



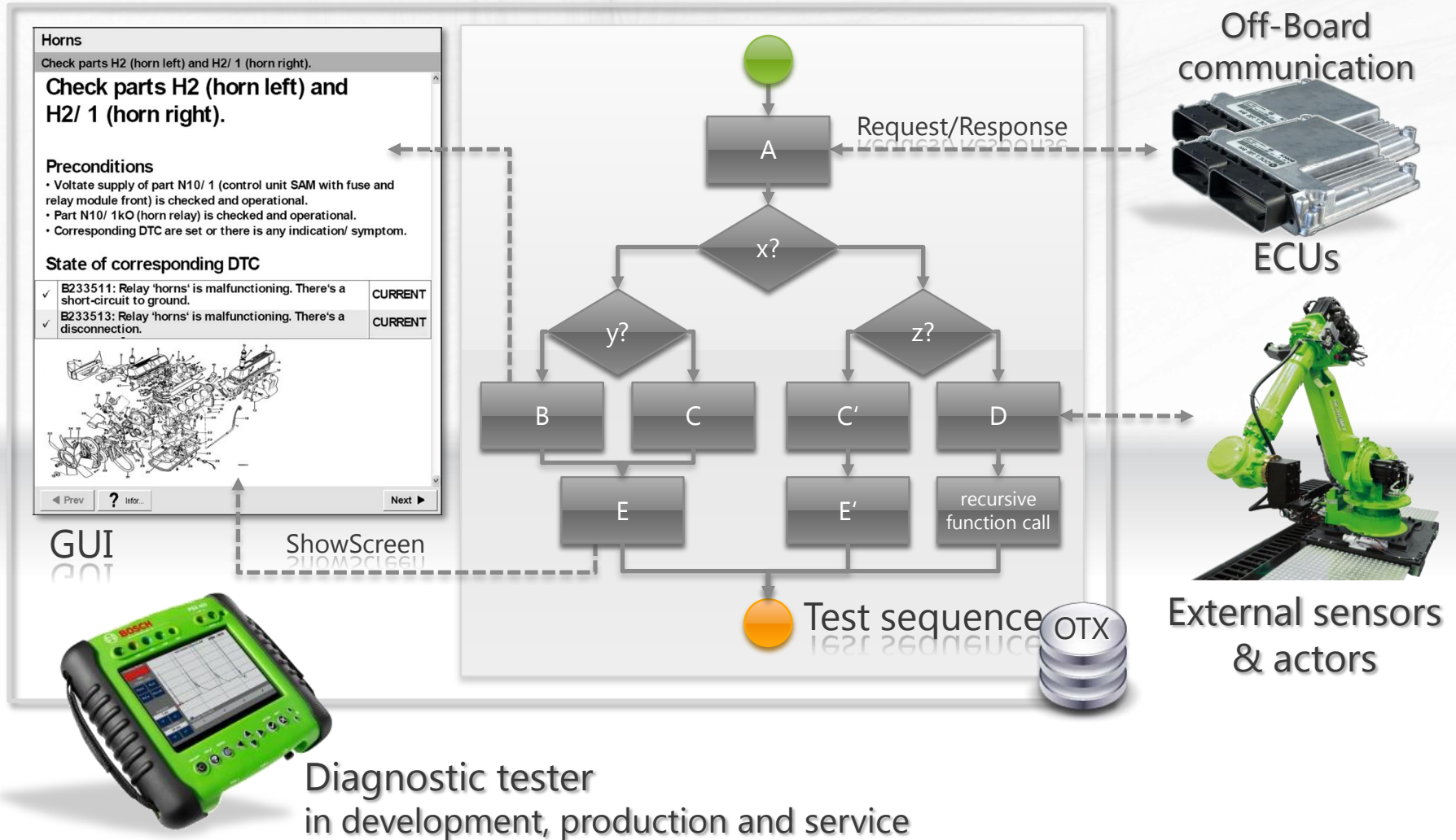
OTX – Open Test Sequence eXchange

Efficient Design and Real-Time Testing of Diagnostic Sequences

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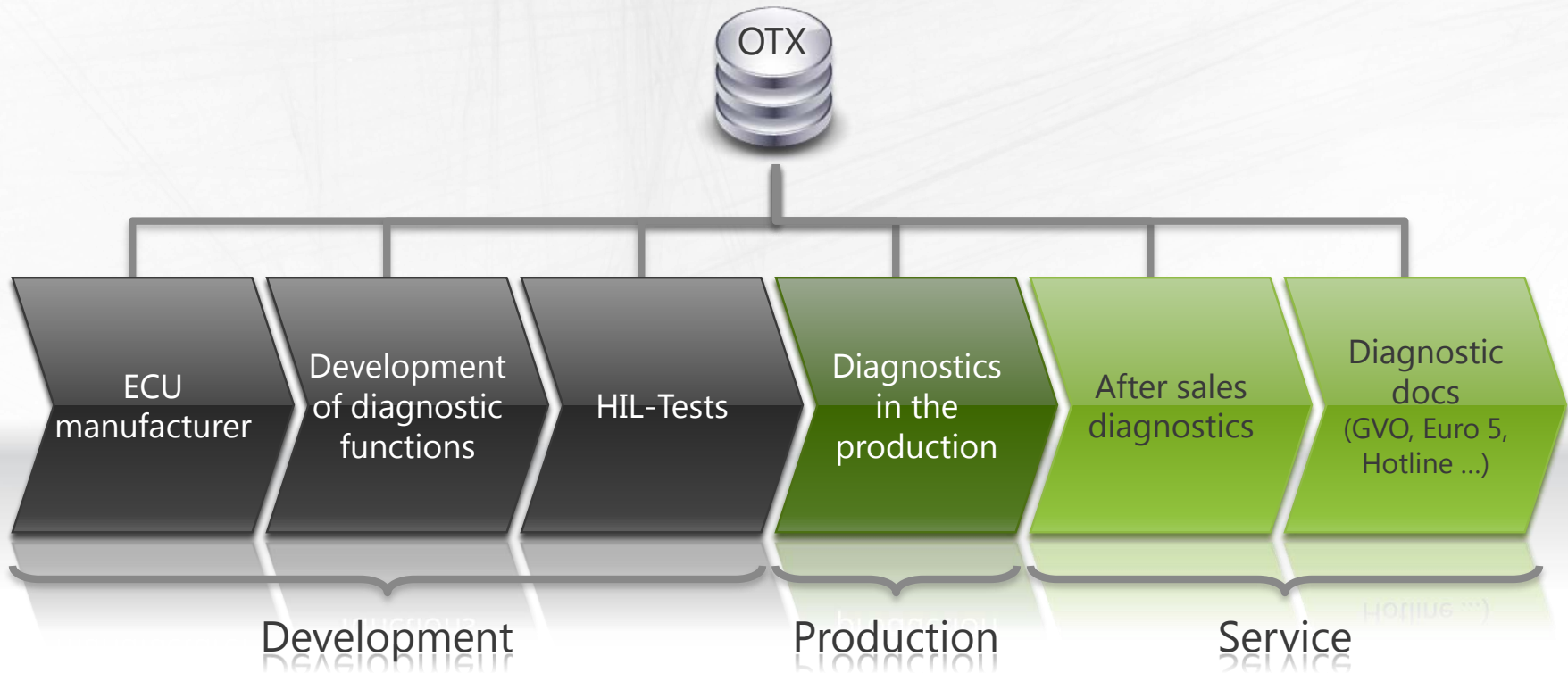
- Standardized in the ISO 13209
- Platform and tester independent exchange format for the formal description of test sequences
- Application areas:
 - Vehicle diagnostics e.g. commissioning sequences or guided troubleshooting
 - Test automation
 - HIL simulation
 - ...
- Initial application: Exchange format for ODX based diagnostic sequences
 - Diagnostic sequences describe the different interactions between the applicant (development, production or service), the diagnostic tester, the ECUs and the external measurement system

