



# DRAGON<sup>®</sup> NATURALLY SPEAKING<sup>®</sup> PROFESSIONAL

## FOR SOCIAL SERVICES AGENCIES

Increase Caseworker Productivity and Reduce Burnout with Speech Recognition

A White Paper from Nuance Communications

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## INTRODUCTION

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Helping individuals and families in crisis is a stressful and demanding job that requires tireless dedication, long hours, constant travel and the timely completion of extensive case documentation. While agencies strive to assign manageable case loads, shrinking budgets – coupled with mounting requests for services – often force caseworkers to handle up to two dozen cases at a time across a wide geographic area. As a result, caseworkers spend most of their days on the road, driving from session to session to meet with troubled families in the communities they serve.

Given the demands on their time, many caseworkers have no choice but to type handwritten notes into case reports – back at the office or at home – after an already long and stressful day on the job. This tedious, time-consuming approach not only impacts documentation timeliness and quality, but it accelerates caseworker burnout and drives up turnover rates. As social services agencies strive to retain dedicated caseworkers and better serve clients in need, they are rethinking the way they handle case documentation.

Today, more and more social service agencies are leveraging speech recognition technology to dramatically reduce the time it takes to complete case-related paperwork – from session and contact notes to assessments and treatment plans. Agencies can deploy speech solutions broadly to speed case documentation turnaround without changing current business processes, existing applications, or deployed information systems. This white paper discusses some of the pressing productivity, efficiency, morale, and cost issues facing social service agencies today and how speech recognition can:

- **Cut Documentation Completion Time:** Empower caseworkers to quickly and accurately turn voice into text with up to 99 percent accuracy using virtually any Windows-based application. Speech recognition enables social workers to create documents three times faster than most people type.
- **Improve Report Quality:** Replacing the frustrating process of typing with the ability to complete reports by voice encourages caseworkers to enter more detail. In addition, enabling caseworkers to dictate session notes while they are still fresh in their minds leads to more complete, detailed and consistent case documentation.
- **Make Effective Use of Drive Time:** Enable caseworkers to be more productive on the go by dictating session notes into a handheld digital recorder for automatic transcription once they connect the recorder to their PC.
- **Curb Caseworker Burnout:** Help caseworkers achieve better work/life balance by dramatically reducing the time it takes to complete case documentation. Address costly turnover by giving caseworkers the tools they need to spend less time in the office typing and more time in the community helping people in crisis. Faced with less tedious administrative tasks and less fatigue, case workers are more satisfied at work.
- **Allow Everyone to Work...and Stay on the Job:** Ensure all Windows-based software applications are accessible to employees with disabilities (permanent or temporary) or repetitive stress injuries. Speech recognition can keep these individuals on the job and reduce temporary employee costs by providing the ability to replace or complement the keyboard, mouse, and handwriting.

## SPEED TURNAROUND TIME

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Three quarters of social workers spend more than 40 percent of their time on administrative work. In fact, one third of social workers spend more than 60 percent of their working lives on administration. What if there was a faster, easier way to complete case documentation? Imagine how many more people caseworkers could help if they were able to turn around paperwork up to three times faster by dictating their notes instead of typing them.

Tasked with an ever-increasing caseload, field workers are required to not only interview and assess clients on a regular basis, but to carefully document each meeting for accountability purposes. Typing out their handwritten notes into reports in between meetings or at the end of the workday is a time-consuming and error-prone process, draining caseworker productivity and effectiveness as it shackles professionals to their computers instead of leveraging their talents and expertise in the field.

Today, speech recognition software is used by caseworkers across a wide range public and private social services agencies to get more done in less time:

- Dictate meeting and interview notes while they are still “fresh”
- Complete detailed assessments, reports, and treatment plans
- Access information in enterprise applications and web sites
- Create and manage email
- Navigate and control desktop applications

## DICTATION IS THREE TIMES FASTER THAN TYPING

Dictation is three times faster than typing, enabling case workers to focus less on paperwork and more on getting people the help they need to live successful lives. With speech recognition tools, users can simply talk to their computers and their words instantly appear in the full Microsoft® Office® Suite, as well as Microsoft Internet Explorer, Corel® WordPerfect®, Lotus® Notes®, and virtually all other Windows-based programs, including most case management applications. Users can also create, navigate, send, and respond to email by voice using popular programs like Microsoft Outlook® or Lotus Notes.

