



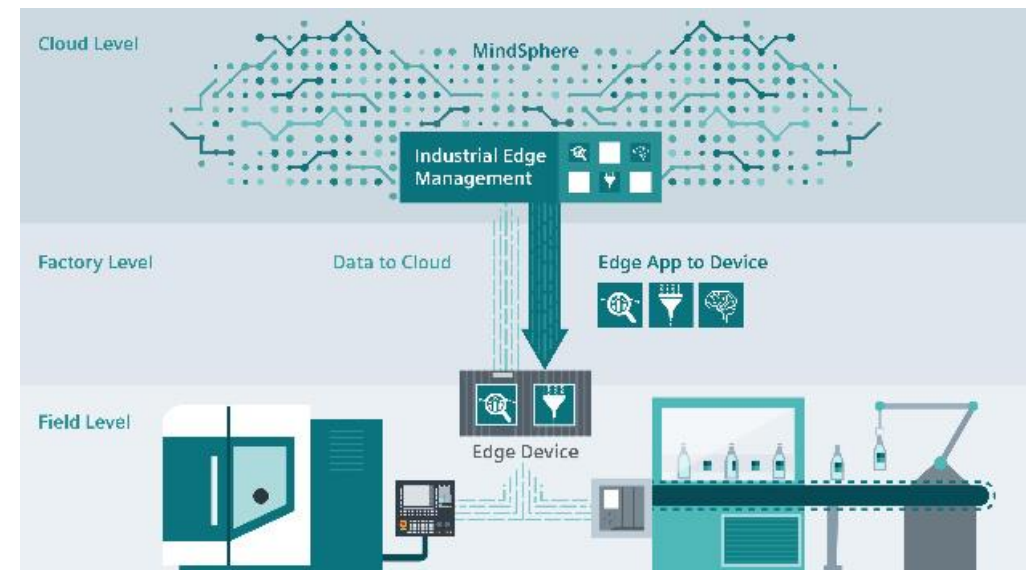
SIEMENS
Ingenuity for life



**Edge Computing and AI for
Industrial Applications**

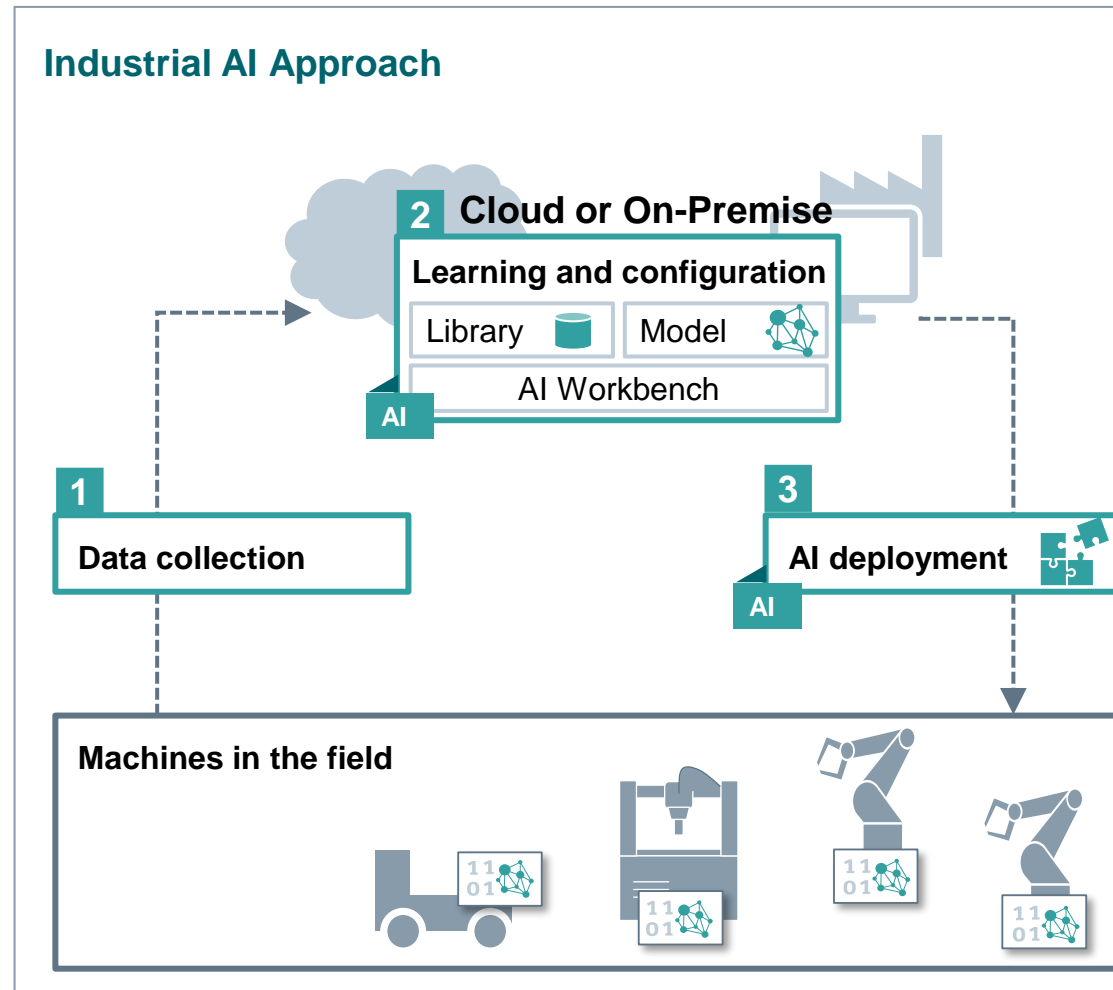
Edge Computing and AI for Industrial Applications – Outline

