

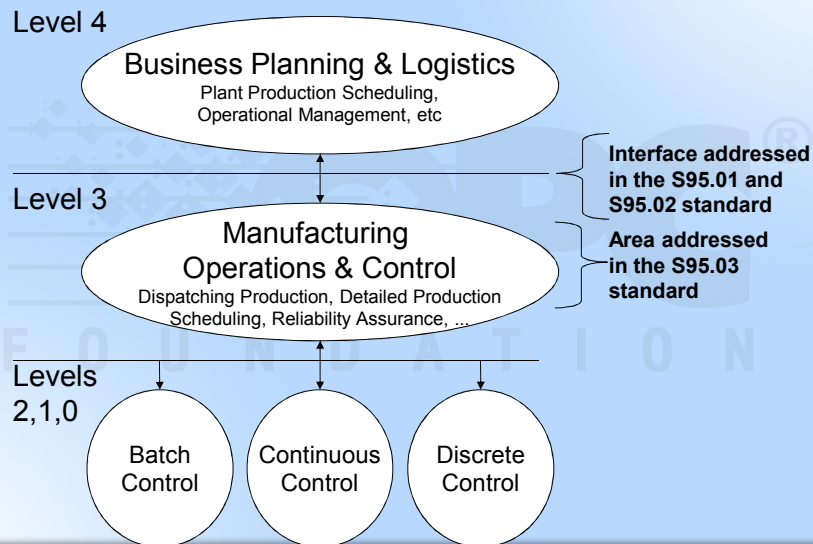
# OPC UA for ISA-95

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## Information Model -ANSI/ISA 95

- The ANSI/ISA 95.00.01 “Enterprise - Control System Integration - Part 1: Models and Terminology”
  - Also IEC 62264
- ANSI-ISA 95.00.02 “Part 2: Object Attributes”
- ANSI/ISA 95.00.03 “Part 3: Models of Manufacturing Operations”
- (**Draft**) ANSI/ISA 95.00.04 “Part 4: Objects and attributes for manufacturing operations management integration”
- ANSI/ISA 95.00.05 “Part 5: Business to Manufacturing Transactions”

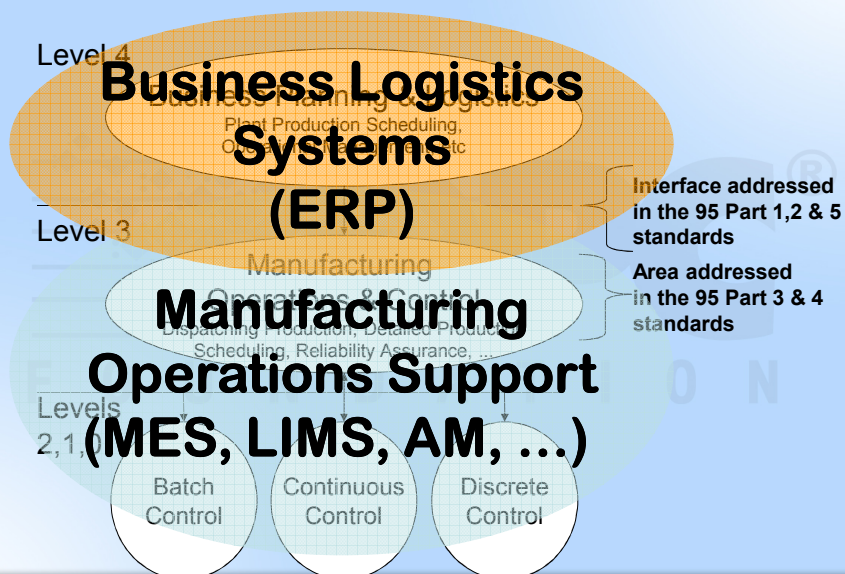
# Problem - ISA95.01 Levels



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# Problem - ISA95.01 Levels



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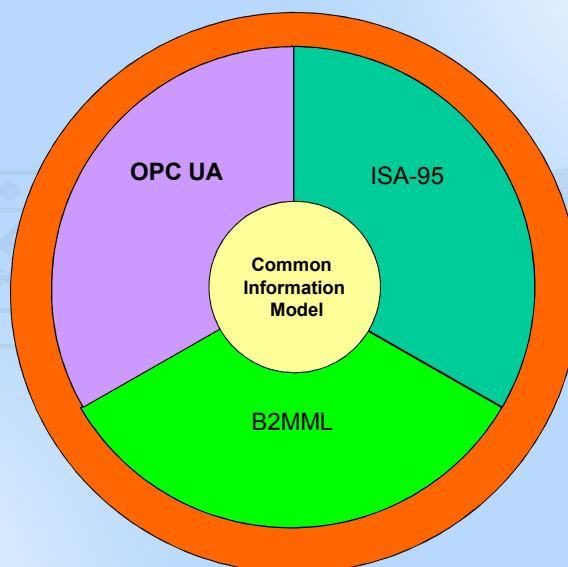
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## Existing Interface

