

# BPMN, Capabilities and Requirements in QualiWare Lifecycle Manager

Version: 2017-01-24

# Workshop Content

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- A brief introduction to Business Process Model and Notation (BPMN) in QLM
- Documentation and visualization of Capabilities in QLM
- Requirements and their Traceability in QLM

# Business Process Model and Notation

# QLM Modeling Notations

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- IDEF derivatives
- Unified Modeling Language
- Archimate
- **Business Process Modelling Notation**

# The BPMN Standard



- A graphical representation for specifying business processes in a business process model
- Developed under the Business Process Management Initiative
- Adopted as a standard by the Object Management Group in 2006
- Very similar to activity diagrams from Unified Modeling Language

# What BPMN is and is not

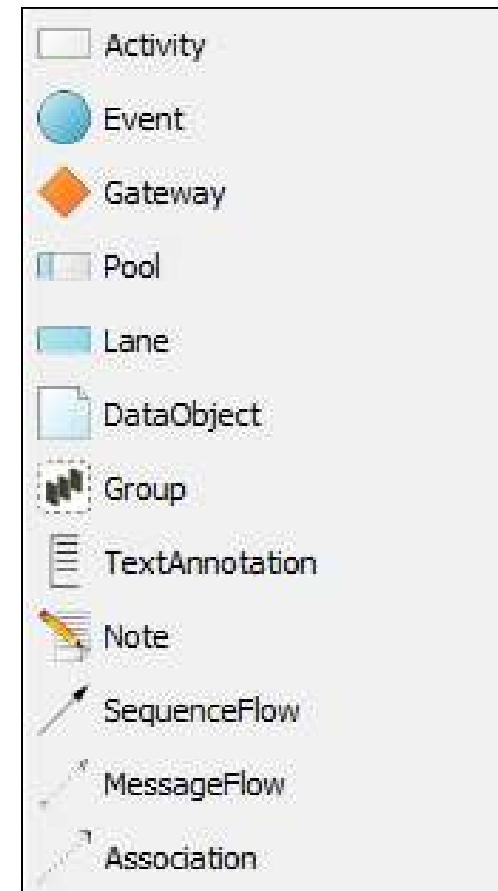


- BPMN is intended to support modeling of business processes
- BPMN is not designed to model
  - Organizational structures
  - Functional breakdowns
  - Data models
- Other templates exist in QLM for these purposes

# BPMN Elements

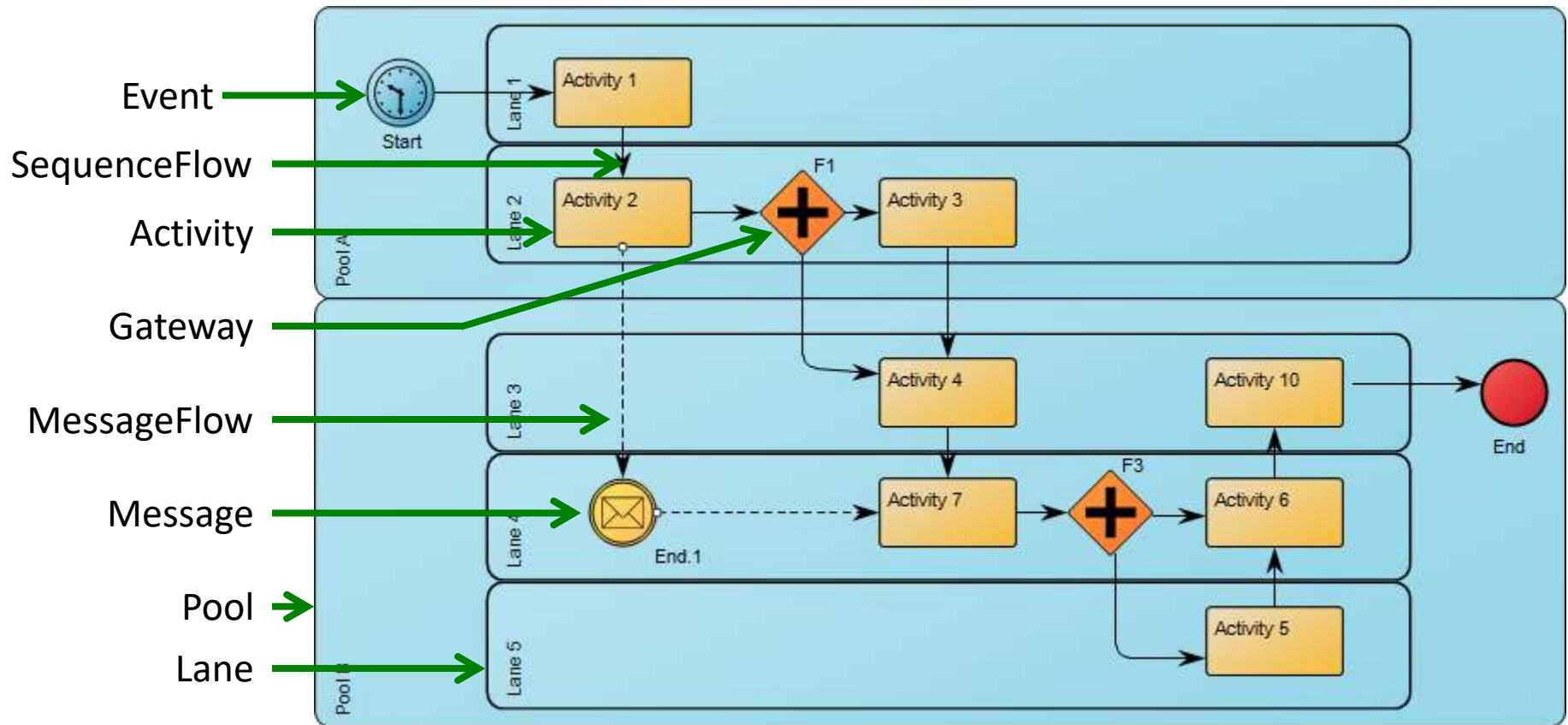


- Flow objects
  - Event, activity, gateway
- Connecting objects
  - Sequence flow, message flow, association
- Swim lanes
  - Pool, lane
- Artifacts
  - Data object, group, annotation



