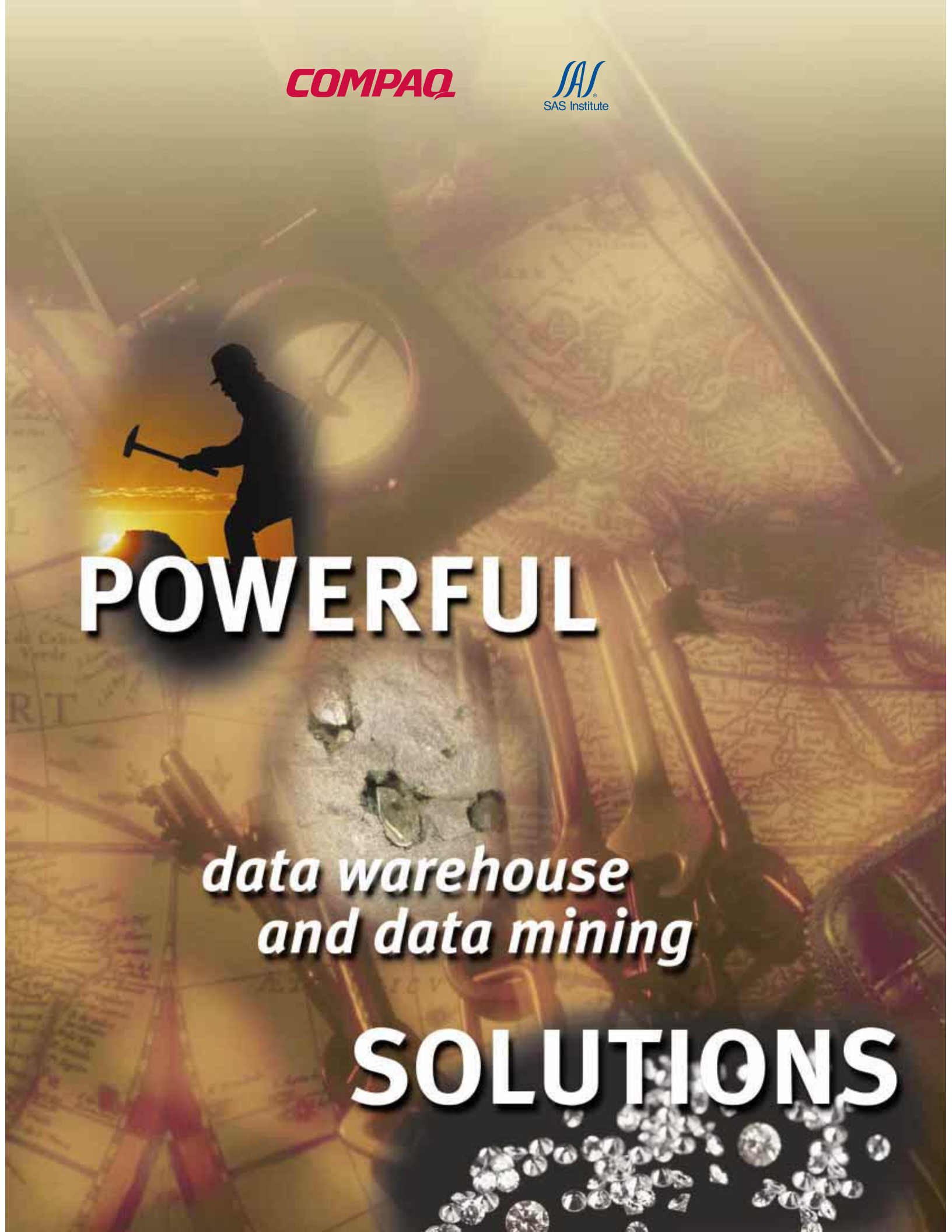
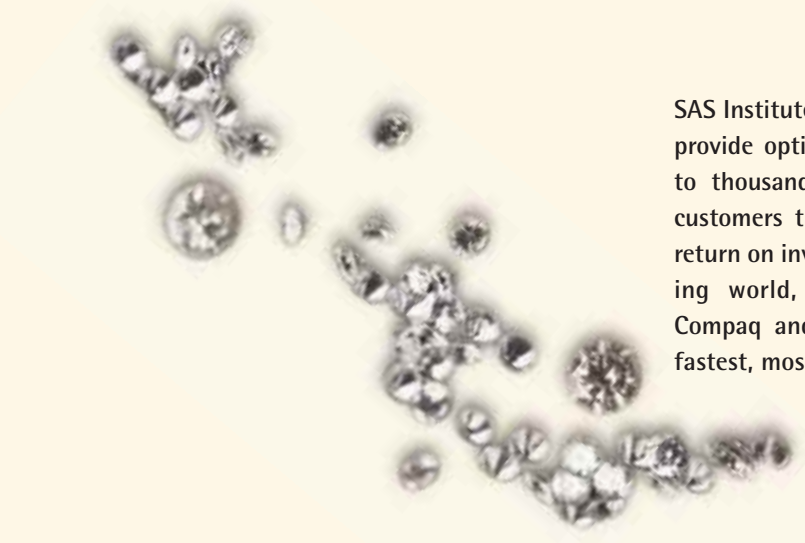

