



# Die nächste Evolution der MindSphere Out of the Box-Lösung „Operations Insight“ erleben

# | Agenda

- Warum Operations Insight?
- Was ist Operations Insight?
- Wen sprechen wir an?
- Was Operations Insight leistet (eine Demo)
- Wie Operations Insight Entwickler unterstützt
- Go to Market
- Die Zukunft von Operations Insight

# | Ausgangssituation

Warum Operations Insight?

# Operations Insight

## Business Challenge

Lack of deep IT skills and resources prevent small and mid-sized manufacturers to build & maintain a cloud native IoT app that covers generic contextualized data monitoring and dashboarding as well as insights generation.

## Operations Insight

A central entry point for leveraging contextualized data to monitor industrial assets and gain insights about your fleet based on time series data

Inbuilt, immediate site and fleet management and monitoring

Customizable dashboards and configurable data access

Flexible rules and alerts

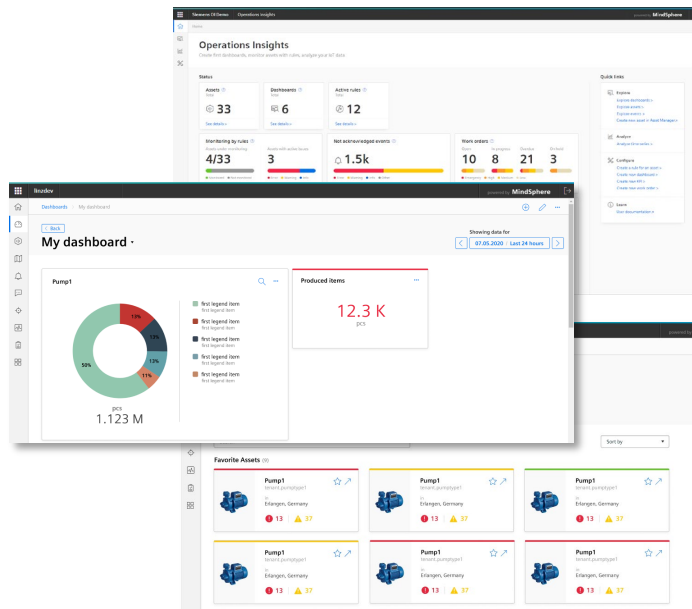
Intuitive and visual timeseries data analysis

Versatile and easy KPI management

Maintenance work order management

## Vorteile

- Schnelle Realisierung von Out of the Box IIoT-Lösungen
- Herabsetzen der Einstiegsschwelle in IoT
- Einfache und intuitive Visual Analysis
- Skalierbare und erweiterbare Lösung





# Was es ist

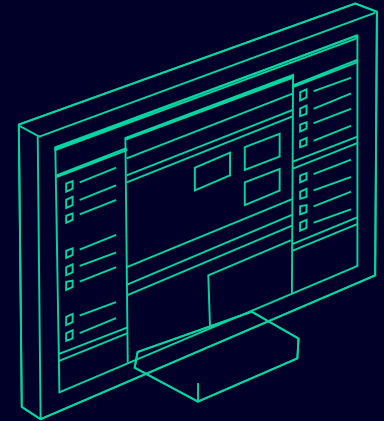
Was ist Operations Insight?



## Operations Insight

ist die nächste Generation der MindSphere Out of the Box (OOTB) IoT-Lösung

- Optimierter Funktionsumfang aus bereits bestehenden MindSphere-Lösungen
- Enthält viele Kundenrückmeldungen
- Verbesserte Benutzerfreundlichkeit und Interoperabilität
- Nahtlos erweiter- und skalierbar



# Wen sprechen wir an?

Die wichtigsten Anwender von Operations Insight

# Operations Insight

## End user key personas and respective user journeys

### Connected Product

„I want to enhance my product and digitalize my business model“


**Susan Service**  
(part of customer service team of OEM)



**"I want to remotely monitor the status of the customer's assets and fix issues fast"**

**Field technician**

Later




**"I want to fix my customer's assets issues fast by leveraging IoT data and insights using my mobile device"**

### Connected Shopfloor


„I want to make my shopfloor more effective and improve operational excellence“

**Martin Maintenance/  
Maintenance engineer**




**"I want to monitor the status of my assets and fix issues fast"**

**Paul Production/  
Production/operations engineer**



**"I want to analyze my performance and production data and schedule maintenance activities"**

**Plant Manager**



**"I want to create/view dashboards of my plants data and KPIs to take the right decisions"**



# | Was macht es?

Demo und Features

# Anwendungen und Demo

Operations Insight Demo mit Hauptanwendern

# Analyze performance data and schedule maintenance

## Persona journeys



### Goals

- Monitors performance of production lines
- Compares KPIs between lines and sites
- Plans and coordinates required maintenance activities

### Home Screen



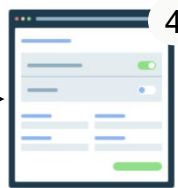
### Production Dashboard



### Analyze and correlate data



### Create Work Order



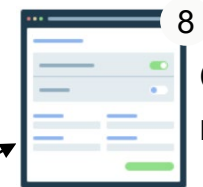
### Notify Maintenance



### Review Work Order / Fix



### Create new KPI



### Create rule



### Extend Dashboard



### Goals

- Conducts machine maintenance
- Gets further insights by deep diving into data
- Improve uptime and response time



