Dragon® speech recognition

Eliminating legal transcription bottlenecks

NUANCE

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Introduction

The time and cost involved in documenting case and client information, contracts, briefs and other legal materials is staggering. Traditional reliance on administrative support staff and outside transcription services drags down productivity and eats into profits. Many law firms and corporate legal departments are rethinking their internal practices to stay competitive:

– How can you reduce staffing costs, make staff more productive, and steer them toward more billable duties?
– Why are you paying a qualified legal secretary to type a document when he or she could be doing more productive work that leverages a stronger skill set?
– How can you improve transcription turnaround time to eliminate the bottlenecks that hamper efficiency and weigh down service?

Imagine detailed briefs and contracts created entirely by voice in a fraction of the time. Consider the efficiencies gained by using support staff to proofread documents instead of keying them in from scratch.

Thousands of legal professionals now leverage speech recognition technology to dramatically reduce the time it takes to create everything from briefs and contracts to case documentation and correspondence. Law firms and legal departments can deploy speech solutions broadly to speed document turnaround, reduce transcription costs, and streamline repetitive workflows – without having to change current business processes or existing information systems.

This white paper discusses some of the legal professions most pressing cost and productivity issues and how speech recognition can:

– **Speed Document Creation:** You can turn your voice into text with up to 99% accuracy using virtually any Windows-based application. Speech recognition delivers results three times faster than most people type.
– **Eliminate Document Development Bottlenecks:** Streamline the editing and correction process with speech recognition to dramatically decrease turnaround time and reduce dependencies on support staff. Lawyers, legal secretaries and paralegals can become more productive if they're free to focus more on billable work.
– **Increase Efficiency and Profitability:** A law firm—large or small—can increase billings without increasing staff support costs, just as a corporate legal department can become more efficient and effective in their daily work.

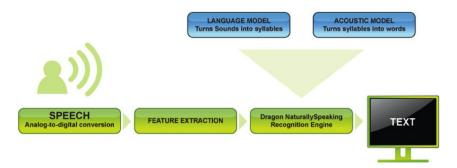## How does speech recognition work?

Speech recognition software products, such as Nuance's Dragon Legal, use the human voice as the main interface between the user and the computer.

While relatively simple to use, speech recognition software is a highly sophisticated technology that leverages "language modeling" to recognize and differentiate among the millions of human utterances that make up any language. Using statistical models, speech recognition programs analyze an incoming stream of sound and interpret those sounds as commands and dictation. This process of interpretation is called speech recognition, and its success is measured by the percentage of correct interpretations.

Law firms and legal departments can deploy speech solutions broadly to speed document turnaround, reduce transcription costs, and streamline repetitive workflows – without having to change current business processes or existing information systems.

Dragon is an example of a speaker-dependent speech recognition system. Dragon creates a 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 Dragon users create and train their user profile, Dragon starts with models based on the analysis of thousands of voices and texts, which are then customized for the way they sound (acoustic model) and the words and phrases they use (vocabulary and associated language model). This approach accommodates users with varying accents and speech patterns. The software employs the customized user profile to guess the words spoken. Every time an individual uses Dragon and corrects his vrecognition errors, the software updates his user profile to enable better recognition accuracy over time.

Even those who have evaluated speech recognition software in the past may want to consider taking another look at the technology. Recent advances in both the software itself and the hardware it runs on have yielded significant increases in performance, accuracy, and ease of use. The net result is that lawyers can create contracts, briefs, and emails three times faster than typing or traditional transcription. In fact, thousands of legal professionals use speech recognition today to get more done in less time.

Each organization, and even the individuals within each organization, use speech recognition for different purposes, based on their responsibilities, workflow, preferences, and other applications used. Speech recognition users include partners, associates, corporate counsel, judges, legal researchers, court reporters, law students, paralegals, mobile professionals, people with disabilities, transcriptionists, assistants, and other support staff.
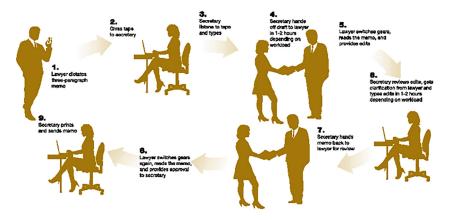
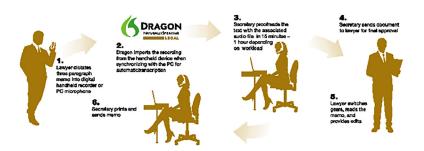Where is speech recognition in use in legal environments today?

