



|Claremont Intranet Study

Impact on Silicon Graphics|

| An intranet is the integration of an organization's information assets and communication facilities into a single, widely accessible networked environment using Internet-based technologies, such as e-mail, news groups, File Transfer Protocol (FTP), and World Wide Web technologies. Web-based technologies provide a common user interface across disparate platforms, enabling the development of cross-platform applications, the integration of existing legacy applications and databases, and enhanced communications and information sharing among the intranet users. |

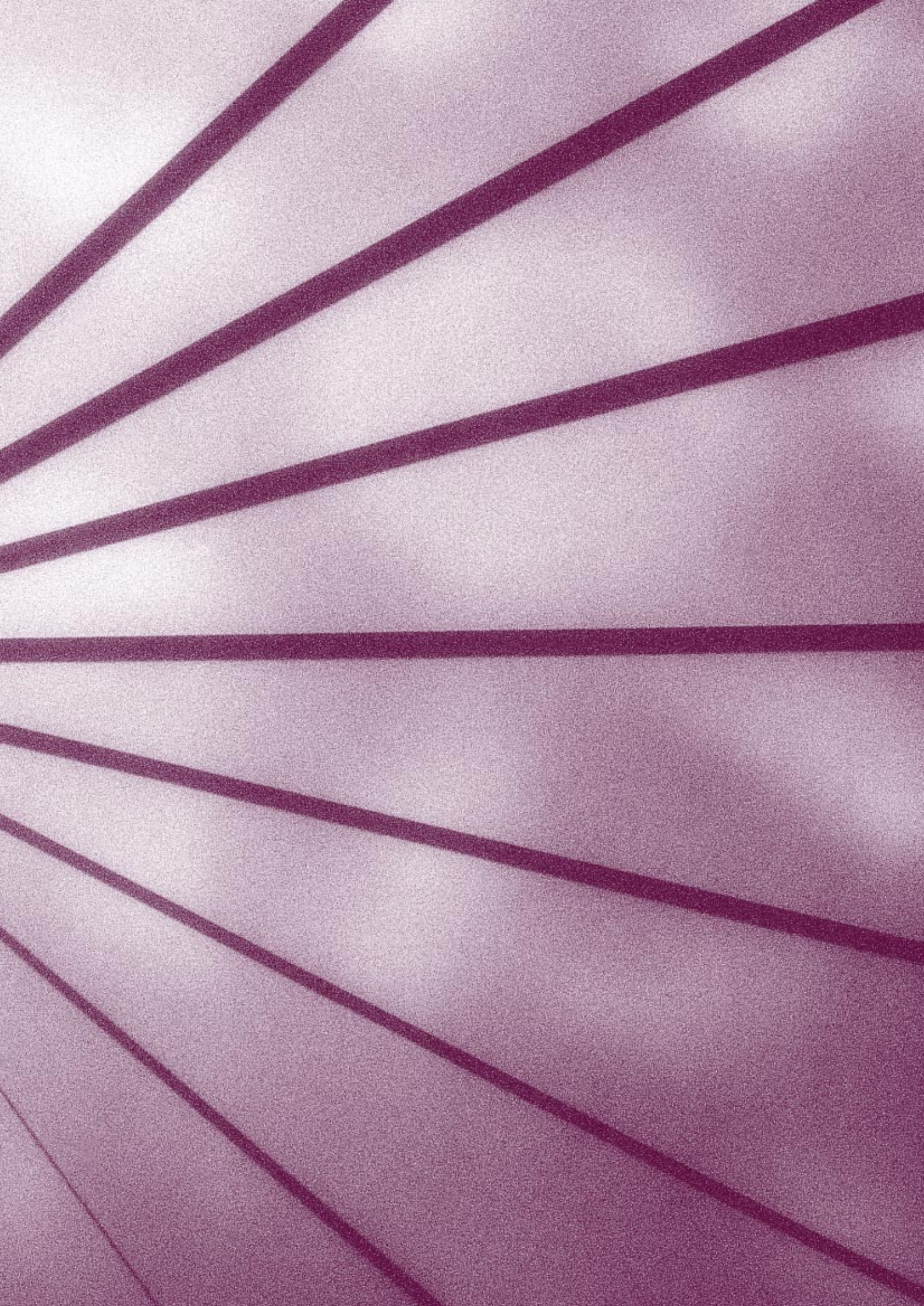


Table of Contents

Executive Overview 2

Introduction 2

About the Study 3

Evolution of the Intranet at Silicon Graphics 3

Impact of the Intranet on Silicon Graphics 5

Improved Productivity 5

Enhanced Knowledge Capital 6

Strengthened Teamwork across Boundaries 7

Improved Process Efficiency and Workflow 8

Increased Employee Satisfaction 8

Summary 9

Acknowledgment 9

Company Profiles 9

Executive

Overview

Businesses worldwide are rapidly adopting intranets to greatly improve communication, strengthen corporate culture, and provide easy access to legacy data through one interface. Companies that have adopted this technology are quickly seeing the benefits and uses for:

- Product information and collateral creation and distribution
- E-mail and group communications
- Collaborative processing and work communications
- Unified access to information across a globally dispersed company
- Corporate and enterprise-wide communications

Silicon Graphics, a \$2.9 billion Fortune 500 company, is rapidly transforming its operation with a widely utilized corporate intranet. This study highlights the organizational impact of the intranet on Silicon Graphics, which has resulted in significant benefits in the areas of:

- Improved communication and worldwide competitiveness
- Improved productivity
- Enhanced knowledge capital
- Strengthened teamwork across divisional and geographic boundaries
- Improved process efficiency and workflow
- Increased employee satisfaction

While the culture and organizational structure of every company is different, globally dispersed companies can benefit from the technology efficiencies an intranet provides.