*All of these elements are available in QLM*

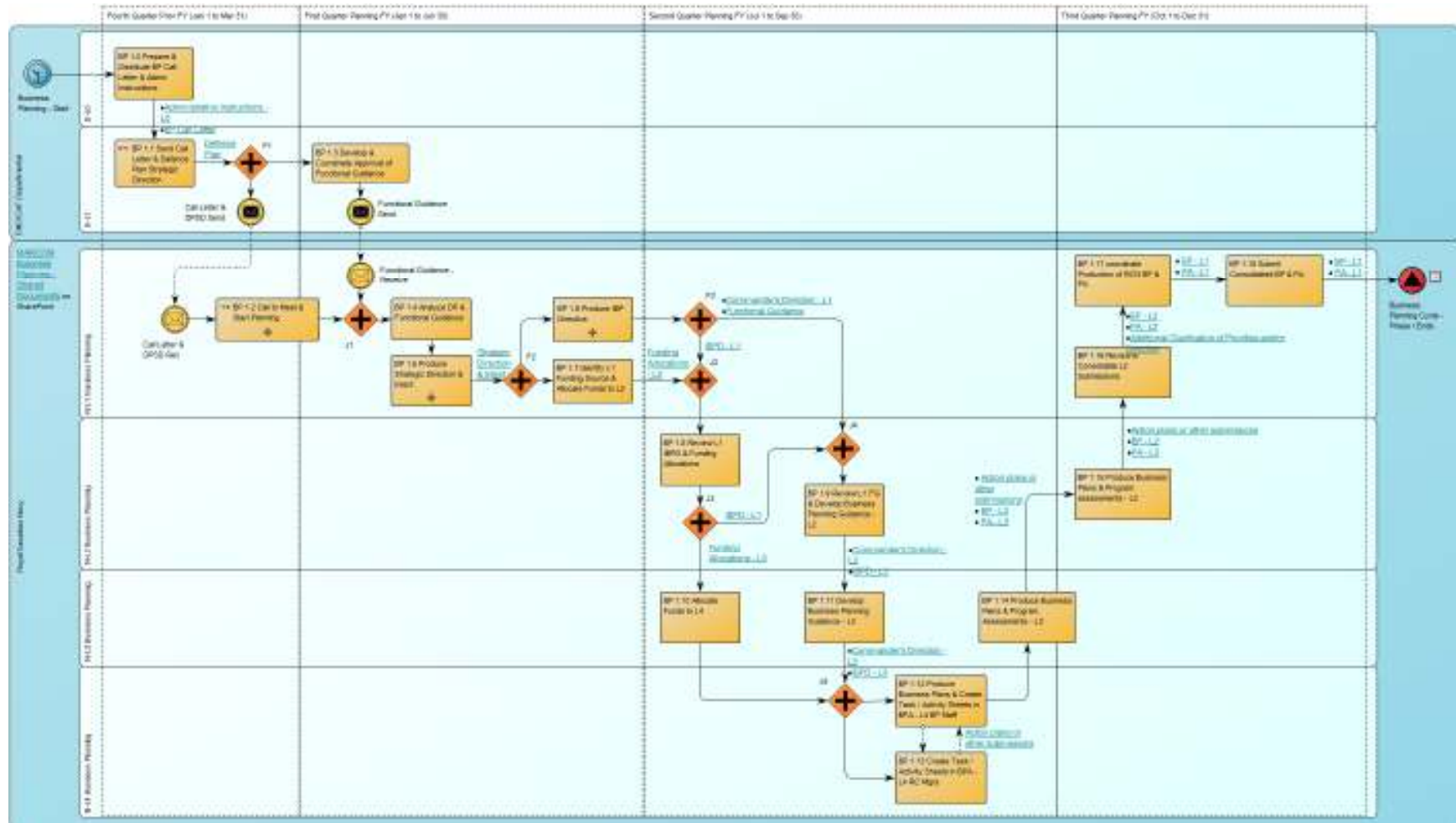
# Sample BPMN Diagram



*Uses the QLM BusinessProcessDiagram template*



# RCN Business Planning in BPMN



# BPMN Demonstration

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- In QLM, using the BusinessProcessDiagram template

# Capabilities

# Capability Scoring



The screenshot displays the Qualiware interface for configuring capability scoring. On the left, four capability categories are listed with their respective status icons:

- Operate Business Administration** (Yellow icon)
- Market Objects** (Green icon)
- Procure Raw Material** (Yellow icon)
- Transport Product** (Green icon)

Each category has a list of associated metrics with colored status indicators:

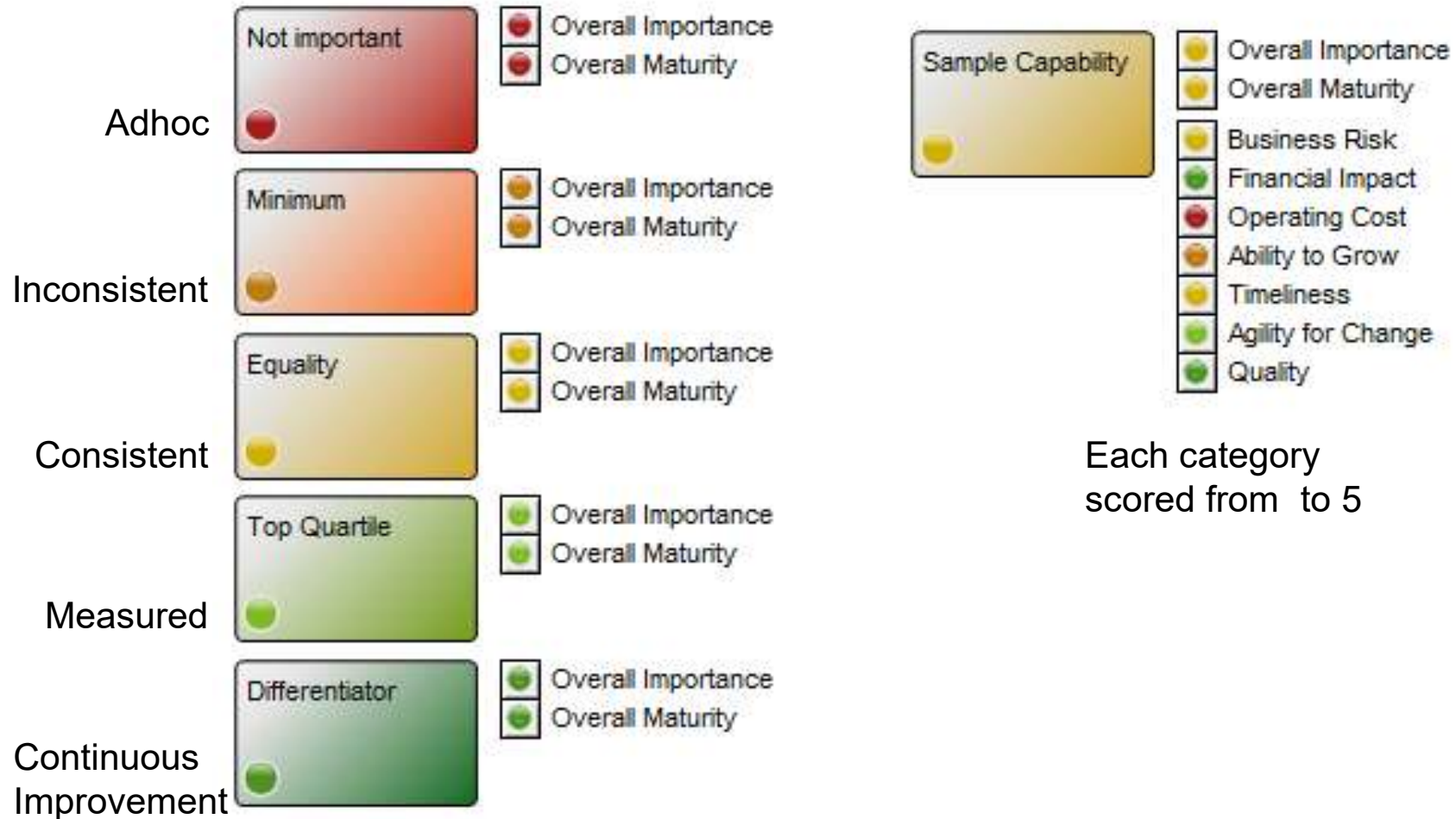
- Operate Business Administration:** Overall Importance (Green), Overall Maturity (Yellow), Business Opportunity (Yellow), Business Risk (Red), Financial Impact (Yellow), Operating Cost (Green), Ability to Grow (Yellow), Timeliness (Yellow), Agility for Change (Yellow), Quality (Yellow).
- Market Objects:** Overall Importance (Green), Overall Maturity (Yellow), Business Opportunity (Yellow), Business Risk (Red), Financial Impact (Yellow), Operating Cost (Green), Ability to Grow (Yellow), Timeliness (Green), Agility for Change (Yellow), Quality (Yellow).
- Procure Raw Material:** Overall Importance (Yellow), Overall Maturity (Yellow), Business Opportunity (Yellow), Business Risk (Red), Financial Impact (Yellow), Operating Cost (Green), Ability to Grow (Yellow), Timeliness (Yellow), Agility for Change (Yellow), Quality (Yellow).
- Transport Product:** Overall Importance (Green), Overall Maturity (Yellow), Business Opportunity (Yellow), Business Risk (Red), Financial Impact (Yellow), Operating Cost (Green), Ability to Grow (Yellow), Timeliness (Yellow), Agility for Change (Yellow), Quality (Yellow).

