

Using Intranets to Reduce Information Overload

D. Keith Denton
Missouri State University

Peter Richardson
Missouri State University

Today we are being overcome with enormous amounts of information coming at internet speed. There is plenty of content but little help in making good decisions. Imagine being able to monitor your critical concerns using only a single desktop computer screen. Your typical worker, who uses technology and information within the context of his or her job, spends more than 40 percent of their day processing work-related information. Today's intranets and supporting software has the capability to delete irrelevant content and add important context information.

INTRODUCTION

Melcrum Publishing (www.melcrum.com) carried out an excellent survey of large companies in the UK, North America, and Europe. The top six benefits of an intranet were seen to be better internal communication (90%), improved processes (80%), sharing best practice (72%), improved efficiency (65%), and reduction in paperwork (65%). The main issues that needed to be addressed were content management (74%), lack of resources (52%), content overload (46%). Likewise, Agency.Com (www.agency.com) surveyed **users** of intranets, rather than intranet managers in the US. One of the interesting results of the survey was that the respondents were claiming to save about 7% of their time by using an intranet or portal. One interesting fact of the research was the fact that respondents shared knowledge because it substantially **benefits them** rather than because of a company-dictated policy or incentive program (White, 2002). In today's world it is clear we need help managing all this glut of information we have created. Who would have thought the corporate intranet would hold the promise of a solution.

Today we are being overcome with enormous amounts of information coming at internet speed. There is plenty of content but little help in making good decisions. But there are approaches to managing information and technology to help you gain control and focus on what is really critical. Imagine being able to monitor your critical concerns using only a single desktop computer screen. Systems could be set up so everyone within your organization could monitor and display only those things relevant to just them or their group. All of this can happen using the same corporate intranet that mostly today serves as a corporate library.

Peter Drucker has noted that there is an information revolution under way. The revolution questions the *meaning* of information, and its purpose. He states that until now, the information revolution has centered on the collection, storage, transmission, analysis, and representation of information (Drucker

1998). Drucker believed that past computer and information technology (IT) has had barely any impact on strategic decisions. He has observed that current use of information does not affect management decisions. He believed that current use of information technology has little to do with the CEO deciding whether to build a new office building, school, hospital, and so forth. IT is focused on collection, storage, transmission, analysis, and representation of information. Simply adding more information does not necessarily make it any easier to make a decision. As a result, the current approach to information technology has had no noticeable impact on the decision of a manager to enter a particular market or decide issues involving mergers. Drucker notes that the information technology revolution so far has been a producer of data rather than a producer of information.

Drucker emphasizes that information technology has had a near-zero impact on management decision-making. True, IT has helped preserve assets and control cost and this can be important since a serious cost disadvantage can destroy a business. But the strategic value and thus the usefulness of IT have been extremely limited. Controlling cost helps you survive, but executives understand that success will depend on carving out a successful strategy and sticking to it. Managing strategy is essential to finding innovative ways to add value, wealth, and even meaning to the lives of the employees.

LOTS OF SMOKE, NOT MUCH FIRE

Your typical worker, who uses technology and information within the context of his or her job, spends more than 40 percent of their day processing work-related information. This includes emails, instant messages, phone and conference calls, according to the Work Productivity Institute, an independent council of companies studying productivity (Barkow, 2004).

Executives have not made use of the new technology because it has not provided the critical information they need to make strategic decisions. There are reams of detailed data, but little that helps them keep strategic decisions clearly in focus. Internets, faxes, emails, and intranet technologies provide more data, but little direction. Business success is based on creating value and wealth. Executives do not need more data, technology, or speed. What is needed is a managerial process and information technology that helps make sense of endless data so it can be turned into useful knowledge and work. Data needs to be refined so it can help them keep focused on their critical issues. Refining data can ultimately help us make the correct choices and act in a unified way.

