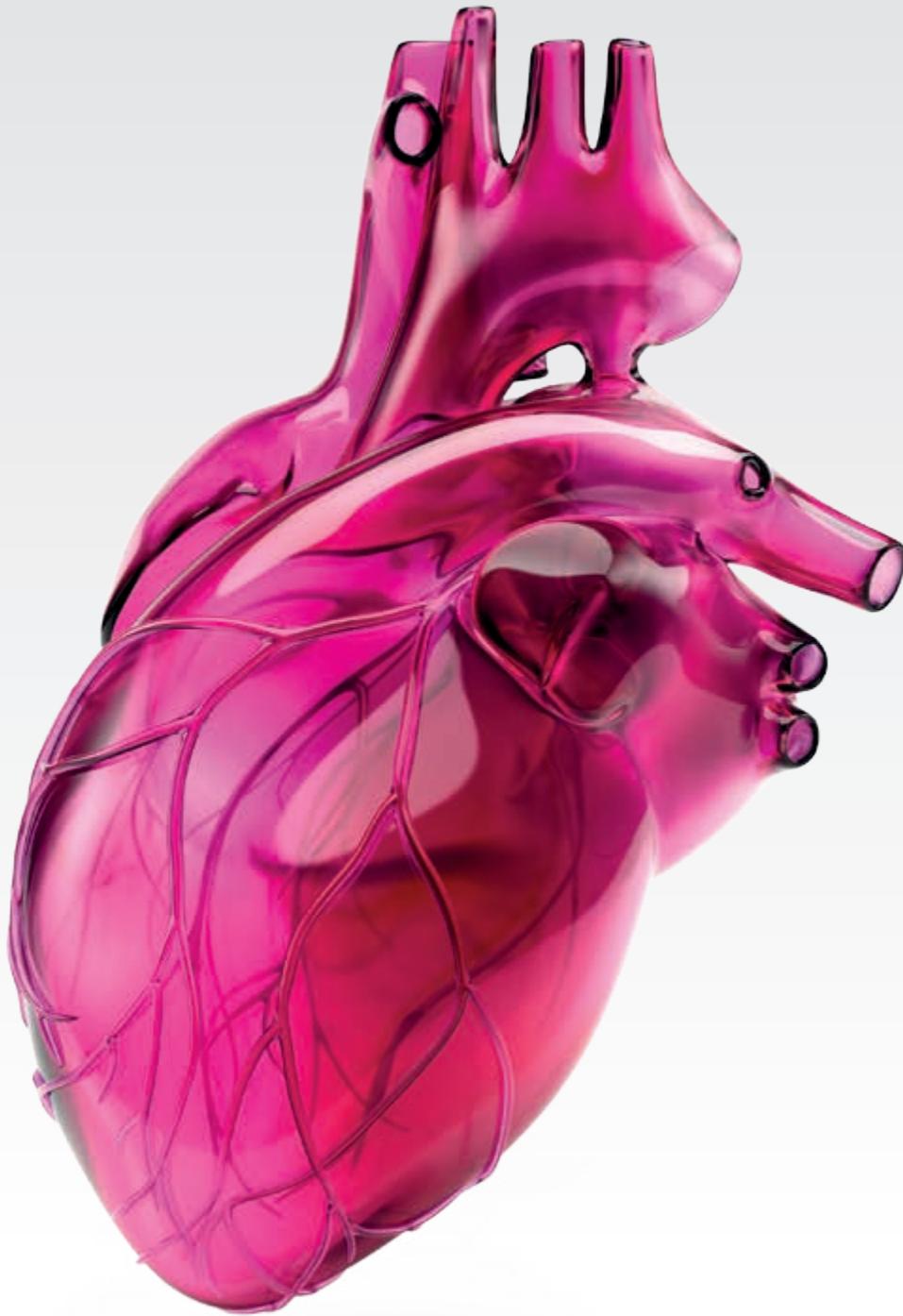


DRIVING FORCE FOR CONNECTED HEALTH



HEALTHCARE SOLUTIONS

INNOVATIVE ICT IS PART OF OUR DNA.

