

# IBM ELM 이용한 ASPICE 적용 방안

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IBM ELM 솔루션 담당

# IBM Engineering Lifecycle Management is trusted by industry leaders and analysts



9 of the 10 largest automotive companies



13 of the 15 top electronics OEMs



9 of the 10 medical device manufacturers



13 of the 15 largest Tier 1 automotive suppliers



9 of the 10 largest pharmaceutical companies



8 of the 10 semi-conductor companies

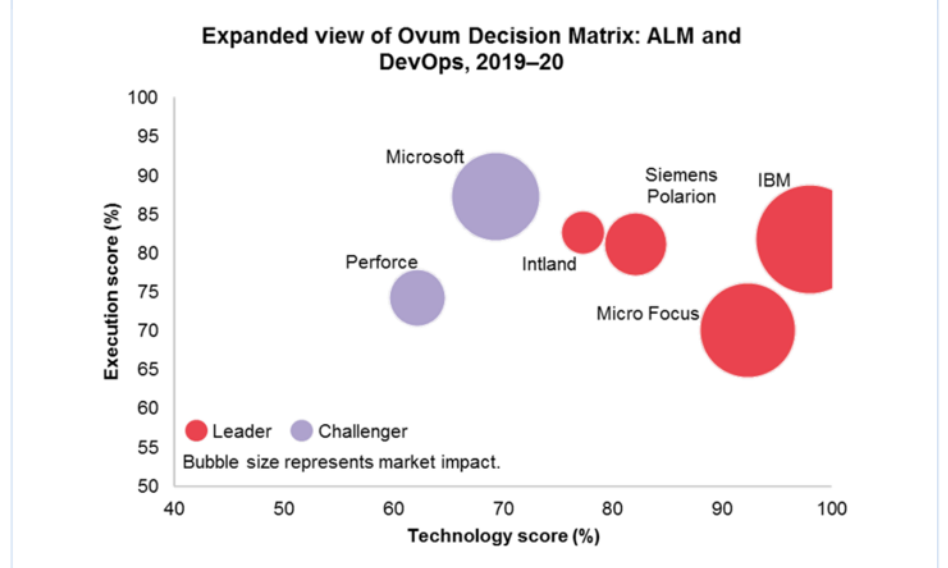


10 of the 10 major aerospace and defense companies



54 Government agencies in 54 countries

Figure 3: Expanded view of Ovum Decision Matrix: ALM and DevOps, 2019–20



Source: Ovum



# DOORS Next



Create requirements using different views



Link requirements and track traceability



Organize requirements in modules and components



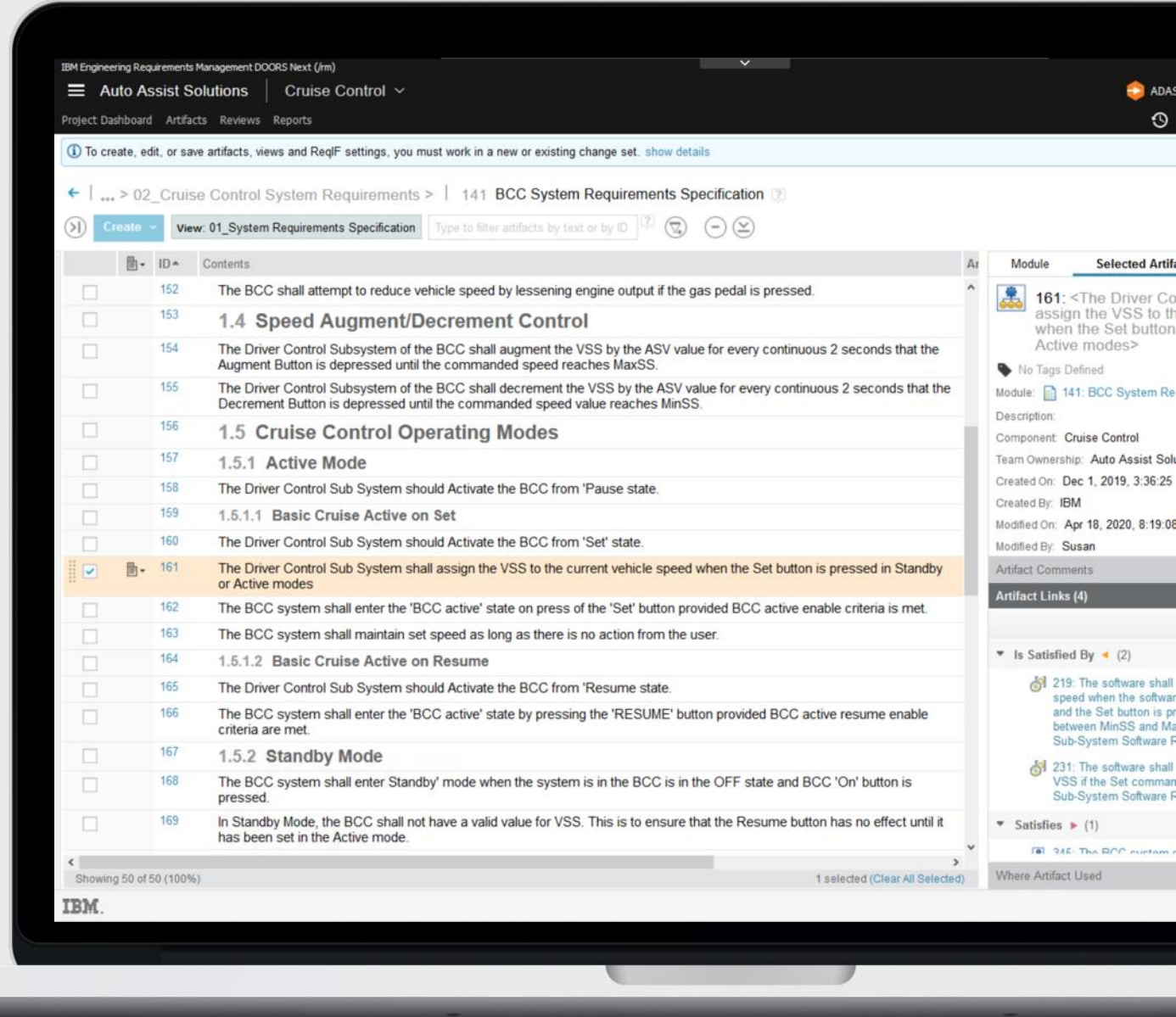
Exchange and import requirements



Review requirements



Version and baseline requirements





IBM Engineering Systems Design

# Rhapsody



Design Architecture using UML & SysUML



