diverted from publishing activities, procedures needed to be clarified."*

When HP Ireland began to integrate the intranet with the existing systems, financial structures had to be introduced to ensure that funding was available. The intranet *"had now become such a critical part of what we do, investment in tools or applications that we use had to become better funded and some sort of support structure had to be implemented to justify these investments,"* according to the Financial Controller. At this time, it was also decided to implement a charge back system for the cost of intranet development by user groups and departments. According to the Production Engineering Systems Manager *"as more and more multimedia applications began to appear on the intranet, a dramatically higher bandwidth and capacity was required than that required for non-multimedia forms."* The IT Manager believes that charge back systems should be introduced when integrating processes and systems because all of the technological investment is departmental specific.

The Production Engineering Systems Manager explains that as *"we moved from purpose built application software, which did our shop-floor analysis and data presentation, to intranet based tools, planning for equipment, capacity, and manpower became important to ensure that you could access those applications from any computer in the organization."* A number of managers including the Production Manager, the IT Manager and the Production Engineering Systems Manager believe that planning should have been introduced at an earlier stage. The Production Manager explains that *"we lost a lot of time integrating manufacturing systems because the infrastructure was a little lacking. We had not given it enough consideration and found that the integration of our existing manufacturing systems and applications required a lot more than the development of an Web based interface."*

Information violations were a concern for HP Ireland even before the intranet came to prominence. However, as the information available on the intranet became more mission critical, it was essential that access to highly classified information be monitored for any unauthorized access or distribution. HP believes that the implementation of a system of checks and balances that safeguard assets and assure the integrity of data is essential when access is extended to external sources. When external access became an issue, HP Ireland implemented checks and balances to ensure that users of the intranet adhere to controls and standards. The IT Manager argues that these checks and balances could not have been implemented until most of the other intranet related management control activities were in place.

6. MANAGEMENT CONTROL ACTIVITIES AND PERCEPTIONS OF EMPOWERMENT

Intranet related management control activities are considered to have significant effects on users' perceptions of empowerment. Having explored the extent to which the intranet related management control activities are performed in HP Ireland, the study measured the extent to which users perceive empowerment and explored the effects that management control activities have on user's perceptions of empowerment throughout the evolution of the intranet. In order to measure the extent to which users perceive empowerment, the study employed a comprehensive measure of empowerment based on both contextual and psychological constructs as described earlier. The extent to which an intranet user can identify with these constructs of empowerment determines the extent to which the user perceives empowerment. These constructs include direction, freedom, influence, meaning, competence, support, and accountability. These constructs were operationalized using a number of empowerment statements, and the results are shown in Table 7. This table shows relatively high levels of perceived empowerment, particularly in relation to direction and accountability. Users believed that the intranet has made them feel more involved at a higher level, especially since the introduction of policies for data accessibility on the intranet. However, this is not universal. One administrator commented that *"the ability to access the majority of information in the organization certainly makes you feel more involved. This in turn should make you feel more knowledgeable about the organization, but what do you do with this knowledge?"* Another stated *"I can e-mail my boss and make a suggestion. I could even complain, but that doesn't mean he would appreciate it."* Others saw greater opportunities and suggested that if there was an online discussion with senior management once every two weeks, it would be extremely beneficial and morale boosting.

Table 8 relates the management controls to the empowerment constructs measured and illustrates users' perceptions of these controls. It is apparent that a number of intranet related management control activities have a more significant effect on the empowerment constructs than others. These include roles and responsibilities, guidelines for intranet application development, policies for data accessibility on the intranet, support for users to access data for intranet development, and, most importantly, training and education programs. These results are in line with the opinions of managers presented in the previous section regarding the need to introduce particular control techniques at early stages in order to ensure direction and accountability. These controls are seen to improve empowerment rather than reduce it. Overall, Tables 7 and 8 illustrate that HP Ireland were very successful in ensuring empowerment, as well as controlling intranet development. An intranet user confirmed this, saying that *"users were empowered for the first time to satisfy their own information needs and to do their jobs better, as it was easier to access information and it also lessened certain individuals' control over information."*

