

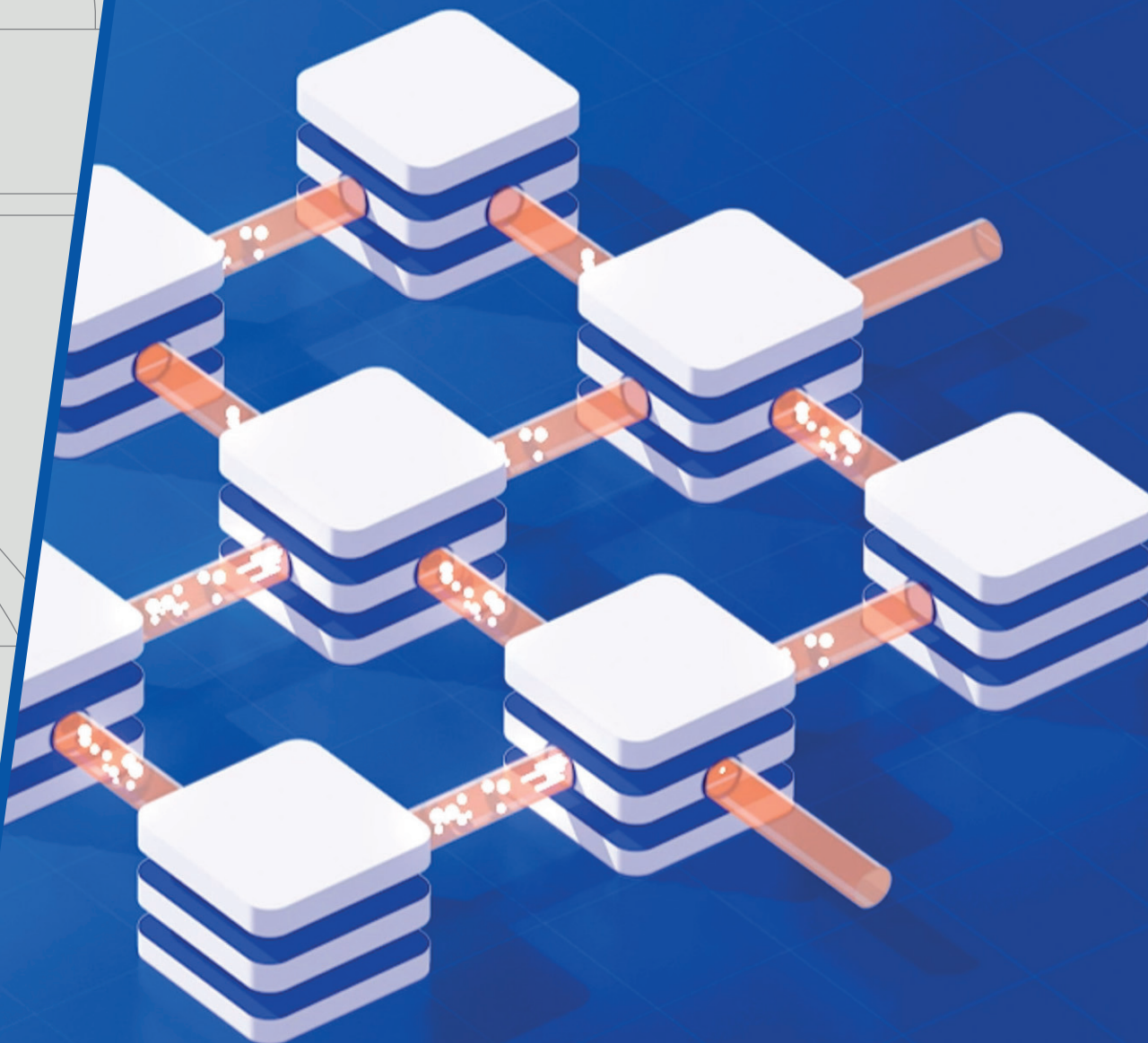
EN

in.Grid

Cross Competency Platform



COMAU



Why digital transformation?


The **world of manufacturing is changing** and so are its market drivers.


Evolution requires transforming the status quo into different production paradigms, and overall **personalized production**.

Processes must become increasingly **reconfigurable, flexible, scalable and promptly reactive**.

Digitalization is the fundamental enabler of these new manufacturing paradigms.

PRODUCTION RELATED

 **3-5%**
Productivity increase


 **20-35%**
Reduction in machine downtime

 **15-25%**
Reduction in plant maintenance costs

PRODUCT RELATED

 **15-20%**
Inventory reduction

 **15-25%**
Reduction in time to market

 **5-15%**
Cost of poor quality reduction

Why Comau?