Model dynamic behavior



Run and analyze simulations



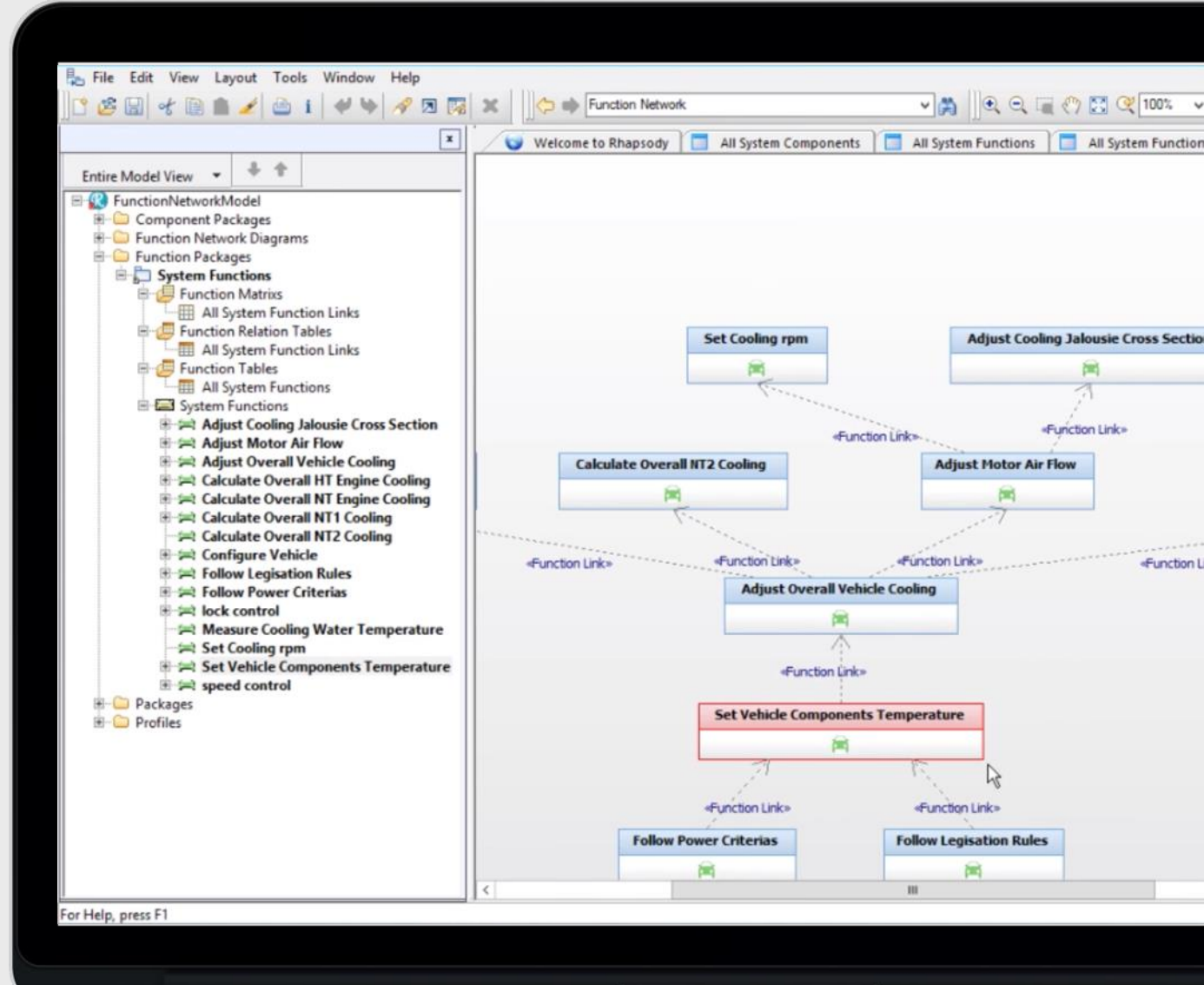
Specify Interfaces



Links to work items, tests and requirements



Generate Code





IBM Engineering

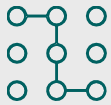
# Test Management



Create test cases, plans, and suites



Schedule execution and track records



Manage test coverage



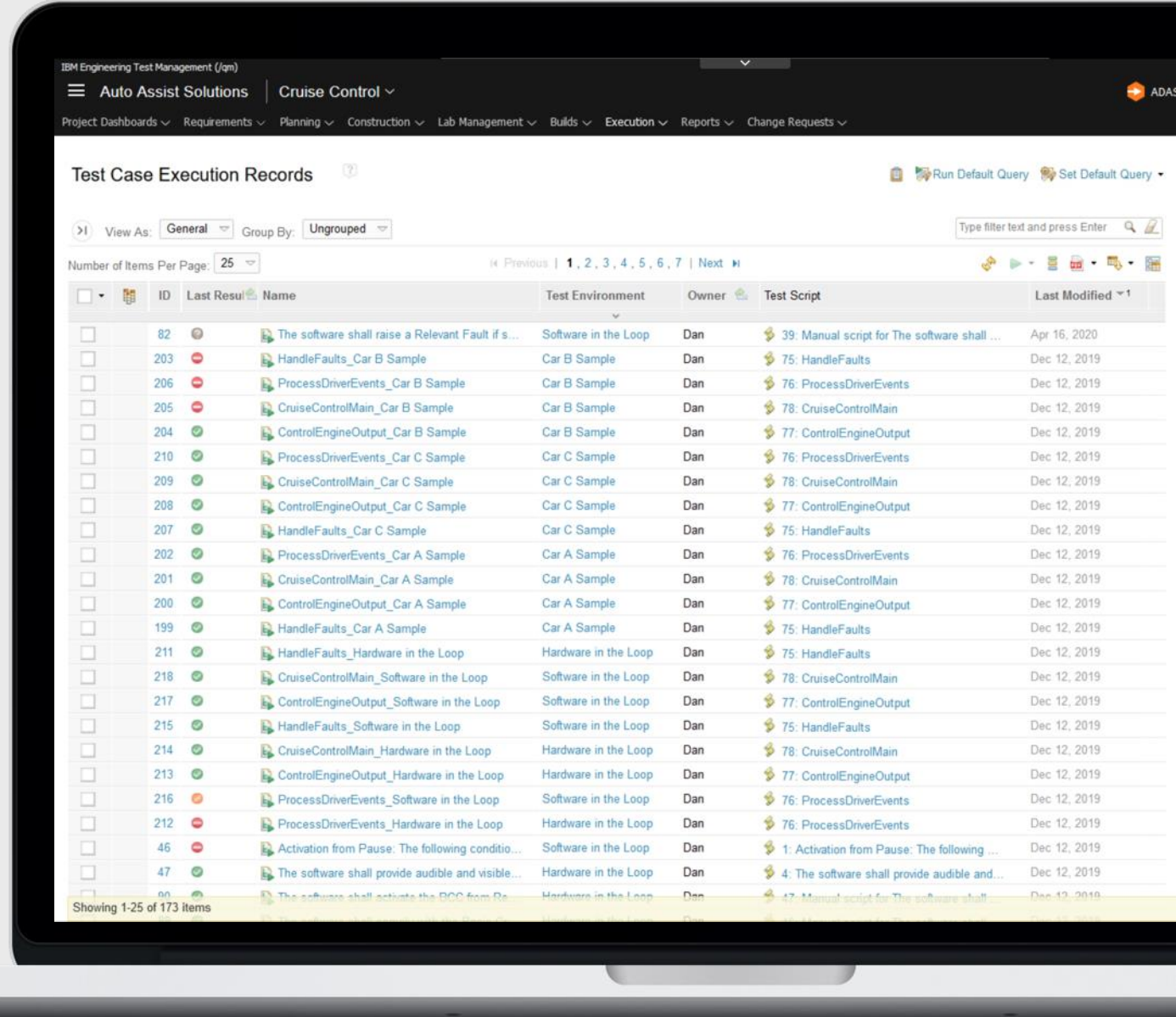
Manage test environments



Link to work items, models and requirements



Integrate 3<sup>rd</sup> party test tools





IBM Engineering

# Workflow Management



Custom and out-of-the-box workflows



Plan releases and milestones



Plan and assign tasks and issues



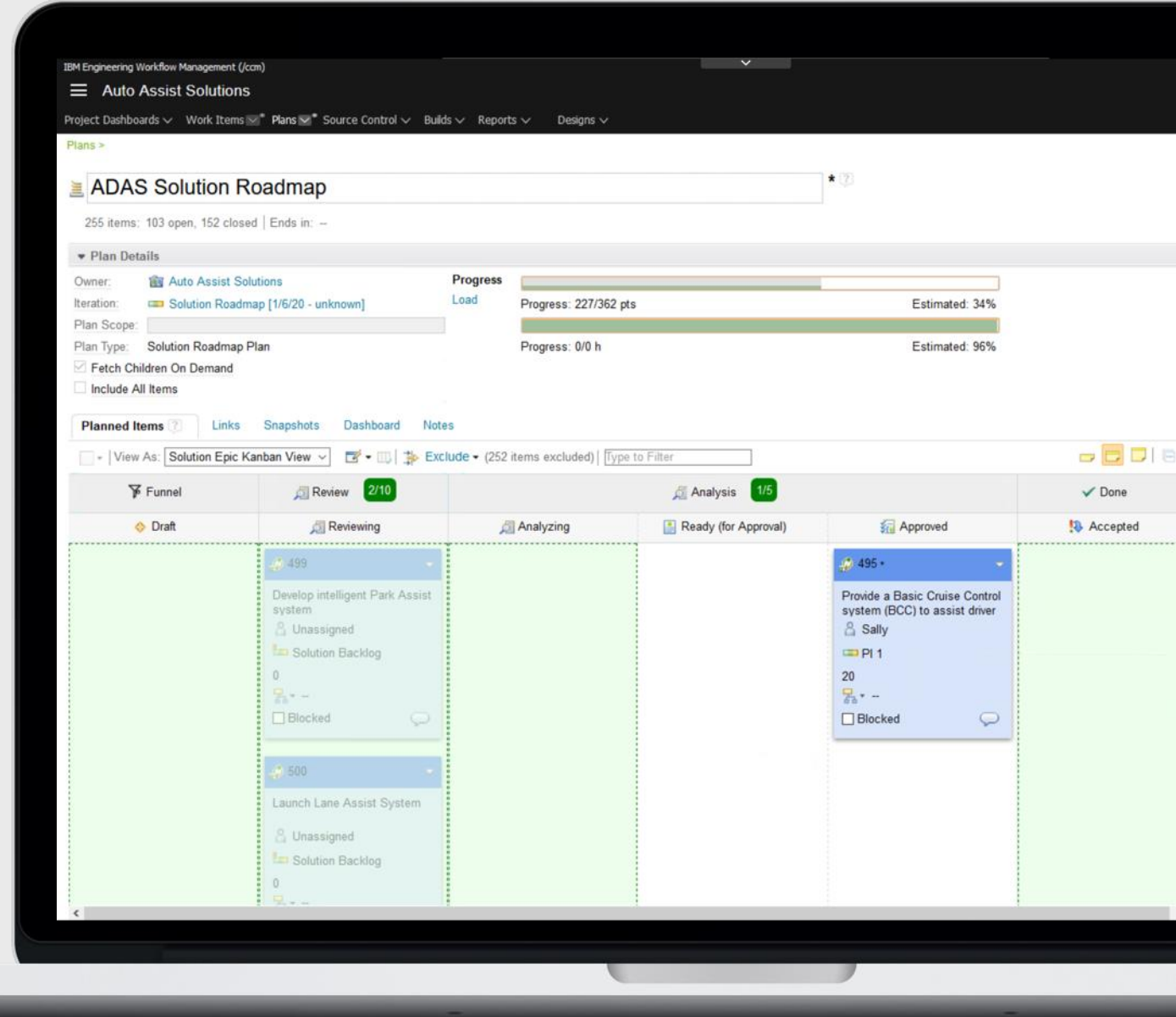
Track progress and process exceptions



Link to tests, models and requirements



Manage source code and documents



# IBM Engineering is one holistic solution

**Requirements**  
DOORS Next

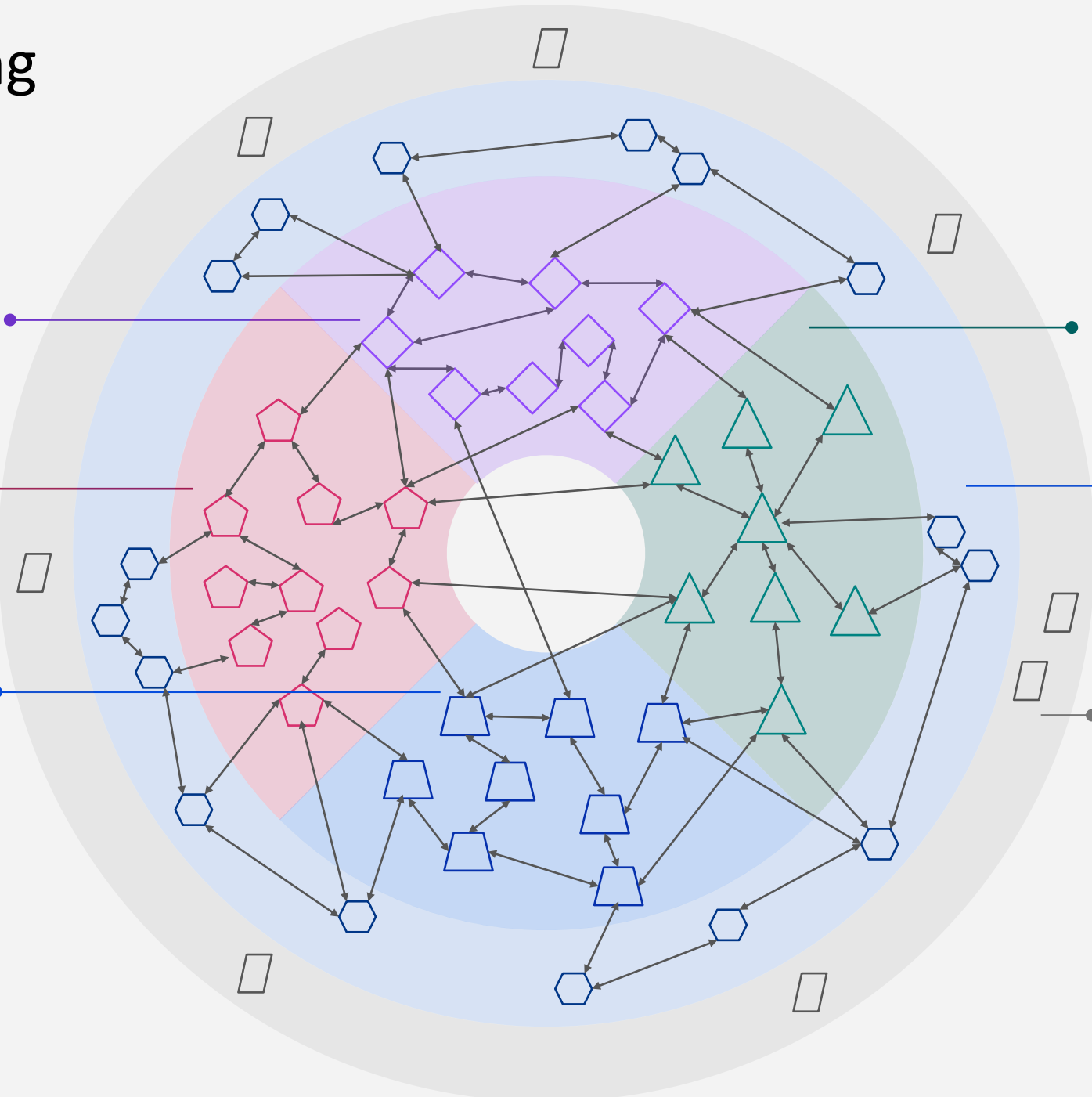
**Design / Architecture**  
Rhapsody Systems Design  
Rhapsody Model Manager