- B2MML interface
  - Batch Data Updates
  - Not RealTime
  - XML Based
- Desired
  - Faster Updates
  - Access to lower levels

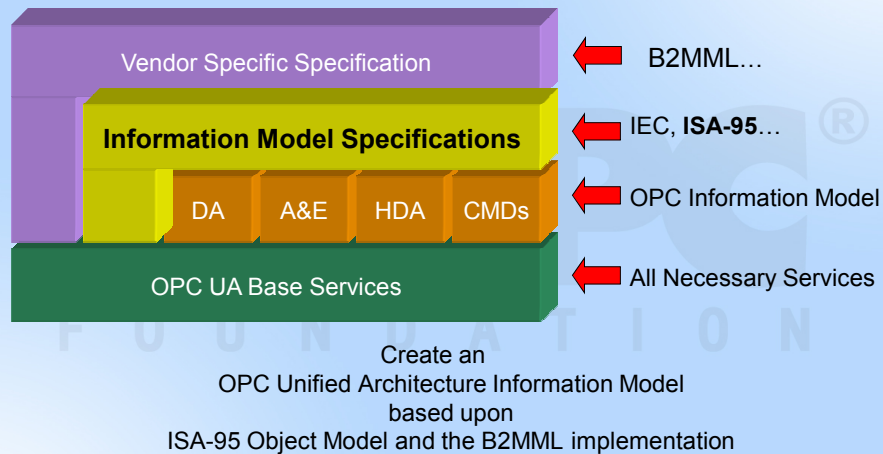
## The Solution

Common  
Information  
model



Linking Systems  
using existing  
standards

## How To



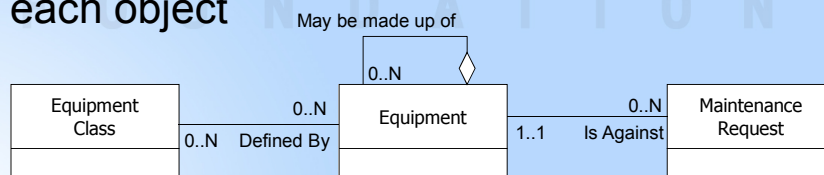
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## Information Model

- Detailed definition of objects of interest and their relationships
- Object relationships diagrammed using UML notation, like the segment below
- Defines typical information associated with each object

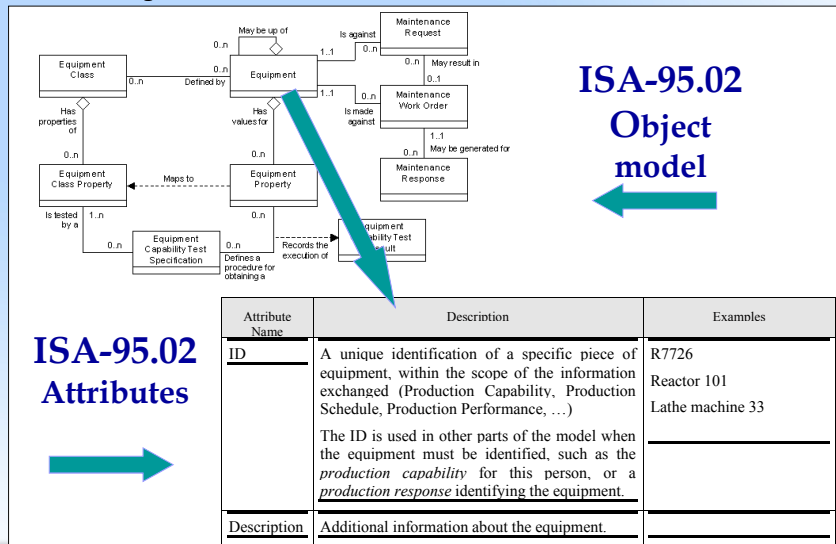


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# Object Models in ISA 95.02