MANUFACTURING BACKGROUND: 45 YEARS OF EXPERIENCE

Expertise in the challenges of automation: **flexibility**, **production maximization** and **reconfiguration**.



PROCESS ASSESSMENT CAPABILITIES

Application of **user-centered design** principles as a result of understanding clients' needs.



ENGINEERING & PRODUCT MANAGEMENT

Long-term competencies in **systems engineering**, **automation processes** and **products**.



SOFTWARE & MACHINE EXPERIENCE

With a proven track record in user-centered design, and agile project management for software and machinery design.



What is in.Grid?

in.Grid is the Comau platform that allows you to shape Industry 4.0 in line with the **Smart Factory Concept**.

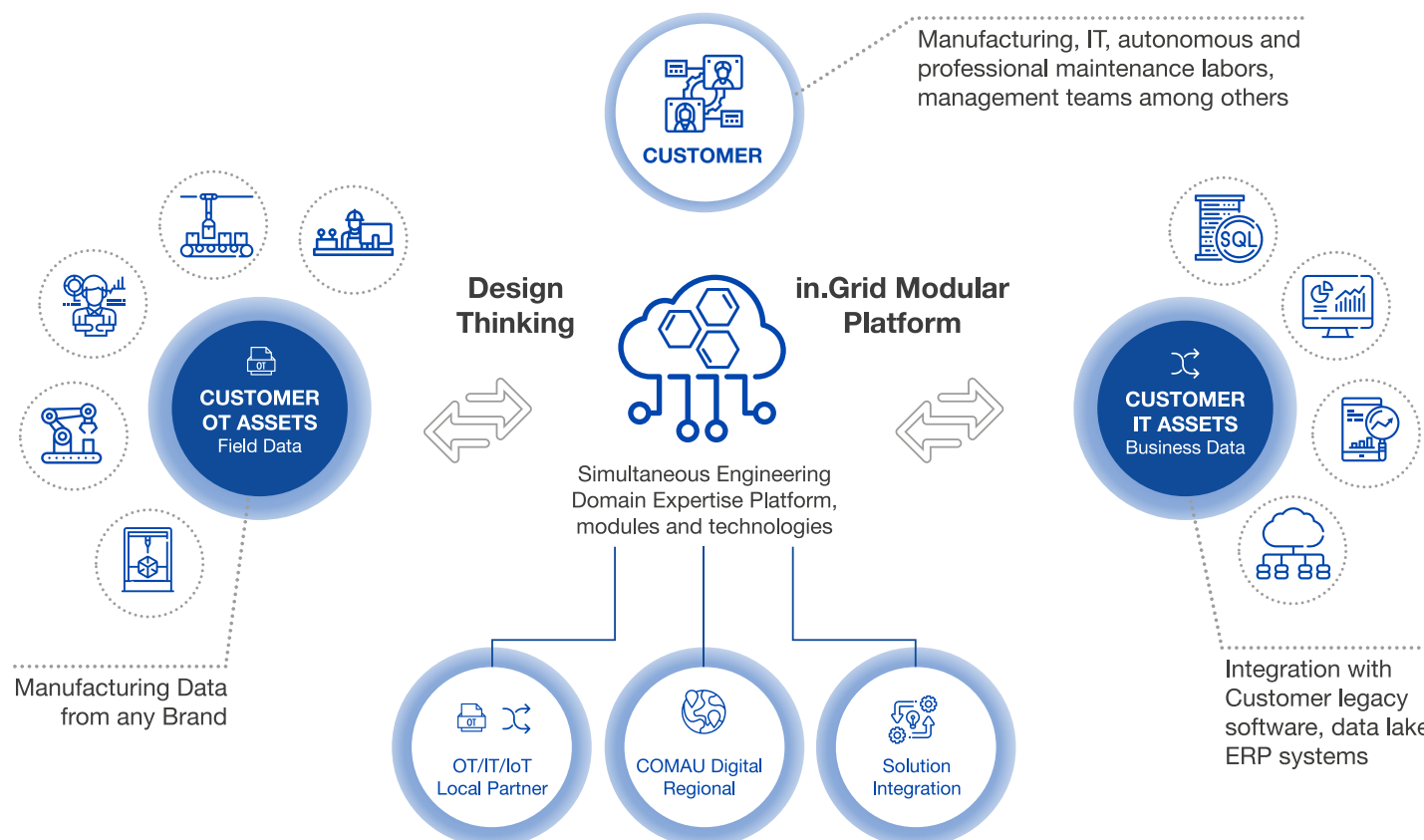
By interconnecting **Comau and non-Comau equipment**, in.Grid enables you to plan, manage and monitor both the production flow and machinery performance. The platform uses **Artificial Intelligence techniques** to elaborate the acquired data in order to work on predictive maintenance, more accurate production planning forecast, quality improvement and other insights. Information will be available and displayed through a **simple and interactive interface**.