The main dialog box, titled "Capability : Market Objects : Rev. 0 : Default", shows the configuration for the "Market Objects" capability. The "Capability : Score" section is active, and the "Hide Scores" checkbox is unchecked. The configuration table is as follows:

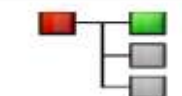
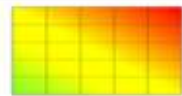
	Current	Target
Business Value		
Business Opportunity:	3. Acceptab	4. Good
Business Risk:	3. Acceptab	3. Acceptab
Financial Impact:	2. Unsatisfa	4. Good
Performance		
Operating Cost:	1. Unaccept	4. Good
Ability to Grow:	3. Acceptab	3. Acceptab
Timeliness:	4. Good	5. Excellent
Agility for Change:	2. Unsatisfa	3. Acceptab
Quality:	3. Acceptab	4. Good

The dialog box also includes a tree view on the left with the following items: Capability, Audts, Score, DeliveredBy, HealthCheck, Describe, Associate, and Governance. At the bottom, there are "OK", "Cancel", and "Apply" buttons.

# Capability Scoring Ranges



# Capability Features from Toolbar



Capabilities - Not delivered



Capabilities Delivered By



Multiple Information Systems delivering Capability - Filtered



Multiple Business Processes delivering Capability



Capabilities delivered by Information Systems from Vendor



Capability Gap Analysis - single



Capability Score Dashboard



Capability Maturity Chart



Highlight Capability Implementation



Highlight Capability Investment



Highlight Business Process Impact



Highlight Information System Impact



Highlight Data Entity Impact



Highlight Technology Impact

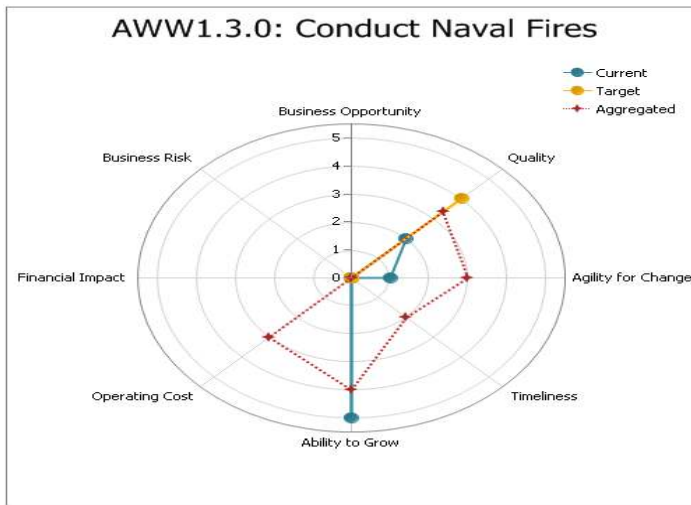
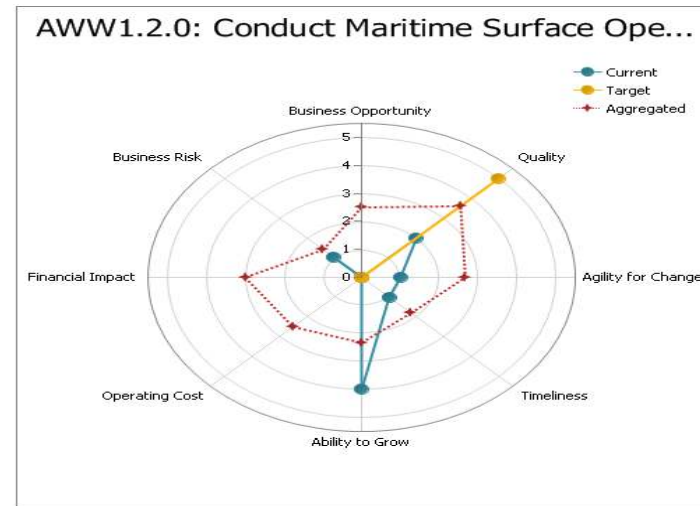
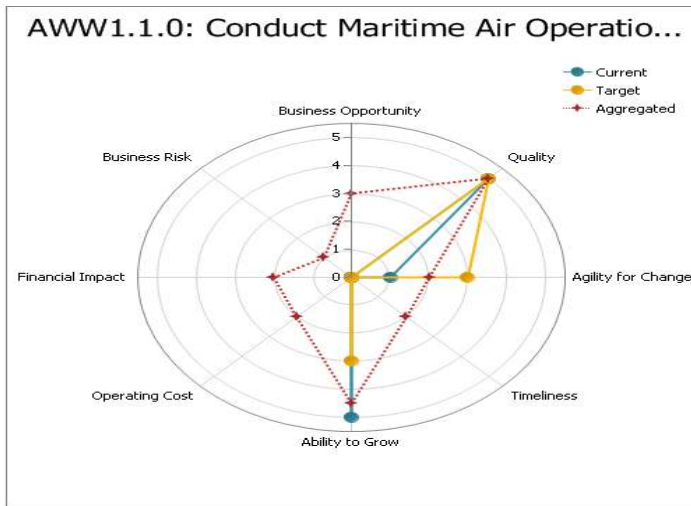


