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Assessing Intranets: The Gap between Reported and Realized Benefits

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Abstract

This research examines the gap between the level and nature of intranet system benefits commonly reported by the practitioner press and those benefits cited in academic research. Results are analyzed for two different timeframes: the early period when intranets were emerging, and the more later mature stage. Conclusions are drawn concerning how claims of intranet benefits in the practitioner press have evolved, shifting from hard quantifiable benefits based on return on investment to soft benefits such as knowledge sharing across organizational boundaries. During the same period, intranet benefits identified by academic studies are found to show little change, remaining consistently focused on faster access to information as the key benefit. The disparity between promised and demonstrated intranet benefits is discussed. Results indicate that practitioner literature from the early era, around 1996, emphasized excessive ROIs, as large as 1000%. More current practitioner literature stresses intangible benefits such as communications, competitiveness, and content management. This difference in practitioner press reports of intranet benefits over time contrasts dramatically with the consistency of academic studies in identifying improvements in data access as the most significant intranet benefit. Conclusions are drawn concerning the predilection of practitioners prematurely to tout the benefits of technological improvements, and the potential value of academic research in providing objective evaluation for IT executives charged with distinguishing product fads and hyperbole from enduring and substantive improvements.

Keywords: Intranet, benefits, savings, ROI, knowledge sharing, productivity, practitioner

Overview: Goals and Organization of the Paper

The goal of this research is to compare the gap between intranet benefits widely claimed by the practitioner press with the benefits supported by academic studies. This paper is organized into five major sections. In the Background section, the significance of intranets and the importance of the research question are established. In the Practitioner View section, intranet benefits in the practitioner literature are assessed separately for two timeframes, the early period when intranets were first emerging around 1996, and the later, more mature period, from 1999 onward. Initial conclusions are drawn concerning how the image of intranets and their potential benefits in the practitioner press have changed over time. In the Academic Studies section, relevant prior work is segmented into categories: those research efforts directed at other aspects of intranets that tangentially yielded benefit-related results, and those research efforts specifically directed at identifying intranet benefits. Results of the two studies in the latter category are compared and contrasted. Serendipitously, one of these academic studies was conducted during the early period when intranets were first emerging, and the other was conducted during the later, more mature period. Initial conclusions are drawn concerning consistency of the academic studies over time. In the Reported vs. Realized Benefits section of the paper, results from the academic studies are compared with the benefit claims isolated from the practitioner press. In the Conclusion section, the consistency of scholarly studies is contrasted with the fundamental changes that have taken place in how intranet benefits are recounted in the practitioner press. The possibility that the reason for this discrepancy may lie with the technology

adoption life cycle and the IT industry's need to drive toward critical mass for a new technology is explored. Possible extension of the conclusions reached here to other new and emerging technologies is considered.

Background: Significance of Intranets

Intranets are internal organizational systems that use Web-based technologies to enable information and knowledge sharing across departmental or other organizational boundaries. White (2001) described an Internet-enabled organization as one that "creates the impression that the entire resources of the company are available to any employee the customer is in contact with, and that the information provided to the customer is reliable and relevant." The number of intranets, and the applications each supports, both continue to grow. Baker (2000) reports that since 1997, more than 90 percent major corporations have implemented an intranet strategy. Technology forecasters, including Forrester Research and Gartner Group, report that corporations spent almost US $64 billion worldwide on intranet hardware, software, and related services in 2000, and by 2010 this number is expected to reach US $200 billion annually (Gerstner, 2002). Further, Gerstner (2002) reports that more than three-quarters of all Web servers are being installed for intranet purposes and that the market for intranet applications and related technology is greater than the public Internet and all other IT areas. Intranet popularity is not limited to the United States.

