



Microsoft Office System Customer Solution

Case study

Speech-Enabled Solution Saves Time and Money and Keeps the Focus on Patient Care in this New York Radiology Practice

“The combination of Microsoft Word hosting Dragon Naturally Speaking and the Voicebrook services enables us to achieve unparalleled accuracy and performance.”

Silvana Dixon

Chief Information Office
Coney Island Hospital

Like most major metropolitan hospitals, Coney Island Hospital is under constant pressure to improve efficiency—reducing costs and increasing the number of cases handled—while maintaining excellence in patient care. The hospital recently deployed a speech-enabled transcription solution to streamline processes within its Radiology Department. The solution uses ScanSoft Dragon NaturallySpeaking and Microsoft® Office Word 2003 to deliver a powerful, intuitive interface to the hospital’s existing systems for clinical records and digital imaging. The solution was developed and deployed by Voicebrook, a ScanSoft partner that specializes in enterprise technology solutions for the healthcare industry.

CUSTOMER PROFILE	BUSINESS SITUATION	SOLUTION	BENEFITS
Originally founded as a first aid station for summer beachgoers, Coney Island Hospital has grown to a multi-site community medical center. The hospital is part of the New York City Health and Hospital Corporation, a network of more than 100 facilities that treat more than one-third of all emergency room and clinic visits in New York City.	The hospital’s Radiology Department relied on outside transcription services, which were expensive and required several days to make a report available to the physician who requested it. The hospital needed a solution to reduce or eliminate transcription costs, as well reduce turnaround times, making their own services more efficient and improving the quality of patient care.	The solution uses ScanSoft Dragon NaturallySpeaking and Microsoft® Office Word 2003 to deliver a powerful, intuitive interface to the hospital’s existing systems for clinical records and digital imaging. Radiologists now dictate and review their own reports, which are available immediately to any computer on the hospital’s network.	The solution has provided immediate benefits, including rapid return on investment, ease of use, and improved speed in responding to patients. In addition, the ease of use has led to rapid adoption among the radiologists who use the system on a daily basis.

"I see the benefits of the solution every time I walk through the waiting room. The cases are available so quickly, there are less than 10 patients waiting for their results at any given time—a significant improvement over the old system."

Dr. Rao
Chairman of Radiology
Coney Island hospital

Situation

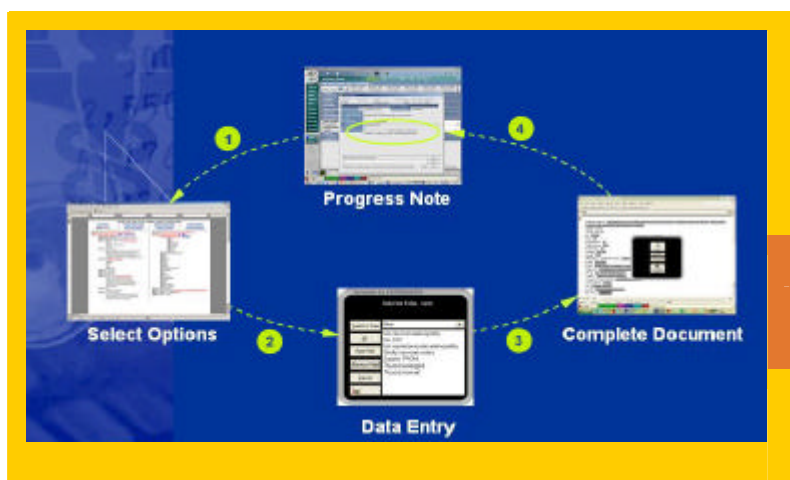
In Coney Island Hospital's Radiology Department, a team of ten specialists supports the rest of the staff through consultations and referrals. During a typical consultation, a radiologist reviews a patient's case, examines high-resolution digital images, and notes his observations. These observations are recorded on audio tape and transcribed manually, costing the hospital \$15–20,000 each month in transcription fees.

In addition, because the transcriptions were performed offsite and required proof-reading and correction by the radiologist, it frequently took several days before the radiologist's notes were available to the acting physician. In addition, 20–30 percent of cases had to be re-dictated because of errors or inefficiencies in the tracking process.

The hospital needed a solution that would reduce or eliminate transcription costs, saving the hospital money, as well as a solution that would reduce turnaround times, making their own services more efficient and improving the quality of patient care.

Speech-enabled dictation applications are widely used in clinical situations, and have begun to replace the traditional transcription model, so the use of a speech-enabled solution was an obvious one. However, Coney Island Hospital had several constraints that proved challenging for the solution developers:

- The solution must integrate with existing systems, the computer-based patient record system and the digital imaging system used by the radiology department (Agfa's PACS application). In addition, it would have to be available over the hospital's network, allowing radiologists to log on and access key information from anywhere in the hospital.
- The solution must provide a very high degree of accuracy—delivering better than 95 percent accurate recognition in full dictation mode. This goal was made more challenging by the range of accents among the radiologists, many of whom are non-native English speakers.