Awareness

Insight

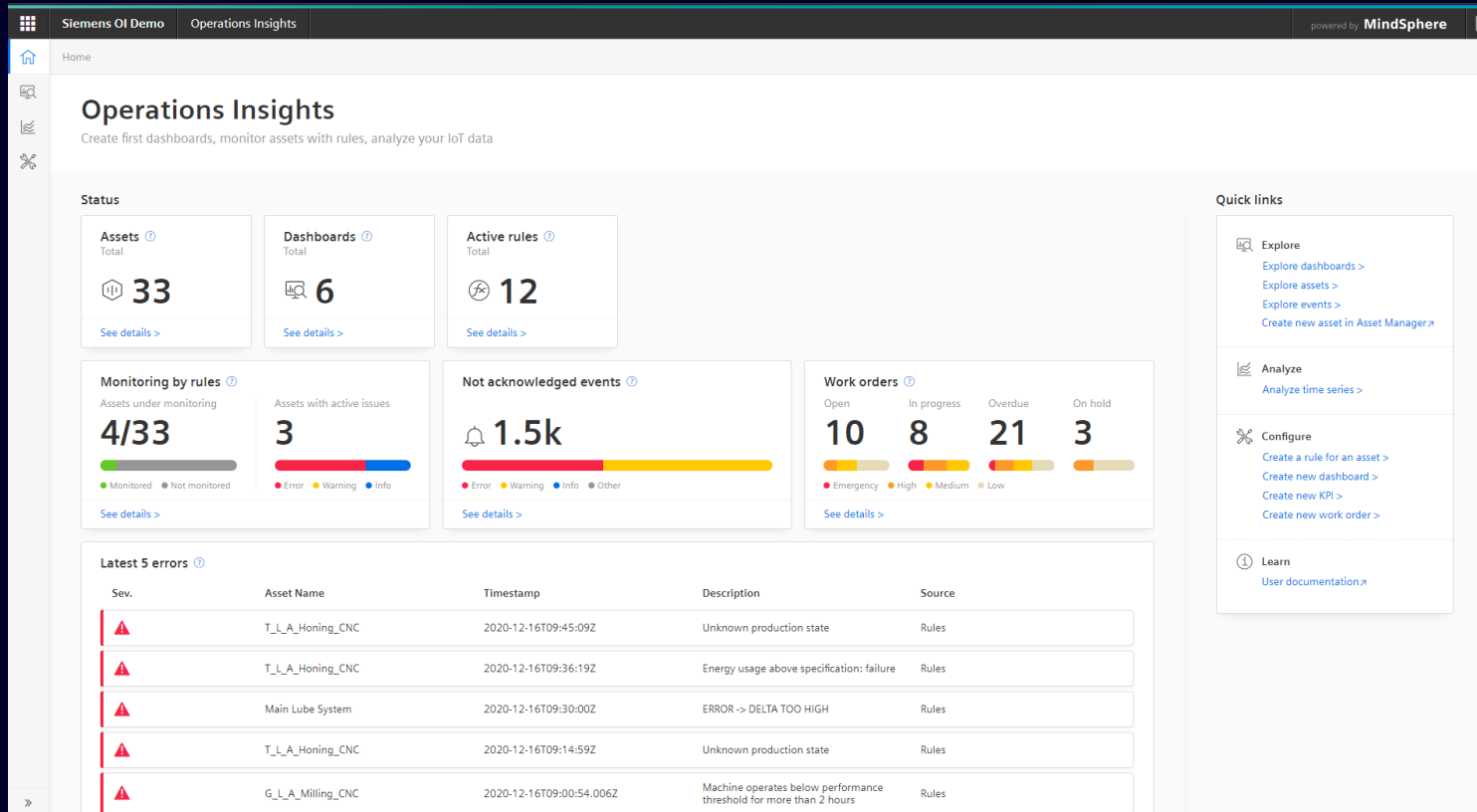
Actions

# | Was es macht

Die wichtigsten Features von Operations Insight auf einen Blick

# Operations Insight

A new and seamless experience for working with IoT data in MindSphere.



## Get started quickly

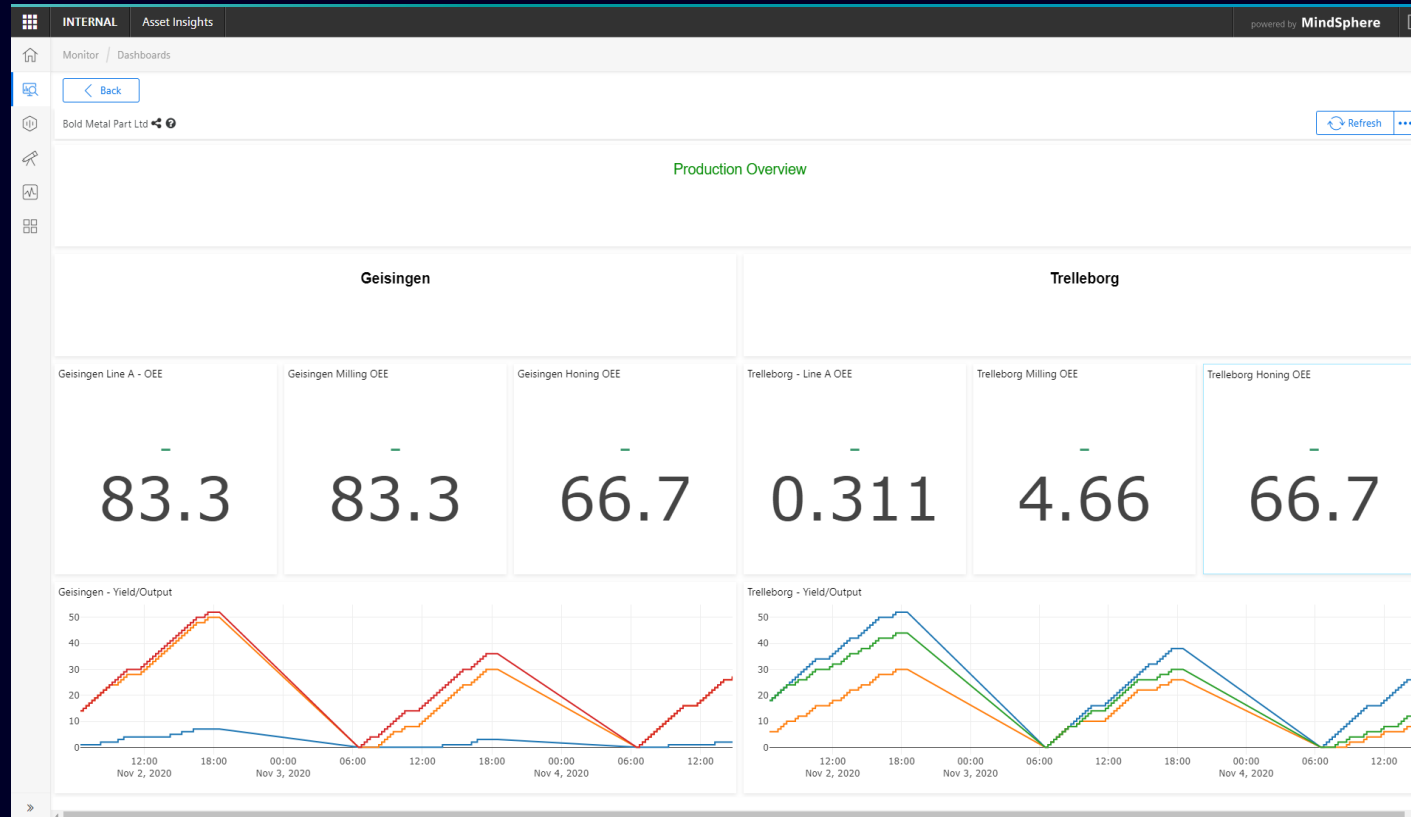
We guide you through major IoT use cases to monitor and analyze your assets and production.