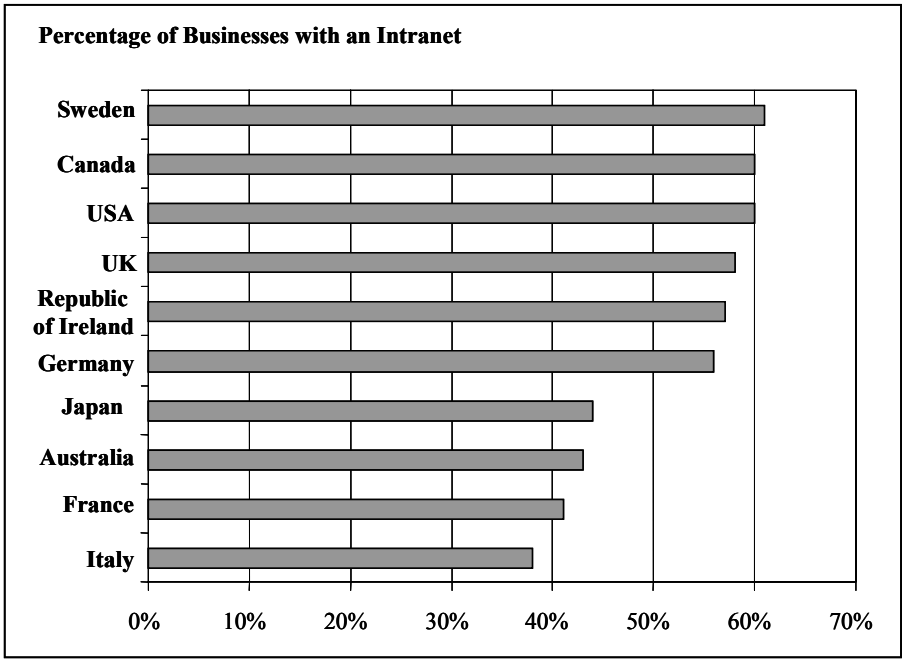

Figure 1. Percentage of Businesses with an Intranet (UK Online, 2001)

Figure 1 shows the results of a study conducted for the government of the United Kingdom (UK Online, 2001) that found that in six of the countries studied, 56 percent to 61 percent of businesses have an intranet. The remaining four countries form a second cluster, with between 38 percent and 44 percent of businesses having an intranet.

Practitioner View

The Early Period: Intranets Are Emerging

Fueled by ready availability of Web browsers and well publicized Internet successes, such as the Federal Express Corporation's customer Web site that saved FedEx an estimated US $2 million a year by enabling customers to access the corporation's package-tracking database, practitioners turned their attention to the benefits of internal use of Internet technology (Cortese, 1996). Federal Express management, for example, fresh from the success of the package-tracking site, asked what this technology could accomplish inside the organization. By 1996, Federal Express was operating 60 internal Web sites that made information

available to 30,000 employees worldwide (Cortese, 1996). Other organizations were also leveraging their Internet capabilities internally. Compaq Computer Corporation developed a system that gave employees access to an intranet server to reallocate investments in their 401(k) plans, and an intranet linked the Ford Motor Company design centers in the U.S., Europe and Asia that developed the 1996 Taurus automobile (Cortese, 1996). A Forrester Research, Inc. study of 15 major U.S. corporations found that 16 percent had an intranet in place (Gillespie, 1996), and nearly 25% of Fortune 1000 companies used an internal Web server (Desautels, 1996b).

Practitioner initial expectations of business benefits skyrocketed as intranets began to be promoted and popularized. Hardware manufacturers, software developers, network providers, and professional services organizations enthusiastically embraced the potential of the intranet. According to Steve Jobs, CEO of NeXT Computer Inc., "The intranet has broken down the walls within corporations." Frank Dietrich, Corporate Web Systems Manager at Silicon Graphics, described the ability of workers to share information, as "a thousand flowers blooming." John Whiteside, head of IBM's Global Network, reported "Every single one of our customers is asking for something in terms of an intranet." And, Sun Microsystems CEO Scott McNealy noted, "Intranets are huge" (Cortese, 1996). Early reports of productivity improvements and returns on investment (ROI) also contained a full measure of hyperbole. Frank Dzubeck, president of Communications Network Architects Inc., estimated that the intranet has the potential for increasing user productivity a hundred fold (Tabke, 1996). And, a widely quoted study by IDC, International Data Corporation (Netscape, 1996c), predicted that the intranet holds the promise to " fundamentally change the way workers communicate to a degree not experienced since the telephone," and cited examples of intranet applications that yielded ROIs of between 1,389 percent and 1,766 percent, with payback periods of six to twelve weeks.

