

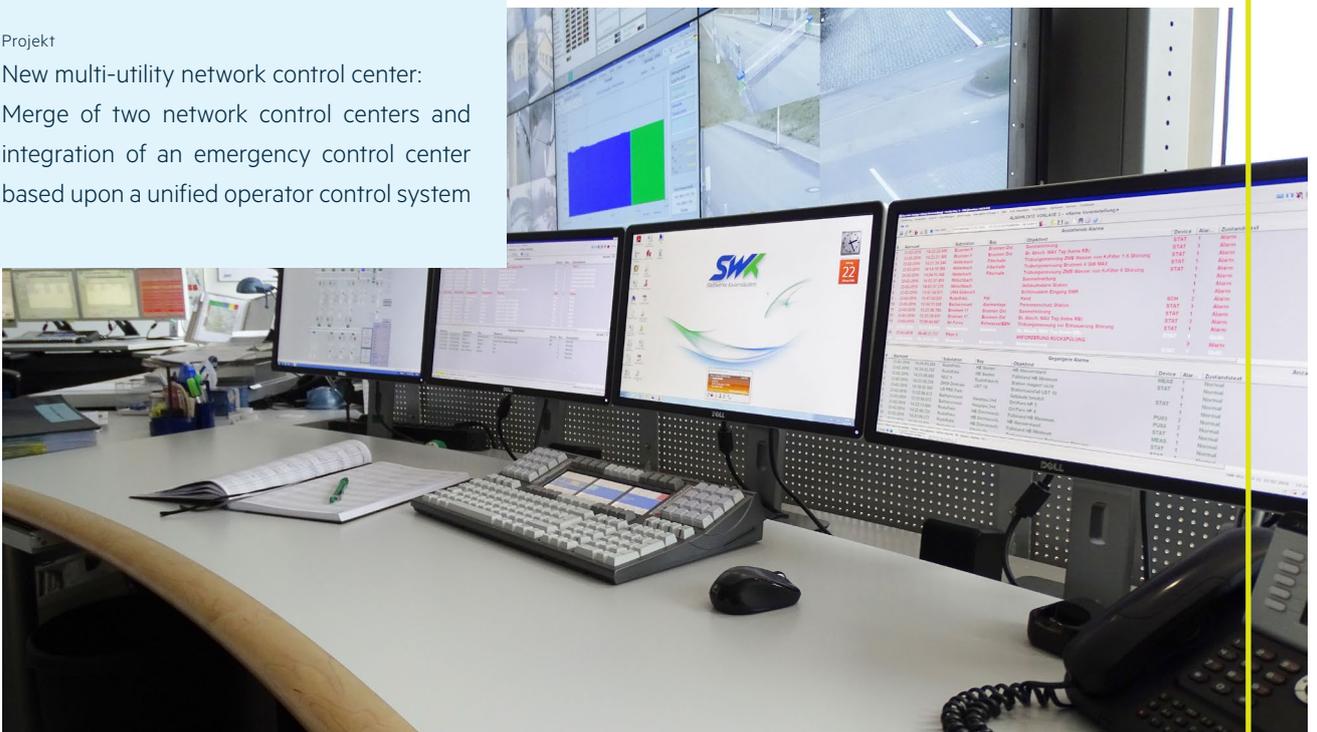
Case Study

MUNICIPAL UTILITIES KAISERSLAUTERN

Kaiserslautern, Deutschland

Branche
Energy & Utilities

Projekt
New multi-utility network control center:
Merge of two network control centers and
integration of an emergency control center
based upon a unified operator control system





Client

The new control center for Municipal Utilities of Kaiserslautern (SWK Stadtwerke Kaiserslautern Versorgungs-AG) is an ultra-modern multi-utility control center that regulates the supply of gas, electricity, water and district heating. Technical data feeds from all the city's supply depots meet here, where the highly trained staff is responsible for supervising and documenting all the operational processes. In addition to routine utilities management, the control center also coordinates staff assignments in the case of faults and alarms.

The Stadtwerke Kaiserslautern are responsible for four different utilities networks (gas - 1027 km, water - 473 km, electricity - 1159 km and district heating - 217 km) and scores of household connections (gas - 28,383; water - 20,261; electricity - 22,103; district heating - 2,035). Employees working in 24/7/365 shifts guarantee stable grid operations across all sectors.



Multi-utility control center

Challenge

In the past, SWK maintained two separate and isolated control centers, one for gas and another for electricity, water and district heating. When the utilities companies merged, the goal was to create synergies and consolidate the control rooms as well.

Five different control systems, each of which coordinates, monitors and manages a host of equipment and work assignments, come together in the main control center. Technically, these control systems are completely separate applications, and previously, each required its own keyboard and mouse. Operators had to work with multiple input devices concurrently.