COMPAQ
SAS Institute
POWERFUL
data warehouse
and data mining
SOLUTIONS

*"Compaq is proud of its strategic partnerships with SAS Institute. Our ability to deliver performance-leading decision support and analysis solutions dates back to 1986, when SAS Institute ported its statistical analysis tools to Digital Equipment's VAX™ minicomputer. Now, the combination of SAS solution in data warehousing, data mining, and web-based business intelligence, together with Compaq's industry-standard Windows NT™ platforms, complete 64-bit UNIX® and OpenVMS™ computing environments, and world class services, continues to create competitive advantage and fastest time-to-solution for our valued customers."*

John Rose
Senior Vice President and General Manager
Enterprise Computing Group
Compaq Computer Corporation

Barrett Joyner
Vice President
North American Sales and Marketing
SAS Institute

*"As the long-established market leader in data warehousing and data mining, SAS Institute has capitalized on the dramatic advantages of the Alpha 64-bit architecture. Also, SAS Institute customers have benefited from the low cost of ownership and ease of deployment of Compaq's commercial-strength Windows and Windows NT platforms. We are delighted to offer our customers the full range of SAS Institute's industry-leading solutions on the most scalable, flexible, and powerful platforms today. Together, Compaq and SAS Institute are poised to provide our customers with even greater advances in information delivery."*



**SAS Institute and Compaq Computer Corporation partner to provide optimal data warehousing resources and expertise to thousands of their shared customers. Compaq offers customers the best-integrated solutions enabling a faster return on investment, greater agility in adapting to a changing world, and a sustainable competitive advantage. Compaq and the SAS Institute offer their customers the fastest, most responsive decision support environment.**

# Discover a vast treasure

You know that information is vital to your business. That's why your information systems are working daily to generate, collect, and store data for general ledger, inventory, lead management, order processing, and billing. Each day, each month, each year, computers are building your databases ever larger, ever faster.

But are you getting everything you need from your information systems? Not just to track your daily operations, but to plan and grow? Where do you look to see beyond the current year? What if the data you have now could help you make real decisions about your future?

## What if...

- **You want to know which products or which markets will be most profitable next year?**
- **You could save millions in bad debt by performing an instant credit analysis of each customer at the point of purchase?**
- **You could detect credit card or calling card fraud as it happens?**
- **You could discover market trends that would enable you to outflank the competition and double your revenue?**
- **You could target your marketing programs to specific prospects with a 90% or better probability of making a purchase?**

"With Alpha™, we can run the business using whatever operating system makes the most sense, and not worry about the underlying hardware. Alpha is clearly the fastest processor architecture, and the 64-bit UNIX file system and very large memory models are obviously a big advantage — especially for data-intensive work such as ours."

Frank Caserta
Business Unit Leader
Acxiom Corporation

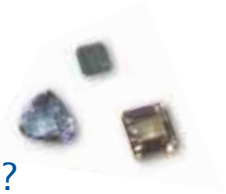
Achieving business results like these takes more than just data. It requires meaningful information derived from data sources all across your enterprise and beyond. The key is to gain new insight from data locked deep within your operational systems. Extract this valuable information and organize it to support creative and inquisitive decision making. Do it at lightning speed. And empower everyone in your organization with easy-to-use desktop tools to query and view information in a form that makes sense to their specific interest.

**Sound like a pipe dream?**
Compaq Computer Corporation and SAS Institute make it a reality today, with super-powerful, ultra-sophisticated data warehouse solutions that adapt and scale to solve virtually any need.

# Here's HOW.

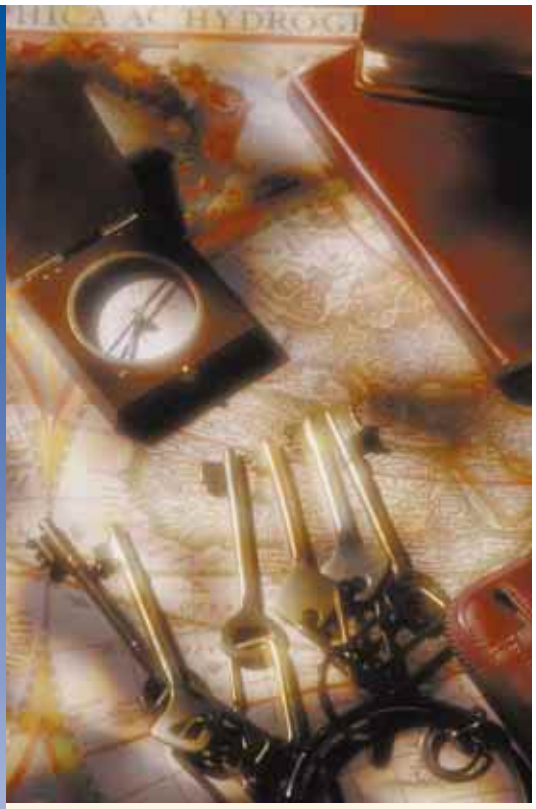
*powerful solutions*

# Explore your potential
## for decision support



What do you need to get an edge in today's dynamic, global marketplace? Information. It drives every aspect of your organization — every decision, each process change, any answer to a customer inquiry, your next competitive move. All require precise, reliable, organized information. And the faster you get it, the better.

With SAS Institute's comprehensive decision support tools and Compaq's powerful 64-bit Alpha and industry-leading Intel™ systems, you have the power to explore, analyze, predict, and report on the information that affects your success. Not in a few days... not even in a matter of hours. But often in seconds — in real time!



"[The SAS solution] facilitates the company's ability to perform its work better, faster, and cheaper."

