

P&PM's Device Status Code Manager
Management of
Diagnostic Trouble Code Data
via Cloud Solutions

Powered by Mendix

Complexity and Relevancy of Diagnostic Trouble Codes significantly increases

The more functions are implemented via embedded software, the more codes are needed to steer the interaction of products with end users, service technicians etc. - also in case of faults. Therefore, the relevancy of Diagnostic Trouble Codes increases.

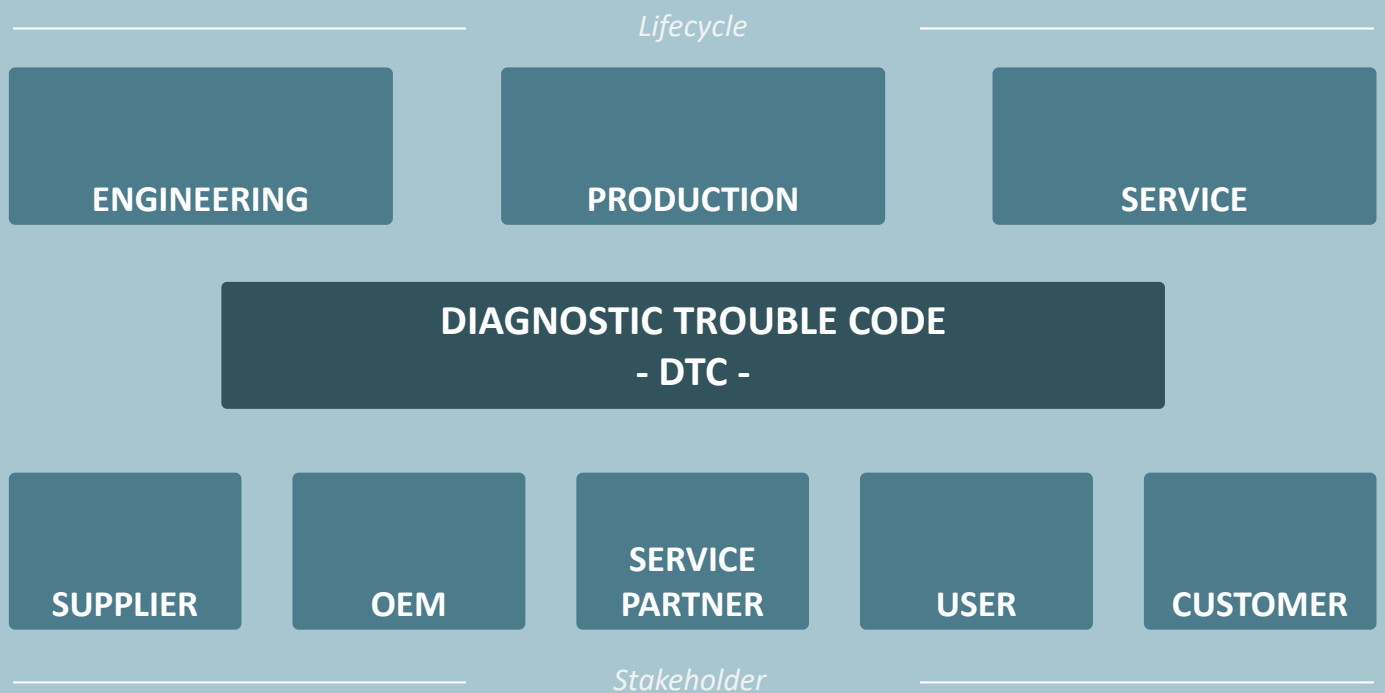
Additional complexity results from the increasing amount of function variants of embedded software: Fault descriptions as well as corrective measures more and more become specific per function variant. Fault and measure descriptions need to be configured per function variant.

Precise Diagnostic Trouble Codes and the instant availability of related information on corrective measures are a rather hidden product quality aspect. With an increased amount of software functions as well as an enhanced connectivity, the management and distribution of fault codes and related information becomes a key success factor for state of the art service performance.

Providing detailed fault descriptions in case of incidents together with the right measure and action plan significantly influences First-Time-Fix-Rates and therefore operating costs. Also, accurate fault probabilities and impacts are the basis for predictive maintenance.