Diagnostic Sequences Between User and Vehicle Interaction

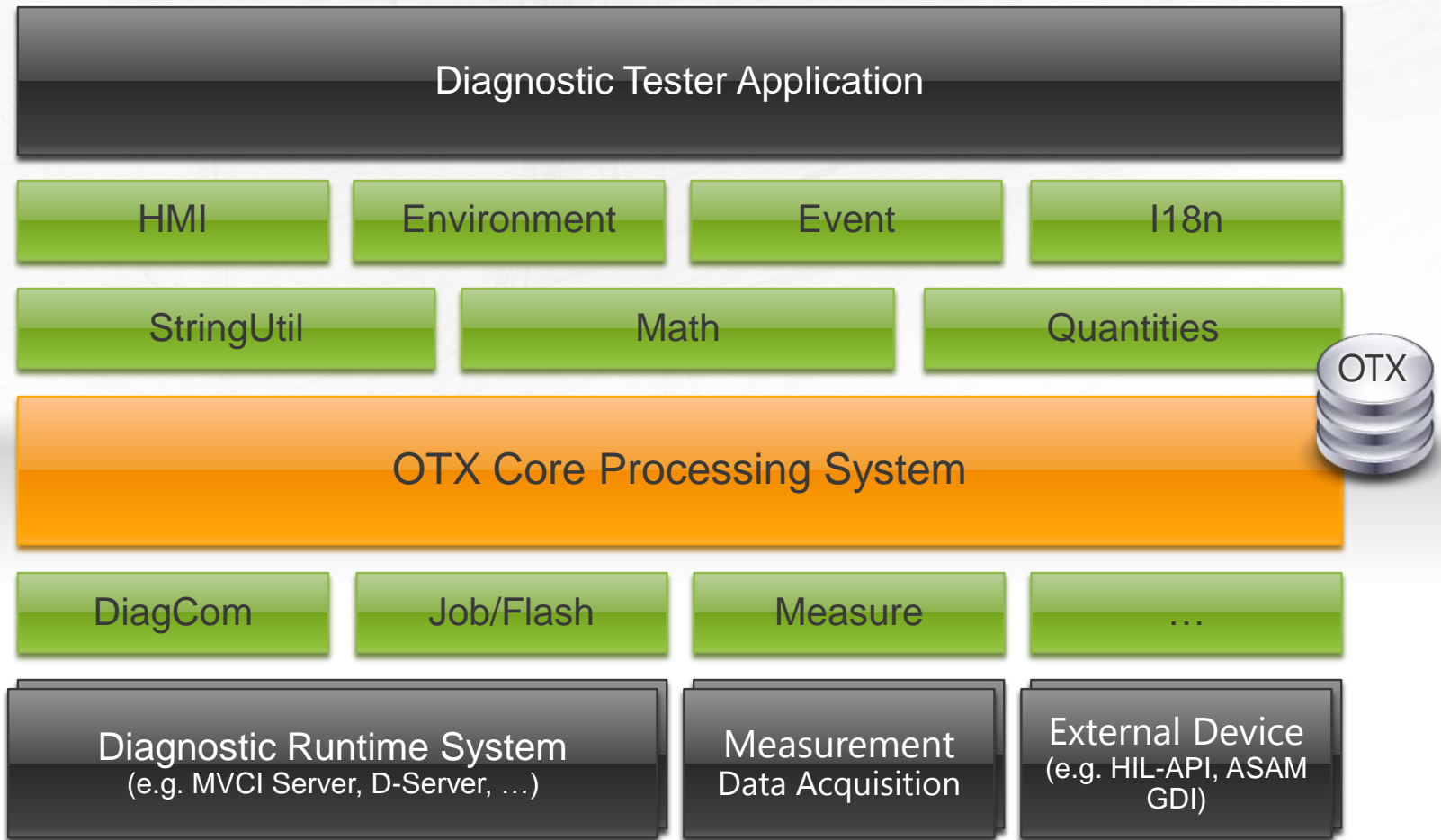


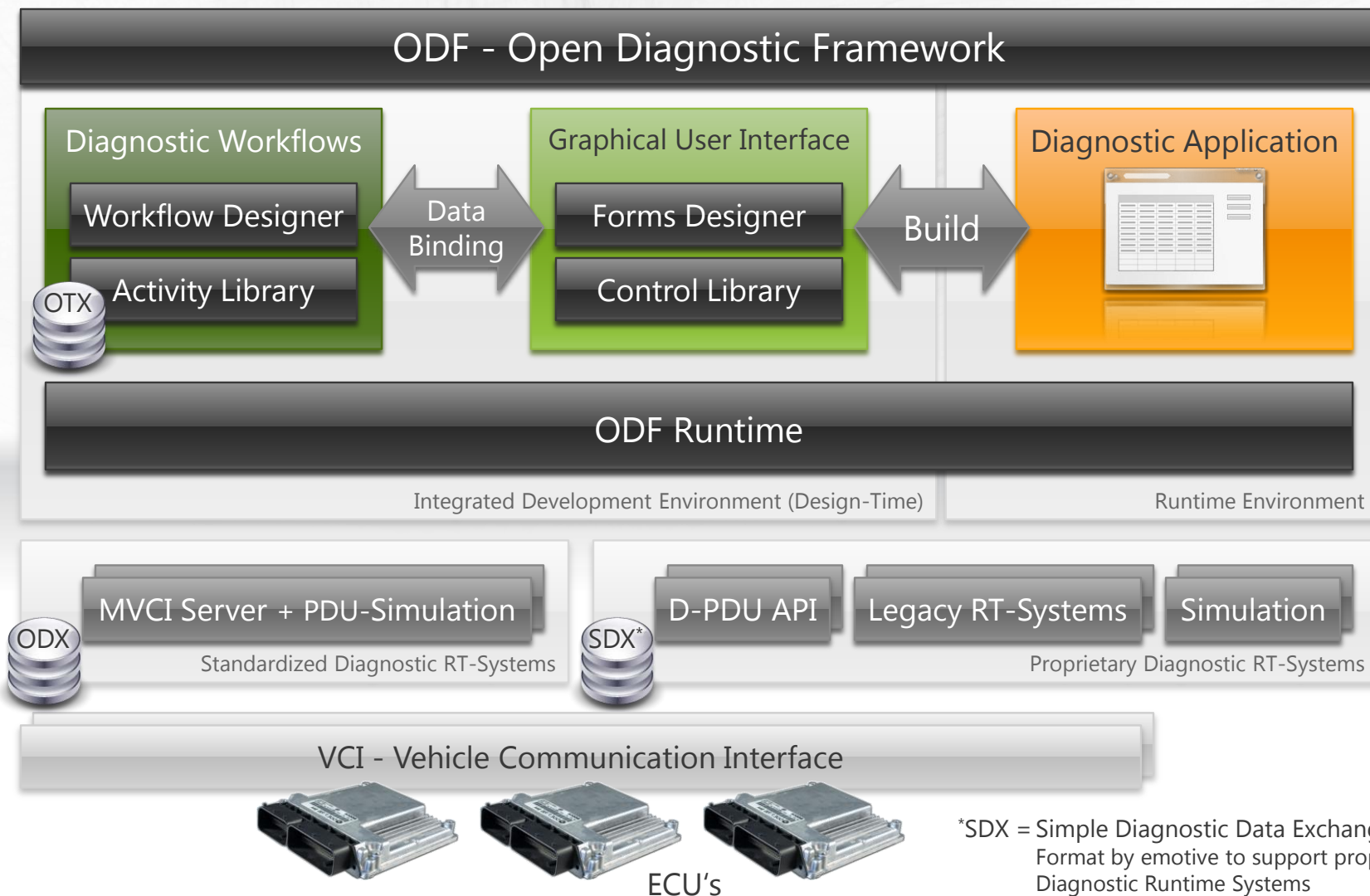
- Structured programming
- Declaring of sequences, variables, constants and meta data
- Reading and writing of environment data
- Specification field in nodes and free comments
- Extension points for connecting new functions
- Control structures
- Loops (while, do-while, for, for-each)
- Branches (if-then-else)
- Parallel sequences
- Calls (sequences, calculations etc.)
- Error and exception management

Application in the Diagnostic Process Chain



Goal: Exchange and archiving of verified and tested diagnostic sequences





*SDX = Simple Diagnostic Data Exchange
Format by emotive to support proprietary
Diagnostic Runtime Systems

■ Managing diagnostic sequences:

- Easy graphical creation, specification, test and debugging of diagnostic sequences
- Generation of executable program code of high performance
- Full support of OTX and ODX
- Comprehensive input validation at design time
- Comprehensive standard and diagnostic specific activity libraries