– Creating documents, including contracts, briefs, motions, notices, pleadings, memos, etc.
– Managing email
– Summarizing documents
– Streamlining third-party transcription
– Increasing accessibility (helps with injuries, dyslexia, etc.)
– Boosting general office productivity

Speed document turnaround

Law firms rely heavily on expensive paralegals, legal secretaries, or outside services to transcribe the many documents required for legal proceedings— client memos, contracts, motions, briefs, discovery and deposition summaries, and more. There are essentially two approaches to document creation in place today, and as case volumes and administrative costs continue to grow, each approach presents a unique set of drawbacks:

– **Third-party transcription:** a lawyer dictates into a telephone or digital recorder, and the audio is sent to an outside transcriptionist; alternatively, the recording may be sent to an in-house transcriptionist, secretary or legal assistant. Out-sourced transcription is simply too expensive and time consuming, slowing down proceedings, impacting client satisfaction, and cutting into profits. Although in-house transcription may be more cost-efficient than outsourced efforts, there is still a lengthy and unproductive back-and-forth of review cycles with support staff.

– **Direct input:** the lawyer types the information himself. Some individuals can't type, or prefer not to, either because they are untrained as typists, have a disability, or wish to prevent the development of a repetitive stress injury. Firms and corporate departments with limited staff require attorneys to create their own accurate documents under tight deadlines. This may even be the case when an in-house transcription process is in place since many attorneys work late into the night – long after support staff has gone home

Dictation is three times faster than typing

The speed, accuracy, and ease of use of today's speech recognition systems deliver an efficient alternative to traditional approaches for document creation. Simply put, most people can talk faster than they can type. Speech recognition enables legal professionals to create electronic documents at speeds of up to 160 words per minute—three times faster than typing. Users just talk to their computers and their words instantly appear in the full Microsoft Office suite, as well as Microsoft Internet Explorer, Corel WordPerfect, and virtually all other Windows-based applications, including widely-installed case and practice management programs.

Rather than use a standard headset microphone, lawyers may be more comfortable with a Bluetooth headset. Using a Bluetooth headset with select speech recognition systems delivers the same great dictation results—without the wires. In this way, lawyers not only have their hands free to browse texts or notes on their desks, but they can also cross the office to consult references as necessary while continuing to dictate

How do lawyers benefit from speech recognition?

Transcription workflow: Speech recognition is particularly useful for attorneys and in-house counsel who are feeling the productivity pinch of the endless dictate - transcribe - review - edit cycle. Attorneys who are already dictating documents for others to transcribe can continue to do so without having to change their workflow. But with speech recognition the dictation is automatically transcribed, jumpstarting the interaction with the legal secretary or assistant responsible for transcription.

The speech recognition system routes the transcript text file and/or the synchronized audio file to a legal assistant or secretary. Instead of transcribing from scratch, the assistant will open the transcript; listen to the associated dictation while reading the text on screen, and make corrections or edits. Any edits made by the assistant improve the speaker's profile so that the speech recognition system will improve recognition accuracy over time.

Using speech recognition software to input text can substantially reduce the turnaround time over traditional transcription. If transcription is produced in-house, using speech recognition software frees up support staff for more productive tasks. If transcription is outsourced for correction, this can significantly reduce costs.

A firm or corporate legal department may use select speech recognition programs, such as Dragon Legal, to create an "auto-transcription agent". This tool allows users to have the system automatically monitor a folder for incoming audio files. As that audio file is received, the system automatically converts the file into a text file. The agent can be set to create an audio file associated with the converted text so that correctionists have the ability to playback the audio while they read through the documents.

