

# HOSPITAL OF THE FUTURE

SELF-SERVICE TECHNOLOGIES FOR PATIENTS AND STAFF



PYRAMID

HEALTHCARE



The Hospital of the Future brochure introduces you to Pyramid, your partner for the comprehensive digitalization of your hospital.

Digital transformation is not new in medical institutions, but it is currently accelerating and expanding due to the governmental Hospitals of the Future program. This is thoroughly changing virtually all interfaces between doctors, nurses and patients: at the reception desk, in the corridors, in waiting areas, in treatment rooms and in patients' rooms. In addition, one of the explicit goals of the Hospitals of the Future program is to strengthen the hospital IT infrastructure security to ensure maximum protection for highly sensitive data and critical networks.

Our brands – AKHET®, faytech® and POLYTOUCH® – provide hospitals with solutions for their entire digitalization journey. When you choose Pyramid, you choose cutting-edge technologies and comprehensive services from a single source.

POLYTOUCH® is a pioneer in the field of digital self-service: more than 60,000 POLYTOUCH® terminals are in use worldwide, including in pharmacies and clinics.

Faytech® is a specialist for touchscreen monitors and touchscreen computer solutions. These may be components of medical devices or may manage access in hospitals as part of a complete system.

IT technology from AKHET® is used by federal government security contractors to protect critical infrastructure for supply lines, health and safety in Germany.

A selection of our references in the healthcare sector can be found at the end of this brochure.

We provide our brand solutions in basic configurations that satisfy many use cases off the shelf. Add-on components or peripheral modules at an additional cost are generally not needed. For special use cases, the platform principle enables both the cost-effective as well as rapid implementation of your special requirements. This makes Pyramid your first choice for setting up a new or modernizing an existing digital infrastructure in your hospital, regardless of whether you opt for a basic configuration or a customized solution.

The functional yet elegant design of our solutions, which usually integrate all peripheral devices within the chassis, has been recognized multiple times with international awards. In 2020, the FLEX kiosk terminal received the European Design Award, and in 2022 the NANO received the Good Design Award from the Chicago Athenaeum. The GDA is one of the most prestigious awards for industrial and product design worldwide.

Also important to know: We provide a dedicated contact person for your digitalization project. Your contact partner will be an expert in your industry and will support you from kick-off to roll-out and beyond. A telephone service line is also available to answer any questions you may have.

As you can see: We will accompany you competently as your partner with innovative technologies, designs and services on your entire digitalization journey.

***We are Pyramid: Agile. Creative. Reliable.***

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# TRANSFORMATION

## IN HOSPITALS



According to the German Federal Statistical Office, healthcare spending in Germany rose from EUR 276.1 billion in 2008 to EUR 440.6 billion in 2020. Despite such high expenditures, however, doctors, nurses and patients experience work and treatment in hospitals as unsatisfactory.

Multiple phone calls are needed to make an appointment, there are long lines at reception, reports from external healthcare providers are not available. Staffing shortages result in patient care where time constraints are the order of the day. The study *Fachkräftemangel im deutschen Gesundheitswesen 2022* by PricewaterhouseCoopers (PwC) found that 72% of experienced nurses doubt that they are able to help people. Only 20% of physicians and senior nurses think that they will continue in their profession until retirement.

In view of this situation, the German legislature has prescribed a digitalization push for the German healthcare system. Important clinical processes are to be transformed with digital technologies by 2024. The Hospitals of the Future Program (HFP) specifies eleven funding-eligible areas for which funds totaling EUR 4.3 billion are available. Hospitals have been able to start implementing projects and request funding from the Hospital Future Fund (HFF) since September 2, 2020.

The goal of this comprehensive transformation is to support physicians and nurses in their daily work through the digitalization of routine tasks, or even by eliminating them. For example, digital technologies can provide all relevant patient data along the entire treatment chain – in a form that is quickly accessible and easy to maintain.

Digitalization makes it possible for time to be a much less scarce resource. It frees up doctors and nurses for their most important task: the individual and intensive treatment and care of patients. They also benefit from digitalization in other ways: contacting and accessing hospitals becomes easier, and treatment results and treatment plans become more transparent.

Patients, for their part, have been open to digital solutions for quite a while already. As early as 2019, a digitalization report by a major provider of e-health software revealed that 73% of respondents would like to book their doctor's appointments online, but this service was only offered rarely. These numbers are an example of the broader acceptance of digital technologies in the healthcare sector.

Workers in the medical and nursing professions also recognize the opportunities offered by digitalization. 42% of experienced staff expect intelligent technologies to reduce their workload and give them more time to treat and care for patients. Younger workers estimate the potential for improvements as even higher.

