SAP Technical Business Transformation Study | Healthcare | Heidelberg University Hospital | PUBLIC

Heidelberg University Hospital: Achieving Comprehensive System Upgrades with Minimal Downtime

HEIDELBERG UNIVERSITY HOSPITAL

Heidelberg University Hospital needed to update two SAP® ERP applications and convert them to Unicode. The estimated 54 hours of system downtime required to complete the project was unacceptable for the hospital. With the minimized downtime service from the SAP Digital Business Services organization, **downtime was reduced to 10 hours** and the changeover risks were minimized.

Completing a Fast and Safe System Upgrade with SAP Digital Business Services

Heidelberg University Hospital
Heidelberg, Germany
www.heidelberg-university-hospital.com

Industry
Healthcare

Products and Services
Healthcare, research, and teaching

Employees
>10,000

Revenue
€847 million (2016)

SAP® Service
Minimized downtime service

Before: Challenges and Opportunities
- Upgrade of two separate installations of the SAP® ERP application – covering three systems each – and subsequent conversion to Unicode
- Original estimated downtime of 54 hours, which would have negatively impacted day-to-day hospital operations and required time-consuming documentation of clinical activities completed while systems were down

Why SAP
- Longtime user of SAP software and ongoing partnership with the SAP Digital Business Services organization
- Minimized downtime service – a proven solution for the precise problem at hand, which had already been used successfully in a previous hospital project

After: Value-Driven Results
- Comprehensive upgrade project completed successfully in just six months
- System changeover completed on a Saturday without problems – requiring just 10 hours of downtime
- Strategy requirements for deploying the SAP HANA® platform established

"The consultants from SAP advised us well and were constantly on hand to give us guidance and assistance. This collaboration helped us achieve thoroughly positive results."

Günter Grüber, Department Manager for Administrative Applications, Center for Information Technology and Medical Engineering, Heidelberg University Hospital

Executive overview

Company objectives

Resolution
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Upgrade and Unicode conversion for greater flexibility

Heidelberg University Hospital has relied on SAP® software since the 1980s. In addition to many other SAP applications, the hospital operates two instances of the SAP ERP application – one for its administrative business processes and the other for clinical applications. It also uses other SAP for Healthcare solutions, as well as the Cerner i.s.h.med solution from SAP.

In the middle of 2016, the hospital's IT management team decided to update both SAP ERP applications. One aim was to install the latest SAP enhancement package for SAP ERP in order to establish the prerequisites for enabling planned new functionality. However, the top priority of the project was a Unicode conversion. "With Unicode systems, we have considerably more flexibility for making decisions about our system landscape," explains Günter Grüber, the department manager responsible for administrative applications at the hospital's Center for Information Technology and Medical Engineering. Another advantage was that Unicode is also a requirement for deploying the SAP HANA® platform.

The team responsible for the project reckoned that combining the two updates into a single project would allow them to make the most of the unavoidable downtime – which was bound to be long. After all, the Unicode conversion would entail reading, converting, and reimporting 4.2 terabytes of data from the combined databases – a very time-consuming process. The SAP ERP upgrade also takes a great deal of time. The final estimated downtime for the cutover was 54 hours – a number that was simply unacceptable for the hospital.

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4.2 **terabytes**
Of data to be converted

10 **hours**
Of downtime, compared to an original estimate of 54 hours

The answer to minimized system downtime

For Grüber and his colleagues, one thing was certain: system downtime had to be as brief as possible to avoid impairing day-to-day hospital operations. The solution: the minimized downtime service from the SAP Digital Business Services organization. "We had already successfully used the minimized downtime service for an operating system and database migration," says Grüber, "so, we knew the benefits, the considerations, and how to proceed."

The minimized downtime service includes near-zero downtime support, which was already used by Heidelberg University Hospital. All maintenance work, such as upgrades and Unicode conversion, are performed on a copy of the production system (clone system) while users continue to work in the production system. As a result, the 54-hour downtime would only affect the clone system without impacting actual hospital operations.

During the process, changes to the production system are recorded then transferred to the clone system once maintenance has been completed. This is done almost entirely in parallel with live operation. Only a very small part of the data being recorded (roughly 0.1%) must be done so in the production system during downtime. In a final step, the clone system is launched as the new production system.