Today's intranets and supporting software has the capability to delete irrelevant content and add important context information. There are systems to help us better track, analyze, integrate and display essential information so decision-making is easier. Intranets can be used to integrate disconnected data and show executives a more realistic picture of what is really going on within the organization. In real-time, and at the click of a mouse, executives can see what is going on with their critical concerns like profitability or service concerns. Intranets are able to do this by integrating information through a series of computer screens that help anyone visually understand what's going on, where they are headed, and how they are doing. Information technology can add context and help busy executives keep a "big picture" mentality about what is going on rather than having a piecemeal mentality.

In particular, the intranet's capability to collect and rapidly display key information means managers can deal with reality. It cannot only give executives a clearer picture of what is going on but also can be used to cross-reference and display competitive benchmarks so you can compare these numbers to strategic objectives.

People who are using intranet tools don't care about the languages or other technologies that are used to create, store, and transfer the information. "They don't want to know how SAS works," as David Butler, vice president of product strategy and marketing for software maker Spotfire, told me recently. "They want to access the information." Workers concentrate on the data and information they are manipulating rather than on how they are manipulating the data and information (Zipperer, 2001).

As Drucker notes, what is desperately needed today is not more data but rather technology that helps make sense out of the endless data that pile higher and higher. What's needed is a technology that helps us make the **right** choices and behave in ways that are consistent with our purpose and objectives. Today,

intranets can become a contextual tool for reshaping organizations and help add meaning and purpose to work. It can help isolate information that is strategic in nature and not simply more data. The ultimate result will be better decisions with less data.

INFORMATION OVERDRIVE

Everyone is on Internet time. “The compressed time for decision-making is putting more demands than ever on our time,” says Wayne Cascio, a professor of management at the University of Colorado in Denver (Krill 2000). “The Web provides huge amounts of data which many feel they will miss some important detail if they do not review all available data before making a decision,” Cascio said. But everyone needs to recognize that they do not need to examine every detail of data. Information Technology, without some strategic driver, is a primary cause of information overload. Sharing of data without some strategy only makes things worse.

Information overload is created by information technologies where the tie between information and human purpose has been severed. Postman (1993) has noted information appears indiscriminately directed at no one in particular, in enormous volume and at high speeds, and disconnected from theory, meaning, and purpose.

James Bodil (1997) observes, from a report commissioned by Reuters, that people are in a frenzy to acquire ever-increasing amounts of information. They remain firm in their belief that the more information you possess, the more powerful you become. Lewis said, “The exact opposite is proving to be the case.” Research shows, when faced with vast amounts of information and forced to make decisions quickly, humans can be overcome by stress.

Job stress due to overload and overwork is too often treated with medication or counseling when the real cure is to design work so you can keep focused on your critical few concerns and issues and ignore the trivial many. If it isn't clear what work is critical, all work can become critical. It is a matter of figuring out what is most necessary and what isn't. Jennifer Laabs (1999) observes that San Francisco-based Air Touch Communications, Inc.'s HR team says they have been trying to reduce rumbling about overtime. To nip the problem in the bud, the senior management team has a goal of trying to get better at prioritizing work throughout the company by letting employees know which company goals are most important. She says that even if they had all the money in the world, they still wouldn't have enough people and would have to let something fall by the wayside. There are a limited number of resources to maintain customer service and to create new products, so you have to focus on what is most important and create a balance.

Laabs also believes large numbers of managers are feeling a bit off balance by all this information and can be victims of "Information Fatigue Syndrome." Consider these facts—49 percent of surveyed managers said they were unable to handle the vast amounts of information received, 62 percent admitted their business relations suffer, 43 percent of managers think that important decisions are delayed and their ability to make decisions is affected as a result of having too much information. Alice LaPlante found that a study commissioned by Reuters News Service found that 40 percent of 1,300 business people surveyed in the U.S., U.K., Australia, Hong Kong, and Singapore believe their ability to make important decisions is hindered by an overabundance of information. Information Fatigue Syndrome is likely to increase since more information has been produced in the last 30 years than in the previous 5,000. The total quantity of all printed material is doubling every five years. The World Wide Web also plays an important part in the information glut with an estimated 320 million pages of information.