During this period intranet applications tended to have a relatively narrow focus that concentrated on the capability of intranet technology to facilitate intra-organization communication and information sharing. According to Desaultels (1996a), early intranet applications may be divided into four general categories: creation and distribution of product and company information, e-mail and "group" communications, collaborative processing and "work" communications, and corporate- and enterprisewide communications.

These categories are consistent with the three applications presented in the IDC ROI study (Netscape, 1996c): Cadence Design Systems, Inc., a leading supplier of electronic design automation software tools and professional services for accelerating the design of semiconductors, computer systems, networking and telecommunications equipment, consumer electronics, and other electronic based products, used intranet technology to develop "OnTrack," a system that used a home page with links to other pages, information sources and custom applications to map each phase of the sales process with supporting materials and reference information. This effectively gave each sales representative a single unified tool that provided all of the information and data needed to go through the sales process from prospecting to closing a deal and account management (Netscape, 1996a). Booz-Allen & Hamilton, an international management and technology consulting firm, used intranet technology to implement "Knowledge On-Line," a Web-based application designed to enhance consultants' ability to create and share knowledge (Netscape, 1996b). In the third case, Silicon Graphics, a leader in the development of hardware, system and application software for visual computing, used intranet technology to automate the process of purchasing standard items including the selection of items and routing of purchase requisitions for approval (Netscape, 1997).

The Later Period: Intranets Are Maturing

By the end of the 1990s and into 2000 the range of intranet-based applications began to expand beyond information sharing and publishing to include financial applications and training (IDC Intranet Strategy Survey, 1999), simplified and enhanced customer interactions, and integration of intranet technology into all business processes (Horgan, 1999). Although there is no single acknowledged source of intranet statistics and data is incomplete and varies by source, two trends are apparent: the number of companies using intranet technology is increasing and reported returns on investment are decreasing, as shown in Table 1.

Table 1. Summary of Changes in Practitioner Reports (IDC Intranet Strategy Survey, 1999; Horgan, 1999)

Year	Companies With Intranet	% Positive ROI	ROI Reported
1996	16% - 25%	Data unavailable	>1,000%
1999	Large: 89%/Medium: 54%	80%	36% Average
2000	Data unavailable	20% - 25%	Data unavailable

In 1999, CIO Magazine published the results of an IDC study reporting that 89 percent of large companies and 54 percent of medium-size companies have, or will soon have, an intranet. A study by the Meta Group found that of 85 companies with active intranets, 80 percent (68 companies) generated a positive return on investment (ROI) with the average ROI of 36 percent (Horgan, 1999). A Gartner Group study (Biggs, 2000b) cut prospects for intranet returns on investment even deeper estimating that only 20 to 25 percent of companies that have implemented intranets have achieved any return at all.

The relationship between IT spending and productivity repeatedly has been characterized as paradoxical (Strassmann, 1999), but the fact that intranet benefits are difficult to quantify has not stopped organizations from trying. Baker (2000) notes that eight of ten IT managers expect their intranets to earn a positive return on investment. One problem with early intranet ROI calculations is that they frequently rely on small productivity gains that are distributed across a large number of employees. For example, if an intranet saves 1,000 employees each ten minutes a day, and the average employee would have earned US $3.50 in those ten minutes, then it does not necessarily follow that the organization actually saves US $3,500 per day, or US $917,500 annually. Clearly, whether or not there are any actual monetary gains in this example would depend on whether any current or future employee positions were eliminated as a result of the intranet, and how employees used that additional ten minutes daily. White (2001) noted another problem applying ROI calculations to intranets. Such calculations require accurate forecasting when implementing a system whose purpose is often to change fundamental business processes and transform the way in which the future business will function.