Workers play a central role when faced with a completely digitized production process. It calls them to evaluate the information received from the system and make strategic and operational decisions based on it.



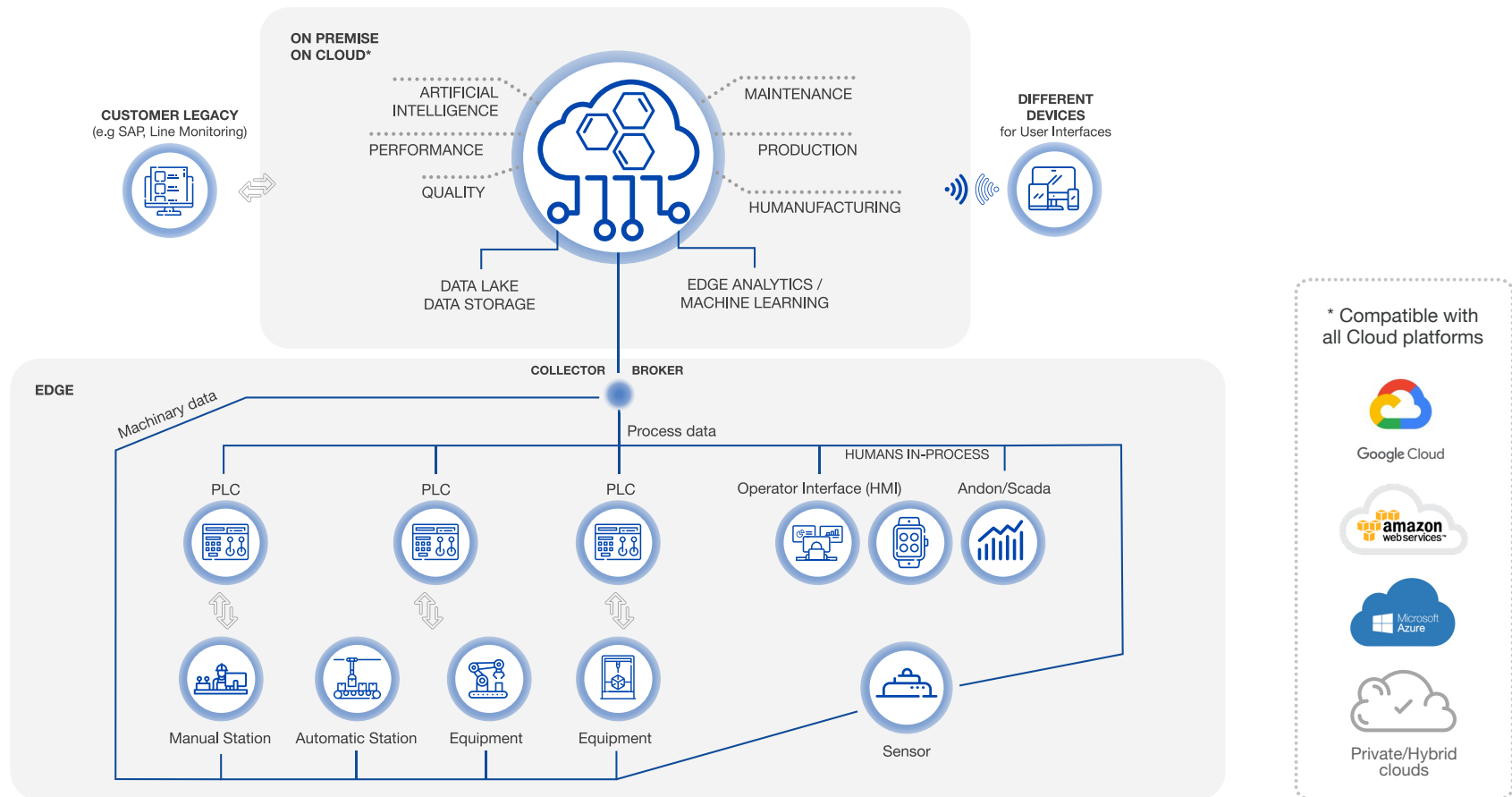
Comau: your partner for OT and IT integration

The Comau in.Grid solution allows field devices that are already present in your installations to **communicate with system management superiors in order to analyze and archive your data**. It can also be used to interface with enterprise resource planning (ERP) systems such as SAP. In addition, **in.Grid can integrate various existing third-party solutions** that clients may already be using for their specific needs.