The solution uses Word's native editing features to complete forms within the computer-based patient record.

- Finally, the solution must be easy and intuitive for the users. The radiologists are not typical office workers, and many had little experience using the computer or desktop software. Yet, the hospital could tolerate no disruption in service and no downtime to distract the doctors from their work. To overcome this, Voicebrook automated as many tasks as possible, relying on intuitive speech control, automation of Microsoft® Word, and structured templates that guide the users through the creation of documents. In addition, they provide on-going training and support to the users of the system.

Solution

Coney Island Hospital turned to Voicebrook to deploy a solution that represents best-of-breed capabilities in every aspect: the natural language interface of ScanSoft's Dragon NaturallySpeaking, the word processing and document creation capabilities of Microsoft Word, and the technical and industry expertise offered by Voicebrook.

Dragon NaturallySpeaking was chosen because its speed and ease of use provides the perfect interface for the radiologists, while its robust set of APIs enables Voicebrook's developers and system integrators to ensure smooth integration with the hospital's existing imaging and workflow systems.

Dragon NaturallySpeaking also enables the solution to meet the stringent requirements for dictation accuracy. The program includes a training mode, as well as tools that enable Voicebrook to fine-tune profiles to accommodate individual accents and mannerisms among the radiologists. In addition, custom vocabularies and syntax

rules developed by Voicebrook for the radiology scenario improve accuracy and ensure consistency with established standards.

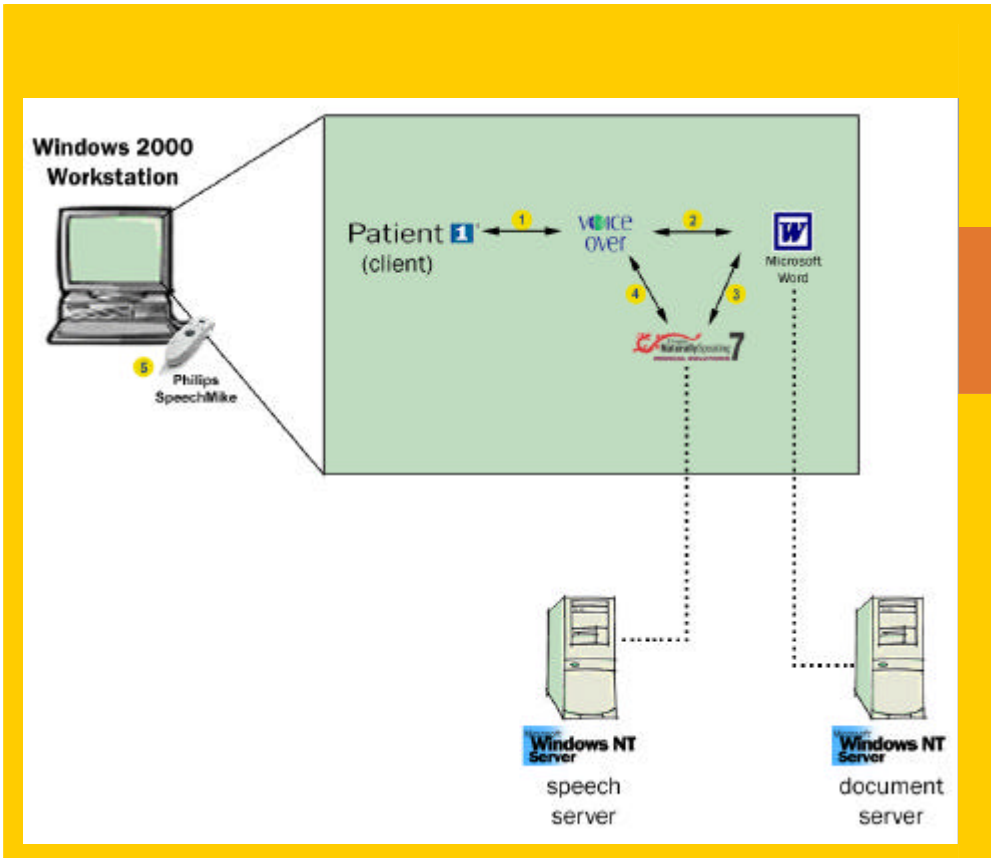
Microsoft Word provides a powerful interface for entering and editing text. Using the Microsoft Office System APIs, Voicebrook developers were able to invoke Word as the editor for certain text-based fields from within the hospital's patient record system. Seamless integration with the Dragon NaturallySpeaking allowed them to use speech recognition to dictate text into Word, where the rich editing interface allows radiologists to proof and correct their own notes in real time. In addition, Voicebrook automated certain tasks, using Word templates, Microsoft Visual Basic® for Applications, and the autotext features of Word to streamline many repetitive tasks.

Architecture

The following diagram shows how the Voicebrook solution integrates Word 2003, Dragon NaturallySpeaking, and Voicebrook's VoiceOver™ application with the hospital's Patient1 computer-based patient record management software.

