

Museumsinsel Berlin [Museum Island Berlin]

www.museumsinsel-berlin.de



“The choice of suitable vendors that can offer us all required functionalities is not very wide. Wonderware is one of these and at the same time a market leader in the sector”.

Erik Zimmer,
Administrator GLT/MSR
[instrumentation, control and
building control] Technology at the
‘*Staatlichen Museen zu Berlin*’
[National Museums of Berlin]

Project ‘Future’: Standardized Facility Management System for ‘Museumsinsel Berlin’

by Invensys Operations Management

Goals

- Standardization of control system;
- Central control of facility management systems of the entire ‘*Museumsinsel*’;
- Flexible system access for users outside of the building network.

Challenges

- Use of existing infrastructure;
- Low staff training expenditure.

Solutions and Products

- Wonderware InTouch HMI;
- Wonderware Historian;
- Wonderware Historian Client.

Results

- Standardized control and management of the building technology of all linked museums;
- Transmission of data in real-time.

Berlin, Germany – ‘Museumsinsel Berlin’, the National Museums of Berlin are part of the ‘Stiftung Preußischer Kulturbesitz’ [Prussian Cultural Heritage Foundation] and employ more than 750 people in 18 museums throughout Berlin, including all seven museums on the ‘Museumsinsel’ [Museum Island]. At the North end of the island in the middle of the River ‘Spree’ – located at the heart of the German Capital - is one of the most important museum complexes in the world.

Since 1999 ‘Museumsinsel Berlin’ has been listed as an UNESCO’S World Cultural Heritage due to its unique architecturally and culturally ensemble of buildings.

The reunification of Germany provided a historic one-off opportunity to reunite the separated collections of museums in East and West Berlin, to restore dilapidated buildings and to reopen those that had been closed for a long time. The ‘Museumsinsel Masterplan’ included the reconstruction of all museum-buildings on the island as well as the adaption of their Facility Management Systems according to the requirements of modern buildings using up-to-date process visualization solutions and central control and administration.

To achieve this, the ‘Museumsinsel of Berlin’ is using Wonderware Software with the components Wonderware InTouch HMI, Wonderware Historian und Wonderware Historian Client (formerly known as Wonderware ActiveFactory software).

Project Requirement: Open Facility Management System

Traditionally, every building had its own individual facility management system in place which was controlled using the DDC (Direct Digital Control) technology of the relevant manufacturer. Therefore, staff had to be trained for each automation solution and as a consequence could only be assigned to work in the museums with systems on which they had been trained on. Therefore a major requirement of the modernization process was to find and employ a standardized Facility Management solution for the entire ‘Museumsinsel’.

The goal was to centrally control the building services and to centrally store the data connected with this. “We wanted to provide all employees – incl. non-technical ones - with a standard operating interface” says Erik Zimmer, GLT/MSR

[instrumentation, control and building control] Technology Administrator at the ‘Staatlichen Museen, Berlin’. “In addition, we wanted to provide transparency for all functionalities in the Facility Management area. This means that even external users who are not based in the museum buildings such as laboratory technicians should be able to access the system and call up data.”

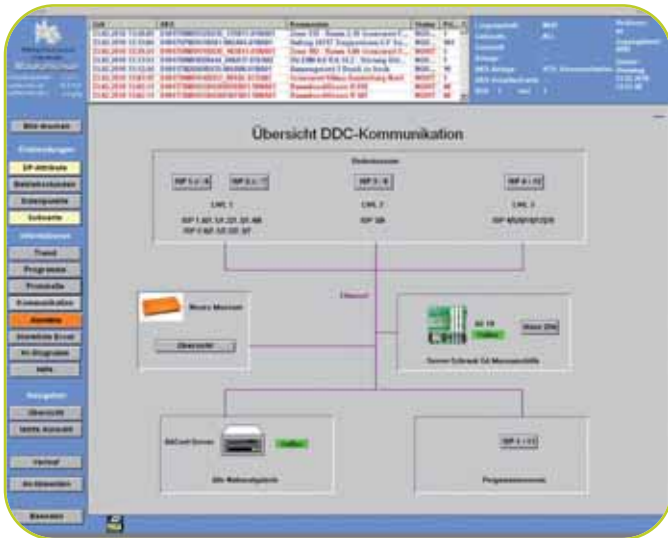
The company ‘c.a.e.s.a.r. ingenieure Planungsgesellschaft mbH’ took over the invitation to tender as well as construction management and the company ‘Sauter-Cumulus GmbH’ acted as contractor. Ordering customer was the ‘Bundesamt für Bauwesen und Raumordnung’ (BBR) [Federal Office for Business and Regional Planning]. c.a.e.s.a.r. ingenieure Berlin prepared a concept study on the development of the building automation and facility management of the ‘Museumsinsel’ and came to an agreement with the IT-Service of the ‘Museumsinsel’ regarding the use of the existing network.

One of the requirements of the project was to use the existing infrastructure for the planned building automation system in order to prevent the need for a completely new infrastructure including having to lay glas fiber optic cables. Subsequently, the location of servers and gateways was defined and the necessary hardware installed.

In addition, the ‘Anlagenkennzeichnungsschlüssel’ [system identification key] (AKS) had to be prepared and implemented for all data points plus equipment visualization had to be sketched, approved and installed.



InTouch HMI screenshots.



InTouch HMI screenshot.

Selection & Implementation

c.a.e.s.a.r. ingenieure Berlin prepared a document listing all functional specifications and began looking for a suitable vendor of the right Facility Management software. One of the main requirements of the 'Museumsinsel' was the full operability of the automation technology including the adaptation of schedules, the amendment and notification of target and limit values, the resetting of meters and operating hour values as well as the transfer of trends and historical data based on BACnet Standards.

