

# Microsoft<sup>®</sup> **Visio**2000<sup>®</sup>



## **Microsoft<sup>®</sup> Visio<sup>®</sup> 2000 in Large Organizations White Paper**

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## Introduction

Adapt or perish—that's the rule in today's business climate. Organizations must adapt to new conditions in ways that help their employees understand and respond to changes quickly, identifying and capturing new opportunities as soon as they arise.

Successful organizations do this by sharing information at all levels of the enterprise. Thus, they need tools that help them understand the concepts, processes, and systems inherent to their business. This is especially true when systems, in particular, become too complex to be described in the one-dimensional, culturally dependent medium of words. Networks, for example, simply lend themselves far better to graphical explanation.

This paper describes a new model of organizational communication called the visual workstyle. It shows how organizations can deepen understanding and improve communication by implementing Microsoft® Visio® 2000, the worldwide standard for business drawing and diagramming, across an enterprise. It outlines how Visio 2000 technology meets the four key characteristics of effective visual communication tools. Visio 2000 is:

- **Agile.** Enterprises around the world face expanding communication challenges from globalization, mergers and acquisitions, remote or mobile employees, and information overload. Organizations need tools that allow them to respond quickly to these market changes and workplace challenges. The new visual workstyle is a communication style that evolves naturally from innate human abilities and that can be enhanced using appropriate technology.
- **Approachable.** In today's competitive global economy, the smartest organizations understand that the key to competitive advantage lies in helping their employees understand concepts, processes, and systems better, and empowering them to perform with greater effectiveness and accuracy. However, in order to improve organizational understanding and communication across an enterprise, technology must be versatile.
- **Programmable.** As organizations search for competitive advantages and ways to reduce the cost of operations, they need a platform for rapidly creating applications that are precisely tailored to their business while utilizing as much off-the-shelf technology as possible. Visio 2000 is a mature development platform that offers a base for a wide variety of customized solutions.
- **Cost-effective.** Organizations invest increasing amounts of time and money building and maintaining information infrastructures and providing employees with personal computers and other productivity tools. Smart organizations seek out technologies that leverage their existing infrastructure and that are compatible with existing tools in order to lower the total cost of ownership of deployed tools.

## The New Visual Workstyle

Today's business climate forces organizations to address market changes immediately and have systems in place to effect a global response. Knowledge workers must comprehend and respond to changes quickly, and they must have the tools to understand and capture new opportunities. The visual workstyle is a natural, innate, and intuitive way for workers to see and share information in the midst of continual change.

This section describes the key challenges for organizational communication and learning, and it discusses how a visual workstyle enables knowledge workers to turn these challenges into opportunities.

### Communication challenges

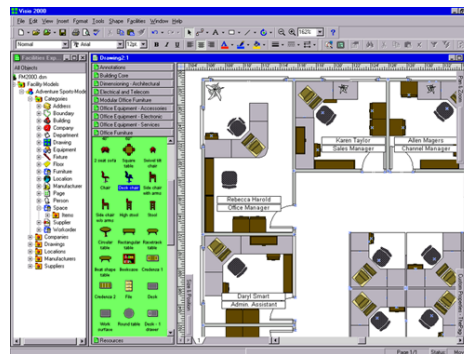
**Changing workstyles.** An increased focus on organizational efficiency has led to a flattening of vertical layers of management and to an increased need for self-starters—individuals who actively seek out the information and resources they need to get things done. In addition, workplace structures have changed. Thirty percent more work is being done in teams today than 10 years ago. Meanwhile, remote participation in meetings has increased by 25% (3M Online Study, 1998).

**Information overload.** Knowledge workers are bombarded with information, usually text documents, and rarely have time to share their learning or expand their own knowledge base. Half of all managers say they are often or very frequently unable to handle the volumes of information they receive, and 43% feel important decisions are delayed and the ability to make decisions is damaged by too much information (David Lewis, Ph.D., 1998<sup>1</sup>).