Get an overview of **all relevant information and KPIs** with our new widgets and welcome page.



# Operations Insight

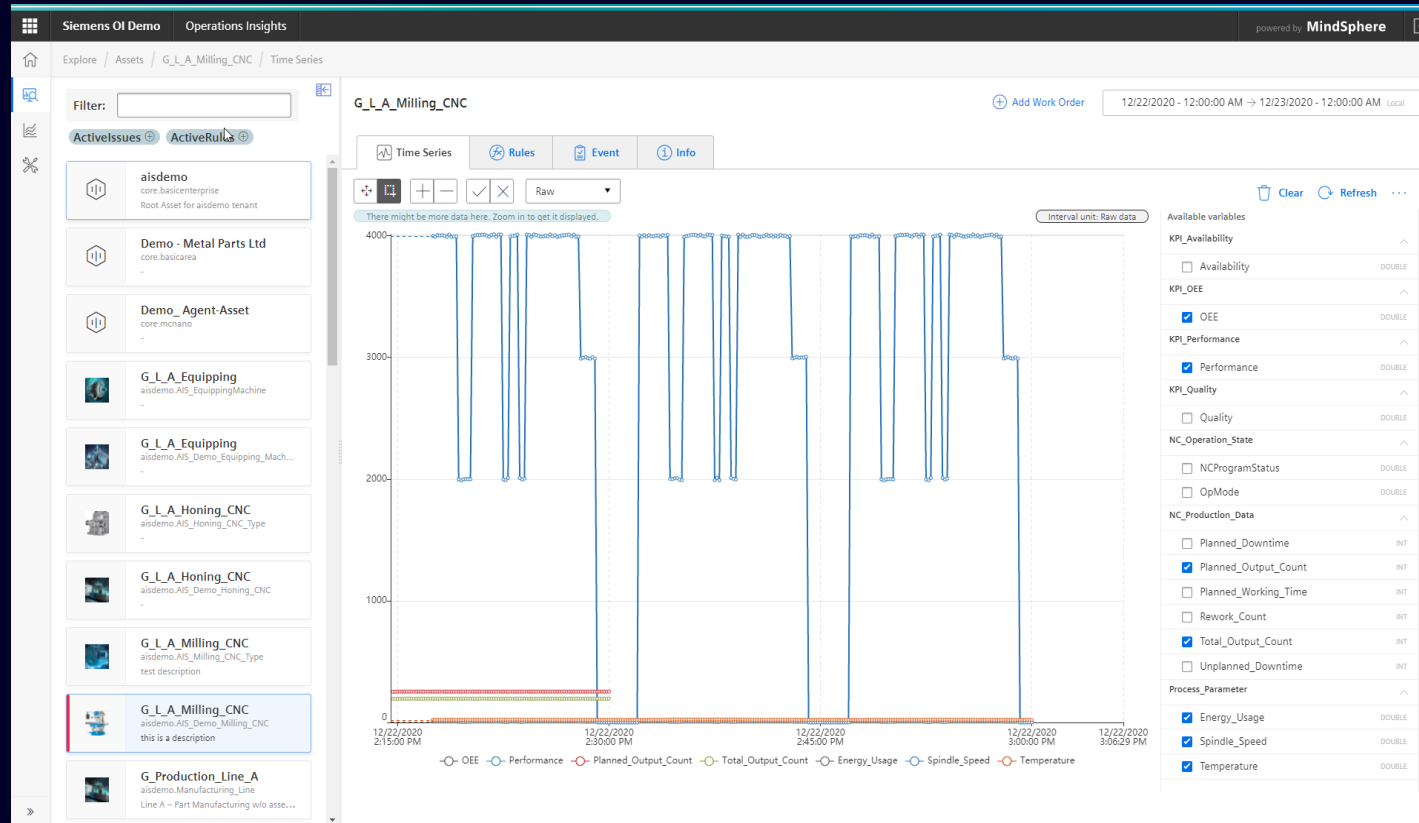
## Customizable dashboards and configurable data access



## Key Features

- 1 Mashup an overview of your machines or production performance based on widget-based dashboarding
- 2 Wide range of visualization types for industry-specific use cases
- 3 Get instant access to machine and plant performance data worldwide

# Operations Insight Fleet Management



## Key Features

- 1 Quick overviews about connected assets and devices with near-real-time data visualizations
- 2 Easy identification of asset health via color coded status information
- 3 Multi-dimensional views support the systematic investigation in your assets or production performance
- 4 Flexible filter and sort capabilities
- 5 Detailed views of asset information and their status
- 6 Individual extension of capabilities via plugin interface

# Operations Insight

## Rules and Notifications

Siemens OI DemoOperations Insights

powered byMindSphere

ConfigureRules

Rules

Summary of all rules created on this tenant

Asset Name

Name

Description

Additional Actions

Active

Heat Exchanger X502

Check if Availability is ok

Availability corresponding to target value Asset status: Information

G\_L\_A\_Milling\_CNC

KPI\_OEE:OEE < 50

OEE below required threshold

G\_L\_A\_Milling\_CNC

OEE Milling G below target

OEE below target

G\_L\_A\_Milling\_CNC

Process\_Parameter:Energy\_Usage > 5

Excessive energy usage

G\_L\_A\_Milling\_CNC

Process\_Parameter:Temperature > 50

Notify me temperature is too high

Email:

Main Lube System

TemperatureDelta:data > 10

ERROR -> DELTA TOO HIGH

Asset status: Error  
Email:

G\_L\_A\_Milling\_CNC

Operation below performance threshol... Machine operates below performance ...

