

DMG Consulting LLC provides this white paper on calculating the return on investment for speech recognition applications.

— **Editor**

Customer Service Newsletter

www.CustomerServiceGroup.com

The Intimate Connection Between Customer Satisfaction and ROI

By Donna Fluss, Principal

DMG Consulting LLC

March 2003

Executive Summary

Speech recognition offers one of the highest proven Returns on Investment (ROI) in the contact center market place. Almost any enterprise that uses live agents to handle repetitive tasks will realize a six to 12 month payback from a speech recognition investment.

Speech recognition has traditionally been considered a contact center productivity tool. Today, it not only improves productivity inside and outside of contact centers, but is also generating revenue for companies -- **it's the most compelling form of customer self-service**. Speech is one of the few investments that help companies simultaneously reduce expenses, increase profits and satisfy customers.

Speech recognition technology and best practices are proven, enabling companies in all industries to benefit from its many capabilities. The hard-dollar benefits coming from productivity enhancements, cost reduction, cost avoidance and revenue generation are quantifiable and easily benchmarked.

Conducting a ROI analysis is an essential component of any technology investment decision. While each purchase is unique and the benefits will vary based on the requirements of each company, there are proven techniques for obtaining approval for speech initiatives. Following these ROI guidelines will increase the chances of obtaining project approval and will virtually ensure the success of an investment in speech recognition.

Introduction

Customers choose to do business with companies that provide the products and services they need *and* deliver an outstanding experience. Customers expect excellent service and will quickly abandon a business relationship when service quality does not live up to their expectations, even when the products are adequate. Companies must find ways to satisfy increasingly demanding customers while decreasing their own operating costs and improving profit margins.

Speech recognition is the most compelling form of self-service for companies large and small because it's satisfying for customers and cost effective for enterprises. A well-designed speech application gives customers the information they want, the way they want, when they want it. It doesn't require customers to wait for their PC to "boot" or to navigate a Web site in the hope of finding answers. It doesn't force customers to remember and enter numbers into their touch-tone phone to obtain only a portion of the required information. Nor does it force callers to repeatedly hang up and start over, a common occurrence in many Interactive Voice Response (IVR) environments. A well-tuned speech recognition application anticipates questions and provides accurate answers in a user-friendly manner that promotes a positive customer experience.

The economic slowdown has accelerated the need to automate a larger percentage of service requests. With few exceptions, companies can no longer afford to provide live assistance to all callers; it's simply too expensive. According to Gartner Group, a typical service call costs \$5.50, as compared to \$0.45 for a call handled by an IVR. Companies that use speech recognition will improve service quality and enhance the customer experience while reducing costs, giving them a distinct competitive advantage.

With so much pressure on enterprises to provide great service at a competitive price, speech recognition is essential for all industries: financial services, airlines, government, public sector, non-profit, retail, utilities, health care, pharmaceutical, insurance, outsourcing, telecom and others. Worldwide investments in speech recognition were \$695 million in 2002 and are expected to grow to \$1.4 billion by the end of 2004, according to Datamonitor. The technology is proven and best practices so well established that the downside risk is minimal and the potential payback is great, typically yielding a positive Return on Investment (ROI) in six to 12 months.

Speech Recognition Benefits

Speech recognition has traditionally been viewed as a contact center productivity tool for service organizations because that is where the financial payback has been the greatest. But the technology has already proven effective in improving productivity and generating revenue outside of contact centers, when used throughout the enterprise. On the productivity side, speech recognition yields the following benefits:

- > Reduces calls to live agents,
- > Shortens call lengths,
- > Reduces call hold times, and
- > Decreases call abandonment rates

Speech technology is being used to increase revenue by automating activities that previously required agent assistance, such as a credit line increase or cross-selling a related service, and by providing new services, including voice portals, voice activated dialing and e-mail reading.

For both enterprises and their customers, the financial benefits of a properly implemented speech recognition system are huge whether a speech system is new or added to an existing IVR application. Dreyfus, a financial institution that receives 12,000 calls per day, increased its IVR self-service usage rate from 45% to 63% and saved an additional \$1 million/year by adding speech to its existing IVR platform.

Customers prefer speech recognition to other forms of self-service automation because it requires nothing more than talking, and the access device, the telephone, is so ubiquitous. Because customers are willing to use speech applications, the payback can be as short as six months and is generally no longer than 12 months.

