On-site wireless communications improves radiology services

How quicker response improves service to referring physicians, increases utilisation of investments in digital systems and reduces risk.

ascom

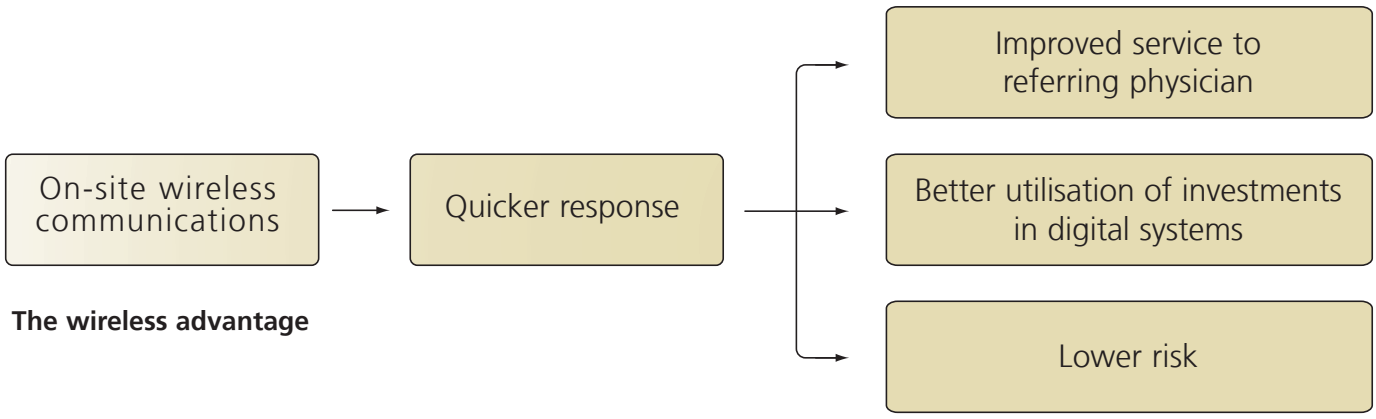
Executive summary

Why wireless?

To improve efficiency, most radiology departments invest in digital modalities, Radiology Information Systems and Picture Archiving and Communication Systems. But higher efficiency in the radiology department does not always result in higher overall efficiency. To reap the full benefits of the investments, communications for quicker response is a necessity.

Quicker response is important enough for a smooth workflow within the radiology department. But it is absolutely fundamental for a smooth workflow between radiology and referring physicians, other departments and other radiology services consumers.

On-site wireless communications speeds up response. Doctors and nurses get urgent reports right into their pocket. Radiology staff and referring physicians can communicate instantly, using voice or interactive messaging, while on the move. It puts people from different departments in the same system. It does wonders for teamwork.



The wireless advantage

The benefits of quicker response

1. **Improved service to referring physician:**
   - Quicker delivery of all radiology reports
   - Urgent reports can seek out physician or nurse
   - Instant access to interpreting radiologist, technicians and RIS

2. **Better utilisation of investments in digital systems:**
   - Timely delivery of patients from wards
   - Quicker approval by the interpreting radiologist
   - Quick delivery of urgent reports to the referring physician
   - Better uptime and utilisation of modalities, PACS and RIS

3. **Lower risk:**
   - Support for quality assurance
   - Support for international standards
   - Support for accreditation efforts

How the benefits arise

1. **Planning:** Demand from several sources simultaneously, complex logistics, tricky scheduling. Ascom wireless solutions help ensure on-time patient delivery and improved scheduling.

2. **Examination:** High degree of automation, all reports are unique. Ascom wireless solutions speed up approval of images and reports, and support adjustment of the schedule in real time.

3. **Interpretation:** High demands on quality assurance. Ascom wireless solutions speed up approval of the complete study, and improve the correction process for 'broken studies'.

4. **Delivery:** High demands on timely delivery. Ascom wireless solutions make radiology reports seek out referring physician or nurse, reduce paging delays* and enable referring physicians to retrieve results from the RIS while on the move.

Ascom on-site wireless solutions also make it easier to comply with accreditation requirements, such as those of the HIPAA.

* A study at a major teaching hospital showed that nurses in a typical hospital unit can lose almost 900 hours a year to paging delays. Physicians calling unit nurses typically lose 700 hours annually waiting on hold. Ward staff lose more than 500 hours a year answering calls for nurses and tracking them down. Units can reclaim 80% of time lost to paging delays and hold time with on-site wireless communications. Source: "The Impact of a Wireless Telecommunications System on Time Efficiency." The Journal of Nursing Administration. June 1995.

Making the most of the resources you already have

Healthcare today is gravitating more and more towards a business environment. Only the fittest providers in terms of efficiency and quality will survive in a highly competitive market. The future is being shaped by radical changes to improve time and cost efficiency, and to make best use of available resources.

Radiology departments face a number of challenges: tighter budgets, intense cost pressures, piles of paperwork. Patients and referring physicians are waiting. Information is stuck somewhere. The person you need to speak to right now is three floors up, at the other end of the hospital. Or en route. X-rays are waiting to be picked up. Or misplaced. Or forgotten. Applications refuse to talk to each other. The telephone is busy, so you try again later – if you get the chance. The fax at the other end is out of paper. And radiology must handle more and more patients.