Correct and fast Interpretation of Device Codes directly influences the Operation Performance of Products

Single Source of Truth for Diagnostic Trouble Code Data – linking Engineering and Service Operations



Diagnostic Trouble Code Data is used by diverse process partners along the product lifecycle. Diverse applications utilize the data. A central data management based on open integration capabilities offers diverse opportunities to enhance operation performance.

STANDARDIZE FAULT CODES AND INCREASE
QUALITY AND COMPLETENESS OF INFORMATION
ENHANCE THE SUPPLY OF INFORMATION
DURING FAULT EVENTS

INCREASED PRODUCT QUALITY
REDUCED OPERATING COSTS

Centralized Management of Diagnostic Trouble Code Data - Enable Collaboration across the Lifecycle

BASELINE TROUBLE CODE DEFINITIONS AND LINK WITH REQUIREMENTS MANAGEMENT

DEFINE TARGET SOFTWARE VERSION OF DTC SCOPE, IMPORT & CHECK CODES OF SOFTWARE FILES

LINK AFFECTED SYSTEMS & COMPONENTS

REQUIREMENTS

SYSTEM / COMPONENTS

DEVICE SOFTWARE

DEFINE STANDARDIZED CODES

DIAGNOSTIC TROUBLE CODE - DTC -

VERSION AND VARIANT MANAGEMENT ON DTC DATA

Version & Variant Handling

ROOT

ACTION

DETECTION

FAULT

EVENTS

RISK PROFILE

DEFINE ROOTS PER FAULT, DESCRIBE DETECTION MODES

DESCRIBE FAULT & ACTION TEXTS PER LANGUAGE & STAKEHOLDER GROUP

ASSIGN BUSINESS EVENTS AND TRIGGER

INTEGRATE ACROSS THE LIFECYCLE

Manage device codes on a central platform and exchange data with all process partners: From Requirements Engineering to Software Engineering down to Technical Publications and Service Events.

STANDARDIZE FAULT CODES

Standardize device codes including related information like visibility, severity, stakeholder etc. Use variant handling capabilities to manage specific information in relation to technical options.

COLLABORATE WITH PARTNERS

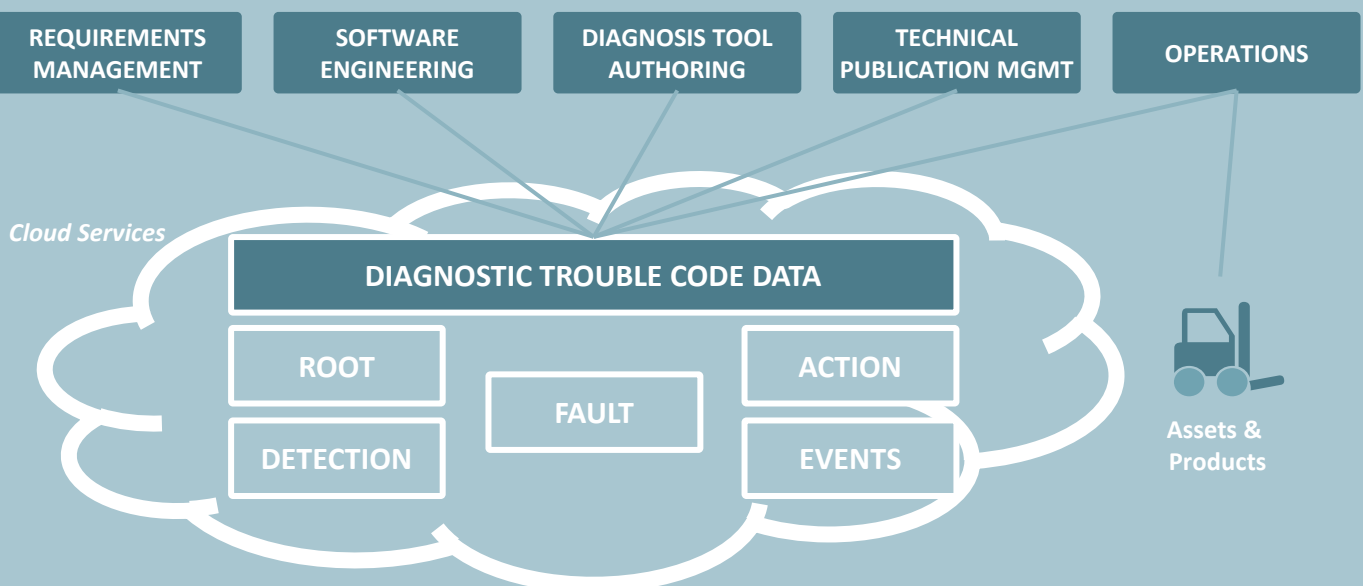
Make the information retrievable in an easy way. Publish relevant data to process partners for reviews or translation purposes.