**Internet expansion.** More than 160 million people worldwide are connected to the Internet (IDC research company, July 1998). The Internet and intranets provide efficient ways to communicate with co-workers and customers and build business relationships. But it also compounds the amount of information that individuals must sort, prioritize, and absorb.

## Finding new ways to communicate

Graphical thinking often precedes and aids in problem solving. Gathering and organizing data in a visual format helps people visualize solutions to complex issues like facilities management design, network architectures, and product development life cycles.



**Seeing and sharing knowledge.** Adopting a visual workstyle allows knowledge workers to address today's business challenges in fresh, creative ways. In addition, conventional wisdom holds that when an individual engages both sides of the brain—the left with textual information and the right with graphical information—comprehension and recall increase. Regardless of evolving scientific theories about the brain, by using tools that allow them to exercise spatial as well as linguistic intelligence, it is clear that individuals can more effectively grasp and share knowledge.

**Making an impact.** Knowledge workers are learning that visuals help them get their message across to co-workers and customers and break through the clutter of information overload. Research shows that presentations with visual support are 43% more persuasive than those with no visuals (University of Minnesota and 3M, 1998). The strong associative images that result from visual communication increases recall 250% over verbal repetition (*Illustrating Computer Documentation: The Art of Presenting Information Graphically on Paper and Online* by William K. Horton, 1991).

**Dealing with change.** In this climate of globalization, mergers, and seemingly continual business reorganization, successful communication of organizational and procedural change reduces confusion and inefficiency.

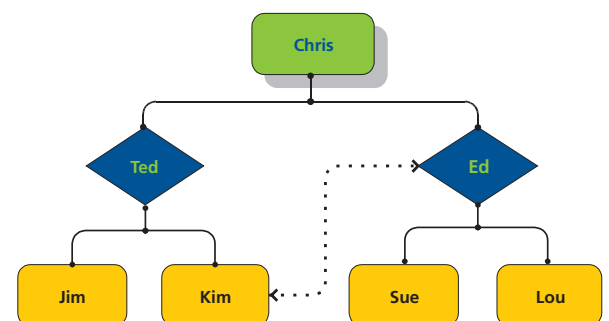
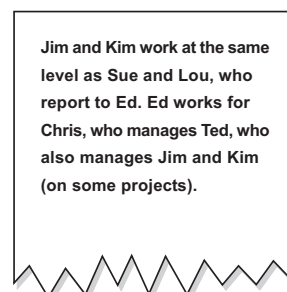
Graphical thinking often precedes and aids in problem solving. Gathering and organizing data in a visual format helps people visualize solutions to complex issues like facilities management design, network architectures, and product development life cycles. Organization charts and business-model diagrams allow knowledge workers to see and show the impact of the organization's evolution and how their roles and responsibilities will change.

1.

Or . . .

2. The organization chart:

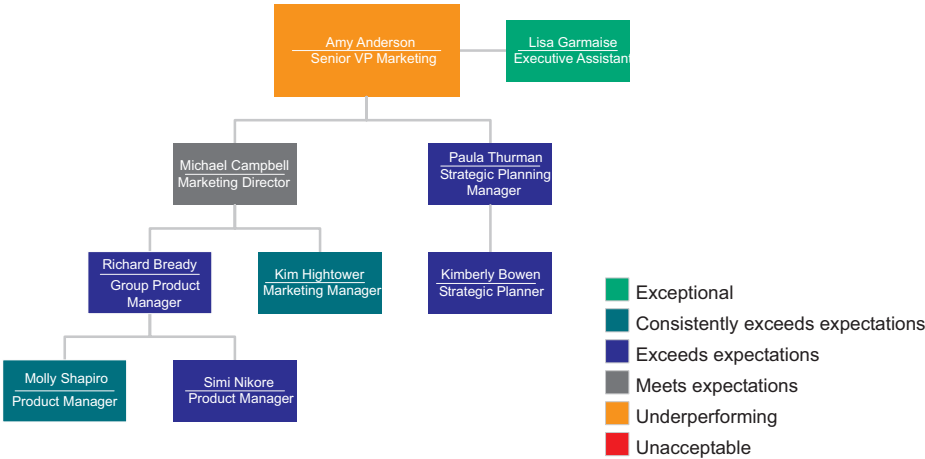
Who's in charge? For quickly grasping who reports to whom, visual communication is intuitive, language-independent, and more effective than text.