Art Rerecich
Project Group Leader
Decision Support Systems
Lockheed Martin

### Turning mountains of data into precise knowledge

We're taking the traditional concept of accessing, storing, and reporting data to a new level. We bring together historical data from your legacy systems, current data from new operational systems, and external data from the myriad of information sources across the Internet. This expands your store of information to a nearly infinite degree. If that appears overwhelming, don't worry.

You get the tools you need to make sense out of this data at every level — to massage it and gain real business intelligence, not just reports. You can go beyond the past or even the present to perform complex modeling exercises, walk through "what if" scenarios, and generate accurate predictions.

**Most important,** you don't have to wait to get results. From your PC, you can interactively and visually probe detail-level data — getting on-screen answers to your questions in seconds.

powerful solutions

### Applying decision support for your business success

Business applications in virtually every industry — banking, consumer goods, financial services, government, healthcare, insurance, manufacturing, retail stores, telecommunications, and travel and tourism — will profit from data analysis. The possibilities are endless.

**Scour huge amounts of data** for significant relationships and patterns — find new market opportunities or answers to old, nagging questions.

**Discover unexpected purchase correlations** and capitalize on them with effective cross-selling programs.

**Gain valuable insight** into production efficiency, profitability, or service effectiveness by analyzing every detail of your operation — with point-and-click ease.

**Boost your telephone sales** with offerings tailored on-the-fly to a caller's interests and profile.

**Improve manufacturing efficiency,** consistency, and output by knowing the exact conditions that affect production yields.

**Minimize risks** with detailed financial profiles of applicants or customers at your fingertips. Or by knowing which suppliers are least reliable. Or which offerings are most effective.

**Maximize your bottom line** with accurate business forecasting and modeling to predict profitable markets and products.

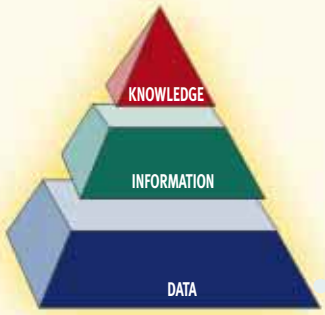
**Retain customers** by understanding what affects their satisfaction and buying habits. And which service programs they prefer.

**Make every marketing dollar work** by targeting specific customers, at specific times with promotions your analysis shows will succeed.

Whether it's a matter of competing more effectively in a global marketplace, responding to rapidly changing financial conditions, reducing time to market, minimizing customer churn, increasing sales hit rates, uncovering opportunities, lowering risks, or setting a strategic business course, **SAS Institute and Compaq give you the power and intelligence to be successful.**

# Unlock your fortune
## with Compaq and SAS Institute

SAS Institute and Compaq are unique in their respective markets. Both are leaders with product capabilities unmatched by competitors. SAS Institute and Compaq bring together complementary capabilities that work to your advantage.




### KNOWLEDGE

Business forecasting
Econometric modeling
"What if" simulations
Manufacturing yield analysis
Customer retention analysis
Risk management

### INFORMATION

Year-to-date comparisons
Financial reporting
Quality control
Business/branch performance
Cost of sales
Inventory analysis
Customer service analysis
Clinical research progress

### DATA

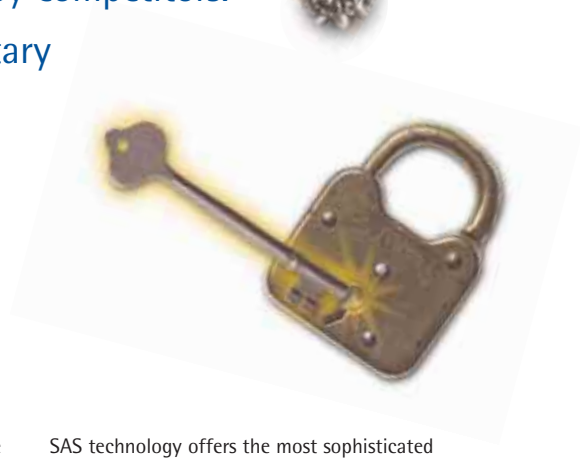
Order/shipment reports
Call reporting summaries
Scientific data collection and summarization
Shop floor reports
Clinical trials data
Accounts receivable/credit reports

powerful solutions

**Build your vault with data warehouse software from SAS Institute**

SAS Institute is the world's leading supplier of information delivery and enterprise decision support systems, and is the only company today able to offer a complete range of data warehousing and data mining solutions. SAS Institute is renowned for its ability to manipulate and present data to meet the most demanding needs of businesses and institutions. In fact, SAS® software is in use at over 31,000 customer sites around the world. The reason is simple — **SAS applications deliver results!**

Based on a client/server architecture, SAS software includes data acquisition, cleansing, and storage tools that bring together more than 50 different data types into a common data warehouse. Let's face it — most organizations have many diverse operational systems to support their business functions. **SAS software brings them all** — relational, hierarchical, and multidimensional — **together in a consistent, portable format.** And SAS software fully supports Open Database Connectivity (ODBC) to ensure that your database is accessible by a variety of external applications.



