ANDRITZ CAPITAL MARKET DAY 2021

AUTOMATION

WOLFGANG SEMPER

SEPTEMBER 15, 2021

ANDRITZ
ENGINEERED SUCCESS

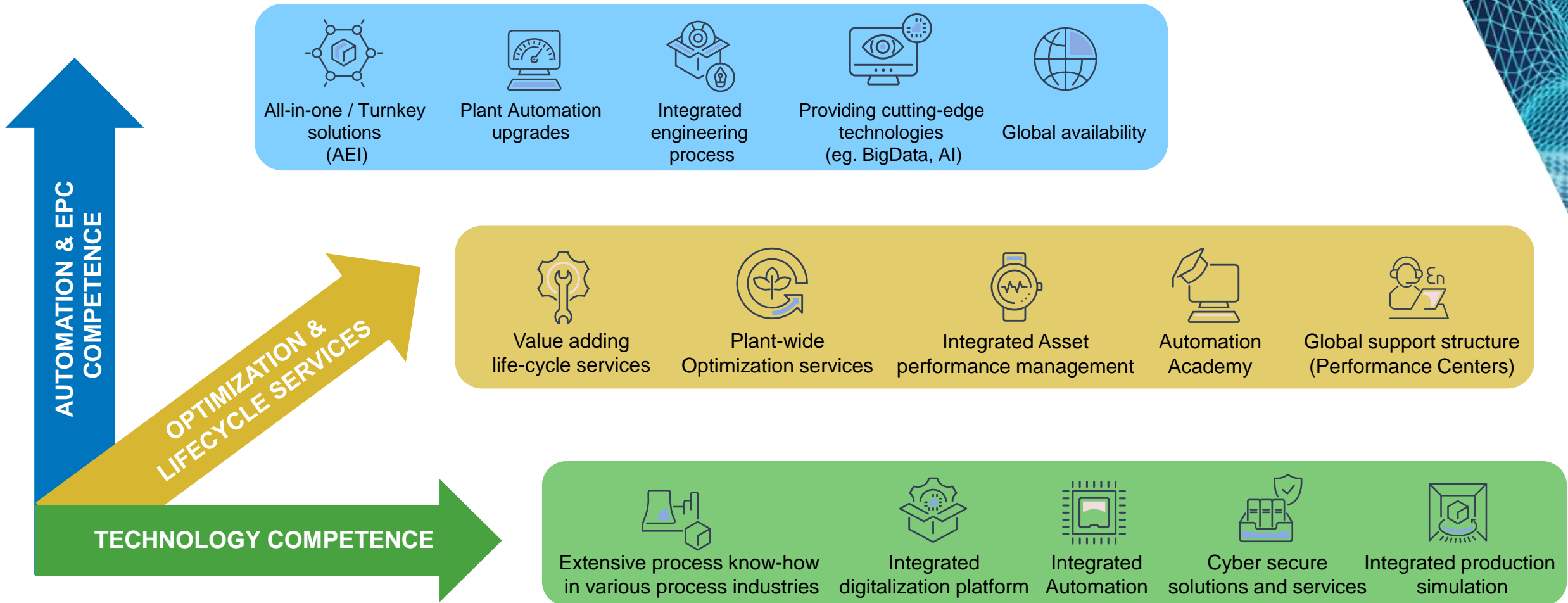# ANDRITZ AUTOMATION GLOBAL PRESENCE AND COMPETENCES

- **110 Automation locations**
  (ANDRITZ GROUP: > 280 locations)

- **1,800 Automation employees**
  (ANDRITZ GROUP: > 26,700 employees)

- **Complete Automation and Digitalization solutions for**
  - HYDRO
  - PULP & PAPER
  - METALS
  - SEPARATION
  - OTHER PROCESS INDUSTRIES

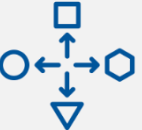- **REVENUE > 650 MEUR** (included in business area figures)

ANDRITZ AUTOMATION
WHAT MAKES US DIFFERENT

35+ years Automation/Digitalization competence out of one hand

AUTOMATION & EPC COMPETENCE

- All-in-one / Turnkey solutions (AEI)
- Plant Automation upgrades
- Integrated engineering process
- Providing cutting-edge technologies (eg. BigData, AI)
- Global availability

