

# ABB Ability™ Plant Performance Optimization

## Digitalization of manufacturing processes



ABB Ability™ Plant Performance Optimization is the application which - combined with ABB Manufacturing Executing Systems - changes your manufacturing process into a more efficient and sustainable one. Offering a better visibility over your facilities, it aims at maximizing your returns on investment by enhancing process flexibility and availability, as well as cutting costs, schedule and risks in both existing and future facilities.

**ABB Ability™ Plant Performance Optimization (PPO) is a wide digital solution combining automation, cloud-based analytics and technologies for an end-to-end process optimization.**

With a single web application, it provides access to relevant data, metrics and KPIs issued from one or from different production sites. It enables to visualize real-time data, i.e. balance sheets of actual activities or to find archived data from previous years.

This application integrates:

- web based interfaces: Microsoft Edge, Internet Explorer, Google Chrome, Firefox or Safari
- multi-site capabilities
- secured access and management of user profiles

It includes the following digital tools:

- Process improvement
- Quality improvement
- Dashboards
- Cost reducing
- Reporting
- Maintenance

- Flight panels
- Statistics
- Access management

### **Benefits of ABB Ability™ PPO**

- Improve operational performance and reduce the production cost (OPEX)
  - Control the production efficiency and productivity through enhanced uptime
  - Improve speed and yield
  - Build a more reliable production process by identifying dysfunctioning
  - Build a more sustainable process by reducing consumption of resources
  - Help in taking decisions, for instance modifications in production units in order to improve production, quality, performances and efficiency
- and more generally:
- Simplify and automatize company processes
  - Integrate functions across the enterprise
  - Change customer interaction
  - Motivate personnel and attract talent into the industry
  - Innovate with Others
  - Adapt to new business models
  - Find a long-term vision

## Explore your industry!

Increased transparency for more efficient and sustainable manufacturing processes

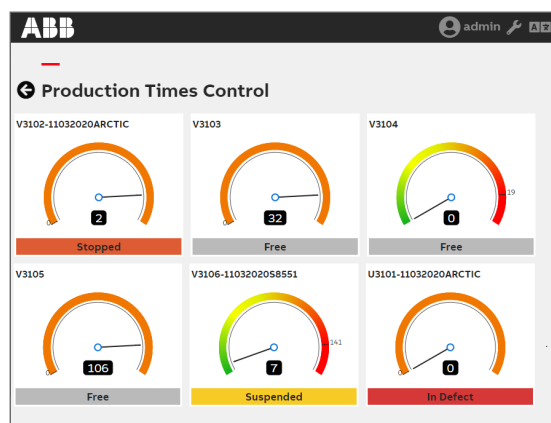
**ABB Ability™ Plant Performance Optimization builds a digital eco-system by connecting every piece of equipment and device, and by allowing quick access and analysis of all production data in the form of dashboards so as to help you maximise the potential of your assets.**

Instant access to a wealth of data

### Real-time monitoring

ABB Ability™ Plant Performance Optimization provides for an optimized plant visibility, giving you access to dashboards for real-time monitoring of the production and identification of gaps and delays:

- follow-up of operations in progress,
- comparison between estimated and real times to measure delays
- generation of alerts so as to speed up waiting operations



Dashboard showing the status of the production lines

### Historics and analytics

ABB Ability™ Plant Performance Optimization gives access to the plant archived data using dashboards in order to analyse production performance indicators such as Overall Equipment Effectiveness (OEE), Mean Time Between Failures (MTBF), Failure In Time (FIT), etc. and identify points of possible improvement. It analyses all data recorded by ABB Manufacturing Executing System: production results, events, consumptions: electricity, steam, air, etc.

### Access to ABB MES Master Data

ABB Manufacturing Executing System is the central system managing the whole production by integrating all pieces of equipment and optimizing their use to reach maximal production capacities. ABB MES generates reports upon completion of operations. Historics are archived in a long-term relational database from which statistical analysis are possible for process optimization or queries.

ABB Ability™ Plant Performance Optimization allows an access to the main production data managed by ABB Manufacturing Executing System and the recorded historical information:

- products, recipes, formulas,
- production, filling, transfer orders,
- laboratory results,
- quantities, levels, etc.