**Code & Documents**  
Engineering Workflow Source  
Code Management  
(EWM SCM)

**Test Assets**  
Test Management (ETM)

**Plans & Work Items**  
Engineering Workflow Management (EWM)

**Reporting**  
Jazz Reporting Service (JRS)  
Publishing (PUB) Engineering  
Insights (ENI)



*the key concept is linking of data*

# Contents

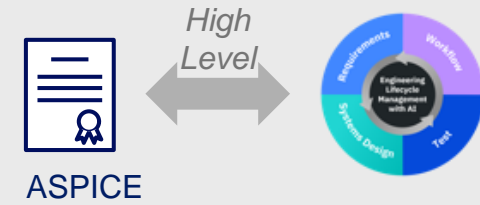
ASPICE Guide

ASPICE 산출물 관리

추적 View

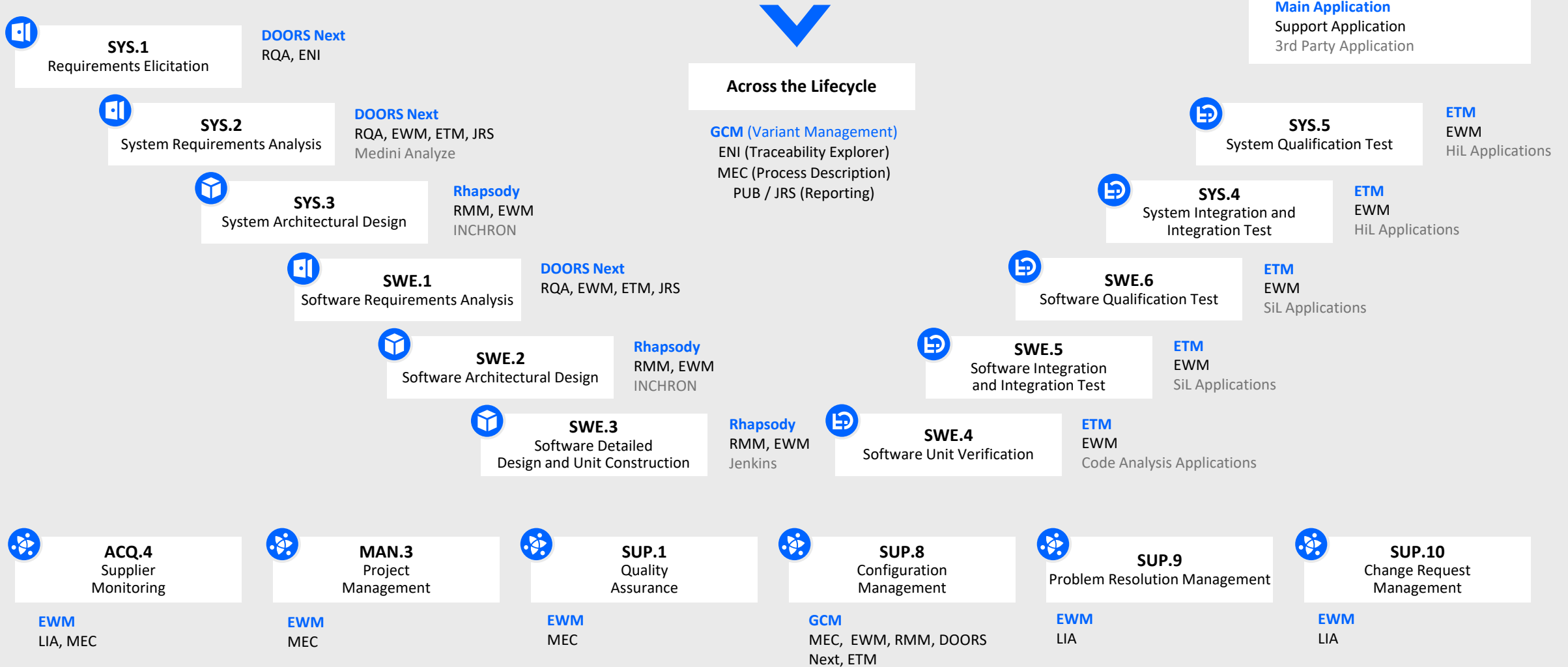


# IBM ELM offers an end-to-end portfolio to support and integrate the ASPICE process groups

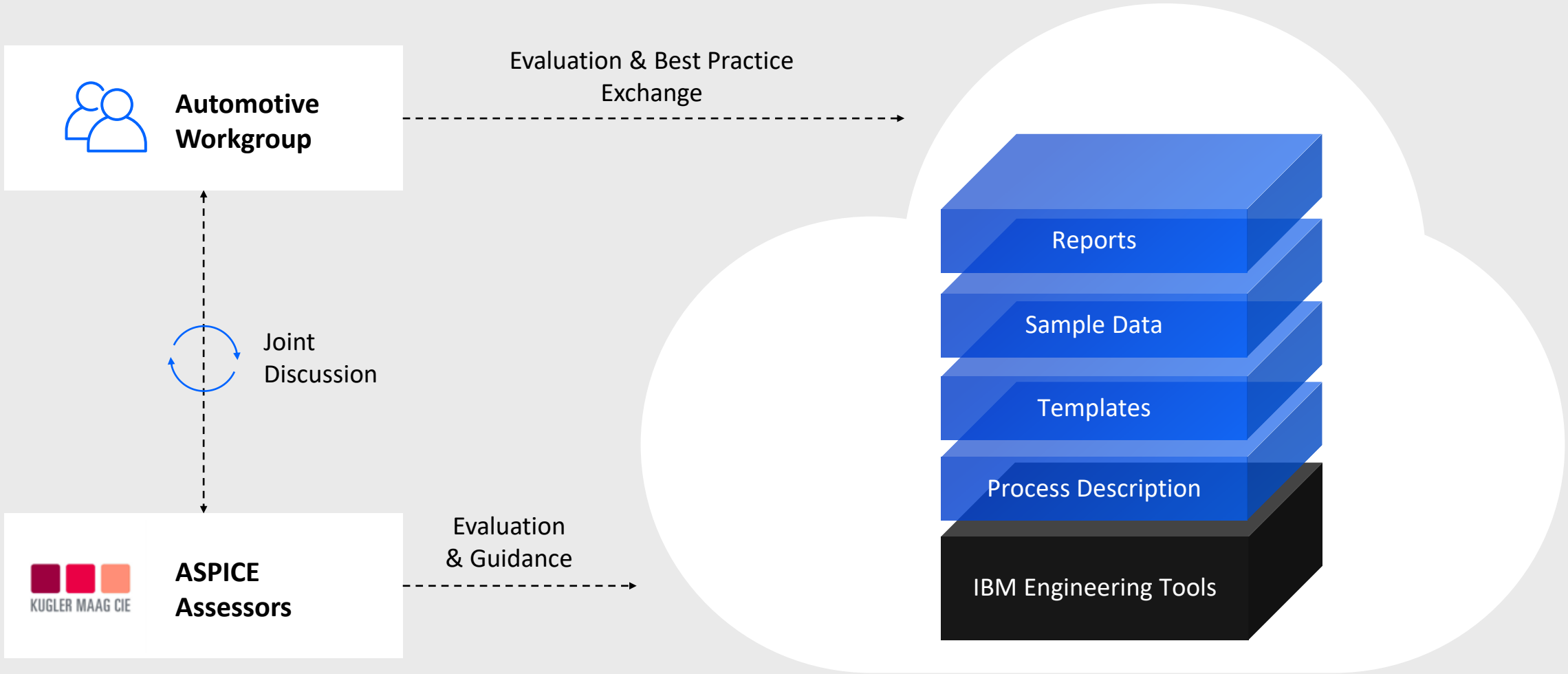


## Legend

- Main Application
- Support Application
- 3rd Party Application



# IBM ELM collaborates with industry experts while enhancing the reference solution



*Best Practice Cloud Environment*

# ASPICE 3.1 extended VDA – Coverage

Assessment Scope	Covered in this Solution
------------------	--------------------------

**Acquisition Process Group (ACQ)**

- ACQ.3  
Contract Agreement
- ACQ.4  
Supplier Monitoring
- ACQ.11  
Technical Requirements
- ACQ.12  
Legal and Administrative Requirements
- ACQ.13  
Project Requirements
- ACQ.14  
Request for Proposals
- ACQ.15  
Supplier Qualifications

**System Engineering Process Group (SYS)**

- SYS.1  
Requirements Elicitation
- SYS.2  
System Requirements Analysis
- SYS.3  
System Architectural Design
- SYS.4  
System Integration and Integration Test
- SYS.5  
System Qualification Test

**Management Process Group (MAN)**

- MAN.3  
Project Management
- MAN.5  
Risk Management
- MAN.6  
Measurement

**Software Engineering Process Group (SWE)**

- SWE.1  
Software Requirements Analysis
- SWE.2  
Software Architectural Design
- SWE.3  
Software Detailed Design and Unit Construction
- SWE.4  
Software Unit Verification
- SWE.5  
Software Integration and Integration Test
- SWE.6  
Software Qualification Test

**Reuse Process Group (REU)**

- REU.2  
Reuse Program Management

**Supply Process Group (SPL)**

- SPL.1  
Supplier Tendering
- SPL.2  
Product Release

**Supporting Process Group (SUP)**

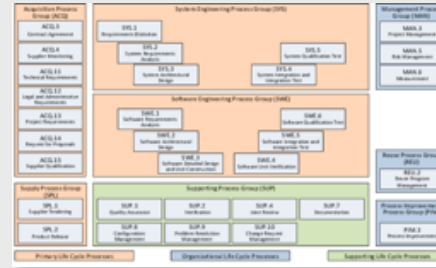
- SUP.1  
Quality Assurance
- SUP.2  
Verification
- SUP.4  
Joint Review
- SUP.7  
Documentation
- SUP.8  
Configuration Management
- SUP.9  
Problem Resolution Management
- SUP.10  
Change Request Management

**Process Improvement Process Group (PIM)**

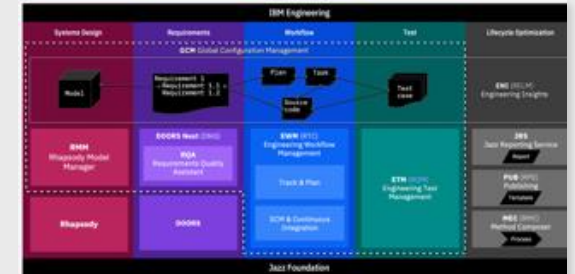
- PIM.3  
Process Improvement

# ASPICE Practices were mapped to IBM ELM Capabilities on Base Practice Level

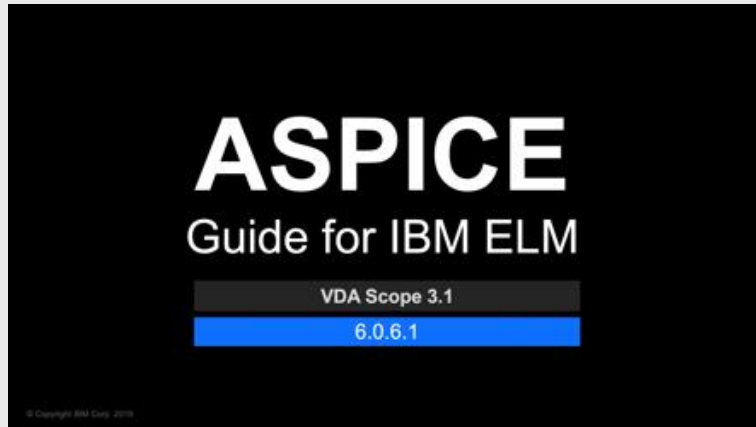
ASPICE



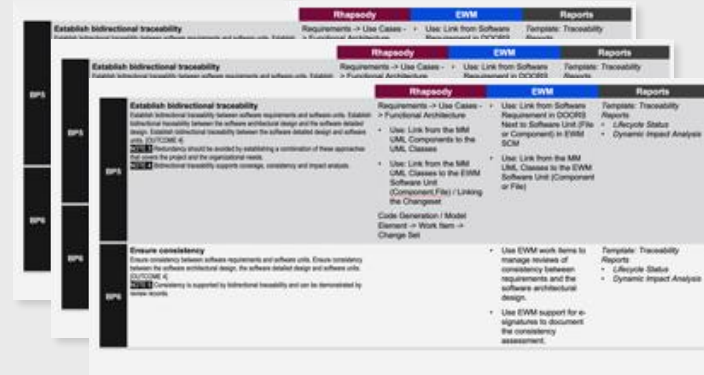
3.1 VDA Scope



IBM ELM



Mapping of 136 ASPICE BP to IBM Tool Capabilities



# SYS.1 Requirements Elicitation (1/3)

Base: General product capabilities  
 ACv1: Extension of base capabilities by ACv1  
 Extension: 3<sup>rd</sup> party Integration

	DOORS Next	EWM	Reports
<b>BP1</b> <b>Obtain stakeholder requirements and requests</b> Obtain stakeholder requirements and requests. Obtain and define stakeholder requirements and requests through direct solicitation of customer input and through review of customer business proposals (where relevant), target operating and hardware environment, and other documents bearing on customer requirements. [OUTCOME 1, 4] <b>NOTE 1:</b> Requirements elicitation may involve the customer and the supplier. <b>NOTE 2:</b> The agreed stakeholder requirements and evaluation of any change may be based on feasibility studies and/or cost and time Analyses. <b>NOTE 3:</b> The information needed to keep traceability for each customer requirement has to be gathered and documented.	<ul style="list-style-type: none"> <li>• <i>Base:</i> Use Stakeholder Requirements artifact type to identify system level capabilities.</li> <li>• <i>ACv1:</i> Detail Stakeholder Requirements using the artifact template for stakeholder requirements.</li> <li>• <i>ACv1:</i> Use custom module view: Attribute view to populate the following attributes of Stakeholder Requirement. These attributes provide additional information about requirements:               <ul style="list-style-type: none"> <li>• Stakeholder Requirement Attribute: Affected Domain (System, Software, Hardware, Mechanical) to specify the level of domain of a requirement.</li> <li>• Stakeholder Requirement Attribute: Origin (Customer, Competitive Analysis, Development, Market Analysis, Partner, Quality Assurance, Services, Support, Standard\Legal ) to record where the requirement originated from.</li> <li>• Stakeholder Requirement Attribute: Estimated Cost to record estimated cost of delivery.</li> <li>• Stakeholder Requirement Attribute: Offline Comments to record comments from stakeholders who are not on the IBM ELM platform during import or during requirements elicitation.</li> <li>• Status</li> </ul> </li> <li>• <i>Base:</i> Use ReqIF or csv/word to import requirements received from stakeholders and interested parties outside the IBM ELM platform.</li> </ul>		<i>ACv1: Use Traceability Reports</i> <ul style="list-style-type: none"> <li>• Requirements - Downstream Traceability Statistics</li> <li>• Dynamic Lifecycle Status</li> </ul> <i>ACv1: Use Gap Analysis Reports</i> <ul style="list-style-type: none"> <li>• Requirements with Missing Traceability to Downstream Requirements</li> </ul>
<b>BP2</b> <b>Understand stakeholder expectations</b> Ensure that both supplier and customer understand each requirement in the same way. [OUTCOME 2] <b>NOTE 4:</b> Reviewing the requirements and requests with the customer supports a better understanding of customer needs and expectations. Refer to the process SUP.4 Joint Review.		<ul style="list-style-type: none"> <li>• <i>ACv1:</i> Use Review work item to summarise impact analysis.</li> <li>• <i>Base:</i> Use 'Tracked By' link to associate a system requirement to a review.</li> </ul>	

Example  
 1 of 100 Slides



Method Composer

# Process

Detailed overviews  
pages for content  
per process group

**JKAP**

- [-] JKAP Process areas
  - [-] Supporting Process Areas
    - [+] Project Management
    - [+] Risk Management
    - [+] Change Request Management
    - [+] Configuration Management
    - [+] Verification
    - [+] Problem Resolution Management
  - [-] System
    - [+] Requirements Elicitation
    - [+] System Requirements Analysis
    - [+] System Architectural Design
    - [+] System Integration and Integra
    - [+] System Qualification Test
  - [-] Subsystem
    - [+] Software Requirements Analys
    - [+] Software Architectural Design
    - [+] Software Detailed Design and I
    - [+] Software Unit Verification
    - [+] Software Integration and Integr
    - [+] Software Qualification Test
  - [-] Understanding JKAP
  - [+] Roles
  - [+] Work Products
  - [-] Standards
    - [-] ASPICE
      - [-] ASPICE Process Groups
        - [+] ACQ.4 Supplier Monitoring
        - [+] ACQ.12 Legal and Administ
        - [+] SYS.1 Requirements Elicita
          - [+] SYS.1.BP1: Obtain stak
          - [+] SYS.1.BP2: Understand
          - [+] SYS.1.BP3: Agree on re
          - [+] SYS.1.BP4: Establish st
          - [+] SYS.1.BP5: Manage sta
          - [+] SYS.1.BP6: Establish cu

JKAP / JKAP Process areas / System / Requirements Elicitation ▾

## Requirements Elicitation

**Purpose**

**From Automotive SPICE V3.1 SYS:1**

*"The purpose of the Requirements Elicitation Process is to gather, process, and track evolving stakeholder needs and requirements throughout the lifecycle of the product and/or service so as to establish a requirements baseline that serves as the basis for defining the needed work products."*

The following sections contain descriptions how IBM Engineering Lifecycle Management Automotive Compliance helps achieving this purpose.