Despite the difficulties involved in calculating a specific ROI, organizations are increasingly interested in quantifying how IT systems will impact their bottom-lines. Knowledge@Wharton and Microsoft (2002), recognizing that the current economic downturn has increased interest in traditional evaluation methods such as ROI, have suggested that organizations also should explore different ways to evaluate technology investment benefits. Among the approaches mentioned are Aron's recommendation to consider distance from the customer as a rough measure of distance from real value, and Ross's suggestion that infrastructure costs be separated from specific application benefits. Biggs (2000a) also recommends intellectually separating the infrastructure from specific applications, and seeking ROI only for individual applications. An article from Sun Microsystems (2002) entitled "Bottom Line Intranet Benefits" emphasizes less tangible benefits without providing specifics on potential monetary rewards, for example: "An intranet ties corporate resources into a standardized interoperable IS infrastructure. It enables collaborative computing and improved workflow. It also creates superior knowledge management, thereby leveraging a company's intelligence so that it can not only maintain competitive advantage in current markets, but also take advantage of emerging electronic commerce opportunities. Bottom line: An intranet should be regarded as a 21st-century investment, yielding phenomenal returns on investment."

Declining ROI expectations were coupled with growing emphasis on intangible benefits. As Waltner (1999) noted, "Many of the most important gains are in 'soft' dollars—from improving such aspects as worker productivity and morale, decision making, information sharing, and time to market. Such benefits aren't easy to quantify, because they don't directly generate revenue." Ultimately the goal is to integrate intranets with other internal systems to create a portal to all knowledge and tools available inside and outside the organization (Anonymous, 2000). Rudnick and Shafer (1999) would argue that the place to start is by enabling process knowledge sharing or training applications. Guenther and Braun (2001) would agree that enabling knowledge sharing is the area to focus on. The initial intranet initiative is a repository of information that can be shared by all users, in their words, a document dump. As the volume of information grows and the benefits of sharing files are discovered, an integrated search capability of descriptions of documents is required. This results in the necessary addition of standards regarding content descriptors. The second-generation intranet incorporates content management and search capabilities that support knowledge management processes, and make it a true knowledge repository. Knowledge transfer provides the effect of wisdom without requiring the underlying experience (Guenther and Braun 2001). In line with this acquisition of wisdom, Hunsaker and Lixfield (1999) consider the personalization approach to the intranet, the sharing of deep knowledge among seasoned professionals for expert economics, a key component of a quality intranet. This necessitates that the intranet focus on the aspects that are unique to the business model of the organization. However, it also requires the engagement and enthusiastic participation of subject matter experts to gain productivity. Each individual must be motivated to serve the interests of the group (Guenther and Braun, 2001).

Intranets may facilitate knowledge transfer. Dixon (2000) has classified the transfer of knowledge into five categories: serial, near, far, strategic and expert. Serial transfer is when the knowledge a team has gained from doing its task in one setting is transferred to the next time that team does that task in a different setting. Near transfer is when explicit knowledge a team has gained from doing a frequent and repeated task is reused by other teams doing very similar work. Far transfer is when tacit knowledge a team has gained from doing a nonroutine task is made available to other teams doing similar work in another part of the organization. Strategic transfer is when the collective knowledge of the organization is needed to accomplish a strategic

task that occurs infrequently but is critical to the whole organization. Expert transfer is when a team facing a technical question beyond the scope of its own knowledge seeks the expertise of others in the organization. An intranet can help facilitate all these classes of knowledge transfer with perhaps the exception of serial transfer.

Practitioner View: Discussion

Practitioner press reports on business adoption of intranet technology are an interesting phenomenon for three reasons. First, intranets are not a single product or service developed and marketed by a specific industry segment or company. Second, intranets, unlike the Internet, represent a new use of an existing technology rather than a new technology, and third, intranet applications have been promoted primarily as functioning in a facilitating capacity, such as improved access to information, versus a strategic role, such as e-business, that provides competitive advantage. However, as Porter (1985) pointed out, technologies that link the cost or performance of primary value chain activities, such as inbound logistics, operations, outbound logistics, marketing/sales and customer support, may be become strategic when the activities are coordinated and optimized to obtain competitive advantage. Clearly, intranet-enabled applications that break down the walls within organizations and increase collaboration, communication, and speed access to information in support of the organization's competitive strategy qualify as strategic systems.

Surfacing during a period of lower-than-projected Internet and e-business growth (Cortese, 1996), with corresponding reduced hardware, software, and professional services expenditures, intranets may be categorized, even more than other information technology initiatives, as "vendor-driven." This is consistent with the vendor view of the technology adoption life cycle, which is characterized by five stages: innovators, early adopters, early majority, late majority, and laggards, as shown in Figure 2 (Schirtzinger, 2002).