The benefits of speech self-service extend far beyond the measurable financials that are required to obtain investment approval. Enterprises that implement speech systems should expect to see improvements in employee satisfaction, as agent burnout and turnover decrease and repetitive inquiries are offloaded to automated systems. Companies will also see an improvement in customer satisfaction, particularly if the company has speech-enabled a touch-tone based IVR application.

What is ROI?

ROI is a group of measures used to determine the financial impact of an investment. The three most common ROI measures are:

- > Payback period – the number of months or years it takes for a project to earn back its initial investment;
- > Net Present Value (NPV) – the sum of all project costs and benefits expressed in the value of today's dollar; and
- > Internal Rate of Return (IRR) – a measure of how much an investment is earning, expressed as a percentage.

Most organizations have ROI guidelines incorporating some or all of these measures and present financial approval thresholds that are issued annually by the office of the CFO. It's important to obtain and use these guidelines, as they explain what it takes to get approval for a project and will save managers a great deal of time and effort.

Speech Recognition Return on Investment

Technology investments that improve productivity and have an ROI payback of 12 months or less are being approved in many organizations, even during tough economic times. Investments in speech recognition applications can be justified because their benefits are readily quantifiable. In order to track and report the success of any project, it's always a good idea to benchmark an operating area or function prior to making an investment.

Speech Recognition ROI Model

ROI models for speech systems – or any technology purchase – need to be customized for each investment, as the savings will vary by site even within organizations. The following chart is a model typical of many service organizations in the financial services, utilities, insurance, and travel industries. This company pays \$0.04/minute for its phone service and had a 25% customer completion rate from its touch-tone based IVR prior to introducing speech. The model reflects the financial benefits of introducing speech recognition technology into a customer service contact center that receives five million calls per year, has an agent average talk time of four minutes, an IVR talk time of two minutes, a 90 second wait time, and a cost of \$5.00 per call.

As the cost per Dual Tone Multi-Frequency- (DTMF, also known as touch-tone IVR. (See Appendix A) handled call was \$0.45, 91% lower than the \$5.00/agent-handled calls, the contact center needed to improve its phone-based, self-service solutions to reduce its operating expenses and improve its productivity and service quality – the mantra for all contact centers. After analyzing the options, the enterprise chose to introduce speech technology to improve the ease of use and navigation of the existing DTMF system and introduce new functionality. Customers can use speech recognition software to change their names and addresses in a secure environment, obtain complex information that they couldn't previously request on the phone using touch-tone data entry, as well as have access to all the standard functions like obtaining information, requesting balances, making payments, scheduling appointments and placing orders.

Speech Recognition ROI Model

Assumptions					
		Baseline	Year 1	Year 2	Year 3
Total incoming calls		5,000,000	5,000,000	5,250,000	5,512,500
Touch-tone IVR Automation %		25%	25%	25%	25%
Automation % uplift from adding speech		0%	11%	14%	16%
Incremental automated call volume		N/A	562,500	721,875	895,781
Average agent talk time (minutes)	4.0				
Average talk time of speech IVR (minutes)	2.0				
Average talk time of DTMF IVR (minutes)	2.0				
Average hold time for agent calls (minutes)	1.5				
Toll-free cost/minute	\$0.04				
Cost per agent-handled call	\$5.00				

Expenses					
One Time Investments					
DTMF ports (hardware/software)	\$ 48,000				
Speech ports (software)	\$ 76,800				
Development, implementation and integration costs	\$ 300,000				
Total one-time investments	\$ 424,800				
Annual Costs					
		Year 1	Year 2	Year 3	
Incremental DTMF ports (hardware/software)		\$ -	\$ -	\$ 48,000	
Incremental speech ports (software)		\$ -	\$ -	\$ 19,200	
Follow-on software development		\$ 150,000	\$ 100,000	\$ -	
In-house support (1 FTE)		\$ 100,000	\$ 100,000	\$ 100,000	
DTMF port maintenance (18%)		\$ 8,640	\$ 8,640	\$ 17,280	
Speech port maintenance (18%)		\$ 13,824	\$ 13,824	\$ 17,280	
Total annual costs		\$ 272,464	\$ 222,464	\$ 134,560	

