



SAP
Innovation
Awards 2019



SAP Innovation Awards 2019 Entry Pitch Deck

Auto MoSeS / Smart Manufacturing

Wacker Neuson SE

THE BEST RUN





“Quote”

Wacker Neuson searched a long time for an adequate software solution for scheduling and sequencing production orders.

Together with consultants from CBS, Wacker Neuson could create modern frontend highly integrated in SAP ECC.

Bjoern Rettig
Manager BSC

Challenge

Wacker Neuson SE faces the challenge to schedule and sequence production orders for mixed models of the lot size of one. This solution of this challenge is crucial for Wacker Neuson SE path towards smart manufacturing and the smart enterprise.

Solution

Extend the digital core of Wacker Neuson with human centric app for production planning. Model mix planning, sequencing and scheduling should be supported by data science algorithms for automatic planning features. The solution should be fully integrated into the digital to core, to enable realtime data.

Outcome

The outcome is a SAPUI5 App which human-centric design. It supports the production planners in all tasks of scheduling and sequencing of production orders for the lot size of one. It's fully integrated into the digital core and thus enables realtime production processes. Automated scheduling and sequencing is enabled by advanced data science algorithms.

Three times faster weekly
production planning

232 User on three continents

5 plants worldwide



Partner Information

cbs Corporate Business Solutions GmbH **Consulting & Implementation Partner**



Wacker Neuson SE has a clear and consistent strategy towards its strategic goal of the smart enterprise. As a long-term partner cbs is especially proud of accompanying Wacker Neuson on its journey as a consulting and implementation partner. Wacker Neuson and cbs joint effort made this project a huge success, especially with respect to the ambitious project plan. Our close co-operation with Wacker Neuson IT and business was and is always very trustworthy and inspiring, which lead to further – already productive - projects in the area of smart manufacturing.”



Business Challenge & Objectives

Wacker Neuson SE is a global organization that develops, produces and distributes concrete technology, compaction equipment, worksite technology and compact construction equipment, also offering a range of complementary services.

Wacker Neuson SE is on its path towards the smart enterprise. This path consists of the following steps: 1. Standardisation; 2. Digitalization; 3. Smart Manufacturing; 4. Smart Enterprise. This project focuses on smart manufacturing, and especially on the aspect of production planning.

The business challenge is to enable a transparent scheduling and sequencing of production orders for the lot size of one. The solution should be human centric, enable real-time business with the digital core, and provide a maximum support and productivity boost for the daily work of the production planner.

The project faced an ambitious timeline: The timespan from kickoff to go-live of the first version of the solution was only about six weeks. To fulfil the ambitious goals and ensure an optimal outcome the project was conducted in an agile and lean style. Tight collaboration between business, IT and consulting & implementation partner cbs as well as short communication paths and fast reaction and decision time were the key for success of the project.

As solution approach a SAPUI5 App with human centric design was chosen. The SAPUI5 app has a tight real-time integration into Wacker Neusons ERP on HANA system. To gain maximum efficiency during the project the iteration cycles were short, with parallel development and testing cycles on SAP Cloud Platform and SAP Gateway on-Premise. This was achieved by a deployment agnostic architecture approach of the solution.

After Go-Live of the first version real world feedback from business was collected and included in the next versions. Iteration cycles for productive versions were short, about 3 weeks. This enabled a quick completion of all business requirements, a maximum productivity boost for business, and an overall short project time. The current version of the solution includes an automated sequencing and scheduling of production orders leveraging modern data science algorithms.



Project / Use Case Details

Wacker Neuson SE leverages a SAP ERP on HANA system as digital core. The solution extends the digital core with a SAPUI5 App, which offers the following highlights:

- Overview of unplanned production orders, display material details, display complete customizable configuration of models, quick display of production details
- Display advanced information of production orders and additional production notes
- Collective & realtime ATP check, information about missing parts
- Reread master data of production orders
- Interactive planning via drag & drop (replace or relocate, move dependent orders)
- Auto MoSeS - Automatic model mix scheduling and sequencing leveraging modern data science algorithms
- Worldwide rollouts incl time zone support and customizable shift models per plant. (Asia, Europe, Americas)
- Additional functions like print order or excel export
- Human centric and responsive design (e.g. support of 4k monitors)
- User interface configuration trough customizing (e.g. clockrates, poduction order types, display texts, shift model, etc.)
- Integration jump SAP standard Fiori app for production order confirmation
- Deep real-time integration into SAP ERP on HANA



Benefits and Outcomes

Business / Social

Faster and more convenient scheduling and sequencing of production orders

Enhanced transparency for production orders

Replacement of manual and error-prone planning processes

Integrated solution – no more data silos

IT

Creating a digital twin in the digital core of Wacker Neuson SE.

Realtime production data in the digital core.

Fully integrated in SAP – no other tools/platforms necessary any more.