Justin Martin (1998) noted that so much information can make it harder to find the right solutions or make good decisions. *Fortune* magazine reports that the average executive receives 90 communications a day, including 30 emails, 20 voice messages, four pager beeps and three express mailings, along with the usual phone calls, faxes, and letters.

It isn't only individuals that are affected by this information overload. Organizations, departments, and work groups, too, can become crippled by too much data. The burden can be so heavy that some experts are even predicting the demise of strategic thinking. Nobody has the time or inclination to think

long-term anymore (McCune 1998). That is probably an overstatement, but there are indications of faulty decision-making occurring due to information overload. For instance, few offices monitor how relevant information is coming in and out of their business. They have no precise way to keep focused on this mission or the critical few things essential to their purpose. But there is a fallacy underlying all this collecting and sharing of information.

It is a serious mistake to assume information should be shared. In large part, information overload and fatigue are due to our tendency to assume information should be plentiful or shared. Any information is worthless unless it has some purpose to a group or individual. Information sharing that makes data readily available is more of a curse than a cure. The first step in making better decisions and gaining control of information overload is to keep focused on your key organizational objectives is essential to any retrieve process. Ask yourself, “What do you want to do?” and “Is this data useful to that purpose?”

PARETO PRINCIPLE

The 19th Century Italian-Swiss economist and sociologist, Vilfredo Pareto (1848-1923), provided us with a deep insight for the way the universe operates. His knowledge can also help deal with the information overload affecting so many people. The Pareto (pah-ray-toe) principle is often called the 80/20 rule and was originally applied to economic thinking. Pareto’s studies showed that most (80%) wealth went to a small (20%) percentage of the people. The influential work of Vilfredo Pareto led to ramifications far beyond economics and the distribution of incomes. A so-called Pareto Distribution shows a universal relationship between variables. The most often cited example is that 20 percent of salespeople within a company or industry generally sell 80 percent of the products (Basile 1996).

The 80/20 rule has been applied to inventory management where a few inventory items are the critical few ones. Likewise, in writing, it has often been noted that about 80 percent of the material that goes into research and articles will probably come from about 20 percent of your sources (Fryxell 1997). Those who suffer from information overload will also find that about 80 percent of the information received is the “trivial many.” Only 20 percent will be of critical importance to your job, process, client, or decision-making process.

FILTERS VERSUS PRIORITIES

Information overload has also been one of the drivers involving discussions about “information filters” which, in theory, can be used to help cope with the volumes of data coming into the typical office. Paul Krill has observed that email filters are already being used to screen out less-than-critical messages. IBM has been experimenting with a technology known as Web intermediaries, which can make it easier to focus on specific information. Technological solutions like these, though, can just exacerbate the information overload problem. They do not restrict how much information you receive; they only make it easier to focus on specific information.

New information technologies that help filter and redirect email and telephone calls can also certainly help, but ultimately good decision-making is all about setting **priorities**. It is the good managers who tend to want to identify and track the “essential few” information needed to make good strategic decisions. The single thought every manager should keep in mind is, “What activities am I personally responsible for managing?” Bad managers are often simply overcome with the information. The explosion of information and accessibility of it preys on the human weaknesses of many, which is a belief in total accessibility and a yearning for total awareness and absolute control. Attitudes like this ensure that technology cannot be a salvation.

Focus your thinking on the **context** of information. Luckily, today we have both the technology and conceptual processes to help prioritize your work life and dramatically reduce the blight of excessive content.

There are some early technological solutions, like groupware, which support communication and collaboration through information exchange, shared repositories, discussion forums, and messaging.