<sup>1</sup> Dr. David Lewis, an internationally known psychologist, is the author of more than 20 books on practical psychology.

**Expanding your reach.** Globalization demands effective communication across cultures as well as across distances. Global communication must occur and be comprehended at greater speeds than ever before. Visuals dramatically enhance communication among different cultures and help new and remotely located employees get up to speed with less frustration.

Consider the advantages of visually monitoring the performance of a sales force. Our innate human ability to recognize patterns in graphical presentations allows us to quickly take in a large amount of data, analyze it, and draw conclusions.



## Visual Communication at Work

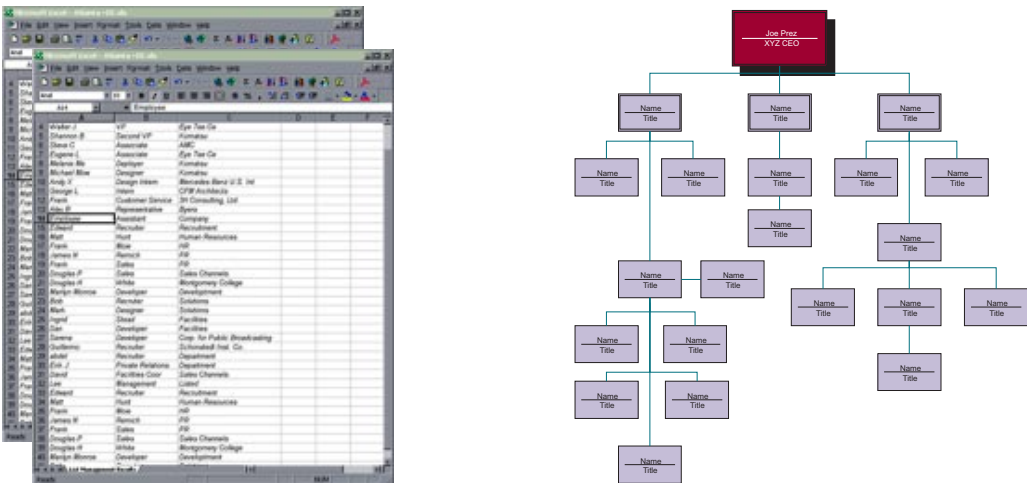
Microsoft Visio 2000 technology is an essential framework for implementing and promoting visual workstyles. Through its open architecture, Visio 2000 supports the advanced deployment and maintenance requirements of expanding enterprises. This three-part scenario shows how the Visio 2000 software's visual communication tools work to enhance efficiency and productivity for an organization in transition.

### Part 1: The merger

Adventure Works and Fabrikam, Inc. have decided to join forces to become the market leader in the sale of outdoor gear. The merger conditions include full employee retention. However, because there is significant overlap in roles and responsibilities, employees are hesitant to move forward with projects, fearing duplication of effort.

The two Human Resources teams come together and merge their databases. Using this information they can automatically develop a master organization chart with phone and e-mail contacts for everyone, and post it to the merged company's intranet. Employees can identify their counterparts and determine whom they will need to work with. Management can begin to see how to make the most of the combined skill sets.