Architecture Overview: Data collection and functionalities

Due to its versatility and modular nature, in.Grid **interfaces with the most widespread industrial protocols in a myriad of devices**. It also supports all major onsite, offsite and cloud service providers. Furthermore, it can be used with mobile and wearable devices thanks to its simple and intuitive user interface.



Cluster & Functionalities

With in.Grid you can **choose simple micro services designed to satisfy individual requests and combine them** in the way that best suits you. This allows to further enrich the functionality of in.Grid over time, adapting to the customer's growing needs and requests.



in.Grid for Connectivity

- Connection between field devices and the platform
- Communication with PLCs and related systems via standard protocols like OPC, DA, OPC UA, Siemens S7, MQTT, etc.



in.Grid for Maintenance

- Maintenance Digitalization
- IoT Telemetry (platform with diagrams, charts, filters and organizations)
- Paperless Autonomous & Professional Maintenance (AM/PM)
- Sibyl* & Advanced Analytics Algorithms (Comau CNC, Robot, Customization)



in.Grid for Human Interface/Wearable/Paperless

- Information and multimedia content management for use with multiple devices
- Step by step creation of digital SOPs that can be made more engaging with user-friendly multimedia content
- Reporting, Andon and HMI solutions for immediate access and visual management of information
- UI Customization of the Main Page in terms of technical structures of production equipment and operational cycle charts definition
- Interface for mobile and wearable devices like smartwatches and AR glasses
- Easy manual station management thanks to its accessible mobile interface. It gives access to functions like operator activity tracking, support calls (Andon), cell status, etc.

**in.Grid for Quality Process**

- Quality, processes and data traceability, rework management, quality Statistical Process Control (SPC) and data gathering from different devices
- Data input management for processes optimization and quality control
- Customization for Sibyl* & Quality algorithms

**in.Grid for Line Orchestrating/Production Planning**

- Advanced managing of information/configurations sent to various operations
- Line configuration for stations and product lines. This includes links between stations, process and devices definition, plus target cycle-times
- Complete line orchestration with advanced receipts management
- Production planning, from work orders, products serialization, sequencing, recipes to working plans

**in.Grid for Energy**

- Energy Consumption analysis
- Sibyl* & Energy algorithms customization

**in.Grid for Alarms Warnings**

- Alarms and warning notifications via email or mobile apps (WeChat, WhatsApp, Telegram, etc)
- Sibyl* & Alarm algorithms

**in.Grid for Profiling**

- Management of employee and user profiles in the platform
- HR management including saturation optimization, shifts, skill/competencies assessment, managing of Access Control Matrices, connection with SAPHR, etc.
- Integration with external authentication solutions such as Microsoft ADFS, OAuth and more



in.Grid for Flexible Manufacturing/Logistic

- Flexible manufacturing: this includes parts catalogues, serial numbers, model configurations, BOM and orders management
- Logistics and materials calls management: manual or automatic notification delivery for Andon calls, plus automatic notifications sent in preemptive mode, which will generate a work order for materials acquisition



in.Grid for Performance & KPIs/Remote Performance Monitoring (in.Grid Link)

- Calculation of KPIs like CT, OEE and TA. Users can add their own custom KPIs as well
- Real-time plant monitoring with station layouts and real-time statuses (working, starving, alarm, refuse, operator intervention, etc.) and cycle times for each cell
- Sibyl* & Performance algorithms customization
- in.Grid Link functionalities: KPIs, active alarms & alarms history, search functions, KPI customization, Sibyl & Performance algorithms, etc.



in.Grid for ERP & Legacy

- in.Grid integrates completely with Legacy Systems: from ERP for purchase orders to materials management and Product Lifecycle Management (PLM) for product BOMs



in.Grid for Consultancy

- Integration for assessments, consultancy, training and automation



Market Approach: a Digital Roadmap together with Customer

The offer for in.Grid can be applied to green and brown fields with 4 main activities for each.

Each one of these is designed to share the digital issues with the customer and is aimed at **satisfying all their requests**.

With the help of our team of specialists, the customer can choose which of these activities to put in place.

BROWN FIELD



CUSTOMER DIGITAL ASSESSMENT

Identification of Digital Proposal Solution through a step by step methodology aimed to identify and prioritize customer digital needs.



POC

Definition of building blocks; setup of blocks; development environment solution is built; verification of results with customer.



PILOT

From Development to Productions Environment; final hardware architecture set-up.



EXPANSION

Auto-scaling; automatic security updates and data recovery systems.