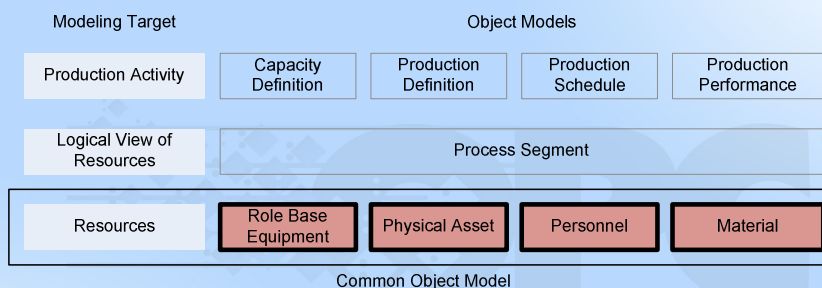


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## ISA-95



- ISA-95 Information Model
- B2MML Transport implementation of Model
  - Not real time

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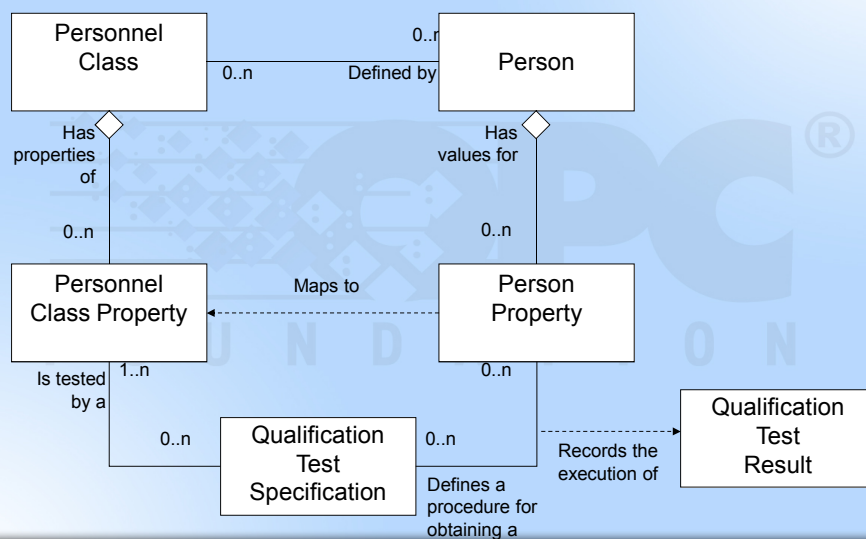
10



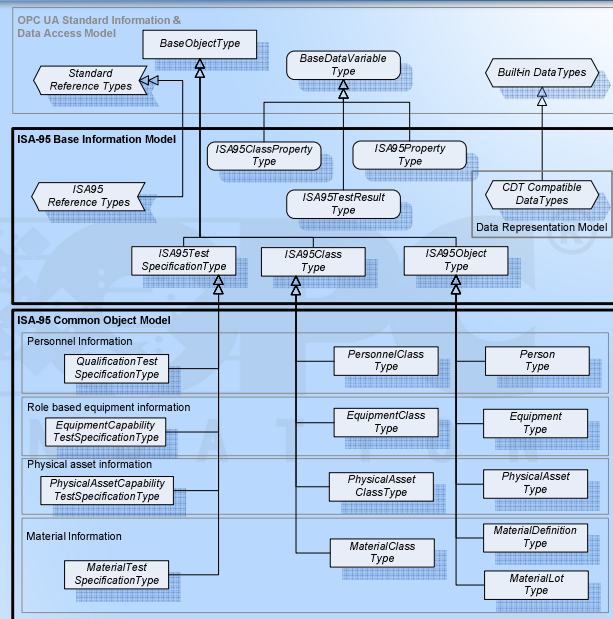
## Part 2 - 5x4 Object Models

- **Five** categories of resources
  - Personnel
  - Equipment
  - Physical Assets
  - Material (and Energy)
  - Process Segments
- **Four** Process, Product, & Production Models
  - Capability & Capacity Definition
  - Product Definition
  - Production Schedule
  - Production Performance