OPTIMIZATION & LIFECYCLE SERVICES

- Value adding life-cycle services
- Plant-wide Optimization services
- Integrated Asset performance management
- Automation Academy
- Global support structure (Performance Centers)

TECHNOLOGY COMPETENCE

- Extensive process know-how in various process industries
- Integrated digitalization platform
- Integrated Automation
- Cyber secure solutions and services
- Integrated production simulation

Metris
ANDRITZ Digital Solutions

GLOBAL COMPETITION AND ENVIRONMENTAL CHALLENGES FORCES INDUSTRIES TO ACT

Heterogenous DCS landscapes
Increasing complexity for mature plants

Customers know-how protection
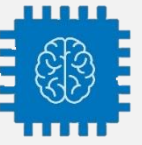Cyber-security / IP right protection

Sustainable & environmental friendly production
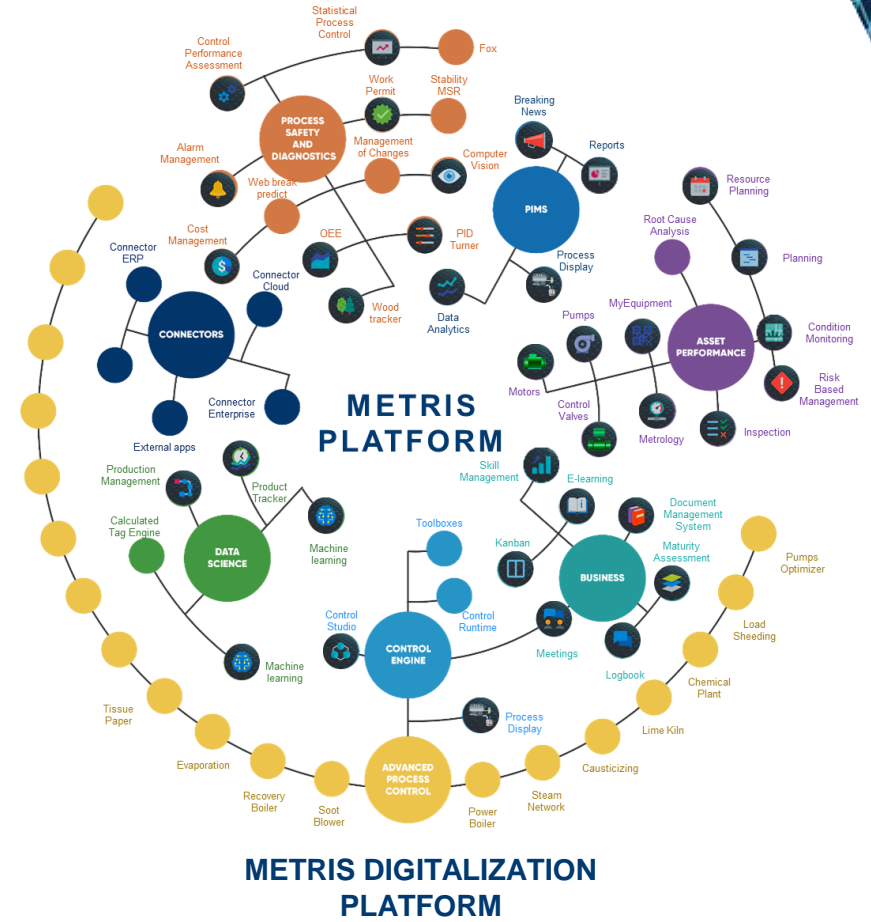Raw material reduction / optimize use of resources

Fully automated production
Too much manual interventions required

High demand for production flexibility
Intelligent & plant-wide production strategies

Automation & AI competencies
Joint expert approach with data scientists and Automation

METRIS DIGITALIZATION PLATFORM

METRIS – ANDRITZ DIGITAL SOLUTIONS FOR PROCESS INDUSTRIES AND ENERGY UTILITIES

One platform fits for all

Industry independent portfolio

Metris Digitalization platform
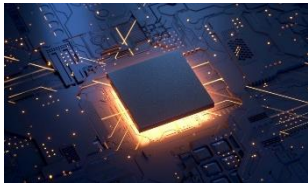
ANDRITZ DCS – Metris X