At the same time, radiology is growing in importance. It is the centre for the diagnosis of an increasing number of medical conditions. Even specific medical treatments are being performed, involving a growing number of specialists and increasingly capital-intensive services.

Many radiology departments have an organ orientation that divides them into many different sections: orthopaedic, thoracic, urology, etc. Ensuring a seamless flow of information is no small challenge. The radiological process itself includes many activities and events, people and systems from all over the hospital. No surprise then that the radiology department is undergoing dramatic and fundamental change – far beyond the transition from film-based to digital-based systems.

The need for quicker response

For most hospitals, minimising the length-of-stay (LOS) is a top priority. This can be a daunting task. Delays, bottlenecks and non-value-adding activities are everywhere. And they can usually be traced to breaks in the information flow between people, systems and departments. A quicker response and speedy turnaround of the radiology report, for example, can mean that the patient can go home today instead of tomorrow. This requires a seamless flow of information within and across departments.

An island of efficiency

To become more efficient, most radiology departments or digital imaging departments have turned to professional Radiology Information Systems (RIS) rather than self-developed systems. The RIS, Picture Archiving and Communication Systems (PACS) and connectivity between other Hospital Information Systems (HIS) have made a huge difference. Each system improves the efficiency of specific tasks and processes. Computerised barcoding technology

helps speed up the sample analysis process, and reduce the risk of human error.

Despite all these dramatic improvements in productivity, bottlenecks remain. The problem is that the radiology department is becoming an island of efficiency within the healthcare enterprise.

The primary objective

The radiology department is an integrated part of the clinical information flow and decision-making. Information slowdowns or breakdowns that occur anywhere in that flow can have a critical effect on patients' well-being. Not to mention radiology accreditation issues and possible legal ramifications.

The radiology department's primary objective must be to get the right results to the medical decision-maker as quickly as possible, without compromising confidentiality of patient information.

However, ensuring fast turnaround times in the radiological process is no easy task. There are plenty of opportunities for things to go wrong.

Breaks in the information flow

The challenge is how to ensure a seamless flow of information between departments, physicians, nurses and other radiology services consumers. It is here that breaks in the flow of radiology information occur. Information is held up somewhere or is simply lost. Barcodes cannot be read. Physicians wait for radiology reports.

Even when the information is distributed digitally, how can the physician know that it has reached his or her PC? How can the physician acknowledge that he or she has seen the report? After all, the physician may not have immediate access to a computer – or the time to check every five minutes if the report has arrived. Tracking down a physician who is on the move is time-consuming and often unsuccessful.

Integrating your healthcare enterprise

So the true benefits of these Information Communications Technology (ICT) investments have not yet been fully realised. The systems have not yet managed to eliminate the bottlenecks that abound outside the radiology department. Stress mounts, job satisfaction goes down. Wireless communications can make all the difference.

This is especially true as hospitals move towards point-of-care (POC) and patient-centric healthcare – a holistic approach that is completely dependent on the seamless and timely flow of information. The Integrating the Healthcare Enterprise (IHE) initiative in the U.S., and similar efforts in other countries, are helping to speed up progress. So is the creation of standard communications protocols, e.g., DICOM.

Wireless communications from Ascom helps to integrate the healthcare enterprise to improve the delivery efficiency and quality of radiological services – while making best use of the resources you already have. Ascom does so by combining voice, messaging, alarms and data in one system. You choose the best mode of communication for the application or need in your workflow process.

Why wireless? Why now?

Wireless communications is a logical and economical next step. Not because it is the latest trend, but because it adds value – especially with interactive messaging. In a hospital, there is nothing more risky or unsettling than having to make assumptions. Sending a result or alert and having to guess whether or not it has reached the right people, and whether they have seen it – and acted on it – can keep you up at night. Wireless helps everyone make the right decision. Wireless keeps you in the know – so you do not have to guess.

Wireless helps ensure the integrity of clinical information, reduce patient risk and log events for added medical safety. Adding on-site wireless communications between departments, work processes, individual caregivers and administrators makes established applications and procedures far more productive. It enables you and your colleagues to get the most out of your resources.

In radiology, the benefits of wireless communications are especially apparent and quickly realised. Hospital physicians are always on the move, yet

they still need to get the right information when and where they need it most. Wireless makes it possible to notify physicians as soon as results are available. They can also get selected or critical results in real time. In this way, referring physicians no longer have to chase results. Specified radiological information and images are made available when and where needed – in time to influence therapeutic decisions.