From creating documents and email messages to writing detailed reports and completing routine forms, speech recognition dramatically speeds document turnaround to meet stringent regulatory requirements and ensure accountability. Youth Villages, a leading private non-profit that helps families with children facing serious emotional and behavioral problems, is using Dragon NaturallySpeaking from Nuance Communications to dramatically reduce paperwork time for family counselors. Reports are now completed 55 percent faster by dictating with Dragon rather than typing by hand.

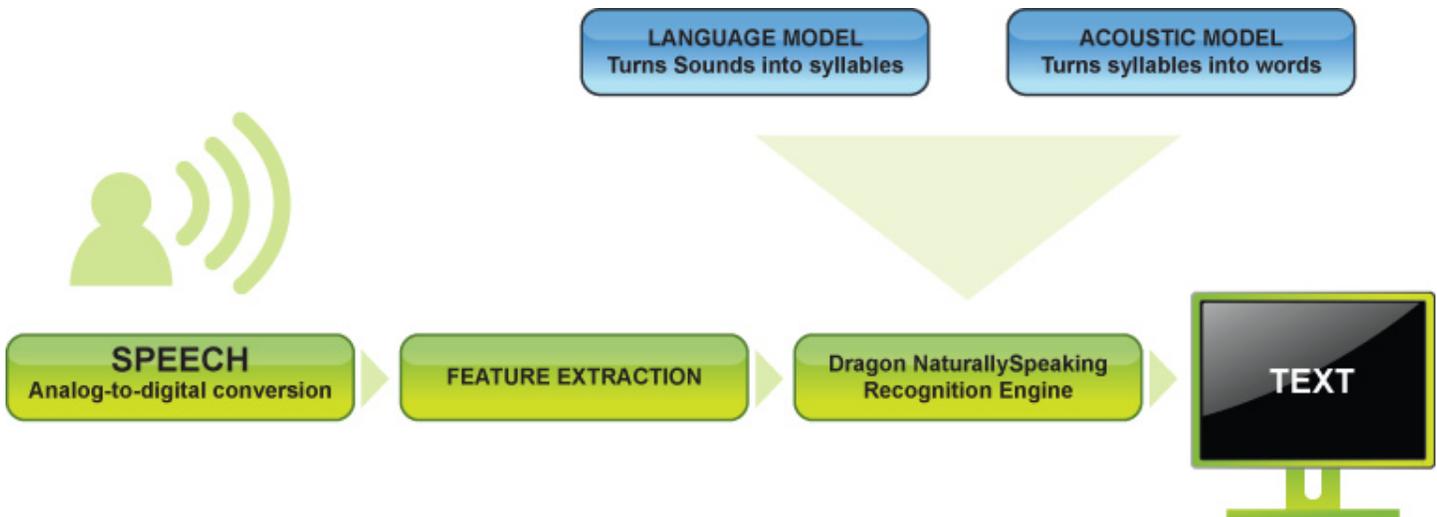
### More Than Dictation

With enterprise deployments of speech recognition, caseworkers can do more than just dictate notes to expedite the completion of reports. Beyond transcribing the spoken word into text, speech recognition allows users to command and control their PCs entirely by voice. Any task, any combination of keystrokes and mouse clicks, can be automated with a simple voice command. Caseworkers can search the Internet and navigate Web pages by simply speaking URLs, links, or voice commands for fast, efficient information access. Users can navigate through forms or case management systems by voice to speed the overall workflow process.

Lisa Brooks, a child protective investigator with the Florida Department of Children and Families (Florida DCF), has seen the direct impact that Dragon can have on agency effectiveness. “With Dragon, we can take care of reports that don’t re-

quire any action right away and move on to other things so the people who do need help are going to get that help much more quickly,” noted Brooks. When clients receive assistance sooner, more cases can be successfully closed, thereby enabling the agency to stretch its budget further.

## HOW DOES SPEECH RECOGNITION SOFTWARE WORK?



Speech recognition software products use the human voice as the main interface between the user and the computer. Speaker-dependent speech recognition systems, such as Dragon® NaturallySpeaking® Professional from Nuance Communications, create a unique voice profile for each user of the system that contains information about the unique characteristics of each person’s voice along with a customized set of words, known as a vocabulary, and user-specific information including software settings and personalized voice commands.

When users create their user profile, Dragon NaturallySpeaking starts with general models of how English is spoken in the US, and adapts to how individuals speak (acoustic model) and which words they use (vocabulary and associated language model). This approach accommodates users with varying accents and speech patterns; it also permits the users to dictate naturally – including any acronyms, jargon, abbreviations, capitalized phrases and any other items that would be unknown to the general public.