## People Resource Information



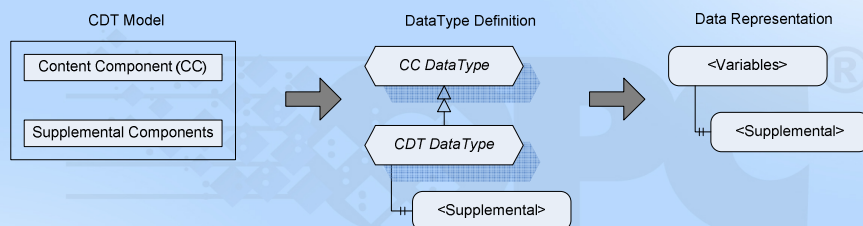
# ISA-95 OPC UA Model Summary



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## Data Definition



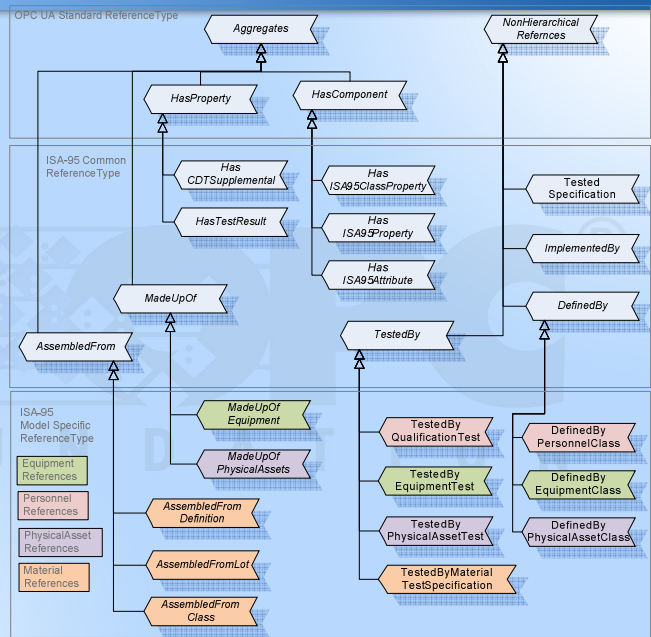
- Components Data Type Catalogue developed by the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT) describes Core Data Type (CDT)

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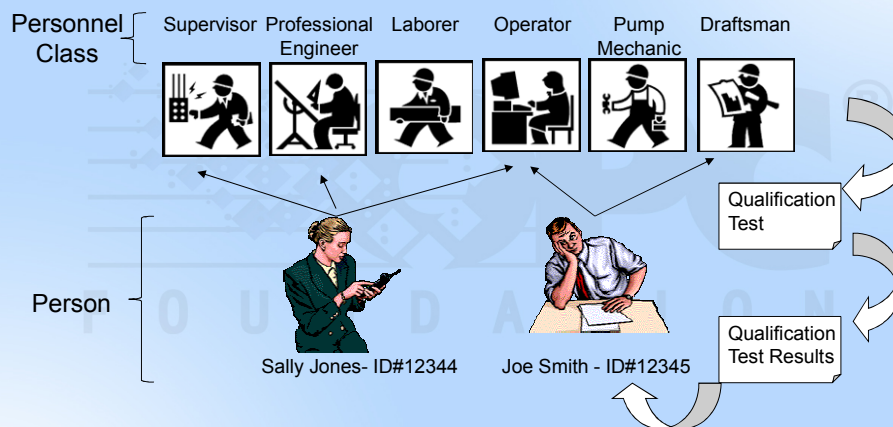
# Reference Definition