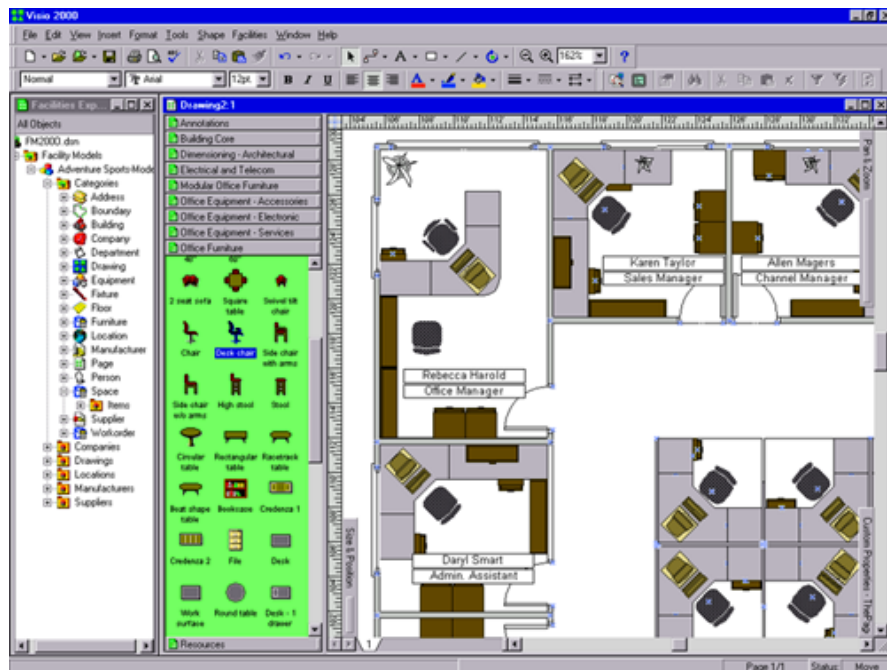
Two HR teams merge their databases to create a master organization chart.



## Part 2: The move

Management has decided to merge the two offices. Adventure Works is located in suburbia and is able to lease additional attached space easily, so Fabrikam, Inc. employees will need to leave their in-city location. The facilities manager gives Fabrikam, Inc. employees the opportunity to select new office furniture and decide how they would like it arranged in their new space. The facilities manager creates a customized Microsoft Visio 2000 stencil with the appropriate furniture shapes and office accessories. A Visio 2000 drawing of the new office space is posted on the company's internal network, with each employee's location designated. By clicking on the link to the master drawing, employees can open the drawing using the Visio 2000 applications already on their desktops. When employees have completed their selections, the facilities manager can run a report on the completed drawing and generate a master purchase order, listing all furniture required, directly from the data associated with the shapes in the diagram.

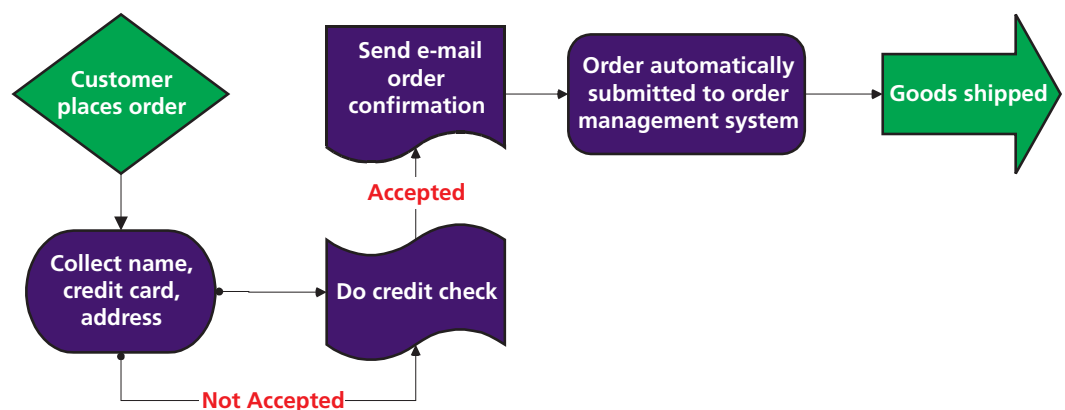
*Using custom stencils in the shape of furniture and office accessories, employees simply drag and drop the shapes they want—in their preferred arrangement—onto the page onscreen, and then save the modified diagram to the network.*