Likewise, intelligent agents and other filtering agents, but most do not trust them, and rightly so, because they are too primitive. Alice LaPlante writes that Marc Demarest, chief knowledge officer at Sequent Computer Systems, Inc. in Beaverton, Ohio, has said, "These filters tend to be brain-dead because they don't have a good way of determining context. The biggest problem is that they cannot look at what is getting pushed to them and immediately know whether it has value or not. Many companies find electronic agents useful for digging through published material, such as newspapers, magazines, and white papers. Electronic agents help filter the news sources and deliver only relevant articles. A pilot program at National Semiconductor lets employees specify subjects and keywords. The software sorts through Dow Jones and live news feeds, but over-reliance on agents can be dangerous. A good rule is to not substitute filters for your own reading.

John Veiga and Kathleen Dechant (1997) note in their research that one manager has said, "I work in the cash management department of an insurance company. There is a strict time deadline every morning to notify bond traders of the company's net investment position. All workers have phones with voice mail and caller ID. As the deadline approached, analysts were in the habit of screening calls...only answering those calls from people known to supply cash flows. Apparently, someone called with information of a \$10 million outgoing transaction from a different phone than he normally used. The call was ignored. Bank accounts were overdrawn."

Tom Davenport, past professor and director of the information management program at the University of Texas in Austin, said that information overload must be addressed on two fronts—individual and organizational. Workers should put serious thought into constructing a personal information environment that serves their needs. It means careful analyzing how you spend your time, how you best communicate with others, and the most effective ways to do it. In other words, we need to get our priorities straight.

TECHNOLOGY AND STRATEGY

As work becomes more knowledge intensive, new ways of communicating this *essential* information becomes paramount to our ability to make decisions, build cooperation among group members, and coordinate unified actions. Finding easier ways to formulate and implement managerial strategies within a group, department, or organization will be critical. Intranet-supporting software makes it easier to implement strategy. Such software, when combined with good objective setting, data collection, and the intranet's ability to provide real-time feedback, makes it far easier to manage individual or organizational work. Employees, using their own personal desktop, can be greeted every day with critical information relevant. Such feedback makes it far easier to implement strategies critical to the organization. It can be used to better focus effort around critical strategic issues, and can be used to help you adjust resources to meet strategic objectives.

Saroja Giresankar (1999) reports that an intranet at 20th Century Fox was constructed to track the millions of records associated with box-office receipts. It provides a good example of the capabilities of the intranet waiting to be unleashed. An essential component is that it highlights critical information that might require action. The intranet payoff for Fox's managers is collection of real-time information they get that lets the studio spot regional and competitive trends and act quickly enough to exploit them. They are able to implement changes on the fly. Justin Yaros, CIO and senior vice president at Fox, notes, "This application allows us to manage our business more intelligently by giving us actual information on what's happening in the theaters, whereas before, we relied on intuition and gut feeling."

Before their intranet it would have been impossible to make strategic changes because they did not have the real-time information to make informed decisions. "Our executives and branch managers would call me or another person in IT, and we had to query box-office returns at different theaters one at a time. Now they are able to put the information at their manager's fingertips so they can understand what is going on and make changes as needed. Such information is long overdue. This kind of aggregation of internal and external information to make executive decisions affecting the business is a good idea and, if anything, it moves the movie industry out of 1900s technology," said analyst Joe Butt of Forrester

Research. Fox's intranet application also sets the stage for the future so they can match supply and demand on a daily basis.

Using this type of information means films could be selectively extended in markets or individual theaters where they are doing well. Strategies can be formulated in real time and films could also be pulled from theaters where they are slumping to cut losses. Fox officials also have the capability of instantly measuring the impact of promotional dollars spent on new films and adjust their campaigns accordingly. Such accessibility and aggregation of information also makes it possible to make better decisions. Changes in promotional dollars or campaigns can be immediately assessed to see how expectations compare to actual results.

Rick Whiting reports that Federal Express Corp. also is using a business-intelligence extranet that lets shipping companies using FedEx service in countries outside the United States gain access to reports about revenue, shipping volumes, transit-time analysis, and other performance data. Queries like, "How many packages arrived in Vietnam after 5 p.m.?" will be possible to answer.