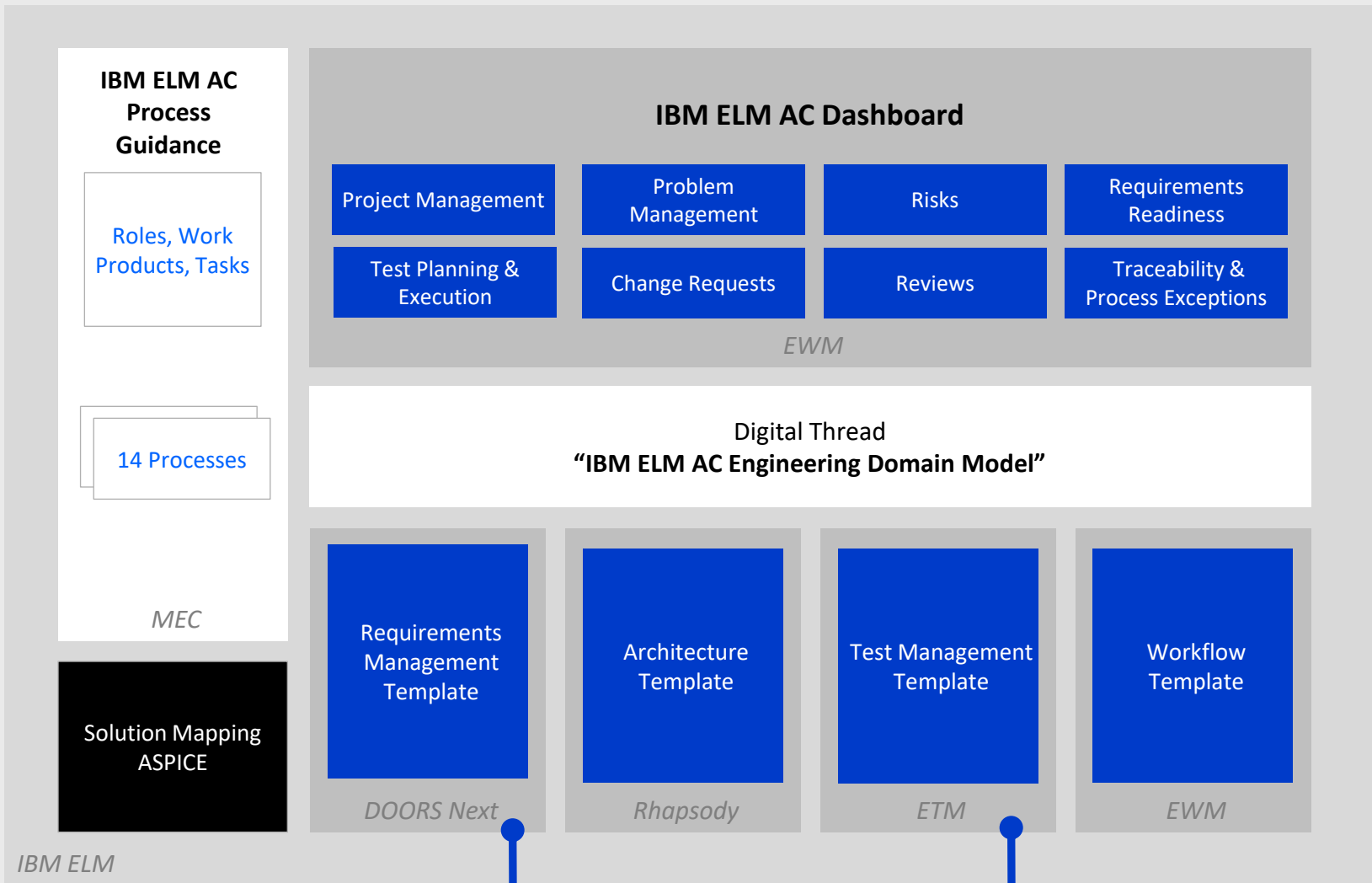
**DOORS Next**

Title	Artifact	Description
<a href="#">Stakeholder Requirement</a>	Requirement type	Stakeholder requirements represent the views of those at the business or enterprise operations level that is, of users, acquirers, customers, and other stakeholders as they relate to the problem (or opportunity), as a set of requirements for a solution that can provide the services needed by the stakeholders in a defined environment. A Stakeholder Requirements Module is used to group stakeholder requirements.

**Related Reports**

Title	Tool	Description	Purpose
Requirements - Downstream Traceability Statistics	JRS	Shows all requirements grouped by module and includes the total number of requirements that satisfy the requirement. The number is hyperlinked, to enable drill-down into the set of linked downstream requirements when the number is > 0. Cells indicating no linked downstream requirements are highlighted in red.	Traceability
Requirements - Upstream Traceability Statistics	JRS	Shows all requirements grouped by module and includes the total number of requirements they satisfy. The number is hyperlinked, to enable drill-down into the set of linked upstream requirements when the number is > 0. Cells indicating no linked upstream requirements are highlighted in red.	Traceability
Requirements - Test Coverage (by Module)	JRS	Shows a graph with the no of requirements and test cases for the requirements for each module	Traceability
Dynamic Lifecycle Status	ENI	This view shows a summary of traceability between requirements at various levels as well as between requirements and tests. Clicking a summary box will drill down into the detail.	Traceability
Requirements Readiness with Module Selector	ENI	Shows a rollup of test status against requirements. Clicking a module will show the Requirements in that module. Only Requirements that have a linked test case with a current pass result are green. Missing and never executed test cases are also colour coded. Modules are colour coded based on the status of all of their used requirements.	Traceability
Requirements with Missing Traceability to Downstream Requirements	JRS	List of all requirements which do not have a link to at least downstream requirements using the relationship 'Is Satisfied By'. This report only considers requirement links established in the context of the module it is used within and not the links to the base artifact.	Gap Analysis

IBM ELM Automotive Compliance (AC) tailors IBM Engineering Lifecycle Management Tools for optimal use for ASPICE



Monitor Engineering Data



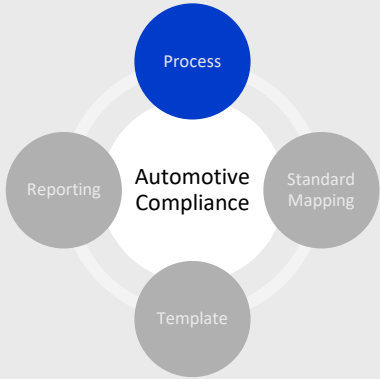
Create Engineering Data

## IBM ELM AC Architecture

An end-to-end industry solution for Automotive

REQUIREMENTS QUALITY ASSISTANT

SMART TEST CASE GENERATOR



## Method Composer Process

One landing page  
for all relevant  
process groups

**JKAP**

- JKAP Process areas
  - Supporting Process Areas
    - Project Management
    - Risk Management
    - Change Request Management
    - Configuration Management
    - Verification
    - Problem Resolution Management
  - System
    - Requirements Elicitation
    - System Requirements Analysis
    - System Architectural Design
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    - Software Unit Verification
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    - Software Qualification Test
- Understanding JKAP
- Roles
- Work Products
- Standards
  - ASPICE
    - ASPICE Process Groups
      - ACQ.4 Supplier Monitoring
      - ACQ.12 Legal and Administrative
      - SYS.1 Requirements Elicitation
        - SYS.1.BP1: Obtain stakeholder requirements
        - SYS.1.BP2: Understand stakeholder requirements
        - SYS.1.BP3: Agree on requirements
        - SYS.1.BP4: Establish system architecture
        - SYS.1.BP5: Manage system architecture
        - SYS.1.BP6: Establish system architecture

JKAP / JKAP Process areas

### JKAP Process areas

Welcome to the IBM® ELM Automotive Compliance solution.

The contents here are intended to facilitate setup and use of IBM Engineering Lifecycle Management for the automotive industry. Browse the solution elements using the clickable diagrams below or navigate using the explorer on the left side. In doing so, you will explore the process of a fictional automotive company, the JK Automotive Process (JKAP), which implements a systems engineering process using the agile process model Scaled Agile Framework® (SAFe®). The process was designed with ASPICE base practices in mind.

Instead of browsing by engineering process group area, you can also browse by the different types of method elements.



# Contents

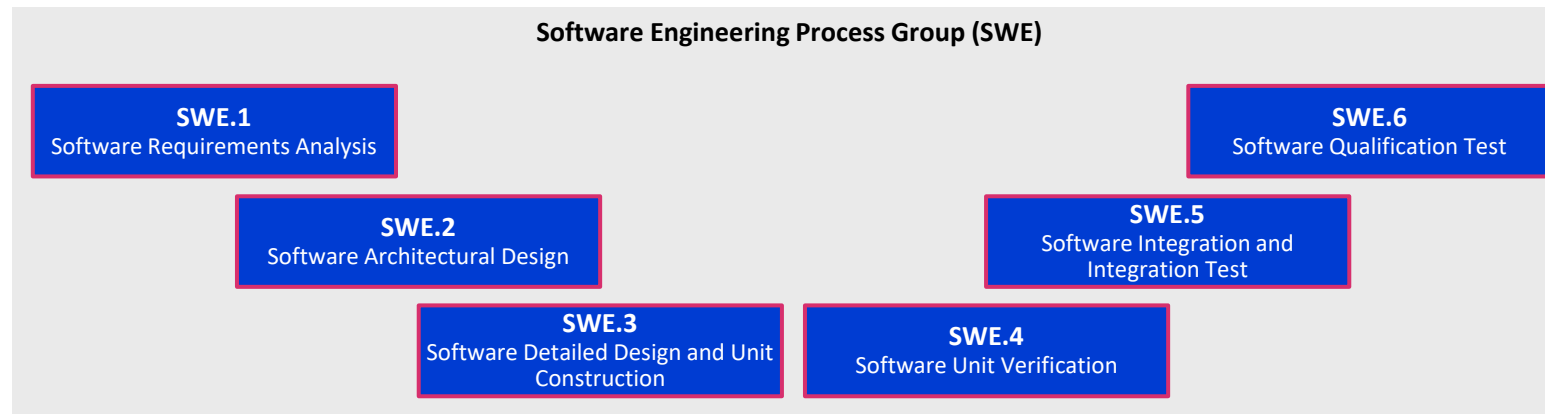
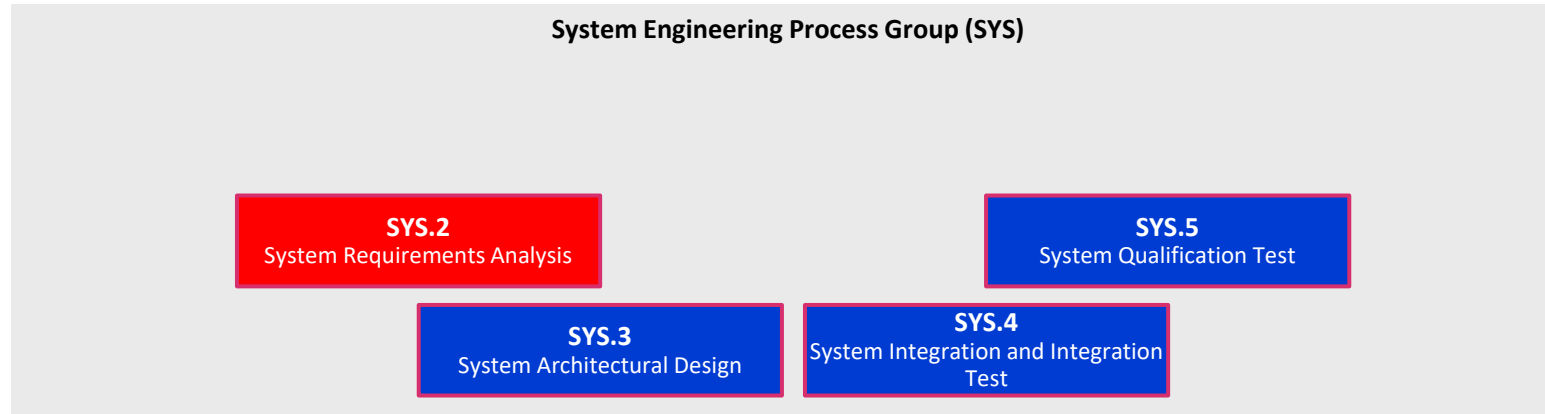
ASPICE Guide