While creating the dictation, the attorney may also choose to use Dragon's Voice Notations feature, which allow the user to make "side comments," such as specific instructions, that can be saved as part of the recorded dictation but do not appear as part of the dictated text. This recording may be passed

Bob Kohn, a managing partner at Bromberg and Sunstein, a law firm in Boston, initially started using Dragon after a repetitive stress injury made typing too painful. Upon seeing the immediate productivity gains Bob was realizing, other lawyers within the firm started using Dragon, too. By allowing attorneys to dictate their own documents, emails and memos—day or night—Dragon has saved the firm tens of thousands of dollars in administrative overtime while improving service to clients.

along to a legal secretary who will use the originator's Dragon profile to import the recording, convert it to text, and then make corrections.

But is it accurate?

Leading speech recognition tools can offer up to 99% accuracy right out of the box. Using specialty vocabularies can heighten accuracy even further. Some speech recognition software programs include a legal vocabulary – incorporating Latin and French law terms, reporter names, and abbreviations in addition to the standard business vocabulary – and can automatically recognize and format federal, regional, and state citations. For certain programs, specialty legal vocabularies can also be created in-house or purchased from third-party sources.

Every law firm uses specific names, terminology, acronyms, or other vocabulary unique to its specialty or its client base. These unique terms are frequently used in court papers, correspondence, and other legal documents. To boost accuracy and further speed document turnaround, speech recognition software also allows legal professionals (or those who work with them, such as assistants, IT administrators, or trainers) to:

– Add new words or customize the vocabulary with employee names, acronyms, and specialized terminology fre quently used in their firm or department
– Delete entries that could cause acoustic ambiguity (such as competing spellings)
– Indicate precisely how items should be capitalized and formatted, including alternate written forms for various contexts
– Analyze an individual's written documents to update the user profile based on writing style and words used

If an organization uses particular names or terminology with a high degree of frequency, customizing the vocabulary across the entire enterprise can increase recognition accuracy so users and their support staff spend less time correcting errors.

Workflow automation

An enterprise deployment of speech recognition allows legal professionals 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.

Navigate applications by voice: Speech recognition software enables users to command and control the computer desktop by voice. Virtually any menu item or dialog box can be controlled hands-free. Users can edit and format their work, launch applications and open files, or cut-and-paste documents. In other words, speech recognition helps to speed up routine tasks on the PC.

Many legal applications can be easier to use and more effective when deployed in conjunction with speech recognition. Searches, queries, and form filling are all faster to perform by voice than keyboarding. Document management, document assembly/automation, and case and practice management software programs are all highly conducive to control by speech. Tasks such as text and data entry can be completed by voice in most of the programs without any customization. Other functions can easily be performed using macros (see below).

Speech Recognition Systems Can Make "Smart" Choices on Spelling, Capitalization, and More by Adapting to Context With Dragon, law firms can customize vocabularies to increase recognition accuracy rates. As a result, users spend less time correcting errors. Users can customize "spoken forms" to yield specific written forms of words and phrases, such as "versus" to appear as "vs." or "figure" to appear as "Fig." Or perhaps a key contact at a practice's top client is named John Shaffer. The firm may want to consider deleting the other common spellings of the name Shaffer (Schaeffer, Schaefer, Shafer, etc). This way, Dragon will choose the intended spelling for more accurate dictation of correspondence and legal documents.

Managing email: Since managing email takes up an increasing amount of everyone's workday, speech recognition software can be used to create, navigate, send, and respond to email by voice using popular programs like Microsoft Outlook® or Lotus Notes. In addition, some speech recognition programs contain text-to-speech technology that allows users to have their email documents read aloud, which enables them to complete other tasks while listening to their email.

Work on the Web by voice: Today s speech recognition programs make it easier than ever for lawyers and staff to search the Web, access information, and navigate Web pages. This includes not only the public Internet, but also private Intranets and other HTML interfaces.