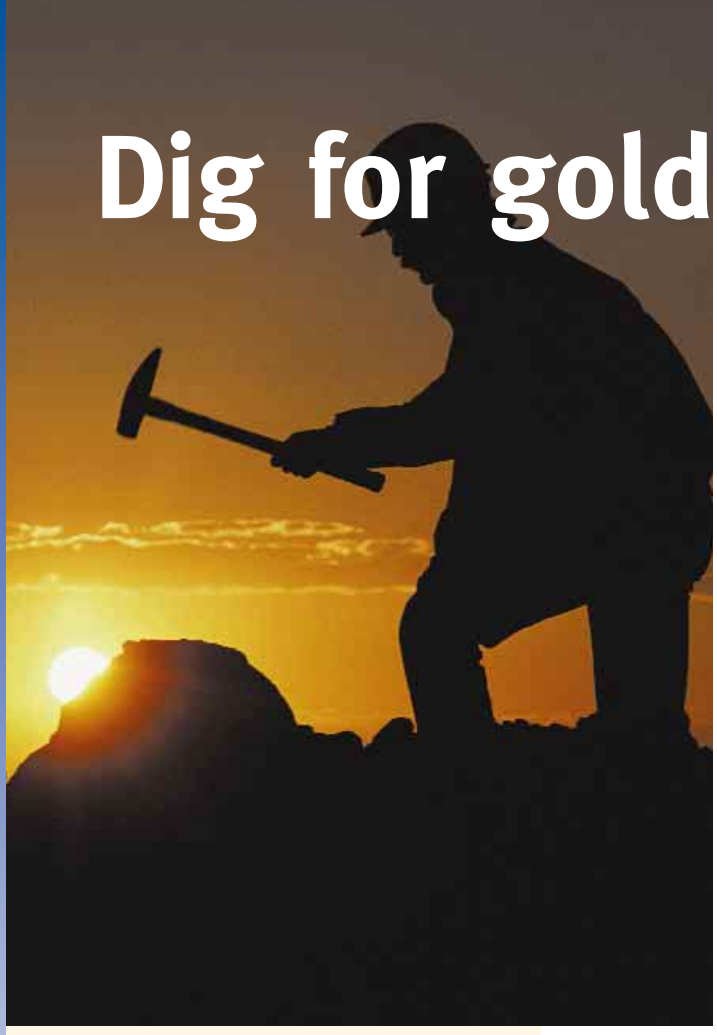
SAS technology offers the most sophisticated tools in the industry to exploit data. For instance, SAS software supports complex research tasks with data summarization, "i-test," analysis-of-variance, regression analysis, and non-parametric tests. SAS software offers an extensive range of analytical techniques that can satisfy the most straightforward to the most complex inquiry, while also excelling at exploration and data visualization.

SAS software offers the latest technologies for state-of-the-art data warehousing. Executive information systems **(EIS)**, extended on-line analytical processing **(OLAP)**, multidimensional database modeling **(MDDB)**, and the **SAS/Warehouse Administrator™** can help organize, manage, and facilitate decision support processes for any type of user need.

**SAS software is also Web-enabled, making the power of SAS solutions easily available to any desktop.** Using your PC with a standard Web browser, you can view, share, and distribute SAS reports across your company's intranet, enabling immediate access to information for everyone who needs it.

"The [SAS and Compaq] solution is elegant, universal, extremely easy to manage, and highly evolutionary."

Jean-Pierre De Cormis
Manager, Securitization Group
Crédit Lyonnais



# Dig for gold with the SAS Data Mining Solution

Data mining is the key to better decision-making. Data mining enables you to understand and to respond quickly to new market conditions and opportunities by analyzing tremendous volumes of data from many sources and making the results available in an actionable form throughout your business.

"We went with Digital [now Compaq Computer Corporation] because they were able to fulfill all our needs and keep pace with us as the data warehouse requirements evolve. Our application is CPU intensive, and the AlphaServer 8400 makes all the difference in our ability to process information quickly and effectively."

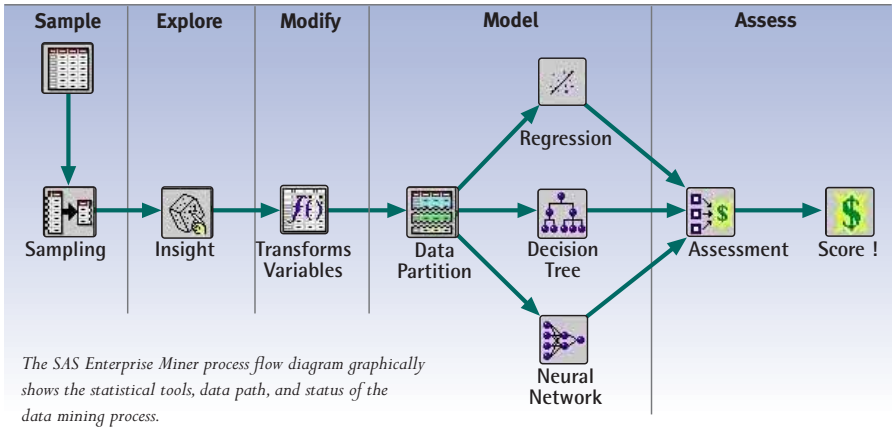
Mr. S. Ramakrishnan
Vice President, Group MIS Head
Global Consumer Banking
Citibank Asia Pacific

With SAS Enterprise Miner™, your data warehouse becomes a dynamic tool for planning and executing growth strategies for a broad base of managers and knowledge workers — not just quantitative specialists.

In marketing applications, for example, data mining software uncovers hidden relationships in customer transactions as well as demographic and lifestyle data. You can use results of these analyses to design promotions and programs to acquire customers, retain customers, and identify up-sell and cross-sell opportunities that increase profits and enhance customer lifetime value.