Asset performance & Maintenance management

Process optimization

Simulation & Digital twin

Remote operation & 24/7 support hotline

Cyber security products & solutions
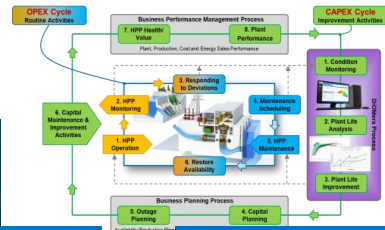
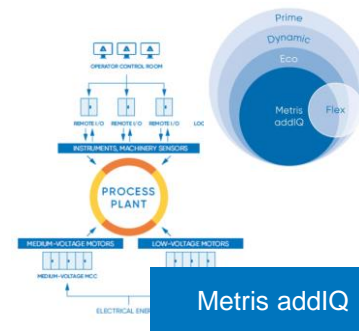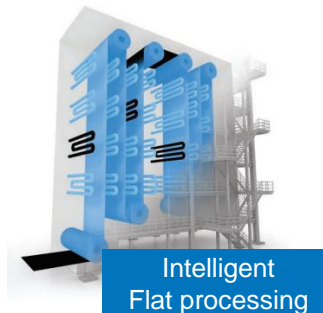**Selection of Industry specific solutions**

Pulp & Paper

Hydro

Metals

Separation

Other process industries

Metris solutions for Pulp & Paper

Metris DiOMera

Intelligent Flat processing

Metris addIQ

Metris plant automation

METRIS UX – THE ALL-IN-ONE PLATFORM

01 CLASSIC AUTOMATION

- Distributed control system (DCS)
- Motors & drives (MMD)
- Automation, Electrification, Instrumentation (AEI)

02 ADVANCED AUTOMATION

- Asset Performance & Maintenance management
- Process analytics & Production information
- Process optimization
- Production management

03 ADVANCED PERFORMANCE SERVICES

- Production optimization (OPP)
- Performance Center & 24/7 Hotline
- Simulation & Digital Twin
- Cyber security & Managed services
- Smart services
- Mixed Customer service bundles (SYNERGY)
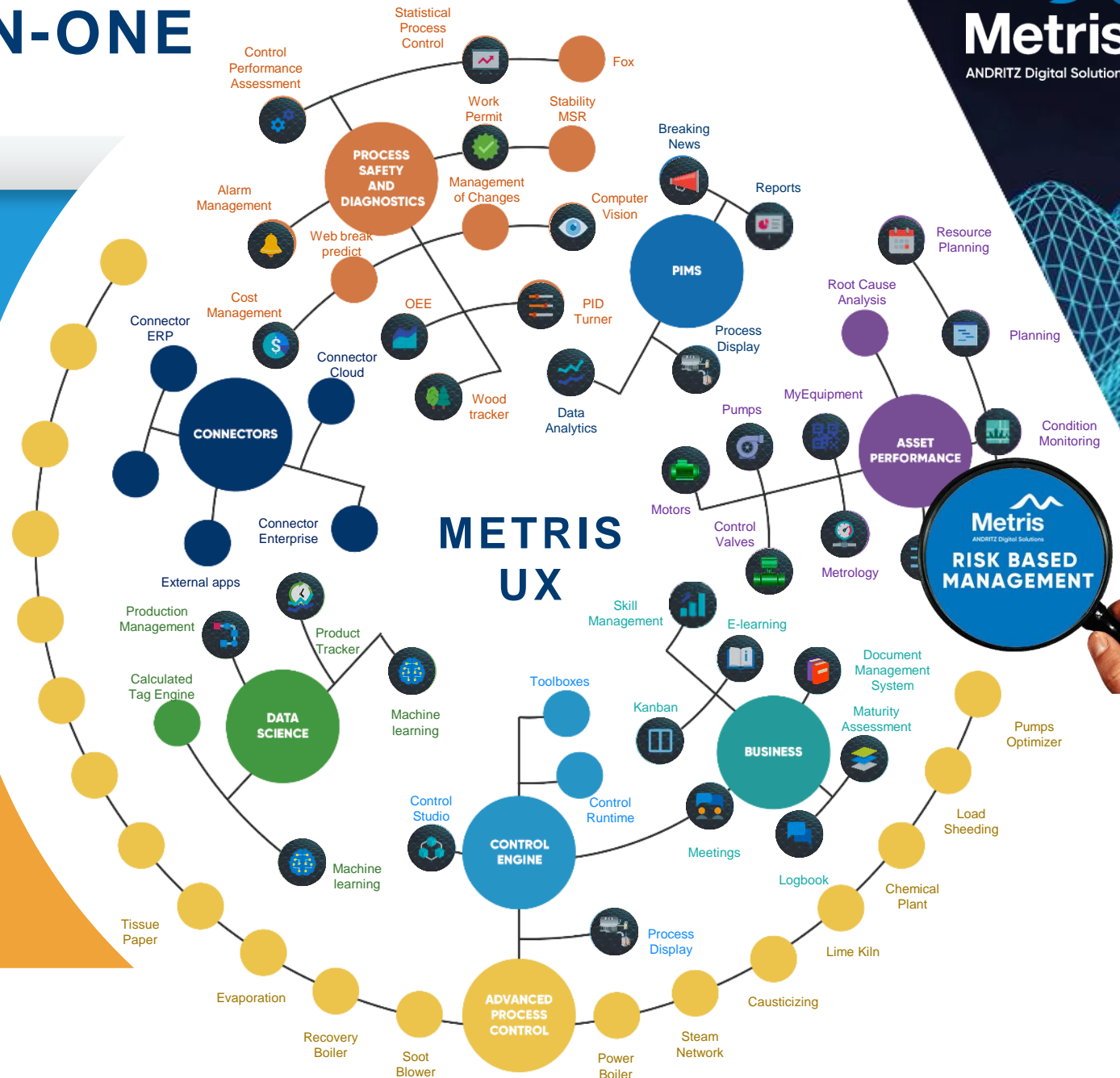
METRIS ALL-IN-ONE PLATFORM