Consolidate multi-step processes into a single voice command

Dragon Voice Shortcuts: Most speech recognition programs allow users to speak standard commands that prompt the computer to perform an action. For example, the user says, "start WordPerfect," and the PC launches WordPerfect. The more advanced speech recognition programs, such as Dragon Legal, also enable users to collapse multiple tasks into single voice commands. For example, using the Dragon Voice Shortcuts for Email feature, a lawyer could simply say, "Send email to Client XYZ" and Dragon will launch the user's email program, create a new email and put the name(s) the lawyer said into the "To:" box. Users can also search the Web or their desktop with a simple voice command such as, "Search the Web for global warming articles," or "Find email about the Robinson appeal."

Boilerplate Commands: Lawyers and the staff who support them spend a considerable amount of time creating and filing documents—many of which share standard elements. As a result, many legal secretaries and assistants find themselves entering the same information into these documents time and time again. Users can create text blocks—including commonly used phrases, paragraphs and even graphics—and insert them into documents or emails using a single voice command for faster, easier document creation. These custom commands can also contain variable "voice fields." In this way, a single voice command creates a complete document that can be customized by navigating through each field to fill in variable information (e.g., the name of a client or a fee on a standard client letter or contract template).

Macro Commands: Repetitive tasks, such as data entry or form filling, can be sped up by using speech. In many cases, users who are unfamiliar with complex software programs are more comfortable "telling" the computer what to do rather than trying to master the interface. Macros can be created to enable users to go from field to field by voice, or to perform a sequence of keystrokes or mouse movements. Even skilled typists are often slower at entering numbers and letters. Spreadsheets can be created and edited using voice commands. Accounting and time billing software can also be controlled by voice.

For example, legal professionals—or more typically the IT departments that support them—can use Microsoft Visual Basic to build a single voice

Automate Processes with Macro Commands Repetitive tasks take far less time when they're automated with simple voice commands. With Dragon Legal, 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.

command that saves a contract, emails it to a standard list of recipients at the client company, and prints out a hard copy at both corporate headquarters and the appropriate regional office—all with a single spoken command such as "Complete Contract."

Repetitive tasks take far less time when they're automated with simple voice commands. By simplifying multi-step processes that legal staff performs dozens of times a day, workflow automation can deliver significant productivity gains, especially when multiplied across hundreds of workers enterprise wide.

Increasing productivity on the go

Many attorneys spend a significant amount of time traveling from location to location—client visits, depositions, court hearings, and more. Since most of these individuals already work long hours, it's important that they use their time pro¬ductively—no matter where their jobs take them.

Speech recognition enables attorneys and other legal professionals to increase their productivity during travel time or when away from the office by dictating into a digital voice recorder or other handheld device for automatic transcription when the user returns to his PC. An enterprise deployment of speech recognition allows users to export their user file via the network or a portable storage device for use on another computer or laptop so they can take advantage of speech recognition anywhere, at any time.

This mobile productivity tool ensures that time spent on the road or off site does not mean even later nights at the office catching up on work. Legal professionals can use in-vehicle and other formerly unproductive time to dictate notes, reports, and other documents—safely and accurately. As a result, they are able to turn around documents quickly for improved client service and increased focus on billable tasks.

Managing a desktop deployment

A successful speech recognition deployment requires careful attention to user expectations, training, and customization. Some organizations choose to manage their own speech recognition installation, customization, and training, but most prefer to outsource this work to the software manufacturer, a system integrator, or speech recognition value added reseller (VAR).

Carefully review the system requirements for the speech recognition software you will implement. Speech recognition software is processor intensive, and, generally speaking, the faster the processor, the better the performance. Users who wish to have multiple applications running at the same time will also benefit from having more RAM on their system.

The computer's sound card is another factor that can affect performance. Speech recognition programs require a sound card that will accurately process the electrical charges that your voice creates when you speak into the microphone. Static or electrical interference will make it difficult or impossible for users to achieve good speech recognition accuracy. In general, speech programs require a high-quality 16-bit sound card. Software performance can also be impacted by the quality of the microphone used. Speech recognition requires a high-quality, high-level speech signal.

A real estate attorney asserts that Dragon NaturallySpeaking Legal has dramatically changed the way he practices law. Whether he is in the office or on the road, Dragon enables him to zip through work that he formerly delegated to a paralegal for transcription. He is able to generate real estate documents, including policies with specific exceptions, from his office, car, or laptop. When he has several letters to compose, he uses Dragon to dictate drafts—with instructions included as voice notations—which he saves in a special file on his computer for follow-up by his paralegal. This approach enables him to focus more of the firm's time on billable tasks for bottom-line results.