Asset status: Error

T\_L\_A\_Milling\_CNC

Operation below performance threshol... Machine operates below performance ...

Asset status: Warning

T\_L\_A\_Equipping

KPI\_Performance:Performance <= 85

Performance below target

T\_L\_A\_Honing\_CNC

Process\_Parameter:Energy\_Usage > 8

Energy usage above specification

Email:

T\_L\_A\_Honing\_CNC

NC\_Operation\_State:OpMode = 0

Unknown production state

T\_L\_A\_Honing\_CNC

Process\_Parameter:Energy\_Usage > 12

Energy usage above specification: failure

Related

Rules for this asset

Events for this asset

Time series data for this asset

Rule details

NAME

Check if Availability is ok

DESCRIPTION

Availability corresponding to target value

ASSET NAME

Heat Exchanger X502

ASSET ID

5449afaa86694dd99548cca9f39527af

CREATOR

thomas.com

CREATION DATE

2020-11-16T15:37:09.404Z

ACTIVE

## Key Features

1

Enable preventive maintenance with easy to configure rules to trigger events and notifications keeping users informed about asset condition

2

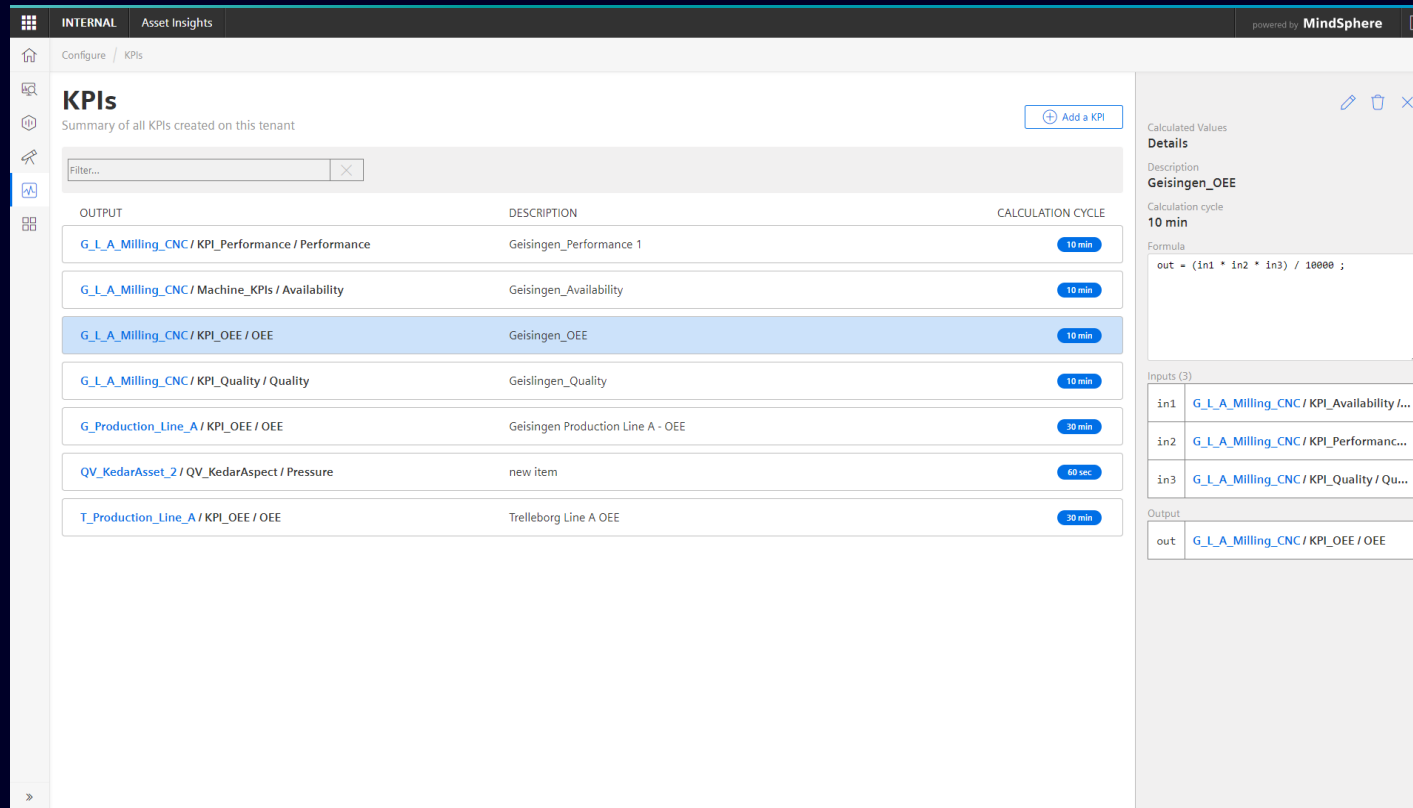
Combine them with further actions for setting an asset status, creating work orders and custom business logic

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# Operations Insight

## Versatile and easy KPI management



**KPIs**

Summary of all KPIs created on this tenant

Filter...