7. CONCLUSION

The literature argues that excessive intranet related management control activities in the early stages of intranet development might lead to its failure. Although the literature recommends a *laissez-faire* management style to controlling the intranet's development and use in the early stages, this would appear to be a delicately balanced decision. HP Ireland's approach to managing the intranet in the early stages could have been described as *laissez-faire* but closer examination revealed a number of control activities had been implemented. The benefits of implementing technical standards for intranet hardware, software, and communications technology and an extensive security policy from the beginning were very obvious. By focusing on a core computing strategy and enforcing strict technical standards for hardware, software, and communications technology from the very beginning, the company was able to reduce cost structures, improve communication, and enable new levels of synergy among its departments while allowing for the rapid deployment of common applications. The implementation of technical standards was also extremely beneficial when it came to integrating the intranet with other computer-based systems and network applications. By implementing policies for data security from the beginning, managers were more willing to release information for reporting on the intranet. Support for users to access information for publishing was a significant empowering factor in the early stages according to users of the intranet. A common application environment also meant that all users had equal access to technical resources. Both managers and users of the intranet believe that the implementation of these management control activities is the main reason that the intranet experienced such rapid growth. Users also believed that intranet related management control activities were significant empowering factors in the early stages of the intranet.

Table 7. An Analysis of Users' Perceptions of Empowerment

Empowerment Construct	Empowerment Statement	Response by Category (n = 50)				
		Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
Direction 83%	1. I understand the organizational purpose of the intranet.	0	0	6	24	20
	2. I understand my role in the on-going development of the intranet.	0	4	17	22	7
	3. The intranet is important for attaining organizational goals.	0	0	1	19	30
Meaning 73%	4. My contribution to the intranet is of value to the organization.	0	2	21	22	5
	5. My contribution to the intranet is of value to me.	0	10	25	14	1
	6. The intranet is an important tool in performing my job function.	0	0	4	31	15
Competence 67%	7. I am confident about my ability to contribute to the intranet.	0	2	21	25	2
	8. I have mastered the skills necessary to contribute to the intranet.	0	8	29	12	1
Freedom 72%	9. I can publish information freely on the intranet.	0	1	19	22	8
	10. I can communicate freely on the intranet (e.g., e-mail, notice boards, discussion group, etc.).	0	0	5	37	8
	11. I can access information freely on the intranet.	0	0	0	21	29
	12. I can develop applications freely for the intranet.	14	21	13	1	1
Influence 61%	13. The intranet has increased my influence over decisions that this organization makes.	4	8	22	16	0
	14. The intranet has increased my influence over decisions that involve my job function.	0	12	19	19	0
	15. The intranet has increased my influence over decisions that involve my working conditions.	0	12	23	15	0
Support 64%	16. I receive adequate training and education in the development, management, and use of the intranet.	0	1	26	22	1
	17. I receive adequate support in the development, management, and use of the intranet.	0	0	18	30	2
	18. I receive adequate resources in the development, management, and use of the intranet.	0	9	29	12	0
	19. I feel rewarded for my contribution to the intranet (economically, i.e., pay bonus, or non-economically, i.e., recognition, pride, sense of personal achievement).	10	19	17	4	0
	20. My organization encourages me to participate in the intranet's ongoing development.	0	5	23	19	3
Accountability 76%	21. I am responsible for the integrity of information that I communicate on the intranet.	1	0	4	28	17
	22. I am responsible for the accuracy of information that I communicate on the intranet.	1	0	0	21	28
	23. I am responsible for the reliability of applications (including documentation) that I develop for the intranet.	6	6	28	3	7
	24. I am responsible for the proper utilization of resources that I use which are allocated to intranet development.	1	4	18	18	9

Table 8. Effects of Intranet Related Management Control Activities and Their Stage Implementation on HP Ireland Users' Perceptions of Empowerment

