

# BioMAC

## Advanced Bioprocess Big Data Analytics

### The challenge

Today's biopharmaceutical organisation collects data at a staggering rate. Efficient use of data offers enormous potential for insights, collaboration and data-driven decision making and can enable the organisation to proactively build major competitive advantage.

Teams often struggle to deal with vast quantities of bioprocess data, and spend significant time manually acquiring and engineering data from disparate, siloed systems, for analysis with tools that were not developed for bioprocess data needs.

This is a considerable overhead that affects efficiency and competitiveness, as the organisation cannot achieve a consolidated data set. Ultimately it can even pose a compliance risk.

However, the focus on core production means that bioprocess leaders often hesitate to launch a data science initiative. They may be challenged by data complexity, lack of bioprocess and operations knowledge among data scientists, unsuitable technology and unclear returns.

### The solution

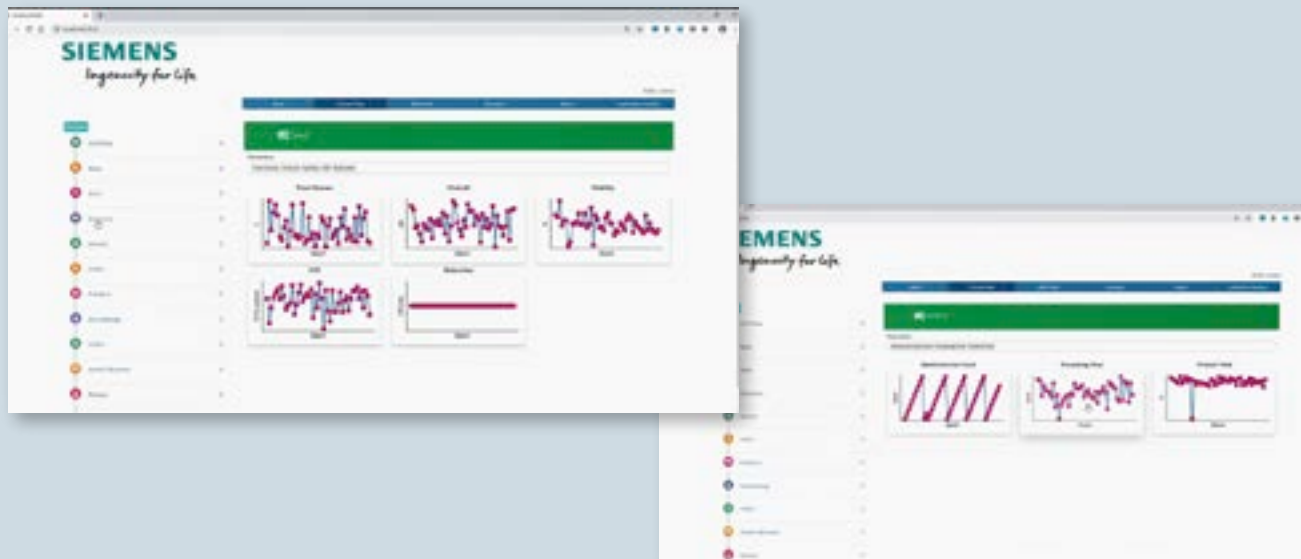
Siemens and the National Institute for Bioprocessing Research and Training (NIBRT) are empowering bioprocess leaders to extract value from bioprocess big data, reduce risk and gain competitive advantage.

Combining bioprocessing and operations expertise and BioMAC big data technology, our team works in close collaboration with our bioprocessing partners to resolve the challenges of disconnected data. The output is a single contextualised data structure and apply rapid exploratory analysis and visualisation to empower R&D and Manufacturing teams with self-service big data tools.

### Leveraging advanced big data analytics in the bioprocess organisation

- Reduce data wrangling costs
- Reduce annual regulatory reporting costs
- Improve product quality and yield
- Inform operational excellence programs
- Enable collaboration between departments
- Integrate supplier and external partner data

# Empower your team with advanced analytics



BioMAC is accessed via web browser, providing on-demand access to data models appropriate to the data set and task. Designed to be intuitive for use without prior data analytics knowledge, each application is customised to the users' specific situation and data requirements.



## Expert collaboration

Work in partnership with Siemens and NIBRT Subject Matter Experts to address bioprocessing challenges using data; connectivity, technology, data engineering, data science, bioprocessing, bioanalytics; operations.



## Process understanding

Achieve deep process understanding by mining historic data sets to discover correlations, patterns and causal interrelationships among variables, leading/lagging relationships



## Advanced analytics

Apply scalable, flexible and high-performance big data analytics technology to complex data sets. Build the data structures to deploy machine learning and artificial intelligence.



## Process compliance

Automate repetitive manual data tasks for efficient reporting, such as continued process validation (CPV), quality metrics data, annual product quality reviews (APQR) and product stability.



## Consolidated bioprocess data

Eliminate data silos and collate enormous data sets in a contextualised structure for rapid exploratory analysis and visualisation of historic and real-time data



## Cloud-based application

Deploy on cloud for flexibility and ease of access across departments and locations for enhanced collaboration

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