ASPICE 산출물 관리

추적 View

# SYS.2

## System Requirements Analysis



# SYS 2. System Requirements Analysis

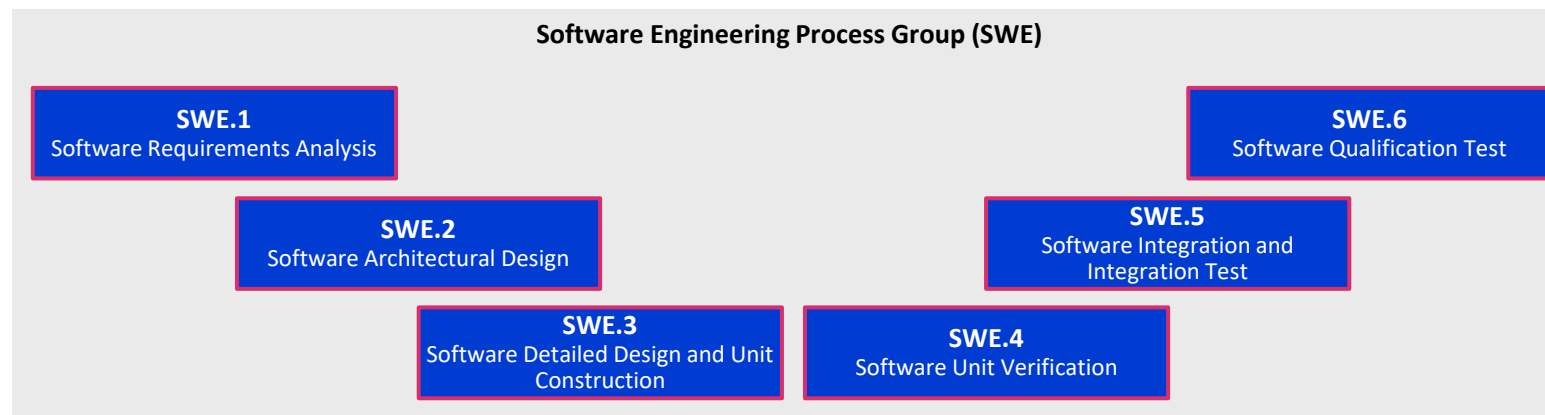
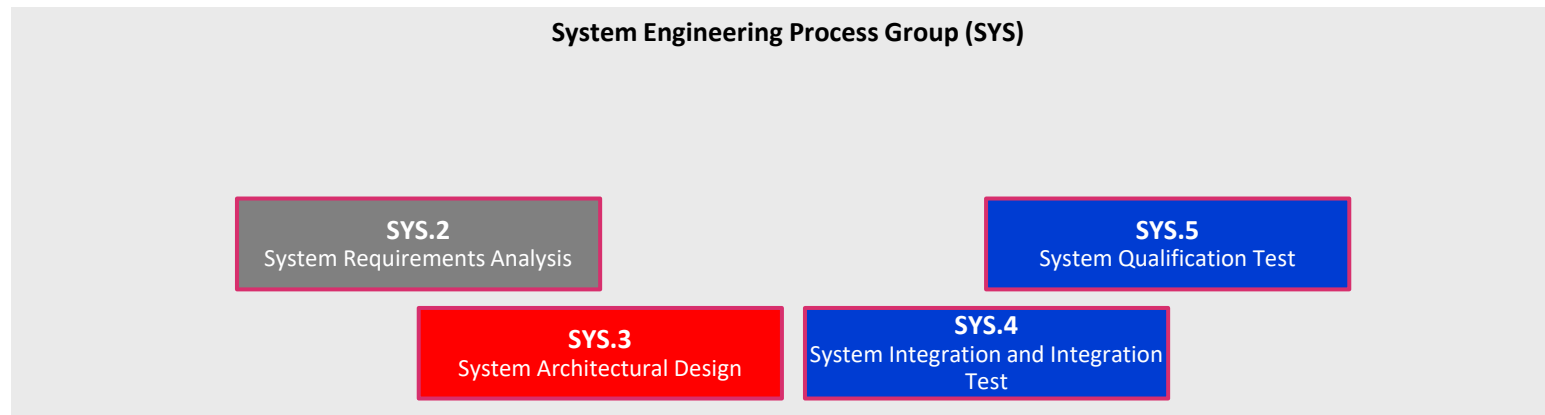
- ASPICE\_Demo (요구사항)
  - 01.System Requirements
  - 02.System Architecture
  - 03.Software Requirements
  - 04.Software Architecture
  - 05.Software Detailed Design
  - 06.Software Unit Verification
  - 07.Software Integration Test
  - 08.Software Qualification Test
  - 09.System Integration Test
  - 10.System Qualification Test
  - Artifact Templates

	ID	컨텐츠																									
<input type="checkbox"/>	521	<table border="1"> <tr> <td rowspan="3" style="text-align: center; vertical-align: middle;"></td> <td style="text-align: center;">문서명</td> <td style="text-align: center;">문서 ID</td> <td style="text-align: center;">일자</td> </tr> <tr> <td style="text-align: center;">시스템 요구사항 명세서 (SYS)</td> <td style="text-align: center;">SPID(VC)-</td> <td style="text-align: center;">YYYY-MM-DD</td> </tr> <tr> <td style="text-align: center;">System Requirements Specification</td> <td style="text-align: center;">보안등급</td> <td style="text-align: center; background-color: red; color: white;">사전승인必</td> </tr> </table>		문서명	문서 ID	일자	시스템 요구사항 명세서 (SYS)	SPID(VC)-	YYYY-MM-DD	System Requirements Specification	보안등급	사전승인必															
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<input type="checkbox"/>	429	<b>System Requirements Specification</b>																									
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개정 번호	V1.00																										
<input type="checkbox"/>	56	Copyright SPID Co.,Ltd. 2016~. All rights Reserved.																									
<input type="checkbox"/>	103	이 문서는 ㈜에스피아이디의 중요 자산이며, 이 문서와 이 문서의 내용은 사전 승인 없이																									
<input type="checkbox"/>	204	어떤 경우라도 일부 및 전부에 대하여 무단 복사, 전재, 배포 사용을 금합니다.																									
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Reviewer																											
Reviewer																											

74/74개 표시(100%)

# SYS.3

## System Architectural Design



# SYS 3. System Architectural Design

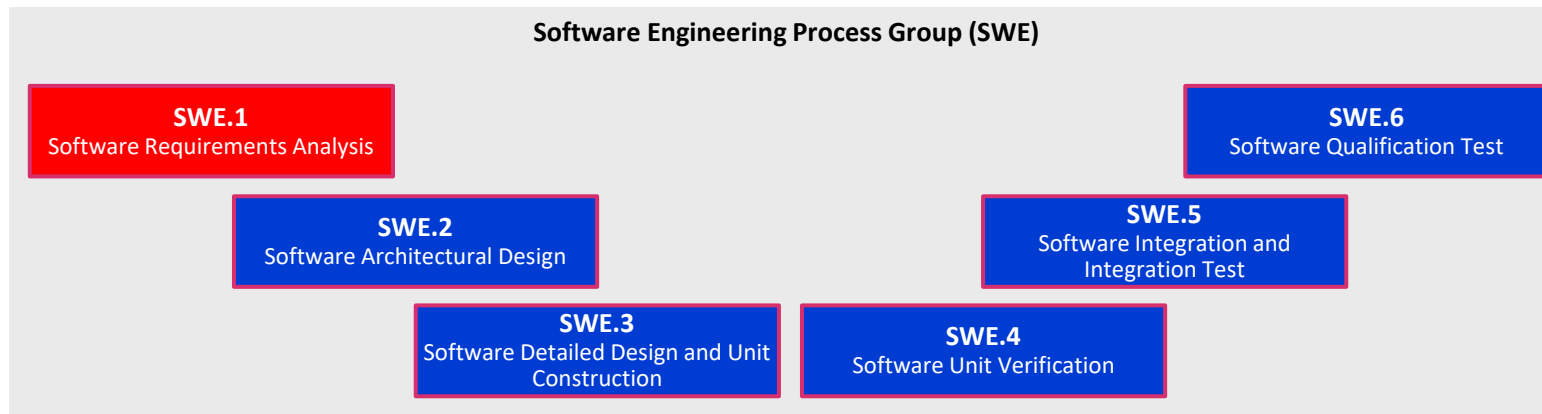
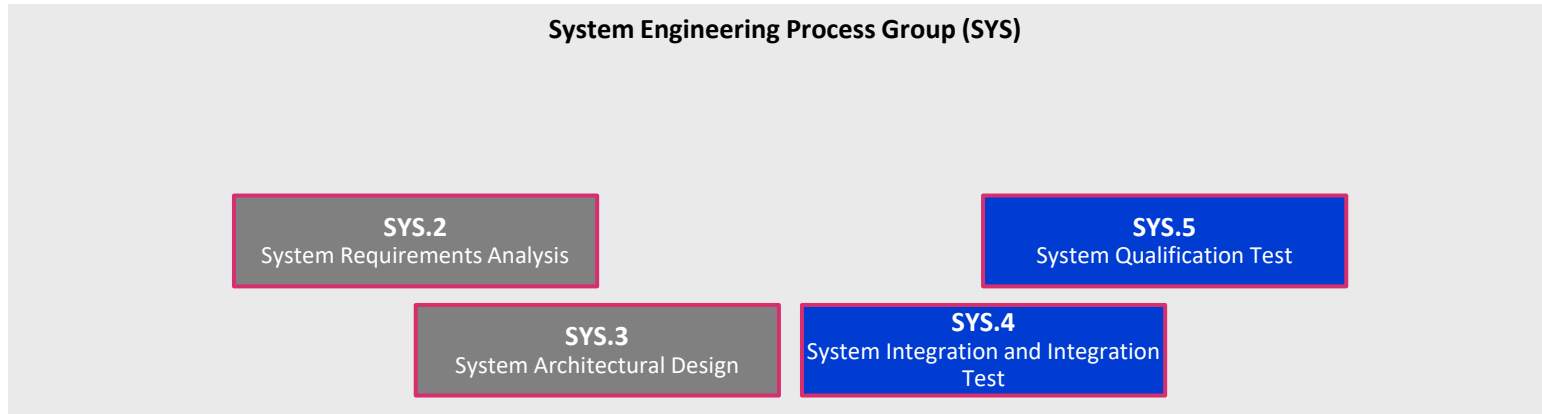
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  - 10.System Qualification Test
  - Artifact Templates

	ID	컨텐츠
<input type="checkbox"/>	519	Initialization
<input type="checkbox"/>	119	Device
<input type="checkbox"/>	162	Failsafe
<input type="checkbox"/>	163	Diagnostic

4/4개 표시(100%)

# SWE.1

## Software Requirements Analysis



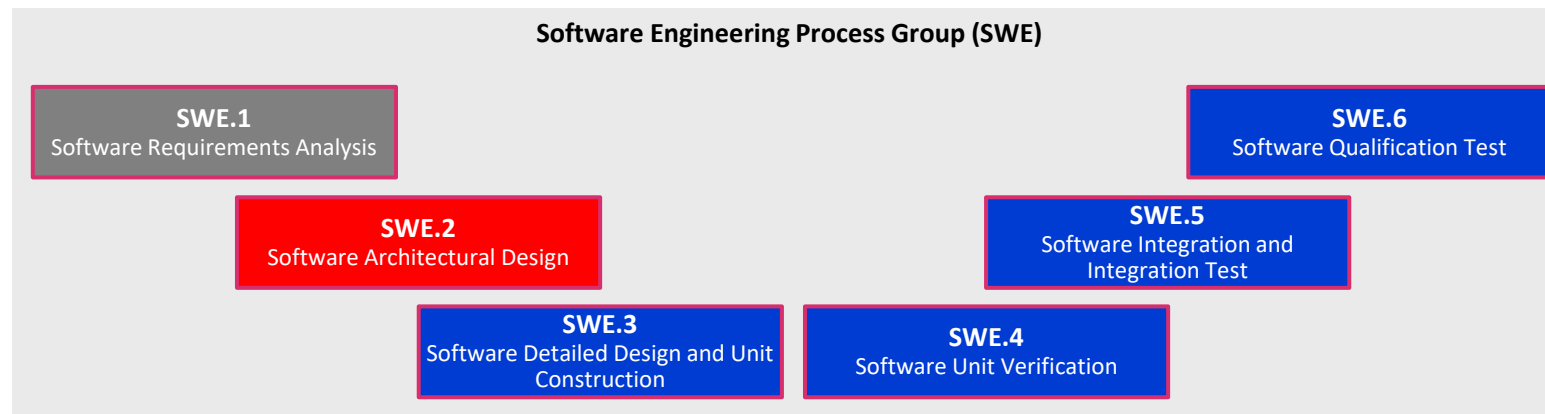
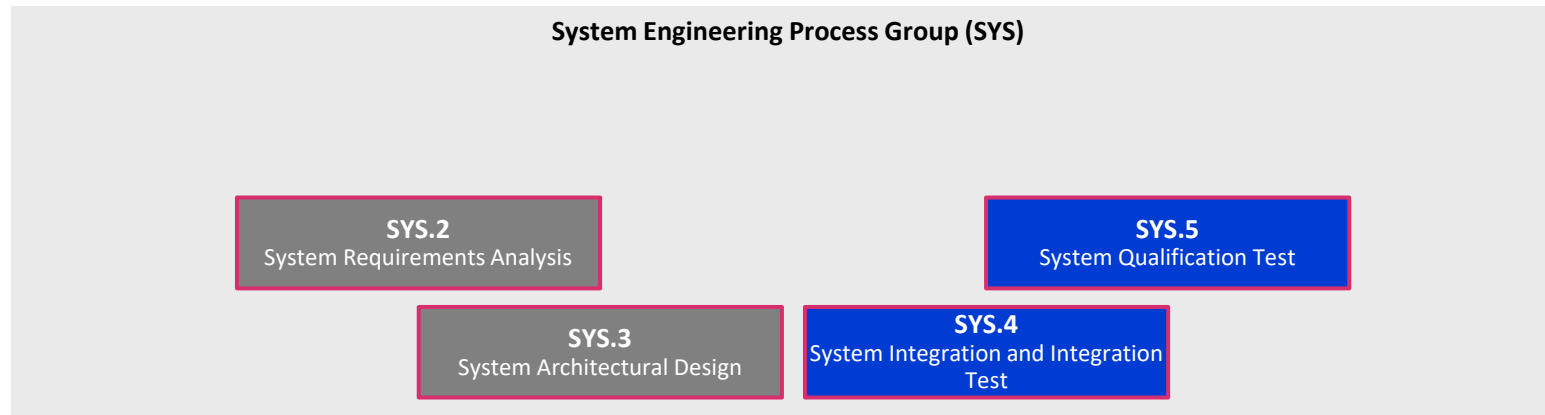
# SWE 1. Software Requirements Analysis

