



## Leeds Teaching Hospitals Trust

Nuance's speech technology SpeechMagic™: Improving report productivity on a large scale

Leeds Teaching Hospitals Trust (LTHT) is amongst the largest teaching hospital groups in the UK, spread over six sites across the city. The sheer size and geographical locations of the Trust were key factors in LTHT's decision to use the Soliton, powered by SpeechMagic™ (the Nuance speech technology), reporting workflow solution to complement its Radiology Information and Picture Archiving and Communications systems (RIS and PACS). Using the new system, LTHT markedly increased the speed of its radiology reporting. Speech recognition also helped to significantly raise the productivity of the Trust's radiology reporting.

"If you get speech recognition wrong at an early stage, then you are fighting a constant battle to convince people to accept and use it, especially in a large Trust. We wanted to get this right from the start," explains Kevin Peters, Lead Superintendent for Radiology at LTHT. "Some of our radiology staff had already experienced speech recognition – good and bad – so we knew some of its potential benefits and pitfalls. We started by identifying the key benefits we wanted a new system to deliver." These benefits included:

- Quick, easy installation across all sites
- Usability
- Reduced report turnaround time
- Increased productivity

In 2009, the Trust installed a new RIS alongside their PACS system. "We knew the vendor of this RIS had a speech recognition module associated with this product, but we were aware other products were available in the market place. So we wanted to examine all our options," explains Kevin.

### Assessing the technology

LTHT radiology staff initially reviewed seven speech recognition products. Following demonstrations from each vendor, the Trust quickly narrowed this choice down to two products before choosing the Soliton speech recognition system powered by Nuance speech technology. Kevin sees the simplicity of Soliton's solution as a major reason they selected this technology.

### Key objectives

- Quick, easy installation across all sites
- Usability
- Reduced report turnaround time
- Increased productivity

**SpeechMagic™**

# LEEDS TEACHING HOSPITALS TRUST

## CASE STUDY



“It’s very easy to set up, manage and use. Many of the other systems required a two or three-step set-up process and the purchase of additional hardware, unlike Soliton,” he says. “With Soliton it was also a straightforward process to go from digital dictation – which many of our consultants were already using – to speech recognition. The user training for some of the other systems was more complicated.”

From a management perspective, Soliton technology enabled the Trust to install the system quickly on all PCs and workstations, across all five radiology sites. “Soliton provided excellent installation and training support for our own IT radiology team. This made the roll-out of the new system run very smoothly,” explains Kevin. Rather than having a formal product trial, the Trust tested Soliton for

productivity on five PC workstations, before installing it on all other radiology workstations.

From an IT perspective, Lynne Gathercole, Radiology IT Systems Manager at LTHT, felt that imposing a new speech recognition system on top of the LTHT’s complex IT radiography system was a major challenge. “So the efficient interface between the Soliton system and our PACS system and in-house IT systems was another deciding factor for selecting this particular technology,” she notes.

### Encouraging user acceptance

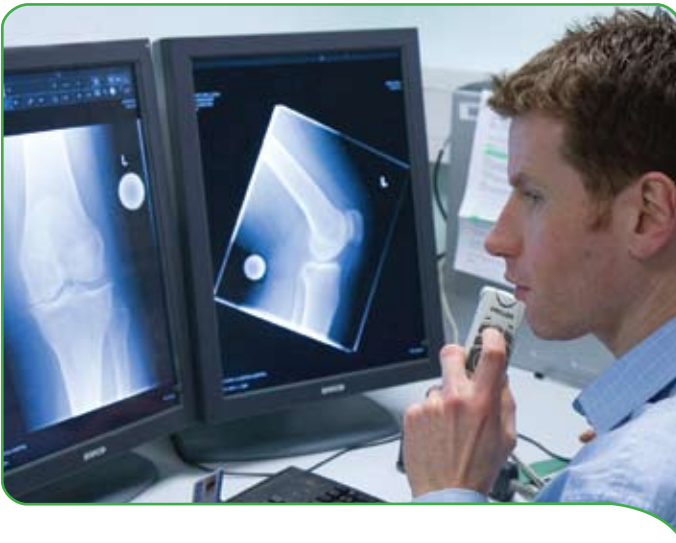
LTHT launched the new system in stages, by first identifying several radiology staff that were already keen advocates of speech recognition. After methodical training by Soliton on all aspects of the new system, these staff then directly trained other radiologists on an individual basis. “Once we had that initial user enthusiasm and groundswell going it helped encourage acceptance of the new system,” says Kevin.