Introduction

The increased pressures of competing in the global marketplace have compelled industries to seek innovative ways to increase their competitive edge. Decisions need to be made faster, and products need to be more price competitive and of higher quality. Faster time-to-market has become a business imperative. Immediate access to information has rapidly become a key to success. As a result, these requirements have driven companies to focus on improvements within—improving employee productivity and enhancing communications among geographically dispersed teams, while encouraging departments to produce more and spend less. Successful companies recognize the need to be more critical of their total business strategies and address these global pressures. An increasing number of organizations are deploying “intranets,” thereby tightly integrating technology within their organizational strategies.



About the Study

This is the first phase of a three-part study profiling three separate companies that use intranets as competitive tools. Each company was selected to demonstrate one of the following impacts of an intranet: organizational, financial, and technical. Silicon Graphics was selected to demonstrate the organizational impact due to the company's highly entrepreneurial spirit and established worldwide intranet.

To demonstrate how an intranet has been leveraged across Silicon Graphics, the survey portion of the Silicon Graphics study was hosted on the Silicon Graphics worldwide intranet. The result was an immediate widespread global distribution and collection of the survey and a faster analysis process compared to conventional survey methods. The preliminary findings of this study, as they relate to Silicon Graphics, are detailed in this document. The full study including all three companies will be available in the fall 1996.

Evolution of the Intranet at Silicon Graphics

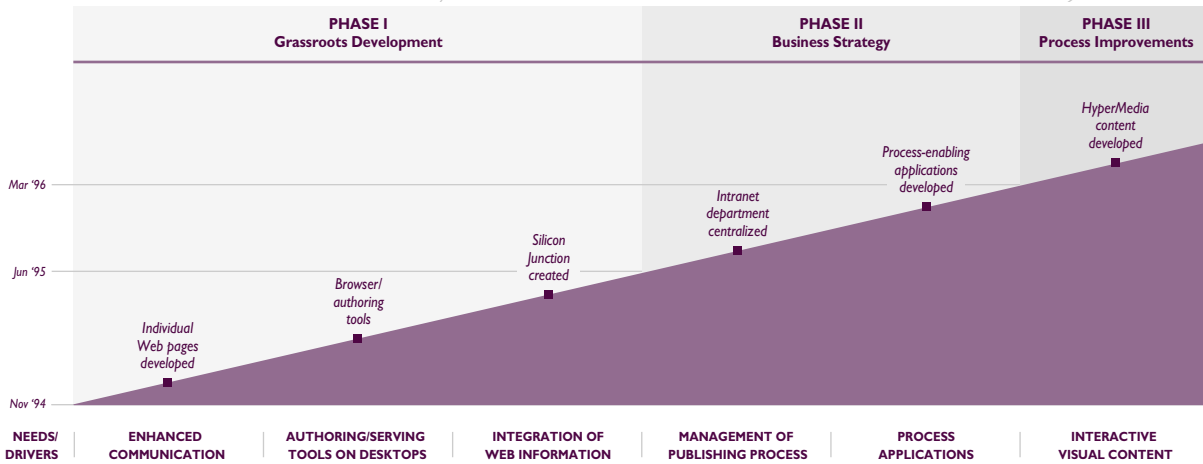
Silicon Graphics has gained industry attention for creating one of the fastest-growing and largest corporate intranets. The intranet's development has been propelled by the company's unique cultural characteristics and management philosophies:

- Taking advantage of new technology
- Strong entrepreneurial spirit
- Freedom of individual creativity
- Open and free exchange of information
- Open management style
- Customer satisfaction
- Empowerment of employees

As shown in Figure 1, the culture of Silicon Graphics and an overwhelming need for enhanced communication has fueled the intranet's rapid development over the last 18 months. This evolution is best described in the following phases:

- **Phase 1:** Grassroots Development—individuals creating Web pages for better communication and data sharing with team members, creating a warehouse of corporate knowledge
- **Phase 2:** Development of business strategy—management recognition of an intranet as a critical component to the daily business activities of Silicon Graphics employees
- **Phase 3:** Process improvements—identification and development of critical business applications to increase competitiveness

Intranet Evolution (Figure 1)



Silicon Graphics' first phase of intranet development was the creation of individual Web pages and content using Web technology. Employees in various departments around the company took the initiative to display department-specific information in a static Web page format to others within the organization.

Silicon Graphics soon realized the advantages of increased corporate communication with an intranet. By using the existing internal network of relational database servers and gateways, Silicon Graphics quickly installed the intranet using its existing platforms and applications. By providing a Netscape™ browser and Web authoring tools to existing desktops throughout the organization, Silicon Graphics connected all users worldwide with a single interface and quickly experienced an exponential growth in content-based applications. These included publishing departmental information and interactive applications. To help employees integrate individual Web pages and provide easy access to this expanding body of corporate information, Silicon Graphics developed a Web-based gateway called "Silicon Junction."

Silicon Junction is an easy-to-use, engaging index of Web pages with links to internal and external Web sites. This index provides the end users with an organized list of items, such as news, employee services, special interests groups, product and sales information, and customer and technical support information. Silicon Junction successfully tied together Silicon Graphics Web pages into one universally

recognized entry point. A team of five people develops, maintains, and implements Silicon Junction, its contents, and a standardized set of policies and procedures.

The successful implementation of this infrastructure created an opportunity to extend intranet use from a content-based information repository to include transaction-based applications. These applications have allowed Silicon Graphics to realize significant productivity benefits by improving their existing relational database applications. One of the first process-enabling applications of the intranet was the New Employee System, which enables managers to efficiently process new employee information.

The findings of this study show great opportunities for future growth for intranet applications within Silicon Graphics. These include automation tools that enable 3D computing, video broadcasting, forecasting, and workflow applications, as well as collaborative systems such as Web-based desktop videoconferencing and automated phone and fax systems.

The rapid evolution of Silicon Graphics' intranet highlights a widespread commitment to the practice of the company's business philosophies. The 180,000 Web pages and the 2,200 Web sites created over 18 months by Silicon Graphics employees illustrates this commitment.

Impact of the Intranet on Silicon Graphics

Silicon Graphics' use of intranet technology has significantly increased its effectiveness as a global organization in the areas of:

- Improved productivity
- Enhanced knowledge capital
- Strengthened teamwork across boundaries
- Improved process efficiency and workflow
- Increased employee satisfaction



Improved Productivity

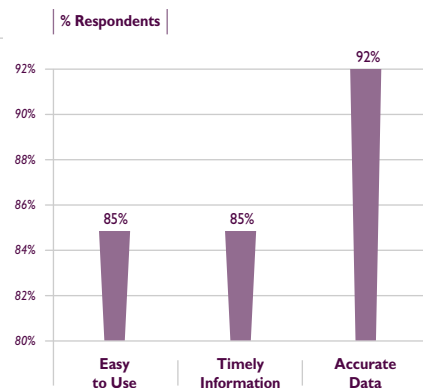
For corporate-wide employees, the intranet brought productivity improvements in the areas of timeliness, accuracy, cost, and information availability. As transaction-based applications were introduced, Silicon Graphics began to achieve even greater productivity improvements.