Benefits					
		Year 1	Year 2	Year 3	
Displace calls from live agents		\$ 2,812,500	\$ 3,609,375	\$ 4,478,906	
Reduced call length		\$ 45,000	\$ 57,750	\$ 71,663	
Reduced call hold time		\$ 33,750	\$ 43,313	\$ 53,747	
Total annual savings		\$ 2,891,250	\$ 3,710,438	\$ 4,604,316	

Return on Investment					
Pay-back Period (months)	1.9				
Internal Rate of Return	646%				
Net Present Value (3 years @12%)	\$7,875,477				

The customer service investment in speech recognition required \$324,800 in start-up costs in year zero. Start-up costs included:

- > 12 additional IVR ports at a cost of \$4,000/port for hardware and software
- > 48 speech ports at a cost of \$1,600/port
- > \$200,000 for developing, implementing and integrating the voice user interface. This cost also covers the fee for the “voice talent.”

The most common and practical way to implement speech recognition technology is to add it to a touch-tone IVR system. This model reflects a one-to-one relationship between touch-tone IVR and speech ports. (See Appendix B: Speech Recognition Cost Estimates.) As the speech software sits on top of the touch-tone IVR hardware, no incremental hardware costs are incurred when speech software is added. The incremental costs to handle the increasing call volume, new software development and internal and external support were \$272,464, \$222,464 and \$134,560 respectively in years one through three. The payback from adding speech to the DTMF environment was an immediate 1.9 months. The investment had a net present value of \$7,875,477 and an internal rate of return was 646% during the three years. This investment contributed \$2.9 million to the company’s pre-tax bottom line during its first year.

The DTMF and speech port requirements are calculated based on the contact center’s busy hour call volume. IVR software is sold in increments of 12 ports so this model rounded the required number of ports up to the nearest multiple of 12. With a baseline 25% DTMF utilization rate, only 30 ports were needed to handle the IVR touch-tone volume. The IVR usage increased from 25% to 36%, a 45% increase, when speech recognition software was added to the environment. This increased the DTMF and speech port requirements to 41. Year one also included an investment of \$150,000 in software. In year two, an additional \$100,000 was spent to enhance the application’s capabilities and use of the speech-enabled IVR increased to 55%, bringing the port requirements to 45. By the end of year three, the utilization rate had increased by 65% above the original usage, increasing the DTMF and speech port requirements to 50.

Speech Recognition ROI Checklist

- > Identify business needs
- > Obtain corporate technology investment guidelines
- > Set up cross-functional project team
- > Determine technical requirements, including integration needs
- > Document functional and technical requirements
- > Issue request for information (RFI) (optional) and request for proposal (RFP)
- > Assess RFP responses
- > Compare investment options (ROI: payback, NPV and IRR)
- > Incorporate soft benefits into the analysis
- > Make selection
- > Benchmark operating area prior to implementing new technology
- > Reflect responsibilities and deliverables in contract
- > Draft detailed project plan
- > Measure project success
- > Communicate project success

Speech Recognition Justification Criteria

Technology investments must be justified based on hard and quantifiable benefits, as these are the only measures acceptable to Chief Financial Officers (CFOs) today. However, the technology selection decision should reflect both hard and soft benefits, as both are relevant to the department's performance.

Cost centers can justify speech investments on:

- > Productivity improvement – reduction in agents, supervisors, trainers, QA specialists
- > Cost reduction – reducing the number of calls, agent talk time, line charges (from reduced agent talk time and hold time), hiring and training costs
- > Cost avoidance – eliminating the need to purchase additional hardware or software to handle incremental calls

Profit centers can also include incremental revenue in their ROI analyses, even though CFOs will not accept soft benefits, as they can't be easily quantified or attributed to a particular investment. Speech recognition soft benefits that an enterprise should still evaluate during the selection process include:

- > Reduction in the number of abandoned calls
- > Reduction in customer call backs
- > Reduction in call center hardware and software
- > Reduction in agent attrition
- > Increase in customer satisfaction
- > Increase in customer loyalty
- > Increase in revenue

Industry Metrics

To accurately calculate the payback from a speech application, the following metrics must be known:

- > Average call length
- > Average talk time of the DTMF IVR
- > Average talk time of the speech IVR
- > Average hold time for agent calls
- > Toll free cost/minute
- > Cost per agent-handled calls

If these numbers are not readily available from the existing system reports of an Automatic Call Distributor (ACD), IVR or telecom provider, it's suggested that enterprises use

numbers from industry analyst firms such as Gartner Group, Forrester Research or Datamonitor, for example.