Federal Express uses its internal intranet to improve the big picture view within their organization. Their system collects focused information in real time to help company executives make up-to-the-minute decisions about where it should locate the service centers and drop boxes that customers use every day. Gaining a big picture of what is going on, FedEx officials say, will be better customer service and lower operating costs. "We want to be located where our customers are, and now we think we have a better way of doing that," says Ron Houston, manager of systems and support with FedEx's retail division.

"The old system took too long, and it didn't allow analysts to ask follow-up questions," Houston says. "It just didn't support quick decision-making." So FedEx decided to give analysts direct access to information. It allows 120 analysts to tap directly into up-to-the-minute drop site usage data from any PC equipped with Netscape Communications Corp.'s Navigator browser.

Jeff Moad also reported on the benefits of intranet for FedEx. "Using the intranet, analysts can now get specific information on their screens in a matter of seconds rather than having to wait weeks," Houston says, "With that information, we will be able to begin more actively managing the location of our service centers and drop points as populations shift and customer habits change." In addition to more accurately tracking drop point usage, FedEx analysts will be able to get relevant information on the profitability of each service center and drop box. It will be easier for the company to get a more complete picture of population shifts and other customer trends (Moad, 1998).

ROUTING CRITICAL INFORMATION

Rick Whiting says that Michael Hammer, author and consultant who helped create the reengineering movement of the 1990s, doesn't worry about creating more great managers. He'd be happy just having a lot fewer bad ones. He emphasizes, "I'd like to turn the bad managers into adequate managers." Companies have used quality programs and data-intensive process management to improve such areas as procurement and order fulfillment. Now Hammer says it's time to turn that attention to the management process, relying on metrics and data in decision-making through what he calls "analytic performance management." Hammer believes information systems in the past have been too passive, built by technologists who focused on providing access to information in customer-management or financial systems. "There's a presumption that a businessperson knows what they want to ask. That's a fiction," he says. Managers need information pushed to them and decision-making guidance (Whiting, 2002).

Information sharing has been the primary use for intranets, even to the point of creating information overload, but things are beginning to change. Spreadsheets and electronic forms allow managers the option of storing performance reviews. Online evolutions and the so-called 360-degree feedback provide a way to create "upward feedback."

Samuel Greengard (1999) reports that at MindSpring Enterprises Inc., an Atlanta-based Internet service provider, the 1,900-employee company used to conduct surveys manually by tabulating responses and importing them into a spreadsheet. It was a costly and time-consuming process, says Cindy Buell, director of leadership and organization development. The HR department began using software to gain

feedback about core values. After drafting the questions, the software converted the survey into HTML, and it was placed on the firm's intranet. "The software has renovated the entire survey process. It has allowed us to do the job faster, cheaper, and better," Buell explains.

This whole process of converting manual surveys to intranet ones has also helped the company to conduct 360-degree assessments and design more effective packages and more quickly understand what their workers want. They have also found that by tracking answers to survey questions over time they are able to measure organizational change.

Interactive intranet technology can be a good vehicle not only to test employee comprehension of policies and procedures but also of critical objectives and expectations. It can help group members grasp a truer picture in real time of what is really going on both inside and outside their group. It has potential to greatly enhance group collaboration, reduce information overload, track change, and improve performance by continually providing visual feedback on what is going on within critical areas.

Shardin Gaudin (1998) reported that Middlesex Health System Inc. needed a way to share real-time patient information, improve care, and stay competitive. So Middlesex, which was a stand-alone hospital four years ago, built an intranet-based repository that houses 4.3 million clinical results, including real-time lab work and radiology test results, as well as care summaries and medication listings for 200,000 patients. Cardiologist Dr. Arthur McDowell said, "It's revolutionized the way we take care of patients. Everyone I take care of has another doctor, like a primary care physician. Before, we used to spend hours finding patient records. Now when I walk in to see a new patient, I head straight to my computer and see what doctors they've been seeing, what tests have been done, what the results are, and what medications they're on." Dr. Michael Saxe, chairman of the emergency department, said the system helps him treat patients faster. He said, "I don't have time to wait for someone to run up to records at 2 a.m. and find someone's history. On an average day, I go into the system every five to fifteen minutes. If I have to wait even six seconds, that's too much time for me."