## Part 3: Going online

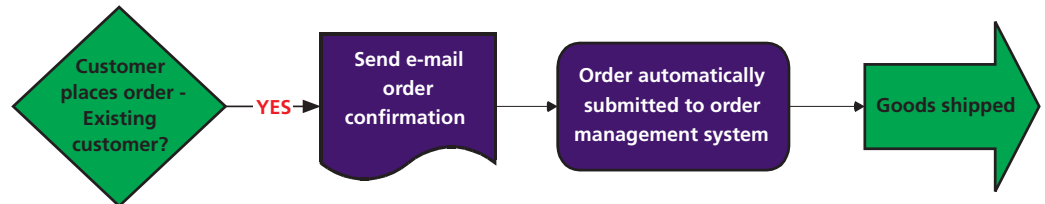
The offices have successfully merged and the teams are assembled. After a careful analysis of the market, it is determined that many of the new company's customers use the Internet. Management decides to supplement existing distribution channels by creating an e-commerce Web site. The Internet team shows the planned online ordering process in a diagram, with a goal of making the process simple and minimizing errors.

*The original order management diagram is a generalized depiction of online ordering that helps the Internet team clarify their thinking about the ordering process. They realize that the diagram excludes customers who need no credit check.*



The original diagram does not take into account that many of the company's online customers have purchased from the company before. For these customers, an online credit check was an unnecessary step that slowed the ordering process. Visualizing the process allowed the team to see what steps could be modified and how the site's structure could support best practices. The revised process-flow diagram was used to inform the Web site's builders and suppliers about the new process. Additional process-flow diagrams are created to demonstrate the new sales structure.

*A new process-flow diagram shows how envisioning information can help solve problems, improve the quality of communication in an organization, and help document critical processes for future reference.*



## A Powerful Tool for Improving Organizational Understanding and Communication

In a recent survey, business decision-makers in Fortune 500 companies cited pressure to deliver results quickly as one of their top concerns. One of the quickest ways to reach common understanding of a concept, process, or system is to demonstrate it visually with a drawing or diagram. Knowledge workers in an organization who have adopted a visual workstyle understand this. The tools they use should support this ambitious approach to communication. The Microsoft Visio 2000 platform is the ultimate tool for creating clear understanding within an organization.

### Ease of use and approachability

Organizations need to deploy tools that are easy to use and don't get in the way of an employee doing work. They need to be easy for a first-time user, but also provide depth for power users. The Visio 2000 user interface is designed to be easy for those new to the product, but it also includes layered access to advanced features.

The stencil and template metaphors work well for beginners, who need not draw objects from scratch. Instead, users assemble diagrams using simple drag-and-drop shapes. The extensive list of diagram types and pre-drawn intelligent objects—called SmartShapes® symbols—make it possible to create functional diagrams with very little effort.

### Versatility

Organizations standardize on a core set of desktop applications not only to simplify up-front software purchasing and deployment, but also to ease end-user training, file exchange, and use. Visio 2000 has an intuitive interface that provides thousands of appropriate, industry-specific templates and shapes for creating simple to complex drawings. Even extremely large drawings, with tens of thousands of objects, can be created and handled with ease, thanks to the product's navigation features, automatic numbering, and other shape-management tools.

To provide additional versatility, Visio 2000 can handle multiple document types. In addition to its native .VSD file format, Visio 2000 can import files from other popular drawing packages, such as CorelDRAW! versions 3–7, and many versions of Micrografx Designer and ABC Flowcharter. When a Visio 2000 diagram is needed for a different purpose, it can be saved in a wide range of other formats, including BMP, GIF, JPEG, HTML, and VML (Vector Markup Language).

Visio 2000 Technical Edition can also read and write CAD (computer-aided drawing) files in the leading .DWG and .DGN formats, and it can convert static CAD objects into dynamic SmartShapes symbols.

## **Intelligent functionality**

Microsoft Visio 2000 delivers approachable, versatile solutions to meet the changing needs of enterprise customers. At the same time, Visio 2000 technology is evolving to become smarter and faster while maintaining its robust functionality.