Import codes from suppliers and enrich with work instructions.

LEVERAGE DATA AT OPERATIONS

Leverage capabilities of a cloud infrastructure to integrate with subsequent processes.

Publish data to Digital Solutions like Fleet Management or any other service application.



**REQUIREMENT
MANAGEMENT**

EXCHANGE

RegIF

Reference

**DEVICE
SOFTWARE**

EXCHANGE

*IODD
ODX-D*

Reference

**SYSTEMS
ENGINEERING**

Reference

**FMEA
FAILURE MODE
EFFECT ANALYSIS**

Integration

DIAGNOSTIC TROUBLE CODE MANAGEMENT

**CODE
LIBRARY**

**VARIANT &
VERSION
MANAGEMENT**

**TECHNICAL &
DIAGNOSIS
DATA**

*Signals &
Detections*

**PUBLICATION
DATA &
PACKAGES**

*Translations
Stakeholder View*

RISK PROFILING

ANALYTICS

Integration

FURTHER PROCESS PARTNERS

DIAGNOSIS AUTHORIZING

TECHNICAL PUBLICATION

TRANSLATION OFFICES

...

DIGITAL SOLUTIONS

SERVICE APPS

FLEET MANAGEMENT

TRANSLATION OFFICES

...

Analyse and control the usage of DTCs in your portfolio.

Use standardized libraries for causes, detections, impacts and remedies. Assign to Requirements, Software Releases and Systems. Bundle relevant translations & descriptions per target group and publish them.

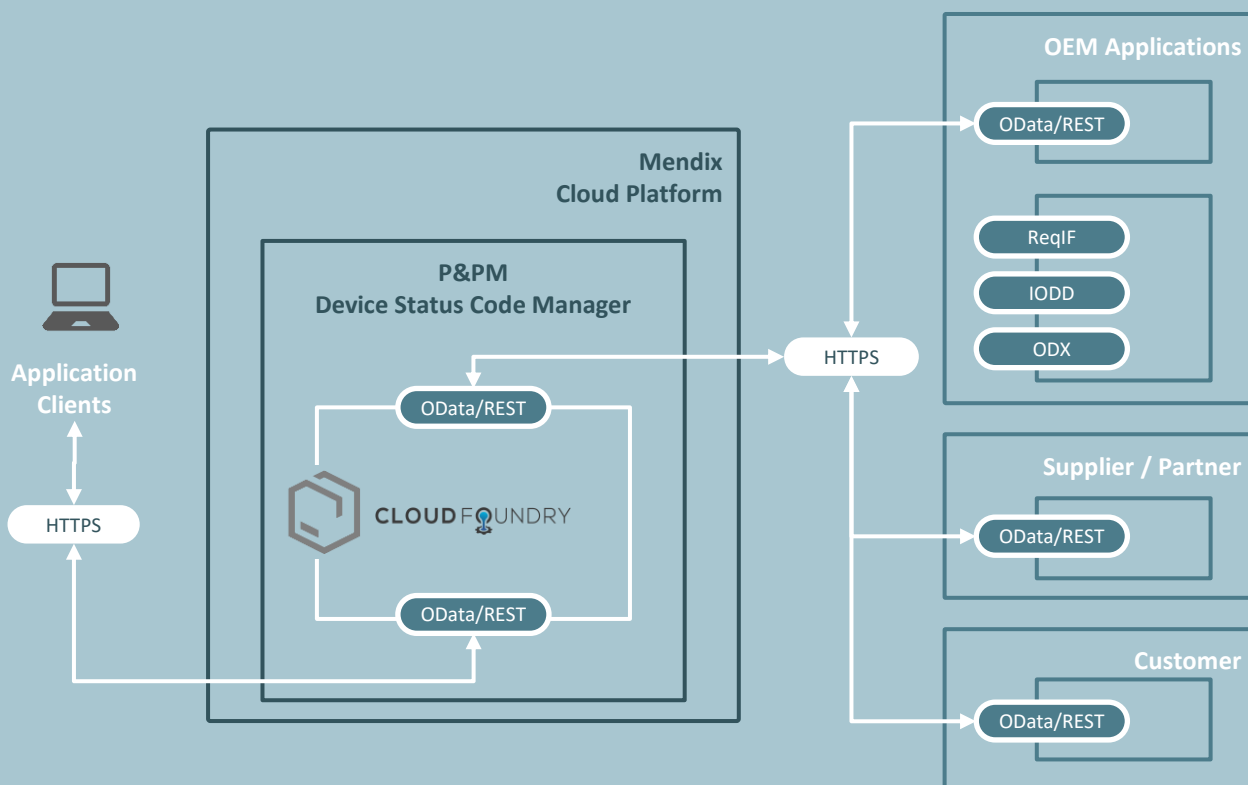
Assign DTC to relevant Device Software and monitor the usage.