PERSONALIZED INFORMATION

Intranets can help group members grasp where they really are in terms of performance in a rapid enough manner that they can change directions. It can also be used to track, display, and provide continuous feedback on information critical to your objectives. Web technology can be used to display information so all can more easily grasp where they are at and see what is needed.

Karen Schwartz's (2000) notes that what Procter & Gamble wanted was to personalize critical information for each employee and then provide very rapid feedback about changes in that information. Dan Gerbus is the project manager for the personalized portal project in the Cincinnati company's IT division. He says, "A business manager always needs to track some key pieces of information; we'll build a dashboard for that." Procter & Gamble employees use their dashboard to deliver a preset view into various information sources, and find all the up-to-date information they need to make decisions about new products, or other initiatives.

Using such a system, any group, department, or the entire organization can have quick and easy updates on critical changes. Intranets can improve collaboration and teamwork by building unity within a group or department. Future intranets will pave the way to not only greater cooperation but also to a more focused organization.

Combining the intranet's ability to deliver real-time feedback with software that organizes that information so it is easy to digest makes it easier to monitor and manage organizations. Executive dashboards can be used to monitor essential information that relates to a specific manager or employee. You can monitor this critical information using a series of status lights on your executive dashboard. These lights can change shape and color reflecting different changing conditions within the organization. When unusual changes occur you can then drill down through a series of other graphics to see what has happened. For example, a series of status lights can be set up to monitor morale or attitudes using surveys and more objective data on a variety of topics. The status lights on the dashboard would then alert you whenever a certain statistical trigger had been crossed. If you wanted to know when a customer or

employee survey score reached a critical numerical value or your standard deviation or variation in scores had exceeded normal conditions, then the dashboard could be used to communicate those changes to you.

Status lights on an executive dashboard can indicate everything is operating normally or it can show when a measure is below some competitive or historical benchmarks. Such lights could also indicate exceptionally good performance. A series of raw data and historical graphics can be accessed from this screen to help team members see why certain status lights have changed shape and color.

Such a dashboard, which runs on the company's intranet and is displayed on individual desktop screens, can continually and instantly show the status of changes occurring within the organization. Dashboards like those employed by Procter & Gamble can be customized and personalized so everyone can keep updated about changes they specifically want to monitor. It lets every individual within the change process monitor changes within their personal responsibility.

Collecting data and measuring results will be a waste of time if the information is never acted upon. Good management is a communication and feedback issue. Look at your own work and ask, "How do you regularly communicate key concerns to all areas?" Work systems, like our groups and organizations, face the continual challenge of keeping on track and not getting distracted by all these details and all that information. Having a strategy or vision is not enough. Atrophy within an organization or group will occur unless there is continual communication and feedback about where we are at and how we are doing. Getting feedback on what happened that is three months or even a year old really should not be thought of as feedback.

The intranet, when combined with the proper groundwork, makes it easy for group members to see the results of their work and compare that to where they want to go. Rapid feedback, which the intranet can deliver, encourages a flexible control that is the ideal for self-directed and empowered work. The intranet is a new tool that can provide continual updates and feedback so it is important to make sure you provide the right kind of feedback.

Mark Baven (1997) documents a case at Compumotor Division of Parker Hannifin in Rohnert Park, California where the intranet was used to get information quickly into the hands of decision makers. The company is a manufacturer of circuit boards using robotic motion-control systems. The company used their intranet to show the condition of critical issues. David Krauthamer, the information systems manager at Parker Hannifin's, is primarily responsible for deploying the company's intranet. He says it has had the most immediate effect on real-time manufacturing processes. "Our SQL server has a front-end mechanism that captures and reports on manufacturing defects in process. This provides feedback to the floor, where they can respond to the problem immediately. It also helps us notice patterns and make remedial changes – real-time corrections. Such information makes it easy to understand what you're supposed to be doing and where you're supposed to be headed.