Highlight Capability Outcome

# Capability Gap Analysis

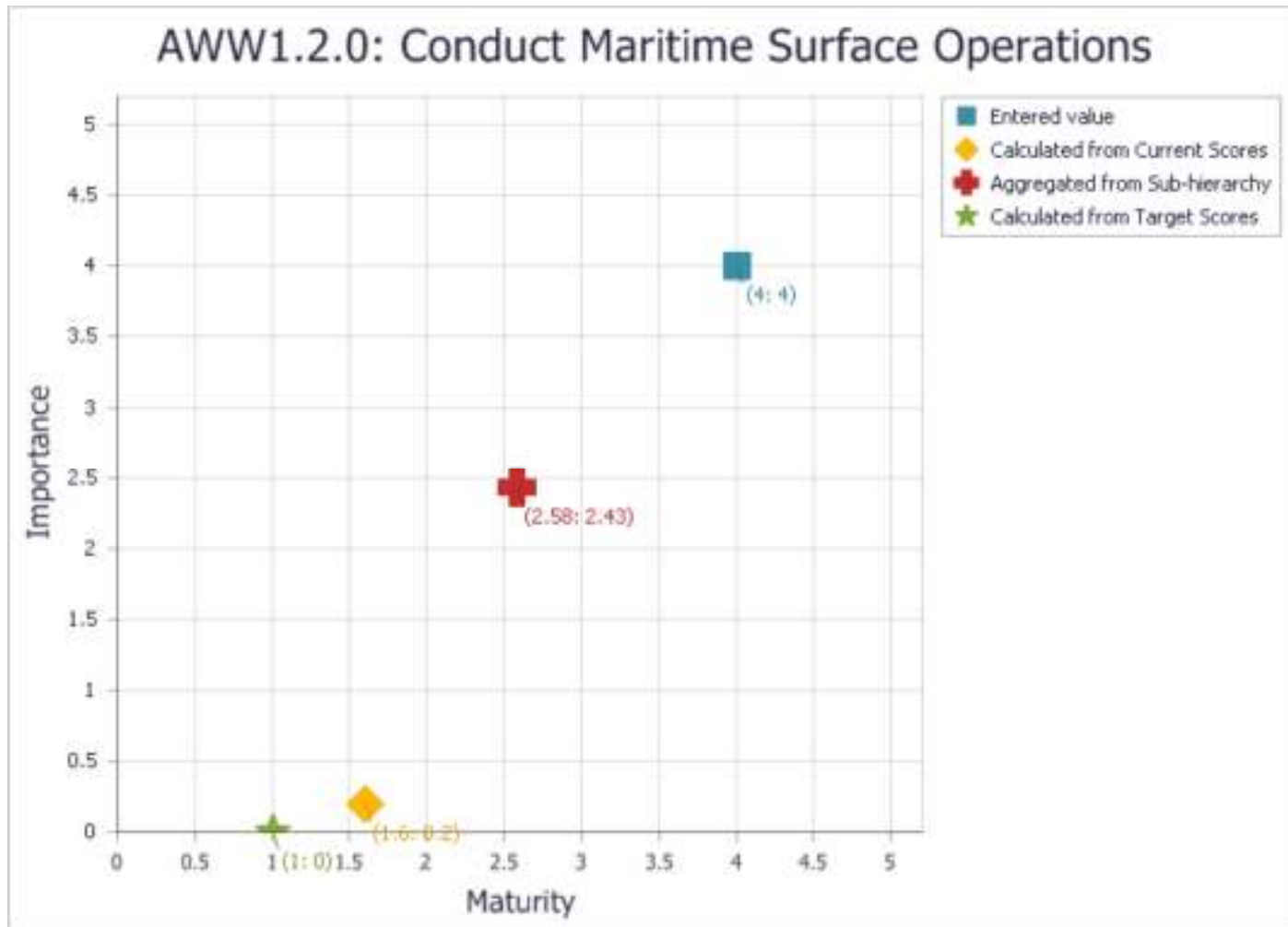


# Capability Dashboard





# Capability Maturity Chart



# Capability Matrices



Capabilities  
Delivered By



Multiple Information Systems  
delivering Capability -  
Filtered



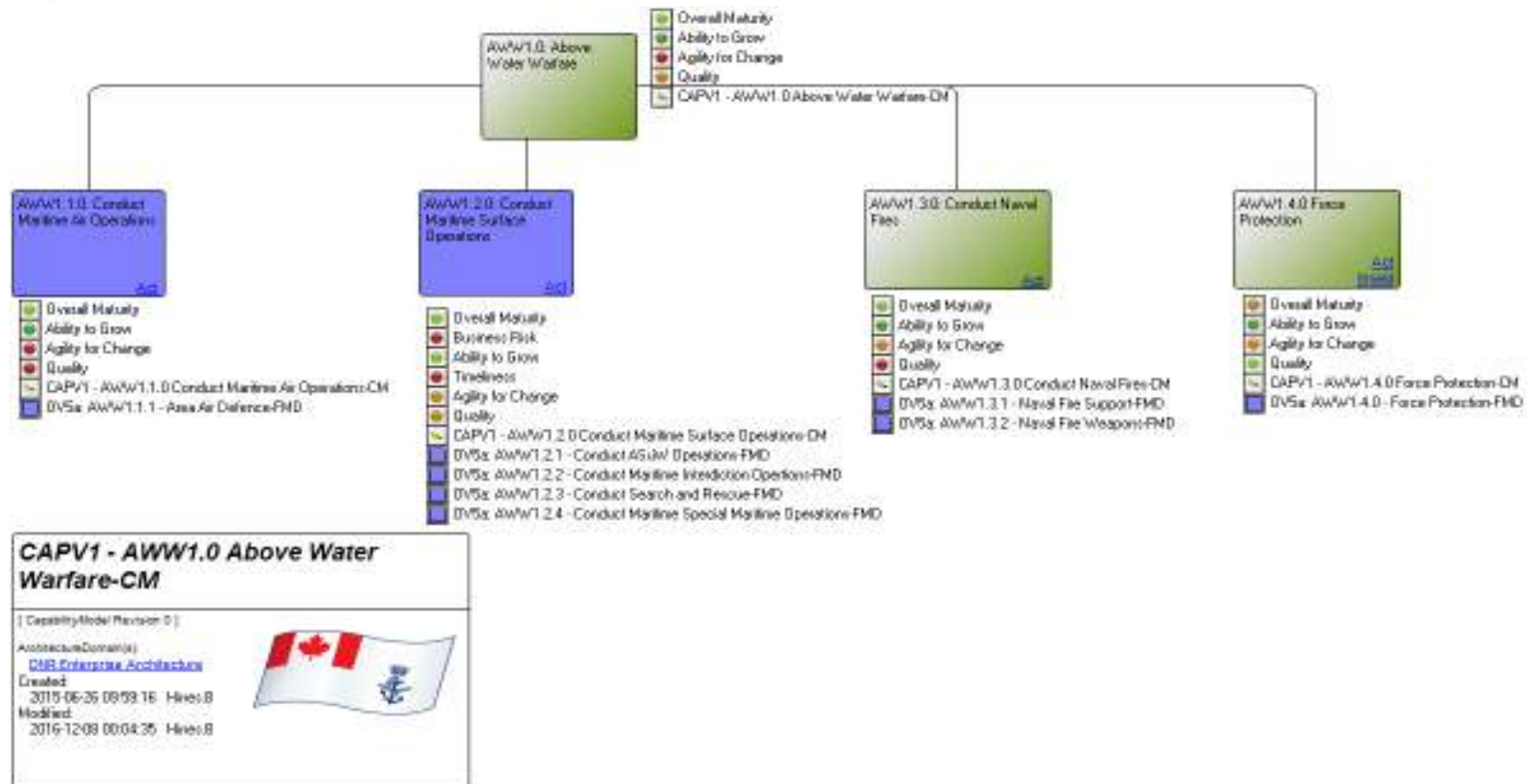
Capability Delivered by	<a href="#">DLPS MIDS Link 11</a>	<a href="#">SEOSS</a>	<a href="#">SLR-505 ESM</a>	<a href="#">UHF Voice Crypto</a>	<a href="#">HF Fan Antenna</a>	<a href="#">After UHF</a>	<a href="#">HF Voice Crypto Device</a>	<a href="#">USV Active Offboard RF Decr</a>
<a href="#">AWW1.2.1: Conduct ASuW</a>	X	X	X	X	X	X	X	X
<a href="#">AWW1.2.2: Conduct Maritime Interdiction Operations (MIO)</a>	X			X	X	X	X	
<a href="#">AWW1.2.3 Conduct Search and Rescue</a>	X	X		X	X	X	X	

Capabilities delivered by Multiple systems	<a href="#">UWW2.3: Conduct Defensive Naval Mine Counter Measures (NMCM)</a>	<a href="#">UWW1.2.1: Conduct ASW Attack</a>	<a href="#">AWW1.2.3 Conduct Search and Rescue</a>	<a href="#">MIW1.2.1 Manage multiple battlespaces</a>	<a href="#">MIW1.3.1 Initiate Plans</a>
Potential redundant applications	26	05	54	70	88
<a href="#">2 Alpha</a>	X				
<a href="#">2 Ton Chain Hoist and Trolley Assembly (Electrical Operated)</a>					
<a href="#">533 mm Torpedo tubes</a>		X			
<a href="#">2004 Bathy</a>			X		
<a href="#">2005 Bathy</a>			X		
<a href="#">2008 Underwater Telephone</a>		X		X	X
<a href="#">2071 Noisemaker</a>		X			
<a href="#">2073 Emergency Underwater Telephone</a>					X
<a href="#">5900 RSS</a>	X				
<a href="#">Acoustic Array Network (military)</a>					
<a href="#">Acoustic Array network (non-military)</a>					
<a href="#">Acoustic Data Exchange Network</a>					
<a href="#">Acoustic Network (Military)</a>					
<a href="#">Acoustic Network (Non-military)</a>					
<a href="#">Acoustic Range</a>	X				
<a href="#">Acoustic Range Prediction System</a>				X	X
<a href="#">ADC</a>					
<a href="#">Advanced Harpoon Weapon Control System</a>					
<a href="#">AHG BWA</a>		X		X	X
<a href="#">Aircraft Refueling</a>					
<a href="#">Aircraft Starting and Service</a>					
<a href="#">Aircraft Systems</a>					
<a href="#">AIS</a>		X	X	X	X
<a href="#">A/JJ Whip Antenna</a>					X
<a href="#">ALZ Fin Loops</a>				X	X
<a href="#">AN/SJN-501</a>					
<a href="#">AN/SPS-49</a>					
<a href="#">AOPS Air Systems</a>					
<a href="#">AOPS Weapon Systems</a>					
<a href="#">APS</a>					
<a href="#">Arctic Operations</a>					
<a href="#">AREPS</a>				X	X
<a href="#">ARMOR</a>					
<a href="#">Assured PNT</a>					
<a href="#">Assured Protected SATCOM</a>					
<a href="#">ASW Modelling and Simulation</a>					

