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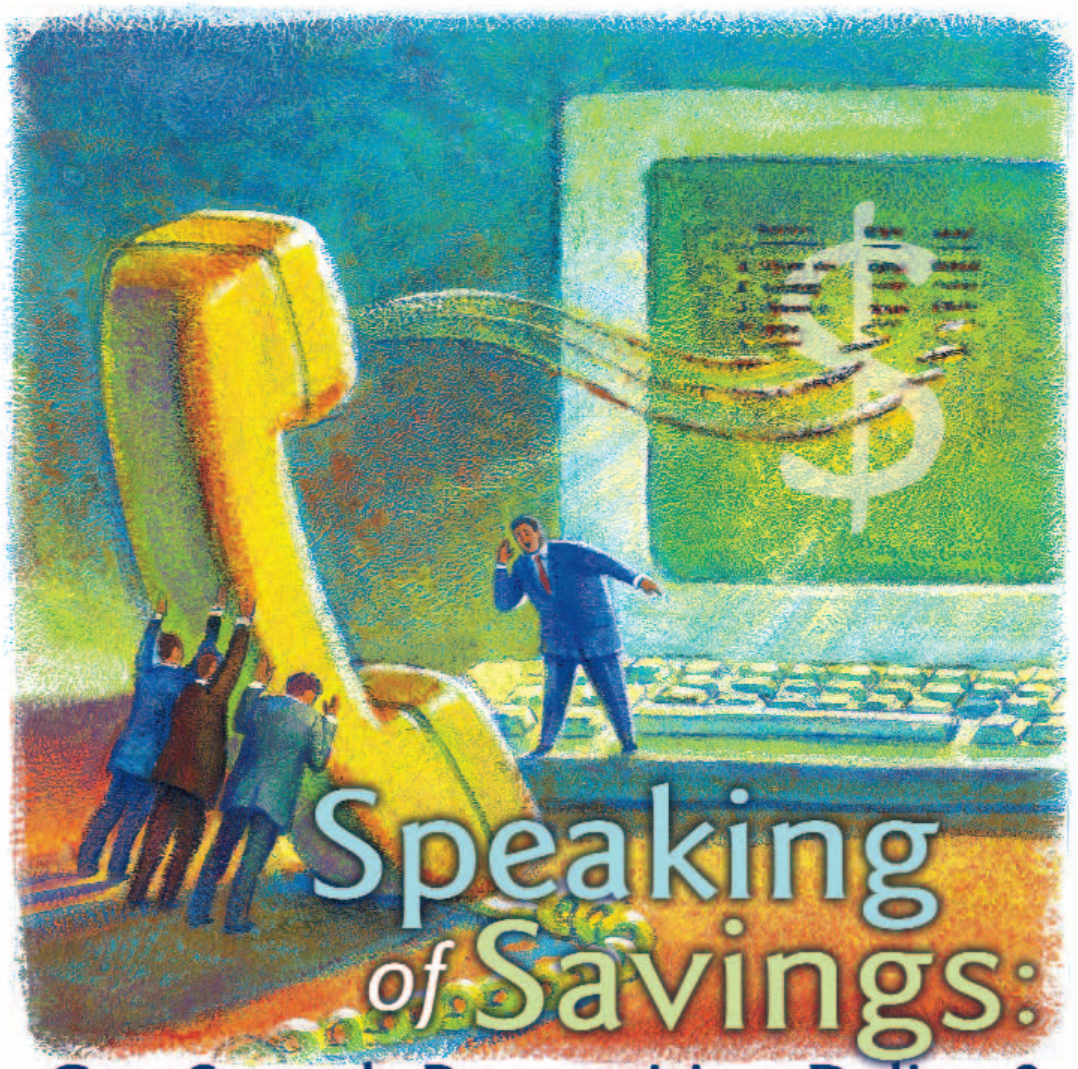

Speaking of Savings: Can Speech Recognition Deliver?

Are the days of wild expectations and unfulfilled guarantees in the past? Perhaps, if organizations take the correct approach when implementing the technology.

By Elizabeth S. Roop

When John Avedian first proposed implementing speech-recognition technology to streamline the HIM department at Maine Medical Center seven years ago, he had little by way of statistics or industry examples to support his case. Instead, Avedian, the HIM director at the 606-bed teaching facility and research center, needed to deploy a small pilot project to support his claims that speech recognition would not only work, but would result in significant cost savings for Maine's largest hospital.