In a corporate-wide survey, the majority (63 percent) of end users stated that they used the intranet to obtain information required for their jobs.

End users also considered the information accurate (92 percent) and timely (85 percent). Having access to critical information has enabled employees to make better and faster decisions (see Figure 2).

The intranet has increased employee knowledge and understanding of Silicon Graphics® products and services as well as corporate initiatives and strategies.

Information Availability and Access (Figure 2)



A significant example of improved productivity can be seen in Silicon Graphics' engineering and manufacturing departments through its development of Pole Vault, a single interface to multiple legacy databases such as Part Number, Sales Order, Vendor Search, and Engineering Change Orders. The application yielded increased employee productivity through faster and more efficient access to manufacturing data, reduced software licensing costs, reduced software maintenance costs, improved network capacity throughput, and reduced corporate system upgrades.

Other examples of Silicon Graphics intranet success include the following:

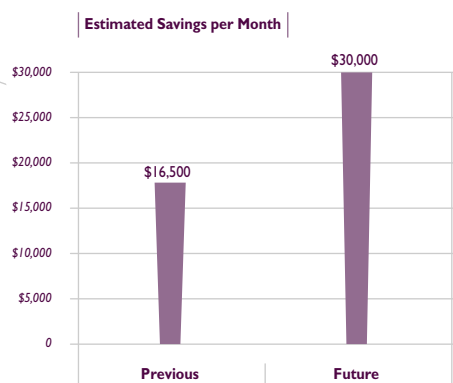
- New employees can be signed up for office and communications services in 15 minutes instead of two hours
- Non-manufacturing purchase requisitions can be processed in five days, not three weeks
- The worldwide sales force has immediate access to new product and sales information instead of waiting weeks to receive kits sent by mail
- Field sales representatives have immediate access to manufacturing and order shipment status information; calls to Order Administration have dropped by 50 percent
- Customer call and technical support status reports can be accessed worldwide through Silicon Junction, improving response time to customers
- Color printed sales materials can be viewed and then ordered on line

Enhanced Knowledge Capital

Organizations invest large sums on education and training each year to improve and maintain the employee knowledge base in a timely fashion. Silicon Graphics' intranet delivers and enhances its employee knowledge capital.

Silicon Graphics' Human Resource department developed intranet-based on-line training for workstation products. Designed to address the high cost of worldwide training and timely update and distribution of this information, the on-line training resulted in an estimated savings of \$150 per person in training costs (see Figure 3) and simultaneous worldwide availability of the training materials. To date this application has generated estimated savings of \$16,500 per month, and with the anticipated training of Cray employees on Silicon Graphics systems, these savings are expected to increase to \$30,000 per month. For the employees, on-line training means improved access to current information and the ability to refresh their training. Silicon Graphics is also planning to implement video streaming over its corporate intranet to improve training of its employees worldwide.

Estimated Monthly Savings on Desktop Training (Figure 3)



Silicon Graphics employs an “Information Pull” philosophy, in which employees can access information on corporate goals and vision, products and services, and internal company news and events.

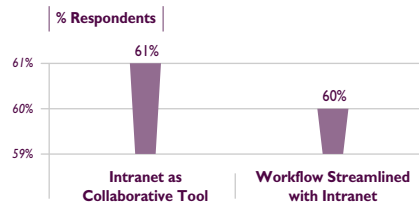
**Strengthened
Teamwork across Boundaries**

The Silicon Sales Web site provides the worldwide sales force with on-line access to sales tools, industry-related information, programs, training and development, and product and competitor information. This has enabled the immediate and rapid distribution of information and literature; a single point for accessing all sales resources; and easy exchange of information. On-line sales information has facilitated the dissemination of the most current information on Silicon Graphics products, competitive analyses, and sales support, as well as reducing sales collateral printing costs.