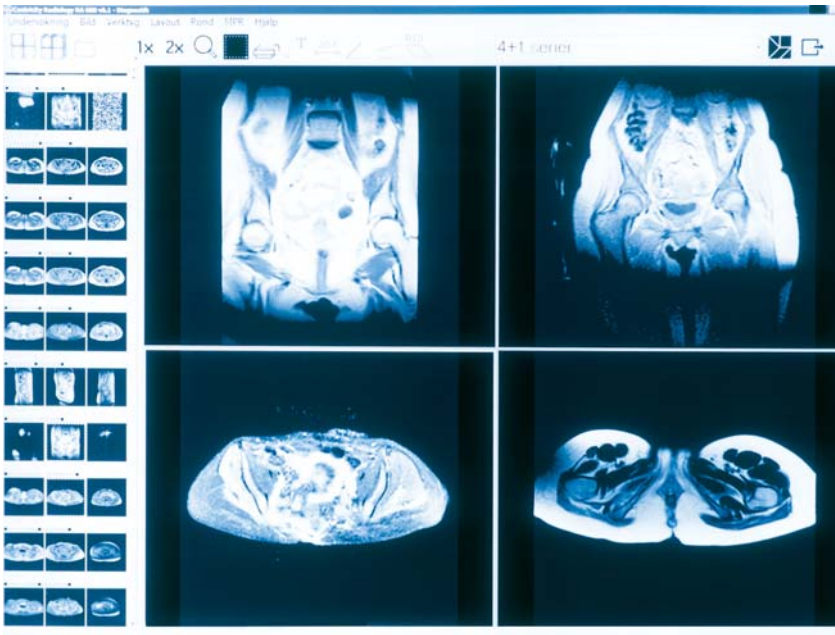
Wireless communications increases flexibility at individual and departmental levels – helping you deliver better and expanded radiological services to consumers anywhere in the hospital.

Everybody benefits

Ascom wireless communications is proven in radiology departments. No one else has even half as many wireless solutions in hospitals as Ascom does.

Ascom's solutions are based on experience and an understanding of specialised healthcare requirements. Wireless solutions can be tailored to the needs of your department, producing tangible improvements with a small investment. You do not have to rip out old applications and communications systems. Ascom technology lets you build on existing infrastructure. It evolves with your processes.

Everyone benefits from wireless communications: the interpreting radiologist, the referring physician and management. And patients, who are looking forward to going home.



Benefits for the interpreting radiologist

Not too long ago, many people believed that the secret to greater efficiency in healthcare was simply making information digital. Now we know that digital itself is not the answer.

Information directly from the RIS

Systems such as the RIS and PACS are used primarily to view and store information – not to make it flow. Smart integration with Ascom wireless communications systems can make it flow. This makes it easy for authorised people to send and retrieve information. Only then can you take full advantage of the benefits of Information Communications Technology (ICT) investments.

In the near future, our wireless solutions will give you real-time access to the RIS wherever you are in the hospital. You will be able to quickly and easily retrieve and send patient information directly from the RIS.

Faster, better service to the referring physician

No one wants to wait for critical information when lives are at stake. With Ascom wireless communications, relevant physicians are automatically notified when selected results are ready – wherever they are.

For example, the RIS generates a message notifying the referring physician that a patient's images or report are ready to be viewed. The radiologist can, in turn, use the system to send a short message to the nurse saying that additional images are

required. The X-ray nurse receives the message on a wireless device and is able to retrieve the information on the patient along with the type of additional images or exams required.

Wireless communications can also alert the system administrator about errors that may cause downtime if not acted upon promptly. For instance, when a local hard disc is 80 per cent full, or if humidity is too high in the computer room, the system can notify the administrator.

More efficient study correction

Healthcare professionals are only human. X-rays can be mislabelled. Patient information can contain inaccuracies. "Broken studies" occur. Mistakes and inconsistencies must be corrected before the complete study is filed away in the digital archives. But it is not always easy for the radiologist to contact the authorised person responsible for making the corrections.

All too often, the only option for the radiologist is to write down the need for correction on a piece of paper and hope that the authorised person will notice it – and act on it. And it is usually difficult to find the time to follow up and ensure that the study has been corrected.

Ascom wireless communications enables more efficient management of broken studies. After discovering inaccuracies, the radiologist uses the system to automatically send a message to the authorised person, informing him or her that corrections must be made. The radiologist also uses the system to tell the authorised person what needs to be corrected. In this way, wireless technology helps ensure that mistakes are registered and keeps track of them.

Knowing that an authorised person will make the corrections as soon as possible means less time lost and greater peace of mind for the radiologist. The authorised person will always know when information needs correcting, and can count on an efficient and secure process. For the patient, this ensures that the radiology information in the archive is correct.

Smoother radiological workflow

Radiology consists of a continuum of processes and activities involving different people with different responsibilities. Ascom wireless communications automates key functions and supports the workflow.

The radiology department can now more efficiently service requests from various departments, such as the operating theatre, intensive care and emergency. In this way, the right radiological information reaches the right people at the right time and in the right way. This means quicker response time and faster throughput.

Ascom wireless communications can help make your day easier, more productive and more rewarding.

Benefits for the referring physician

At any given moment, referring physicians are on the move – trying to juggle many tasks, process paperwork and take care of several patients at the same time. They have little time to wait for patient information that might be critical for decision-making. It is needed right now, right here. Delay of information means starting a possibly incorrect or less effective treatment.

All too often, physicians and nurses have to phone to make requests or to get the results or additional patient information. A telephone is not always close by. Perhaps the other end is busy. Or the person they need to speak to is somewhere else. Maybe somebody else is trying to contact the physician about another emergency situation, but cannot get through because the physician is calling the laboratory.

No need to chase information

Results can be sent directly to the bedside patient terminal or to the physician's own wireless device. This ensures quicker response times and enables the physician to start treatment earlier than was previously possible. And this, in turn, means a shorter patient stay and higher patient satisfaction.

Wireless communications helps create and reinforce the "one hospital" feeling that occurs when everybody works together in a synchronised way.