OUTPUT	DESCRIPTION	CALCULATION CYCLE
G_L_A_Milling_CNC / KPI_Performance / Performance	Geisingen_Performance 1	10 min
G_L_A_Milling_CNC / Machine_KPIs / Availability	Geisingen_Availability	10 min
G_L_A_Milling_CNC / KPI_OEE / OEE	Geisingen_OEE	10 min
G_L_A_Milling_CNC / KPI_Quality / Quality	Geisingen_Quality	10 min
G_Production_Line_A / KPI_OEE / OEE	Geisingen Production Line A - OEE	30 min
QV_KedarAsset_2 / QV_KedarAspect / Pressure	new item	60 sec
T_Production_Line_A / KPI_OEE / OEE	Trelleborg Line A OEE	30 min

**Calculated Values Details**

Description: Geisingen\_OEE

Calculation cycle: 10 min

Formula: 
$$\text{out} = (\text{in1} * \text{in2} * \text{in3}) / 10000 ;$$

Inputs (3):

- in1: G\_L\_A\_Milling\_CNC / KPI\_Availability / ...
- in2: G\_L\_A\_Milling\_CNC / KPI\_Performanc...
- in3: G\_L\_A\_Milling\_CNC / KPI\_Quality / Qu...

Output:

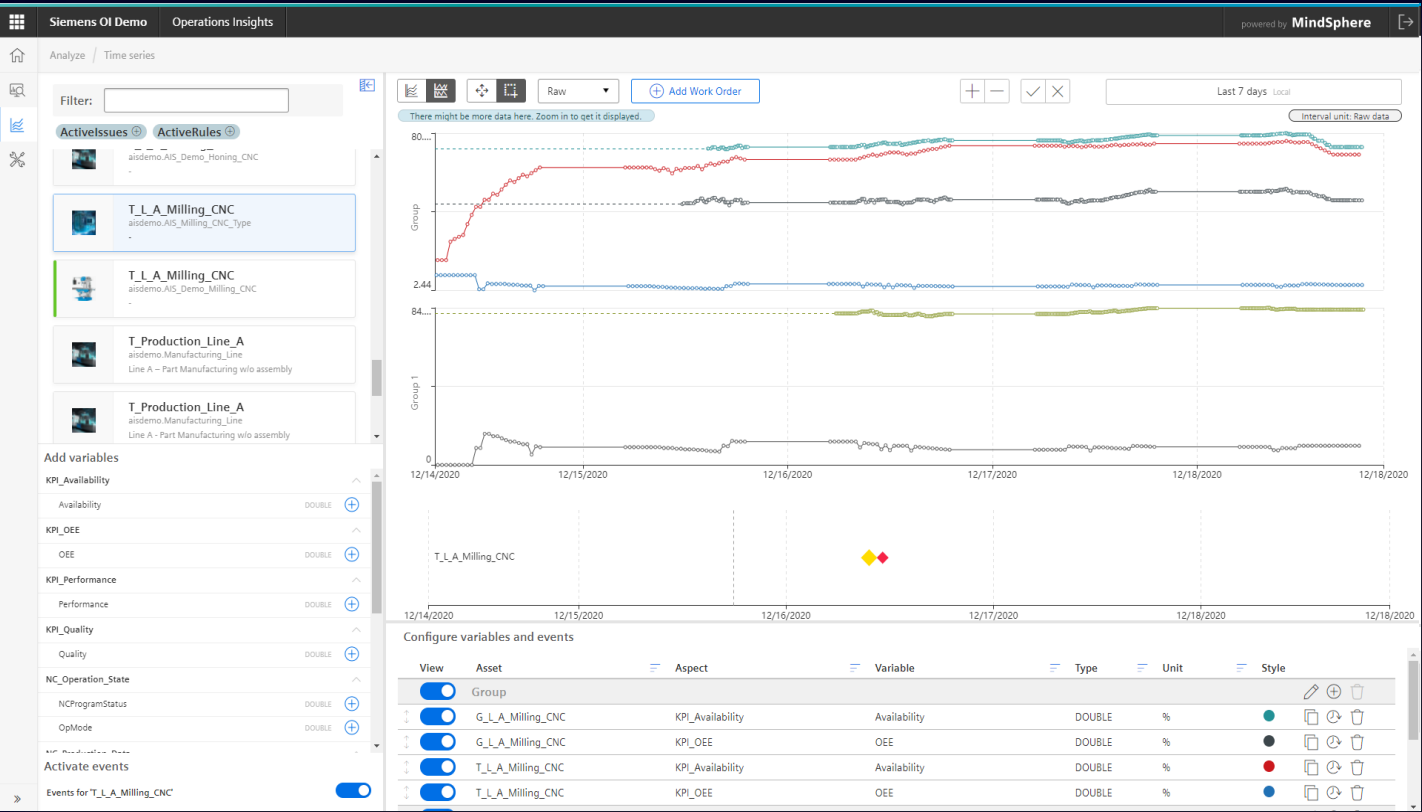
- out: G\_L\_A\_Milling\_CNC / KPI\_OEE / OEE

## Key Features

- 1 Enable cross linking of data  
Define KPIs on your IIoT data using a visual expression builder and Java Script
- 2 Easy and quick selection of data points from different data sources
- 3 Manage all your created KPIs and apply them quickly to other assets
- 4 Re-use calculated KPIs in any MindSphere applications
- 5 Visualize KPIs on a dashboard or leverage them in any other app

