DASSAULT SYSTEMES

ENOVIA

KNOWLEDGE

ENOVIA Knowledge Standardization

ENOVIA® Knowledge Standardization allows domain experts to institutionalize how conceptual part features are defined and guarantees established rules are followed to avoid mistakes and rework.

Key Benefits

- Tailor ENOVIA® Live Collaboration with simple administrative tools not requiring IT skills.
- Eliminate inaccurate designs by automating defined standards.
- Prevent costly and time-consuming corrections downstream.
- Reduce time to market by skipping steps of the development process thus being automated and rationalized through Knowledge management

Product Overview

The V6 offering delivers a range of authoring applications (CATIA®, DELMIA®, and SIMULIA®) and a range of governance applications (ENOVIA®) to address a company's business processes. Domain experts, who are not necessarily IT users, can tailor these applications to better fulfill the needs of their company's business processes. Four types of basic changes are supported:

- Edit and deploy engineering rules to modify the default behavior of ENOVIA VPM application commands. There are two types of rule intent:
  - "Validation" business rules can prevent an operation with an error/warning message, if not valid. An example would be to warn or prevent the user from adding more than a defined number of branches into a single electrical support.
  - "Execution" business rules modify the default behavior of a given VPM domain. An example would be to specify a specific formula to be used to compute the diameter of a branch based on its wires' diameters, or to apply a color to the functional/logical 2D representations depending on the value of a given attribute.
- Specialize feature type definition to match a specific semantic by deriving applicative feature types (objects defined within representations) and by adding attributes to these derived types. Designers can then use these specialized objects in the native applications with attributes perfectly aligned with their domain process.

- Specialize PLM object type definition to match a specific semantic by deriving applicative PLM object types and by adding attributes to these derived types. Designers can then use these specialized objects in the native applications with attributes perfectly aligned with their domain process.

- Introduce semantic in the form of extensions that a designer can exploit and apply on objects of is choice

Product Highlights

ENOVIA Knowledge Standardization capabilities include:

Creating and Deploying a Business Rule

Domain experts can create business rules using the Project Resources Management workbench available with ENOVIA® VPM Central™. The list of the domains supporting the resource deployment is displayed directly when invoking the Project Resource Management workbench.

Business rules cannot be applied to all rich client domains as noted in the table below:

Rich Client Domains Exposed in Project Resources Management	Business Rules Possible? (Yes/No)
3D Layout for System	Yes
Aerospace Sheet Metal Design	No
Change Management	Yes
Circuit Board Design	No
Common Geometry	No
Coexistence	Yes
Component Family	Yes
Design table migration batch	Yes
Electrical data exchange	Yes
Electrical Logical	Yes
Electrical Logical to Physical Synchronization	Yes
Electrical physical system design	Yes
Equipment	No
FBDI Equipment and Systems	Yes
Fasteners	No
Functional Shape Design	No
Functional/Logical 2DLayout	Yes
Functional/Logical	Yes
Functional/Logical business logic implementation	Yes
Generative Sheet Metal	No
Knowledge Based Applications	No
Layout for Systems	No
Logical 3D Architecture	Yes
Logical System Routing	Yes
Logical to physical synchronization	Yes
PLM Template	Yes
Part Selection Equipment and Systems	Yes
Piping Diagram	No
Piping/Tubing Design	No
Piping/Tubing Discipline	No
Report Template	No
Space Allocation	No
Structure Manufacturing	No
Structure	No
Style Sheet for Report generation	No
Wire harness Design	Yes
Wire Harness Flattening	Yes

Domain experts apply business rules to a given domain's supported events. A rule is written with the Enterprise Knowledge Language (EKL) syntax. ENOVIA Knowledge Standardization provides a smart and intuitive script editor compliant with EKL. The rule editor is associated to an object browser and a wizard to simplify the edition and the debug of rules.

There are 2 kinds of business rules

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- "Execution" business rules modify the default behavior of a given VPM domain. An example would be to specify a specific formula to be used to compute the diameter of a branch based on its wires' diameters, or to apply a color to the functional/logical 2D representations depending on the value of a given attribute.

The newly created business rules are linked to a resource table to tailor system behavior. The resource table is then linked to an organization project using the "Project Resource Management" workbench. As a result, any user connected to the project for which the business rule has been deployed inherits the new behavior.

Only one "execution" rule that creates or modifies model data can be associated to a domain event. If it is not the case, an error occurs. There is no limit to the number of validation rules that can be associated to a single domain event.

Specializing Features to Define a Specific Semantic

Most CATIA domains enable creation of object types (inside a representation) like a hole, a filet or a cavity. Some of these domains also allow specific semantics for specialized object definitions[1]. ENOVIA Knowledge Standardization provides the "Types Customization" workbench which allows domain experts to build a dictionary. This dictionary contains the definition of a hierarchy of types derived from the standard product features.

To be effective, the dictionary has to be associated to a distinct organization project with the Project Resource Management workbench by dragging and dropping the resource table associated to the dictionary towards the targeted organization project. Therefore, any user connected to the project on which a dictionary has been deployed inherits the new semantic. When creating an object which has been derived, the designer can select what kind of sub-type he wants to create and fill the values of the customized attributes.

Derived objects are totally integrated to the knowledge environment. Business rules can be defined by domain experts on derived objects for validation or execution purpose. Formulas and reports are also compliant with such tailored objects.

Specializing PLM Objects to Define a Specific Semantic

Most V6 domains enable creation of PLM objects (like a product, a function, a requirement …). Some of these domains also allow specific semantics for specialized object definitions[2]. ENOVIA Knowledge Standardization provides the "data model specialization" console which allows domain experts to build packages containing their own definition of a hierarchy of types derived from the standard application types.

With this console, it is also possible to introduce different hierarchies of customer extensions that can be added on objects of particular types (not all types are extensible). These extensions can be applied by the final user of the application through a generic command on the ENOVIA® VPM infrastructure.

Packages are deployed by generating the right data structure in the ENOVIA® Live Collaboration thus enabling final users to create objects of these particular types. It is also possible to export the packages and re-import them in different ENOVIA servers.

Derived objects (and extensions) are totally integrated to the knowledge environment. Business rules can be defined by domain experts on derived objects for validation or execution purpose. Reports are also compliant with such tailored objects.

The Role of ENOVIA V6 and PLM 2.0

ENOVIA Knowledge Standardization supports PLM 2.0, product lifecycle management online for everyone, and the ENOVIA V6 values, which are:

- Global collaborative innovation
- Single PLM platform for intellectual property (IP) management
- Online creation and collaboration
- Ready to use PLM business processes
- Lower cost of ownership

ENDNOTES

1. *This is only supported with CATIA Structure Functional Design (SFD) in V6R2011x.*

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