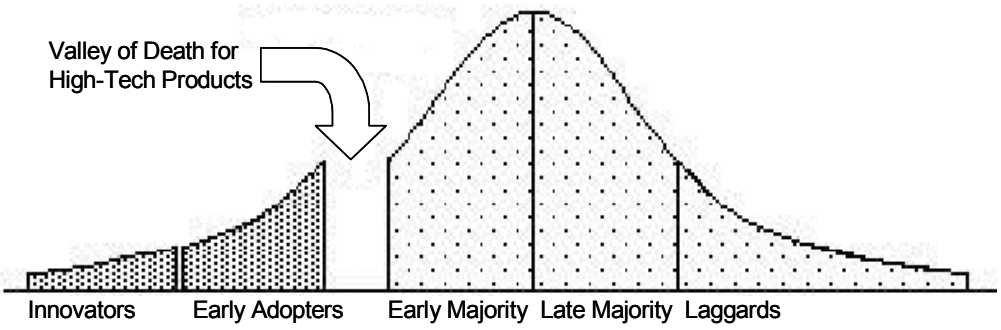

Figure 2. The Technology Adoption Lifecycle (Schirtzinger, 2002)

Technology innovations, such as intranets, that force users to change behavior are known as discontinuous because their technology adoption life cycle includes a "valley of death" separating early adopters from the majority. This gap must be bridged before the technology can reach critical mass and widespread acceptance by practitioners. As Schirtzinger (2002) notes, "practitioner's judgment relies as much on perceptions as on facts." Consequently, qualitative research that identifies existing perceptions often has greater value than statistical surveys (Schirtzinger, 2002).

The need to cross the "valley of death" may help explain some of the enormous benefits of intranet technology reported during the innovation and early adoption phases of the technology adoption lifecycle, such as ROIs in excess of 1,000 percent and an impact on the workplace that rivals the introduction of the telephone. It may also help explain the subsequent shift toward qualitative measures of justification and away from quantitative measures. By 2000, as the number of intranet implementations increased, reports of superior returns on investment were outweighed by studies that found that only between one-quarter and one-fifth of intranets resulted in any positive ROI, the practitioner press began to discount the value of ROI and emphasize "soft benefits." Ward (2002) captures this sentiment nicely when he writes "There is a lot of hype surrounding ROI . . . measuring the ROI of an intranet appears to be more art than science," and few organizations actually measure intranet benefits in terms of dollars and cents. Further, Ward notes that while companies such as Cisco and Oracle have tried to quantify intranet benefits, this has largely been done for "marketing purposes and bragging rights." In a study referred to in CIO Magazine, Ward (2002)

expresses surprise that practitioners ranked soft- and hard-to-measure intranet benefits, such as competitiveness, communications, and content management, as most important, and quantitative measures, such as ROI, among the lowest benefit categories.

Academic Studies

Academic Studies of Intranets that Tangentially Address Benefits

Although business publications have regularly published intranet success stories proclaiming various benefits of intranet systems, there has been little scholarly study of the subject. In some studies, intranet benefits are a byproduct rather than the focus of the study. Bhattacherjee's (1998) case study of US West Communications Inc. isolated five intranet benefits: increased employee productivity, reduced operational costs, improved customer service, generation of new business, and development of an exemplar for new technology use. Ptak's (1998) disciplined process for intranet solutions identified some potential benefits: dollars saved during the collection of distribution of data, costs avoided through automation, and time gained. Bidgoli's (1999) integrated model for introducing intranets recognized reduced paperwork and improved employee efficiency and effectiveness. Baker's (2000) work on intranet strategy identified four categories of intranet benefits: internal communication, collaborative / cooperative work, knowledge management, and process redesign. Leung's (2001) work on quality metrics also included a listing of potential benefits: cost and time savings, increased productivity, flexibility, open architecture, consistency, reduced work load, timeliness, removal of departmental boundaries, and managerial considerations, including higher return on investment, low risk, shorter payback time, more business opportunities, lower training costs, technology-enabled employees, and a shorter development life cycle. Thus, while there is some agreement that intranet benefits might include such rewards as cost savings or improved productivity, there is no clear consensus among these prior studies concerning the nature and relative importance of potential intranet benefits. Table 2 summarizes these benefits, identified tangentially by researchers whose studies had another primary focus.