Deutsche Telekom is one of the world's foremost providers of information and communications technology (ICT) solutions to the healthcare sector. And it continues to strengthen its leading position by leveraging state-of-the-art technical and human resources, high-performance network infrastructures, and a broad portfolio of innovative products and services

As an integrated ICT enterprise, we play a key role in shaping the present and future of an increasingly connected world. Business customers across the globe benefit from robust, high-speed and exceptionally secure networks, innovative products and services, and pioneering IT solutions. Deutsche Telekom is a trusted provider of state-of-the-art, secure connectivity across practically all industries. But of all sectors, healthcare stands to derive the greatest benefit from the seamless capture and transmission of data.

Take just three examples: a patient monitoring their own vital signs using a smartphone; a physician on their rounds accessing medical records via a tablet; and the exchange of information and insights between medical experts during a videoconference. IT systems can be employed to digitally model medical, nursing, and administrative processes – not just as an end in itself but to cut costs, accelerate workflows, and improve care. Innovative ICT solutions can also improve quality of life – for example, by offering patients high-definition TV at their hospital beds, by allowing them to remotely share vital signs with their doctors, or by enabling them to remain at home in old age. By 2030, some 40 percent of Germans will be over 60 years of age. They will want to continue to live independent lives. Deutsche Telekom can help them to do just that – for instance by means of systems that can detect a fall, and automatically alert the emergency services.

But being a pioneer also entails assuming responsibility for data protection and security. That is why we champion corresponding national and international standards. It is also why our most important IT systems are operated and managed in German data centers, where they are subject to stringent standards and legislation.

**“EVERYONE WILL BENEFIT FROM OUR
SECURE HEALTHCARE INTERNET.
DEUTSCHE TELEKOM IS THE CONNECTING
ELEMENT FOR PATIENTS, DOCTORS,
HOSPITALS, AND HEALTH INSURERS.”**



Dr. Axel Wehmeier,
CEO of Telekom
Healthcare Solutions

WE ARE DRIVING POSITIVE CHANGE IN HEALTHCARE.

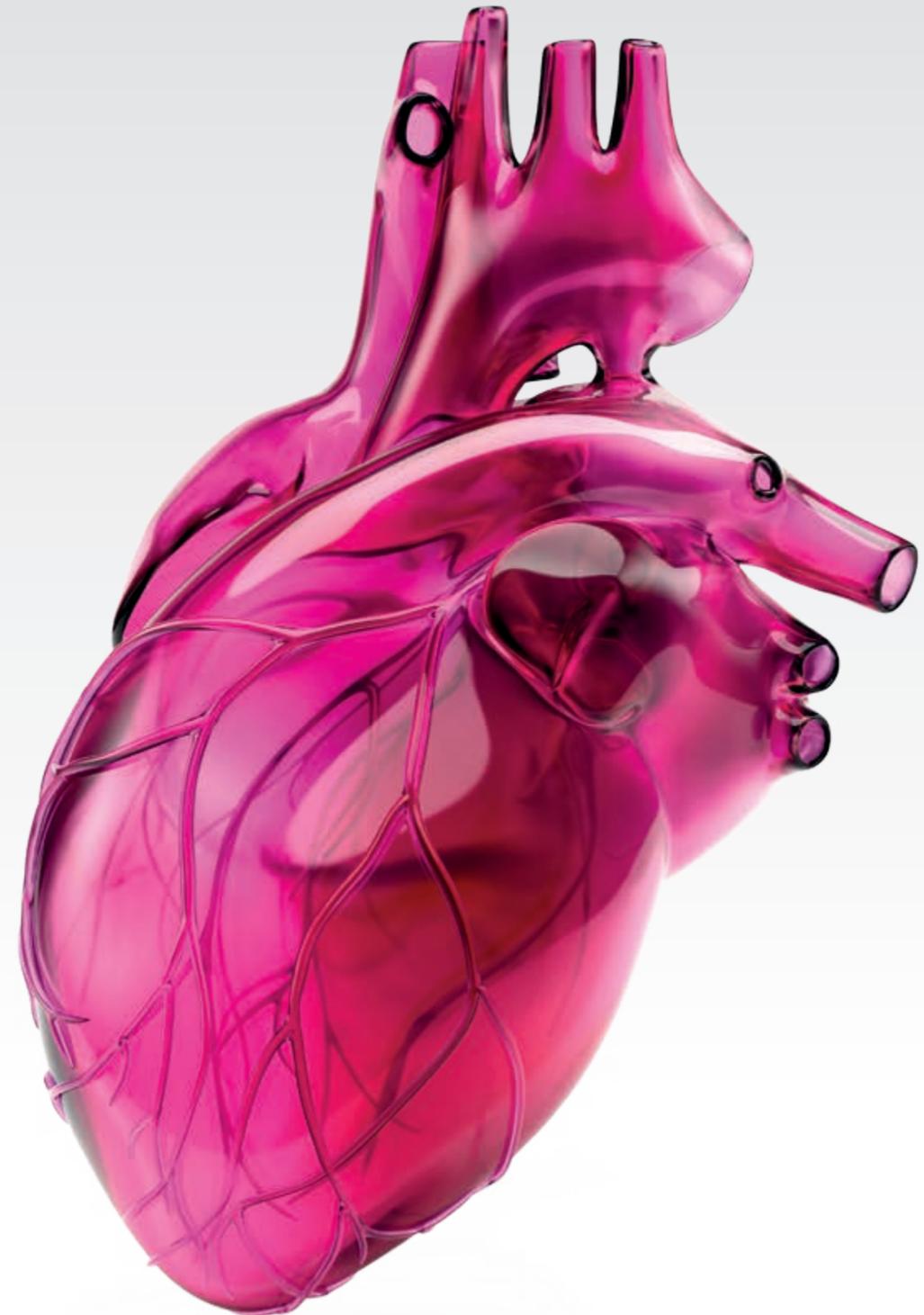
To provide customers with enhanced support, we have expanded our skillset, launched new offerings, and restructured our organization. Operating under the Telekom Healthcare Solutions brand, our business is now focused on smart solutions for the international healthcare market – delivering one-stop solutions to the specific imperatives of this unique sector.