# Highlight Capability Implementation



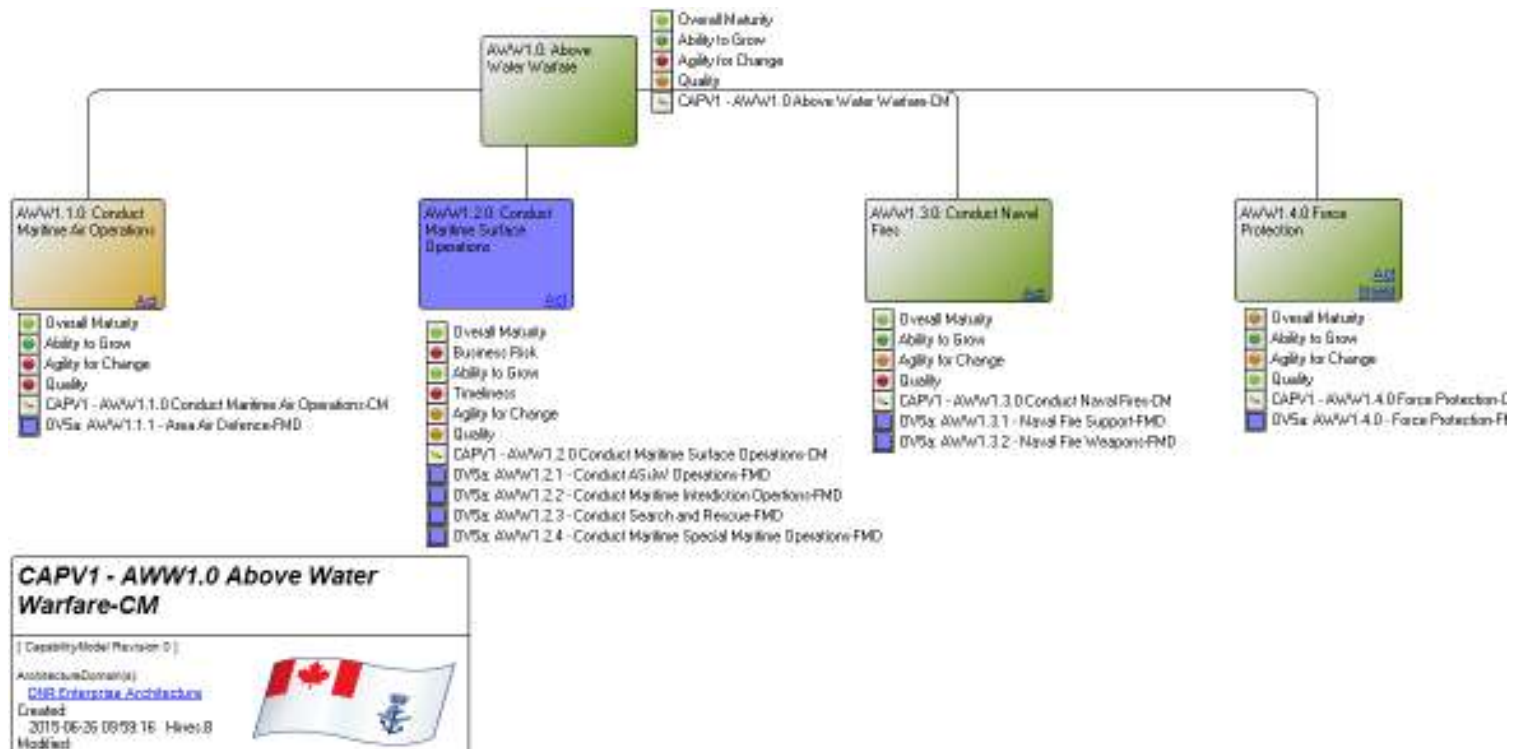
Highlight Capability Implementation



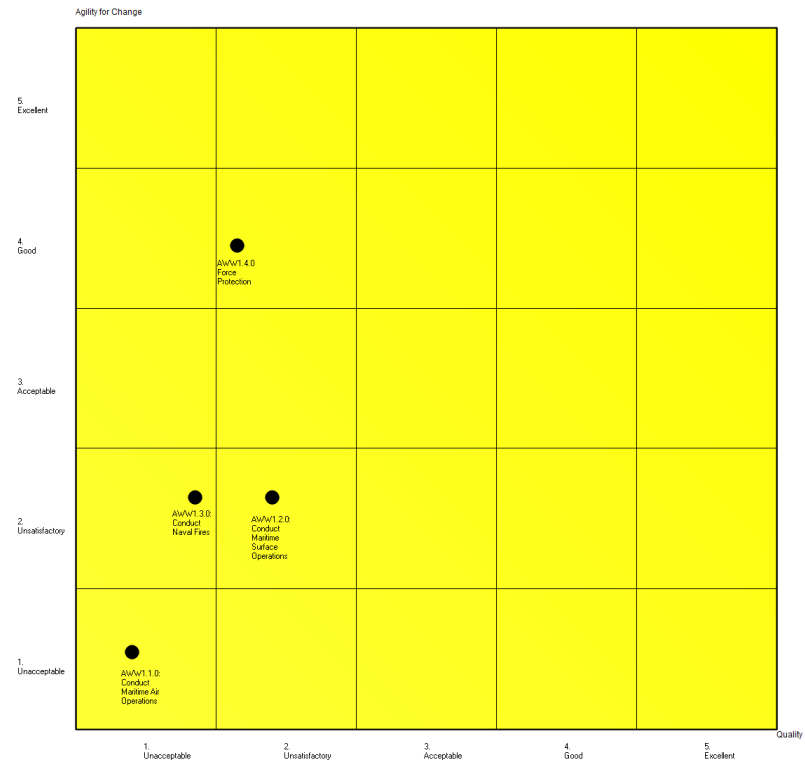
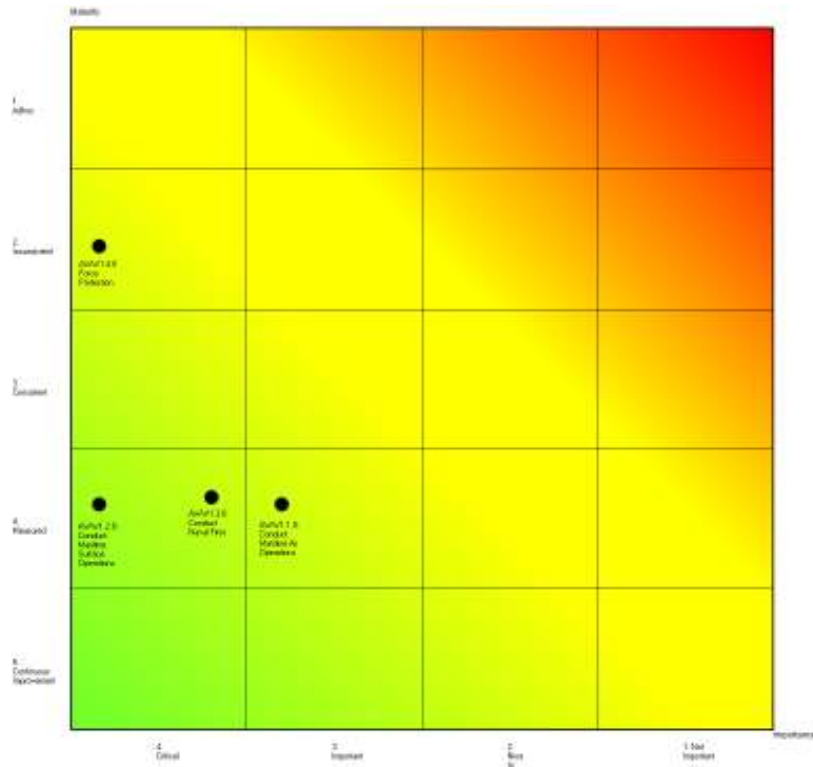
# Highlight Information System Impact



