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# Automotive Data Dictionary

*The Visu-IT! **A**utomotive **D**ata **D**ictionary represents a global data dictionary for all ECU labels/variables used in a company/organization. The **single source** concept of ADD eases the handling and management of data declarations over all projects. Due to the (company-wide) availability and uniqueness of these labels, ADD allows a continuous and consistent data declaration during the whole development process.*

<u>*Focus:*</u> *single source of all data declarations*
*global, company-wide label database, specification view, no implementation details*

<u>*Scope:*</u> *global, project and module scope*

## General Information
Main objective of ADD is to centralize all data elements/definitions and to support the reuse of these data for the function development part as well as for the software development. This means that everyone is able to select a data definition from a single source, where the data is stored unique, project- as well as editor- independent. Thus it is ensured, that the data definitions are **equal** in the whole development process.

➔ *ADD avoids redundancy of data due to company wide availability and ensures uniqueness of these data.*

## Continuous Data Process
With ADD, a continuous data process from the step "System" to "Software" is possible. ADD closes the interface gap between **function-** and **software development**, ensures data consistency and thus improves the quality and reduces the efforts for the system as well as for the software development.



## Objectives
The main objectives for a seamless data definition covered by ADD are:
- to provide a central and company-wide accessible database as a single source for data definitions (project- as well as editor-independent!)
- to ensure company(world)-wide availability and multi-user capability
- to support consistency checks during the definition
- to ensure data consistency by using versioning and lifecycle for all data definitions
- to allocate data and data flow driven search and analyze capabilities
- to provide a continuous data process from System to Software
- to improve the quality of the interface description
- to provide check operations of several hierarchy levels (modules, aggregates and projects) in a very early step of the development process

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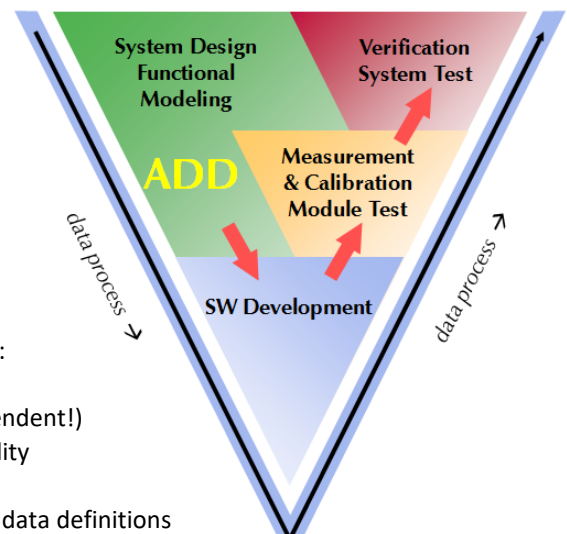
## Key Features