Hosts all data from all assets on a plant-wide scale

Metris Risk Based Management (RBM)

- **All-in-one database** hosts all asset information and process data
- Anomaly detection uses **complete database** to identify either clear asset problems or process related risks, or even a combination of both
- **Combined plant-wide analytics** of potential overall production risk calculating all risk vectors displayed in one App

☑ Condition monitoring for critical assets (motors, valves, pumps, e.t.c.)
☑ Calculation of individual production risks (single source, redundant equipment, e.t.c.)
☑ Embedding maintenance risks (maintenance routes, inspections, e.t.c.)
☑ Including cyber security risks (vulnerabilities, remote access, e.t.c.)
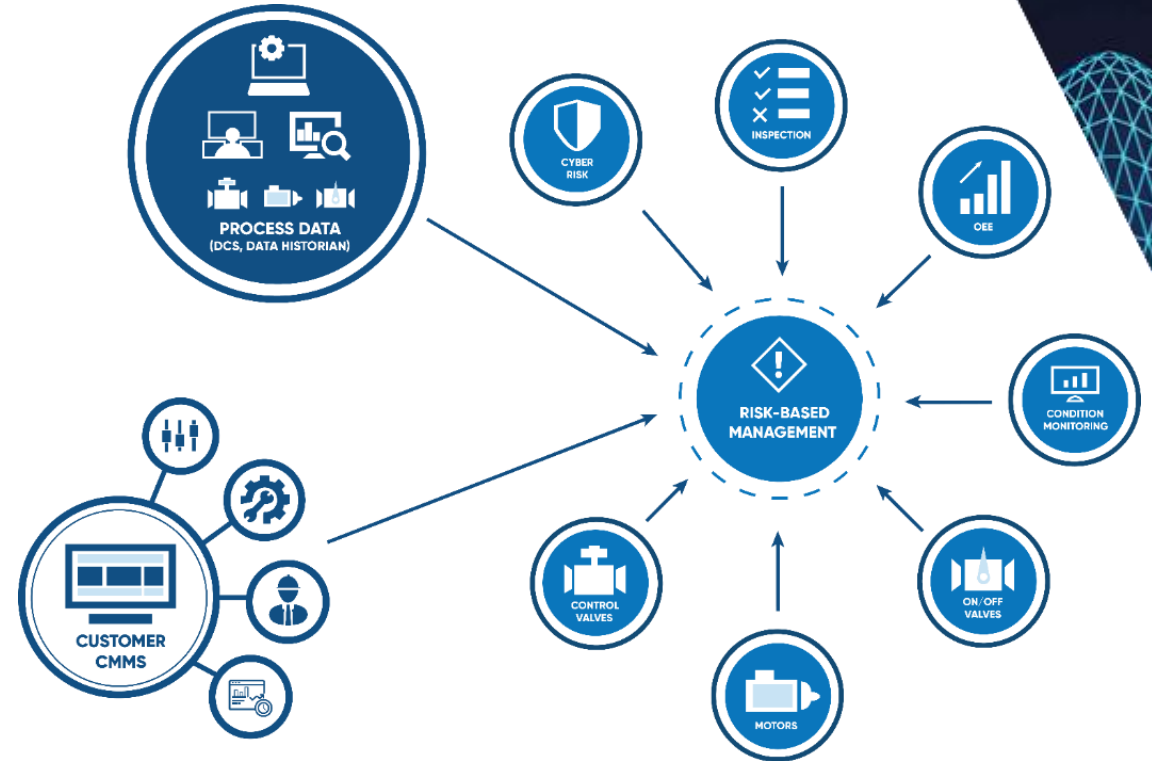
CYBER SECURITY BY DESIGN

