

End-to-End Digital Transformation



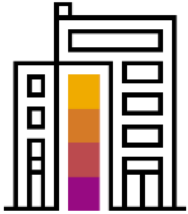
with SAP to Optimize Sustainable Paper Production



April 27, 2021

PUBLIC



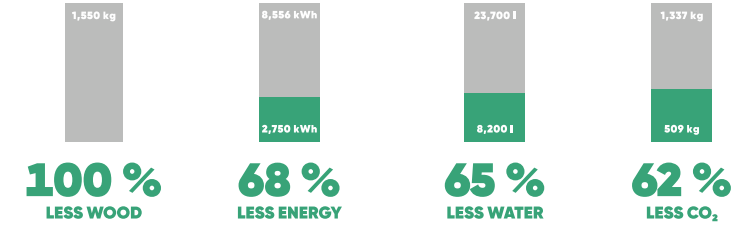


Steinbeis Papier - Company Information

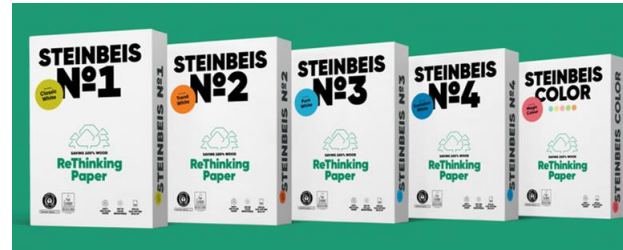
Headquarters Glückstadt, Germany

Industry Mill products

Web site www.stp.de



Office, Magazine and Digital printing paper
Sustainably sourced and manufactured

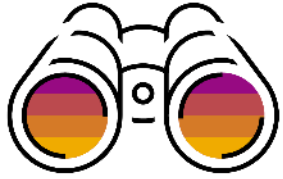


Operating countries: Germany

Yield: > 300.000 metric tons

Annual turnover : about 180m EUR

Employees: about 300



Vision

- **Benefits through an optimized value chain**
 - Increase Overall Equipment Effectiveness (OEE)
 - Reduce spare parts stock
 - Improve processes
- **Further improve sustainability of STP products**
 - Less raw material & energy consumption
 - Support energy management re-certification 50001:2018
- **Foundation for digitalization transformation**
 - Technology platform, skills, culture
 - Actionable insights across all processes and org units
 - Agility to implement innovations quickly and efficiently
- **Procurement digitalization**
- **Enable new business and cooperation models**

SAP HANA and SAP Analytics Cloud as Key Innovation Drivers



TIME TO VALUE

Fast innovation delivery
Business self-service
Automation



OPEN PLATFORM

Flexibility & modularity
Leverage existing skills
& latest innovation



PERFORMANCE & SCALABILITY

Big data
Real-time analytics
Automation



COMPLEXITY

Many data sources & types
-> Data virtualization
Multi-modality
Semantic integration



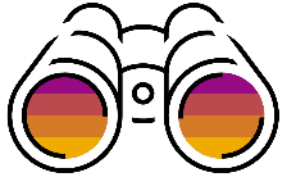
AI & ML

Algorithms and
virtual assistants
to support
decision making



COST EFFICIENCY

Modular architecture
Extreme compression
Automation



Use Cases

1) Production anomaly detection

generating several actionable alerts daily, **saving several thousands of euros** for each hour of additional production time and multiple hours of downtime for each avoided break in service

2) Anomaly detection during production relaunch

achieving near-real-time monitoring of **thousands of production parameters under complex conditions** to expedite production relaunch

3) Consumption KPI monitoring

reducing raw material consumption and paving the way for savings of tens of thousands of euros

4) Automated quality monitoring and alerting

empowering operators with real-time data and **cutting reaction times** from days to hours