For the referring physician, it is not always easy to find time to check if radiology reports are

ready. It is also easy to forget about them altogether. Chasing information is the last thing the physician should have to do.

Get radiology reports while on the move, anywhere

Ascom wireless communications makes it possible to immediately notify the referring physician when information is ready. Physicians no longer have to pick up the phone or check the fax, email or hospital intranet.

With wireless technology, parts of the report – or the complete report – can be sent in real time to the referring physician wherever he or she is. Perhaps to the patient terminal at the bedside. Or the physician's own wireless device. This means quicker response times, enabling the physician to start the treatment earlier than was previously possible.

More quality time with patients

The amount of time a physician has with each patient has a big impact on the quality of care and the level of job satisfaction. By ensuring a more active and responsive flow of information, wireless technology helps make the best use of time, so that the physician has more time to care for patients. Or to improve procedures or keep up with medical advancements. In this way, Ascom wireless communications is helping to improve the very essence of quality care.

Benefits for hospital management

All hospitals must continuously strive to improve their competitiveness. A big part of this effort is identifying and removing all non-value-adding activities. A highly efficient hospital usually does a better job of taking care of its patients. It is able to accomplish more with the resources it has.

Simply reducing costs by cutting staff, closing departments or removing procedures from the care offering is not the answer. Instead, it is about identifying and removing bottlenecks, inefficiencies, sources of human error and miscommunication. This also means making the right investments. They do not have to be big investments – just the right ones.

Increasingly, patients' needs shape these investments. Adopting patient-centric processes puts the patient in focus. Wireless communications supports this effort.

A better return on investment

Opening the hospital to the benefits of Ascom wireless communications is not a big investment. It builds on previous ICT investments, including the HIS, RIS, PACS and other departmental-specific systems. The hospital gets the most out of legacy systems and applications. And there is no need to worry about emerging technologies. Our wireless solutions are truly open – to the past, present and future. Giving the hospital the flexibility to grow, change and prosper.

Wireless technology enables information to flow instantaneously between systems, departments and people. Information arrives when, where and in the form it is needed. This is how Ascom wireless communications supports the daily workflow.

Wireless communications promotes a smooth flow of clinical events helping to create rhythm, build momentum. It supports teamwork so everybody is more aware that they are working together, across departmental boundaries or areas of responsibility. And this makes each day more rewarding and satisfying. This is important to retain personnel.

Patients per doctor up, length of stay down

By dramatically reducing the time spent waiting for reports from radiology, physicians can spend more time taking care of patients. Or keep up with new developments in their profession. Treatments and procedures can begin and end sooner. This means improved quality, faster recuperation and a shorter hospital stay. And because the clinical workflow is more coordinated and more efficient, the cost of healthcare per patient is lower. And this, too, benefits the hospital, especially in the environment of DRGs (Disease Related Groups).

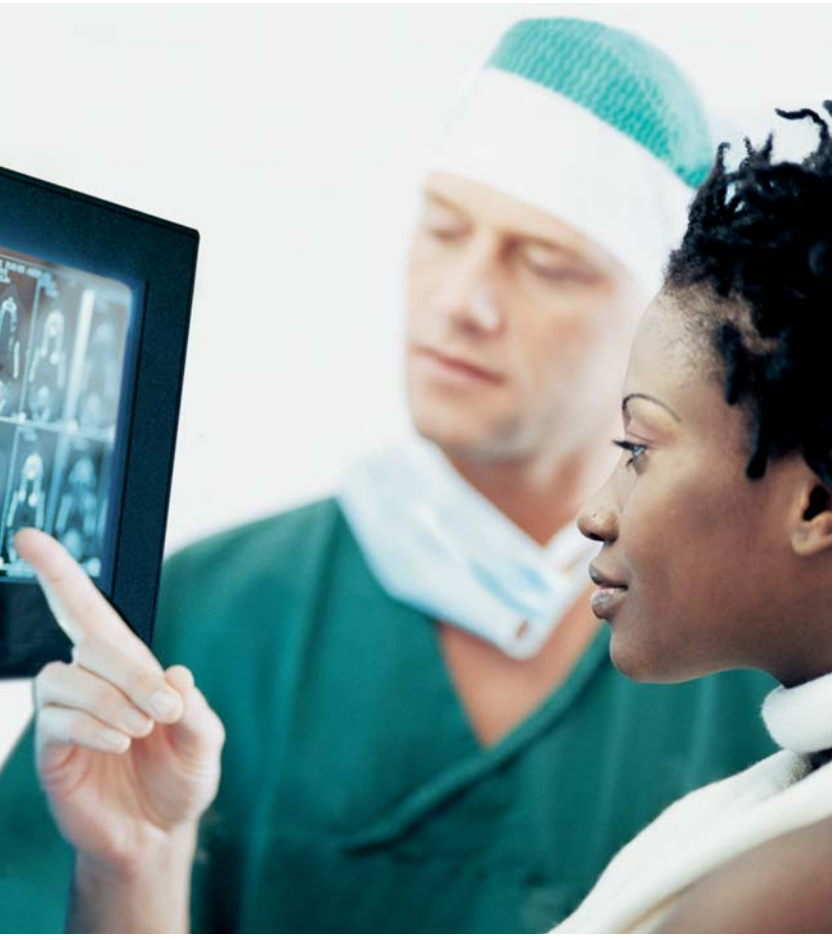
Controlling and securing patient information

At the core of Ascom wireless communications is a commitment to safeguarding patient integrity. There is no room for compromise. Wireless communications gives healthcare service providers greater control over critical reports. The system keeps track of the report. It also gives the physician a quicker and easier way to acknowledge that he or she has received the report.