### End-to-end process optimization

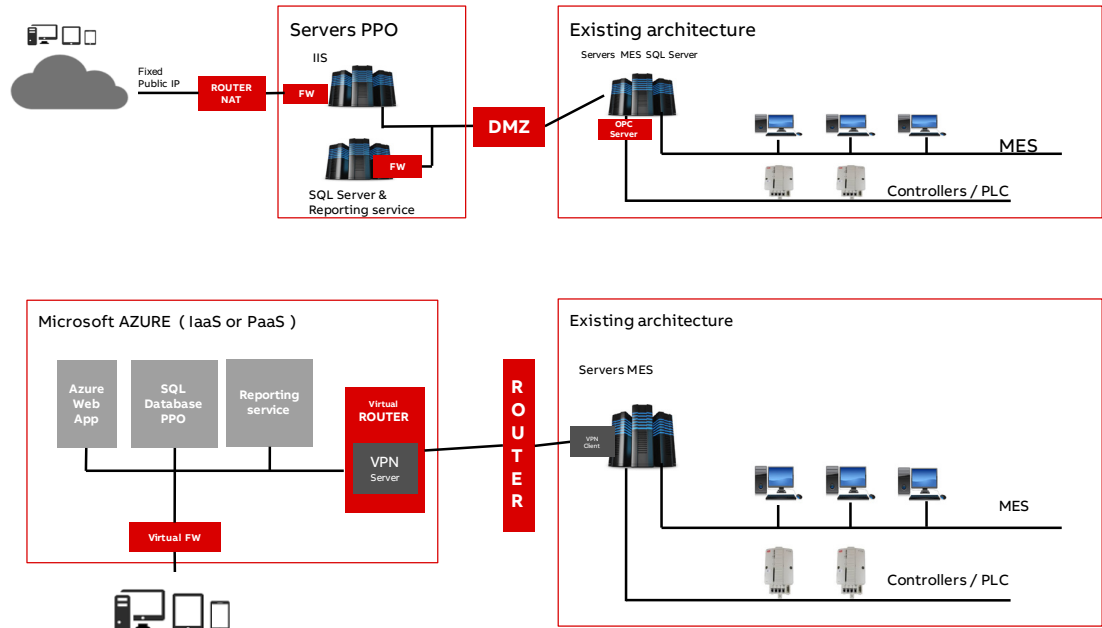
For an end-to-end process optimization, Key Performance Indicators (KPIs) must be first identified and collected from different plants and processes, and then combined with business information from ERP systems. A cross-functional team of experts from those plants and operating companies works with a team of data analysts to identify process bottlenecks and prioritize improvement points. Then management decides which points should be fixed using ROI, company policies, risk and regulatory considerations as their guides.

This is not a one-time event. It is done continuously in order to generate an on-going, real-time list of bottlenecks so that processes can be optimized over time. This process also highlights areas where more or better data is needed.

### Overall Equipment Effectiveness

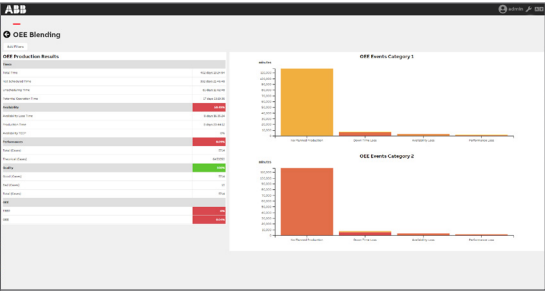
ABB Ability™ Plant Performance Optimization uses OEE (Overall Equipment Effectiveness) as standard for measuring manufacturing productivity. Based on KPIs and underlying factors such as Availability, Performance and

ABB Ability™  
Plant Performance  
Optimization: examples  
of system architecture



Quality, the following top-level performance metrics can be defined:

- Overall equipment effectiveness (OEE) identifying the percentage of Planned Production Time that is truly productive,
- Overall operations effectiveness (OOE) taking unscheduled time into account, looking at Total Operations Time (TOT) as a maximum,
- Total effective equipment performance (TEEP) providing insights as to the true capacity of your manufacturing operation.



OEE management screen

**Batch Cycle Time**

ABB Ability™ Plant Performance Optimization uses also metrics to define the Batch Cycle Time (BCT) which identifies the real production time compared to the theoretical execution times. It is based on the operation status, step progression and timing, as well as amounts produced. All these data are being measured by ABB Manufacturing Executing System in real-time:

- at the beginning of each operation: current minimum average and maximum times (based on required quantity) are recorded.
- at the end of each operation: minimum, average

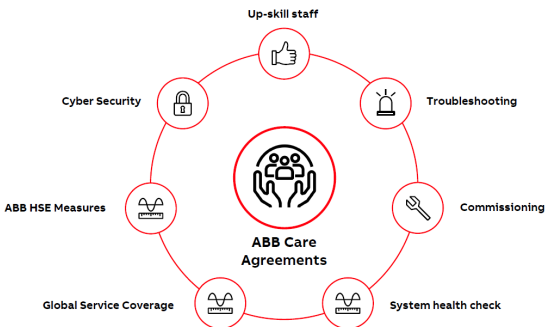
and maximum flow rates are recorded for each recipe on given equipment, based on confirmed quantity and processing time.



Batch cycle time overview

Support for Life

With over 40 years of experience, ABB understands how to care for your automation and electrical system investment by delivering programs, services and tools that ensure your system is always safe, secure, reliable and serving your business needs.





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