The software regularly refines the user’s profile, and employs it to accurately determine the words spoken, and choose between words that sound alike. Every time a Dragon user corrects a “mis-recognition,” the software updates his user profile to enable better recognition accuracy over time.

Advances in the software itself – combined with the increased processing power of today’s computers and the noise-cancelling capabilities of modern microphones – have yielded significant increases in performance, accuracy, and ease of use.

## IMPROVE REPORT QUALITY

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### More Detailed Reports

Beyond the core accuracy of speech recognition, the ease and convenience of dictation actually drive more thorough documentation. The ability to dictate notes anywhere, at anytime, leads to richer content and more detailed reports. Speech tools give case workers more of their most precious commodity: time. With this time, they not only spend more hours per day in the field, but they are also more likely to add more detail to individual reports.

“My notes have increased from about a page and a half for an interview with a victim to almost two to two and a half pages,” stated Florida DCF adult protective investigator Lisa Upham. “The more information the supervisors have, the more accurately they can determine what kind of follow-through we need to do to get victims the support they really need.”

### Reliable Accuracy

When it comes to improving case documentation quality through speech recognition, accuracy counts. Dragon NaturallySpeaking is up to 99 percent accurate right from the start, correctly transcribing text from caseworkers regardless of accent or native language.

Dragon includes a core vocabulary of 300,000 words and never makes a spelling mistake. But most social services agencies use terminology, acronyms, or proper names that are unique to their environment. To increase accuracy – and report quality – Dragon allows these agencies to:

- add new words or customize the vocabulary with names, acronyms, and specialized terminology frequently used in their particular agency or region
- delete vocabulary entries that could cause acoustic ambiguity
- analyze an individual’s written documents to update the user profile based on writingstyle and words used

If an agency uses particular names or terminology with a high degree of frequency, the user vocabulary can be customized across the entire enterprise to increase recognition accuracy. Dragon NaturallySpeaking Professional enables sharing of customized vocabularies among all caseworkers — or a subset of caseworkers — eliminating the need to update each user profile separately.

“I’m currently developing a universal list of customized vocabulary that incorporates terminology, acronyms and abbreviations commonly used by family counselors across all of our coverage areas,” said Brian Cheek, clinical applications manager at Youth Villages. “Once the list is approved, we can automatically distribute the vocabulary to counselors in all of our offices.”

## INCREASE PRODUCTIVITY ON THE GO

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Most caseworkers spend their workdays on the road traveling from interview to interview. In many cases, these professionals have seen their workloads increase sharply due to budget cuts and greater demand for services. With Dragon, caseworkers can keep up with paperwork from virtually any location — whether they’re in the office, at a client’s home, or on the road — by simply dictating into any Nuance-certified digital voice recorder for automatic transcription when they return to their PC. This mobile productivity tool ensures that time on the road does not result in a paperwork pile-up.

Jim Coursin, a caseworker for children at Clinton County Protective Services in New York, travels around the county conducting hundreds of interviews per year. The handwritten notes taken at all those interviews must be entered into the agency's Windows-based case management system. Even given Jim's impressive typing speed of 60 words per minute, inputting all those notes was an extremely time-consuming process. Now he dictates his notes into a digital recorder and Dragon automatically transcribes the text. Thanks to Dragon, Jim not only saves about an hour a day in text input, but he is able to provide more detailed and complete notes about each interview.

### **Keeping Up with Caseloads**

With Dragon, caseworkers can leverage in-vehicle and other formerly unproductive time to dictate notes, reports, and other documents — safely and accurately. As a result, these workers are able to complete paperwork in a more timely and efficient manner to keep up with mounting workloads and help more people in need.

Because Rosemary Johnson, a Florida DCF adult protective investigator, handles cases in three different counties, she spends her days in the car driving long distances to meet with individuals in crisis. Frequently she is unable to make it back to the office for two or three days at a time. Dragon helps her keep pace with paperwork while on the road by letting her dictate notes into a digital recorder or a headset connected to a laptop. When she returns to the office, she can simply upload the recorded files to her computer for automatic transcription.

## **CURB CASEWORKER BURNOUT**

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The job of a caseworker is stressful and demanding: on top of long hours in the field, they're responsible for the timely completion of extensive case documentation to meet accountability and regulatory requirements. Too often, caseworkers have no choice but to complete this documentation in the evening, a practice that eats into precious personal and family time. This grueling pace can take its toll on caseworkers, leading to burnout and high turnover rates.