5) Energy monitoring application

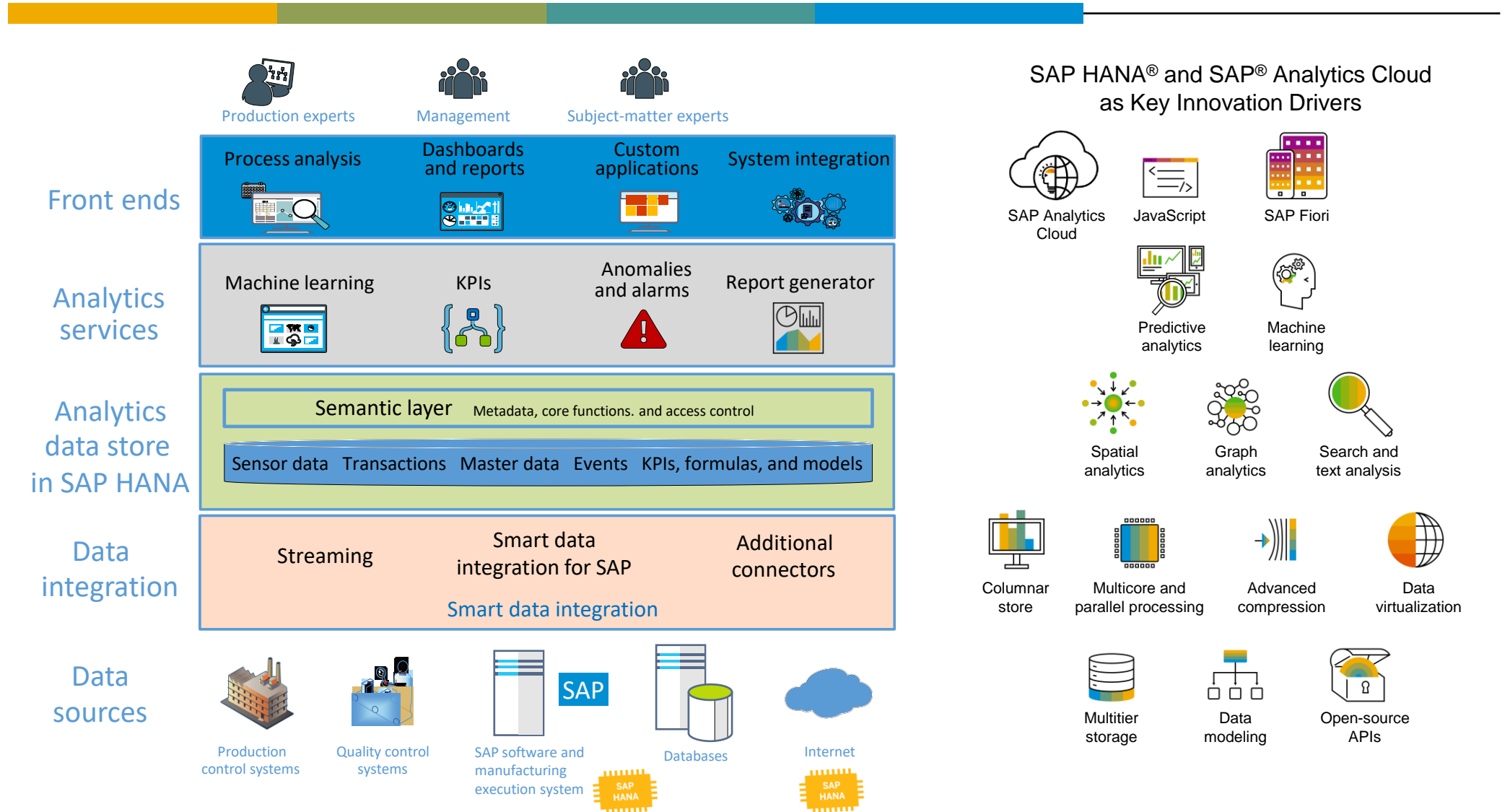
providing source data validation and machine-learning-enabled consumption analytics for significant savings in reducing a multimillion-euro energy spend and helping to ensure timely **recertification to ISO 50 001:2018**