The main challenge was to create a network control room with uniform and ergonomic workplaces in accordance with the principle of free seating. The goal was to outfit each desk with a single multifunctional console used to manage all five different control systems quickly and intuitively.



A second challenge was to remove all the local computers from underneath the operator desks where their fans generated uncomfortable noise emissions. In this case, the goal was to house them remotely in a central server room and protect them more effectively from dust and damage.

A third challenge was to enhance business continuity for the city's utilities and assure citizens of the highest levels of supply reliability. In an emergency, operators located either at a backup control center or in a crisis room needed to have full access to all their systems so that they could continue to work without interruption, regardless of circumstances.

The redundancy / backup concept was crucial for Kaiserslautern as the city is obligated to guarantee IT security and the availability of systems in accordance with ISO 27001 standards.

Solution

WEYTEC based its solution for this challenging environment upon the WEYTEC distributionPLATFORM. This platform makes it possible to connect, switch and distribute virtually any system to any workplace, securely, latency-free and without performance loss. Systems and sources are accessible by individual operators or by whole teams on a collaborative basis. Identical workplaces facilitate free seating so that anyone can sit anywhere within the defined network and operate their applications.

Main Control Center

The main control center accommodates four workplaces each with four screens. All the local PCs and control systems are now located in a centrally cooled system room: From there, they connect to the WEYTEC distributionPLATFORM using IP Remote transmission links over existing copper infrastructure. The visualisation solution consists of a 3x2 eyevis video wall and graphic controller, both connected to the WEYTEC distributionPLATFORM over fibre optics. Operators control systems and sources using a single WEYTEC multifunctional keyboard at each desk, and they can project any of the sources' images onto any screen or the video wall with the push of a button. Agents enjoy free seating and can log in from any of the stations to access all of the systems.

The integrated video wall is designed for 24/7 operations. Operators can easily toggle between pre-sets for both the gas and electricity networks, displaying the appropriate control systems or CCTV images of critical infrastructure such as gas tanks or natural gas stations.

Facts & Figures

WEYTEC distributionPLATFORM

- Main Control Center
 - 4 workplaces
 - 4 MK06 multifunctional keyboards
 - 29 sources
 - 3x2 eyevis videowall and graphic controller
- Emergency Control Center
 - 2 workplaces
 - 2 MK06 multifunctional keyboards
- Crisis Room
 - 1 workplace with beamer
 - 1 MK06 multifunctional keyboard



Emergency Control Center

The emergency control center, situated at a geographically remote location, features two workplaces each with a single WEYTEC multifunctional MKO6 keyboard. A dedicated high-speed fibre optics link connects the backup center to the WEYTEC distributionPLATFORM. In an emergency, staff members at the backup center



Emergency Control Center

simply logon to the WEYTEC distributionPLATFORM using their multifunctional keyboard, access all their systems and sources and continue working without interruption, ensuring the provision of utilities to the citizens of Kaiserslautern.

Crisis Room

The crisis room, which is used to coordinate working assignments during emergency situations, is also fully integrated into the WEYTEC distributionPLATFORM. Here, a beamer provides the visual overview of the situation. As usual, operators use an MKO6 multifunctional keyboard to access and control all systems and sources.



Crisis Room with MKO6 multifunctional Keyboard

Benefits

The City of Kaiserslautern now benefits from a state-of-the-art, fully integrated multi-utility control center. Merging the two previously isolated control centers has enhanced the security and reliability of service provisioning for the entire city. All the relevant systems are now being centrally monitored and controlled. The coordination of interventions has also significantly improved, assuring quicker response times in case of incidents.



Reference

According to the Department Head for Technical Services and Network Control in Kaiserslautern, “Merging both control centers clearly enhanced collaboration within our teams. The acceptance of the new system by the staff is very high.”

The full integration of the emergency control room was an important evaluation criterion during the bidding phase of the project. “It was not possible to achieve the necessary distance between the two locations and the interoperability between the control centers as foreseen by the city with the competition’s concept”, explains the Deputy Department Head and Project Manager for Stadtwerke Kaiserslautern. “Furthermore, the trouble and expense involved in the cabling, as well as the expenditure for user devices was significantly higher in the other proposals. Finally, the WEYTEC solution was future-proof with regard to the ease of future expansions.”

The Department Head further states: “Collaboration with WEYTEC was smooth and consistent, and the WEYTEC team thoroughly trained our employees on the new technology. WEYTEC took every opportunity to optimise the implementation process and supplied the city works with all the appropriate planning documents to facilitate deployment on the customer side.”

“The agreed upon budget was fully met, as was the implementation schedule. WEYTEC’s customer orientation was clear.”

Finally, the Department Head emphasises the reliable cooperation and recommends “WEYTEC for all control centers that work with multiple systems, keyboards, mouse devices, and want to engineer working processes according to ergonomic principles. This includes a complete integration, a backup solution, multifunctional consoles and a video wall.”



System room with control panel