Industry Variability

When calculating a ROI, it is advisable to use conservative estimates for cost savings, operating expenses and depreciation to ensure that commitments can be met. This ROI analysis is based on a three-year depreciation schedule, the generally accepted time frame for technology investments, but it's not uncommon for companies to depreciate equipment over a five-year period. While the technology in this model is depreciated quickly, most touch-tone and speech systems are maintained for at least five years, so the net present value and internal rate of return will be even greater than what is reflected in the model.

The cost per DTMF IVR transaction varies greatly between companies, depending on the usage rate of the system. Gartner Group estimates the average cost per IVR transaction to be \$0.45, however high-volume users have reported rates of less than \$0.10 per transaction and companies that are not using their DTMF system effectively can realize costs as great as \$1.00/transaction.

DTMF usage rates are impacted by the quality and ease of use of the script, system purpose (informational vs. transactional), system functionality, customers' experience, and willingness of customers to use the IVR. The table below reflects the experience of different industries with DTMF.

DTMF Utilization Rates

Industry	Purpose	Examples	DTMF Call Completion Ranges
Financial Services	Informational	Account balances, stock quotes, branch locations	40% to 90%
Financial Services	Transactional	Transferring funds, making payments, credit line increases, stock purchases, collections	25% to 65%
Insurance	Informational	Health care coverage, list of doctors in a plan, claim verifications	20% to 60%
Insurance	Transactional	Making payments, challenging claims	20% to 45%
Travel	Informational	Time schedules, arrival and departure times, checking loyalty program status	35% to 65%
Travel	Transactional	Reservations, booking seats, reporting lost luggage	25% to 60%
Utilities	Informational and Transactional	Billing information, payments, turning service on/off	10% to 20%

Speech Recognition Projected Utilization Guidelines

The results of speech recognition implementations will vary based on many criteria, including application relevancy, application design and interface, business complexity, customer base and how well the application is communicated and maintained. There are general guidelines, however, for projecting the usage rates.

Projected Speech Recognition Usage Guidelines

Current touch-tone usage rate	Projected Increase Range	New Usage Rate
Below 20%	80% to 150%	34% to 50%
20% to 30%	45% to 100%	29% to 60%
31% to 45%	40% to 50%	43% to 68%
Above 45%	10% to 30%	50% to 70%

If the touch-tone IVR usage rate is below 20%, then 1) touch-tone IVR is not an appropriate application for this customer base, or 2) the system does not provide the functionality required by its customers, or 3) the system is poorly designed or communicated. When there is a mismatch between system capabilities and the implementation, the potential benefits from adding speech capabilities are generally greater than in organizations that have done a better job of leveraging the use of touch-tone IVR. When considering the use of speech recognition technology in environments where touch-tone IVR has not previously been well received and the usage rates are below 20%, it's essential to first determine if speech is going to be received any better. (See sidebar on Speech Recognition Best Practices.) If speech is a good self-service interface for the customer base, enterprises can expect to see their overall IVR system utilization rates increase in the 36% to 50% range and an overall increase of 80% to 150% within the first 18 months.

Where touch-tone IVR has previously been well received and a large percentage of the customer base was already using it for self-service, the incremental benefit of adding speech is likely to be approximately 10% to 30% above the existing usage rates. Both scenarios yield a quick payback of six to 12 months.

Speech Case Studies

Speech recognition technology can be used for any application, regardless of industry or function, that doesn't require human interaction. If there is a way to automate the decision-making process involved in an inquiry, then speech recognition is likely to be suitable. For example, financial services companies are increasingly using speech self-service to automate the reporting of lost and stolen credit cards, and airlines have developed applications that allow customers to check flight arrival and departure information. Both of these functions require a deep understanding of customer needs, but they are being performed effectively with speech recognition. An essential element in the

success of these sensitive applications is that enterprises are making it easy for their customers to opt out and speak to a live agent, if desired.

Financial services companies and airlines have been using speech technologies innovatively for some time. **OppenheimerFunds**, based in New York, manages more than \$130 billion in assets and has over 6.3 million shareholder accounts. By 2001, OppenheimerFunds Investor & Advisor Account Servicing unit handled 4.2 million customer calls annually, 40% through its touch-tone IVR platform and the remaining 60% by its 250 agents based in Englewood, Colorado.