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## Personnel Model

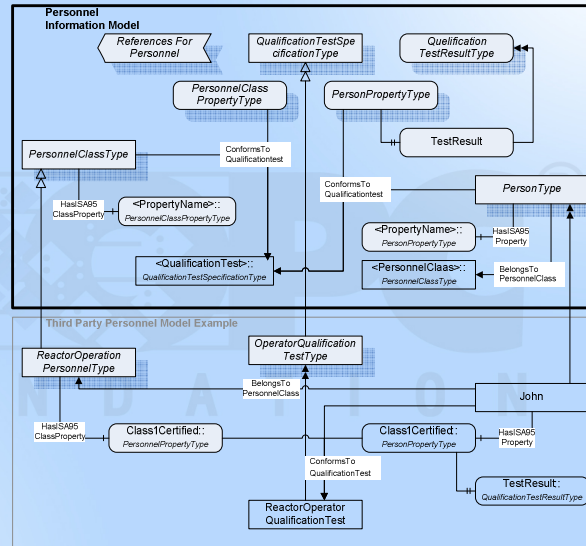


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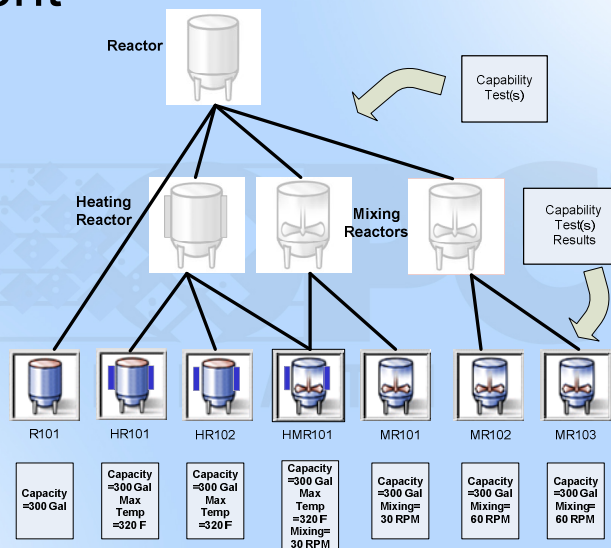
# Personnel Model



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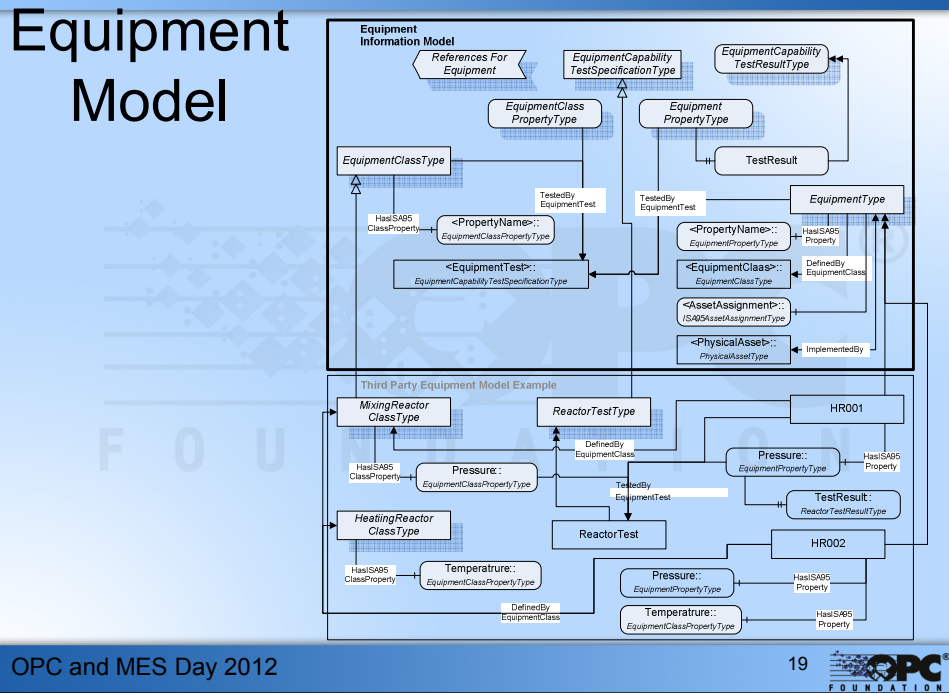
# Equipment Model



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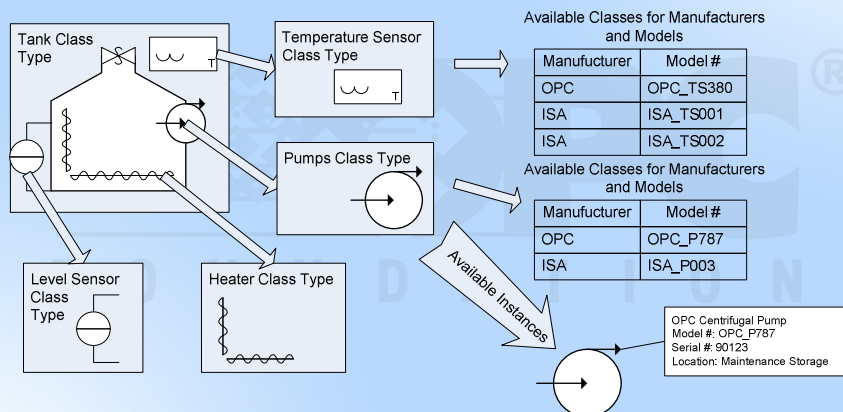
# Equipment Model