Highlight Information System Impact



# Capability Heat Maps



# Capability Demonstration

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- In QLM, using the BusinessCapabilityModel template

# Requirements

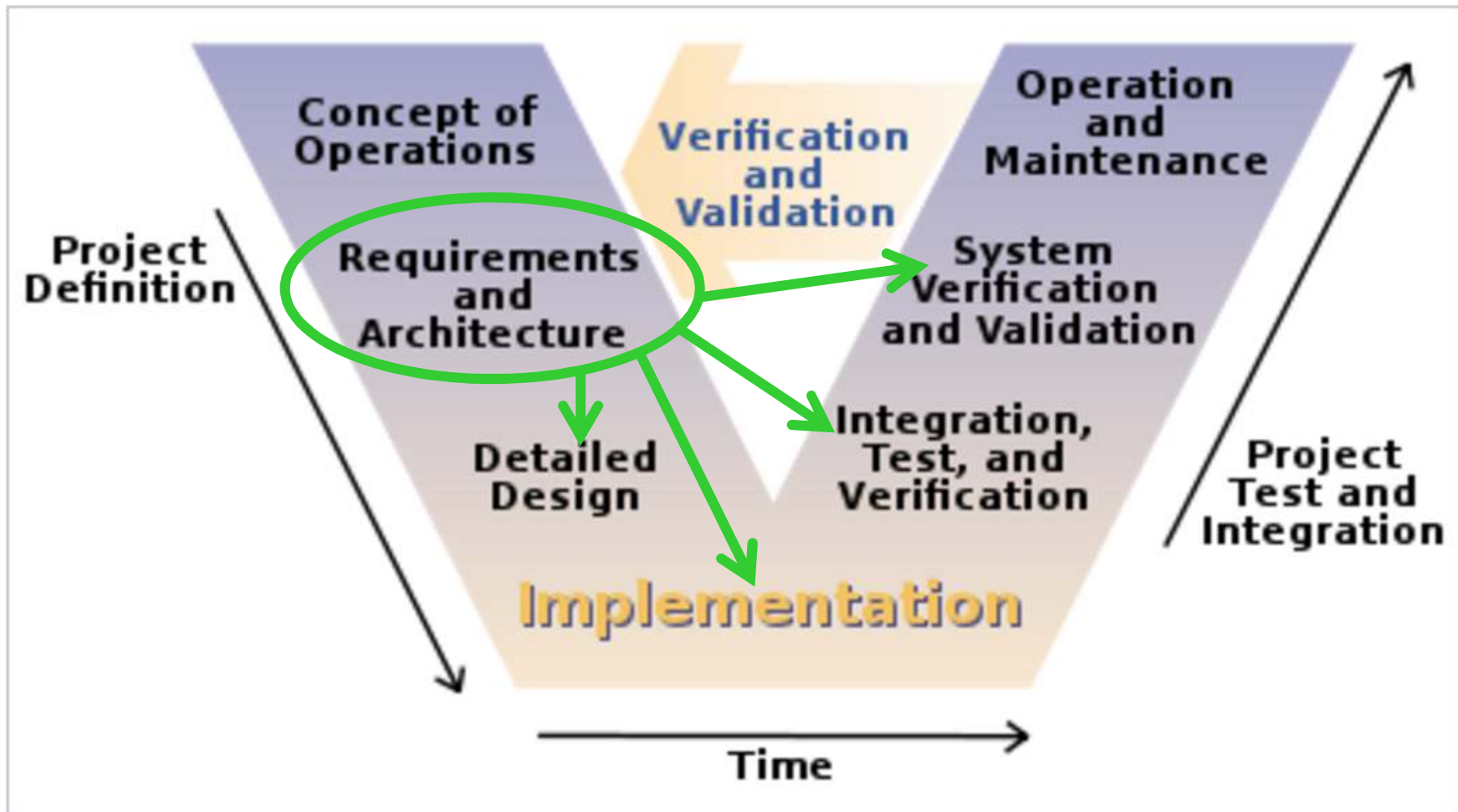
# Slides



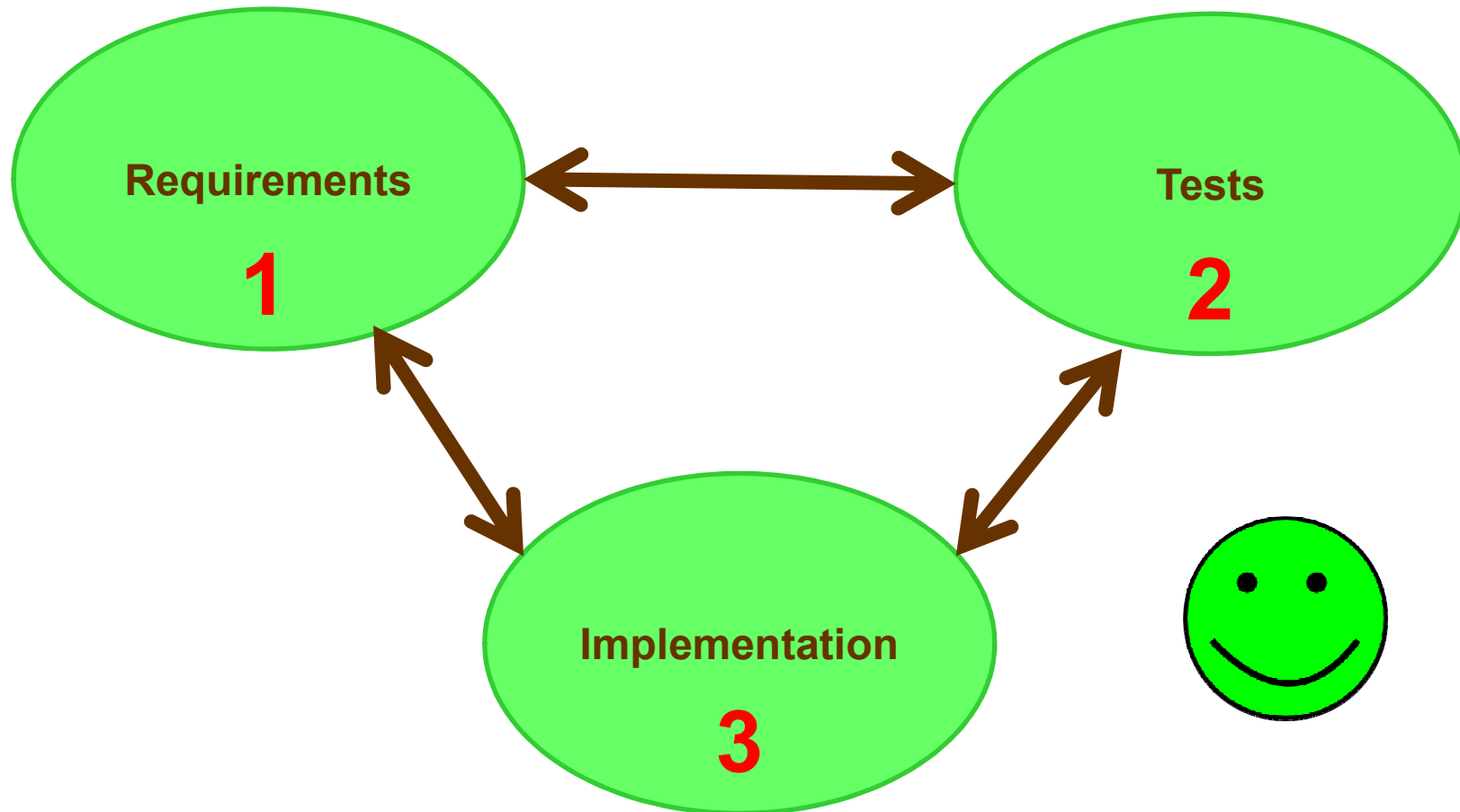
- Traceability reqt → design → system → test
- Req decomposition (few to some to many)
- Req model
- Req table
- Trace table



# The System Development V-Model



# Simplified V-Model



# Requirements Model



The screenshot displays the 'Ecosystems & Fisheries Management Sector-Level Business Requirements' interface. A grid of requirement cards is shown, with EFMSBR-08 highlighted by a green arrow. A modal window titled 'Requirement : EFMSBR-08 : Rev. 0 : Default' is open, showing a tree view on the left with 'Requirement' selected. The main area contains the following details:

- Requirement : Requirement
- Short Description: Ability to actively engage communities, schools, First Nations, and the public broadly in salmon stewardship through education, community-involvement activities, and projects aimed at restoring and maintaining key salmon habitat.
- Priority: [Dropdown]
- Originated By: [Table with columns Name, Rev., Type]
- Originated Date: [Date Picker]
- Status: [Dropdown]
- Responsible: [Dropdown]

Buttons for OK, Cancel, and Apply are visible at the bottom of the modal.