The radiologist logs into the clinical information system to bring up the patient info from any workstation in the hospital. When the user logs in, his speech recognition profile is loaded automatically. The radiologist enters a case number using speech-enabled command and control to retrieve the case from the hospital's computer-based patient record system and check the status.

Radiological imaging related to the case is displayed on a high-resolution PACS workstation. When the radiologist opens the appropriate clinical record form, Word is launched with speech recognition and document templates automatically loaded. The user completes the form fields in the document template using a combination of pick lists, keyboard input, and speech.



The solution integrates Word 2003, Dragon NaturallySpeaking, and Voicebrook's VoiceOver technologies with the hospital's computer-based patient record system.

In many cases, the radiologist re-uses the same descriptions and diagnoses from case to case. These descriptions are saved on a network share and can be retrieved quickly using voice-enabled macros that automate the Insert File command in Word or autotext functions to further streamline the data entry.

The radiologist dictates observations, builds the file, proofreads text, and makes any corrections using a combination of speech-based command and control and traditional keyboard functions to control the native document editing functions in Word.

The system also provides flexible options for navigation, using speech, keyboard, or navigational features built in to the system's handheld microphone. Hardware drivers and an enhanced interface/control panel are managed by the VoiceOver software.

When the report is complete, the radiologist signs and saves the document

electronically. The text is stored in Rich Text Format and is available immediately to any other workstation on the system.

Benefits

The solution has provided immediate benefits or Coney Island Hospital, for the radiology staff, and for the patients who rely on their expertise.

Immediate Return on Investment

Returns include measurable, tangible cost savings, as well as some less direct savings. As Voicebrook's E. Ross Weinstein explains, "The economics were very persuasive. The hospital didn't have to do much calculation or an economic justification study to see the benefits. In fact, the ROI is probably greater than we know."



The direct savings come through the immediate elimination of transcription fees for the radiology department, saving the hospital more than \$200,000 annually. Less direct, but equally important cost savings come from increased efficiency of the individual radiologists, which allows the hospital to handle more cases—as many as 10,000 per month—and see more patients with the same number of staff.

Rapid Response to Patients

The solution has reduced the turnaround time on radiological reports from days to hours, or even minutes. Speedy processing of radiologists' assessments improves customer care and makes radiologists more efficient.

In the past, the hospital was able to meet its goal of 24-hour reporting on less than 40 percent of cases; however, under the new system, performance has improved to 90 percent for the ER and better than 80 percent for in-house and out-patient cases.

The rapid turnaround time is attributed several factors: the speech interface, which eliminates the need for outside transcription services; the powerful editing features of Word, which allow radiologists to review and correct their own reports in real time, and the automation/integration with the hospital's workflow and patient records system, which makes reports available to the entire hospital as soon as they are saved.

Ease of Use

The combination of a natural language interface provided by Dragon Naturally Speaking and the intuitive editing environment provided by Word enabled the radiologists to be productive on the new system very quickly. Voicebrook provides training and on-going support to the users, but as project lead E. Ross Weinstein points out, "Even users who aren't as familiar with the computer or who haven't used the Microsoft Office System programs in a business setting are able to assimilate rapidly. The combination of Word 2003 and the speech navigation and dictation provide a user-friendly environment that's led to very rapid adoption."

Flexibility

The solution has also proven flexible enough to accommodate changes in the hospital's workflow and business rules. The rich APIs and developer toolsets provided by both Dragon Naturally Speaking and the Microsoft Office System enabled Voicebrook to modify the system quickly and easily. Even in the midst of deployment, when the hospital made changes to the back-end systems, Voicebrook could accommodate them quickly without delaying deployment.

Software and Services

Microsoft® Office System:
Microsoft Office Word 2003
Microsoft Visual Basic® for
Applications
Dragon NaturallySpeaking
VoiceOver Enterprise

Hardware

Philips Voice Microphone

Partners

ScanSoft
Voicebrook

About Voicebrook

Voicebrook's team of experts puts decades of technology and clinical experience to work, implementing speech technology solutions for leading healthcare enterprises. Voicebrook's clients include some of the largest hospitals in the world, as well as private practices and imaging centers. Voicebrook projects range from speech strategy and large-scale implementation to departmental speech technology installations. We offer full services, including planning, custom programming, system integration, installation, training and support.

About ScanSoft

With nearly 500 employees and offices around the world, ScanSoft develops document automation solutions, including OCR (optical character recognition), eForm design and personal document management applications. ScanSoft's productivity solutions are widely used within healthcare organizations to improve access to information, reduce costly errors, and improve operating efficiency. Most of all, customers rely on ScanSoft's time-saving products to give them more time to meet the needs of their patients.



Microsoft Office is the business world's chosen environment for information work that provides the software, servers, and services that help you succeed by transforming information into impact.

For more information about Microsoft Office System, go to:
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For more information about Voicebrook products and services, call (866) 864-2397 or visit the Web site at:
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