Empowerment Construct	Intranet Related Management Control Activities That Affect Users' Perceptions Empowerment in HP Ireland	Stage of Intranet Related Management Control Activity Implementation	Effects of Intranet Related Management Control Activities and Their Stage of Implementation on HP Ireland Users' Perceptions of Empowerment
Direction	Intranet mission or statement of purpose and goals and objectives	4	While users were knowledgeable regarding intranet purpose, goals, and objectives at a departmental, users were less knowledgeable of the intranet at an organizational level.
	Guidelines for intranet roles and responsibilities	3	Ensured that all important information was published and reduced duplication of work
	Guidelines for IT and user intranet application development	3	Discouraged users from attempting application development
Freedom	Intranet developmental standards	3	Improved users' ability to navigate and retrieve information
	Policies for information reliability and currency	4	Ensured more dependable and up-to-date information
	Policies for data security	1	Secured communication of sensitive information
	Intranet technical standards	1	Facilitated easier communication due to common environment
	Policies for data accessibility on the intranet	3	Enabled users to satisfy their own information needs
	Support for users to access data for intranet development	2	Increased availability of information for publishing
	Guidelines for intranet roles and responsibilities	3	Users excluded from application development
	Guidelines for IT and user intranet application development	3	Users only allowed to engage front-end application development
	Charge back system	4	In order to maximize use of financial resources, users not entrusted with development
Influence	Policies for data accessibility on the intranet	3	Increased users' organizational knowledge
	Training and education program	4	More secure job position because of increased job skill requirement
Meaning	Guidelines for intranet roles and responsibilities	3	Diminish users' perceived value of their contribution to the intranet
	Training and education program	4	Selective participation effects uses ability to contribute to the intranet
	Policies for data accessibility on the intranet	3	Increasing access to information, increases importance of intranet for job performance
	Intranet technical standards	1	Enhanced information access, sharing, and communication, increases importance of intranet for job performance
	Charge back system	4	Affects level of investment in intranet which affects users' ability to perform job more effectively
	Financial controls for the fine tuning and allocation of financial resources	4	Affects allocation of financial resources in intranet which affects the ability of users in certain departments to perform job more effectively
	Intranet developmental standards	3	Under development of some applications, diminishes users' ability to perform job
Competence Support	Training and education program	4	Affects users' ability to perform intranet activities with skill, expertise and confidence.
	Support for users to access data for intranet development	2	Increased access to information encourages users to contribute to the intranet
	Training and education program	4	Failure to master the skills necessary to contribute to the intranet
	Intranet technical standards	1	Restrict users to a recognized tool set
	Financial controls for the fine tuning and allocation of financial resources	4	Affect level of resources available to individual departments for intranet development
Accountability	Guidelines for intranet roles and responsibilities	3	Identified key personnel responsible for particular information
	Policies for information reliability and currency	4	The accountability of individuals improved information reliability and currency of information
	Documentation procedures for user led intranet development	3	Ensured greater details of functions of front-end applications
	Charge back system	4	Ensured proper utilization of resources
	Acquisitions procedures	3	Ensured expenditure was on acquisitions that were most needed

Upon analysis of the data gathered from both management and intranet users, the researchers identified the stages that were considered to be the most appropriate for the implementation of each intranet related management control activity. These are illustrated in Table 9. These recommendations are tentative as they emerge from a single case study. However, they provide the basis for exploratory management activities and for further research.

Table 9. Recommended Stages for the Implementation of Each Intranet Related Management Control Activity

Intranet Related Management Control Activities	Recommended Stage of Implementation
1. Implementation of a clearly stated intranet mission or statement of purpose that denotes the direction of its development.	1
2. Implementation of specific intranet goals and objectives.	1
3. Implementation of guidelines for reducing the responsibilities and role ambiguities between users and IT personnel with respect to intranet development.	1
4. Implementation of guidelines which distinguish between the intranet applications that can be developed by users and those that should be developed by IT professionals.	3
5. Implementation of standards for the development of the intranet (e.g., page design, navigation aids).	2
6. Implementation of technical standards for intranet hardware, software, and communications technology purchased.	1
7. Implementation of standards and policies for the technological interdependence of user and IT developed intranet applications.	3
8. Implementation of policies for data accessibility on the intranet.	3
9. Implementation of policies for information reliability and currency on the intranet.	3
10. Implementation of policies for data consistency on the intranet.	3
11. Implementation of policies for data security on the intranet.	1
12. Implementation of policies for the order of intranet application development.	3
13. Implementation of economic rewards for intranet contributors.	Not Recommended
14. Implementation of non-economic rewards for intranet contributors.	3
15. Implementation of a training and education program for users in the development, management, and use of the intranet.	2
16. Implementation of consultation and ongoing support services for users in the development, management, and use of the intranet.	3
17. Implementation of support for users in their ability to access/obtain data for use in developing the intranet.	2
18. Implementation of a system of checks and balances to ensure that appropriate controls and standards are developed, implemented, and adhered to by users of the intranet.	4
19. Implementation of procedures to ensure that user developed intranet applications are properly documented.	3
20. Implementation of financial controls for fine-tuning and allocation of financial resources for the intranet.	3
21. Implementation of charge-back systems for the costs related to intranet development by user groups or departments.	4
22. Implementation of a system of checks and balances that safeguard assets and assure the integrity of data.	3
23. Implementation of acquisitions procedures and requirement for formal approvals, as well as economic justification, of intranet related tools and resources for use by users.	4
24. Implementation of planning for intranet related equipment, capacity, and manpower to ensure that sufficient resources for intranet activities exist in the user community.	4