We are committed to improving healthcare and driving positive change – by developing new ideas and exploring uncharted territory. Under the Telekom Healthcare Solutions brand, we market established Deutsche Telekom products, develop entirely new solutions, and coordinate the activities of our industry-specific subsidiaries. As a result, we are able to combine the experience, expertise and stability of a major corporation ranked in the top 100 of the Fortune 500 with the pragmatism and nimbleness of SMBs and start-ups. With our extensive hands-on experience and in-depth understanding of this sector, in conjunction with our agility and innovativeness, we are a driving force for connected health.

By establishing Telekom Healthcare Solutions, we are strengthening our position as one of the world's leading ICT providers in this field. We are

able to offer a comprehensive one-stop portfolio of innovative solutions for preventive healthcare, medical treatment, administration and more. Take the iMedOne® hospital information system, including the iMedOne® mobile app. This solution already streamlines the work of more 200 German hospitals and over 100,000 users on a daily basis. Moreover, we are the acknowledged market leader in German-speaking Europe for hygiene management systems, with around 650 installations of Hybase®.

Around the world, we employ over 700 e-health experts. Moreover, we have taken stakes in start-ups such as Tiani Spirit GmbH, Portavita B.V., and HMM Deutschland GmbH. And we have invested in forward-looking business models such as the GmbH data center, a joint venture with the German General Practitioners' Association.



CONNECTING ALL HEALTHCARE STAKEHOLDERS.

Healthcare is undergoing a paradigm shift. Healthcare will, in the future, no longer be centrally organized, and based around the provider. Instead, it will be increasingly personal, local, and digital.

There is no constant like change – and that applies to healthcare, too. Today, healthcare provision is primarily organized centrally, and is concentrated on the provider. Moving forward, the focus will be much more on the individual. Both organization and treatment will be geared more strongly to patients' personal needs. In addition, with digital communication tools and remote monitoring technologies, it will be possible to treat patients in their homes – cutting costs and improving quality of life. Healthcare providers who currently operate in isolation, and store patients' data in their local, siloed IT systems, will increasingly share information and insights.

In the future, seamless data exchange and secure direct communications with patients and healthcare providers will avoid the duplication of tests and examinations. This, too, will save time and improve the quality of care.