# Requirements Details



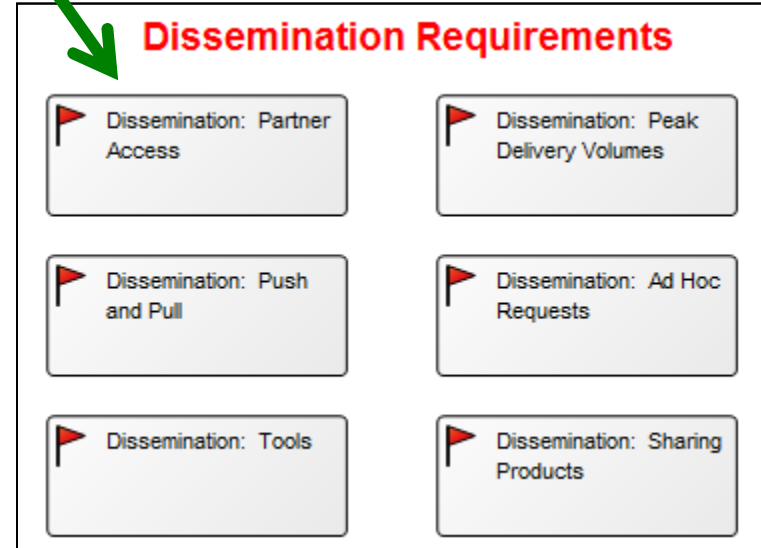
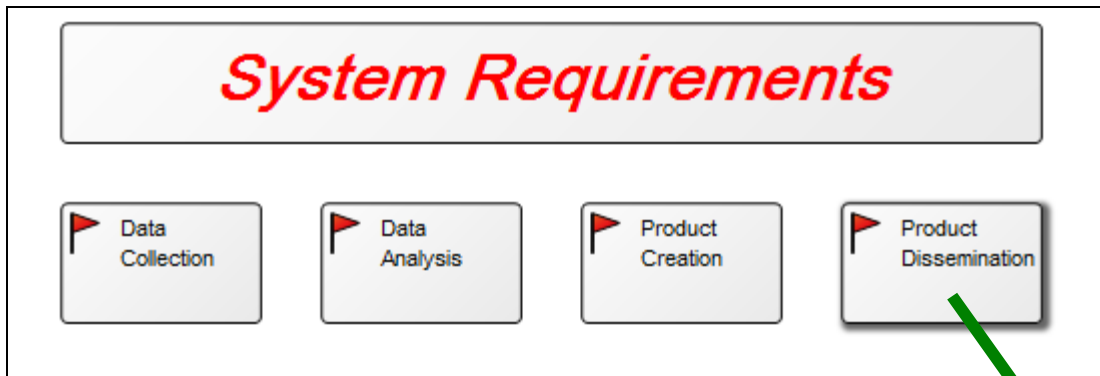
The screenshot shows a software dialog box titled "Requirement : EFMSBR-08 : Rev. 0 : Default". On the left is a tree view with the following items: Requirement, Audits, Breaks Down To, Describe, Associate, and Governance. On the right is a form with the following fields:

- Short Description: A text area containing "Ability to actively engage communities, schools, First Nations, and the public broadly in salmon stewardship through education, community-involvement activities, and projects aimed at restoring and maintaining key salmon habitat."
- Priority: A dropdown menu.
- Originated By: A table with columns "Name", "Rev.", and "Type".
- Originated Date: A date picker.
- Status: A dropdown menu.
- Responsible: A dropdown menu with a "+" button.

Green arrows point from the following labels on the left to the corresponding fields in the dialog box:

- Description - points to the Short Description text area.
- Priority - points to the Priority dropdown.
- Originator - points to the Originated By table.
- Date - points to the Originated Date date picker.
- Status (Registered, Open, Closed, Rejected) - points to the Status dropdown.
- Responsible (Person, Position, Organization) - points to the Responsible dropdown.