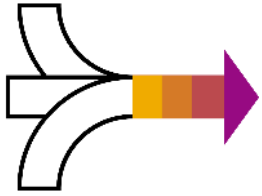
6) Digitalization of procurement processes

using **AI-enabled digital assistants** to help ensure high data quality, a powerful spend analysis application, and an integrated request-for-quote process

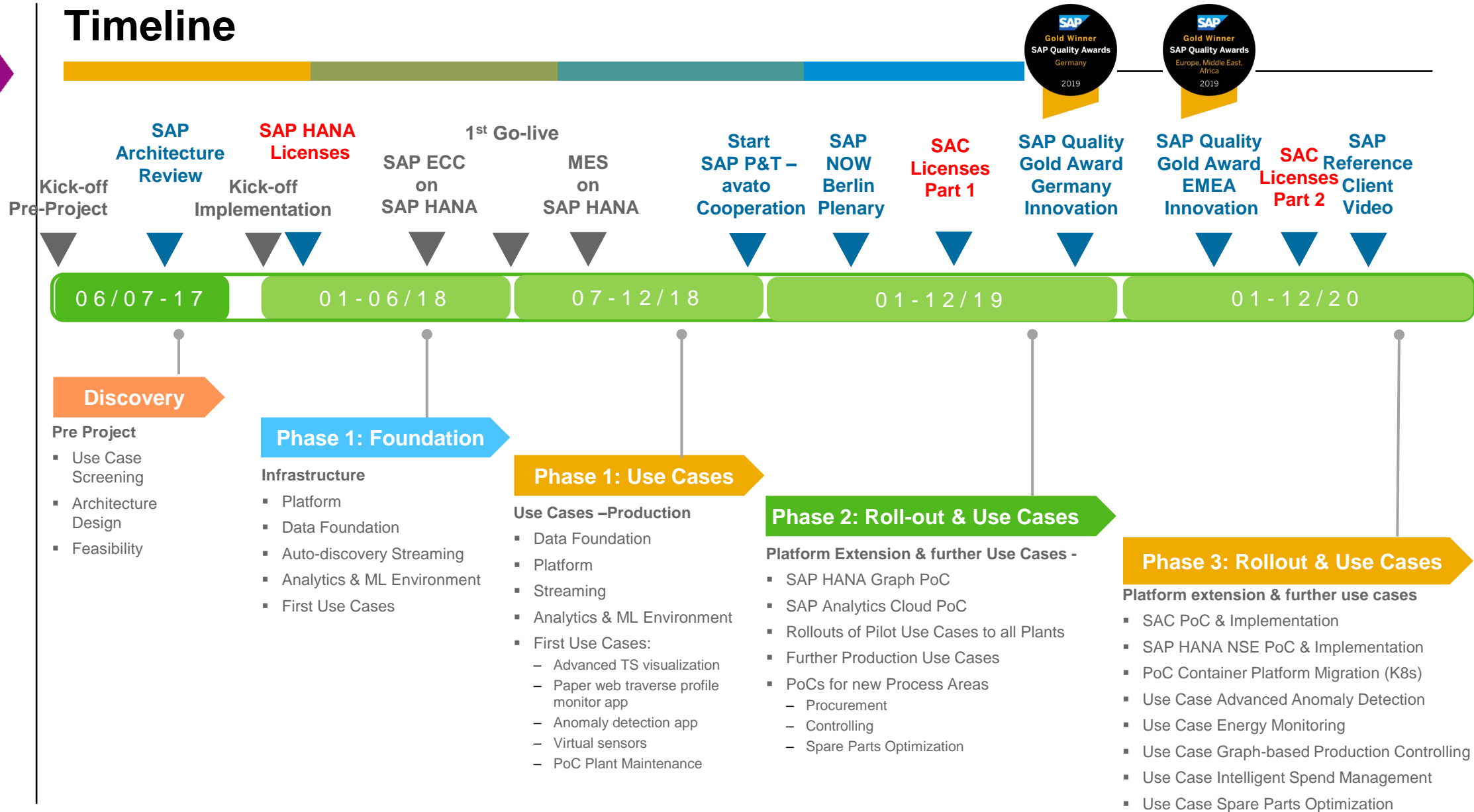


Architecture





Timeline





Benefits and Outcomes

Business or Social

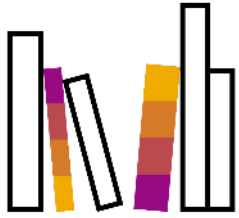
- Multiple tangible project results
- Data and tools to innovate much more quickly at a much lower cost
- Factual assessments of new opportunities
- Scalability and flexible deployment options to expand cost savings to other arenas
- Shared risks and rewards of our digital transformation with partner avato

IT

- Single source of truth by converging information technology and operations technology environments
- Minimal work-load through no-touch onboarding of sensors and automated, contextual data integration