- Introduction to Siemens Industrial Edge
- Managing AI Lifecycle



Artificial Intelligence in Industry

Vision for Industrial AI Approach

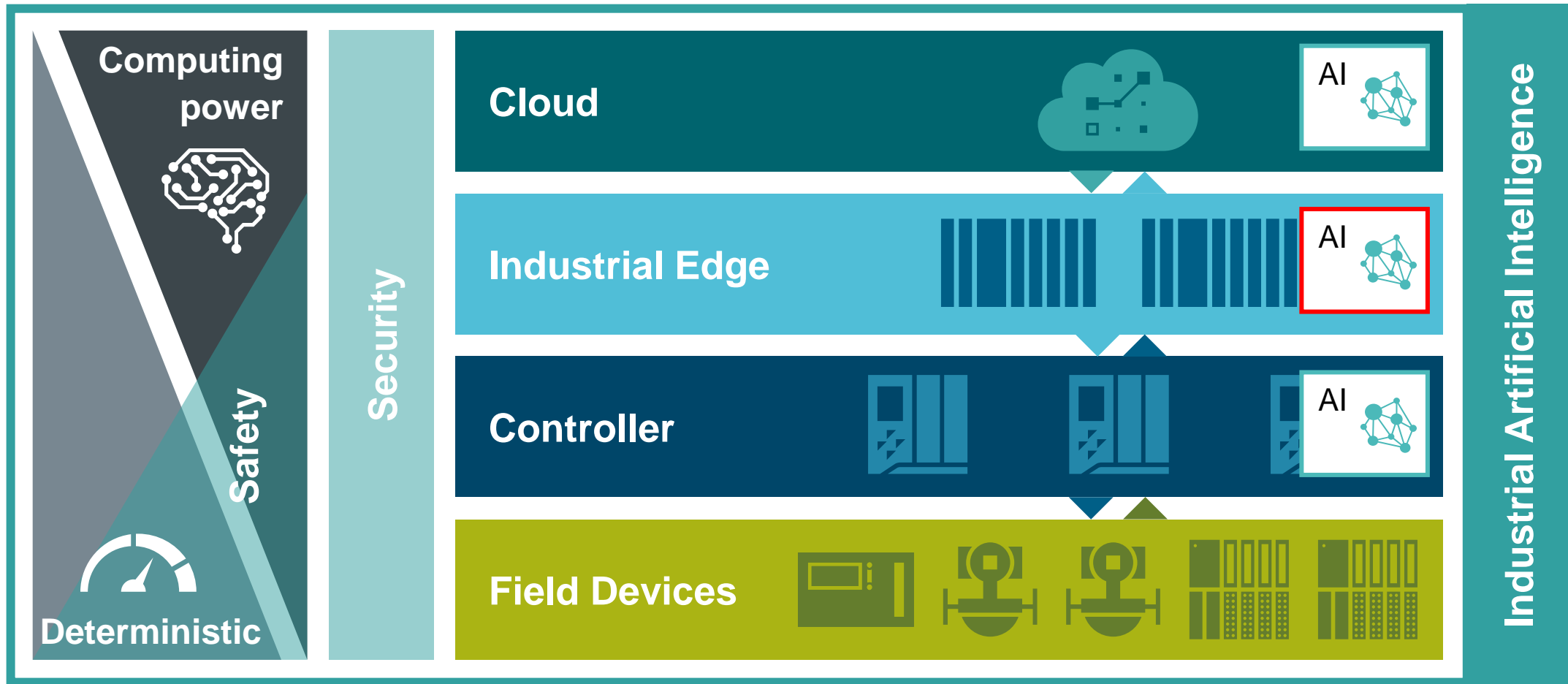


→ Requirements:

- 1. Data Collection:**
Data directly from machines
branch and process knowledge needed
labeling of data
- 2. Learning and configuration of AI Algorithm:**
Algorithm and training knowledge needed
Cloud or on-Premise
- 3. Deployment of AI:**
Industrial-suited Hardware required