"When I was working as a family counselor, I was gone every day from about 8 AM to 6 PM driving from session to session," said Brian Cheek, Youth Villages' clinical applications manager. "Then when I got home, I still had to spend a couple of hours typing my documentation. This daily routine was burning me out, so I needed to find ways to be more productive and cut down on my paperwork."

For Youth Villages and numerous other social services agencies, Dragon has been an effective solution for reducing caseworker burn-out. "With Dragon, I was able to take advantage of my formerly unproductive time in between sessions to dictate notes while they were still fresh in my mind," added Cheek. "At the end of the day, Dragon would automatically transcribe my notes to my PC and all I'd have to do is edit them, cutting my paperwork time in half."

Since introducing Dragon, Youth Villages has seen increased counselor retention, consistency in job satisfaction levels, and a marked reduction in documentation completion times. In fact, over the course of a 10-week pilot, the percentage of counselors who said they were comfortable or very comfortable with the time of day at which they were completing their paperwork increased from 26 percent to 62 percent. The percentage of counselors who felt they had moderate to complete control over their documentation increased from 39 percent to 82 percent. The data also suggested that the counselors' job satisfaction did not decrease over the course of the pilot as would typically be expected in such a high-stress job.

### **Addressing Costly Caseworker Turnover**

Caseworker turnover represents a major cost burden for social services agencies. The process of recruiting, hiring, and training new caseworkers not only impacts agencies' bottom line, but it disrupts continuity of service to the troubled individuals and families who need help the most. Because Dragon significantly reduces administrative demands for overburdened caseworkers, it helps alleviate burnout, thereby leading to increased retention and better client service.

## **INCREASE ACCESSIBILITY**

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Dragon NaturallySpeaking Professional, which is certified for Section 508 of the US Rehabilitation Act, can help social services agencies meet disability management needs. It meets the US government's standards for ensuring software applications are accessible to people with disabilities. Whether employees are permanently disabled or just in temporary rehabilitation, Dragon can keep everyone on the job and reduce the costs of hiring and training new employees.

By using voice to control the PC, create documents, and manage email, employees experience less fatigue and less risk of repetitive strain injuries. For staff members who suffer from arthritis, tendonitis, or carpal tunnel syndrome, Dragon NaturallySpeaking will change the way they work with the PC. In most cases, speech recognition is used in conjunction with other input devices including keyboards and mice. However, users can leverage speech to control 100 percent of their computing environment, making this technology ideal for employees with physical challenges or repetitive strain injuries to operate information systems completely hands-free.

## **WORKFLOW AUTOMATION**

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An enterprise deployment of speech recognition allows agency employees to go beyond dictation to accomplish routine tasks more quickly and efficiently. One approach is to cut down on the number of steps it takes to complete a given task – without changing established business processes.

Because many of the reports and plans caseworkers create on a daily basis share common elements, they often find themselves entering the same information into case documentation time and time again. These repetitive, time-consuming processes can be a huge productivity drain on already overworked agency employees.

**Dragon's ability to distinguish and interpret operational commands can dramatically streamline documentation workflow for caseworkers.**

By simplifying multi-step processes that caseworkers perform dozens of times a day, workflow automation can deliver significant productivity gains, especially when multiplied across hundreds of individuals enterprise wide. Dragon NaturallySpeaking Professional can help automate and streamline these repetitive tasks in a couple of different ways:

### **Dragon Voice Shortcuts**

Dragon Voice Shortcuts collapse common multi-step tasks into direct voice commands so that caseworkers can complete administrative tasks faster than ever. At any time, no matter what is active on their screens, caseworkers can use a simple voice command to automatically create and address an email. For example, while documenting an incident that requires collaboration with a colleague, a user could say, "Send email to Jon Smith and Raphael Sanchez," and Dragon will activate the agency's email program, create a new email and put the appropriate contact names into the "To:" box.

Similarly, Dragon Voice Shortcuts can make searching the Web faster and easier. Caseworkers simply say commands

containing their desired search words, such as “Search the Web for LA County Board of Supervisors Second District” or “Search maps for county juvenile services,” and Dragon will use the default search engine and Web browser to enter the dictated term(s) in the search field and return the results. Caseworkers may also search specific sites directly for videos, images, news, articles and products. Users can even search their computers as directly as the Web, by dictating the word(s) to find in documents, emails, and Web-browsing history. For example, a caseworker could say, “Search computer for foster care plans” and Dragon will complete the search using Google Desktop or Windows Vista desktop search.

