

Fact Sheet: Acuvate Standard Digital Framework

INTRODUCTION

To enable companies to develop and introduce digital-based business workflows efficiently and effectively, using this framework will validate that all important steps are covered. We first need a good description of the business problem statement to be addressed. Based on that information, we can arrive at the best solution providing maximum value using the Acuvate 7-Step Digital Framework.

CAPABILITIES

The seven steps will be explained in more detail below:

Step 1: Devices:

- Define the data sources needed as input for the Business Process implementation to be successful and be aware that any type of data (including documents) could be required.
- Data sources can be located anywhere, owned or not owned by the customer.
- Often sensors are required to actually produce the data:
 - Sensors are linked to engines to measure multiple engine settings representing the health.
 - Temperature sensors: Environmental / product / liquid / etc. temperatures.
 - Water level sensors: Protecting facilities against excessively high levels.
 - Vibration sensors: Can be linked to engines, compressors, turbines, etc.
- Data can also come application stores (such as ERP) and using an (RESTFUL) API connection to access the data.
- Both newly created data or data which has been there for a while can be used: For example, it is possible that Timeseries data has been collected for many years but never really used until we introduced AI – Machine Learning (ML) for predictive maintenance. In that case, we also need to look at the quality of the data since it might not have been validated as well before.

Step 2: Connectivity:

- Data sources need to be connected to get data from the source (sensor) to Acuvate Edge Platform, Acuvate Enterprise Data Platform, or to the Enterprise-owned Database/Platform.
- There are two connections to consider: Between the Data Source and the Sensor and between Sensor and destination of the data:
 - Examples: Data source to Sensor:
 - IO-LINK
 - UART
 - SDI
 - Examples: Sensors to Destination:
 - 4G / 5G: Whereby 5G is important for high data throughput and/or low latency; Therefore, with a focus at camera images.
 - LoRaWAN (WPLAN): Meant for small messages such temperature data, etc.
 - NB-IOT: Same purpose as LoRaWAN.
 - WIFI
- Both IT and OT connectivity type standards will be supported.

All steps are underpinned by Cyberdefense and Information Security measures.

Step 3: Acuvate Edge Platform:

- It is important when we have too much data (for the connection) to be sent to the Acuvate Enterprise Data Platform and/or we need real-time decision making that the data will be stored on the Acuvate Edge Platform.
- AI-ML / AI-MV models will be developed and trained against the Acuvate Enterprise Data Platform but can be used operationally against data on the Acuvate Edge Platform.
- Even when data is stored on the Acuvate Edge Platform get a copy as well on the Acuvate Enterprise Data Platform; Latter can happen later.

Step 4: Acuvate Enterprise Data Platform:

- All data to be stored on the Acuvate Enterprise Data Platform where it can be exploited by AI and other Analytics / Reporting / Dashboarding tooling.
- It is important to store all data to ensure that ownership can be secured and cannot be lost by accident when the same data can go to SaaS/PaaS-based services.
- Databricks, with Energy extensions, is at the core of the Acuvate Enterprise Data Platform. Support for all data sources is important.
- Data loading can be based on data streaming, APIs, etc.

Step 5: Applications & Services:

- Exploiting data in the Acuvate Data Platform: Define the tooling to be used, from simple to very complex, to obtain the right information (value) out of the data.
- AI is an important service here and increasingly used.

Step 6: Inform the Decision Maker:

- Visualize the data and a broad spectrum of tooling can be used.

Step 7: Decision maker Decides:

- Based on the recommendation(s) received, the Business lead makes the final call. In case of autonomous operations, the decision will be made at Step 3 (when time-critical) or otherwise at Step 5 whereby a setpoint can go back to the process in the plant.

USE CASES

As we cover all 7 steps, the use cases are based on end-to-end business processes:

A broad spectrum of these is and has been made available:

- Predictive Maintenance.
- HSSE
- Documentation management, etc.
- Quality Control
- Documentation management.

Separate material is available to explain all of these business workflows.

BUILDING BLOCKS

Acuvate Standard Digital Framework works by integrating various technologies and components to provide a unified 7-step framework. Some key components include:

*All Factsheets available on www.acuvate.com

- Sensors:**
A very broad spectrum sensors will be supported.
- Acuvate Edge Platform:**
Acuvate Edge Platform based on Dell or HP mainly hardware, mainly components, Linux Open-Source Operating System, and EdgeXFoundry Open-Source platform.
Note: Further explanation in the Factsheet about this Acuvate Edge Platform
- Various connectivity:**
Various connectivity technologies are supported as well.
- Acuvate Enterprise Data Platform:**
Acuvate Enterprise Data Platform based on components as explained in the Factsheet about this Data Platform.
- AI (AI-ML / AI-MV / Gen-AI):**
AI (AI-ML / AI-MV / Gen-AI) components as explained in the Factsheet about these AI elements.