In addition, it was important that there was no time lag in the operation of the system even when the system was running at maximum utilization capacity. So-called alarm showers should not restrict the execution of orders and be below a time frame of five seconds.

The new solution was supposed to be able to recreate system functions of the automation level using a programming interface. This includes, for example, central scheduling programs or operating hour calculations.

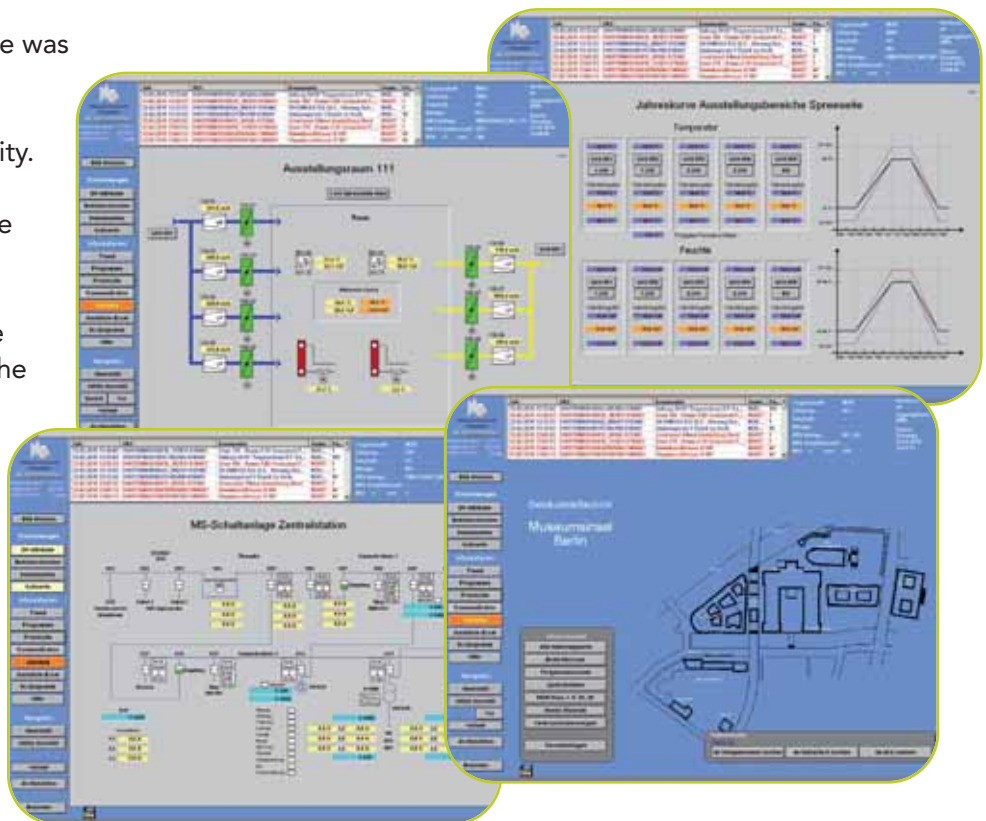
In order to find a suitable vendor, the engineering office looked at the advantages and disadvantages of different suppliers of neutral control systems and issued the invitation to tender. Finally it was decided to go with a Wonderware software solution including the Visualization Software InTouch HMI.

"The choice of suitable vendors that could offer all the functionalities required is not particularly wide", explains Herr Zimmer. "Wonderware is not just one of these few but at the same time the market leader in the sector. Wonderware Software is already used by a large number of Ministries and in Federal Buildings such as the 'Bundesanstalt für Immobilienaufgaben' [Institute for Federal Real Estate]. Therefore we were able to leverage these experiences and decided to use Wonderware for this project too."

In the course of the implementation, two existing systems were integrated. The 'Alte Nationalgalerie' [Old National Gallery] retained its building management systems and was connected via a gateway, as the operation was outsourced. In total, three gateway computers, one server with Wonderware Historian and six workstations are in place and the system has approximately 20 users. Additionally, the Control solution Saja DDC, JeanMüller Elektro-Zählungen and a Helvar Lighting Control are used.

Results

As required, the Wonderware solution is so user-friendly that it can also be used by non-technical staff. Solution-independent graphics and intelligent



InTouch HMI screenshots.

symbols represent the system on the computer screen realistically.

Decentralized real-time alarm functions incl. progress bars for analysis purposes and integrated historical / real-time trends ensure that the right information gets to the right person at the right time. In addition, it can be integrated with all kinds of equipment and systems.

Currently there are two additional projects in progress: the competence center 'Museumshöfe', as well as the new main entrance building of the 'Museumsinsel'. Here a switch to the Wonderware System Platform is scheduled to take place, including the implementation of the data already at hand. This should be sufficient groundwork in view of the anticipated completion of the entire 'Museumsinsel'.

The National Museums are most likely going to be responsible for the technology inside the 'Stadtschloss Berlin' (Humboldtforum) [Berlin City Palace] in immediate proximity of the 'Museumsinsel'. There one will trust Wonderware Software again.



Wonderware InTouch HMI is currently used as standard software in federal buildings and simplifies the work of users considerably: changes to workstations necessary during the relocation of the technical department in 2006 were easily management and could be arranged in a fully flexible manner. In 2007, a new building with more than 1,000 data points was integrated into the building management systems - no new hardware or software had to be purchased or implemented.

Furthermore, additional training was not necessary.

Due to the connection with the network of the University of Berlin (Brain), the system is widely accessible - not just onsite. Moreover, future-projects

are easier to plan for. The cost of upcoming projects i.e. the Facility Management Workstations will be easily estimated and the adjustment of the Facility Management Applications can be put out to tender completely vendor-neutral ensuring free competition.

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