Table 2. Secondary Results: Intranet Benefits

	Bhattacherjee 1998	Ptak 1998	Bidgoli 1999	Baker 2000	Leung 2001
Productivity	X	X	X		X
Cost Savings	X	X			X
Collaboration				X	X
New Business Opportunities	X				X
Consistency					X
Exemplar for New Technology Use	X				
Flexibility					X
Improved Customer Service	X				
Knowledge Management				X	
Open Architecture					X
Process Redesign				X	
Reduced Paperwork			X		
ROI					X
Timeliness					X

Academic Studies Specifically Targeting Intranet Benefits

The Early Period: Intranets Are Emerging

Lai (2001) conducted a study in 1996 on intranets when intranets were just beginning to be widely recognized. Five hundred of the largest organizations in Hong Kong were identified as target companies to participate in a survey. Initial contact revealed only 41, or a little more than eight percent, of these organizations had implemented intranets and of these 23 agreed to participate in the survey. Five technical and 30 usage questionnaires were sent to the IS administrators in each of these organizations. At the discretion of each IS administrator, the usage instruments were forwarded to managers of functional departments. The technical questionnaires were distributed to IS personnel involved in intranet design and implementation. A 58 percent response rate included 64 technical questionnaires and 406 usage questionnaires. Four categories of benefits were identified through factor

analysis. Data access and cost savings were found to be more important than improved internal communication and management. The ability to improve access to up-to-date information, the ability to save costs, improved organizational communication and improved company ability to be proactive were the leaders in these categories respectively (See Table 3). There was minimal improvement in productivity and collaboration opportunities, and only a slight increase in the facilitation of organizational learning reported. Using regression analysis, Lai found that the more an intranet is integrated with existing internal business and IS applications, the greater the extent of business process reengineering.

Table 3. Benefits of Intranets (Lai, 2001)

Benefits	Mean *	Std. Dev.
Data Access		
Ability to improve access to up-to-date information	4.03	1.11
Empowerment of employees to control their information	3.94	1.07
Sharing of knowledge	3.62	1.04
Cost Savings		
Ability to save costs	3.84	0.92
Ability to save time	3.70	0.94
Improved operational efficiency	3.66	0.88
Improved productivity	3.45	1.13
Communication		
Improved organizational communication	3.73	1.05
Facilitation of organizational learning	3.58	1.24
Improved collaboration opportunity	3.31	0.93
Facilitation of organizational bonding	2.74	1.17
Management		
Improved company ability to be proactive	3.28	1.19
Improved customer service	3.15	1.05
Leverage of intellectual capital	3.01	0.96
Improved decision quality	2.92	1.06

* Based on a five-point rating scale: 1=greatly decreased, 5=greatly increased

Lai sent technical questionnaires to IS administrators who, in concert with IS personnel involved in intranet design and implementation, identified the ten most important reasons for intranet adoption. Open standards, such as TCP/IP, HTTP, and HTML was listed as the first of the top ten reasons for intranet adoption by 95 percent of respondents, followed closely by ease of use, at 92 percent, and multiplatform compatibility and support at 89 percent. Other important reasons were cost effectiveness, 81 percent; ability to bring data and documents together, 75 percent; potential to enhance e-commerce, 66 percent; universal interface, giving systems a common look and feel, 61 percent; improved performance, such as via bandwidth and multimedia, 58 percent; ability to support secure transactions, 47 percent; and, ability to provide built-in audit trail, 40 percent. The decidedly technical character of the list predictably reflects the technical composition of the survey population.

The Later Period: Intranets Are Maturing

The most comprehensive study to date was a survey of sixty-eight business professionals conducted in late 2000 through 2001 (Knight et al., 2002). Participants held a variety of positions, including executive-level, information technology, sales, marketing, financial, and accounting. Industries were also varied, and included IT consulting, financial services, education, manufacturing, telecommunications, energy, healthcare, retail, and food and beverages. There was no notable clustering of either position or industry, with the exception that approximately 30 percent of the participants were employed in information technology positions. Study organizations tended to be large and national or international in scope. Over 57 percent of the organizations were classified as international, with another 24 percent classified as national. Ninety-one percent of the study organizations had more than 5,000 employees.