GREEN FIELD



CONSULTANCY (PROCESS, DIGITAL)

Initial consultancy activity is aimed to define the process/digital status and properly address the customer investments.



SIMULTANEOUS ENGINEERING

From product idea to industrialization. Development of optimal and integrated customer concepts and technical solutions using a collaborative approach with customers.



DIGITAL PROJECT EXECUTION

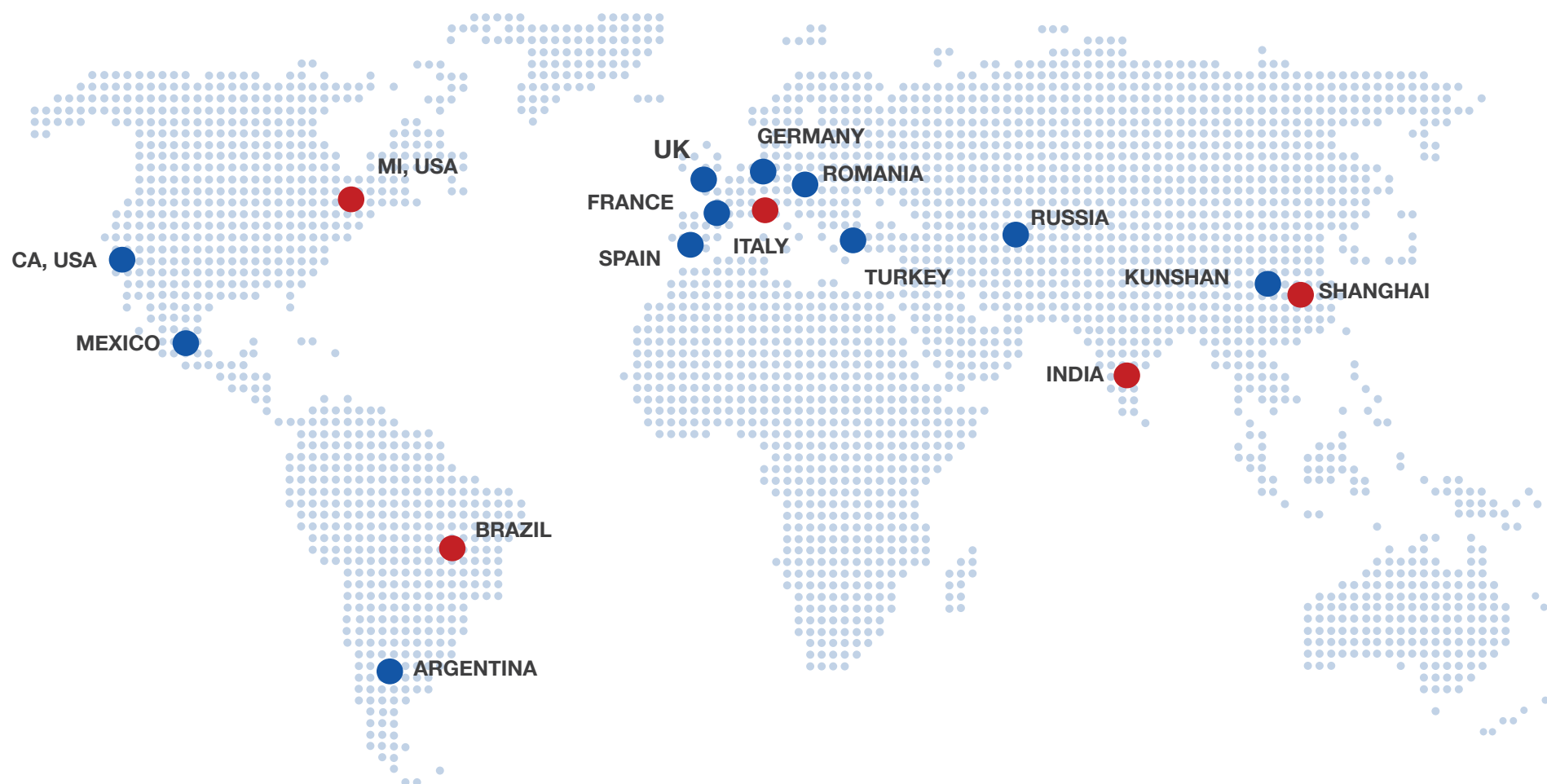
Solution implementation and migration to production environment.



EXPANSION & CONTINUOUS IMPROVEMENT

Integration of additional features and services to support our customers in maintaining their competitiveness.

Comau in the world



DIGITAL HUBS They collaborate, exploiting the strengths of their people, to develop and enrich **Comau's digital solutions**.

Local distributor



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