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ID	컨텐츠																																																	
478	FSP-SW-T1 <span style="float: right; color: red;">CONFIDENTIAL</span>																																																	
301	소프트웨어 요구사항 명세서 템플릿																																																	
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182	2017. xx. xx																																																	
578	spid																																																	
26	본 문서는 (주)에스피아이디에 저작권이 있으며 승인 또는 합의 없이 무단 배포, 수정 및 편집을 금합니다.																																																	
353	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="7">문서 수정 이력</th> </tr> <tr> <th>일자</th> <th>버전</th> <th>편집자</th> <th>Chap</th> <th>수정내용</th> <th colspan="2">승인</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	문서 수정 이력							일자	버전	편집자	Chap	수정내용	승인																																				
문서 수정 이력																																																		
일자	버전	편집자	Chap	수정내용	승인																																													

# SWE.2

## Software Architectural Design





# SWE 2. Software Architectural Design

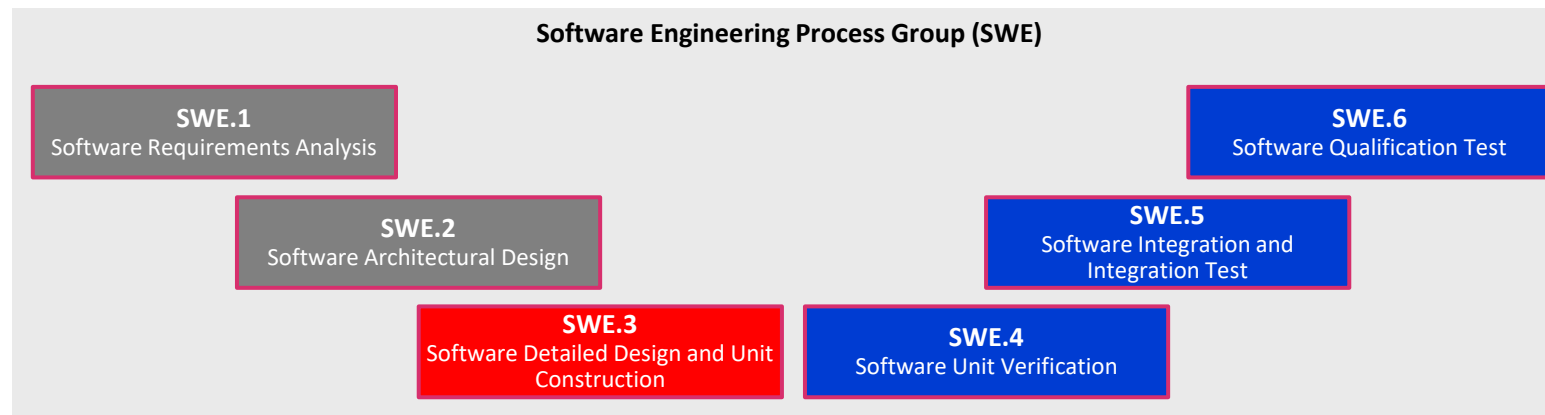
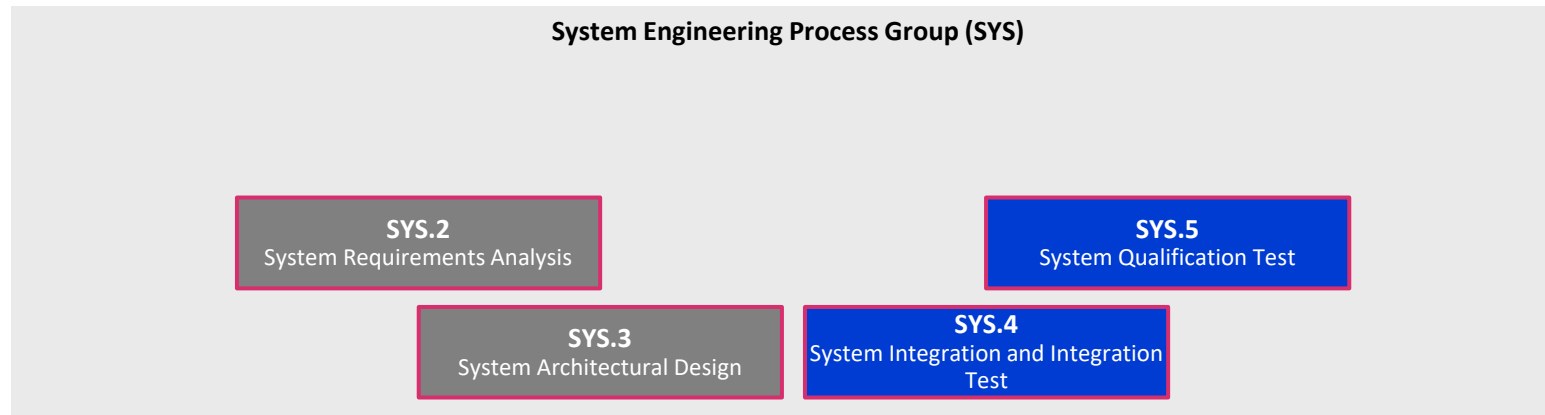
- ASPICE\_Demo (요구사항)
  - 01.System Requirements
  - 02.System Architecture
  - 03.Software Requirements
  - 04.Software Architecture
  - 05.Software Detailed Design
  - 06.Software Unit Verification
  - 07.Software Integration Test
  - 08.Software Qualification Test
  - 09.System Integration Test
  - 10.System Qualification Test
  - Artifact Templates

ID	컨텐츠																									
241	<table border="1"> <tr> <td rowspan="3" style="text-align: center;"></td> <td>문서명</td> <td>문서 ID</td> <td>일자</td> </tr> <tr> <td>소프트웨어 아키텍처 설계서</td> <td>SPID(VC)-</td> <td>YYYY-MM-DD</td> </tr> <tr> <td>Software Architecture Design</td> <td>보안등급</td> <td style="background-color: red; color: white;">사전승인必</td> </tr> </table>		문서명	문서 ID	일자	소프트웨어 아키텍처 설계서	SPID(VC)-	YYYY-MM-DD	Software Architecture Design	보안등급	사전승인必															
	문서명		문서 ID	일자																						
	소프트웨어 아키텍처 설계서		SPID(VC)-	YYYY-MM-DD																						
	Software Architecture Design	보안등급	사전승인必																							
577	SPID Confidential																									
137	<b>소프트웨어 아키텍처 설계서</b>																									
380	<b>Software Architecture Design</b>																									
195	<table border="1"> <tr> <td>문서 번호</td> <td>SPID(VC)-</td> </tr> <tr> <td>문서 명</td> <td>소프트웨어 아키텍처 설계서</td> </tr> <tr> <td>개정 번호</td> <td>V1.00</td> </tr> </table>	문서 번호	SPID(VC)-	문서 명	소프트웨어 아키텍처 설계서	개정 번호	V1.00																			
문서 번호	SPID(VC)-																									
문서 명	소프트웨어 아키텍처 설계서																									
개정 번호	V1.00																									
474	Copyright SPID Co.,Ltd. 2016~. All rights Reserved.																									
141	이 문서는 (주)에스피아이디의 중요 자산이며, 이 문서와 이 문서의 내용은 사전 승인 없이																									
144	어떤 경우라도 일부 및 전부에 대하여 무단 복사, 전재, 배포 사용을 금합니다.																									
348	<table border="1"> <tr> <th colspan="5">Approval History / 승인 내역</th> </tr> <tr> <th>Role</th> <th>Organization/Status</th> <th>Name</th> <th>Date</th> <th>Signature</th> </tr> <tr> <td>Author</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Reviewer</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Reviewer</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Approval History / 승인 내역					Role	Organization/Status	Name	Date	Signature	Author					Reviewer					Reviewer				
Approval History / 승인 내역																										
Role	Organization/Status	Name	Date	Signature																						
Author																										
Reviewer																										
Reviewer																										

252/252개 표시(100%)

# SWE.3

## Software Detailed Design and Unit Construction



# SWE 3. Software Detailed Design and Unit Construction

- ASPICE\_Demo (요구사항)
  - 01.System Requirements
  - 02.System Architecture
  - 03.Software Requirements
  - 04.Software Architecture
  - 05.Software Detailed Design
  - 06.Software Unit Verification
  - 07.Software Integration Test
  - 08.Software Qualification Test
  - 09.System Integration Test
  - 10.System Qualification Test
  - Artifact Templates

	ID	컨텐츠
<input type="checkbox"/>	164	- 1 소프트웨어 상세 설계
<input type="checkbox"/>	527	- 1.1 Initialization Block
<input type="checkbox"/>	436	Initial System
<input type="checkbox"/>	322	- 1.2 Device Driver Block
<input type="checkbox"/>	227	Initial Device Driver
<input type="checkbox"/>	319	Driver Device Driver Function Interface
<input type="checkbox"/>	490	- 1.3 Failsafe Block
<input type="checkbox"/>	307	Check Sensor Fault Status
<input type="checkbox"/>	114	Yaw Rate Signal Fault Function Interface
<input type="checkbox"/>	115	Lateral Signal Fault Function Interface
<input type="checkbox"/>	422	Check System Failsafe Status
<input type="checkbox"/>	545	MCU Failsafe Function Interface
<input type="checkbox"/>	65	- 1.4 Diagnostic Block
<input type="checkbox"/>	345	Control Unified Diagnostic Service
<input type="checkbox"/>	221	Diagnostic Session Control Function Interface

15/15개 표시(100%)



