

Information Modeling – Asset Modeling

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Agenda

- What is an Asset?
- Asset Based Systems
- Object Oriented Approach vs. Traditional Approach to Data Modeling
- Description and Visualization of Complex Structures
- Asset Modeling Components

What is an Asset?

- Real Assets
 - Hardware components
 - Physical objects
 - Data or information systems
- Abstract Assets
 - Software components
 - Behavior of systems
 - Aggregation of individual components

Asset Based Systems

System	Asset Example
ERP - Inventory	Materials, Suppliers, Inventory Items
MES	Dispensed Material, Equipment, Procedures, Work Instructions
LIMS	Sample, Test, Analytical Procedures, Test Results
Asset Management	Maintenance Requests, Contracts, Equipment, Parts, Faults
Inventory Management	Warehouse, Material Lot, Supplier, Container, Personnel, Transfer Equipment, Material Energy Requirements
Document Management	Standard Operating Procedures, Material Safety Data Sheets
Planning	Production Plan, Equipment, Production Schedule, Dispatch List, Routes
Supply Chain	Forecast, Demand Plan, Manufacturing Models, Schedule, Order

Traditional Approach to Asset Modeling

- Modeled with basic building blocks:
 - simple datatypes
 - simple relationships
- Usually uses hierarchical or relational databases
- Does not allow for good representation of complex structures and relationships
- Not flexible to express complex datatypes
- Database performance limitations increase as the number of assets

Object Oriented Approach to Asset Modeling

- More realistic representation of asset structure and behavior
- Allows to encapsulate asset properties
- Supports inheritance
- Defines relationships between different assets
- Takes advantage of UML
- Makes it easy to visualize

Asset Modeling Components

- Description and expression of an asset
- Type definition
- Metadata incorporation
- Visualization
- Data exchange services
- Data storage and retrieval