



Front-end speech recognition powered by SpeechMagic™ enters the mainstream

Putting radiologists in control of report creation

Customer Story

It is the UK's largest deployment of frontend speech recognition that gives the 60 users in the radiology department at the Aberdeen Royal Infirmary (ARI) full control of their medical reporting. Originally introduced to get reports to clinicians as quickly as possible, frontend speech recognition has turned out to be much more than a speed booster; it has had a positive effect on the department far beyond turnaround times.



Aberdeen Royal Infirmary is NHS Grampian's largest hospital. It is situated on a self-contained, 125 acre site. With in excess of 1,000 beds the ARI is the main teaching hospital in Grampian. Its close links to the University of Aberdeen makes it a centre of pioneering medical research.

The current speech recognition-based reporting system is already the second. The previous system fell somewhat short in terms of recognition accuracy and workflow functionality, according to radiologist Dr. Olive Robb, who headed the new implementation. She believed in the technology she says, and would not accept the limitations set by the old system. When she issued the tender for a new system, eight companies replied, of which four were short-listed. The systems powered by SpeechMagic™ from Philips were found to deliver greatest accuracy. The ARI decided upon Soliton IT's workflow solution. The integration partner for SpeechMagic showed greatest flexibility in adapting its solution to the requirements of the ARI, according to Dr. Robb.

Making work flow

The ARI asked for seamless integration of speech recognition with their existing Radiology Information System (RIS). "We were trying to avoid every unnecessary mouse click and make reporting as convenient and user friendly as possible," explains Dr. Robb.

Today, doctors scan the barcode from the patient record into the RIS, which automatically pulls up the corresponding patient data and adds it to the report. The patient history can be accessed from the dictation screen – a powerful feature allowing physicians to compare and check their results against previous findings. The dictated report is immediately displayed on the screen to let users move easily back and forth within a document. For standard findings they can even use pre-

defined text blocks, which are inserted by voice commands. The report is available for correction and validation the moment the doctor presses the stop button on the recording microphone.

The decision to let radiologists work in a frontend workflow, meaning that they edit the recognized text themselves, was triggered by a massive shortage of available medical transcriptionists. Experiencing backlogs of up to three weeks, the ARI wanted to push the speed of radiology reporting to the limit. Dr. Robb believes that giving physicians the choice of various workflows can slow things down as, out of convenience, some users would still use digital dictation only.

But having physicians correct reports instead of consulting patients, isn't that what really slows things down?

"At a first glance, yes", confirms Dr. Robb, "but it's the overall time gain that counts. Physicians no longer have to wait for reports to return from the Transcription department, verify them (sometimes weeks after the consultation) and in between answer phone calls about unfinished reports. This is the real time-consuming factor. Compared to this the time spent editing is minimal."

From promise to reality

For a long time, speech recognition has been 'over-promised', raising expectations far beyond what the technology was capable of. By focusing on the healthcare sector, Philips has solved many of the issues associated with the complexity of machines understanding the human voice. SpeechMagic, the most popular technology



"We were completely surprised by the lack of difficulties with the implementation and acceptance of our new speech recognition system. The technology has reached the level which allows doctors the full responsibility of report creation."

Dr. Olive Robb, Radiologist,
Aberdeen Royal Infirmary

Did you know...

that at the ARI physicians can create reports instantly. They no longer spend time waiting for reports to return from the Transcription department, verify them (sometimes weeks after the consultation) and in between answer phone calls about unfinished reports.

in healthcare speech recognition, is a highly accurate system, according to Dr. Robb, "in absolute terms as well as in comparison to our previous system". At the ARI the challenges for the system are high, with a wide range of accents from the Indian subcontinent, North Africa, Eastern Europe and Scandinavia. However, this does not affect the accuracy, as the system has been trained properly.

Training is quick and easy and essential. The ARI trained its 60 users within 2 weeks. They identified four key trainers within the team to spend half an hour on each user to train the voice profile and explain the system. Once that training was finished, the old system was turned off and everybody was "forced" to use the new system. "We were pleasantly surprised by the lack of difficulties," reflects Dr. Robb. Especially for those users who had previously had negative experiences, they described themselves as "absolutely surprised" by the performance of SpeechMagic.

SpeechMagic: a catalyst for improving quality of care

The benefits of implementing a speech recognition-based reporting workflow are numerous. The fact that all reports are now available immediately after dictation has influenced a number of other changes in the ARI's Radiology department.

Doctors are now significantly more in control of their job, no longer having to wait for dictations to be typed and verified. Checking the system the previous night, Dr. Robb found only 20 reports open for authorization, resulting from the fact that trainee doctors need authorization for their reports from other radiologists. This is a negligible amount given an average number of 820 radiology exams per day.

As the secretaries no longer need to type reports, they have been assigned to different duties, helping the hospital to realize its increasing emphasis on internal communication to exchange experience and know-how among doctors. Secretaries now prepare the clinical radiological meetings, multi-disciplinary team meetings and modality group meetings. And radiologists have been allocated an individual secretary, which further improves their working conditions.

A learning experience

Dr. Robb would always advise other hospitals to go for frontend speech recognition, if their goal is to optimize the availability of reports to clinicians. However, a careful evaluation of the system is required. "It surely wasn't the cheapest system we went for, but we wanted the reliability and accuracy of a professional system to make the installation a success."

Apart from accuracy, one of the key factors to success was the integration within the RIS system, as reporting is now done within one application – at least from a user's experience. With reports being automatically populated with RIS data, the entire workflow is smooth and straightforward, requiring only a minimum of manual intervention from the user.

In the future Dr. Robb has plans to introduce a PACS and integrate all three systems, so that the department can switch to a digitized, paperless workflow. "With the successful implementation of speech recognition, we have proven how positively a new technology can affect our working conditions and the services we provide to patients and clinicians. This is a very positive experience we can build upon."