# DOORS Next



Create requirements using different views



Link requirements and track traceability



Organize requirements in modules and components



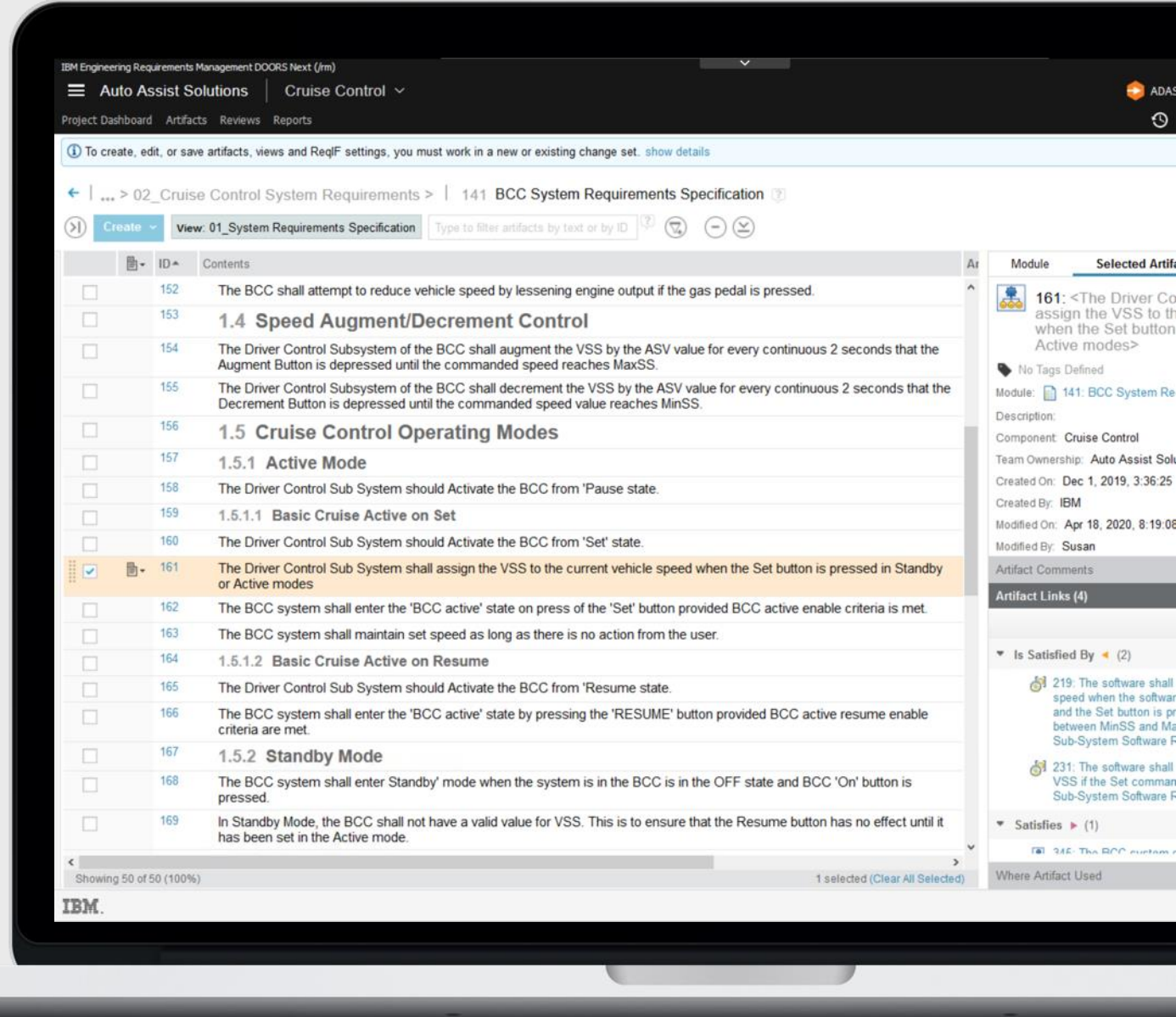
Exchange and import requirements



Review requirements

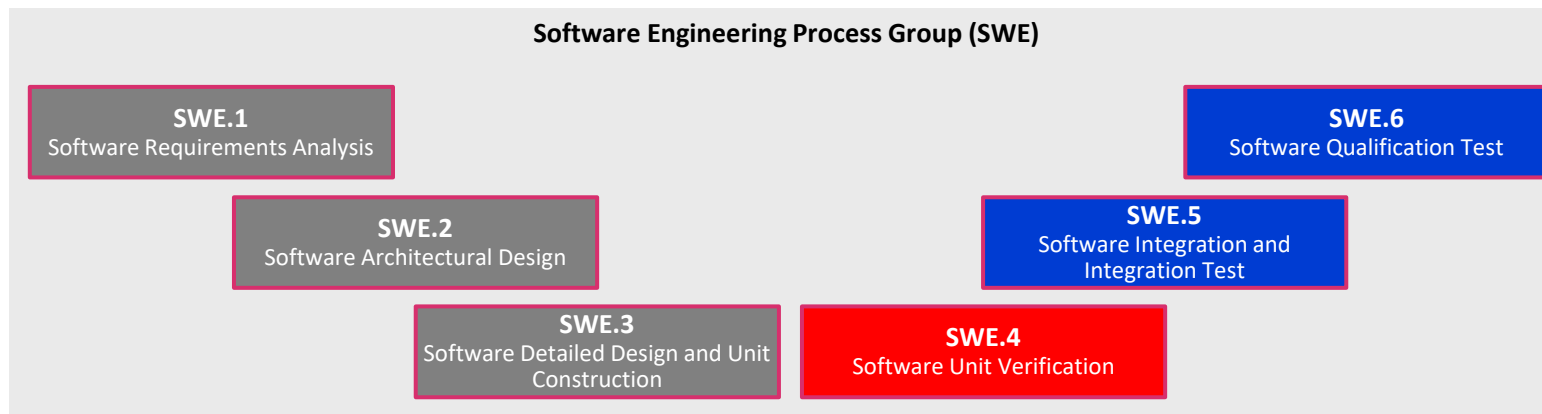
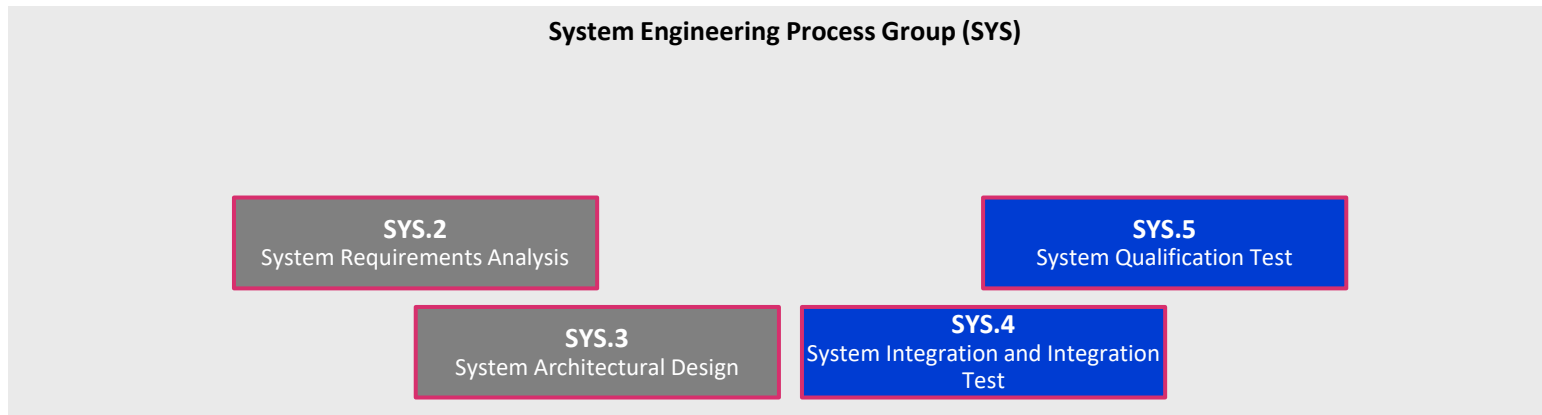


Version and baseline requirements



# SWE.4

## Software Unit Verification



# SWE 4. Software Unit Verification

\* 1: 소프트웨어 UT 테스트계획



취소 저장

- 섹션
- 요약
- 품질 목표
- 요구사항 콜렉션 링크
- 개발 계획 링크
- 테스트 스케줄
- 테스트 환경
- 테스트 스위트
- 테스트 스위트 실행 레코드
- 테스트 케이스
- 테스트 케이스 실행 레코드
- 자원
- 모든 섹션 표시
- 섹션 관리
- 스냅샷
- 히스토리

## 테스트 케이스

계획과 연관된 테스트 케이스를 표시합니다. 테스트 문서에 대한 연관을 추가 및 제거할 수 있으며 새 테스트 케이스를 작성하여 연관시킬 수도 있습니다. 테스트 케이스를 제거하면 이 테스트 계획과의 연관도 제거되지만 테스트 케이스는 삭제되지 않습니다. **참고:** 다른 브라우저에서 테스트 케이스를 끌어와 추가할 수 있습니다.

보기 형식: 일반 그룹 기준: 그룹 해제

필터링할 텍스트 입력 및 Enter 누르기

페이지당 항목 수: 모두 표시

이전 | 1 | 다음



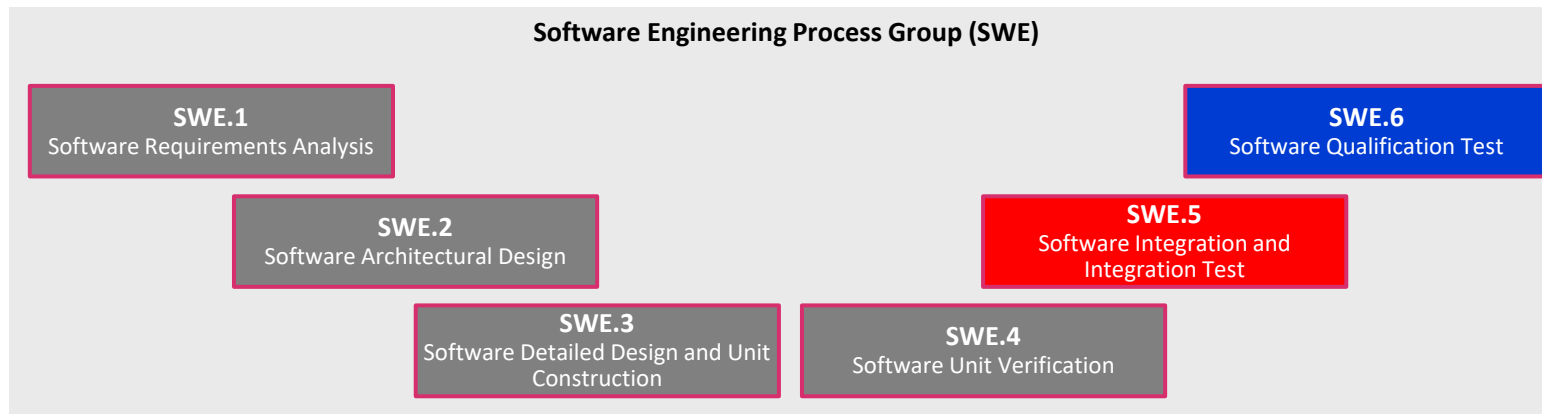
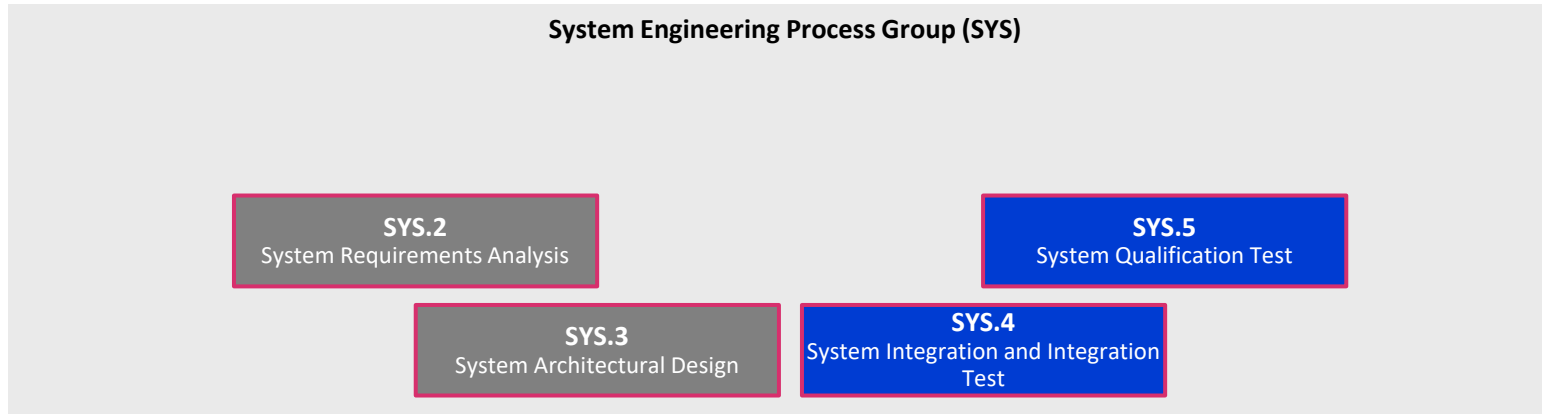
<input type="checkbox"/>	ID	이름	상태	작성자	Test Type	Test ID	수정됨	요구사항 유효성 검증	우선순
<input type="checkbox"/>	1	SWUT_001	초안	elmadmin	SWUT	SWUT_001	2020. 9. 25.	545: MCU Fail...	

1 - 1 / 1 항목 표시

이전 | 1 | 다음

# SWE.5

## Software Integration and Integration Test



# SWE 5. Software Integration and Integration Test



\* 2: 소프트웨어 IT 테스트계획 ?



취소

저장

섹션

- 요약
- 품질 목표
- 요구사항 컬렉션 링크
- 개발 계획 링크
- 테스트 스케줄
- 테스트 환경
- 테스트 스위트
- 테스트 스위트 실행 레코드
- 테스트 케이스**
- 테스트 케이스 실행 레코드
- 자원
- 모든 섹션 표시
- 섹션 관리

---

- 스냅샷
- 히스토리

## 테스트 케이스 ?

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품질 태스크:

보기 형식: 일반 그룹 기준: 그룹 해제

필터링할 텍스트 입력 및 Enter 누르기

페이지당 항목 수: 모두 표시

이전 | 1 | 다음



<input type="checkbox"/>	ID	이름	상태	작성자	Test Type	Test ID	수정됨	요구사항 유효성 검증	우선순
<input type="checkbox"/>	2	SwIT_0020	초안	elmadmin	SwIT	SwIT_0020	2020. 9. 25.	491, 552, 46	
<input type="checkbox"/>	3	SwIT_0010	초안	elmadmin	SwIT	SwIT_0010	2020. 9. 25.	491, 552, 46	

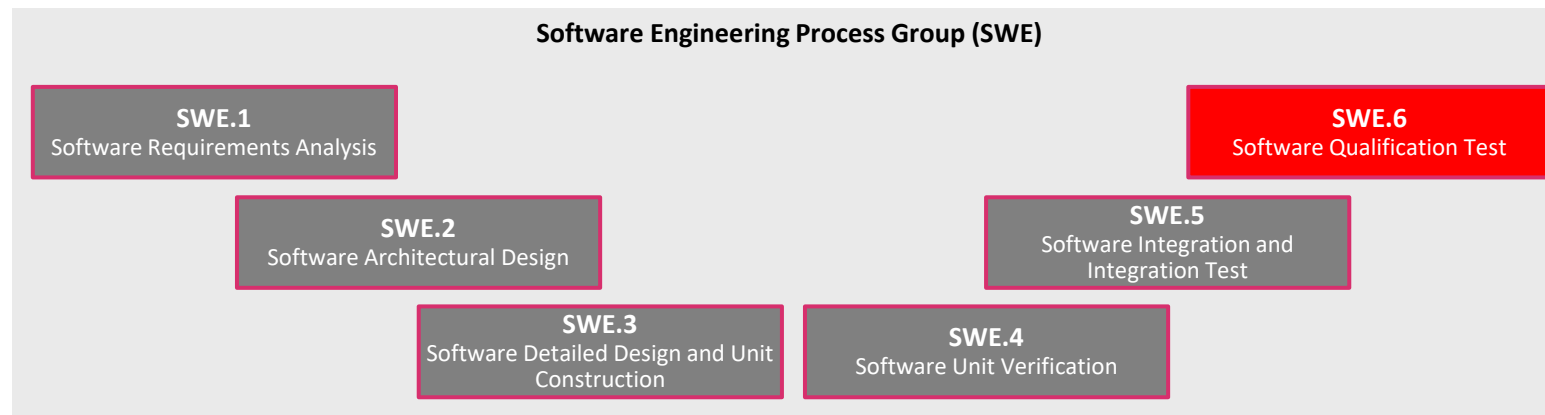
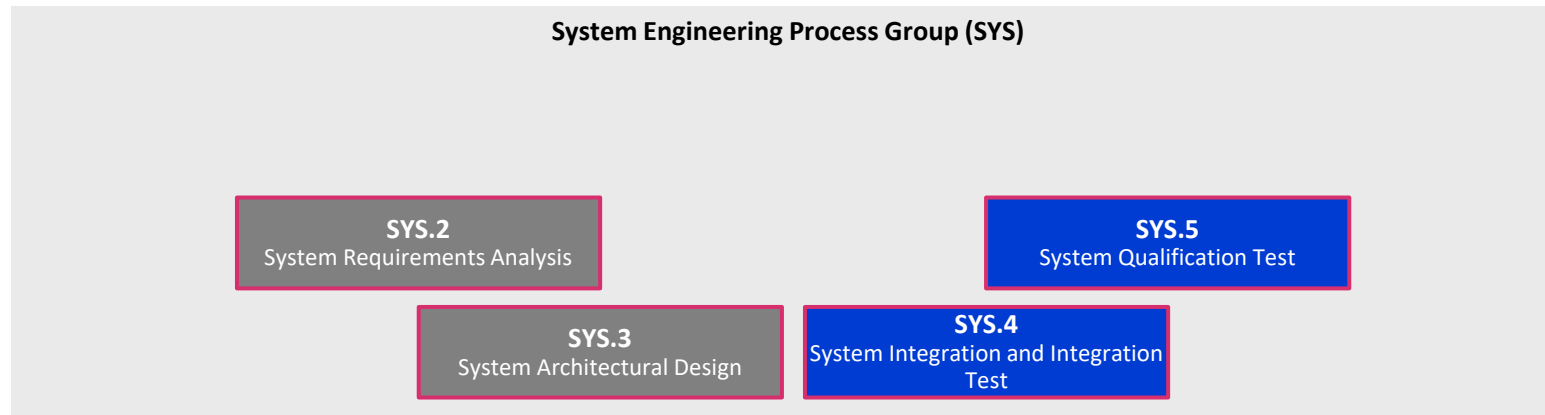
1 - 2 / 2 항목 표시

이전 | 1 | 다음



# SWE.6

## Software Qualification Test



# SWE 6. Software Qualification Test



\* 3: 소프트웨어 QT 테스트계획 ?



