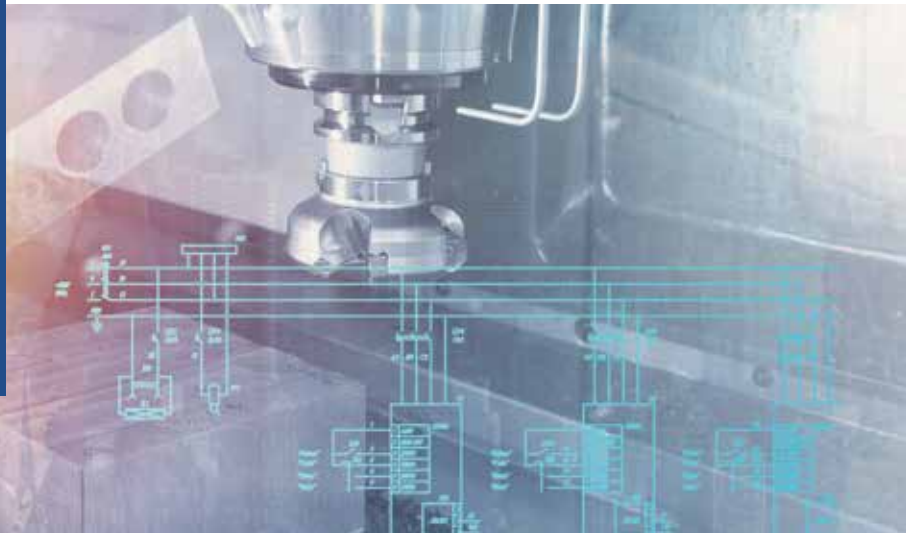## SMART SERVICES SOLUTIONS

The smart services solutions from **compacer** bring together top-class technology to create complete digital special concepts for various different business segments and sectors. All the solutions are united by the concepts of ideal process automation and target-oriented data processing.

RETROFIT - INDUSTRY 4.0 FOR EXISTING EQUIPMENT

In many manufacturing companies, heterogeneous production environments have evolved over time and many production lines still operate with a low degree of automation. These can – and should – now be integrated into today's digital world.

By **retrofitting** existing plants and machines with modern components, they can be integrated into your digital production. This can be achieved, for example, by installing new sensors. As a result, analogue signals are processed and made usable. After a retrofit, you can start collecting and saving production data and metrics and make them available throughout the network environment in real time. Benefit from smart monitoring and controlling abilities across your entire production environment and across all plants; keep tabs on the effectiveness and capacity utilisation of retrofitted legacy machinery; and make errors traceable. It is a low-cost solution to extend your equipment's lifetime and integrate it with the Industrial Internet of Things (IIoT) and smart manufacturing approaches of Industry 4.0.

Measure and evaluate the availability, performance and **quality rates** of existing production facilities, that is, overall equipment effectiveness (**OEE**).

Benefit from more **effective processes** thanks to transparent data and centralised performance metrics.

Gain complete **traceability** by logging all production and quality-related data.