Visio 2000 is the fastest product release to date, enhancing customer productivity through increased performance and scalability. Drawing and diagramming tasks take less time than with previous versions, and existing add-on applications run faster. Additionally, advanced snap-to and alignment controls greatly accelerate the drawing process. The new bird's-eye view window, combined with rapid pan-and-zoom capabilities, allows customers to work more efficiently with large drawings.

## **Internet- and intranet-enabled**

Organizations are embracing the Internet to speed communications and open new business opportunities. Visio 2000 enables users to exploit the power of the Internet by sharing drawings online and hyperlinking from drawings to related information online.

Visio 2000 allows users to save hyperlinked Visio 2000 diagrams as HTML files. These files can then be hosted on a Web server and viewed with a browser. Visio 2000 also exports drawings in VML (vector markup language) format, enabling viewing, panning, and zooming of high-fidelity drawings in Microsoft Internet Explorer.

SmartShapes symbols in Visio 2000 support embedded hyperlinks. Any shape can be hyperlinked to information on another drawing page, in another file, or on a Web site, enhancing the dynamic nature of Visio 2000 drawings.

To help users keep up-to-date on the latest product information and give instant access to specialized add-ons and support, each Visio 2000 edition includes a built-in link to Visio on the Web, providing access to drawing resources, add-on components, downloads, technical support, and training. This gives users throughout the organization the tools and information they need to make the most of Visio 2000 technology and services.

## **A Mature Platform for Business Solutions**

Organizations are building and refining their digital response systems in preparation for the ever-increasing pace of business. Knowledge workers need tools specific to the task at hand. Microsoft Visio 2000 provides a flexible, powerful platform for organizations to create and deliver customized drawing and diagramming solutions to the corporate desktop. Organizations looking to improve their business operations or increase business performance through visual solutions can take full advantage of this platform.

## **Rapid creation of highly functional solutions**

The timeframe and bandwidth for corporations to create custom solutions have been compressed in recent years with the advent of the Internet and of Enterprise Resource Planning (ERP) systems. When corporations are looking for efficient and robust solutions to problems, they prefer to use off-the-shelf technology that allows them to cut time to market and to customized business solutions.

As a development platform, Visio 2000 provides an easy-to-extend foundation on which corporations can build business-integrated solutions for asset tracking, sales force automation, automated scheduling, and data visualization that provide high value to the organization, but require minimal development time.

- A key capability is the creation of custom shapes, stencils, and templates. Every Visio 2000 shape is controlled by parametric formulas, as in spreadsheets. This allows the developer to create intelligent, data-aware shapes that behave in intuitive ways to solve specific problems. This programming is done through the spreadsheet-like ShapeSheet® environment.
- In addition, Visio 2000 has Microsoft Visual Basic® for Applications (VBA) 6.0 built in. This is the same version of VBA that comes with Microsoft Office 2000 and includes a development environment for creating everything from simple macros to fully functional applications.



- Finally, Visio 2000 includes capabilities for linking shape information with databases. Every Visio 2000 shape can carry data within it—virtually any kind of information the developer wishes. The developer can link the data through ODBC (Open Database Connectivity Standard) to any ODBC-compliant database. For additional flexibility, developers can use the built-in VBA to link data to any external database and retain full control over how data is passed between Visio 2000 and the database.

## **Advanced development capabilities**

Organizations are increasingly looking to off-the-shelf components for building business solutions. Visio 2000 provides a mature, fourth-generation programming API with a refined object model that allows full automation and extraction. This allows Visio 2000 technology to be incorporated into custom solutions using not only VBA, but also Visual Basic, C++, Delphi, Java, or any automation controller.

Major improvements include:

- Enhanced Event Model—the ability to control the execution of certain events programmatically.
- Spatial Methods—a complete spatial search capability to do hit, shape proximity, and overlap testing programmatically.
- Reengineered UI System—more control over interface elements such as menus and toolbars.
- Visio 2000-hosted User Windows—the ability to put custom windows into the Visio 2000 multiple-document interface (MDI) frame. This allows the developer to add application-specific windows to the Visio 2000 user interface and have the Visio 2000 application manage them.
- Performance—increased performance and numerous ShapeSheet and API enhancements.