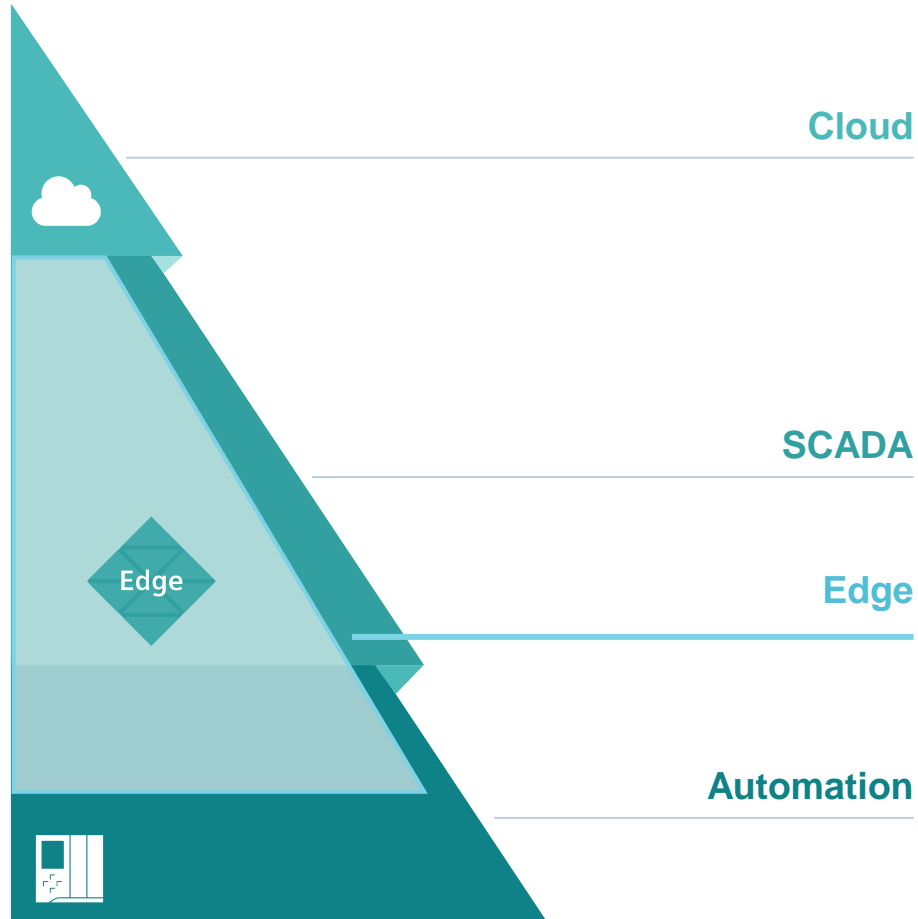
→ **Objective:**
Automized Usage of AI Algorithms in an industrial environment

Artificial Intelligence in Industry Platforms & Deployment



Positioning

Technology



Characteristics

Cloud

- Platform (as a Service) for **global** visualization and processing of data on a high-level language basis
- Integration of **IT functionalities** such as long-term data archiving, scalable computing power and software deployment