# Operations Insight

## Intuitive and visual timeseries data analysis



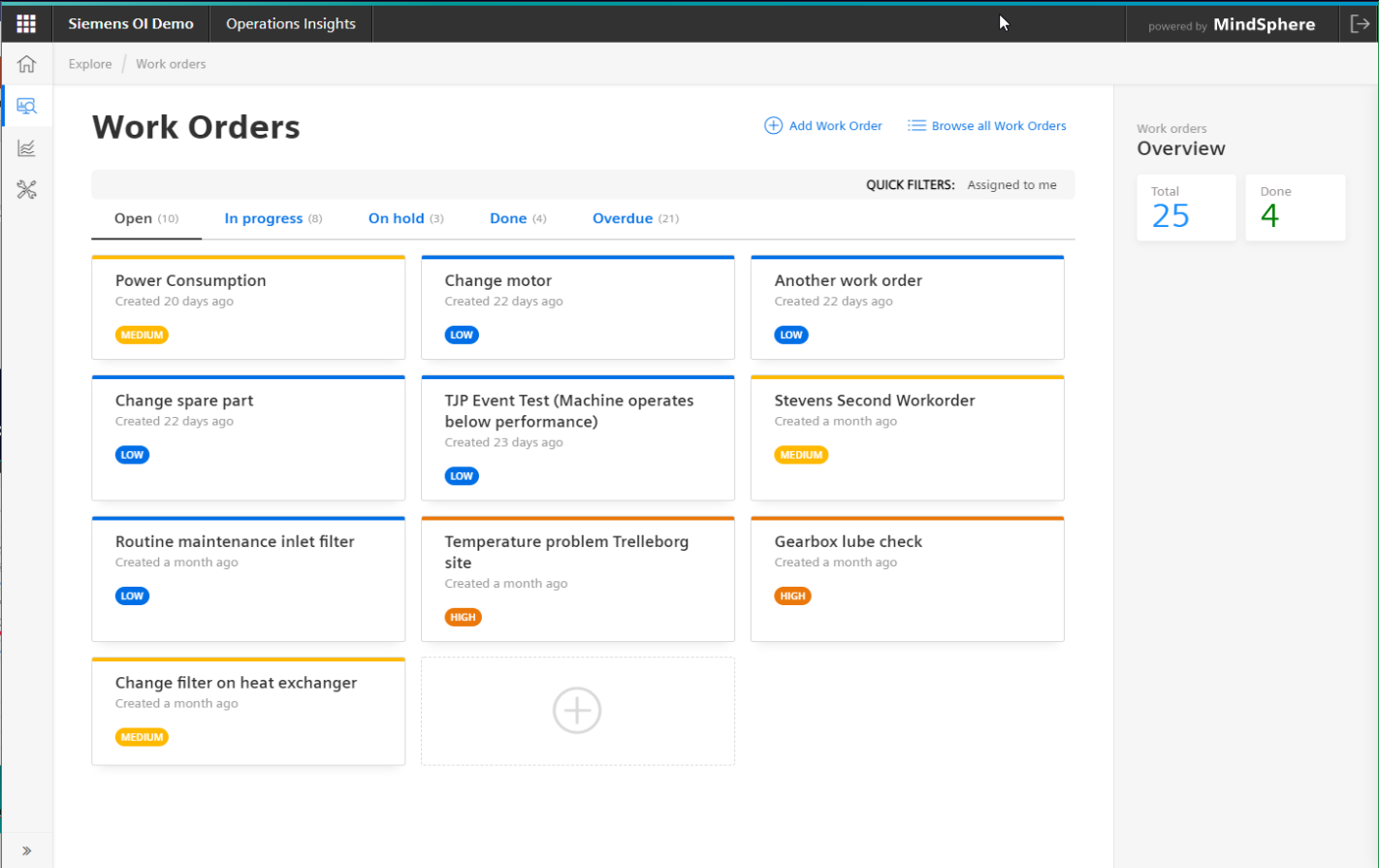
## Key Features

- 1 Ad-hoc data analytics and comparison functions to spot anomalies easily with flexible filters
- 2 View historical data from different assets or devices simultaneously in one view
- 3 Rich visualization options to build charts for analysis of performance
- 4 Save custom views of your data for later usage and share them among your organization



# Operations Insight

## (Maintenance) Work Order Management



## Key Features

- 1 Investigate on issues and ongoing maintenance activities within your production and assets
- 2 Quickly get an overview about the number and status of all work orders
- 3 Create work orders from different locations within Operations Insight

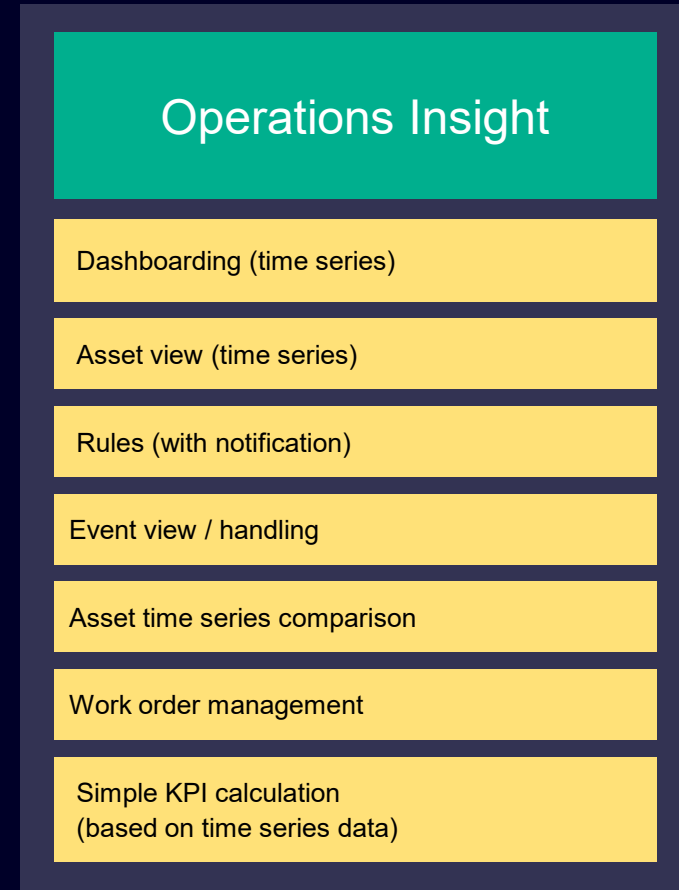
# | Go to Market

Wo und wie Sie Operations Insight “finden”