Noise-canceling microphones, such as those shipped with most speech recognition programs, can help to block out high ambient noise levels.

User expectations and training

While most speech recognition systems can deliver high-performance dictation and application control capabilities right out of the box, upfront professional training and customization will enable lawyers and support staff to realize more significant productivity gains and cost savings and maximize their return on investment. Initial training speeds up the learning curve, instills confidence in users, reduces support costs, promotes the success of a pilot program, and maximizes your investment. Ongoing training support can familiarize staff with advanced features and functionality for continuous productivity improvements.

In addition, setting realistic user expectations has a critical impact on the success or failure of the speech recognition program.

While speech recognition enables organizations to automate workflows without disrupting existing processes, there is still a component of change as employees adopt the new technology and transition to the new approach of dictation vs. typing.

Professional training can facilitate the change management process, helping to speed and ease the organization's transition and drive higher user adoption rates. Most attorneys who are familiar with dictation will find it easy to adopt speech recognition software. However, they may be used to mumbling or garbling words and expecting a transcriptionist to interpret what they are saying. The quality of the "human sound signal" is just as important as the quality of the sound card.

Customization: An investment in vocabulary customization can also 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, then create and deliver vocabularies as well as sets of custom commands and macro commands that can speed the execution of repetitive, multistep tasks to deliver big productivity benefits when shared across enterprise 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 firms or legal departments have IT departments that can create such macros for Dragon users, after some instruction on the Dragon's specific functions; alternatively organizations may wish to enlist assistance to develop some or all of the initial commands, and a few "super-users" are taught.

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 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. A centralized
network allows multiple users to discover best practices and quickly and
easily share them across the user community. It also fosters the creation of
an Intranet "Dragon Information Center" to post specific demos, tips & tricks,
FAQs, sample word lists and commands, a "suggestion box" and more.

Justifying the expense

Enterprise speech deployments consist of several components:

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

Personnel-Related Costs: An ROI evaluation for speech recognition begins
with a review of the intrinsic loss of personnel working on transcription tasks
instead of on primary tasks, based on the average hourly salary. But consider,
too, the cost of other personnel-related items:

– 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

Repetitive stress injuries are the single largest job-related injury and illness
problem in the United States, as well as other areas of the world. While
most RSI sufferers are able to find appropriate treatment and return to their
positions, some become permanently disabled and are never able to use
their hands to operate a computer again. Speech recognition helps to prevent
injury before problems arise and can also help employees return to work
sooner, reducing worker s compensation, medical and replacement
labor costs.

Return on investment

In most cases, enterprises that purchase advanced speech recognition tools
such as Dragon Legal realize improved productivity and return on investment
(ROI) almost immediately. What makes this rapid ROI possible?

"I have used Dragon since 1995
and now almost all of my written
legal work is accomplished through
voice dictation instead of typing,"
said attorney Joseph Field. "It is a
great product that has saved me an
incalculable amount of time."

– 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 documents and emails three times faster than typing. Macros automate and streamline repetitive manual processes for productivity increases of up to 300%.
– It's accurate. With recognition accuracy rates of up to 99%, Dragon allows users to quickly create detailed and accurate documents – without any spelling errors.

Attorney Joseph Fields took a hard look at what he was spending and found that rising administrative costs were eating away a large chunk of his firm's profits. Like most practices, his firm relied on an expensive paralegal support staff to perform transcription tasks. Worse yet, the work kept piling up, and his staff never seemed to make significant progress reducing the backlog. Today, his firm uses Dragon Legal on a daily basis, saving more than $100,000 annually.

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

About Nuance Communications, Inc.
Nuance Communications is reinventing the relationship between people and technology. Through its voice and language offerings, the company is creating a more human conversation with the many systems, devices, electronics, apps and services around us. Every day, millions of people and thousands of businesses experience Nuance through intelligent systems that can listen, understand, learn and adapt to your life and your work. For more information, please visit nuance.com.

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