SCADA – Informational and mission critical operations

- **HMI Software** for controlling and monitoring of processes
- Basic analysis options e.g. KPIs and **IT** integration

Vision: SCADA can additionally run on Siemens Industrial Edge

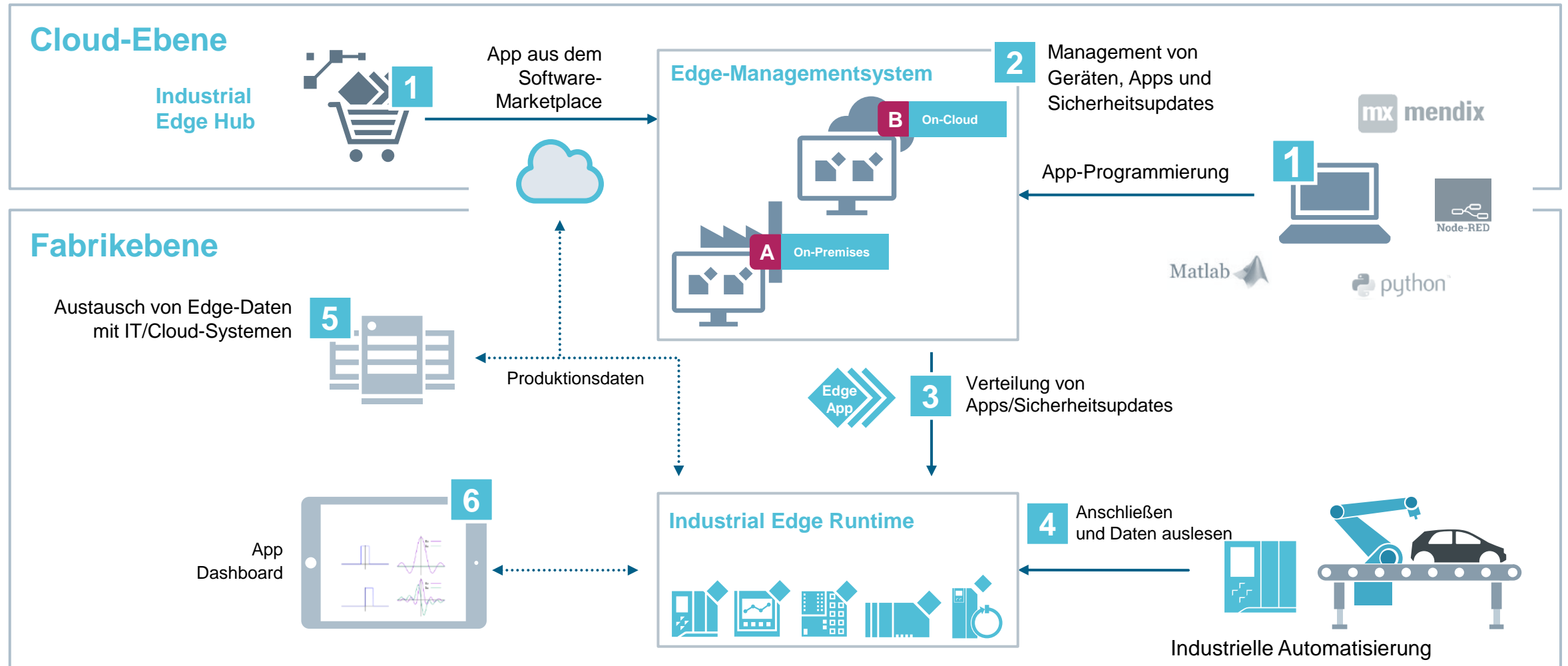
Edge Computing with Siemens Industrial Edge

- **Open software platform** to execute software in a very efficient way with a central manageability and versioning
- Native integration of **IT functionalities into automation**
- **Software** with support for data collection, processing & exchange
- Local data handling and processing

Automation – Mission critical

- Production/process control
- Electrical engineering

Siemens Industrial Edge Workflow



Additionally to devices by partners, Siemens provides a scalable industrial hardware to run Edge Applications