# Operations Insight ist eine MindSphere Core Solution

## Enthalten als Teil aller DevOps und IoT Value Pläne\*

- Aktuelle und bestehende\*\* Pläne
- Support von Time Series Daten
- Alle Funktionalität enthalten – es kann sofort gestartet werden
- Einige Features haben Quota



\* DevOps and IoT Value Plan price remains unchanged

\*\* Eventuell müssen die Rollen „io.creator“ or “io.viewer“ im Tenant hinzugefügt werden

# Was es für Entwickler macht

Wie Operations Insight Entwickler unterstützt

# Operations Insight

## Support the Makers in your organization

### Business Challenge

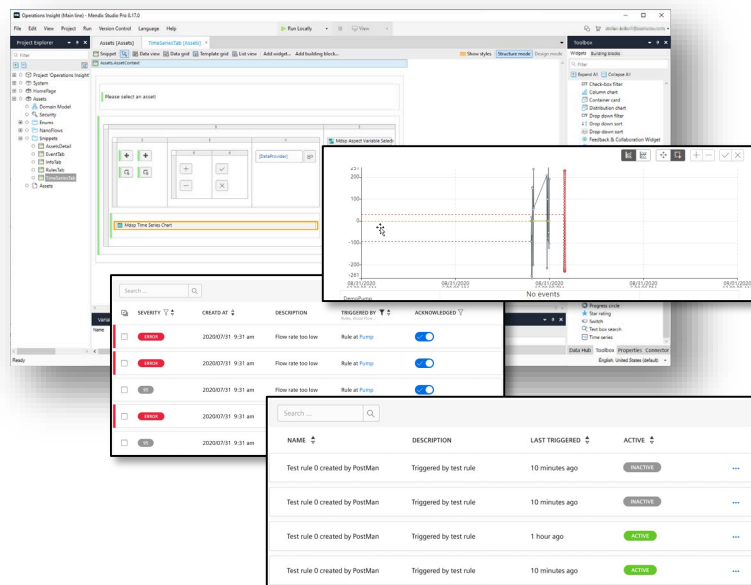
Disconnect between OT and IT. Lack of deep IT skills and resources prevent small and mid-sized manufacturers from building & maintaining a cloud native IIoT application.

### Operations Insight

Offering a versatile solution that allows integration of own functionality as well as components to integrate MindSphere's UI components into own applications.

### Benefits

- Accelerate IIoT solution development with reusable, intuitive visual objects
- Standardized and repeatability
- Reduce technical barriers when developing applications with low-code design
- Integrate own developments into existing Operations Insight



Reusable web components

Easy interoperability between OI and Mendix

Support for 3<sup>rd</sup> party development



# Operations Insight

## Multiple options for extension and customization

### We provide multiple ways of customization...

#### Solutions Insight Extensions

- Extend Solutions Insight directly via plugins that integrate seamlessly
- Stay in the primary solution space and focus on your specific capabilities



#### Asset Detail Views

- Define specialized views for asset details (formerly known as Fleet Manager Plugins)
- Build on the existing navigation and functionality to browse and filter assets



#### Common data model

- Use and share data between Operations Insight and other apps
- Develop your own business logic and use Operations Insight for visualization or visualize KPIs in the tool of your choice



# Operations Insight is built from reusable MindSphere components



Asset View

The Asset View displays four asset cards in a 2x2 grid. Each card shows an icon, a title, a location, and status indicators (red exclamation mark and yellow triangle). The assets are: Pump (tenant.pumptype1), Filling Line (core.basicArea), Pump (tenant.pumptype1), and Pump (tenant.pumptype1). All are located in Erlangen, Germany.

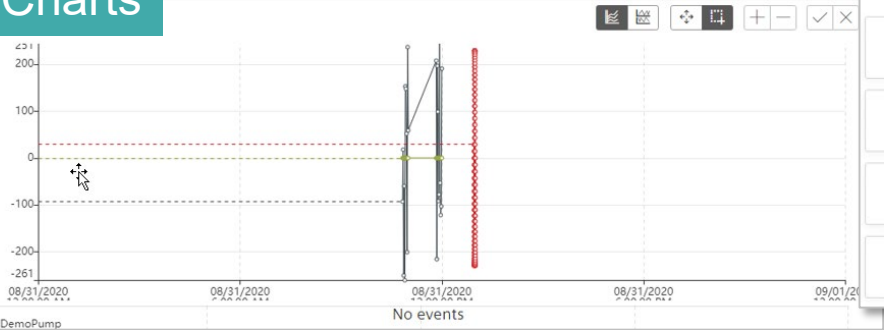
Work Orders\*

The Work Orders view shows a grid of work order cards. The top row has three cards for 'Pump overheating' with severity levels 'EMERGENCY', 'MEDIUM', and 'LOW'. The bottom row has one card for 'Pump overheating' with 'LOW' severity and a large plus icon in a dashed box.

Events

SEVERITY	CREATED AT	DESCRIPTION	TRIGGERED BY	ACKNOWLEDGED
ERROR	2020/07/31 9:31 am	Flow rate too low	Rule at Pump	<input checked="" type="checkbox"/>
ERROR	2020/07/31 9:31 am	Flow rate too low	Rule at Pump	<input checked="" type="checkbox"/>
95		Flow rate too low	Rule at Pump	<input checked="" type="checkbox"/>
ERROR				
95				

