CASE STUDY

Stadtwerke Augsburg – swa Bus & Tram

Network expansion and relocation to a new control centre

A new mobility hub makes urban public transport in Augsburg even more attractive. In future, the new central station offers ideal connections between the various means of transport, and the new control centre provides top working conditions. ebblo helped swa to move to the new control centre, which has been in operation since November 2023.

Stadtwerke Augsburg's new control centre is really impressive to visit, and the swa staff think it's great too. There is a pleasant working atmosphere in the new building, with generous dimensions, a clear structure, nice rooms and modern technical equipment.

Why a new control centre?

The premises of the old control centre had started to show their age and weren't big enough for all the staff. swa's urban public transport network has already been expanded several times in recent years, so that additional workstations are now needed for monitoring and controlling operations.

Up to now, three members of staff worked in the control centre during peak periods, but with the integration of the new station, there will now be four. The new control centre has one dedicated workstation specifically for monitoring the tunnel section of the underground tram stop at the central station.

Furthermore, both the premises and staffing arrangements also have to take account of new requirements in terms of building safety, barrier-free accessibility and passenger information.

This project was implemented with funding from the Free State of Bavaria.

Network expansion

swa's urban public transport network in Augsburg has grown considerably. In 2010, the new tram route 6 started operating, the new Königsplatz tram stop was integrated, and route 3 was extended beyond the city border to Königsbrunn. The new central station will be connected to the network in future. For passengers, these additional offerings and conditions mean faster, more convenient urban public transport. On the other hand, this also results in greater challenges for the control centre in terms of traffic monitoring and management in the interests of smooth, safe operations.

Stadtwerke Augsburg (swa)

swa conveys around 60 million passengers every year with 200 vehicles. The company serves around 700 stops with 6 tram routes and 20 bus routes on a network covering 200 kilometres in length.

Tunnel under the central station (Augsburg mobility hub)

In 2025, the underground tram stop below the central station should start operating. Here the swa has had to meet other safety requirements than before. When operating in city traffic, Augsburg's trams drive by sight. This is not the case around the central station, says Stefanie Rohde, Head of Operations and Traffic Engineering at swa. She explains: "In the tram tunnel and at the stop under the central station, we will be operating with train protection similar to underground trains."

Technical monitoring and control of tram operations is needed in the tunnel at all times. The tunnel is divided into individual block sections with only one tram allowed on each section at any one time.

Concept of the new control centre

The new three-storey building on Berliner Allee provides all swa employees with clearly improved working conditions that have been tailored specifically to meet their needs. In this way, swa also comes across as an attractive employer and modern mobility service provider, assuring mobility in Augsburg today and in the future.

Half of one storey is taken up with the technical systems, with the technology required for the building itself, as well as the systems for operations management. The ground floor includes among others new staff rooms for drivers, which again had become too small in the old building.

The new control centre now also has so-called training stations where staff can be familiarised with the complex technical systems and also offering the possibility of providing ongoing training. Furthermore, reserve capacity has been included with a view to the future. This allows for additional workstations to be installed in order to cope with further network expansions. These could be used for example to monitor and control additional mobility offerings, such as car sharing, ride sharing (swaxi) and also autonomous driving in future.

Cooperating with the police

In a crisis, short communication channels are worth their weight in gold. Already in the past, close and direct coordination with the police has proven its worth – when dealing with mass protest rallies, for example. The new control centre now has a dedicated workstation for the police to warrant optimum cooperation. When the need arises, the police infrastructure is also activated at this workstation.

ebblo as project partner

ebblo helped swa to move the control centre technology to the new building. One of the key project objectives was to establish geo-redundancy: to ensure continuous AVLC operation in the event of a system failure, the IT infrastructure was installed in two physically separate places. Another project objective was to comply with the requirements for critical infrastructure in terms of IT security and the access concept.

The relocation took place overnight. swa praised ebblo specifically for its role in moving the control centre to the new building and installing the geo-redundant control centre. Stefanie Rohde from swa puts it like this: “The ebblo staff involved in the project made a really good contribution to getting the job done. Implementing both parts of the project worked perfectly!”

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Head of Operations and Traffic Engineering at swa

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ebblo solutions used by swa

swa is using a modern ebblo operations control system (AVLC). The control system includes around 350 passenger information signs and modern vehicle equipment, as well as a hybrid radio system comprising analogue radio and the Public Land Mobile Network.

The functionalities

Operations control system LIO: data supply with LIO-Data, geographic information system (GIS), transfer protection also to third-party AVLC systems

Control centre: 8 dispatcher workstations and 1 data supply and/or statistics workstation, plus 3 dispatcher workstations in the emergency control centre, 3 remote control stations and 1 remote data supply and/or statistics workstation

Vehicles: around 200 vehicles (114 buses, 89 trams)

Vehicle equipment: modern ebblo on-board computers, GNSS-based location, traffic light preemption by radio and inductive message transfer

Radio system: hybrid radio system comprising analogue radio and the Public Land Mobile Network

Dynamic passenger information: 350 stop signs; link to the Bavarian information system DEFAS

Operation: 2 depots: Wi-Fi used for downloading software and data to the vehicles

Software solutions: Business Intelligence (BI), statistics program, incident management system

Software interfaces: data supply, planning programs, DEFAS, VDV, transfer protection, statistics program, ticketing

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