Oppenheimer knew that using speech technology would give them a competitive advantage and were convinced that they could create a friendly and natural speech user interface that improved service quality, making it even easier to invest in mutual funds. After carefully analyzing the needs of their customers and why so many customers dropped out of their touch-tone IVR application, Oppenheimer developed a speech-based investor servicing system that enables customers to access their accounts to obtain account balances, make purchases, conduct exchanges and redemptions, review recent transactions, and build custom lists. The system also provides fund information and quotes, market indices, data about dividends and distributions, and is integrated with the Web.

The speech system went live in Q3 of 2001 and, because the speech environment is much easier to navigate and provides more information than the touch-tone environment, it gained immediate customer acceptance and use. With just 72 ports, 15% more transactions are completed in the speech system, representing a cost savings of \$2 million annually. The estimated payback was less than nine months and the company is looking for ways to make further service enhancements.

Merrill Lynch, a leading financial management and advisory company, serves the needs of both individual and institutional clients around the world. Merrill handles over 50 million contacts annually, has 1,500 agents in three U.S. locations and a complex DTMF IVR that automates 82% of calls. Already doing a great job with touch-tone IVR, Merrill decided to add speech technology to their IVR environment to:

- > Improve the client experience by simplifying complex tasks and system navigation

Speech Recognition Best Practices

- > Assess customer needs before investing
- > Give customers what they want, not what your organization prefers
- > Involve agents in system design and testing
- > Invest in the voice user interface, dialogue design and persona
- > Keep dialogue succinct and use “proper” language
- > Allow customers to access “live” agents easily
- > Create a customer feedback loop and monitor customer preferences
- > Fix problems quickly
- > Communicate frequently with customers
- > Involve all customer-facing departments, including sales and marketing, in the speech initiative

- > Increase automation to enable information delivery, call routing and new transactions that were not previously possible via DTMF
- > Differentiate service offerings

The speech software allowed Merrill Lynch to consolidate over 100 toll-free numbers into a single number to make it easier for its customers to reach them and added a 401(k) application that enables customers to obtain account information, change savings rate percentages, reallocate assets amongst their accounts and obtain stock quotes. The speech application is also being used as an internal service portal for their financial advisors, making it easier for them to reach the right departments.

The system enhancements increased the usage rate of Merrill Lynch's IVR environment from 82% to 90%, saving the company over \$6.3 million in the first two years. As with other speech recognition systems, the payback was estimated to be less than one year.

The travel industry, and airlines in particular, including American Airlines, Delta Airlines and British Airways, have been inventive users of speech recognition. **American Airlines** and American Eagle operate approximately 4,000 flights daily to nearly 240 cities in 50 countries. In 2000, they carried over 100 million passengers around the world. American Airlines' frequent flyer program, AAdvantage, has more than 44 million members.

AAdvantage has 7,000 reservation agents in seven U.S.-based call centers and handles 10,000 calls per hour at peak times. AAdvantage account numbers and personal identification numbers are alphanumeric, which made it very difficult for customers who tried to use their touch-tone based IVR, resulting in 50% requesting a live agent.

AAdvantage invested in speech technology to enhance their customer service and allow members to complete travel arrangements more conveniently and efficiently. The technology also improved employee retention by eliminating routine tasks and reduced operating costs by automating calls that didn't require live agents, which had the added benefit of reducing call duration and related long-distance charges. The benefits of the original investment were so significant for American Airlines that they've continued to invest in new speech applications. American Airlines has added a flight information system and an employee travel system that have both been well received.

American Airlines' investment in speech self-service technology has paid for itself many times over. The original AAdvantage application satisfied the customers who elected to use the system, and the customer drop out rate decreased dramatically from 50% to 12%, a 38% improvement. Seventy percent of AAdvantage callers now use the automated upgrade system, freeing their agents to spend more time generating incremental revenue.

Speech recognition technology can be used to benefit organizations both large and small - those that handle anywhere from approximately 2,500 calls per day to millions. All enterprises that use live agents to handle mundane and repetitive tasks should explore the benefits of speech technology to reduce their operating budgets and remain competitive.

Conclusion

Much has been written about the growth expectations of speech recognition technology. Analysts in many firms, including Gartner Group, DataQuest, IDC, Datamonitor, Giga Information Group and Frost & Sullivan, agree that speech recognition is set to grow rapidly during the next three to five years, realizing a compounded annual growth rate of anywhere from 25% to 50%. The primary reason why this technology is expected to be one of the top market performers is that speech is the most ubiquitous form of communication in and out of the U.S., making speech recognition the most preferred form of self-service.