### **Custom Voice Commands**

Users can create template blocks of text and graphics that can be inserted into documents or emails using a single voice command. The ability to quickly insert standard text yields immediate results for faster, easier document creation. Dragon supports macros, or custom voice instructions, that enable users to perform multi-step tasks with a single voice command. For example, users can easily create customized macros — with no programming required — that let them insert a signature at the end of a letter, add recommended steps to a treatment plan, or insert boilerplate text into an assessment report.

In addition, Dragon enables caseworkers — or more typically the IT departments that support them — to use Microsoft® Visual Basic® for building more sophisticated macros that complete virtually any task one could normally perform using a combination of computer keystrokes and/or mouse movements. For example, a social services agency can build a single voice command that saves a report file, emails it as an attachment to all standard recipients, and prints out a hard copy at the central office — all with a single spoken command such as “Submit Report.” Repetitive tasks take far less time when they’re automated with simple voice commands.

Florida DCF CIO Chris Panteleon chose Dragon not only for its fast, accurate dictation capabilities, but for its ability to help workers complete routine tasks faster using voice commands. “With Dragon, we were able to insert chronological notes — not just Word documents — into our core software’s central repository,” noted Panteleon. “With this feature, our investigators can speak a command to automatically insert a note and save it to a certain area or file.”

### **Streamline Workflow with Macros**

With Dragon NaturallySpeaking Professional, a set of abbreviated instructions can be given to the computer to complete repeatable tasks that would normally take multiple keyboard combinations and mouse clicks. Youth Villages, a private, non-profit agency based in Tennessee, is taking full advantage of this capability. “Information in our various case notes is organized into numerous headings referred to as tokens,” said Clinical Applications Manager Brian Cheek. “We’ve created and distributed custom commands, like ‘Insert Family Therapy Note Token 1’ that automatically insert the appropriate token.” Now some of the counselors are creating their own custom commands to further speed and streamline their documentation workflow.

### **Use Speech With the Applications You Already Have**

Social services agencies can deploy search and query applications in conjunction with speech recognition. Caseworkers, for example, are constantly searching databases — from sex offender registries to treatment center directories — in their efforts to keep clients safe and put their lives back on the right track. With the help of macros, social services agencies can automate the multiple steps involved in initiating a search or query, saving caseworkers critical time in the race to help individuals and families in crisis.

Agencies can use Dragon to automate legacy systems with voice commands. Automating the text input process of case management programs enables employees to proceed from field to field quickly and efficiently by voice. This capability empowers caseworkers at resource constrained agencies to better keep pace with the never-ending flow of paperwork.

## MANAGING A DESKTOP DEPLOYMENT

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A successful speech recognition deployment requires careful attention to user expectations, training and customization. To simplify administration, lower costs, and ensure data security, agencies need enterprise-strength tools and applications based on industry standards that can be installed and managed from a central network location.

### Network Administration

Installing and managing a desktop dictation solution from a central network location enables system administrators to:

- create and manage installations and user profiles over a network
- distribute customized vocabularies and commands automatically
- control settings
- restrict access to specific features on a user-by-user basis
- automatically synchronize updates and changes via a variety of communication protocols
- perform system backups

Advanced speech recognition systems offer administrative tools that enable enterprise users to share custom vocabularies and macros (voice commands that consolidate multiple tasks) across multiple users. For example, the administrator can use vocabulary enhancements made by one individual in her own profile and let other users benefit from these enhancements. Updates of shared vocabularies can be pushed to multiple end-users automatically. This eliminates the time-consuming task of entering new words and pronunciations one at a time on each end-user's machine.

**Speech recognition products intended for personal use simply don't offer the network capabilities required for enterprise deployments.**

### Customization

An investment in vocabulary customization can deliver big payoffs. By customizing the system's vocabulary at the start of an engagement, enterprises can obtain remarkably accurate recognition results from the first day of deployment. In addition, the speech experts at Nuance or members of the Value-Added Reseller community can work with an organization up front to understand its processes and identify opportunities for increasing efficiency. Once those opportunities are agreed upon, they can then create and deliver vocabularies and custom voice commands that can speed the execution of repetitive, multi-step tasks. It is this customization that delivers big productivity benefits when shared across multiple users.