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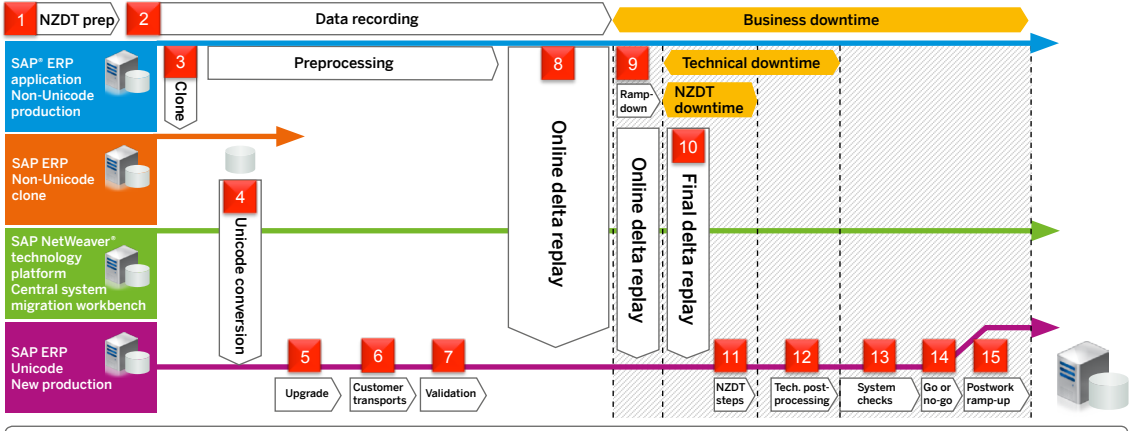
Overview of the process using the minimized downtime service

The Heidelberg University Hospital project called for the upgrade and Unicode conversion of two SAP ERP applications – each comprised of three systems (production, development, and test and training). Downtime was minimized because the necessary maintenance work was performed on a clone system.



1. Near-zero downtime (NZDT) preparation
2. Start of recording (create database triggers)
3. System cloning and isolation (clone)
4. Migration
5. Upgrade
6. Import of customer transports
7. Optional validation (snapshot)
8. Online delta replay
9. Ramp-down
10. Final delta replay
11. NZDT technical steps
12. Technical postprocessing
13. System checks and validation
14. Go or no-go decision
15. Postwork and ramp-up

Figure: Conversion Process Example Resulting in Near-Zero Downtime for the SAP ERP Application

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Less than half a day of downtime and minimized risks

Despite its scope, the overall project was done very quickly. Work on the systems – including tests and optimization of nonproduction systems as well as two full-scale test runs in production – took place over just six months.

"The project went very well, with no issues," reports a satisfied Grüber. "The system was shut down at 2 p.m. on Saturday, and was back up at midnight – right on schedule." It took just 10 hours for the upgrade, conversion, database update, and import of customer-specific changes (customer transports).

Another benefit of the minimized downtime service is that additional maintenance events do not increase downtime. Plus, carrying out almost all the work in the clone system minimizes the risk of unforeseen problems.

During the downtime, users had read access to an emergency system. Treatment procedures and other activities were manually documented – an impossibility with a downtime of more than two days.

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4,600
Concurrent users

700 million
Data records recorded

8 hours
Runtime for replication

New functionality and SAP HANA

With its updated systems, Heidelberg University Hospital has laid the groundwork for targeted expansion of its IT landscape – including a move to SAP S/4HANA® and the SAP Fiori® user experience. In particular, the prerequisites for SAP HANA have now been established. "In the midterm, we will change over to SAP S/4HANA," says Grüber. "But a lot of our other plans are now possible. For example, we can start using the "temperature curve" functionality in the clinical system and new user interfaces with SAP Fiori."

The close collaboration with SAP Digital Business Services will also continue. "Consulting from SAP has always been very good for us," states Grüber. "Most recently, for example, we have worked on projects for process orchestration and for creating a common, cross-sectorial electronic patient record – a comprehensive networking project we are heading in the Rhine-Neckar metropolitan region. We will certainly continue taking advantage of SAP services going forward."

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