Early adoption of intranet technology characterized the study organizations. Both the median and mean adoption year for their intranets was 1997, and the mode year was 1998. Thus, organizations involved in the study tended to be more technically

sophisticated, and their intranets tended to be more mature. Overall, having organizations with more mature intranets participate in the study most likely tended to maximize the scope and depth of the benefits the study discovered.

As shown in Table 4, results of the survey indicated that faster access to information was the most likely intranet benefit, and that improved customer service and a more cooperative work environment were the most difficult to achieve.

Table 4. Benefits of Intranets (Knight et al., 2002)

Benefits	Responses
Faster access to information	85%
Savings on paper, telephone, faxing, travel, etc.	68%
Better information quality and relevance	65%
Reduced paperwork	60%
Improved productivity	50%
Improved customer service	40%
More cooperative work environment	34%

The study also found that intranet benefits were highly interrelated. Because they were so closely related to one another, the researchers concluded that it is unlikely that organizations can successfully target intranet systems to achieve one or two benefits independent of others. This implies that successful intranet applications must be wide-ranging in scope, and that small-scale, tentative implementations are unlikely to be successful in achieving the benefits noted.

The multivariate technique of graphical modeling was used to depict relationships among benefits (Figure 3). The strongest relationships occurred between savings and reduced paperwork, savings and improved customer service, more cooperative work environment and improved productivity. Savings on paper, telephone, faxing, travel, etc. were related, either directly or indirectly, with all other benefits and were most often associated with improved customer service and reduced paperwork. Improved customer service had more direct ties to other benefits than any other benefit. By applying knowledge of business principles to the graphical model, the researchers arrived at likely independent-dependent variable relationships, and concluded that improving the quality and relevance of information was the most important benefit because all other benefits were dependent on it, either directly or indirectly.

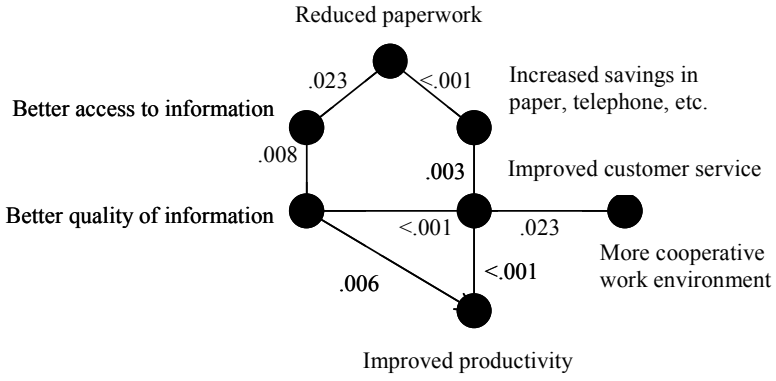

Figure 3. Graphical Model of Relationships Among Intranet Benefits
P values indicate strength of relationships (Knight et al., 2002).

When combined with conditional probability tables, the odds of faster access to information were demonstrated to be higher if the information quality and relevance were improved. Productivity improved when intranets were regarded as providing better quality information, improved customer service/relationship, and a more cooperative work environment. Also, given better quality of information, improved productivity was independent of reduced paperwork and faster access to information. Improved productivity was most closely associated with intranets offering a more cooperative work environment that resulted in fundamental changes to organizational functioning.

Academic Studies: Discussion

Based on a comparison of the two academic studies, it may be concluded that, from among all the would-be benefits, only faster access to data is very likely to be achieved. Thus, it appears that in the intervening five years between the two studies that practitioner's perceptions of intranet benefits are unchanged, lending further credibility to the results of the two studies and challenging the initial claims of the practitioner press.