SUPPORT

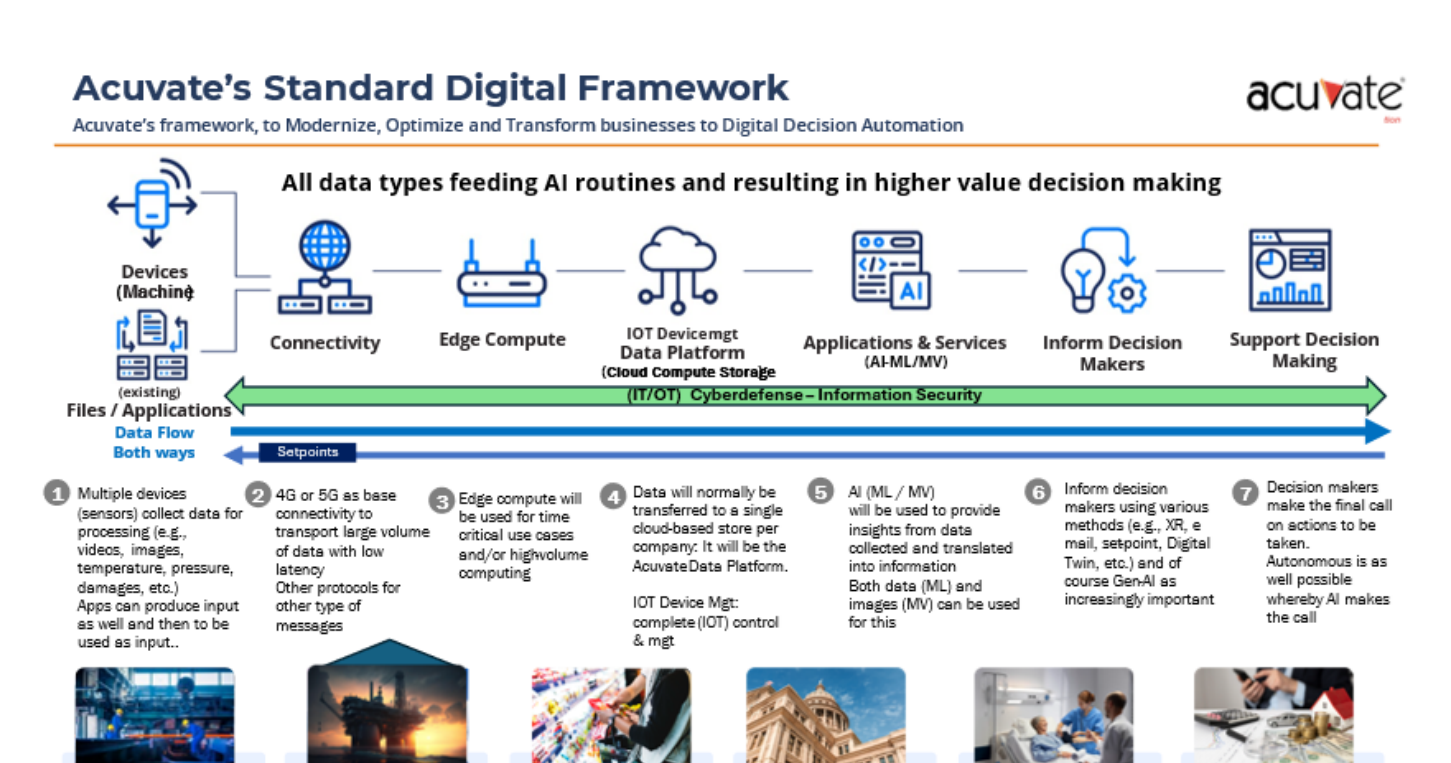
- Contact our Advisors for online access to information on how to exploit these services to solve your business problem(s) advisors@acuvate.com, and you will be contacted within 24 hours.

Integration:

Integrating our solutions with company components, such as data sources and reporting tooling already in place.

Operational support:

Once installed, we offer Operational Support & Management services including all elements you expect such as: Alert management, Preventive Management, Housekeeping, Performance Management, Evergreening, etc., and SLA based.



LICENSING

Given the various components do contact Support as above about this.