The fact that digitalization also pays off is shown in the study *Digitalization in Healthcare*, published in May 2022 by the management and strategy consultancy McKinsey. It estimates the benefits of digital processes and workflows at EUR 43 billion – per year!

Key technologies for the successful digitalization of hospitals are the patient portal and its hardware platform, the patient terminal. It is connected to the Telematics Infrastructure (TI) as well as to the Insurance Master Data Management (IMDM) and, of course, to the Hospital Information System (HIS). In healthcare systems in countries with a higher level of digitalization, the kiosk terminal has proven to be a cost-effective and multi-functional solution used readily by people of all ethnicities, ages and educational levels.

Patients begin their journey through the hospital at the self-service kiosk in the entrance area. They continue their path to treatment along the other digital touchpoints. We invite you to accompany them on their journey in this brochure.

Along the way, you will learn about the technologies that AKHET®, faytech® and POLYTOUCH® provide for patients, physicians and nurses. We will show you in detail which self-service terminals and digital signage solutions are best suited to which applications, and where the advantages of our solutions lie.

*We hope you will enjoy an informative read!*

...for managing admission, treatment, transfer and discharge

## 01. RECEPTION

### POLYTOUCH® FLEX21.5 HEALTHCARE

Patients will encounter the patient portal and its hardware platform, the patient terminal, immediately, right at the reception desk.

As we all know, first impressions count and last a long time! To ensure that this critical encounter between the self-service infrastructure and the patient is a success, POLYTOUCH® offers the FLEX21.5 HEALTHCARE system with anti-reflective protective screen.

This compact and space-saving kiosk terminal is equipped with all the peripheral modules needed for a smooth self-check-in.

Patients register by inserting their eGK healthcare card into the card reader of the FLEX. The patient's medical history is also captured by the same terminal in self-service mode. The form on the screen can be filled out using a

physical or – as with a cell phone – a virtual keyboard.

A document scanner is located on the back of the display for converting findings or medication plans brought in by the patient on paper into a digital format to be transferred to the hospital information system (HIS).

If the patient's consent is required for treatment to continue, he or she can sign the relevant documents on the terminal's signpad.

Since data protection and hygiene are particularly relevant in hospitals, the screen of the FLEX has a privacy filter and a holder for disinfectant dispensers. All components of the terminal are resistant to cleaning agents used for wipe disinfection.

Whether and how patients accept the self-service option

will depend to a large extent on the user-friendliness of the terminal. That is why we have given the FLEX the look and feel of a tablet, with an almost frameless, slim touch display in portrait format.

This creates a familiar usability, inviting all generations to self-service. In addition, the ergonomic arrangement of the peripheral modules reduces the patient interaction surface to an absolute minimum. This further enhances user-friendliness. Even the elderly intuitively know what to do.

In 2020, the FLEX received the prestigious European Product Design Award for its pioneering concept.

The FLEX is the gateway to the hospital. If documents or data are missing, the system sends the patient to the conventional reception. If all questions have been answered, the FLEX sends the patient on to their specialist department.

Since it is connected to the central waiting management system, the FLEX assigns the patient a call number in either case. This number is used at the reception desk or in the specialist department to indicate that it is the patient's turn.

But how do you get to your destination quickly and without detours in the hospital labyrinth?

# A digital wayfinding system...

...for corridors, intersections and waiting areas

Hospitals are spacious areas. Even patients who come in for treatment repeatedly often find it difficult to find their way around. It is part of everyday life in hospitals that patients arrive for their appointments nervous, anxious and late, because they lost their way in the hospital maze.

Digital guidance systems provide effective and reliable signposts for patients on their journey through the hospital.

They provide the patient with information about their direction and route on walls or ceilings at passages and doors, in halls and corridors, in front of elevators and specialist departments, and in the cafeteria.

Compared to analog display and information signs, digital signage offers enhanced visualization options. Dynamic elements can be used to maximize the guidance effect.

Another advantage of digital signage: information can be changed quickly and easily, regardless of whether the content needs to be updated hospital-wide or locally. In both cases, the information is fed to the signage centrally via software and is then immediately displayed on the signs.

Digital displays from faytech® are available in screen sizes ranging from 7" (17.8 cm) to 55" (139.7 cm). Thus they can fit in almost anywhere digital signage can help to better inform and orient patients.

At central traffic junctions, faytech's® interactive information terminal PATHFINDER additionally supports navigation through the hospital. It shows patients their current location and calculates the route to their destination.

The PATHFINDER is also available from faytech® in different height and screen dimensions.

The PATHFINDER touch panel is equipped with an anti-microbial coating that eliminates 99.99% of all bacteria and viruses.