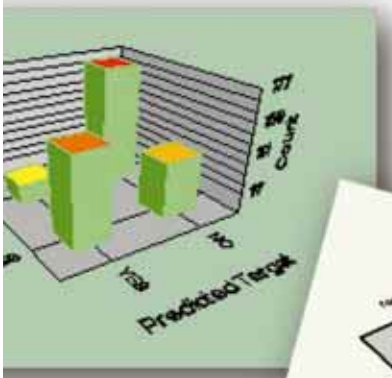
Industry-specific uses of data mining include:

- **Banking and finance:** credit scoring, credit card fraud detection, portfolio analysis, cash planning
- **Insurance and health care:** claims analysis, fraud detection
- **Telecommunications:** call behavior analysis, churn management, fraud detection
- **Retail/marketing:** market basket analysis, category management, credit scoring
- **Manufacturing and utilities:** process management, demand pattern identification, capacity planning, inventory planning



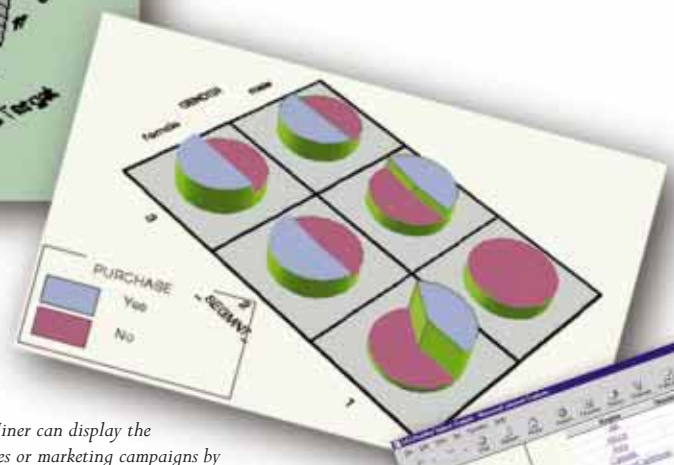

*The SAS Enterprise Miner process flow diagram graphically shows the statistical tools, data path, and status of the data mining process.*

**SAS Institute pioneered the concept of data mining.** The SAS Data Mining Solution includes software and services that allow you to explore large quantities of data and discover relationships and patterns that lead to proactive, profitable decision making. The SAS Data Mining Solution answers the needs of both business technologists and quantitative experts with an easy-to-use, easily maintained solution to help your organization achieve competitive advantage.



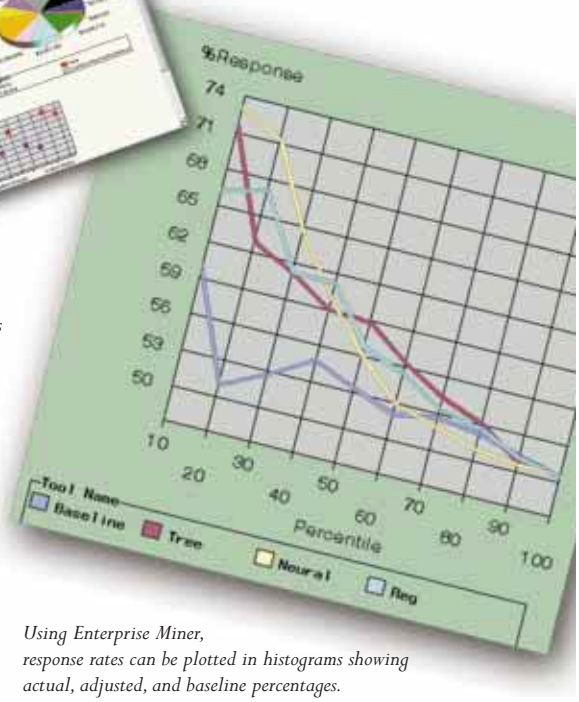

*Enterprise Miner software's data visualization capability compares actual direct mail response against theoretical models with 3-D displays.*

> "The AlphaServer™ 8400 has proven to be both a cost-effective platform for data warehousing - and a powerful engine for decision-support tools. The overall speed of the environment is great. It has truly changed our world."
>
> Mary Ann Francis
> Director of Database Systems Development
> Fannie Mae




*Enterprise Miner can display the results of sales or marketing campaigns by combining purchase data with other parameters for multiple defined segments of a target population.*

*SAS/IntraNet software enables PC users to post and access decision support data and graphics across company intranets, using standard Web browsers.*




*Using Enterprise Miner, response rates can be plotted in histograms showing actual, adjusted, and baseline percentages.*

## Enterprise Miner finds the gems

Enterprise Miner, SAS Institute's enhanced data mining software, is **the way for companies like yours to get the most value from their data.** The results you get from data mining are only as good as the quality of the data that you are mining, which is why Enterprise Miner is built upon SAS software's end-to-end data warehouse infrastructure and powerful statistical analysis tools.

It is the *only data mining product* to offer

- a wide range of client/server support
- access to all common databases
- off-the-shelf models and algorithms
- common, visual user interface for its primary users
- integration with SAS Institute's proven, acclaimed data warehousing strategy

**Enterprise Miner software offers you** micro-mining ease of use with macro-mining analytical depth for all types of users — business analysts, quantitative experts, and IT professionals.