SIEMENS
Ingenuity for life



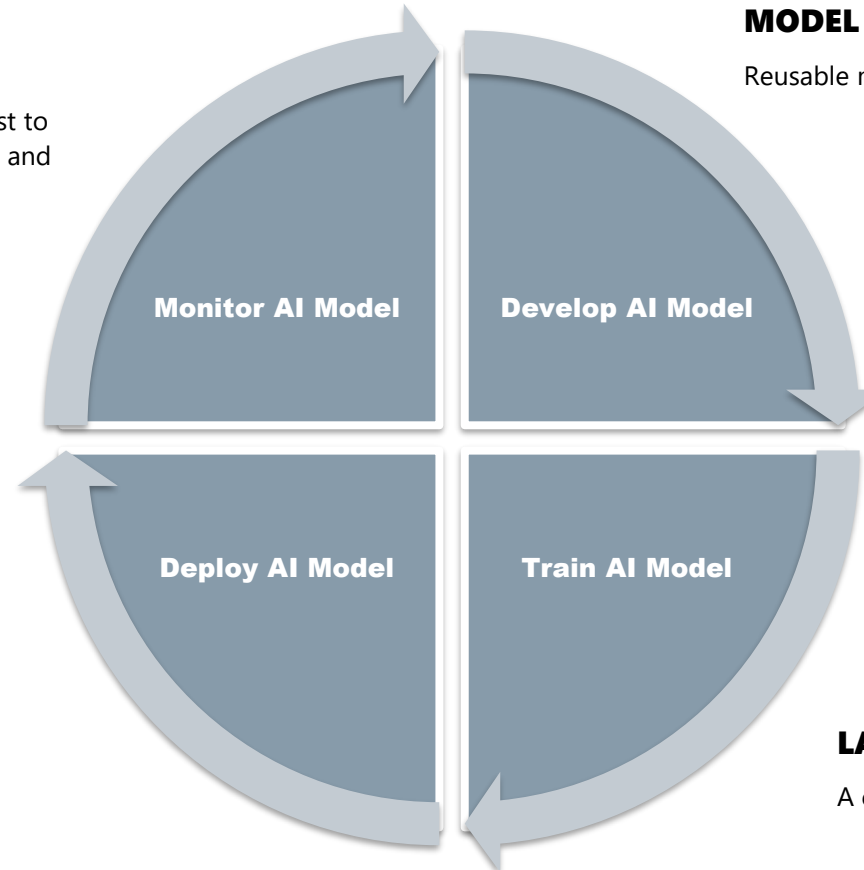
- 1** S7-1500 TM MFP
- 2** IPC127E
- 3** IOT2050
- 4** RuggedCom APE
- 5** IPC227E
- 6** IPC427E
- 7** IPC6x7E

- Available / Available mid-term
- Potential future development

AI Lifecycle management

EXPERT VIEW

An interface that empowers a data scientist to quickly reason about system performance and failures