These developments create new challenges for IT infrastructure. Process outsourcing, for example, makes a great deal of sense, especially when it enables healthcare players to focus on their core competencies. This is where Telekom Healthcare Solutions comes into the picture. Our portfolio is built on open, scalable operating software platforms, and on cross-industry telematics and communication infrastructures. What's more, at all times, across all solutions, security is our top priority. Our highly advanced IT and data-center services allow customers to outsource the operation of existing systems. They also enable us to deliver our own solutions – from server operation to cloud-based software-as-a-service offerings. In fact, our portfolio covers the entire IT value chain, underpinning our position as a leader in smart, connected health.



SEAMLESS INTEGRATION OF COMPLEX IT SYSTEMS.

To be successful in the 21st century, hospital managers must cut costs, streamline processes, minimize risk, and improve the patient experience. To do all that and more, they need the expert help of a partner who can provide one-stop services and solutions of the highest quality.

Hospitals face fierce competition and mounting cost pressure. Long-term profitability requires ongoing efforts to minimize costs and risk, in conjunction with continuous improvement of processes. An effective hospital information system (HIS) such as iMedOne® creates the ideal basis for integrated workflows and data sharing, and eases the pressure on internal resources. It reduces the workload for physicians and nursing staff, makes processes leaner, improves quality of care and can be linked optimally with SAP systems. The iMedOne® Mobile app enables data to be accessed securely anytime, anywhere, by smartphone or tablet, and allows all relevant treatment steps to be effectively documented.

Both medical and administrative processes have become markedly more complex in recent years. Our SAP platform modules help to cut the associated costs by providing comprehensive digital support for patient management, financial accounting, logistics and HR management. The result is an end-to-end process chain that enables the timely invoicing of services and the effective monitoring of financial resources. i.s.h.med® from Siemens is a powerful, global hospital information system (HIS) that is already integrated into the SAP platform, forming an ideal combination. Together, they enable you to seamlessly integrate administrative, commercial and clinical processes. Deutsche Telekom has the skills and experience required to tailor this sophisticated, multilingual solution to the specific imperatives of each organization. In fact, Deutsche Telekom has already successfully completed a significant number of i.s.h.med® implementation projects across the globe, and in more than 30 cases operates the solution on the client's behalf.

CONSOLIDATING DATA FROM DIVERSE SOURCES

Hospitals need to capture and process not only administrative data but also large volumes of medical information. This is a significant challenge, not least because the systems deployed across the various departments of a hospital are frequently incompatible. Deutsche Telekom has an effective answer to this issue: the Interface Manager for Healthcare ensures the rapid, reliable capture and integration of data from diverse sources. A special adapter supports all leading IT standards, and guarantees seamless data exchange.



SOLUTIONS

- iMedOne®
- iMedOne® Mobile app
- SAP platform with modules for patient management, financial accounting, logistics, and human resources
- i.s.h.med®
- Interface Manager for Healthcare
- Software for hospital hygiene: Hybase®, Hybase® mobile, Hyplan® and Hytec®
- Dynamic Healthcare Center (DHC)

COMPLIANCE WITH STANDARDS

IT systems must fulfil a variety of statutory requirements. To combat nosocomial infections and multi-resistant pathogens, for example, hospitals are required to maintain comprehensive records of action taken to maintain hygiene. Hybase®, Hybase® mobile, Hyplan® and Hytec® are integrated solutions that provide solid support for compliance with applicable legislation (such as LSG in Germany), monitoring of hygiene standards, and efficient deployment of human resources.

IT offers huge potential for improving hospital processes. But there are also opportunities for greater efficiency in IT operations themselves. The tasks to be performed are exacting, but IT budgets remain tight. The Dynamic Healthcare Center (DHC) is a scalable platform for IT systems operation which enables fixed costs and capital expenditure to be converted into variable costs. This leads to savings, lower investment risk, and a more reliable basis for planning and budgeting.

A WATCHFUL EYE ON YOUR PRECIOUS DATA.

Making the right data available in the right place, for patients, physicians and hospital staff, is key to competitiveness. We can help you achieve the transparency you need.

MANAGING BIG DATA

The volume of data continues to grow in leaps and bounds, not least as a result of a marked increase in the use of imaging systems. Our Study-based Archiving Service (StArcS) enables hospitals to securely store large quantities of imaging data in the long term. The system is vendor-neutral, and can be deployed in conjunction with any picture archiving and communication system (PACS).