Cross lifecycle Management of Diagnostic Trouble Code Data centrally via Cloud Services - integrated to your Operations

P&PM's Device Status Code Manager enables customers to manage Diagnostic Trouble Code data across its lifecycle and share it with all relevant stakeholders.

Our application is available as SaaS – Software as a Service – powered by Mendix.

P&PM's Device Status Code Manager is based on a micro-service architecture with web-based user interfaces using REST and OData APIs. Running on cloud native components, customers can leveraging full potentials for diverse integration scenarios.



Mission

Centralized management of DIAGNOSTIC TROUBLE CODE DATA across the lifecycle. Easy exchange of data – within the company but also with suppliers, partners and customers breaking today's information silos.

Enhanced product quality and complexity control by standardized codes & accurate fault information

Cap-abilities

Code library for DTC – Diagnostic Trouble Codes

Management of technical and related data (root/detection/actions) with version and variant control

Requirements Management: Define relevant codes and descriptions, apply baselines and publish to Requirements Management tools

Supply DTC data to Software Engineering and Diagnosis Authoring

Manage risk profiles and link to systems / components or FMEAs

Import / Export of DTCs based on ReqIF, IODD, ODX

Supply DTC data to Technical Publication Management

Cooperate with supplier / manage translations with external partner

Publish DTC data to operations: Service staff as well as customers

Use Cases

Requirements Engineering: Definition of DTC related requirements

Software Engineering: Retrieval of DTC definitions

Diagnosis Authoring: Editing of diagnosis pages with fault data

Technical Publication Management: Managing fault related information

Translations: Management of translations on fault data

Operations: Retrieval of fault related data at event

Analytics: Analyze dependencies and risk profiles

Stakeholder

System Engineer / Architect and Requirements Engineer

Software Engineer as well as Diagnosis Author

Quality & Service Manager

Retrieval of DTC data during operations: Service staff as well as Customer / User

Technology

Micro-service based architecture with web-based user interface

Open Integration via REST APIs

Runs on Cloud Platform with Cloud Foundry Runtime

Our application is powered by Mendix

Available as SaaS – Software as a Service

About P&PM

P&PM designs and implements solutions to manage Software within your Products & Assets along their lifecycle.

P&PM was founded by experienced consultants in 2012 leveraging knowledge both from diverse operations transformation and application implementation projects especially within the Engineering and Service domain.

P&PM is a silver partner in the SAP PartnerEdge program.
P&PM is a partner in the Mendix ISV program.



P&PM's office in Rosrath, near Cologne, Germany

**P&PM is a special expertise consultancy
in the area of PLM – Product Lifecycle Management.**

**P&PM supports you in transitioning your operations
to manage the growing complexity
of software in your products along the
value chain and product lifecycle.**

P&PM - Product Lifecycle & Program Manufactory

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