Intranet technology has facilitated worldwide teamwork within Silicon Graphics by providing the means for effective collaboration. The survey has shown that more than 61 percent of end users have performed their collaborative work through the intranet and intranet-related communication methods such as e-mail (see Figure 4). This is further shown by the use of the intranet in engineering, where product teams leverage the intranet to manage their product development projects.

Collaboration and Workflow (Figure 4)



Silicon Graphics also uses its intranet as a project development and collaborative tool. A cross-functional team used the intranet on its “Kona” project to manage a technically complex product development effort in a geographically dispersed team environment. Engineers, product managers, and management used the intranet as a collaborative tool that provided a central indexed repository of all project data, production schedules, and communications during the project life cycle. The management found that this application directly reduced cost, improved project and data management, and provided on-line project status accessible by all team members and management.

**Improved Process
Efficiency and Workflow**

The intranet has had a positive effect on workflow, according to survey results. More than 60 percent of survey respondents found the intranet to be an effective tool for streamlining workflow. This can be illustrated through the use and implementation of the Electronic Requisition System for the on-line generation, routing, and approval of non-manufacturing purchase requisitions. The Electronic Requisition System was developed over a one-year period to address cost reduction, cycle-time reduction, process automation, requisition tracking and approval routing, and an anticipated 53 percent increase in purchase orders.

The electronic requisition system resulted in an 18 percent cycle time reduction for processing requisitions, a 25 percent reduction in the average purchase order processing costs and significant savings in paper requisition form costs. No additional resources were required to handle the increased transaction volume.

Another example of process efficiency through the Silicon Graphics intranet is the New Employee System, a data capture and mail forwarding application that enables managers to order office space, services, communication, networking, and computer equipment for new employees. The study revealed that the process of ordering new services was reduced from approximately two hours to 15 minutes. Based on Human Resource hiring statistics of 100 new hires per month, this system could potentially save 2,100 man hours per year (see Figure 5).

Estimated Savings from New Employee System (Figure 5)

Potential Savings from New Employee System	
Estimated Average Hourly Cost per Employee	\$35
Estimated Man Hours Saved	2,100
Estimated Yearly Savings	\$73,000

**Increased
Employee Satisfaction**

Through the worldwide survey, we found that an overwhelming number of employees expressed improved job satisfaction. More than 60 percent of the respondents stated that the intranet is essential to their daily job functions. The intranet has also improved job satisfaction because of on-line availability of the most up-to-date corporate and competitive information. Of the survey respondents, the vast majority referred to the information on the intranet as timely, accurate, and relevant to their needs, resulting in increased empowerment through better decision-making.

Summary

Through the implementation of this relatively new technology, Silicon Graphics has successfully improved communication, teamwork, and workflow, and dramatically reduced costs. The rapid adoption and widespread use of the intranet in every area of the enterprise are testimony to its early success.

The intranet at Silicon Graphics is now core to its organizational strategy and will continue to shape the way it does business.

Acknowledgment

The development of this study would not have been possible without the time and dedication of Silicon Graphics individuals who participated in this project. We sincerely appreciated their efforts. Our special thanks go to the management team of Silicon Graphics who helped facilitate this intranet study and provided the information necessary to complete the project.

Company Profiles

Silicon Graphics is a leading supplier of high-performance visual and enterprise computing systems. The company's products range from low-end desktop workstations to servers and high-end Cray® supercomputers. Silicon Graphics also markets MIPS® microprocessor designs, Alias|Wavefront entertainment software, and other software products. The company's key markets include the World Wide Web, government, commercial, industrial, and entertainment sectors. Silicon Graphics and its subsidiaries have offices throughout the world and headquarters in Mountain View, California.

| Claremont Technology Group, Inc. |

Claremont Technology Group has conducted this study.

Claremont Technology Group, Inc., provides enterprise-wide

information technology (IT) solutions that re-engineer

mission-critical business processes. Claremont delivers services

including IT planning, systems integration and development,

and outsourcing. Claremont provides solutions to large

organizations in the Internet/intranet, communications, financial

services, retail, and manufacturing industries, as well as state

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