Table 5. Comparison of Academic Studies (Lai, 2001; Knight et al., 2002)

Likelihood of Achieving	Lai (data from 1996)	Knight et al. (data from 2001)
High	• Data Access	• Faster Access To Information
Medium	• Cost Savings • Communication	• Savings • Better Quality Of Information • Reduced Paperwork
Low		• Improved productivity • Improved customer service • More cooperative work environment

Although the Lai and Knight research yielded remarkably similar results despite the elapsed time between studies, the same may not be said for the five secondary studies summarized in Table 2. No common benefit was noted in all of the studies. Improved productivity was the most frequently reported benefit, appearing in four of the five studies. Cost savings was the next most common benefit category and was found in three of five studies. Other categories were identified in two or fewer studies. It is noteworthy that the results of studies specifically directed at isolating intranet benefits agreed with one another. However, research aimed at identifying intranet benefits yielded substantially different results than those studies in which identification of intranet benefits was not the primary purpose of the research and benefits were noted secondarily as a byproduct of the primary purpose. In such studies, the benefits identified secondarily did not provide a concise list of the most important variables, although they did provide a useful initial listing of potential variables. This situation at least suggests that in a broader context, secondary study results should be not be relied upon, but rather should be interpreted as simply helpful in the problem definition phase, serving as a starting point for further research.

Reported vs. Realized Benefits

In 1996, when intranets were still emerging, the practitioner press reported a variety of unproven benefits, as shown in Table 6. For example, the early practitioner literature claimed ROIs of over 1,000 percent (Netscape, 1996c). This contrasts sharply with the earliest scholarly study that appeared to recognize that intranets could not be justified based on cost savings alone. Other reported benefits include practitioner predictions that intranets would increase user productivity one hundred fold (Tabke, 1996), and that intranets would break down the walls within corporations (Cortese, 1996). These predictions are likewise unsupported by objective research and were subsequently rejected by the practitioner press. Only one early practitioner claim, improved data access, survived the tests of time, and was upheld in both scholarly studies to be the most likely intranet benefit achieved. Currently, the practitioner literature has largely abandoned ROI as a justification for intranets. Instead, practitioners emphasize softer, less easily measured benefits, such as creation and distribution of product and company information, group communications, collaborative processing and sharing of communication related to a specific work product, enterprise-wide communication, competitiveness, and content management. These benefits appear only to a limited extent in scholarly studies.

Conclusion

Participants in the two scholarly studies of intranet benefits have remarkably little in common. The Lai study addressed twenty-three of the largest companies in Hong Kong in 1996, while the XXX study considered 68 U.S. organizations of all sizes approximately five years later. Despite the differences in the organizations studied and the elapsed time between the studies, their conclusions are consistent. This consistency indicates that the type of benefits that organizations reap from intranets is not likely to vary with time, organizational size, or geographic location.

Table 6. Comparison between Practitioner Press and Academic Studies

Likelihood of Achieving	Practitioner Press 1996	Practitioner Press 1999	Academic Study Lai (1996 data)	Academic Study XXX (2000-1 data)
High	• Data Access • Data Sharing • Productivity • ROI 1000%+	• Knowledge Management • Intangible Benefits	• Data Access	• Data Access
Medium		• ROI 36%	• Cost Savings • Communication	• Cost Savings • Better Quality of Information • Reduced Paperwork
Low		• Positive ROI		• Improved productivity • Improved customer service • More cooperative work environment

While the scholarly studies are consistent, practitioner press reports have changed over time. Initial reports were optimistic about the depth and breadth of benefits. ROIs of over 1,000 percent that were quoted in 1996 dropped to 36 percent in 1999. By 2000, ROIs were questioned as a means of justifying intranets, and emphasis switched to soft and qualitative measures, including the collaborative workplace and knowledge management.

The substantial change in practitioner press reports, coupled with the stability of the scholarly studies over the same timeframe, raises questions concerning the value of the practitioner press reports. To the extent that the practitioner press exists to promote the IT industry, and is driven by advertisers or vendors, its reports may be susceptible to potential bias. The danger of such bias may be particularly strong in the early phases of the technology adoption life cycle. Technologies, like intranets, that demand that users change their way of working, must pass through a "Valley of Death," when the technology must achieve critical mass or die.

Scholarly research, which has been widely criticized for a lack of practical relevance (XXX, 2002), may in fact have a lot to offer practitioners. This is particularly true, not for parochial topics or specific products or vendors, but for major information technology issues and trends, such as intranets. Academic research that is rigorous, objective and not primarily driven by industry or market concerns has the potential to offset industry hype and provide the objective evidence practitioners need to evaluate new applications of technology.

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