“At first, we had to encourage use of this new technology. However, as more doctors began raving about its benefits, many others then came forward to request training”, says Lynne. She acknowledges that some doctors were reluctant to accept these changes partly due to concern around their secretaries. Once they knew that speech recognition would release the secretaries to do other much needed tasks, most of them opted for training. Today, the vast majority of the radiologists at LTHT use the speech recognition system.

### Measurable results

The addition of the Soliton solution has had a marked improvement on efficiency and productivity of radiology reporting at the Trust. The installation helped to increase the reporting rate from 50% to 98%. “The major benefit of the system has to be turnaround time. Within the first six months, we had reduced the average report turnaround time from 5.5 days to 2.1 days”, explains Lynne.

“For me, one of the key reasons we chose Soliton was concurrent usage,” Lynne says. “We have 175 concurrent licenses of the new system in the Trust’s radiology departments, including radiologists, reporting radiographers and ultrasonographers. The SpeechMagic™ system by Nuance allows each of them to log in, dictate, validate and submit reports, whenever they need to.” According to Lynne, this flexibility has enabled each individual user to adapt the speech recognition system to suit their preferred workflow, which has helped to increase report productivity.



### Increased speed & dictation accuracy

“From a user perspective, I find that the Soliton solution is very attuned to medical terminology and to my voice, which really improves the accuracy of the report and speed,” notes Dr. Philip Robinson, Consultant Radiologist and Head of PACS at LTHT. “It ignores the ‘ums’ and ‘ahs’ that may confuse transcriptionists. You can instantly modify and validate your report online while it’s fresh in your mind. You don’t have to revisit it, and deal with any blanks or question marks from secretarial transcriptions you may receive up to a week later.”

Philip also finds the auto-text codes very useful. “Rather than repeating an entire paragraph about the type of radiology examination that took place, I can just put in a

code, which fills this in. I produce my reports by doing everything on my own. I don’t need to involve the secretary at all.”

SpeechMagic™ developed Intelligent Speech Interpretation (ISI), which allows the system to understand natural language. Corrections from one author are automatically shared with other authors. Auto-texts and smart fields can be used to populate parts of the report automatically, which reduces dictation time.

### Quick clinical availability

As a major centre for medical research and education, the Trust deals with many requests for urgent radiology investigations. Philip thinks that the Soliton system powered by the Nuance speech technology has significantly improved the speed and access of these urgent radiology reports. As soon as the reports are dictated and validated by the radiologist, they are available ‘virtually instantly’ to all clinicians on the Trust’s PACS, and the results server.

“I can now complete an examination, and have the report available electronically for staff on the ward before a patient leaves the radiology department. This lets clinicians assess the report results more quickly, which helps improve patient care”, says Philip. “Outpatients can also contact their GPs to follow up the results of a radiology examination in a matter of days, rather than weeks.” He also feels that Soliton has improved the working conditions for medical staff inside and outside the Trust, since it reduces the need for them to chase up the radiologists and transcriptionists for urgent report results.

### Hospital-wide benefits

Kevin, Lynne and Philip each felt the Soliton system powered by SpeechMagic™ would also be very beneficial for other hospital departments wherever medical dictation reports are produced and especially if it was launched across the trust.

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“The new speech recognition system has allowed us to save money by reducing the use of external agency secretaries. Previously, we were outsourcing some of the transcribing for our basic radiology reports to these secretarial agencies. It has also freed up time for our fulltime secretarial staff, allowing them to devote more hours to consultant support and ultimately patient care,”

**Lynne Gathercole**, Radiology IT Systems Manager, LTHT



“Speech recognition has been very helpful in our polytrauma cases, where different radiology specialists examine different areas of the body. Previously, a secretary had to coordinate each of these reports into one final report, which then needed to be validated by each specialist. Now we just have to dictate the part of the report relevant to us, verify this and pass it on to the next specialist. This really improves speed, and allows all clinicians dealing with the polytrauma case quick access to the final report.”

**Dr. Philip Robinson**, Consultant Radiologist and Head of PACS, LTHT



“It’s such a useful tool that you think: how did I ever manage without it before?”

**Kevin Peters**, Head Superintendent for Radiology, LTHT