Reduce costs and **increase availability** through predictive maintenance.
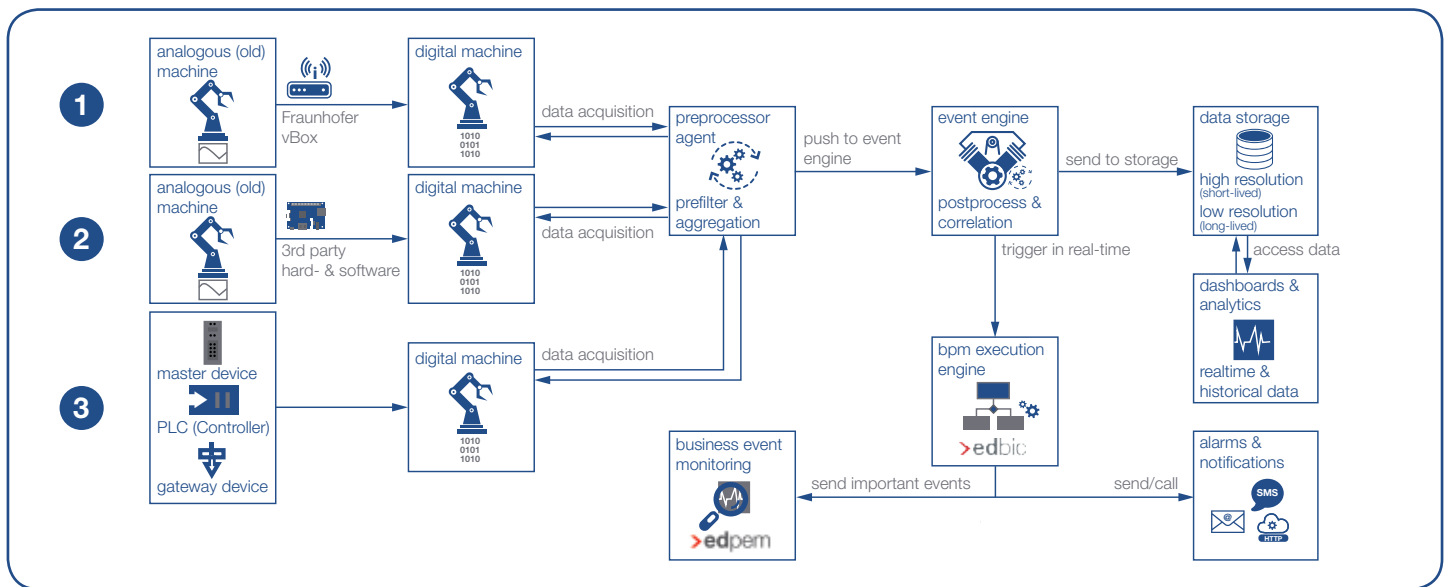
Increase productivity by extending machine lifetimes through permanent monitoring and an optimised spare parts supply.

Just **rely** on our vast experience: for over 20 years, customers have been partnering with **compacer** to protect their highly sensitive data.

IMPLEMENTATION OPTIONS:

By **retrofitting** modern components, your analogue machines get digital and gain the ability to communicate with higher-level IT protocols. Typically, this is done by installing a range of sensors to generate analogue signals. These analogue signals will then be digitised by a Fraunhofer vBox ❶ or another analogue-to-digital converter (ADC) ❷. Where an internal machine bus system (e.g., PROFINET, CAN, …) ❸ already exists, the sensors will be integrated into the environment by using gateways or sensors that have been specifically designed for that bus system.
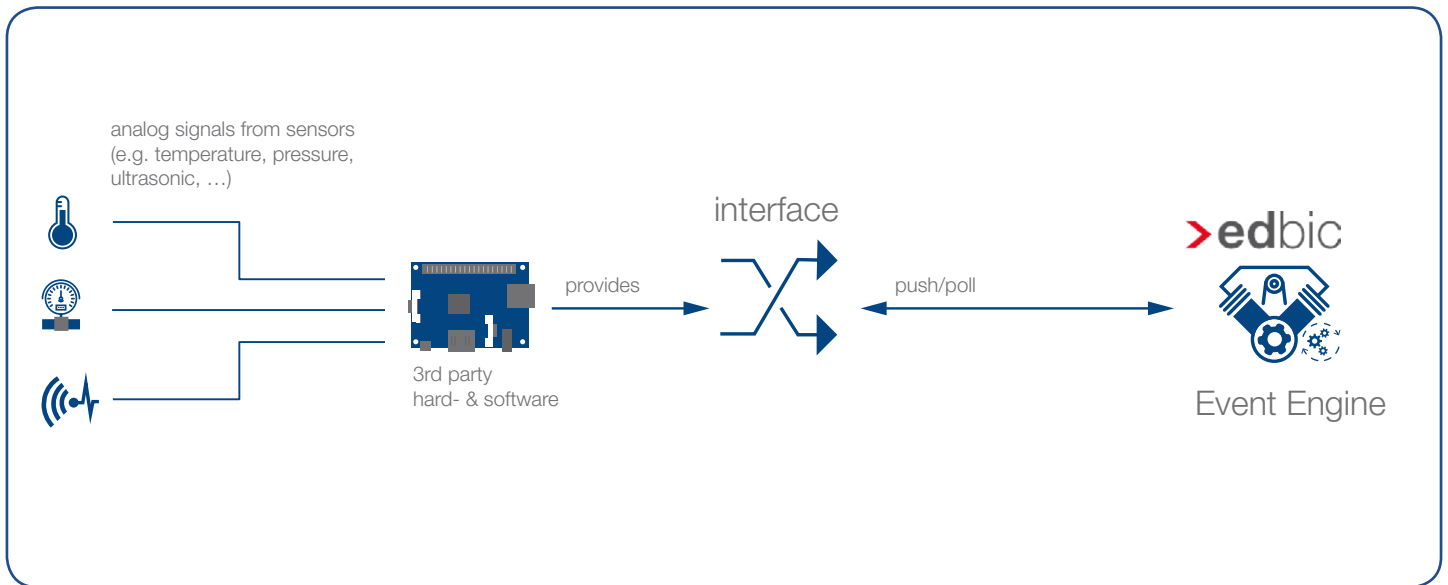
Once the **retrofit** is complete, **compacer's** integration platform **edbic** will integrate machine and sensor data, analyse them in real time according to definable rules and store them according to predefined strategies. The data are now available to the overall environment for monitoring, analysis, alerting, … If required, historical memory data can be fed to all kinds of analytical systems, for example to IBM Cognos. This will allow you to evaluate data using statistical methods such as machine learning and predictive maintenance.
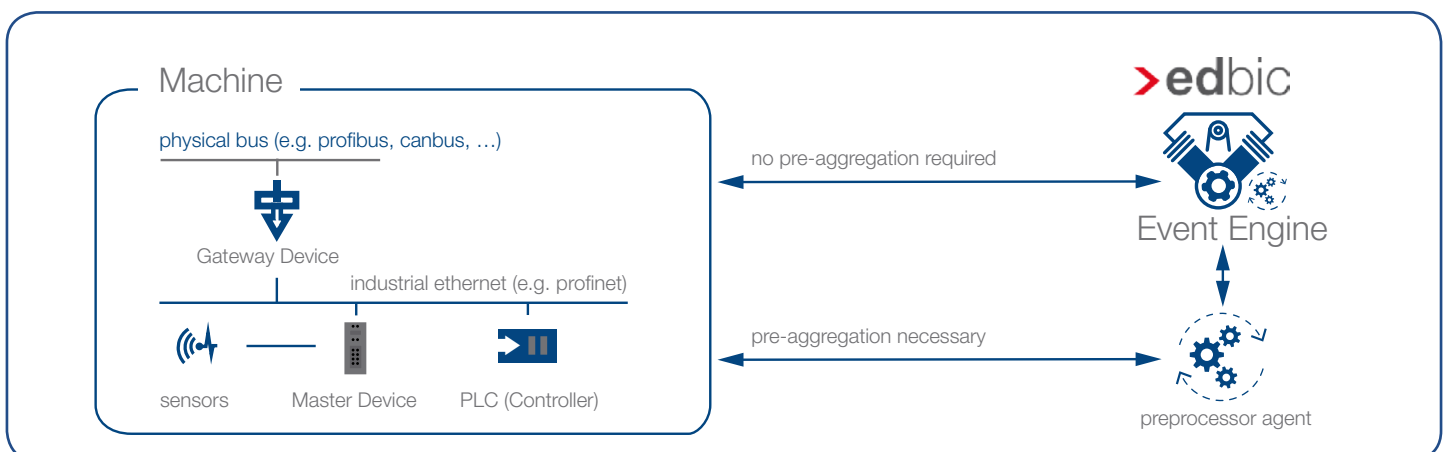
❶ RETROFIT WITH THE FRAUNHOFER VBOX:
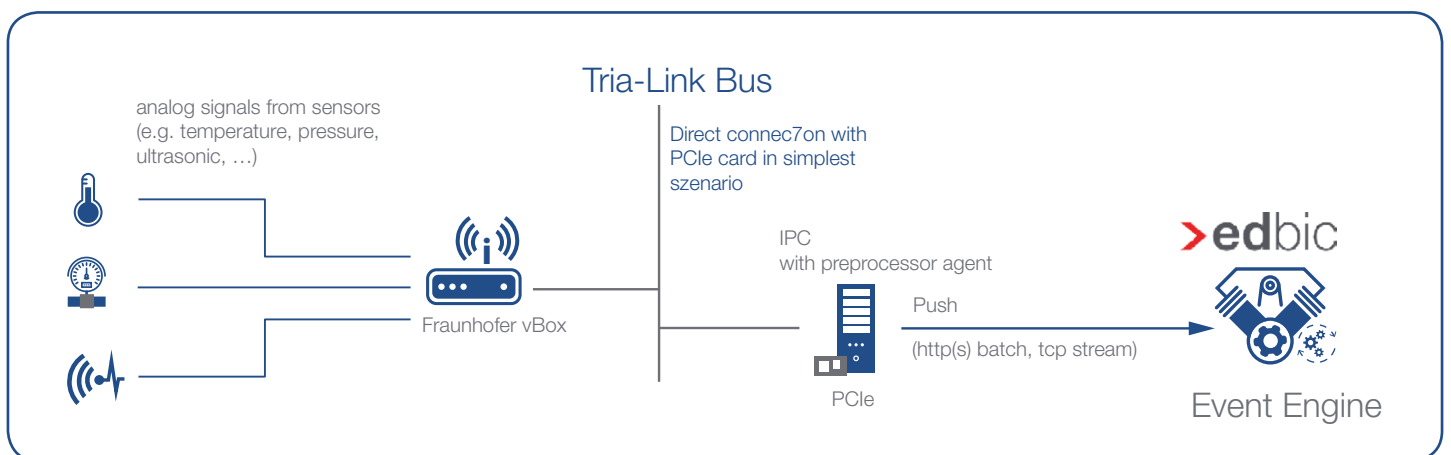
We recommend a **retrofit** based on the Fraunhofer vBox if the machine in question has no digital interfaces, if you need a non-intrusive monitoring system or if you require sensors that will generate a high data throughput and/or whose data must first be processed by one of the integrated Fourier transformations (e.g. structure-borne sound). The **retrofit** will be implemented by installing the necessary sensors and connecting them to the analogue inputs of the vBox. The vBox itself behaves like a node within a Tria-Link bus system and will be connected – in the most simple scenario – directly to the PCI Express card of an IPC. The preprocessor agent then communicates directly with a configurable **edbic** instance via defined interfaces, such as http(s).