MODEL TEMPLATES

Reusable model artefacts

CONTINUOUS INTEGRATION

Testing and delivering new models and features through an automated pipeline

LABELLING UI

A convenient tool suite for labelling ML data

SYSTEM AGNOSTIC

Common runtime for cloud and edge

MODEL MANAGEMENT

An integrated transparent system management interface

AI Templates

Reusable Data Science Components

Versionable entity

System Agnostic

- Cloud
- Edge
- On-Premises Server

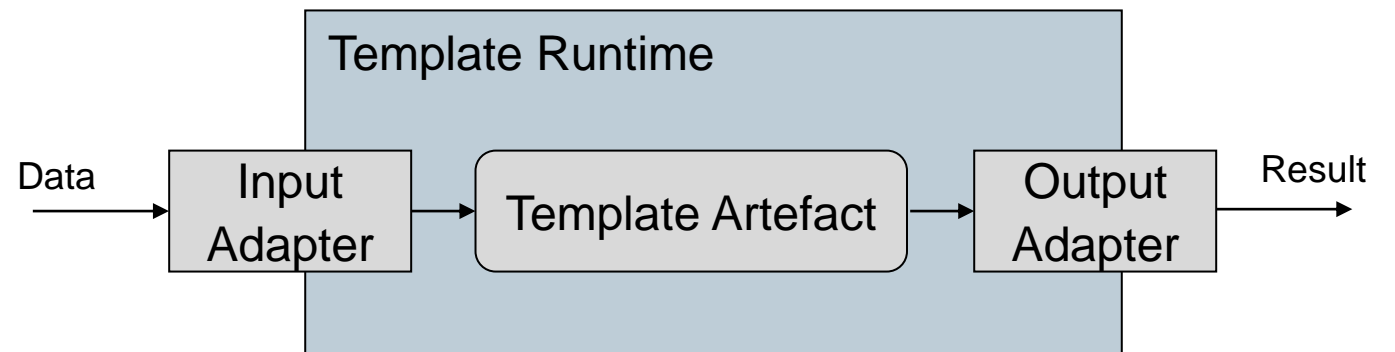
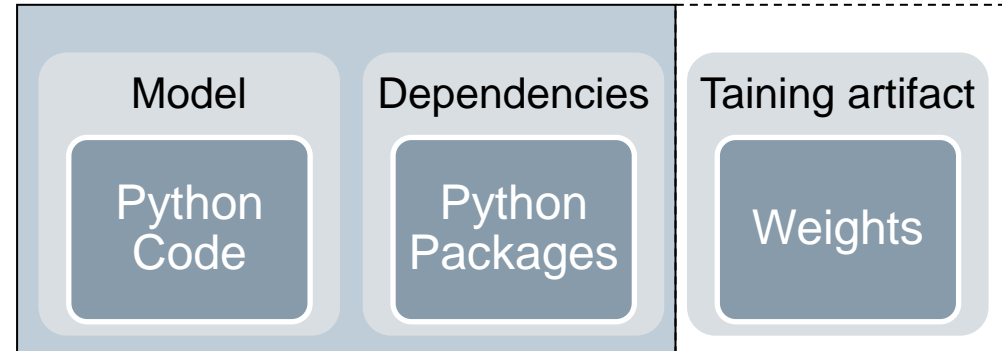
Defines Stage