Enterprise Miner is also the first product to **address the entire data mining process within one complete solution.** All of the functionality needed to sample, explore, modify, model, and assess data can be launched through a graphical user interface (GUI) called a Process Flow Diagram (PFD), which you can customize and save. Using the PFD, a business technologist with little statistical expertise can navigate the data mining process quickly and easily, while a quantitative expert can go "behind the scenes" to fine-tune the analytical processes.

Behind the GUI, Enterprise Miner contains a collection of sophisticated analytical tools that enable you to create and compare multiple models. Statistical tools include clustering, decision trees, CHAID, linear and logistic regression, and neural networks. Data preparation tools include outlier detection, variable transformations, random sampling, and data set partitioning. Advanced visualization tools enable you to examine large amounts of data in easily understood multidimensional histograms, and to compare modeling results graphically.

**The result: your organization can be more profitable because your decision makers have the right information to make the best business choices.**

From simple, graphical interfaces for the casual user to sophisticated tools enabling experts to perform complex, bone-crushing algorithms with breath-taking speed — only SAS Institute and Compaq have them all.

fulsolutions

# Drive the quest with record-breaking performance

With the incredible volume and diversity of data at your disposal, you need a data warehouse engine that can meet your demands. With Alpha, Compaq is the leader in 64-bit solutions, and Compaq AlphaServer systems continue to define the standard for 64-bit, high-performance computing for a broad range of enterprise applications for Digital UNIX from Compaq, OpenVMS, and Windows NT environments.

**Today, with Compaq AlphaServer and ProLiant™ systems, Compaq offers you the most powerful solutions** with the best scalability in the industry.

The Alpha architecture pioneered 64-bit technology and now offers its third generation of 64-bit processors — the most powerful CPUs in the world — and the industry's most mature, production-tested 64-bit computing environment. **From the smallest departmental data mart to the largest corporate data warehouse, Compaq Alpha systems can handle them all — up to 28 gigabytes of memory and up to 39 terabytes of data storage.**

VLM64 (very large memory) technology from Compaq enables direct access to as much as 28 gigabytes of memory, making even the most complicated, data-intensive applications incredibly fast. You can even achieve query performance levels approaching 300 times that of a disk-based system. That means you get results to queries and analysis in **just seconds rather than hours!**

Now add Compaq Digital UNIX and OpenVMS operating systems — designed and optimized for the 64-bit environment — plus the SAS applications that are tuned to take full advantage of the Alpha platform, and you have the most complete 64-bit environment available today. Or choose industry-leading Windows NT platforms that cluster, scale, and network to provide flexibility, growth, and ease of use in any environment.

Compaq AlphaServer and ProLiant systems lead the industry in scalability, from single-processor desktop systems to Symmetric Multiprocessing (SMP) with up to 14 processors per system, so you can cost effectively grow your compute power as your needs evolve. And with TruCluster™ and OpenVMS cluster technologies to maximize the performance, scalability, and availability of your data warehouse solution, you can continue growing — all at a fraction of the cost for a mainframe.

Compaq personal computing and workgroup server systems also bring you leadership in Windows NT, the fastest-growing operating system for enterprise solutions, supported by the Compaq and Microsoft Alliance for Enterprise Computing and more than 5,000 Microsoft-certified engineers. Windows NT software runs on both Intel and Alpha systems today and, with Alpha, Compaq will be the first vendor to offer 64-bit Windows NT systems.

powerful solutions

"With the growing need to react quickly to changes in the marketplace, the tools SAS Institute provides us will significantly enhance our ability to manage our business."

Francesca Shaw, Vice President
Retail and Small Business Lending Division
Visa Marketing Group

# Reap the riches
## whatever your business

powerful solutions

Many businesses and institutions are already realizing exciting results from this unique information solution — and many more are discovering new ways to put information to work for their unique advantage.

### IN BANKING...

Banking and financial services organizations can use data warehousing for risk management, econometric modeling, customer retention programs, and other applications. **Using data mining,** one of the largest banks in the U.S. is able to determine who its best new customers will be and target them with specific programs. 64-bit computing performance allows this bank to **detect credit card fraud almost as it happens, saving millions.** By automatically "scoring" a loan application, process efficiency has improved dramatically, while risk has been minimized. Given the vast amounts of data involved, and the need to reduce that data into detailed statistics for effective data mining, AlphaServer systems from Compaq and SAS software are the only practical choice.

### IN PHARMACEUTICALS...

The pharmaceutical industry uses data warehouse technology to analyze clinical data, quality control, and sales. For example, one of the world's largest providers of allergy and asthma medication uses a data warehouse **to maximize its sales effectiveness** within the challenges of a managed care environment. By analyzing data such as a physician's managed care affiliations, lists of approved drugs for each group, what prescriptions a physician is actually writing, and who pays for them, the company's sales representatives can customize and deliver a message that addresses each physician's actual needs. In addition, managers can get an insightful view of the marketplace based on individual user requests in seconds. Thanks to the power of 64-bit computing, this pharmaceutical company is able to **deliver this information to the field 30 days ahead of the competition.**

### IN MANUFACTURING...

A prominent semiconductor manufacturer is a long-time user of SAS software. In its northeast fabrication facility, yield and process engineers conduct rapid, in-depth analysis of production data for **continual improvement in manufacturing efficiency.** Merging electrical test data with in-line production data, the SAS data warehouse helps them discover detailed factors that affect yield, variability, and performance. By using SAS programs to conduct failure analysis, they can minimize test chips and **focus on revenue-generating production.** With yield modeling, they can forecast the frequency and distribution of failures so our engineers know how many spares to design into the process, helping to increase yields significantly. Most important, all of this analysis provides results on an engineer's desktop in seconds. **Without the power of 64-bit computing, the same analysis could take hours or days.**

### IN HEALTH CARE...

A leading cancer research center is using SAS data exploitation tools to bring new hope to children with the life-threatening disease. SAS software allows researchers to evaluate scores of prognostic factors that are obtained from demographic features, laboratory studies, and radiographic studies. The system **uncovers patterns among patients,** indicating who will benefit most from specific therapies. Based on data analysis, doctors can choose treatments that offer the most benefit and the least risk.