# Requirements Decomposition

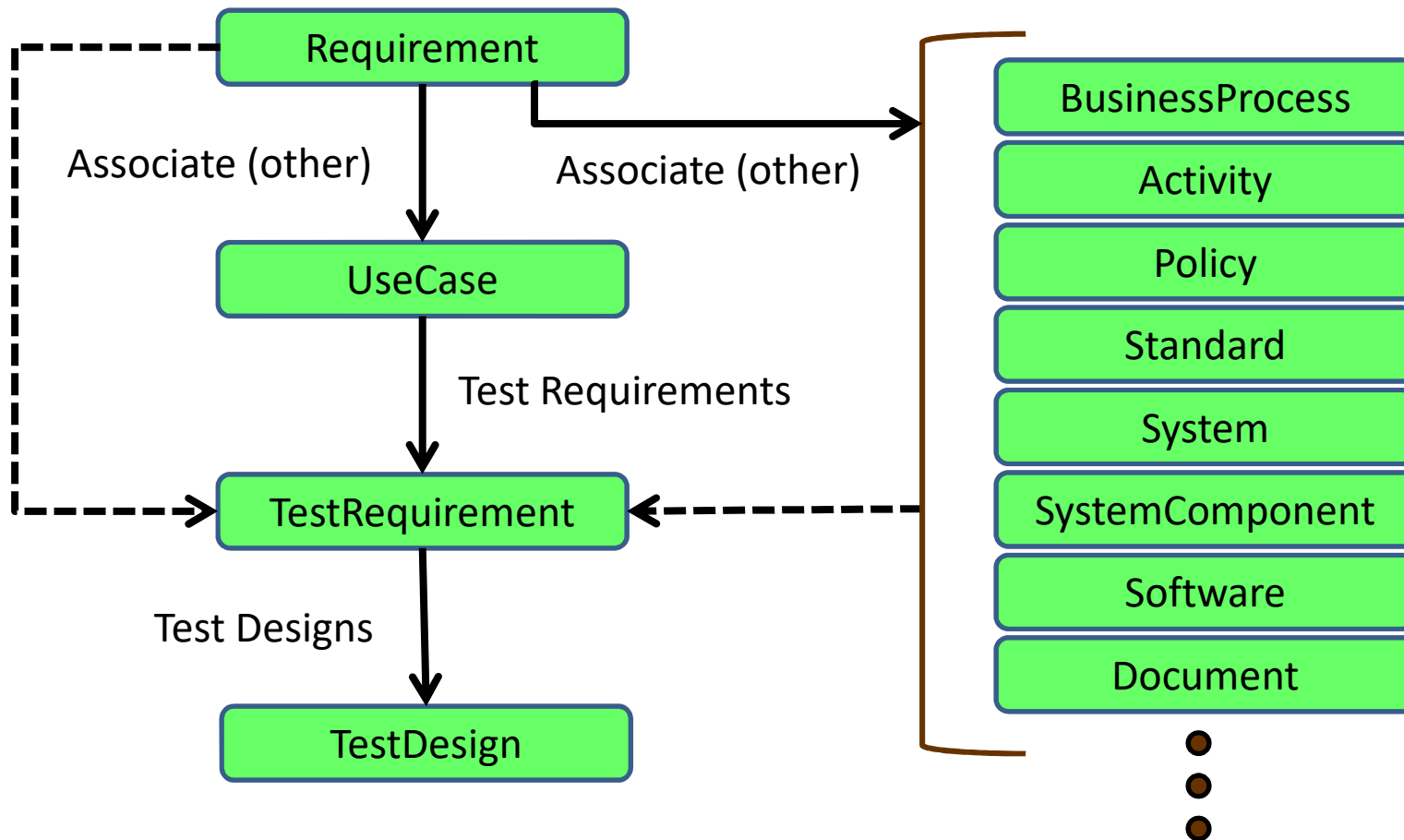


# Requirements Table (Matrix)



Requirements Table	ID Nbr	Description	OriginatedBy	Priority	Status
<a href="#">Dissemination: Ad Hoc Requests</a>	84	The system shall support xx concurrent ad-hoc requests for intelligence data per hour.	<a href="#">CCIRM</a> <a href="#">DRI</a> <a href="#">D Int IM 7</a>	1	Registered
<a href="#">Dissemination: Partner Access</a>	76	The system shall support partner access to releaseable data on the following timelines: - on demand for all data less than xx days; - yy hours for all data less than 1 year old; and - zz hours for all data greater than 1 year old.	<a href="#">CCIRM</a> <a href="#">D Int IM 7</a> <a href="#">DRI</a>	2	Open
<a href="#">Dissemination: Peak Delivery Volumes</a>	83	The system shall support peak delivery volumes equal to 10% of the daily volume over a 1 hour period based on historical data.			Rejected
<a href="#">Dissemination: Push and Pull</a>	77	The system shall be capable of push (based on a profile) and pull (based on an ad-hoc requirement) dissemination and allow sharing with partners of releaseable all-source intelligence data and products.	<a href="#">CCIRM</a> <a href="#">D Int IM 7</a> <a href="#">DRI</a>	1	Registered
<a href="#">Dissemination: Sharing Products</a>	79	The system shall provide the ability to share all intelligence products to C2 systems as appropriate.	<a href="#">D GEO Int</a>	3	Open
<a href="#">Dissemination: Tools</a>	78	The system shall provide tools to support dissemination and sharing of releaseable intelligence data and products including urgent dissemination.	<a href="#">CCIRM</a> <a href="#">D Int IM 7</a> <a href="#">DRI</a>	2	Closed

# Requirements Traceability



# Traceability Matrices

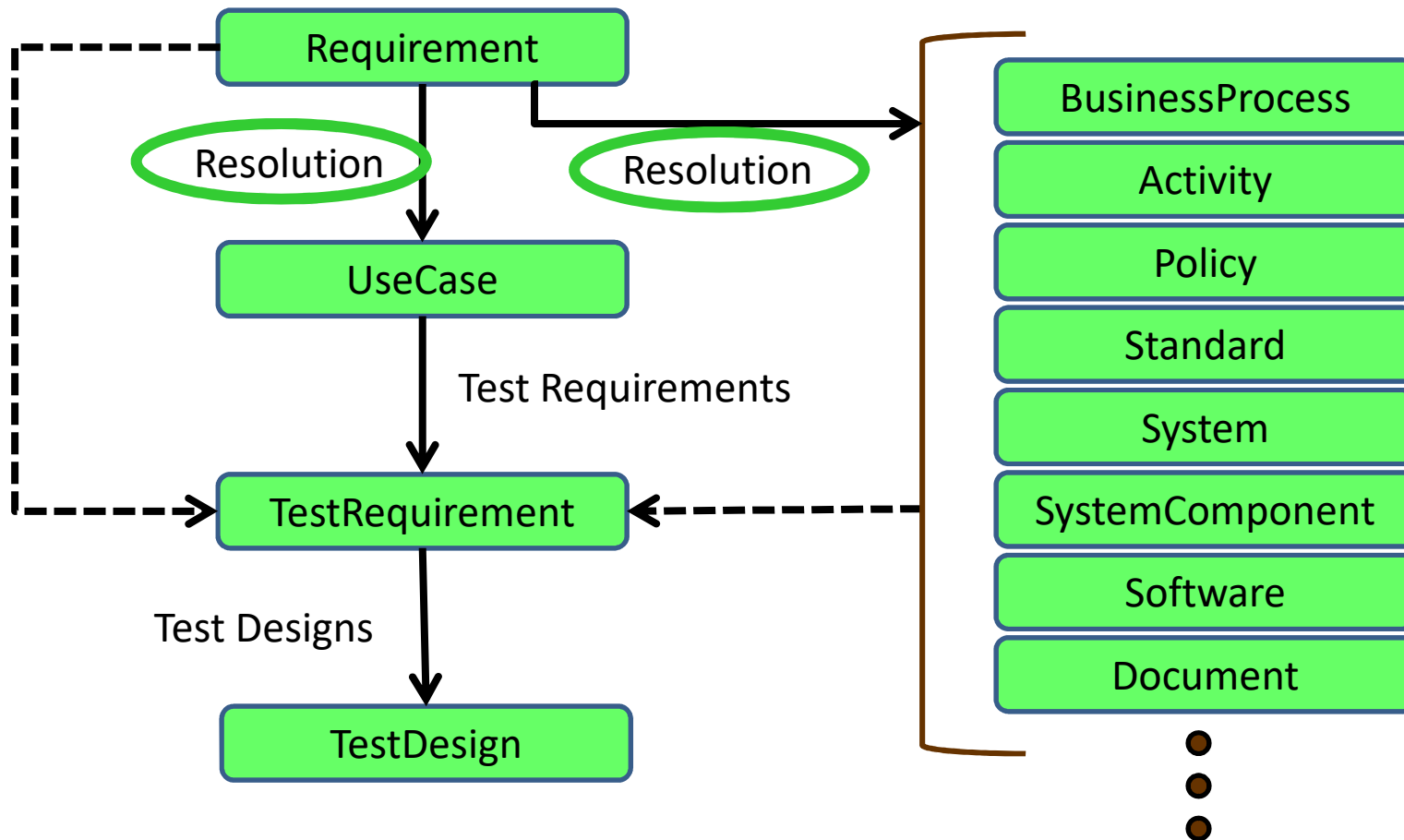


Requirements Traceability	ID	Description:	Status:	Links
<a href="#">Workstation Weight</a>	27.6	The weight of the workstation shall not exceed 20.0 kilograms.	Registered	<a href="#">TestRequirement_72</a> <a href="#">HP_2735A_Workstation</a>

System-->Requirements	LinkedBy
<a href="#">HP_2735A_Workstation</a>	<a href="#">Workstation_Weight</a>



# Requirements Traceability (DND)



# DND Requirement Configuration



Requirement : Printing Rate : Rev. 0 : Default

Requirement : Resolution

Resolution Description:

The printing function shall have a minimum output of 20 monochrome 8 1/2 x 11 pages per minute.

Resolution:

Name	Type
Printing Rate	UseCase
Printer	System

OK Cancel Apply

# Requirements Resolved by System

Requirement-->System	<a href="#">Analysis System</a>	<a href="#">Application Server</a>	<a href="#">Communications System 1</a>	<a href="#">Network Switch</a>	<a href="#">Print Server</a>	<a href="#">Printer</a>	<a href="#">Raid</a>	<a href="#">Server</a>	<a href="#">Storage Array</a>	<a href="#">Switch</a>	<a href="#">Workstation</a>
<a href="#">Printing Rate</a>	Resolution				Resolution	Resolution					
<a href="#">Analysis</a>	Resolution										
<a href="#">Data Transmission</a>			Resolution	Resolution						Resolution	
<a href="#">Data Storage</a>							Resolution	Resolution	Resolution		
<a href="#">Operator Interaction</a>		Resolution									Resolution
<a href="#">System Maintenance</a>											

# Requirements Demonstration

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- In QLM, using the RequirementModel template