With wireless communications, an automatic "paper trail" helps ensure accountability and medical safety. It can also help identify bottlenecks and improve the workflow by logging events and enabling backtracking of activities.

Many hospitals are introducing barcoding to minimise the risk of error. Wireless devices can take the benefits of barcoding a big step further – opening up new possibilities such as wireless RIS connection to retrieve, access, send and control patient information.

The patient also benefits



We have all experienced it: waiting to see the doctor – or rather waiting for the doctor to see us. It is no fun, especially when you are not feeling well. And dangerous, if you are unsure of your ailment and precious treatment time is ticking away.

Nowadays, many patients are becoming increasingly involved in their healthcare. They are reading more about their illnesses and conditions, asking more questions about possible treatments. They often know what is technologically possible. Today's patients are informed and empowered, they know how to make themselves heard.

Less waiting, less anxiety

Put yourself in the position of a patient. You have been rushed to a certain department only to wait: for X-rays to be taken, for the doctor to receive the radiology report and give you the news. You feel anxious. The feeling grows worse the longer you wait. When your doctor finally returns, you are loaded with questions. Why did the radiology report take so long? Is it accurate? Is it really my report? When it is finally your turn, you may question the level of care and medical attention. You may wonder if mistakes are being made.

Wireless communications eliminates much waiting and worrying – promoting the impression that this must be a leading-edge healthcare facility.

Faster recovery, shorter stay

Wireless communications streamlines the clinical workflow so that care providers have more time with patients.

The patient feels that the physician is more focused and relaxed. The physician has time to listen; and to learn how the patient really feels, instead of just checking radiology reports and monitors and then hurrying to the next patient.

Less waiting and more time with healthcare providers raise patient satisfaction and speed recovery.

Competing for patients

With a rising demand for healthcare services and, in some countries, long waiting lists, the supply of patients does not seem to present a problem. At least not today.

But patients are becoming increasingly demanding and capable of well-informed choices. They are asking for more influence, better quality of treatment and higher level of service. These forces are moving healthcare towards market principles, away from traditional top-down bureaucracies. Individual patients will increasingly exercise their purchasing power to choose the service they prefer.

Smart integration

Most hospitals have invested huge sums in information technology. This often greatly improves the efficiency of their primary processes. But the benefits of the investments still cannot be used to the full. The problem is bottlenecks in information flows between departments.

Wireless communications for quicker response can remove the bottlenecks and enhance the return on the primary investments. And quicker response requires smart integration with the systems you already use.

Integration with existing systems is our true strength – acquired during fifty years of supplying integrated communications solutions to more than 20,000 hospital installations in Europe and the U.S.

Infrastructure, integration and wireless devices are the main components of our offering. The infrastructure we build is in line with the Integrating the Healthcare Enterprise initiative (IHE). Your Ascom solution integrates with clinical systems, such as HIS, LIS, PACS and RIS; with business and accounting systems; with building management and security systems; with telephone systems and local area networks; and with wireless and wired devices such as pagers (beepers), telephones, smart phones, PDAs, laptop and stationary computers.

Adding on-site wireless communications can make the systems you already have work much harder.

Forward and backward compatible

The wireless infrastructure we build is fully open to the future. You can upgrade and introduce new functions and systems without excessive costs.

There will be no hard-to-penetrate boundaries between different generations of alarm, voice, messaging and data systems. We are still extending systems that we installed twenty years ago. We will be able to keep on extending them twenty years from now.

We can also help create a roadmap for the long-term (but inevitable) journey toward the all-digital, wireless hospital. It is important to remember that no single wireless technology or standard is the "best". Each standard is used for different purposes and in different scenarios. They are complementing, not competing technologies. The trend is towards a mixture of various technologies that interoperate to provide the required services.