To remain competitive, enterprises of all sizes must improve their profit margins and decrease their operating expenses. The economy has exacerbated an already tough operating environment and is pushing companies to optimize the financial returns from their limited technology investment dollars. There is no “sure thing” in the technology world, but with the enhancements in speech recognition best practices, the substantial improvements in the technology, and its ease of use, this is about as good as it gets. In the majority of situations, speech recognition will yield a positive return to the investing company in less than one year *and* improve customer satisfaction.

Appendix A: What is DTMF?

Dual Tone Multi-Frequency is a method used by the telephone system to communicate the keys pressed when dialing. Pressing a key on the phone's keypad generates two simultaneous tones, one for the row and one for the column. These are decoded by the exchange to determine which key was pressed.

Source: Free On-line Dictionary of Computing (<http://foldoc.doc.ic.ac.uk/foldoc/index.html>).

Appendix B: Speech Recognition Cost Estimates

Category	Cost	Comments
Cost per speech port	From \$200, for a very basic system to \$1600 for advanced natural language recognition capabilities	Expect to have to purchase a minimum of 12 ports
Application development	From \$35,000 for a basic auto attendant application to more than \$500,000 for a sophisticated application	Costs can be reduced by using an out-of-box application from a Voice ASP
Cost per IVR port	From \$800 to \$1500, depending on the size of the system	In service environments, the majority of speech recognition applications are implemented in conjunction with an existing touch-tone IVR

About DMG Consulting

DMG Consulting LLC specializes in Customer Relationship Management (CRM) and Contact Center strategy, operations and technology for Fortune 500 companies, technology enterprises and venture capital firms. Donna Fluss is the Principal of DMG. She has over 19 years of experience in the CRM and Contact Center marketplaces, is a recognized leader and visionary in all areas of CRM and is a well-known, highly respected writer and speaker. Ms. Fluss is a columnist for *Call Center Magazine* and *ICCM Weekly* and a contributor to *Customer Interface Magazine* and *1to1 Magazine*. Prior to starting DMG Consulting, she was the Chief Strategy Officer and member of the executive management team at RedCelsius, a provider of eCommerce software.

From 1997 to 2000 Ms. Fluss was a Vice President and Research Director in the CRM practice area at Gartner where she consulted with and assisted over 3000 clients and published more than 125 research reports. A CRM generalist, Ms. Fluss was the practice area leader for the Customer Service and Support Strategy group and was responsible for doubling its revenue. While at Gartner, she became well known as an industry analyst whose ability to identify trends, directions and needs made her a leading advisor to companies and vendors throughout the world. Ms. Fluss received numerous professional awards at Gartner for her writing, professionalism and teamwork,

was a highly rated speaker, appeared as a CRM expert on several television news shows and was quoted extensively in recognized business and industry publications including *Business Week*, *CIO*, *Computerworld*, *InformationWeek* and *Internet Week*.

From 1983 to 1997, Ms. Fluss held various management positions at Chemical Bank and its successor, Chase Manhattan Bank, including Vice President of Voice Strategy and Planning for a \$24 billion retail division, Vice President of Technology Asset Management, responsible for \$500 million in annual technology purchases and Vice President of Credit Card Customer Service. At the bank, Ms. Fluss built a reputation as a leading business transformation and merger expert.

Ms. Fluss received her M.B.A. from Baruch College in 1983 and her B.A. in International Finance from the University of Illinois, Urbana-Champaign in 1981.

About Nuance

Nuance is the speech expert. Nuance's speech software solutions enable automated access to everything from account balances to flight information, email reading to voice activated dialing - accessed using nothing more than the power of voice and an ordinary phone. In markets around the world, leading enterprises and telecommunications carriers – including British Airways, Nomura Securities, OnStar, SprintPCS, United Parcel Service, Vodafone, and many more - work with Nuance to reduce costs, increase customer satisfaction and retention, create new sources of revenue and improve security. Nuance is headquartered in Menlo Park, Calif. and has offices around the world. For more information, visit www.nuance.com or call 1-888-NUANCE-8.

© 2003 Nuance Communications, Inc. Nuance is a trademark of Nuance Communications, Inc. All other trademarks are property of their respective owners.

WPB016-0303