CYBER SECURITY PORTFOLIO – Customer Journey

ANDRITZ

Customers production sites

Cyber security by „expert design"

spOT™ cyber security SCAN @ FAT

ANDRITZ Aftersales service based on **spOT™**

RAM² Plant wide – 24/7 cyber security orchestration platform
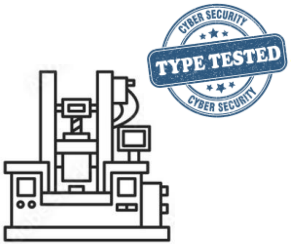
Type test - once per process island / machine type
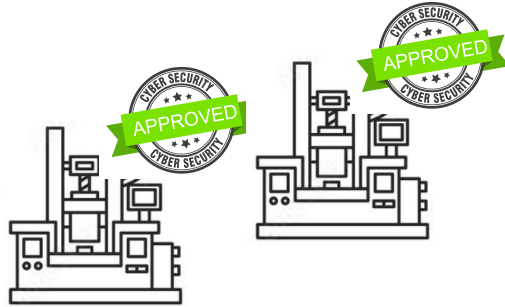
Automated CHECK for all ANDRITZ deliveries
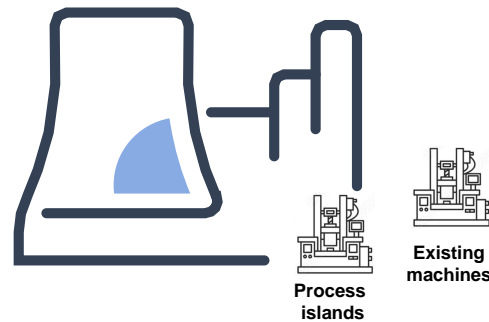
Periodic cyber security CHECK as a Service
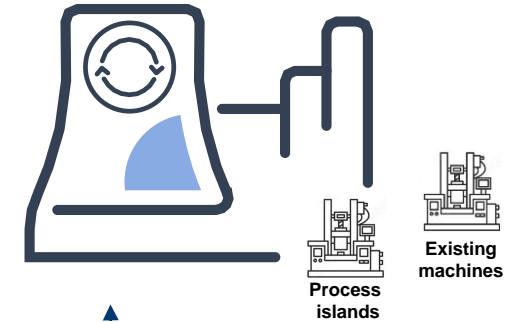
Continuous cyber security for a heterogeneous plant

remOT™ Secure remote connectivity management system

ANDRITZ AUTOMATION PRODUCT PORTFOLIO FOR ENERGY UTILITIES

250 SCALA – Complete control room applications

Metris DiOMera – Asset management
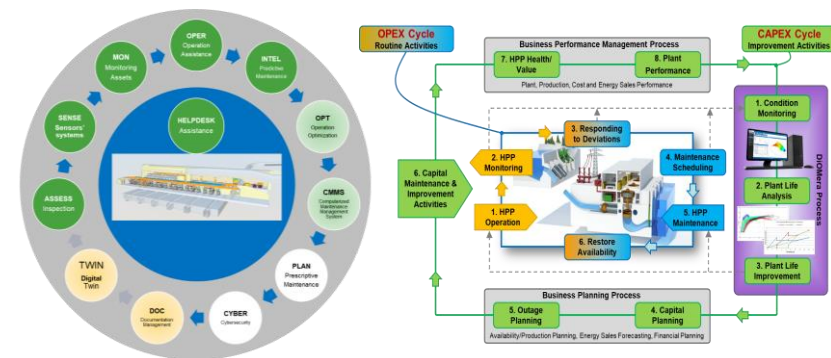
HIPASE – Automation - One platform – four different functions