The service life of the LED backlight for digital signage by faytech® is up to 100,000 hours. This corresponds to a durability of 12 years - in 24/7 continuous operation! This means you can be sure that a long return on investment will reward your purchase.

## 02. ON THEIR WAY

faytech® PATHFINDER





# Waiting room management...

...and infotainment

In waiting rooms, digital display screens perform several tasks. As part of the waiting management system, they display the call numbers assigned to patients by the self-service terminal at the entrance, prompting them to come in for examination or treatment.

In addition, the digital display boards contribute with infotainment by presenting nature videos, news or available treatments. This means that they can help with relaxation as well as patient education and self-presentation of your medical practice or medical center.

The MEGASCREEN by faytech® displays visual content in 4K (UHD). The screen resolution of 3840 x 2160 pixels (four times the resolution of Full HD) brings out the colors and details of the videos and images so brightly and clearly that they captivate every patient.

This digital signage is also available with a touch panel. It allows patients to interact with the content on the huge display. There are numerous possible applications: text dialog with avatars, virtual visits behind the scenes of the hospital, or simple quiz and puzzle games to while away the time.

A 2.8 mm thick glass with hardness grade 7 makes the touchscreen of the MEGASCREEN highly robust. The antimicrobial coating reliably destroys bacteria and viruses.

The optical bonding of touchscreen and LCD panel by a special glue guarantees very good readability and visibility of the screen contents, even under unfavorable lighting conditions. The display and the other components of the display board can be cleaned with all standard hospital disinfectants and cleaning agents.

Good to know: A fully-fledged media player is integrated in the MEGASCREEN, which means that media content can also be maintained and presented locally via the USB interfaces if this is desired or required.

## 03. WAITING AREAS

faytech® 55" MEGASCREEN 4K



# 04. CONSULTING ROOM

faytech® i7 REACHER



## Telemedicine

**ALSO FOR  
TELECONSULTATIONS &  
TELEDOCTOR**

**faytech**

Telemedicine offers great potential in hospitals. Doctors can discuss findings remotely, agree on the next treatment steps, answer questions about medications and possible side effects, issue and send e-prescriptions and electronic doctor's notes for employers and more...

The doctor can gain additional transparency through special apps that collect and transmit measurements taken from the patient in a clinic, in a rehabilitation facility or at home.

Data collected by the Central Institute of Ambulatory Health Care in Germany for outpatients and psychotherapy practices prove that patients are open to remote consultation: while there were just 4,000 tele-medicine consultations in all of 2019, there were well over two million in the first 6 months

of 2021. Of those patients, 22% were in the 50–64 age group.

Patients have recognized the benefits they derive from remote consultations. Some find it difficult to get to the hospital for a doctor's appointment because of their illness, disability or age. For others, going to the hospital carries an increased risk of infection because their immune system is compromised. Others have to travel long distances, which can only be managed at great expense in terms of time and money.

And what benefits do hospitals derive from telemedicine? If only those patients personally come to the hospital whose presence is necessary for a successful examination or treatment, patient traffic and management is reduced

considerably. In addition, telemedicine solutions make it easier to maintain at least part of medical care for patients in times of crisis, such as the COVID pandemic.

For hospitals, the Hospitals of the Future program now provides an opportunity to invest in telemedicine infrastructure with subsidies, as solutions for remote consultation are among the areas to be supported by funding for digital patient portals. The HFP (eligible area 2) has considerable funds available for these solutions.

The REACHER system by faytech® is a touch PC your doctors will like to utilize to invite their patients for telemedicine appointments. The computer unit behind the screen works silently and absolutely reliably. Its mother board is manufactured subject to the same high quality standards

that apply to industrial computers. This is why the REACHER's service life is significantly longer than that of comparable products.

The REACHER can be operated via the display as well as via mouse and keyboard. It is delivered off the shelf with an Intel i7 processor. If lower processing power is sufficient for your application, the processor can be scaled down for maximum cost efficiency. Available screen sizes range from 27" to 43".

## 05. HOSPITAL ROOM

### faytech® BEDSIDE TERMINAL

Time spent in hospital is unsettling and stressful. With bedside terminals, you can help make your patients' stay more familiar and comfortable. And you will support the medical and nursing staff in their tasks at the same time.

Current and, even more so, future patients want to keep in touch with family and friends – especially if they are staying longer – and they want to have access to the electronic media with which they organize their lives at home. The BEDSIDE TERMINAL by faytech® brings TV programs and the Internet with its comprehensive information, communications and entertainment to your patients' bedside.