### IN PUBLISHING...

Database marketing helps publishers and direct marketers pinpoint promotions and product offerings for maximum return. One global publisher is integrating demographics with customer buying patterns to model consumer behavior and to **predict the best prospects for particular products.** The analysis uncovers relationships that suggest cross-selling of products from one end of the company to the other. This publisher also uses test offer data to **tailor precise messages that win customers.** The complexity of data manipulation and analysis needed is enormous; yet, through the power of 64-bit computing and the sophistication of SAS software, this publisher has cut analysis time from four weeks to a few hours. As a result, offers can be continually refined to **capture immediate opportunities — and enhance the bottom line.**

# Stake your claim
## to the future

"In order to gain a deeper understanding of each of our 6 million customers, CIBC intensively analyzes gigabytes of data. The AlphaServer's 64-bit memory addressing, power, reliability, and scalability provide the optimal environment to leverage the comprehensive capabilities of the SAS product suite."

Robert Carroll, Vice President
Relational Sales and Marketing
Canadian Imperial Bank of Canada

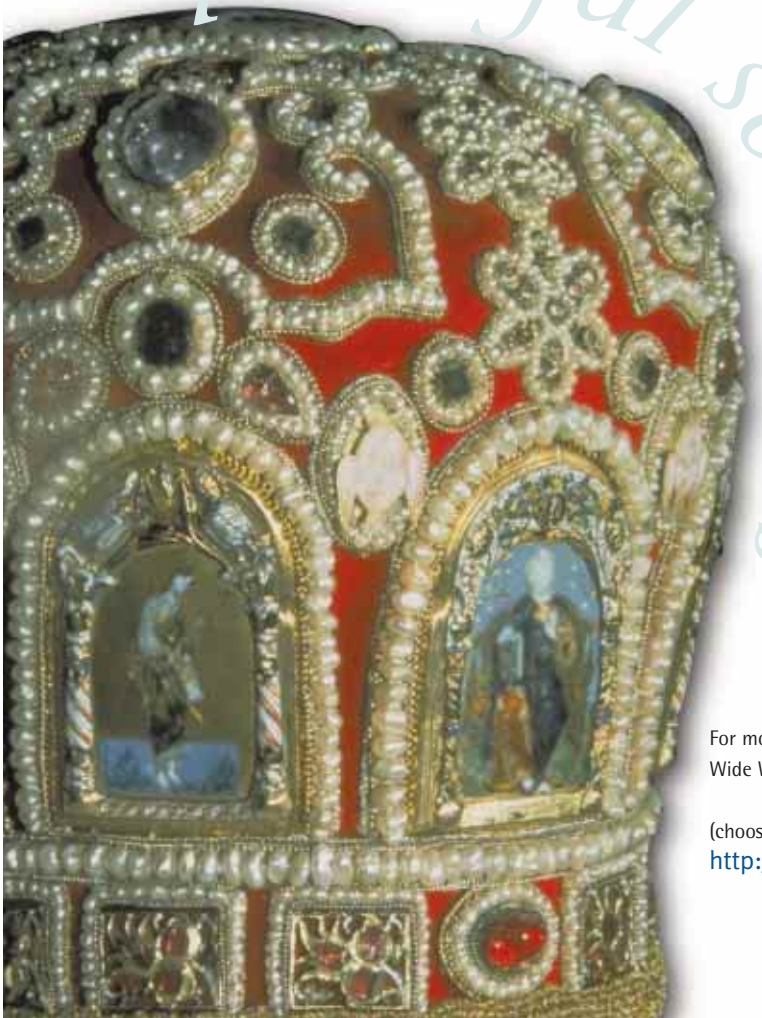
The unparalleled speed of 64-bit AlphaServer systems from Compaq and award-winning Compaq ProLiant servers for Windows NT, plus the world-leading decision support capabilities of SAS software will **open new passageways** to business effectiveness, competitiveness, and profitability.

Here is a straightforward technological solution that delivers precise, **decision-affecting information to your fingertips — in seconds!** Information that could mean millions in your next financial transaction... shave months off your production schedule... help you preempt the competition and win a key new account... or save countless dollars by avoiding low-profit or poorly performing programs.

**Compaq and SAS Institute deliver results!**

Compaq and SAS Institute will work together to ensure that you get the results you need. We both offer a full range of services, as do our system integration partners, to help you plan and implement the right solution. **SAS consultants can help you fine-tune the data warehouse to your precise needs.** Compaq can supply all your computing needs, from desktop computing and servers to networks, storage, and integration services. We also work with world-class consultants to develop an enterprise-wide strategy that supports your information needs. Our partnership means you can count on faster, more sophisticated data warehouse capabilities as technologies evolve.