"The goal of the pilot was, 'Would it work?' Would we see that the medical transcriptionist became more productive? We had to validate that it would even work," he says. Today, however, "there are so many success stories with speech recognition at this point, I don't think a pilot is even necessary."

Indeed, Maine Medical Center is one of those success stories. In 2001, following the pilot program, Avedian began the implementation of EditScript from eScription, Inc. to process dictations from the facility's 1,100 physicians, and for editing the text files by in-house and remote transcriptionists, as well as an outsourced transcription service.

Within three years of the enterprisewide rollout, Maine Medical Center had realized an estimated $1 million in savings, including a 74% productivity gain for the in-house staff that resulted in a reduction in the use of outside transcription services. Today, approximately 81% of the facility's dictation—which produces approximately 10 million lines per year—is speech recognized.

"The reason we started this was because we really believed that there was technology that could make the medical transcriptionist more productive. We didn't set out to replace the medical transcriptionist, we set out to explore ways to help them become more productive," says Avedian. "As staff becomes more productive, you need less staff and you send less work out. We've converted some of our resulting vacancies from attrition by moving them to other areas of the department where we've needed help. In addition, we've been less susceptible to and less pressured by the shortage [of transcriptionists]."

Best of all, Avedian adds, the improvements are "continuous because the speech recognition engine becomes better and the transcriptionists become better. It's an evolving thing."

"It is important to view speech recognition as a productivity improvement tool rather than a total eliminator of human labor," notes Dale Kivi, vice president of business development at CyMed, Inc. "We had reduced annual department expenses for some of our clients by more than $1 million prior to having a speech recognition option, so a portion of the savings experienced by providers who switch from a large in-house direct labor approach to a speech-recognition approach need to be credited to the inherent process improvements that come with such end-to-end technology solutions."

CyMed is the largest medical transcription service organization (MTSO) to have incorporated the Nuance Dragon Speech Recognition engine as an option under their outsourced service offerings. "In our approach, it's all about providing a solution that is better, faster, and cheaper than what has been done—and speech-recognition technology is clearly capable of delivering quantifiable results," Kivi says.

SIGNIFICANT SAVINGS POTENTIAL

The market's enthusiasm for speech-recognition technology is mirrored by a growing portion of the HIM population. A 2004 KLAS survey of HIM directors and managers showed that 26% were already using speech recognition. Further, according to the 2005 HIMSS Leadership Survey, another 59% of health information technology (HIT) executives plan to implement the technology within the next two years.

The reason for speech recognition's growing popularity among HIT executives is simple: The potential for savings is enormous.

According to the Medical Transcription Industry Association (MTIA), medical transcription is a $22 billion industry with more than $6 billion spent on labor alone. "If speech recognition can improve productivity by even a modest 25%, a $1.5 billion savings could be realized," says Kerry Waltrip, senior vice president of product and sales strategy with SoftMed Systems, Inc., which offers a wide range of document creation, management, and distribution solutions.

As an example, he points to one SoftMed client that was able to eliminate the need for transcription in its radiology department. "As a result, the facility is now saving approximately $28,000 a month in transcription costs," Waltrip says.

Savings aren't just realized in reduced hard costs; increased productivity also comes into play, according to Kulmeet Singh, senior director of healthcare strategies for Nuance Communications, Inc., which provides speech and imaging solutions and recently completed the acquisition of Dictaphone Corporation.

Speech recognition "will erode transcription costs when it is used as a tool to improve productivity," he says. "For some physicians, speech recognition can double or even triple productivity. In general, a reasonable first-year target is that speech recognition will improve productivity enough to erode 20% of transcription costs. When speech recognition is used by physicians—granted only some physicians will use it—the transcription costs can be reduced more significantly."

Hospitals typically realize savings from speech recognition in three key areas:

- reduced or eliminated need for outsourced transcription services;
- less paid per line to an outsourced transcription service because it's faster to edit than to type; and
- reduced in-house labor costs.

Other benefits include faster turnaround times, increased consistency of medical documentation, and centralization and standardization of medical records processes.

"An enterprisewide back-end speech-recognition system increases the productivity of medical transcriptionists by producing high-quality first draft documents that the medical transcriptionists subsequently edit instead of typing them from scratch," says eScription CEO Ben Chigier.