- Smart integration solutions empower even our legacy SAP systems with new intelligent enterprise capabilities

Human Empowerment

- Project was designed to empower personnel instead of replacing them
- Real-time dashboards, AI-enabled digital assistants, self-service modern business intelligence give personnel visibility into status and help them take action
- Quicker insights, demonstrated reliability, and reproducible results boost acceptance of the new system
- New skills by adopting latest technologies and data science expertise from partner avato

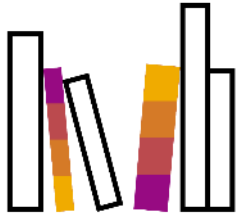


Additional Information

This new launchpad serves as a central entry point to the new applications

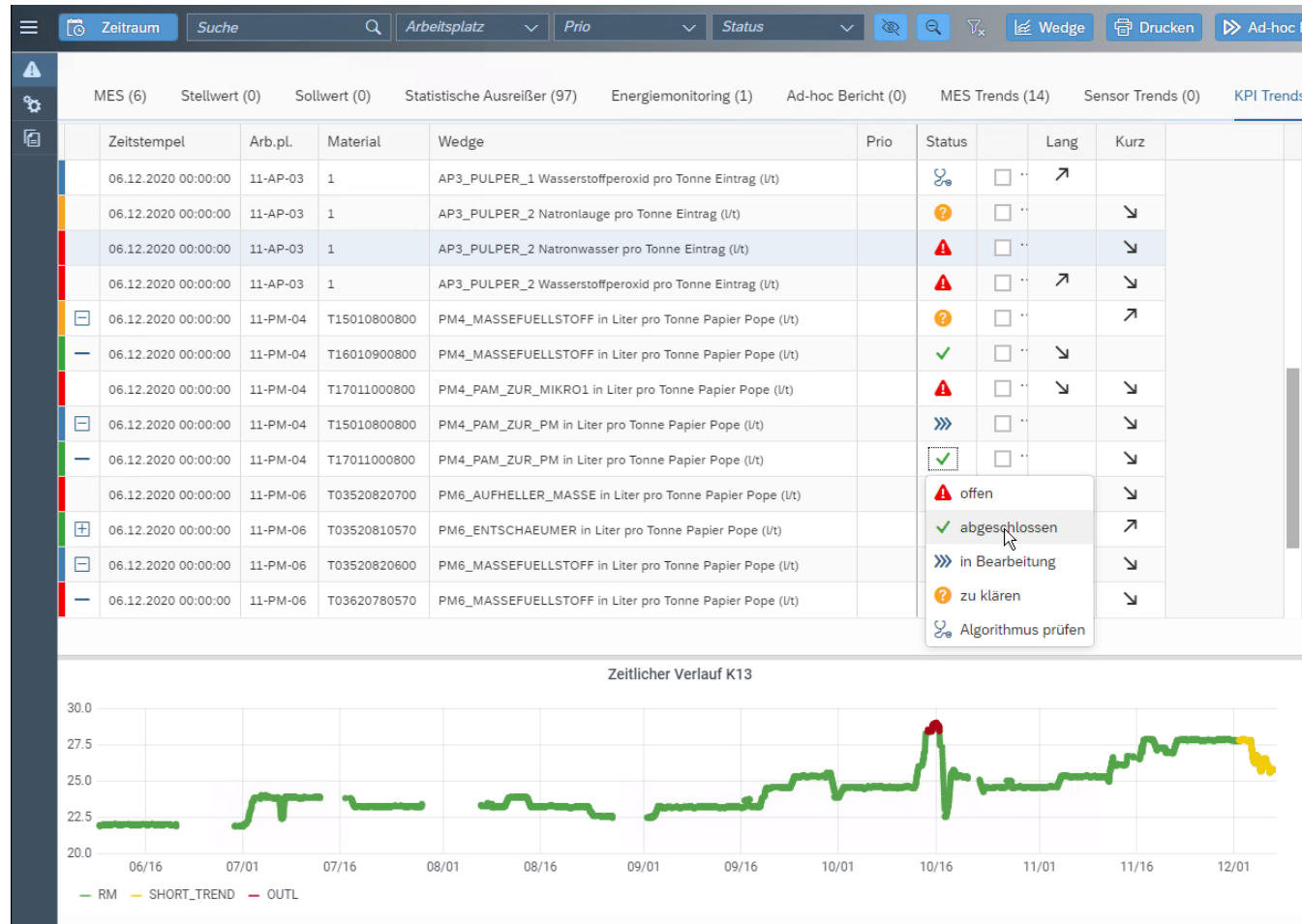
The screenshot displays the avato launchpad interface, organized into six main sections:

- Papiermaschinen**: Includes tiles for 'Statistische Ausreißer PM4', 'KPI Trends PM4', 'Statistische Ausreißer PM6', and 'KPI Trends PM6'. Each tile features an 'Alarme, Events' icon (warning triangle) and a 'Trends' icon (arrow).
- Einkauf & Logistik**: Includes tiles for 'Spendanalyse', 'Transportoptimierung', and 'Bestandsoptimierung'. Each tile features a specific icon representing its function.
- Altpapieraufbereitung**: Includes tiles for 'Statistische Ausreißer AP', 'KPI Trends AP', 'Sollwert AP', and 'Stellwert AP'. Each tile features an 'Alarme, Events' icon (warning triangle) and a 'Trends' icon (arrow).
- Finance & Controlling**: Includes tiles for 'Energiamonitoring' and 'Produktionscontrolling'. Each tile features a specific icon representing its function.
- Qualitätsmanagement**: Includes tiles for 'Querprofile', 'MES Ausreißer PM4', 'MES Trends PM4', and 'MES Ausreißer PM6'. Each tile features an 'Alarme, Events' icon (warning triangle) and a 'Trends' icon (arrow).
- Produktion & Technik**: Includes tiles for 'Abrissanalyse' and 'Eventstatistik'. Each tile features a specific icon representing its function.



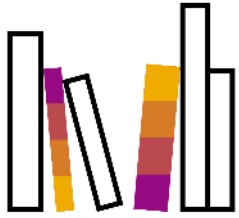
Additional Information

Detailed view of the **anomaly monitor**



Key features:

- Alerts from 25k+ sensors and many process & quality KPIs
- Automatically condensed, manageable number of alerts
- Presentation of all relevant information on a single screen
- Functionality for feedback and collaboration
- Historical data on anomalies
- Comfortable integration with advanced analytics tools and dashboards
- Use of multiple tailored anomaly algorithms



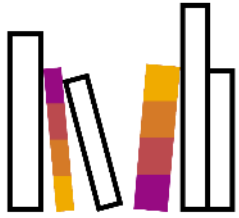
Additional Information

Energy monitor (SAP Analytics Cloud)