19



# Physical Asset Model

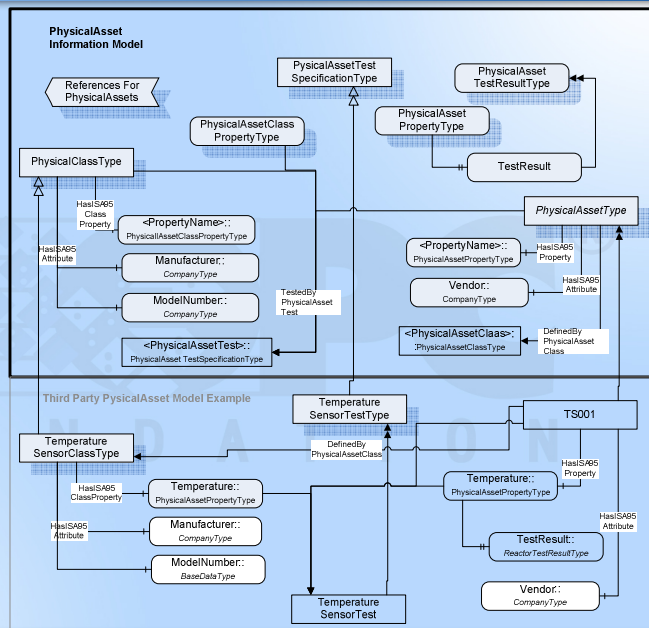


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# Physical Asset Model



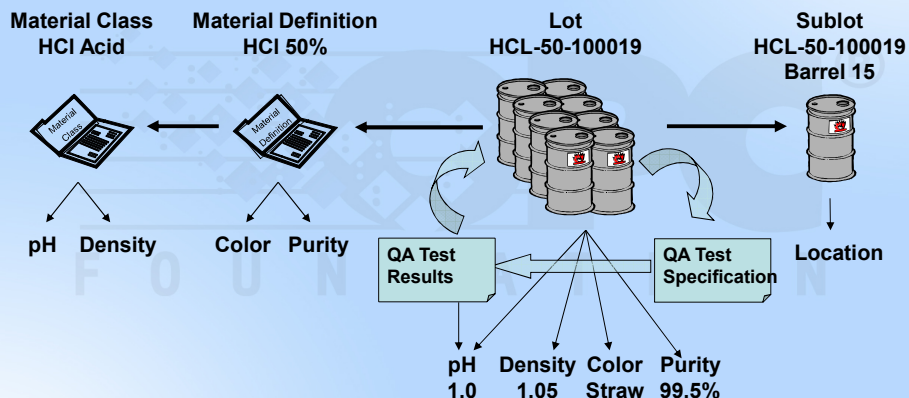
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## Material Definition Model

- Common material information

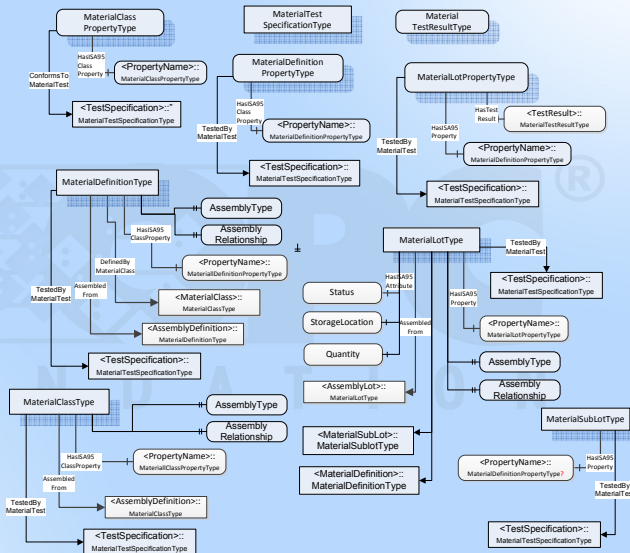


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# Material Definition Model



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## Status

- Specification RC
  - Profiles
  - B2MML Mapping
  - Implementations
- Initial Implementation Available
- Demo

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## Demo



Shockwave  
Flash Object

## Questions?

- **Paul Hunkar**
- [Paul.Hunkar@dsinteroperability.com](mailto:Paul.Hunkar@dsinteroperability.com)



# Five Resource Object Models



People

→ Personnel resources managed for operations



Equipment

→ Role of equipment managed for operations



Physical Asset

→ Physical equipment managed for operations



Materials

→ Material resources managed for operations



Process Segments

→ Business view of operations processes

# Major Object Definitions

Resources

Capability, Product, Production



People



Equipment



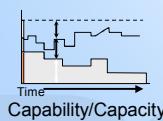
Physical Asset



Materials



Segments



Operations  
Definitions



Work  
Definitions\*



Operations  
Schedule



Work  
Schedule\*



Operations  
Performance



Work  
Performance\*