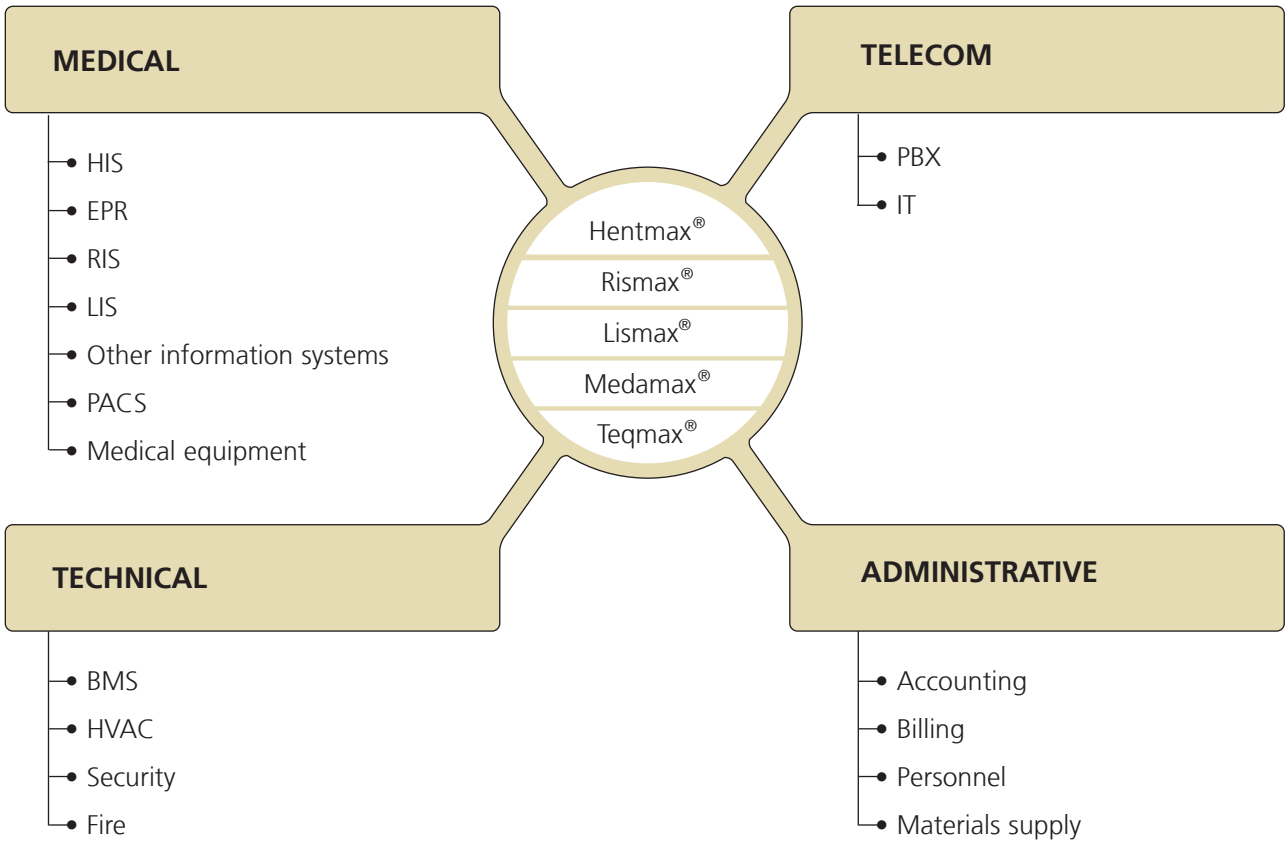
We are not married to any one technology as many other firms are. This allows us to select the most appropriate and cost-effective technology for each individual need. And to integrate the different technologies seamlessly.

Step by step

Ascom's offerings to hospitals comprise five concepts:

- Hentmax® (basic communications platform)
- Rismax® (radiology process support)
- Lismax® (laboratory process support)
- Medamax® (medical alarm integration)
- Teqmax® (technical alarm integration).

Technical integration with existing systems



Smart integration makes your existing systems work harder. We integrate seamlessly with existing systems, such as EPR, HIS, LIS, PACS and RIS, etc. And with existing IT infrastructures, LAN, PBX, etc. Plus accounting systems, building management systems and security systems.

Rismax®

Quicker response to requests for radiology reports

Rismax is on-site wireless communications designed to support the radiology process within the hospital enterprise. Typical users are radiology department staff and referring physicians.

Rismax integrates with the RIS and PACS to speed up communications between radiology departments and clinicians and within radiology departments. Clinicians are notified instantly when an examination is finished and the results are available. Effective study correction increases RIS/PACS uptime and speeds up patient flow. Waiting time is reduced for patients and clinicians, and treatment can start earlier.

Referring physicians automatically receive notification the moment critical reports are ready, without having to look for them. This eliminates the administrative time and expense of conventional report delivery and improves service to physicians and patients. Faster turnaround of radiology reports is critical for patients in emergency rooms and operating rooms.

A Rismax solution can include infrastructure, software, wireless devices and integration with the existing HIS/RIS/PACS and telephone switchboard, etc. A complete solution comprises installation, commissioning, training of users, maintenance and service.

Examples of functionalities:

- Retrieve and send patient data directly from the RIS
- Radiology reports directly into clinician's pocket wireless device
- Automatic notification of study corrections
- Talk with colleagues – one-on-one or conference calls
- Receive and send text messages
- Automatic logging of events
- Automatic ordering of patient transport
- Instant notification to technicians of system errors
- Support for fixed asset tracking and management
- Seamless integration with the RIS/PACS and with other Ascom solutions

Dr. Staffan Gustavsson,
Senior Radiologist, Department of Thoracic Radiology, Sahlgrenska University Hospital, Gothenburg, Sweden: "The difficulty of reaching the right persons to notify them of events, questions or orders used to cause much frustration. The messaging tools added to the system allow the staff to concentrate on their work, which also increases quality. We invested heavily in digital technology, but will reach full efficiency only when communication of information that supports workflow is easy. The Ascom wireless solution has proved to be a valuable tool in this project".

Sahlgrenska University Hospital has a Rismax project together with Ascom.

Text-enhanced messaging improves workflow

With 2,700 beds divided among 165 wards, Sahlgrenska University Hospital in Gothenburg, Sweden, is the largest hospital in northern Europe.