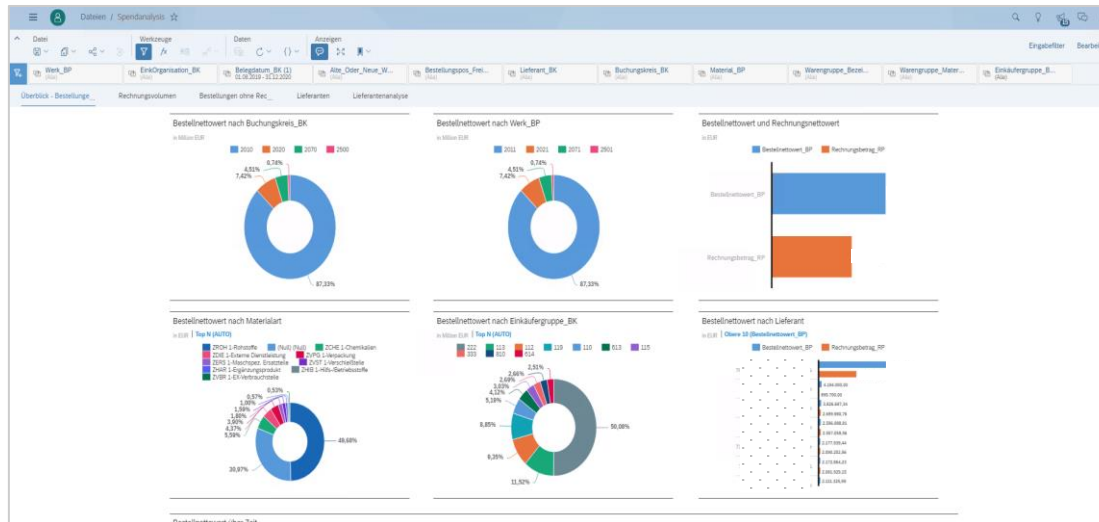
Key features:

- Analysis, monitoring, and optimization of energy consumption across plants
- Automated validation of raw data, including outliers, breaks, and unusual patterns
- Automated calculation of consumption, including comparison of actual with planned – AI enabled
- Flexible, interactive, real-time dashboarding using SAP Analytics Cloud
- Important tool for achieving recertification as an ISO 50 001:2018 energy management system



Additional Information

Spend analysis (SAP Analytics Cloud)



Key features:

- Flexible, interactive, real-time dashboarding solution to analyze spend
- Comfortable and powerful filtering and navigation capabilities for fast insights to drive concrete procurement decisions
- High data quality at the source due to revised material group taxonomy and AI-enabled digital assistants that help categorize spend to the correct material group
- Coverage for top-level summaries to low-level details
- Direct and efficient integration from spend analysis to the request-for-quote process
- High level of user & power-user self-service while ensuring proper data governance
- Superior cost-efficiency

SAP HANA® Helps Power the Circular Economy in Paper Recycling



Our aim was to turn factory sensor information into insight in seconds – to transform data into knowledge and use that knowledge to reap strategic and operational benefits. SAP HANA forms the backbone of the solution that lets us do that. Based on our typical queries, avato designed applications to capture the relevant data from SAP HANA and render it through SAP Analytics Cloud into actionable information.

Dr. Michael Hunold,
Head of New Processes,
Steinbeis Papier GmbH

Challenge

To gain the speed and efficiency necessary for survival, we needed to integrate data from 25,000 sensors in the factory and our commercial systems into one database, performing advanced analytics and displaying results to evaluate KPIs and anomalies in real time and intervene to address production and business process issues.

Solution

Binary and analog data streams now flow every second between sensors and the database in SAP HANA®, and the avato Smart Data Framework uses advanced analytics, AI, and the SAP® Analytics Cloud solution to analyze the data in real time for automated production monitoring, value chain optimization, and insight for innovation.

Outcome

We have laid the foundation for our digital transformation by building the infrastructure and skills to support the shift, establishing new models for cooperation across the extended enterprise, streamlining procurement processes and supply chain functions, and increasing efficiencies in production and plant maintenance.



25,000

Sensors feeding into SAP HANA

50,000

Metrics transmitted per second

50x

Data compression rate with SAP HANA feeding the analytics

Q&A



Thank you.

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