It's important to note that the savings potential is also tied to the type of speech-recognition solution. Front-end solutions—which are popular in radiology, pathology, cardiology, physical therapy, and emergency departments—allow providers to create reports instantaneously with transcription from audio to text in real time, with the physician editing the results and completing the document in one step.

Back-end, or deferred, speech recognition creates reports from audio that are then edited by medical transcriptionists. Back-end solutions, which are transparent to the provider, deliver ready-for-edit reports to the transcriptionists for validation and formatting.

"Front-end speech offers the biggest impact. Real-time completion of reports by the dictating physician in one step can generate an 80% or higher reduction in the cost and turnaround time of the report," says Joe Desiderio, chief strategy officer of Voicebrook, which provides front-end speech recognition integrated directly with a number of information systems in a variety of report-intensive specialties. "However, this requires a change in process for the physician. Deferred speech recognition delivers a lower payback [and] requires change in the transcription process, but less change to the physician."

When choosing which version of speech recognition best fits their needs, healthcare organizations must keep in mind who will be using the technology.

"Whether a client approaches us with an interest in front-end or back-end speech recognition, our experience has been that their ultimate decision is driven by the amount of change their physicians are willing to accept," notes Kivi. "To be effective, front-end solutions require the physicians to dictate in the manner that the speech recognition engine listens, then directly edit anything that was not processed accurately. Some physicians love it and can completely eliminate the transcriptionists from their process with this approach—as long as the physicians also embrace the role of editor. Other physicians simply won't change their dictating habits to become efficient front-end candidates, let alone take on the responsibility of manually editing their own reports. Similarly with back-end solutions, it is where the editing responsibility lands that drives the buying decision and out-of-pocket process cost. Most of our physicians prefer that we handle that end of things so they can remain focused on patient care."

EVALUATING THE NEED

Speech recognition is already prevalent in certain areas—particularly radiology and pathology. In fact, Desiderio estimates that 10% to 15% of radiology practices and 20% of pathology practices are currently using speech recognition, with 25% and 20%, respectively, currently evaluating a solution for implementation within the year.

However, any healthcare organization could potentially benefit from implementing some form of speech recognition. As a rule of thumb, Singh suggests that "if transcription costs are $3,000 per physician FTE [full-time employee] or more per year, speech recognition must be considered."

And, according to Waltrip, any facility with physicians/dictators who record at least 60 minutes of dictation per month are good candidates for deferred speech recognition, as are "facilities that fail to meet their documentation turnaround time targets, those that employ medical transcriptionists but find themselves still needing to outsource, facilities that forecast increasing dictation volume, and those that have difficulty recruiting and retaining qualified transcriptionists."

Specifically, when evaluating whether speech-recognition technology is a worthwhile investment, organizations need to evaluate their current direct costs, including transcription costs, time spent handling charts and storage costs, as well as indirect costs such as the impact real-time information can have on patient care, according to Desiderio.

"Aggressive focus on workflow can and should make physicians more productive, not less, so factor physician productivity into the investment analysis," he adds.

Chigier suggests that the first thing a facility should do when evaluating the potential of speech recognition is articulate the organization's goals so they can be communicated not only internally, but also to potential vendors. Is the organization expecting speech recognition to decrease turnaround time, improve quality, or save costs? Is the goal to enable the transcription department to take on additional work, or to streamline processes or reduce/increase the number of outside medical transcription services?

"An enterprisewide speech-recognition system can help an organization achieve all of these goals, but it is important for both the organization and the vendor to understand the goals and the priorities of those goals," Chigier says. "It is also helpful to look at other organizations that are using speech recognition and examine their results. Understanding the benefits from peers can provide good insight."

COSTS VS. RETURN

The actual cost of a speech-recognition system depends on a number of factors, including facility size, number of users, vendors, and whether the solution is hosted, client deployed, or a hybrid of the two. Training costs also vary, particularly between front-end and back-end technologies, and the approach to training.

"Expectations for front-end speech are not in sync with what it takes to properly implement and support it. The speech recognition engine is fairly inexpensive; however, the main drivers of a solution's cost are workflow, integration, training and support, as well as management tools for larger environments," says Desiderio. "Organizations considering these solutions should make sure their physicians' needs are met, and should also budget for incremental user support and software maintenance annually."

For example, a single copy of one speech-recognition software for medical users is advertised for less than $900 out of the box, or less than $3,000 in the first year including training, support, and maintenance. Others place the cost at $4,000 to $10,000 per user in the first year, with lower costs in subsequent years when only ongoing support is needed.