Some years ago, the Department of Thoracic Radiology was the first department to introduce digital image management, gradually followed by the other radiology departments. This made it possible to distribute images and reports over the hospital's intranet to be viewed by referring physicians.

It soon became evident that the substantial investment did not speed up processes and increase efficiency as much as intended. The reason was simple – even if images and reports were available online, people lacked tools for communicating additional information needed for an efficient workflow. In addition, end-users did not know when the information was available. They had to search for information online or inquire by phone or email.

Obviously, asking people who needed information to seek for it themselves is not the right approach. Instead, the Department of Thoracic Radiology together with Ascom developed a solution that notifies the right people automatically the moment certain information is available. Actions in the radiology workflow can be set to generate text messages to wireless pagers.

Technologists and nurses can easily communicate with support staff or radiologists, using web-deployed messaging tools.

The system supports messaging of additional X-ray orders from doctor to nurse. The X-ray nurse receives the message in his/her pager and retrieves information on the patient and the type of additional images required.

If extended, the system can support automatic notification to the transport unit when the patient is ready to be moved back to the ward, or a message to the referring physician that an examination has been completed.

Solutions for rugged hospital environments

Ascom provides you with on-site wireless communications solutions in which every component has been developed for demanding hospital environments. Each solution meets the most stringent formal and practical requirements.

Formal requirements

The formal demands placed on equipment to be used in hospitals vary from country to country. Our solutions meet the requirements laid down by most national and regional authorities. Ascom on-site wireless solutions also make it easier to comply with accreditation requirements for protecting the privacy of patient information, such as those of the HIPAA and equivalents in other countries.

Ascom on-site wireless solutions use low-power, unlicensed radio technology, with little risk of interference with sensitive medical equipment and are field-proven to be safe for use in patient care areas.

You can get robust hand-held units, dust- and water-resistant according to IP64 and shock-resistant according to IEC 68-2-32. Units can be disinfected. You can get a solution that meets the most rigorous safety requirements, such as the German GS standard (Geprüfte Sicherheit – Tested safety).

Practical requirements

Practical requirements vary from hospital to hospital and from one clinic or ward to the next. A common stipulation is secure and complete coverage of specified areas. Another is that people can speak to each other in noisy conditions.

We can design your solution to deliver guaranteed coverage of every nook and cranny of a defined area. It will provide outstanding voice quality throughout your facility with no clicks, fading or dead spots – even in underground passages.

You get telephones that suppress ambient noise. Users can hear – and make themselves heard – even when equipment whirs, beepers beep and people talk loudly all around. Hands-free devices are also available. Should a phone malfunction, simply transfer the SIM card to another device. All personal information, alarms and functions move with the card into the new phone.

Ascom wireless telephones integrate seamlessly with the hospital's existing fixed-line telephone system, regardless of make as well as with any nurse-call system. Seamless call handoff and automatic roaming ensure total reliability as users move around the hospital. Lower power levels than in other wireless communication technologies, such as ordinary mobile phones, eliminate interference with sensitive medical equipment.

A solution for every requirement

Healthcare professionals can use varying types of devices, or information appliances, to access wireless services – voice-centric, data-centric and hybrid devices. Typical devices include phones, personal digital assistants (PDAs), tablet PCs, laptops, wired computers and workstations, or any combination of these that suits the individual worker.

Whatever the demands posed by your environment, we can devise a wireless solution that satisfies the toughest formal and practical requirements. Challenge us with a demanding application. We look forward to showing you what we are capable of.

Primary system functions

User interface for pocket devices:

- Role/responsibility-specific function push-buttons
- Menu structures adapted to specific user requirements
- Text and graphs
- Sound and/or vibrating signals

Medical alarm:

- Alarm to personnel or central systems
- Preference for prioritised alarm
- Alarm receipt notification

Personal alarm:

- Automatic alarm (man down, no movement)
- Manual alarm (push-button, pull cord)

Interactive messaging:

- Traditional paging with message receipt function
- Send or receive text messages
- Request status (vital signs)
- Send control signals (start/stop, open/close)

Voice:

- Person-to-person calls
- Conference calls
- Hands-free
- Loudspeaker

Positioning:

- Precise locating (x-, y- and z-axes)
- Movement, wandering control
- Tracking of people and equipment

Logging:

- Alarm (what, where, when, who)
- Action (who did what)
- Task confirmation (care, procedure performed)

System security:

- Logging of system alarms
- Escalation of important messages and alarms
- ATEX certification

System monitoring:

- Monitor the wireless system
- Monitor to ensure handsets work correctly
- Monitor modules and interface

Total customisation

Some suppliers of wireless communications offer standardised systems that are intended to satisfy all needs. But no two hospitals function the same way, are organised along the same lines, or have identical infrastructures. In addition, people have different values, preferences and priorities. They simply do not work the same way.

At Ascom, we take these differences into consideration. You get a solution made to measure with smart and often unique functions. Commissioning, training, maintenance and service are part of our offering. We go to great lengths to adapt to your specific needs.

Identify and prioritise

Where in the hospital could better communications improve patient satisfaction and boost productivity? Usually, there are several areas in which quicker response and time saving can be achieved quickly and with a limited investment.

Together with key people from your organisation, we identify the most promising areas of improvement and quantify their benefits. What to change? What to change to? How to cause the change? This results in a list of projects, prioritised by their benefit to hospital operations.