References¹

- Alavi, M., Nelson, R., and Weiss, I. R. "Strategies for End User Computing: An Integrative Framework," *Journal of Management Information Systems*, (4:3) 28-49, 1988.
- Alter, S. *Information Systems: A Management Perspective*, Reading, MA: Addison Wesley, 1992.
- Benbasat, I., Goldstein, D. K., and Mead, M. "The Case Research Strategy in Studies of Information Systems," *MIS Quarterly*, 1987, pp. 369-386.
- Benjamin, R., and Scott Morton, M. "Reflections on Effective Application of Information Technology in Organizations From the Perspective of Management in the 90's," *Programs, Personal Computers and Intelligent Systems: Information Processing*, Amsterdam: North-Holland, 1992, pp. 131-143.
- Bidgoli, H. "An Integrated Model for Introducing Intranets," *Information Systems Management*, Summer, 1999.
- Bonoma, T. V. "Case Research in Marketing: Opportunities, Problems, and a Process," *Journal of Marketing Research* (22), 1985, pp. 199-208.
- Cavaye, A. L. M. "Case Study Research: A Multi-Faceted Research Approach for IS," *Information Systems Journal* (6), 1996, pp. 227-242.
- Clement, A. "Computing at Work: Empowering Action by Low Level Users," *Communications of the ACM* (37:1), 1994, pp. 52-65.
- Cullen, A. "Avoiding Intranet Chaos," *The Intranet Journal*, 1997.
- Damsgaard, J., and Scheepers, R. "A Stage Model of Intranet Technology Implementation and Management," *Proceedings of the Seventh European Conference on Information Systems*, Copenhagen Business School, Copenhagen, Denmark, 23-25 June, 1999.
- Eisenhardt, K. M. "Building Theories From Case Study Research," *Academy of Management Review* (14), 1989, pp. 532-550.
- Fatout, M. F. "Using Limits and Structures for Empowerment of Children in Groups," *Social Work with Groups* (17:4), 1995, pp. 55-69.
- Frans, D. J. "Computer Diffusion and Worker Empowerment, Computers in Human Services," (10:1) 1993, pp. 15-34.
- Franz, C. R., and Robey, D. "Strategies for Research on Information Systems in Organizations: A Critical Analysis of Research Purpose and Time Frame," in *Critical Issues in Information Systems*, R. J. Boland and R. A. Hirschheim (eds.), Chichester, England: John Wiley & Sons, 1987.
- Galliers, R. D. (ed.). *Choosing Information Systems Research Approaches in Information Systems Research: Issues, Methods and Practical Guidelines*, Henley-on-Thames, England: Alfred Waller Ltd., 1992, pp. 144-162.
- Hills, M. *Intranet Business Strategies*, New York: John Wiley & Sons, 1996.
- Hinrichs, R. J. *Intranets: What's the Bottom Line?* Upper Saddle River, NJ: Prentice Hall, 1997.
- James, G. "Intranets Rescue Engineering," *The Intranet Journal*, September 4, 1998.
- Kaplan, B., and Duchon, D. "Combining Qualitative and Quantitative Methods in Information Systems Research: A Case Study," *MIS Quarterly* (12:4), December 1988, pp. 571-586.
- KPMG. "Intranets: A Guide for Business Users," 1997, at <http://www.kpmg.co.uk>, accessed September 1, 1999.
- Lee, A. S. "A Scientific Methodology for MIS Case Studies," *MIS Quarterly* (13:1), 1989, pp. 32-50.
- Lee, A. S., Liebenau, J., and DeGross, J. I. *Information Systems and Qualitative Research*, London: Chapman and Hall, 1997.
- Leonard-Baron, D. "A Dual Methodology for Case Studies: Synergistic Use of a Longitudinal Single Site with Replicated Multiple Sites," *Organization Science* (1:3), 1990, pp. 248-266.
- Marshall, C., and Rossman, B. G. *Designing Qualitative Research*, Newbury Park, CA: Sage Publications, 1989.
- McNaughton, R. B., Quickenden, P., Matear, S., and Gray, B. "Intranet Adoption and Inter-functional Coordination," *Journal of Marketing Management* (15), 1999, pp. 387-403.
- Nelson, R. R., and Todd, P. "Strategies for Managing EUC on the Web," *Journal of End User Computing*, January/March 1999.
- Pastor, J. "Empowerment: What It Is and What It Is Not," *Empowerment in Organizations* (4:2), 1996, pp. 5-7.
- Pettigrew, A. M. "Contextualism Research and the Study of Organizational Change Processes," in *Research Methods in Information Systems*, E. Mumford, R. A. Hirschheim, G. Fitzgerald, and A. T. Wood-Harper (eds.), Amsterdam: North-Holland, 1985.
- Phelps, R., and Mok, M. "Managing the Risks of Intranet Implementation: An Empirical Study of User Satisfaction," *Journal of Information Technology* (14), 1999, pp. 39-52.
- Psoinos, A., and Smithson, S. "Exploring the Relationship Between Empowerment and Information Systems," *Proceedings of the Fourth European Conference on Information Systems*, Lisbon/Portugal, July 2-4, 1996.

