

Learning to really love the system



Universitätsklinikum Heidelberg

Klinik Technik GmbH

At least one fire alarm per day

Heidelberg, late in the morning. Behind orange-colored glass doors, one of roughly seventy signal lamps suddenly starts to flash and blink nervously. On the Heidelberg university campus, 'Im Neuenheimer Feld', the control center's fire detection system is signaling that a smoke detector has gone off in the building section 6350.

Fire alarms are only one of the many types of malfunction messages that hit the control center operated by Klinik Technik GmbH every day. At twelve different monitors you will see scores of messages from various control systems. Apart from the above fire detection system, they e.g. stem from ventilation systems, the pneumatic tube system or the campus-own 20,000 V power grid.

What does Klinik Technik do?

Klinik Technik GmbH was formed in 2010 by joining several existing clinics and, with around 240 employees, has since been responsible for a growing number of tasks, including building maintenance/expansion, energy/waste management, and internal goods storage/transport. The company manages a total of around 250 buildings at Heidelberg University, including six large hospitals, such as the well-known Kopfklinik and the National Center for Tumor Diseases.

The entire campus at ‚Im Neuenheimer Feld‘ is connected by underground tunnels. „Some of the infrastructure runs over two basement floors: from district heating and cooling, water and electricity supply, and waste disposal to the automatic goods transport system,“ says Dieter Keilbach, Head of the Automation and Conveyor Technology Department, explaining the enormous scope of the tasks for which Klinik Technik GmbH is responsible in addition to emergency management.

The Challenge

This gives you a sense of how many processes are monitored at the control center and how many messages are processed daily, 24/7. Within no time, every malfunction leads to substantial communication traffic. „In an alarm, not a single telephone stands still here!“, Dieter Keilbach adds. „There are the calls that must be placed at once



„With DAKS and its expansion DAKS Customized Operator, the control center engineer can easily manage the entire notification process in a few steps, and reach every single responder reliably.“

– Dieter Keilbach, Head of Automation and Conveyor Technology Department

To ensure that everything runs smoothly, emergency call lists and responsibilities are designed and saved in advance in DAKS. The system then automates the alerting and communications process and applies the reachability criteria of every person that need to be alerted. All landline, DECT and private phone numbers are either called at the same time in parallel or one after another, until the required number of responders has been reached.

to alert public utilities, fire brigades and the police, plus the calls we have to make to immediately alert our own technicians to the incident. Our control center engineers are hands-on to actively remedy every situation. At the same time they need to notify every single person at risk – e.g. on stations and in labs, but also research officers, physicians and everyone else responsible.“

At least one fire alarm per day

Luckily there is not always a real fire when a signal lamp goes off at the fire alarm system, yet even harmless situations entail the full processing chain, like a burnt slice of toast or a false alarm at one of the many thousands of built-in fire detectors. „But because safety comes first, we always assume the worst case“, Jens Arnold emphasizes, himself a longstanding senior control center engineer and in charge of optimizing the emergency and default communications processes at Klinik Technik GmbH.

The Solution

With the help of the DAKS expansion ‚DAKS Customized Operator‘ (DCO), Arnold was able to program a user-friendly interface that visualizes the automated DAKS communications processes. With DCO-Designer he can now fully map, on a web-based user interface, the way in which the signal lamps are arranged in their fire detection system. The focus is always on the program’s easy-to-use and intuitive operability. No more than three mouse clicks get every operator to the right view, with graphically visualized room areas and optical aids pointing to the next logical step. This enables the control center engineers to initiate the right communications processes safely and accurately at every moment, no matter how stressful the situation may be.

As soon as the fire alarm system sets off a signal, a personal call is made to the professional Heidelberg fire brigade to doubly safeguard that a proper response is underway. At the same time, the control center engineer uses the DCO screen to launch the broadcasts that are assigned to this incident.

One broadcast notifies the hospital security guard responsible for the exposed area so that the fire engines can access the scene unhindered. Another broadcast alerts the fault clearance service of Klinik Technik GmbH because once the situation is cleared, every affected building technology systems must return to normal operation. This ranges from resetting elevators to recommissioning ventilation systems.

It is easy for any engineer to overlook both the highly intelligent programming that DAKS applies at the click of the mouse and the fact that the system immediately takes into account not only all phone numbers, communication devices and shifts, but that also chooses the



Jens Arnold designs user-friendly DAKS graphic interfaces for the control center

right announcements and display texts to the incident (type/place of the emergency etc.). And this is exactly the way it should be, too. After all, in a time-critical situation who should or could pay attention to so many different factors?