Mapping the processes

We map the workflow in each of the prioritised areas. We involve members of the workforce to make them understand what is going on and take advantage of their experience.

Most workflows involve several departments or specialties. But hospitals are often structured, measured and managed in parts rather than as a whole. Making these parts work together as an integrated system is a main objective. To do so, it is necessary to consider the needs of the entire hospital.

The process mapping results in a general view of the organisation, its processes and information flows. It also reveals who needs what information and when – who is getting the right information in a timely manner and who is not.

Finding the bottlenecks

Many bottlenecks occur in services, such as radiology, laboratory, pathology and physiotherapy, which must cope with demand from several sources simultaneously. But most bottlenecks result from inadequate means for communication between people.

Lack of data is not the problem. The problem is a proliferation of different hardware, software and networks that makes it difficult to access data as information. It takes too long to find out whether the relevant information is available. And if it is, it takes too long to access it.

Removing them

Wherever decision-making and processes need to be accelerated, we can define wireless functions that remove bottlenecks. Since processes frequently span departments, this usually involves removing informational barriers between departments.

You lay down the requirements – in terms of, for example, functions, safety, security. We transform your requirements into a solution with infrastructure, software and communications devices. We integrate with your existing systems, such as EPR, HIS, LIS, PACS and RIS. And with existing IT infrastructures, LAN, PBX, etc. Plus accounting systems, security and building management systems.

A complete solution

You get a robust system with high functionality and security. You can count on a complete solution, including installation, commissioning, training, maintenance and service.

During installation and commissioning, we train the system managers and users. System managers get effective tools for discovering, identifying and solving problems. During the system's entire service life, we offer training for users to ensure usability and maximise the business benefits for you.

Starting with your needs and requirements, we design customer-specific services for preventive maintenance and remedial service.

You can get maintenance contracts based on preventive maintenance that ensures the availability of the system. You can get service contracts with guaranteed service response times, or phone support from our local organisation. And at a fixed price so that you have complete control over all costs.

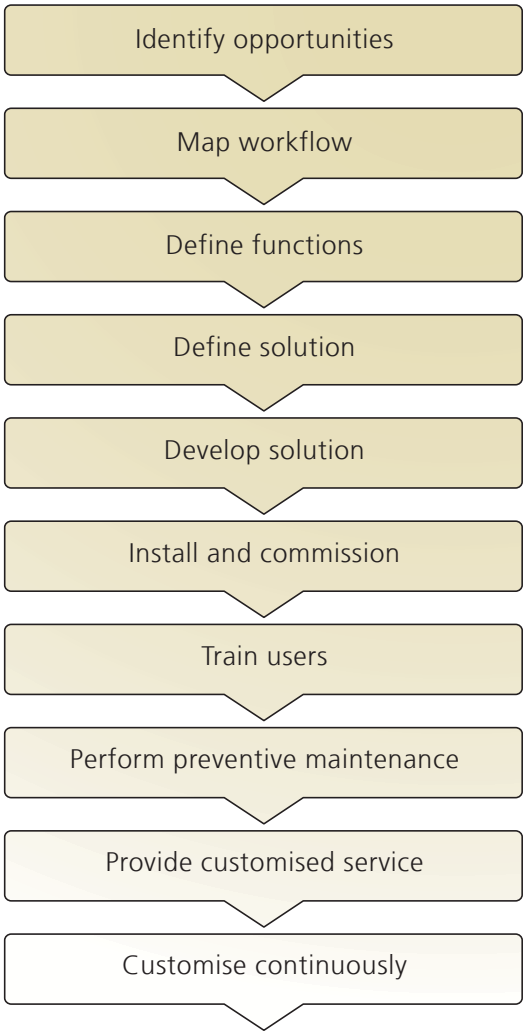
Continuous customisation

Your demands will change over time as you develop your processes. That is why we offer not only a solution made to measure for today's needs. We offer a future-proof solution. We can continuously enhance it to meet your organisation's changing requirements. We transfer expertise to your organisation, so you can develop your own applications.

Most of our systems are in use for ten years or more, and we have more than 20,000 healthcare systems in operation. That has given us solid experience of continuous customisation.

A growing number of hospitals are using on-site wireless communications for quicker response. No other supplier can match Ascom's experience in this area.

Ten steps to quicker response and improved productivity



Wrapping it all up

Greater patient satisfaction. More effective use of time. Lower risk. These are the benefits you get if your organisation can respond quicker to the need for critical information.

On-site wireless communications speeds up response. Doctors, nurses, administrators and other personnel receive time-critical information right into their pocket – as speech, data, text or alarms – and in an interactive form. The right person gets the right information, at the right time, in the right way.

Ascom wireless communications integrates with clinical systems, such as HIS, LIS, PACS and RIS; with business and accounting systems; with building management and security systems; with telephone systems and local area networks; and with wireless and wired devices such as pagers, telephones, smart phones, PDAs, laptops and stationary computers.

Integration with existing systems is our true strength – acquired during fifty years of supplying integrated communications to more than 20,000 hospital installations in Europe and the U.S.

Where can wireless communications and quicker response benefit your operation? Contact us for a feasibility study. We'll quickly find services that pay back in less than a year.

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