Since the BEDSIDE TERMINAL is connected to the HIS, it also functions as a convenient access to the patient portal. From their beds, patients can view their electronic file, treatment videos, find out about their therapy and medication plan, or send appointment requests to their doctor. Push notifications reminding patients of upcoming examinations or to take their medication on time along with a call button function round out the range of medical applications on the bedside terminal.

But that's not all: patients can use the tablet to order the food they want, make a hairdresser or pedicure appointment in the hospital, or find out where and when church services are being held. They can also use the tablet to control the room temperature, lights and blinds in their room. Doctors and nurses also benefit from the faytech® BEDSIDE



TERMINAL, as it establishes connectivity to the HIS directly at the bedside. After logging in, the doctor has access to the patient's digital file as well as previous test results, treatment progress or changes to the therapy approach.

Alternatively, audio or video consultations can be held and messages sent between doctor and patient via the tablet. This makes communication more efficient and distances shorter.

The BEDSIDE TERMINAL presented here is based on the platform architecture of the faytech® industrial tablet. It stands for highest quality even in difficult environments. With its superior optical bonding, brightness and robustness, faytech®'s BEDSIDE TERMINAL is the first choice for the applications just described. It has a variety of ports and

useful additional features such as a reading light, illuminated touch keys, and a headphone jack.

The BEDSIDE TERMINAL can be cleaned with all disinfectants and cleaning agents commonly used in hospitals.



## 06. CAFETERIA AND KIOSK

POLYTOUCH® PASSPORT 32

Cafeterias in hospitals are professional food service establishments with an extensive selection of vegan, vegetarian and meat-based menus, salads, cakes, pastries, and hot and cold beverages.

Hospital cafeteria patrons include employees, patients, visitors and even residents from the surrounding area. Different prices apply to these different groups of people, which makes the ordering and payment process a challenge for cafeteria staff, especially at peak times, and can increase the wait time for patrons.

This is where the POLYTOUCH® PASSPORT 32 comes in. It has all prices stored and ready at any time. Patrons place their orders in self-service on the PASSPORT and pay with a credit card, patient or employee card.

The PASSPORT then issues a receipt with the pick-up number, which is called up or displayed as soon as the order is ready at the counter. In this way, the PASSPORT helps to make the cafeteria an attractive place for patrons, and relieves counter staff effectively.

But the PASSPORT can do even more! In the cafeteria's kiosk area, patients and visitors can purchase everything they need for their own use or as gifts during their stay in the hospital: sweets, ice cream, chilled drinks, newspapers, magazines, hygiene and personal care items, USB cables and chargers.

Here, too, the PASSPORT shines, this time as a self-checkout terminal. This means that patients or visitors can take items from the shelf or display and pay at the kiosk without having to wait at the counter to check out.

The advantages of the slim POLYTOUCH® PASSPORT include its space-saving design for easy integration into any room concept and the generous 32" full-HD display. Food and beverages look as lifelike as at the counter.

The elegant appearance of the PASSPORT is due to its cable-free design: In the standalone version, the base contains a channel for the cables that supply the kiosk with power and data. In the version with two displays, the PASSPORT serves several patients and visitors at the same time, thus reducing waiting times even in peak demand situations.

Retrofitting or upgrading the kiosk with peripheral modules is very straightforward. There is plenty of space in the console (belly) and in the frame. This means maximum flexibility in terms of application and high cost efficiency when adapting to new challenges.



Self-Service Ordering

POLYTOUCH®

## 07. OUTDOOR AREAS

Our terminal for outside!

Digitalization in the hospital doesn't begin behind the entrance! A generous number of parking spaces mitigates the nerve-racking search for parking for patients and visitors. If the parking ticket is conveniently purchased at a reliable and easy-to-use self-service terminal, their visit for an examination or treatment will be even more stress-free.

The POLYTOUCH® OUTDOOR can offer this experience to the patients and visitors coming to your hospital. Selected hardware from a single source ensures high performance and ease of use in any season and predestines this terminal for continuous outdoor use. The OUTDOOR's full-HD touchscreen is made by faytech®, the industrial computer by AKHET® and the kiosk technology by POLYTOUCH®.

At 150 kg (330 lbs.), the OUTDOOR is a weatherproof heavyweight that comes equipped with perfect features for harsh and demanding environmental conditions: an active cooling system and a bright, high-contrast, anti-reflective screen so that text can be read effortlessly even in very bright sunlight. Front glass with hardness level 7 protects the terminal from damage by careless users.

On the 32" large and well laid-out touchscreen, the purchase of hourly or daily tickets is easy for all generations. Furthermore, the OUTDOOR can present important orientation information to visitors and patients right in the parking lot, for example, opening hours and the location of specialist departments.