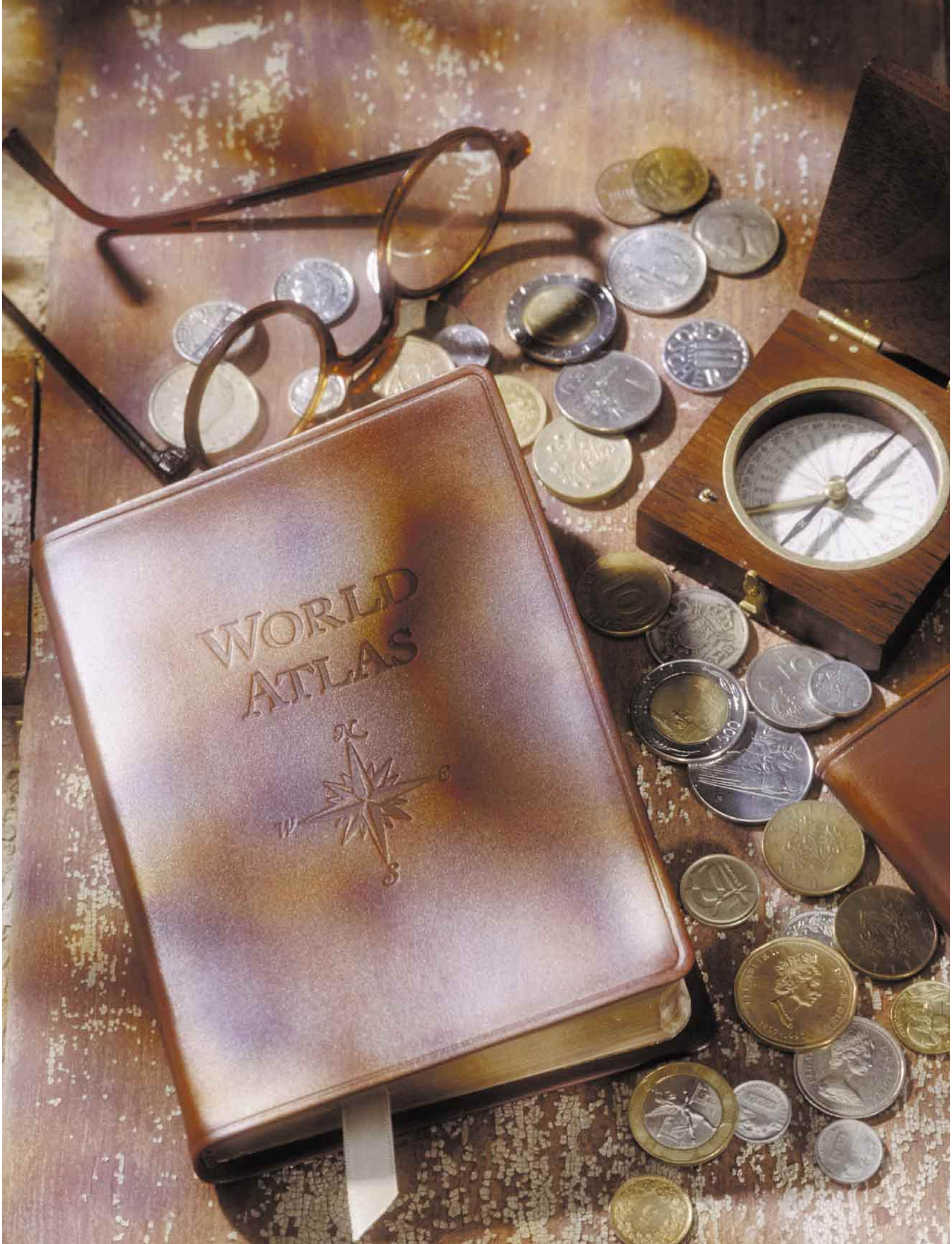
*powerful solutions*



If you want to make a critical difference in your business, move quickly. Investigate a complete information delivery solution from SAS Institute and Compaq. **It doesn't take a treasure map to see that your future is in your hands.**

For more information about our data warehousing solutions, contact us on the World Wide Web at: http://www.sas.com

(choose Data Warehousing or Data Mining)
http://www.digital.com/info/alphaserver/bus-intell/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# Put information to work
## for your business advantage.

**Join the winners!** Compaq and SAS Institute have received many awards for product excellence from major industry publications and research organizations. Among them:

### SAS Institute

**Most Comprehensive Data Mining Offering, "Data Mining Market Trends,"** The META Group, 1997-1998

**Datamation magazine's Product of the Year, Data Warehouse category,** 1996 and 1997

**17th in Software magazine's Software 500 and a Top Ten Independent Software Vendor,** 1997

**Software magazine's Editor's Choice for Best Decision Support Tools Company,** 1997

**Data Warehouse World's World Class Data Warehouse Award,** sponsored by *Data Management Review* and International Data Corporation, 1996

**DCI Data Warehousing World's Data Mining Gold Rush Gold Medal,** sponsored by The META Group, 1996

### Compaq Computer Corporation

**Compaq ProLiant 7000 named Enterprise PC Server of the Year** by *Network* magazine, 1998

**Compaq wins CIO Web Business 50/50 Awards as among the Top 50 Internet and Top 50 Intranet Sites**, July 1, 1998

**AlphaServer wins Datamation magazine's Server of the Year award**, April 1998

**Compaq captures 10 AIM Hot Iron awards, keeping all-time industry lead,** March 1998

**AlphaServer wins NewMedia magazine's Hyper award in Internet Servers category**, February 1998

**AlphaServer 8400 5/440 is among four finalists for PC Week**


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