¹The following reference list contains URLs for World Wide Web pages. These links existed as of the date of submission but are not guaranteed to be working thereafter. The contents of Web pages may change over time. Where version information is provided in the References, different versions may not contain the information or the conclusions referenced. The author(s) of the Web pages, not ICIS, is (are) responsible for the accuracy of their content. The author(s) of this article, not ICIS, is (are) responsible for the accuracy of the URL and version information.

- Rappaport, J. "Terms of Empowerment/Exemplars of Prevention: Toward a Theory for Community Psychology," *American Journal of Community Psychology* (15:2), 1987, pp. 121-148.
- Remenyi, D. *Doing Research in Business and Management: An Introduction to Process and Method*, London: Sage, 1998.
- Romm, C. T., and Wong, J. "The Dynamics of Establishing Organizational Web Sites: Some Puzzling Findings," *Australian Journal of Information Systems* (5:2), 1998, pp. 60-68.
- Ryan, B. *The Corporate Intranet*, New York: John Wiley and Sons, Inc., 1997.
- Scheepers, R., and Damsgaard, J. "Using Internet Technology Within the Organization: A Structural Analysis of Intranets," in *Proceedings of the International ACM SIGGROUP Conference of Supporting Group Work*, S. C. Hayne and W. Prinz (eds.), Phoenix, Arizona, 1997, pp. 9-18.
- Shachtman, N. "Group Think: Employees are Shattering the Traditional Corporate Structure with Intranets," *Information Week*, June 1, 1998.
- Schutz, A. *The Phenomenology of the Social World*, Chicago: Northwestern University Press, 1967.
- Simons, R. *Levers of Control*, Boston: Harvard Business School Press, 1995.
- Spreitzer, G. M. "An Empirical Test of a Comprehensive Model of Intrapersonal Empowerment in the Workplace," (23:5), 1995, pp. 601-629.
- Strom, D. "Creating Private Intranets: Challenges and Prospects for IS," A White Paper for Attachmate Corporation, November 16, 1995 at <http://www.strom.com/pubwork/intranetp.html>, accessed August 3, 1999.
- Telleen, S. L. *Intranet Organization*, New York: Wiley Publishers, 1997.
- Thomas, K. W., and Velthouse, B. A. "Cognitive Elements of Empowerment: An 'Interpretive' Model of Intrinsic Task Motivation," *Academy of Management Review* (15), 1990, pp. 666-681.
- Townsend, R., and Bennis, W. *Reinventing Leadership: Strategies to Empower the Organization*, New York: William Morrow & Company, 1997.
- Wynekoop, J. H. "Strategies for Implementation Research: Combining Research Methods," in *Proceedings of the Thirteenth Annual International Conference on Information Systems*, J. I. DeGross, J. D. Becker, and J. J. Elam (eds.), Dallas, TX, December, 1992, pp. 185-193.
- Yin, R. K. *Case Study Research, Design and Methods*, Newbury Park, CA: Sage Publications, 1994.
- Zimmerman, M. A. "Psychological Empowerment: Issues and Illustrations," *American Journal of Community Psychology* (23), 1995, pp. 581-599.