Protection	Excitation	Turbine Governor	Synchronization
• Initiate shut down in case of electrical fault • No active function during operation	• Generator Voltage Regulator (AVR) • Control function (Start/Stop excitation, trip)	• Speed regulation • Load regulation • For all types of turbines	• Paralleling of unit – grid • Circuit breaker controls

Cyber security solutions

INDUSTRY SOLUTION FINDER
METRIS MARKET PLACE

… implementation underway…

METRIS DIGITAL SOLUTIONS – OPTIMIZATION OF PROCESS PERFORMANCE

Suzano Group (Brazil) - 11 million tons of pulp capacity being optimized by ANDRITZ

- Optimization contracts in various plants with references since 2007 and still there at Aracruz (3 lines), Três Lagoas (2 lines), Suzano, Jacareí, Mucuri (2 lines), Imperatriz and Veracel (1 line - 50% owned by Suzano)

- Mix of ANDRITZ and competitors' equipment

- Several Metris solutions provided to Suzano:
  - Metris OPP (Optimization of Plant Performance) agreements
  - Advanced Process Controls
  - Artificial Intelligence
  - Asset Performance Management
  - Digital Twins
  - Process Simulation

> EUR 200 million benefits provided to customer in production increase, minimizing chemical and fuel consumption, maximizing energy production and improving environmental parameters

METRIS DIOMERA FOR ENEL PROJECT: PRESHAGO

Predictive System and Analytics for Global Hydro Operation

- **Elaborating a predictive maintenance model** to tackle potential faults in hydroelectric power plants
- Move **from "preventive" to "predictive" maintenance** strategies
- **Detect significant changes of pace** thanks to its data-based management strategy
- **Schedule maintenance works before potential faults arise** → process optimization

5 Countries (Argentina, Brazil, Chile, Peru, Colombia)

44 Plants

3 Year continous plant optimization & advanced predicitve services

9,850 MW equipped with Metris-DiOMera

CENTRAL CONTROL ROOM FOR UNIPER WASSERKRAFT, LANDSHUT

250 SCALA as large Central Control System

- 250 SCALA, our innovative **high-performance SCADA system**
- Multi hierarchic system
- Backup systems for emergency situations
- Excellent scalability from
  - small local unit control, power plant control up to central control systems
- Client benefits
  - One system for all control levels
  - Less engineering costs
  - Future-proof due to SW compatibility

Super vision and control of more than
125 hydroelectric power plants in one system
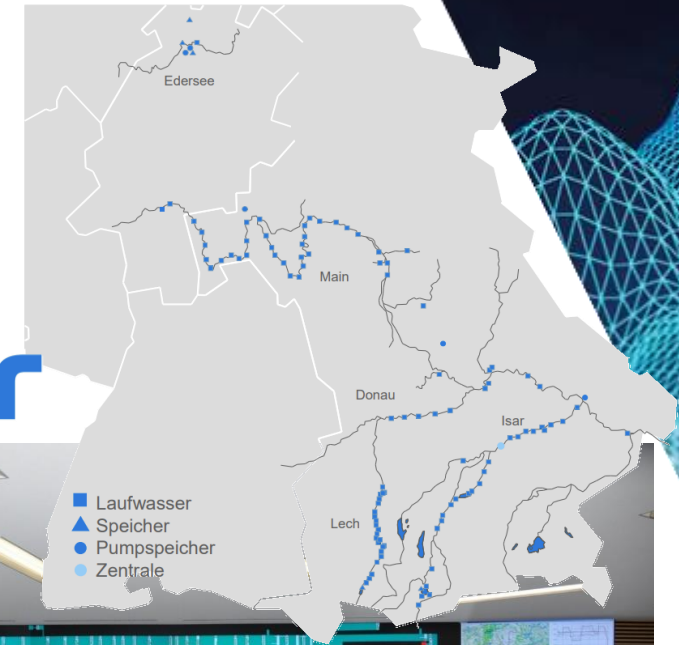
ROADMAP 2022-2024

Further strenghten ANDRITZ's position as digital solution provider

- ANDRITZ Automation **well positioned in ancestral industries** (Pulp & Paper, Hydro, Metals, Separation)

- **Metris digitalization platform** is the solid foundation to support **future growth** of all ANDRITZ business areas

- **Market launch** of „**holistic asset performance management**" **(Metris RBM)** including **cyber security**

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MANY THANKS!

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