- Management of data objects (ECU labels/variables)
  ECU variables are: Measurements, Parameters, Axes, Maps and "System constants" (cDefines)
- Version management of data objects (versions and revisions)
- Lifecycle management of data objects and datatypes (draft, fixed, obsolete, etc.)
- Grouping of data objects (container-concept) including overview-picture of container with link to the data object definitions
- Extensive Search and query functionality (for data objects, datatypes, etc.) including cross-references, etc.
- Show differences between workspace- and database entries
- User-Management including User/Role concept for the control of access authorization
- Creation of XML-format and support of other formats using style sheets (HTML for reports, MSR SW DTD...)
- Management of data object attributes like physical units, format string, conversions, data types, limits, etc.
- Variant Coding of data objects
- Dynamic interfaces via code variants
- Visual Data Modeler shows the interfaces and groupings graphically
- Consistency checks on every level: container-, composition-, configuration package- and project-level
- Object comparison on every level: data object, container-, composition-, configuration package- and project-level
- Reusable configuration packages for project
- Supplier interface handling
- Offline database (*.ddx) backward compatibility
- Data Object\Container attribute change log (history list).
- Recursive fix/version-creation of Data Objects
- Recursively create new Variant/Version/Release of Container, Compositions and DataObjects within Project Context (Project Reference tab).
- Excel export based on the all information of special Container BusAdp/CsAdp.
- Display active/non active DataObjects information within the DataObject Reference dialogue (Project Context only).
- Explicit compare for special Container BusAdp added.
- Create an Excel output based on the content of the appropriate special Container CsAdp/BusAdp during MDX-Export automatically.
- Allow bulk change of attribute "Status" of first level Containers referenced in a Composition.
- Allow the usage of different DataObject Types within different DataObject versions.
- Allow grouping of Conversions; use Conversion Catalogues as filter within the DataObject Definition tab.
- CodeVariant checks and import function added in order to ensure CodeVariant consistency between In- and Outputs.
- Allow individual configuration of version check criterion for Project/Composition Checks No. 1.
- New Container attribute "Runnables" added in order to support AUTOSAR feature "Runnables" in ADD.
- Compose ADD User in Groups and use a Groups as ADD Object Responsible.
- Allow usage/storage of ADD customer configuration settings (ADDConfig.xml) within ADD Database.
- ARXML - Export added for ADD Container.
- English/French/German spellcheck for DataObject/Container/Composition/Conf.Package/Project attribute "Description" added.
- Allow filtering of the Project Check result for a specific Container of the current Project.
- E-Mail attribute and notification mechanism added to ADD in order to notify Container owner about changed made by the One-Click feature.
- Analog to data objects it is possible now to define a Code Variant also for Compositions to be able to deactivate it and all its including Sub-Compositions and Containers.
- Allow bulk change of DataObject CustomTags within a Container.
- Allow the replacement and Classification change of multiple DataObjects within a Container/Composition.

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- Excel export of Project DataVariant & VariantSelctor configuration added.
- Consider and display CodeVariant condition settings of DataVariants within a Project.
- Allow the multiple reference of a Container within a "draft" Composition in order to ease the Composition handling during development.
- Introducing AUTOSAR Client-Server-Interface concept to ADD.
- Introducing new attribute Special Characteristics for Calibration Data within the Container context.
- Introducing AUTOSAR Client-Server-SystemEvents concept to ADD.
- Introducing the Database Maintenance management mode in ADD in order to lock the database and inform all clients prior to the migration of database to a newer version.
- Introducing AUTOSAR feature "SequenceNeed" in order to allow the scheduling of "Runnables" in ADD.
- Support of SystemConstant as Init-Values.
- Introducing new attributes "Deprecated" and "Refused" for ADD Container/Composition/SWC/ConfPacks.
- Allow import and export of Software Components (SWCs) in ADD.
- Allow creation of multiple AUTOSAR Client-Server-Interface Operations and use within Runnables.
- Allow usage of Templates for Struct-Types/-Instances and Embedded Maps.
- Allow instance specific settings of DataTypes for Struct Instance Members.
- VDM: Introducing new Container/DataObject filter; allow SVG graphic export of "Overview" & "Details" content.
- Introducing Autosar SoftwareComponent Interface and Interface Mapping in ADD.
- Introducing new ADD Welcome-Message and the possibility to generate an ADD User Mailing-List based on ADD User Roles/Preferences.
- Import BusSignal information from Data Base CAN (*.dbc), LIN (*ldf), Filed Bus Exchange Format (fibex; *.xml), Bedien- und Anzeigeprotokoll BAP (*.nxml) and Autosar XML (*.arxml) files