■ Simulation, stimulation, and communication analysis:

- Universal development tester
- High performance, optimized handling of resources, multi-channeling
- Monitoring of diagnostic data and bus communication
- PDU simulation for use without plugged hardware
- Independent of diagnostic runtime system
- Diagnostic runtime system included
- Wide support of diagnostic interfaces

■ Creating stand-alone diagnostic applications:

- Graphical creation of graphical user interface (GUI) and data binding to diagnostic sequences for in- and output
- Creation of slim and stand-alone Microsoft Windows executables (*.exe) of high performance
- Integrated user management
- Language manager to localize applications
- Open and modern development environment (Visual Studio 2008)
- Simple distribution of the created application

■ General:

- Comprehensive reporting (HTML, PDF, SQL)
- Simple installation on target system via MSI or MSM
- Multi-lingual (de, en)
- User documentation
- Offering trainings



Demonstration

ODFProject8 - Microsoft Visual Studio (Administrator) - Experimentelle Struktur

Datei Bearbeiten Ansicht Projekt Erstellen Debuggen Workflow ODF Daten Extras Test Analyse Fenster Hilfe

100% Debug Any CPU

Toolbox

- StartCommunication
- StopCommunication
- SendSync
- SetComParam
- GetComParam
- SetVariables
- Calculation
- IfElse
- ForLoop
- WhileLoop
- Counter
- Delay
- Sequence
- Parallel
- Message
- Report

Workflow1.cs [Design]* Startseite

sequenceActivity3

messageActivity3

forLoopActivity2

Diagnostics... ProductionD...

calculationActivit

sequenceActivity4

setVariablesActivity1

calculationActivity8

whileLoopActivity2

Diagnostics...

Projektmappe-Explorer - Projektmappe "ODFPr..."

- DiagData
- Reports
- Form1.cs
- odf.config
- Program.cs
- Workflow1.cs

Projektmappe... Team Explorer Dokumentglic...

Das Feld 'Expression' ist ein Pflichtfeld.

Änderungen übernehmen

Name	Typ	Standardwert
ProductionNumber	Integer	16666665
LoopEndValue	Integer	10

Eigenschaften

sendSyncActivity6 Emotive.Odf.Activities.SendSyncActiv

Base/ECU-Variant DiagnosticsCan_ECU_1

Diagnoseservice

DiagComm

RequestParams (Auflistung)

Responses (Auflistung)

Fehlermanagement

Responses

Dialog, der alle möglichen Response-Parameter g...

nach Positive Response, Negative Response und Glob...

Aufzeichnung (Kommunikation)

Erweitert Stehend Anzeige löschen

Traffic	Long-Name	Timestamp	Value
RQ_ProductionDate_Read	RQ Production Date R...	17:39:51.743	
PR_ProductionDate_Read	PR Production Date R...	17:39:51.744	
ServiceID_PositiveRes...	Service Id Response		5
IdentificationOption	IdentificationOption		1
Data	Data		3
RQ_ProductionDate_Read	RQ Production Date R...	17:39:51.776	
PR_ProductionDate_Read	PR Production Date R...	17:39:51.777	

Aufzeichnung (Variablen)

Stehend Anzeige löschen

Workflow v	Workflow-Parameter	Value
Workflow1	Days2	40
Workflow1	LoopIndex2	5
Workflow1	Counter1IsTerminated	False
Workflow1	Days2	0
Workflow1	LoopIndex2	4
Workflow1	Counter1IsTerminated	True

Fehlerliste Ausgabe Aufzeichnung (Kommunikation) Aufzeichnung (Variablen) Befehlsfenster

Bereit

- OTX & ODX provides a complete data-driven solution for the whole diagnostic process chain
- Diagnostic development process more process-safe, simpler and more productive
- OTX requires the support of an appropriate graphical software tool
- The Open Diagnostic Framework is an OTX and ODX based development environment for the diagnostic process chain
 - Easy graphical creation, specification, test and debugging of diagnostic sequences
 - Generation of executable program code of high performance
 - Generic creation of stand-alone diagnostic tester applications
 - Easily extendable at each layer



Thank You for Your Attention!



Contact us!

We can help out.

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