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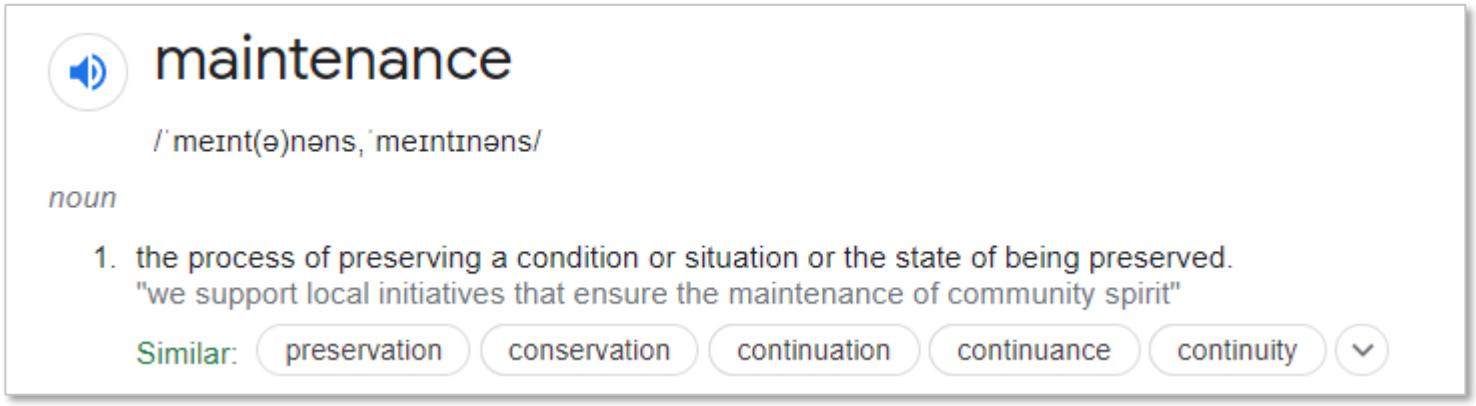
Submodel: Maintenance

Date: 2022-03-17

Definition



maintenance

/ˈmeɪnt(ə)nəns,ˈmeɪntɪnəns/

noun

1. the process of preserving a condition or situation or the state of being preserved.
   "we support local initiatives that ensure the maintenance of community spirit"

Similar: preservation | conservation | continuation | continuance | continuity

- Maintenance is a daily business in process and factory automation.
- A regular maintenance is required for the most machines or process equipment.

Maintenance vs. calibration

Maintenance:

- to ensure that equipment is operating within the given specification.
- Maintenance may include, but is not limited to, the following:
    - a cleaning
    - the precautionary replacement of parts
    - lubrication of moving parts
    - functional tests
    - visual inspections
    - leak tests
    - ...
- Basics regulations for maintenance:
    - Functional safety
    - Explosion protection
    - Operating licence

Maintenance vs. calibration

Calibration:

- Regular calibrations are required for reliable measurement results or the correctness of the display of measured values.
- Calibration is carried out according to the comparative measurement principle at one or more calibration points and is documented by a calibration certificate.
- The measuring equipment used for calibration is calibrated regularly and is traceable to the national standards e.g. Physikalisch Technische Bundesanstalt (PTB) of Germany or to other national standards.

Focus Submodel Maintenance

- The focus of the maintenance submodel is on maintenance and not on calibration. An independent sub-model is needed for calibrations.
- The transfer of information for maintenance is usually static data and information that is passed on to the next instance in the value chain.
- The maintenance submodel is intended to standardise the transfer to the next instances and enable the transfer of maintenance instructions into e.g. digital maintenance.

Actual situation

Manufacturer A
Produkt A +
Maintenance documents

Manufacturer B
Produkt B +
Maintenance documents

Manufacturer c
Produkt C +
Maintenance documents

Machine builder

Creates a machine
+
maintenance documentation
for the machine

End user with own service department

External service company

Paperwork

Paperwork

Paperwork or
Service Software

Use Case

1. Component manufacturers proved their maintenance steps/ details to machine builders (digital - in a submodel)

2. Machine builders create the maintenance instructions for the machine – based on the componets information and provide it to endcustomer or external service organisation
(digital - in a submodel)

3. End customer implement the maintenance steps automatically in their maintenance software

Position of the submodel in context

Current Submodel working teams working on ..

Digital nameplate	Contact Information	Handover Documentation	OPC UA Server Data Sheet	Module Type Package (MTP)
Technical Data	**Maintenance**	Product Carbon Footprint	CO2-Monitoring	Time Series Data
Compressed Air Systems	BOM & Hierarchical Structures	Service Order Creation	Capability Models	Simulation, Virtual Commissioning
Static/Life Cycle related			Active functions involved	

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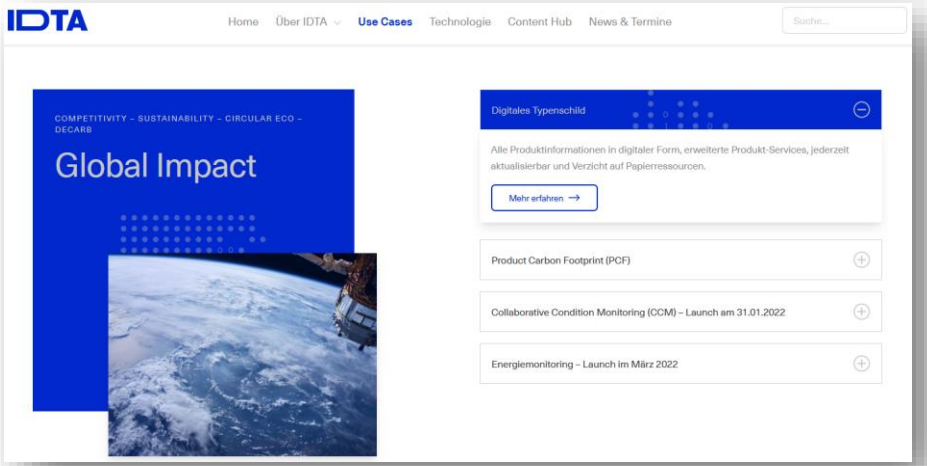

Targets for the team

Draft - Targets for our team:

- Analysing the background to the topic of maintenance
- Development of the submodel maintenance in alignment with eclass calssifaction
- Side documentation with explanations and example AASX files
- Proof of concept

Next Steps

Draft

- Schedule next meeting
- Check your own maintenance documents and summarize them
- Gather your open questions
- Have fun in our team…

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End