As with the faytech®-solutions presented on the previous pages, the OUTDOOR backlight has a useful life of 100,000 hours. This is equivalent to 12 years of 24/7 operation!

What else is there to know about the OUTDOOR? With a change of software, the terminal also shines in even more all-weather use cases! It can show visitors and patients the way between building complexes on the hospital grounds as part of the guidance system.

In addition, the OUTDOOR is suitable for delivery management, i.e. your hospital's suppliers check in on the terminal in self-service at the access point to the logistics area and then receive information on the loading and unloading process, the route to their destination gate or parking lot and other useful information via the display.

Our OUTDOOR is the ideal tool for effectively managing the flow of goods to your hospital.



PARKING TICKETS...

fast & intuitive

## 08. SERVER INFRASTRUCTURE

AKHET®



The healthcare network topology is part of the critical infrastructure in Germany. Requirements and specifications by Germany's national agency for healthcare system digitalization, gematik, ensure that the various systems are seamlessly interconnected via the telematics infrastructure (TI), and that highly sensitive data are protected effectively.

More than 2,000 hospitals are connected to the TI. The devices used in the network must be capable of functions such as encryption of the network connection, authentication of end points, and management and processing of electronic signatures.

The government supports the procurement and modernization of these security solutions with considerable funds through the Hospital Future Act (eligible area 10).

Pyramid Computer has been supplying a subsidiary of the Federal Bureau of Printing with hardware solutions by our AKHET® brand for almost 20 years. They provide robust and innovative security software as a powerful platform for securing critical infrastructure, e-government applications, internal and external government communications, and industries with an obligation of secrecy.

As a result, we are the hardware supplier for the world's only firewall that has been designated as Highly Resistant by the German Federal Office for Information Security (BSI) in accordance with the international Common Criteria (CC) standard.

This expertise highly recommends us to healthcare providers who want to connect their hospital information or practice software system to the healthcare telematics infrastructure (TI) in a highly secure manner or modernize an existing security solution.

## SECURELY PROTECTED

individual & flexible solutions

AKHET®

# 9. REFERENCES

## Aversi



In pharmacies, time is at a premium for staff. The balancing act between the core business – providing pharmaceutical goods and services to the customers – and sales activities such as billing and accepting payment is often difficult.

Aversi, the Republic of Georgia's largest pharmacy chain, remedied this situation by introducing self-checkout for its non-prescription product range with kiosk terminals from Pyramid Computer.

Supplements, first-aid items, nutritional drinks, cosmetics and personal care products are simply taken from the shelf or from the display and paid at the kiosk terminal in self-service without having to line up at the checkout.

This relieves staff from cashier duty and gives them more time to look after customers who are in need of expert advice and help. At the same time, it also significantly reduces the wait for these customers.

Scan QR code and watch the video



POLYTOUCH®

The MESO Group develops and distributes software and hardware products for medicine. In cooperation with faytech®, they developed the IBox Touch, which creates video recordings in endoscopy departments.

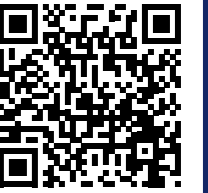
The IBox is a complete touch-screen computer that is connected via a DICOM interface to the HIS or RIS, from where it receives its worklist.

The images and image sequences generated during the endoscopic examination are transferred to the PACS archiving and communication system for storage and further processing.

The IBox is well thought out down to the smallest detail: The touchscreen is operated intuitively, including with gloves. It also features a germ-free protective coating that eliminates 99.99 % of all bacteria and viruses. This baked-on Kastus® coating lasts for the entire life cycle of the product and is active around the clock, day and night.

The IBOX operates completely noise-free, as the design does not include any mechanical moving components. In the absence of a network connection, the IBox temporarily stores the image data until it is online again. The services provided by faytech® also include support for the continuing development of the IBOX

Scan QR code and watch the video



## Meso



# AKHET®

## YOUR TAILOR-MADE HARDWARE SOLUTION

High quality computer systems for  
Industrial Automation, Retail, Network & Security  
for medium businesses and large enterprises.



## YOUR TOUCH SOLUTIONS SPECIALIST

Specialized in design, development, manufacturing and  
marketing of Touch Screen Monitors and Touch Screen PCs.



# POLYTOUCH®

## ULTIMATE TOUCHSCREEN SOLUTIONS FOR TODAY AND TOMORROW

Interactive self-service kiosks, info terminals,  
paging and real-time locating systems.



# WE ARE PYRAMID

AKHET® | FAYTECH® | POLYTOUCH®



**PYRAMID**  
agile. creative. reliable.