Customized user interface

„DCO is ideal for everybody who needs to map complex workflows and at the same time wants to give employees an intuitive tool that really helps them perform these highly demanding tasks safely, correctly and responsibly – and in the shortest time possible,“ explains Jens Arnold, who also trains the control center staff on DCO. With DCO you can customize the system to the exact scope of the job. „It’s all in the game – from basic straightforward graphic outputs to the most thought-out operation that works with optical aids.“ Arnold sees the fact that DAKS Customized Operator basically operates like any other website as the essential edge: „With DCO, I am free to design and arrange all of our user objects in such a way that I can focus fully on the best and most efficient handling by the user.“

From his start page, you can directly access all DCO-administrated scenarios: From fire alarms, helicopter arrivals, failures of the pneumatic mailing systems and convening crisis units to mass casualty incidents and umpteen technical breakdowns, e.g. electric, gas or water supply failures. With no more than a few clicks, you can always set off the best and where needed even most intricate notification process. For example, when the pneumatic mailing system fails 500 different persons need to be alerted at once.

Even in what is called a „brownout“, a brief break in the power supply, the short drop – small cause, large effect – creates an immense communications effort. This is because the error can quickly cause the breakdown of many systems that cannot start-up again by themselves, and even compromise the control units as such. Not only must technicians check and where needed repair all electric systems of the affected area, also several thousands of freezers, some of them already 20 years old, are quickly jeopardized, including the research findings they protect.

The damage that would be caused if the storage temperature would rise even slightly, say from -80 to -60° degrees Celsius, would be immense and irremediable, both in material and ideal terms. It is therefore crucial that all responsible persons are reliably notified so that they can initiate every safety, repair and relocation measure that must be taken.

Practicing for emergencies with DAKS

To warrant that everything runs smoothly in such an incident, the information workflow must be practiced on a regular basis. Using DAKS, a real-life evacuation was for example carried out in the head clinic, together with the police and fire departments. The objective of the exercise was to alert all administration officials, including e.g. medical and commercial management and crisis management groups, and to test the reachability. To ensure authentic and genuine results, none of these persons were informed in advance and they only learned that this was an exercise when the drill was already in full swing.

„That worked out very well“, Dieter Keilbach recalls satisfied. In the detailed follow-up, the report provided by DAKS specified every individual reachability or accessibility gap. This made it possible to restructure individual processes and eradicate errors for an even better reachability in the future.



Dieter Keilbach (left) Department Head of Automation and Materials Handling and Jens Arnold (right) control center engineer, at the entrance of the main control center

COMPONENTS OF THE SOLUTION AT KLINIK TECHNIK

Klinik Technik GmbH manages the high volume of emergency and fault communications in its control room safely and accurately with:

- DAKSpro
- DAKS Customized Operator (DCO)

The Benefit

„The reliable DAKS report has helped us quite often in situations when somebody was convinced that he had not been alerted over the phone“, Jens Arnold confirms. „In every one of these cases we were not only able to show precisely when a person was called, but also the phone number where the person took that call. In one instance we discovered that the call reached a responder at his home where it was answered by his own daughter. These details help us and the individual responder to eradicate faults in our workflows and ultimately optimize our overall processes.“

Be it a drill or a real-life incident: „DAKS logs the entire process from beginning to end, and that is vital also for legal reasons“, Keilbach points out. When there are damages caused, the DAKS report serves as reliable proof and also as a sound basis in possible investigations or legal action.



„Little by little, we really discovered our love for this system.“

– Dieter Keilbach, Head of Automation and Conveyor Technology Department

Target-group oriented announcements

Throughout the campus, everybody profits from the efficiency of the DAKS and DCO alerting processes: Protective measures are initiated more quickly and officials are notified more reliably and accurately. This increases the entire campus safety.

„No PA system could ever guarantee this level of safety and security“, Keilbach is convinced. DAKS is designed

to combine precise details (alarm type, place and instructions), and direct them instantly to the right targets. Everybody automatically gets only the information that he needs – service technicians, watchmen, officials, station directors.

„DAKS reassures me because I know that every single call is made fully automatic and always accurately“, Keilbach underlines. „After all, there are so many different software products at play and we can never be fully sure that none of them get stuck or freeze. From my own experience, I am happy to confirm that the DAKS software is genuinely stable.“ To this Jens Arnold can testify: „DAKS works no matter when and that’s the way it ought to be! You have to understand that in our business, we cannot tolerate even the slightest hiccup.“

Outlook

„DAKS has really proven itself here in Heidelberg“, Dieter Keilbach sums up. In the future, he expects to include even more processes. „Especially in the technical area we are considering many additional applications.“

DCO not only provides Klinik Technik GmbH with a powerful tool to integrate their valuable results and experiences, but also to continuously include increasing and changing processes into their workflow, and to incorporate all into their customized user interface. „With DCO we can swiftly implement new demands and adaptation requirements at any time“, adds Jens Arnold with regard to the constantly ongoing optimization process. He enjoys using DCO creatively to gauge the possibilities and limits of both tool and user interface. This is e.g. how innovative interfaces are pioneered, such as the new graphic visualization of the campus-own 20 KV power grid. „Even tetronik is amazed at what we have been able to accomplish with their software“, Jens Arnold remarks astutely.



Exterior view of the supply center at Heidelberg University Hospital