University Hospital of Tübingen, Radiology Department:
"Speech recognition is almost a must-have in the DRG age"

In 2002, the Radiology department of the University Hospital of Tübingen (UKT), Germany, decided to implement the digital dictation solution MBS easy together with the speech recognition system SpeechMagic. With this implementation the hospital was able to accelerate document creation as well as save money and increase the satisfaction of doctors and patients. Now a comprehensive IT modernisation is pending; this includes a renewal of PACS and the network infrastructure as well as plans to significantly extend the speech recognition technology, based on the Nuance workflow solution, SpeechMagic Solution Builder.

Today Dr. Jens Bauer, Image Management Project Manager at UKT, looks back, highly pleased, at the implementation of speech recognition in radiology: "Altogether, I must say, it was a successful IT project". What started in 2002 as a small pilot installation with only one server and five speech recognition licences is today a department-wide solution for digital speech processing that is used to the same extent in radiology, neuroradiology and nuclear medicine.

Interim report available already in 15 minutes

Currently, the Radiology department is using 84 author licences for speech recognition. The digital dictation system is installed on 92 workstations. "All in all, we produce about 11,000 to 12,000 digital reports per month in all three clinics, almost all of them using speech recognition", estimates Hubert Petrich, the IT manager responsible for speech recognition. The most drastic effect of the change from the traditional report creation to digital speech recognition was a remarkable speeding up of the report availability. Petrich: "We use an online system that makes the interim radiology reports available to all doctors, with access rights, within a quarter of an hour. With these reports you can work immediately in the ward or operating room". The final release of the reports is then done by the responsible assistant medical director.

Highlights

- Savings of € 150,000 per year

- Interim report after 15 minutes

- Advantages for assigning doctors, patients, and budget

- Deep integration and continuous maintenance as success factors

- Speech solution: Nuance

- Installation, training and maintenance: DFC Systems

- Radiology information system: RadCentre

- Hospital information system: i.s.h-med

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"Speech Recognition is Almost a Must-have in the DRG Age"

Case Study | University Hospital of Tübingen, Radiology Department

Hubert Petrich, IT Specialist, University Hospital of Tübingen

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Savings of € 150,000 per year through speech recognition

Reports in the Radiology department of the University Hospital of Tübingen come mostly from the radiology diagnostics. Today in this section, speech recognition is an absolute standard method. 95% to 98% of all reports are created without a typing service. Also in nuclear medicine, doctors work predominantly without typists. Only the department of neuroradiology with about 1,500 to 2,000 monthly reports still uses the typing service for corrections. The doctors dictate using speech recognition, but send their reports to a typist for review before adding them to the system.

After implementing speech recognition, the Radiology department typing service in Tübingen was reduced considerably. "Now we only need about 2.5 employees for typing. Due to this we save about € 200,000 per year on personnel costs", Bauer calculates. "In contrast, the maintenance of the system costs just under € 50,000". We trained some former typists to do different tasks, while others retired.

Advantages for doctors, patients and the budget

The implementation of speech recognition in the Radiology department of Tübingen was also a drastic change for the doctors and the outpatients who came for radiology tests at the hospital. Bauer: "Today, we not only give our outpatients a CD with their digital images but also the complete report associated with the images".

Usually the written reports confirmed by the assistant medical director can also be released for the doctors on the very same working day. "Previously this often took considerably longer; this is something we have to confess self-critically". Dr. Bauer is convinced that the whole university hospital indirectly benefits from the faster availability of radiology reports. He emphasises: "Today, due to the flat-rate case allowance, we work in a system where speed as a central factor. In a clinic, you can only achieve short in-patient treatment times if all processes meld together". The fast report creation in radiology with digital speech recognition is an important part of this process puzzle.

Deep integration and continuous maintenance as success factors

Although the implementation of speech recognition was a great success in Tübingen, Mr. Petrich, the IT specialist, stresses the awareness that such a project is not a fast-selling item. "A deep integration into the radiology information system (RIS) is of vital importance".

In Tübingen, doctors retrieve patient reports from the iSoft RIS used in the hospital. In the speech recognition window the doctors can dictate their reports. They then click "Apply text" and the report is stored in the right location. Petrich: "Good co-operation between the RIS provider and the speech recognition provider matters enormously". At this point there is still room for improvement in the installation in Tübingen.

The university hospital of Tübingen covers the maximum care capacity with 1,500 beds. About 60,000 in-patients and 285,000 out-patients are served in 36 departments from 17 clinics every year. The Radiology department managed by Professor Claus Claussen consists of three sections:
- Radiology Diagnostics,
- Neuroradiology and
- Nuclear Medicine.

About 140,000 radiology reports are created per year.

Another important factor for the successful use of speech recognition is the continuous maintenance. There are things you have to take care of regularly: Add new terms, enlarge and maintain the so-called "ConText". "This job – the so-called ConText Adaptation – is done by a typist and sometimes takes up to two hours a day", Petrich says. However it is worth it as we can see the high acceptance of speech recognition in the Radiology department at Tübingen.

Exciting future developments

It is time for new projects. Tübingen is facing several technological challenges, including the field of speech recognition. On the one hand, the system will be migrated to a new network. Instead of five servers only one server will be used in the future. The existing backbone of the system (1 GBit/s) will be extended to 10 GBit/s, and the 100 MBit/s connection to end users will be extended to 1GBit/s in the future.

The speech recognition software is also going to be tackled in Tübingen: MBS-easy will be migrated to the new Nuance SpeechMagic Solution Builder. This means that the system can be used in a Citrix environment which raises lots of new possibilities. There is a plan, for example, to give the radiologists VPN access rights to use dictation and speech recognition functionalities at home. This also makes life for the radiologists easier.

In addition, a close relationship of digital images and reports with the DICOM SR format in the PACS archive is planned. This means more data security as reports and images are stored together in one system and not only connected over several systems. The project is going to be started as soon as the new PACS is installed. At the moment the tender is running.

Once the technology is updated more departments of the university hospital will be connected with the speech recognition system. The roll-out of digital dictation was already carried out hospital-wide within the Tübingen HIS i.s.h.med where, especially, the Medical Clinic is very interested in extending their facilities with speech recognition. Due to the takeover of the speech recognition division of Philips by Nuance Communications Inc., further positive changes concerning the recognition rate, software integration and the overall functionality are expected.

About Nuance Healthcare

Nuance Healthcare is a division of Nuance Communications, the leading provider of speech processing and imaging solutions. Nuance Healthcare offers the largest portfolio of speech-enabled solutions for medical documentation. Our vision is to push the acceptance and use of EPA/HIS systems in order to maximise the returns of technology investments.

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