Our Trial Connect solution helps universities, hospitals, pharmaceutical companies and third-party institutions to plan and carry out extensive and complex research studies.

MAKING YOUR HOSPITAL MORE ATTRACTIVE FOR PATIENTS

Hospitals now recognize the growing importance of the entire patient experience. The Entertain for Hospitals multimedia system helps make a hospital stay as pleasant and convenient as possible. This offers on-demand HD TV, movies, and Internet access – via a user-friendly bedside touch-screen. Entertain for Hospitals is vendor-neutral. However, organizations that would prefer to use existing Siemens equipment can deploy Himed & Entertain for Hospitals, an offering developed jointly by Unify (formerly Siemens Enterprise Communications) and Telekom Healthcare Solutions.

Tumor Conference 2.0 demonstrates how state-of-the-art IT can improve the quality of healthcare while also saving time and money. Medical professionals can leverage this solution for secure, inter-disciplinary collaboration, improving treatment while eliminating the expense and effort of travel. Tumor Conference 2.0 enables physicians to participate in online discussions from their hospital PC or even from home, to hold videoconferences, and to share documents and images. As a result, they can effectively communicate, and make joint, informed decisions on patient treatment.

SOLUTIONS

- Study-based Archiving Service (StArcS)
- Trial Connect
- Entertain for Hospitals
- Himed & Entertain for Hospitals
- Tumor Conference 2.0



SERVING THE NEED FOR SPEED.

We provide standardized solutions for secure online access to medical records, flexible data archiving and for invoicing of healthcare services. These help family doctors, specialist physicians and other healthcare providers to save time and money, and to improve the quality of treatment.

Medical professionals often work long hours. According to a 2012 survey by two leading German physicians' associations, specialist doctors work on average some 55 hours a week and family doctors clock up almost 60 hours. Powerful ICT provides an answer. Tumor Conference 2.0 is just one example: physicians throughout Germany can share information, discuss treatment methods, and make joint decisions via videoconference, without having leaving their desks.

We also help save time by means of effective invoicing solutions. In Germany, we already generate more than three million invoices per quarter for healthcare services delivered by family doctors under statutory insurance programs. And this figure continues to rise. We also enable improved communication between stakeholders via digital networks, for instance for the electronic transmission of invoices, laboratory results, or patient data. To enable healthcare providers to share data more easily, we are currently implementing a nationwide telematics infrastructure to securely connect

around 200,000 doctors, more than 20,000 pharmacies and over 2,000 hospitals. This system will also support integration of the smart health insurance cards held by 70 million Germans. The establishment of this healthcare network is, according to gematik, the card operator, one of the largest and most ambitious IT projects anywhere in the world.

Working on behalf of gematik, Telekom Healthcare Solutions has overall responsibility for trialing the smart health insurance card in Saxony and Bavaria. We are supplying the components required for initial field testing to over 500 doctors, dentists and psychotherapists, and to five hospitals. The pilot solution includes VPN access, a connector, and a card terminal. We are also developing the card operating system, and produce the ID cards required by members of the medical profession and employees at healthcare institutions. We are also developing an online portal for card applications, and provide data-center services. In other words, we provide an end-to-end solution that securely connects all healthcare stakeholders.

SOLUTIONS

- Invoicing services
- Telematics infrastructure
- Smart health insurance card
- KV-Safenet network connectivity
- Medical exchange
- Electronic doctor's ID card

RAPID, RELIABLE INFORMATION EXCHANGE.

Digital processes ensure that information is delivered to the right recipient, at the right time, in the right format - streamlining workflows and cutting costs.

Germany and many other countries face the challenge of an aging populations. As a result, demand is increasing for medical aids, such as wheelchairs, walking frames and breathing apparatus. According to a report by BARMER GEK, German statutory health insurers spent around EUR 6.5 billion on this kind of equipment in 2013 alone. Experts believe that 20 percent of this expenditure could be saved by, for example, improving the way the supply of aids is organized. The ZHP.X3 healthcare platform, for example, models all aspects of requesting, distributing, paying for and returning aids. The system supports nearly 10,000 equipment suppliers, over 40 insurance organizations, and around 25 million insured persons. New processes and products address the needs of more than 50,000 providers of physiotherapy and ergotherapy services and resources, nursing-care organizations, doctors and pharmacists.