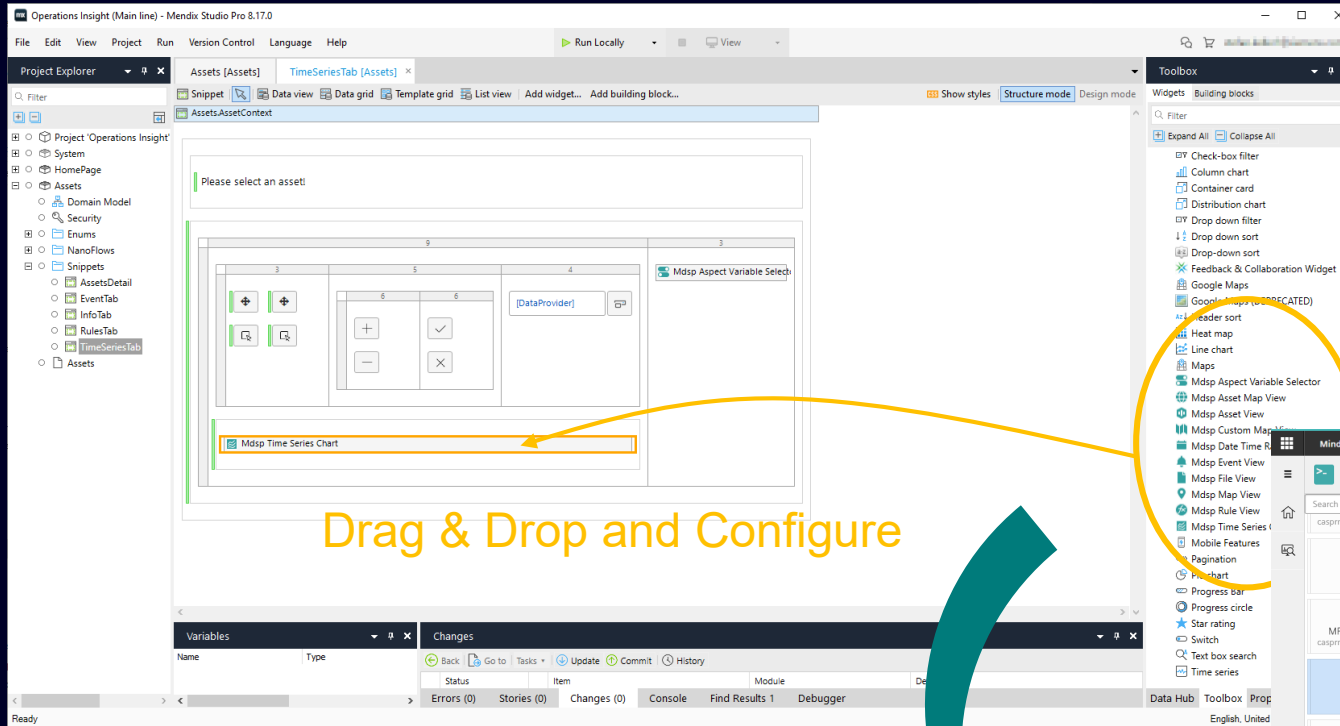
Charts



Rules

NAME	DESCRIPTION	LAST TRIGGERED	ACTIVE
Test rule 0 created by PostMan	Triggered by test rule	10 minutes ago	INACTIVE
Test rule 0 created by PostMan	Triggered by test rule	10 minutes ago	INACTIVE
Test rule 0 created by PostMan	Triggered by test rule	1 hour ago	ACTIVE
Test rule 0 created by PostMan	Triggered by test rule	10 minutes ago	ACTIVE

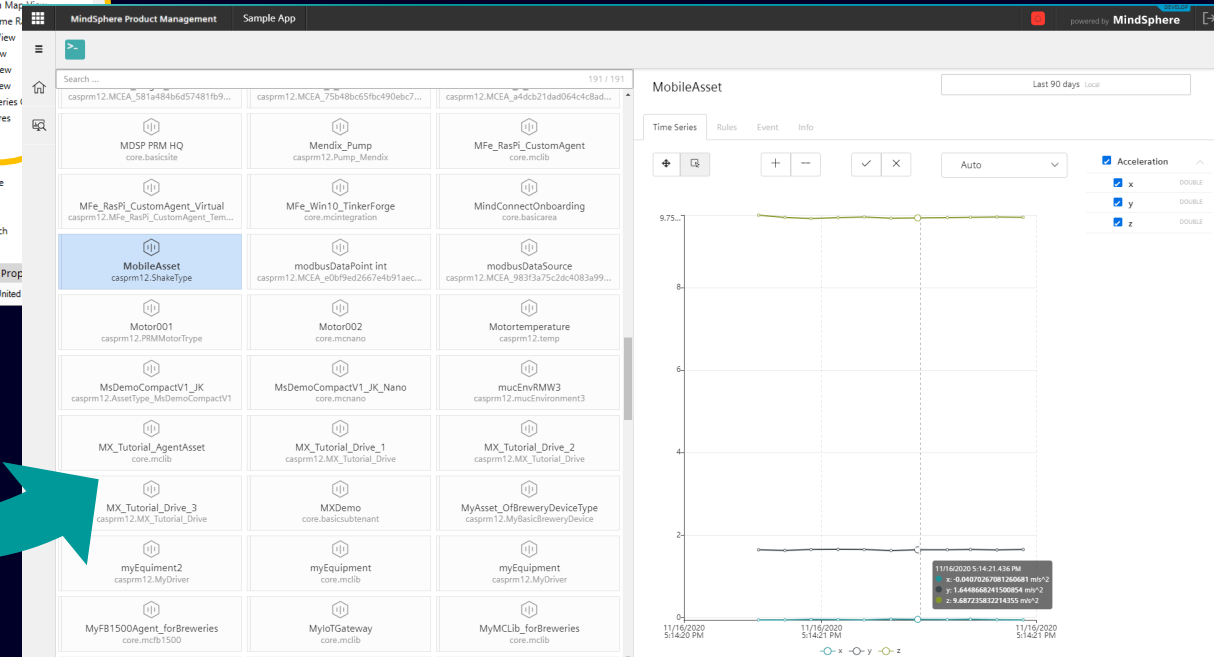
# Build your own application in Studio Pro based on Operations Insight widgets operated on Xcelerator Platform



Drag & Drop and Configure

Today's Web Components will be extended

1. Create a new Mendix app based on the MindSphere template
2. Add and configure MindSphere widgets
3. Add integration code to control widget behavior



## Weitere Information

[Documentation Operations Insight](#)

### Entwicklerdokumentation

[MindSphere Web Components](#)

[MindSphere Web Components for Mendix](#)

[Asset monitoring example application on Mendix](#)

# | Kontakt

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