While text and step-by-step macros can be created with no knowledge of programming, more complex macros require advanced scripting using Microsoft Visual Basic. Some agencies have IT departments that can create such macros for Dragon users after receiving some instruction on the specific Dragon functions; alternatively, agencies may wish to enlist assistance to develop some or all of the commands and teach "super-users" within the organization who can in turn instruct other Dragon users over time.

### Citrix Server Support

Many social services agencies are taking a closer look at Citrix, a server-based centralized architecture for cost-effectively delivering applications to end users. Citrix is designed to simplify the delivery and administration of enterprise applications without sacrificing performance or security. Dragon NaturallySpeaking Professional is fully functional in a Citrix environment, allowing system administrators to bring its many powerful dictation and workflow automation capabilities to end users via Citrix thin clients located across the enterprise.

## JUSTIFYING THE EXPENSE

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“As Youth Villages’ clinical applications manager, my ultimate vision is for every community-based staff member and office-based counselor with intensive documentation requirements to have a voice recorder and access to Dragon both at home and at the office,” said Brian Cheek. “If we keep seeing a direct relationship between our Dragon expenditures and savings from increased retention and reduced paperwork time, I fully expect that this vision will become a reality over time.”

Enterprise deployments of Dragon NaturallySpeaking Professional include several components:

- Client software
- Professional Services (planning, installation, customization, training, and support)
- Audio peripherals (headsets, digital recorders, wireless microphones)
- Enterprise resources (server and storage resources, back-end system integration, enduser support, data and profile maintenance)

In most cases, enterprises that purchase Dragon NaturallySpeaking Professional realize improved productivity and return on investment (ROI) almost immediately. What makes this rapid ROI possible?

- **It’s easy to use.** For a sophisticated tool, Dragon is remarkably easy to use — allowing most users to be up and running in less than 15 minutes — leading to high adoption rates with minimal training and support costs.
- **It saves time.** Dragon enables users to create reports and other case documentation three times faster than typing.
- **It’s accurate.** With recognition accuracy rates of up to 99%, Dragon allows users to quickly create detailed and accurate reports – without any spelling errors.
- **It’s fast.** Macros automate and streamline repetitive manual processes for productivity increases of up to 300%.

### Tracking a Pilot

Most agencies begin their Dragon implementations with a pilot, a small test installation that is easy to integrate and scale to your organization’s unique needs. Pilot goals, such as decreasing the time required to complete counseling session notes or service plans, can be determined upfront and quantifiable parameters are agreed upon to evaluate likely ROI.

The implementation team decides which applications, templates, and macros should be speech-enabled and which vocabularies or word lists of frequently used case management words should be created. Workflows incorporating speech recognition are defined. The selected applications, templates, and macros are speech-enabled and custom vocabularies are then built, tested and deployed to relevant computers. Initial training courses familiarize pilot users with the software, and users are given tips on improving the speed and accuracy of document creation. Customizations can then be refined and shared.

Participation and overall results of the pilot can be evaluated to determine the qualitative benefits of full-scale deployment and calculate the potential ROI. For many agencies, the pilot has served as a foundation to quickly and efficiently implement Dragon NaturallySpeaking across the entire enterprise.

### Personnel-Related Costs

An ROI evaluation for Dragon must also consider the cost of recruiting, hiring, and training new caseworkers due to burnout and high turnover rates. By dramatically speeding and easing document turnaround, Dragon enables these professionals to focus more time and energy on helping individuals and families in crisis and less time on typing notes and

preparing paperwork. What's more, because Dragon enables caseworkers to be more productive on the go, it helps them to achieve a healthier work/life balance for greater job satisfaction and increased retention.

By leveraging the power of speech, Dragon also helps eliminate other potentially significant personnel-related costs:

- Estimated annual cost of noncompliance with American Disabilities Act in computer operations (legal fees, law suit awards/settlements, lost business opportunities, etc.)
- Cost of computer-related RSI and similar claims
- Estimated annual loss of personnel productivity from RSI

When the benefits of Dragon are multiplied across dozens or even hundreds of users enterprise wide, the cost savings and productivity gains add up quickly.

## ABOUT NUANCE COMMUNICATIONS

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Nuance is the leading provider of speech and imaging solutions for businesses and consumers around the world. Its technologies, applications and services make the user experience more compelling by transforming the way people interact with information and how they create, share and use documents. Every day, millions of users and thousands of businesses, experience Nuance's proven applications and professional services. For more information, please visit

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