"These up-front technology costs are the potential Trojan horse for providers looking to deliver positive financial results during their current fiscal year," notes Kivi. "If the client is going to replace their technology anyway, then it makes sense. On the other hand, if your productivity improves by 25% or so across the board

during the first year—which many might consider optimistic—you could easily end up spending more for the total process even if you deliver substantial savings on the labor side. From our perspective, that's the advantage of relying on an outsourced agency to engage speech recognition on a selective basis when you know it will deliver positive results. This business model circumvents the provider's up-front technology costs since it is provided by the outsourced agency. This approach also shifts the responsibility for delivering improved savings down the road to the agency as the technology improves."

However, the return on investment for a properly selected and implemented system can be significant—some facilities report annual savings of $250,000 and higher—and rapid, positive return on investment (ROI) is often realized within the first year. In fact, according to Waltrip, deferred speech-recognition systems can have an almost immediate impact followed by steady increases throughout the first six months.

"Factors impacting ROI include executive-level sponsorship, success of change management, and a full understanding of the cost of traditional transcription at the facility," he says. "Depending on the dictation volume, [deferred speech recognition] results become available within 30 to 60 days. Instantaneous speech recognition allows for the elimination of some transcription costs so results will be achieved virtually immediately."

Other factors that have a direct impact on ROI include the following:

- transcription costs;
- number of FTE transcriptionists;
- pricing levels from outsourced transcription services;
- productivity improvements; and
- percentage of all dictations that are edited.

The latter two are critical to measuring ROI, according to Chigier. "For instance, if the productivity improvement is 100%, but this only happens to 5% of the documents, there is not much gain," he says. "Likewise, there is little gain if 100% of the documentation can be edited, but the productivity improvement is only 5%. So these numbers work closely together to paint a picture of what the real ROI will be."

Finally, it's important to include indirect costs in ROI calculations, such as the number of days in accounts receivable (AR). "If AR days are high due to delayed transcription, this can be an important indirect cost to consider," says Singh, adding that it's wise to factor the cost of both the speech-recognition and transcription systems into the equation because "speech recognition deployments are not successful if they're not tied to a good transcription system."

MAXIMIZING THE INVESTMENT

Realizing the full financial benefits of speech recognition requires a long-term commitment to technology and training among physicians, when appropriate, and on the executive team, to overcome early resistance to the system.

"There's a reason why nobody has an 'I heart change' bumper sticker; nobody likes to change how they've always done it," Desiderio says. "However, with minimal change, cost and turnaround improvements are compelling. There has been some overpromising and underdelivering with speech recognition in the past. However, for an organization that is interested, the technology is now mature enough that it can be implemented in the right environments. Besides the technology readiness, it's critical to have strong management and a set of representative users who can demonstrate the effectiveness of a proper solution."

It's also important to evaluate the system's ongoing performance, says Chigier.

Among the metrics to measure are the following:

- decreased turnaround time;
- cost savings/cost avoidance;
- productivity gains;
- yield (the percentage of transcription work that is processed by the system);
- document quality;
- document consistency in headings and body copy; and
- clinician satisfaction.

In addition to monitoring system performance, which will provide ongoing validation of the system's effect on costs and productivity, initial resistance can often be eliminated or reduced by carefully matching the solution to all users, providing appropriate ongoing training, and sharing success stories from other organizations.

For example, Maine Medical Center opted for a back-end system because physicians would not be affected and also because the goal was to enhance productivity, not replace medical transcriptionists, says Avedian.

The facility also acknowledged that implementing speech recognition would impact workflow and require a change in the way transcriptionists performed their jobs. It would require not only initial training, but also continuous retraining to ensure the system would gain maximum results.

"It's a long-term investment. This isn't just an application; it revolutionizes how you do your medical transcription work," says Avedian. "You can't just install and leave it. It requires workflow analysis, training and retraining, and a commitment from people to do their work differently."

As long as the commitment is there from every level—including the executive team and the IT department—implementing a speech-recognition system can be successful.

"When I'm reducing my outside transcription budget by half year after year, there isn't a lot for anyone to have difficulty with," Avedian says. "Once you've committed yourself financially, technologically, and emotionally to do this, you'll see the benefits. It's here. It's a viable solution. Learn about it; embrace it. Don't run away from it."