All Visio 2000 solutions are built using the same API and methods that are available for end-user development. All interfaces and functions are tested in commercially available applications.

## **One technology to support all diagramming needs**

Organizations are increasingly standardizing on technologies that can be broadly used across their enterprises. Reusable knowledge, technology infrastructure management, software and database development, facilities management, project management, business process improvement, engineering tools, and quality-control systems are some of the areas where Visio 2000 technology can be used to improve organizational effectiveness.

Visio 2000 software's support for scaled drawings allows it to be used for a wide range of diagram types. The ability for Visio 2000 to be automated allows it to generate diagrams from data on the fly, as well as collect information and save it to a database. The best demonstration of the breadth and depth of solutions possible with this technology is Visio 2000 itself, which was developed using Visio technology, as well as third-party solutions created on the Visio 2000 platform.

## **Integration with enterprise information**

Organizations are looking for ways to take advantage of the huge amount of data stored in newly deployed ERP systems. Visio 2000 can be used to visualize and cull meaning from this hidden wealth of data.

For example, Visio 2000 can automatically create organization charts based on the reporting structure kept in the ERP system. Or it can extract data for a manufacturing system shown in a Visio 2000 diagram to automatically produce bills of materials and estimated costs.

## **Lower Cost of Ownership**

A goal of most companies is to deliver greater value at lower cost. To support this goal, Microsoft Visio 2000 takes advantage of existing and evolving standards to reduce the overall cost of ownership of Visio 2000 products for the enterprise.

In most large organizations, Visio 2000 software is typically deployed and managed centrally by an IT department, or by individual business units with unique configurations and profiles. However, despite such increasingly demanding IT environments, Visio 2000 remains flexible and easy to install.



## **Decreased installation and deployment costs**

- Visio 2000 uses the Microsoft Windows Installer, helping users install only the components they need, when they need them.
- IT administrators can decide where Visio 2000 components or files will reside—on the client desktop or on the server. This flexibility leads to better resource management.
- Visio 2000 supports the terminal emulation model Windows Terminal Server, so that it can be installed on a Windows Terminal Server and used by multiple users simultaneously. IT administrators who adopt this thin client model can decrease deployment and maintenance costs through centralized administration.

## **Decreased support costs**

Twenty percent of desktop costs are attributed to end-user support (*Strategic Analysis Report*, The Gartner Group, March 1999). Visio 2000 eases the support burden by providing improved online Help with increased interactivity and a natural-language translator. In addition, Visio 2000 embraces the look of a Microsoft Office application to take advantage of the existing knowledge of Office users. Office 2000 technologies such as HTML Help have been integrated into Visio 2000.

## **Simplified licensing**

Visio 2000 is available through the Microsoft licensing programs, which make it easy and cost-effective to license Visio 2000 technology products across an entire enterprise. Detailed information on the variety of licensing options is available on the Visio 2000 Web site at [www.microsoft.com/shop](http://www.microsoft.com/shop).

## **Consulting services and third-party support**

Additional resources complement the internal development efforts of organizations that build software solutions using the Visio 2000 development platform. Visio Consulting Services offer the advice and knowledge of leading experts on Microsoft Visio 2000 products, architecture, and technical direction. Microsoft Corporation also offers a network of certified partners who provide custom application development.

## **Conclusion**

The Microsoft Visio 2000 platform can transform productivity applications into enterprise-strength tools that increase an organization's agility and reduce its costs. It introduces key functionality that reduces the cost of PC ownership and makes applications easier to use and more effective tools for generating, accessing, and communicating information.

Through superb integration with a full range of enterprise applications and resources, Visio 2000 provides a compelling platform for building business solutions. It offers new and improved ways to help an organization be more successful and competitive by delivering better results, faster.

## **For More Information**

For the latest information on Microsoft Visio 2000 products, visit [www.microsoft.com/office/visio](http://www.microsoft.com/office/visio).

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