2 RETROFIT WITH THIRD-PARTY HARDWARE

analog signals from sensors
(e.g. temperature, pressure,
ultrasonic, ...)

provides

interface

push/poll

> edbic

Event Engine

3rd party
hard- & software

Of course, you can also achieve your sensor data digitalisation goals with third-party hardware. In this case, you will need special ADCs and/or micro-controllers that support common protocols, such as http(s), MQTT, SigG OPC UA, Modbus TCP, ... Where no gateway device is present to make the data available in an open format, you will also need a preprocessor agent. A configurable **edbic** instance will then be able to acquire the sensor data directly via the implemented interfaces.

3 RETROFIT WITH AN EXISTING INTERNAL BUS SYSTEM

Machine

physical bus (e.g. profibus, canbus, ...)

Gateway Device

industrial ethernet (e.g. profinet)

sensors   Master Device   PLC (Controller)

no pre-aggregation required

pre-aggregation necessary

> edbic

Event Engine

preprocessor agent

If there already exists an internal bus system, it is very likely that **retrofitting** components is not necessary at all. Fortunately, a lot of gateway devices are available on the market that can make the data on the bus accessible to high-level IT applications such as **edbic**. If the internal bus system is already composed of devices that are able to communicate on their own, for example SIEMENS S7 controllers or BALLUF IO-Link Master devices, a hardware upgrade might be unnecessary as your configurable **edbic**-instance can be connected directly.

APPLICATION MODELS FOR COMPACER'S INTEGRATION PLATFORM:

MANAGED SERVICES:

services provided through our e-business platform. As we belong to the eurodata group, we are benefiting from eurodata's own ISO/IEC 27001-certified, high-performance data centre at Saarbrücken (Germany).

SOFTWARE-AS-A-SERVICE (SAAS):

Secure cloud services at eurodata's own ISO/IEC 27001-certified, high-performance data centre at Saarbrücken (Germany). As part of the eurodata group, we fully trust in our sister company's data security.

ON-PREMISE:

Implementation based on the technical infrastructures of our customers or of their hosting providers.

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Are you familiar with **compacer edbic**? **edbic** is a modern data integration system which connects all those involved along the value added chain (digitalisation). All the business data with their various diff erent formats and origins come together in **edbic** and the business processes are improved in the long term by automation of the kind that makes sense. **edbic** supports the visualisation of those business processes (e.g. with **edpem**, **arcplan**, **cognos**) and ensures clarity (technical monitoring and process overview) and stability (active cluster architecture), for example in internal sequences (A2A) or data interchange with business partners (B2B). Info at **compacer.com/en/edbic**

i For more information go to: **www.compacer.com/en**