DATA VISUALIZATION

Profiling your group can become an internal mechanism for team self-management. It can show group members where they are at in terms of customer service (or other concerns) and how it is being affected by the group's efforts, attitudes, and choices.

Creating an "executive dashboard," which runs on the company's intranet and is displayed on individual desktop screens, shows the status of your critical concerns.

The system administrator for the software chooses appropriate statistical values that will set off the lights and the software automatically calculates, evaluates, and graphs the results. Whenever a critical stage has been reached, the lights change to match appropriate conditions. The system administrator also is the one who decides who will input data into the system, how often, in what format, how results will be graphed, and who will see those results. It is possible for every individual within an organization to have their own unique desktop screen that is tracking these measures that are most relevant to the organizational strategic concerns.

As numerical data are entered and automatically analyzed and graphed by the software, the intranet makes these results known to whoever needs to see them. If a performance measure is worth

investigating, you simply click on the text box near the status light and you can see the **actual results** graphed out. Such software is designed to alert you to changes in current results that exceed pre-defined statistical conditions. Text messages also appear, highlighting some of the important changes occurring in your data. Graphs can be used to compare and contrast any organization's critical concerns to each other and graphically display their interaction.

Data Visualization software, combined with good objective setting, data collection, and the intranet's ability to provide real-time feedback, makes it far easier to implement strategy (or teamwork, manage change, employ employees). Employees, using their own desktop, can be greeted every day with visual feedback about what information is important, where they are headed, and how they are doing. It makes it far easier to implement strategy if feedback is continually provided on an organization's critical concerns. It better focuses group effort around critical concerns and issues, and it can give employees a direct connection between what they do and overall corporate strategy. Today, it is possible to integrate the concern for customer satisfaction with other issues involving productivity or the need for greater employee involvement. There is no limit to the critical concerns the intranet and supporting software can integrate and display.

OVERVIEW

The intranet can be used to provide continual updates and highly visual and understandable feedback by keeping employees focused on what is really critical; it can be used to dramatically reduce information overload. It can do this by combining intranet's feedback with data visualization technology so you can quickly summarize where you stand so all can see what is going on. Spreadsheets cannot do that, but visual displays and graphs used in conjunction with the intranet can be used to help the organization's efforts and, in the process, reduces and refines data so it can be better used.

Drucker notes that past information technology has barely impacted strategic decisions. By this statement, he implies such technology has mostly produced data rather than knowledge. What is desperately needed is not more data but rather application of Web technology that helps make sense out of the endless data that pile higher and higher. What's needed is a technology that helps us make the **right** choices and behave in ways that are consistent with the purpose and objective of the organization. Today, intranets can become tomorrow's tool for reshaping organizations, helping to add meaning and purpose to work, and greatly simplifying the management of information.

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ADDITIONAL INFORMATION

Major Data Visualization Vendors as reported by PC Magazine

- Visual Insights (a Lucent spin-off)
- Silicon Graphics Inc.
- Cognos Inc.
- DataView Inc.
- Epiphany Inc.
- Quadstone Ltd.
- MapInfo Corp.
- Environmental Systems Research Institute Inc.
- MathSoft Inc.
- Spotfire Inc. (Deck, 1999)

Lucent Technologies Inc. unit, Cognos Corp. and Spotfire Inc. have features ranging from business mapping to more esoteric graphics such as data constellations and histograms, which chart data values by density.

Advisor software from Visual Insights, a Lucent division in Naperville, Ill., provides users with a way to query and explore the vast amounts of customer, product and market data generated by electronic commerce and customer relationship management, officials said. (Hammond, 1999).

Spotfire's software combines data visualization and querying flexibility. It is known as DecisionSite and installations starts at \$100,000. Spotfire's software lets users do what-if comparisons of data from different sources by moving sliders on a computer screen with a mouse. The results appear as brightly colored bar graphs, pie charts, scatter plots, and even maps. (Brown, 2001).