Search for a new software, that doesn't fulfill Wacker Neuson requirements, is now finished

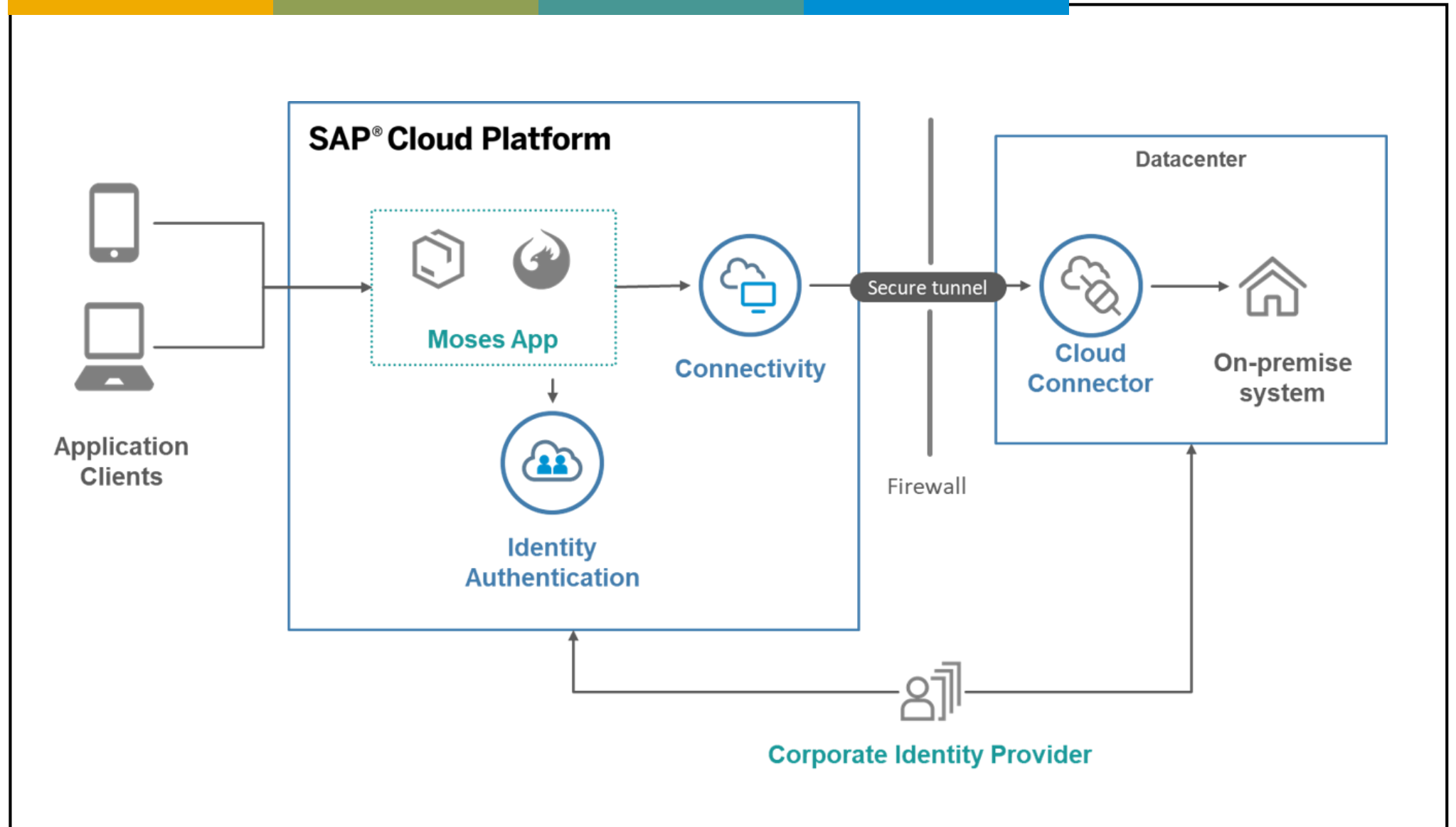
Human Empowerment

Human centric design for production planners leads to better usability.

Production planners are delighted to work with this solution; as a result user satisfaction as well as work quality is boosted.



Architecture





Deployment

Date of Deployment or POC: Go-Live August 2018

Number of live users: Hundreds of users in 5 plants on three continents

SAP Technologies Used:

SAP ECC on HANA

Productive

SAPUI5 App

Productive

Data Science Algorithms

Proof of Concept

Server Processor: n.a.

Linux Distribution: n.a.



Emerging Technologies and Use Cases

The following Emerging Technologies and use-cases are part of the project and describe the contribution

	Technology or Use Case	Yes/No	Contribution to Project
1.	Machine Learning / Artificial Intelligence	Yes	Automated scheduling and sequencing of production orders
2.	IoT	No	
3.	3D printing	No	
4.	Blockchain	No	
5.	API Economy / Integrate the Intelligent Enterprise	No	
6.	Cloud Native / Event Based Architectures	No	
7.	Extending the digital core with SAP CP / ABAP in SAP CP	Yes	App is deployment agnostic (runs on on-Premise Gateway and on SAP Cloud Platform)
8.	SAP Leonardo Application (extending SAP application, using Industry Innovation Kits or result of Design Thinking workshop)	No	