## Process flow & Interfaces

The following figure shows possible interfaces of ADD to other tools and the principal process flow:
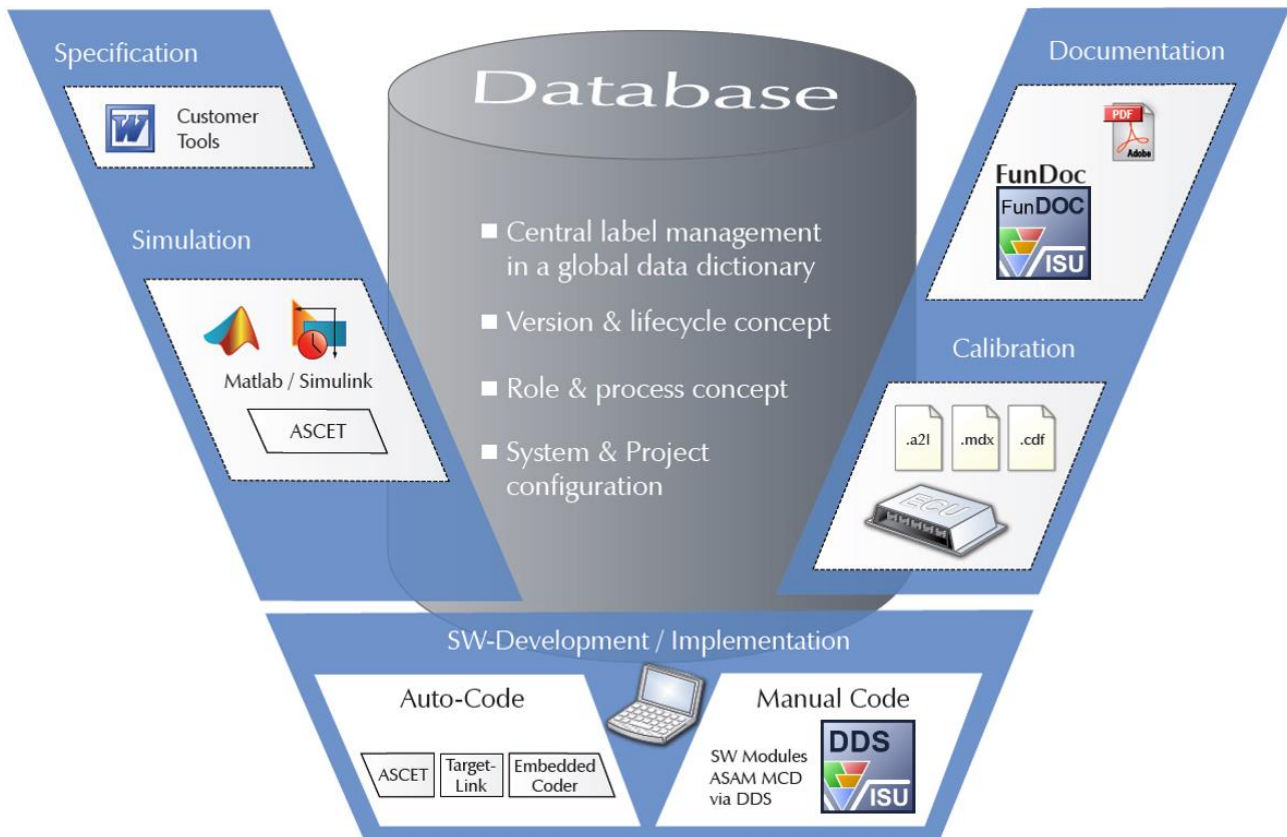


By providing a smart and flexible interface to DDS, all interfaces of DDS (like ASAP2, ELF, I3E, CVX, etc.) are implicitly also available in ADD.

## System Requirements

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|---|---|
| Operating System | Windows 10, Windows 11, Microsoft Visual C++ Redistributable 2022 |
| Environment | .NET Framework V4.8.0, Oracle V11.x Client or higher with Oracle Data Provider for .NET 4.0, Oracle Client is only required for Oracle database connection |
| Processor | 1 GHz or higher |
| Hard disk | 500 MB (minimum) of free hard disk space |
| System memory | 1.5 GB of main memory |
| Display resolution | 1440 x 900, 16bit colours, 17 inch |

## Contact

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