Health insurers can also leverage digital processes to improve the quality of healthcare. Moreover, patients who are able to monitor their own vital signs are motivated to improve their health. With this in mind, we implement online portals that can be used to better self-manage a variety of chronic conditions. For the health insurer Central, for example, we operate a portal for diabetics. Using this digital platform, in conjunction with mobile devices such as smartphones, patients can capture their vital signs in their own homes, and share this data with medical experts. This enables the provision of tailored advice based on highly accurate, up-to-date information. We also use smartphones to capture and transmit vital sign data for a number of other innovative solutions.



LÖSUNGEN

- Central healthcare platform (ZHP.X3)
- Medical aid management based on ZHP.X3
- Portal for monitoring vital signs

STRENGTH, FLEXIBILITY, AGILITY

Demographic change, patchy healthcare in rural areas, and the desire of the elderly to lead independent lives – these and other trends are driving demand for new telemedicine systems and smart assistance solutions for young and old. We have the right answers to these issues.



Changing demographics means changing healthcare: the number of doctors working in rural areas is falling fast, the number of elderly is rising. As a result, we face a shortfall in the provision of adequate healthcare. But we can resolve this dilemma with telemedicine. In the state of Brandenburg, high-risk patients with heart conditions measure their vital signs with the aid of a telemedicine kit, and relay the data to their physicians via a secure network. Remote monitoring reduces the need for visits to the doctor's office, and saves time and money; it also improves the quality of healthcare provision, and quality of life.

As people grow older they need more assistance and care, yet few relish the prospect of a nursing home. Eight out of ten Germans would like to remain in their own homes for as long as possible. Telekom Healthcare Solutions is developing powerful assistance systems that enable them to do just that. The smart home emergency call system, for example, uses sensors to detect when someone has suffered a fall, and to alert a control center. Another pioneering tool is a special wristwatch that enables wearers to place a phone call in an emergency – offering peace of mind when not in one's own home. A further example is a bed that interacts with other equipment. Sensors detect when the occupant gets up, and can initiate action such as switching on a light or alerting a control center. The Tagesnavi app

helps people with cognitive and neurodegenerative disabilities to structure their day, maintain contact with friends, family and carers, and to perform entertaining brain exercises.

Telemedicine solutions and assistance systems are not only of benefit to the elderly. Vitadock modules enable people of all ages to capture vital signs, such as their weight, blood pressure, heart rate, and blood glucose levels, by iPhone, and to share this data with their physicians. This can be extremely advantageous for diabetics, for example. A further useful tool is the ServicePortal. When combined with the Qivicon smart home solution, this portal enables the user to remotely switch on the lighting, and control the heating and blinds. The service portal also performs a number of other tasks, such as contacting carers, friends and relations, or checking for suitable local events and entertainment. Home automation technologies are popular with all ages. This means that people will grow accustomed to them early in life, and will find them easier to use when they are themselves in need of care.

SOLUTIONS

- Telemedicine
- Smart home emergency call system
- Emergency call wristwatch
- Connected assistance bed
- Tagesnavi app
- Vitadock modules
- ServicePortal

SMART SOLUTIONS

HEALTHCARE

- Telemedicine
- Smart home emergency call system
- Emergency call wristwatch
- Connected assistance bed
- Tagesnavi app
- Vitadock modules
- Service portal

HEALTH INSURERS

- Central healthcare platform (ZHP.X3)
- Medical aid management based on ZHP.X3
- Portal for monitoring vital signs



DOCTORS' OFFICES AND OTHER HEALTHCARE PROVIDERS

- Invoicing services
- Telematics infrastructure
- Electronic health insurance card
- KV-Safenet network connectivity
- Medical exchange
- Electronic doctor's ID card

HOSPITALS AND LABORATORIES

- iMedOne®
- iMedOne® mobile
- SAP platform with modules for patient management, financial accounting, logistics, and human resources
- i.s.h.med®
- Interface Manager for Healthcare
- Software for hospital hygiene: Hybase®, Hybase® mobile, Hyplan® und Hytec®
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