- Training
- Prediction

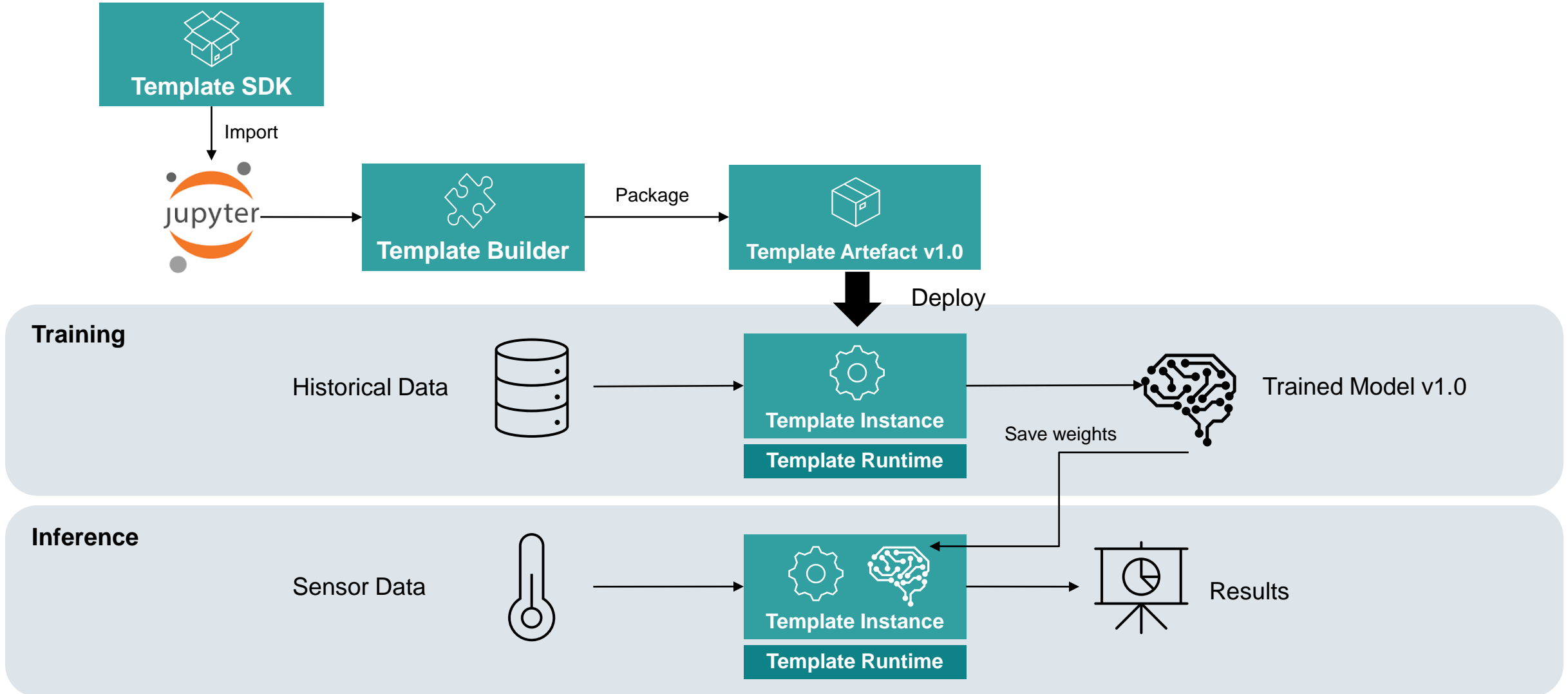
Define Order of Functions

Defines Configuration

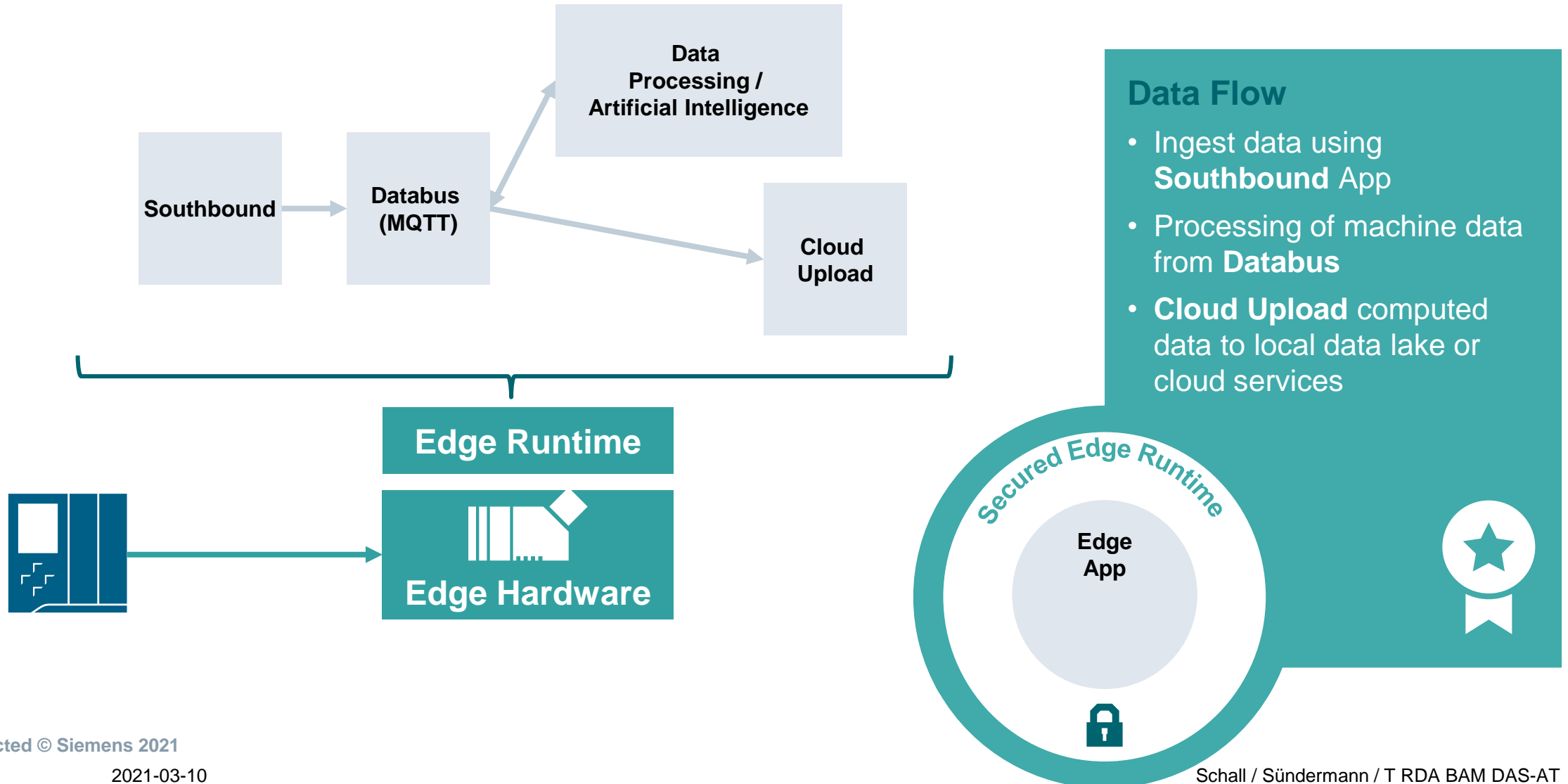
Template



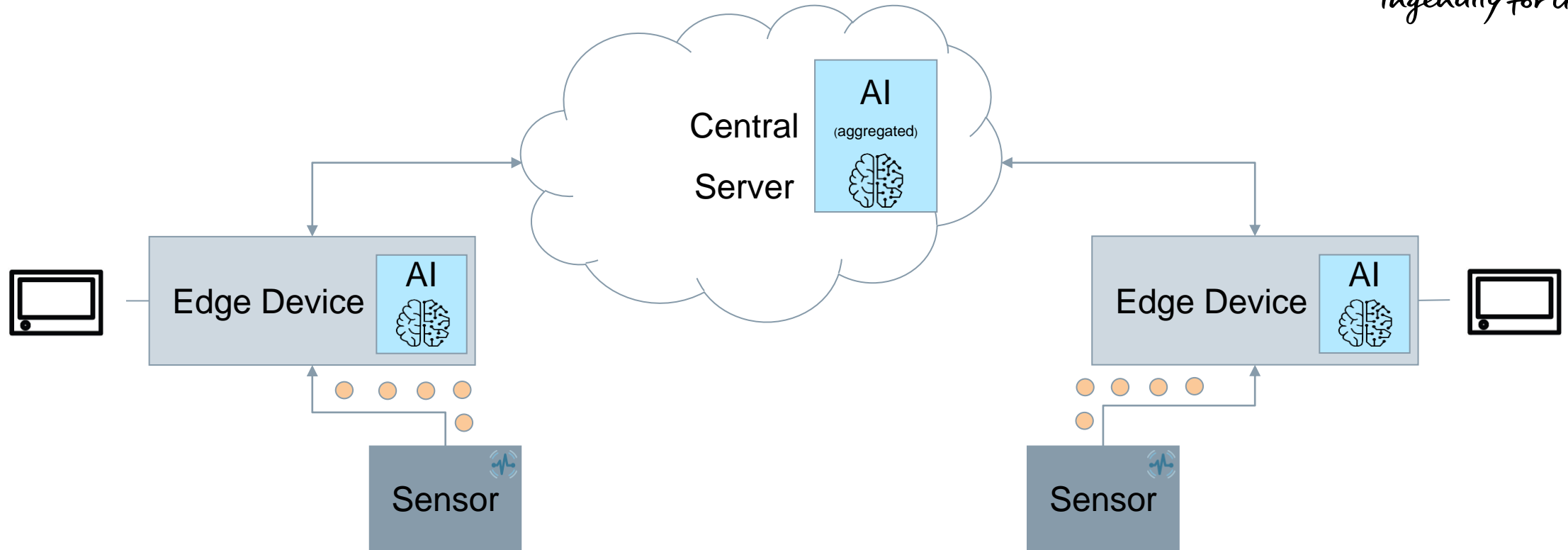
AI Templates - Workflow



Industrial Edge Example Edge AI App



Federated Learning



Thank you!



Dr. Daniel Schall

Head of Research Group

T RDA BAM DAS-AT

+43 (664) 8011724645

daniel.schall@siemens.com



Dr. Axel Sündermann

Research Scientist

T RDA BAM DAS-AT

+43 (664) 88557694

axel.suendermann@siemens.com