취소

저장

섹션

요약

품질 목표

요구사항 컬렉션 링크

개발 계획 링크

테스트 스케줄

테스트 환경

테스트 스위트

테스트 스위트 실행 레코드

테스트 케이스

테스트 케이스 실행 레코드

자원

모든 섹션 표시

섹션 관리

스냅샷

히스토리

## 테스트 케이스 ?

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품질 태스크:

> 보기 형식: 일반 그룹 기준: 그룹 해제

필터링할 텍스트 입력 및 Enter 누르기

페이지당 항목 수: 모두 표시

이전 | 1 | 다음



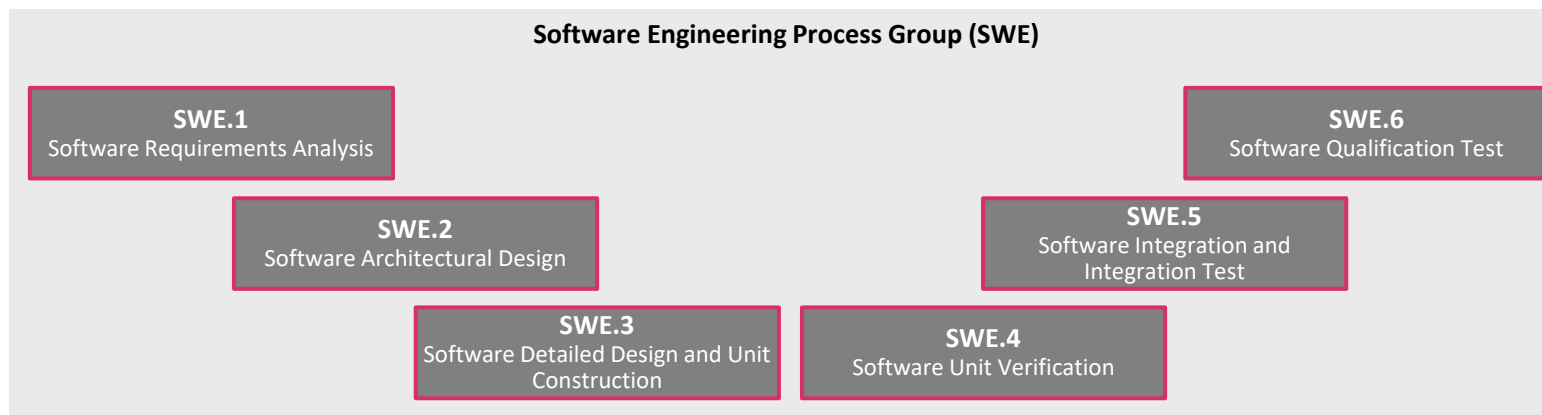
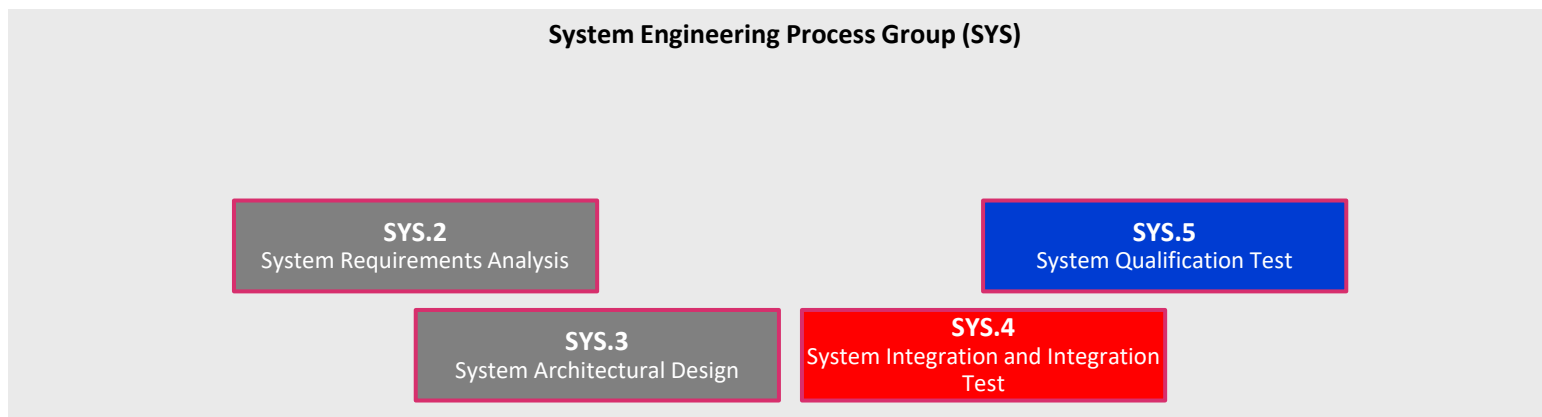
<input type="checkbox"/>		ID	이름	상태	작성자	Test Type	Test ID	수정됨	요구사항 유효성 검증	우선순
<input type="checkbox"/>		4	SwTC_0010	초안	elmadmin	SwTC	SwTC_0010	2020. 9. 25.	424: The Diagn...	<input type="checkbox"/>
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<input type="checkbox"/>		6	SwTC_0020	초안	elmadmin	SwTC	SwTC_0020	2020. 9. 25.	424: The Diagn...	<input type="checkbox"/>

1 - 3 / 3 항목 표시

이전 | 1 | 다음

# SYS.4

## System Integration and Integration Test



# SYS 4. System Integration and Integration Test

\*4: 시스템 IT 테스트계획 ?



취소

저장

섹션

- 요약
- 품질 목표
- 요구사항 컬렉션 링크
- 개발 계획 링크
- 테스트 스케줄
- 테스트 환경
- 테스트 스위트
- 테스트 스위트 실행 레코드
- 테스트 케이스**
- 테스트 케이스 실행 레코드
- 자원
- 모든 섹션 표시
- 섹션 관리
- 스냅샷
- 히스토리

테스트 케이스 ?

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품질 태스크:

보기 형식: 일반 그룹 기준: 그룹 해제

필터링할 텍스트 입력 및 Enter 누르기

페이지당 항목 수: 모두 표시

이전 | 1 | 다음



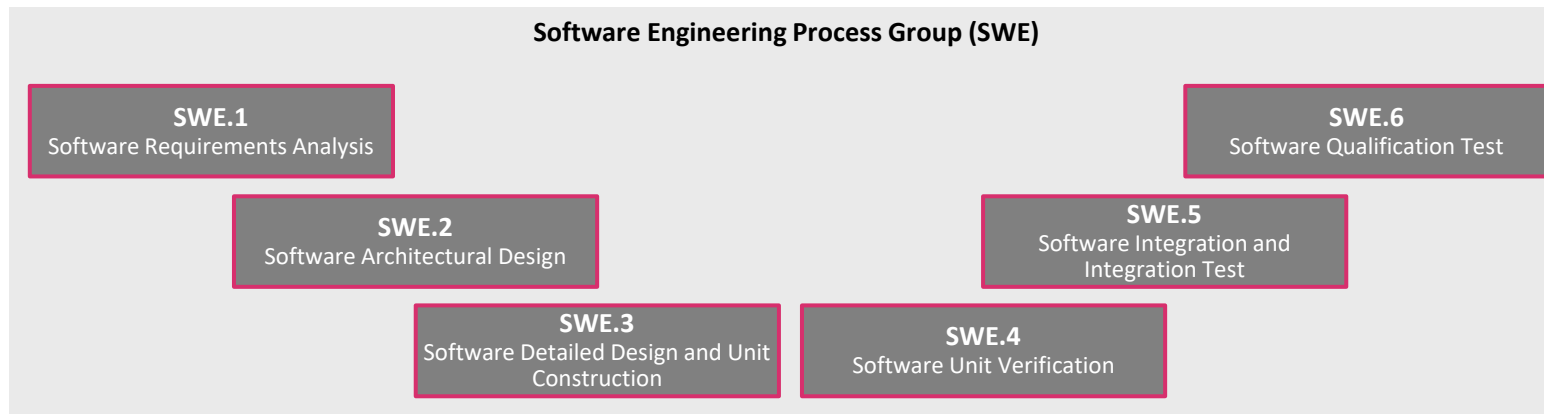
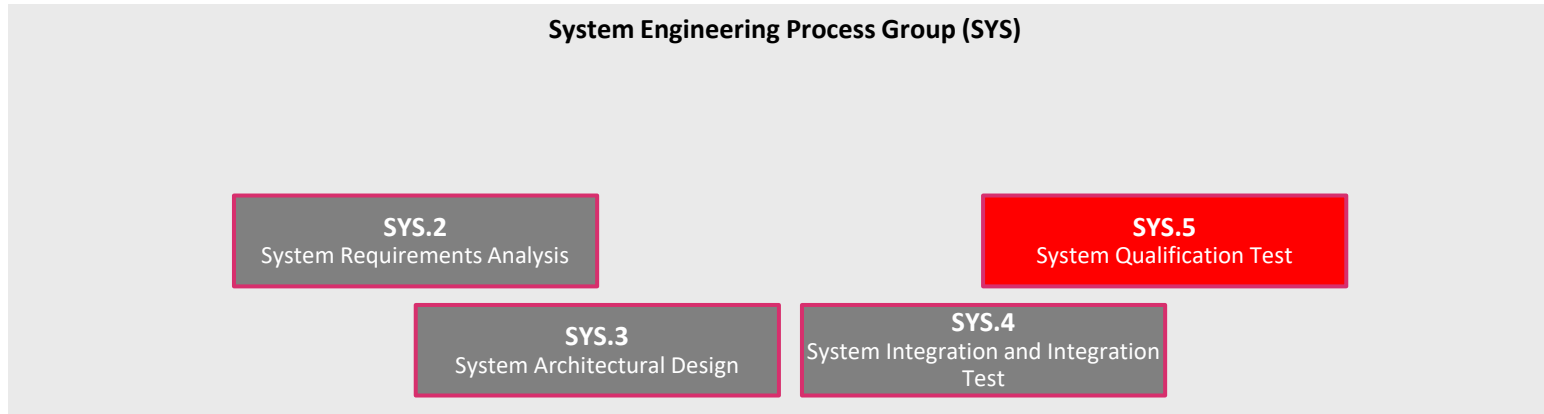
<input type="checkbox"/>	ID	이름	상태	작성자	Test Type	Test ID	수정됨	요구사항 유효성 검증	우선순
<input type="checkbox"/>	7	SyITC_0230	초안	elmadmin	SyITC	SyITC_0230	2020. 9. 25.	163: Diagnostic	

1 - 1 / 1 항목 표시

이전 | 1 | 다음

# SYS.5

## System Qualification Test



# SYS 5. System Qualification Test

\* 5: 시스템 QT 테스트계획



취소

저장

섹션

요약

품질 목표

요구사항 콜렉션 링크

개발 계획 링크

테스트 스케줄

테스트 예상 값

테스트 환경

테스트 스위트

테스트 스위트 실행 레코드

테스트 케이스

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필터링할 텍스트 입력 및 Enter 누르기

페이지당 항목 수: 모두 표시

이전 | 1 | 다음



<input type="checkbox"/>	ID	이름	상태	작성자	Test Type	Test ID	수정됨	요구사항 유효성 검증	우선순
<input type="checkbox"/>	9	SyTC_0020	초안	elmadmin	SyTC	SyTC_0020	2020. 9. 25.	53, 368	
<input type="checkbox"/>	8	SyTC_0010	초안	elmadmin	SyTC	SyTC_0010	2020. 9. 25.	53, 368	

1 - 2 / 2 항목 표시

이전 | 1 | 다음



IBM Engineering

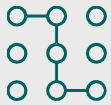
# Test Management



Create test cases, plans, and suites



Schedule execution and track records



Manage test coverage



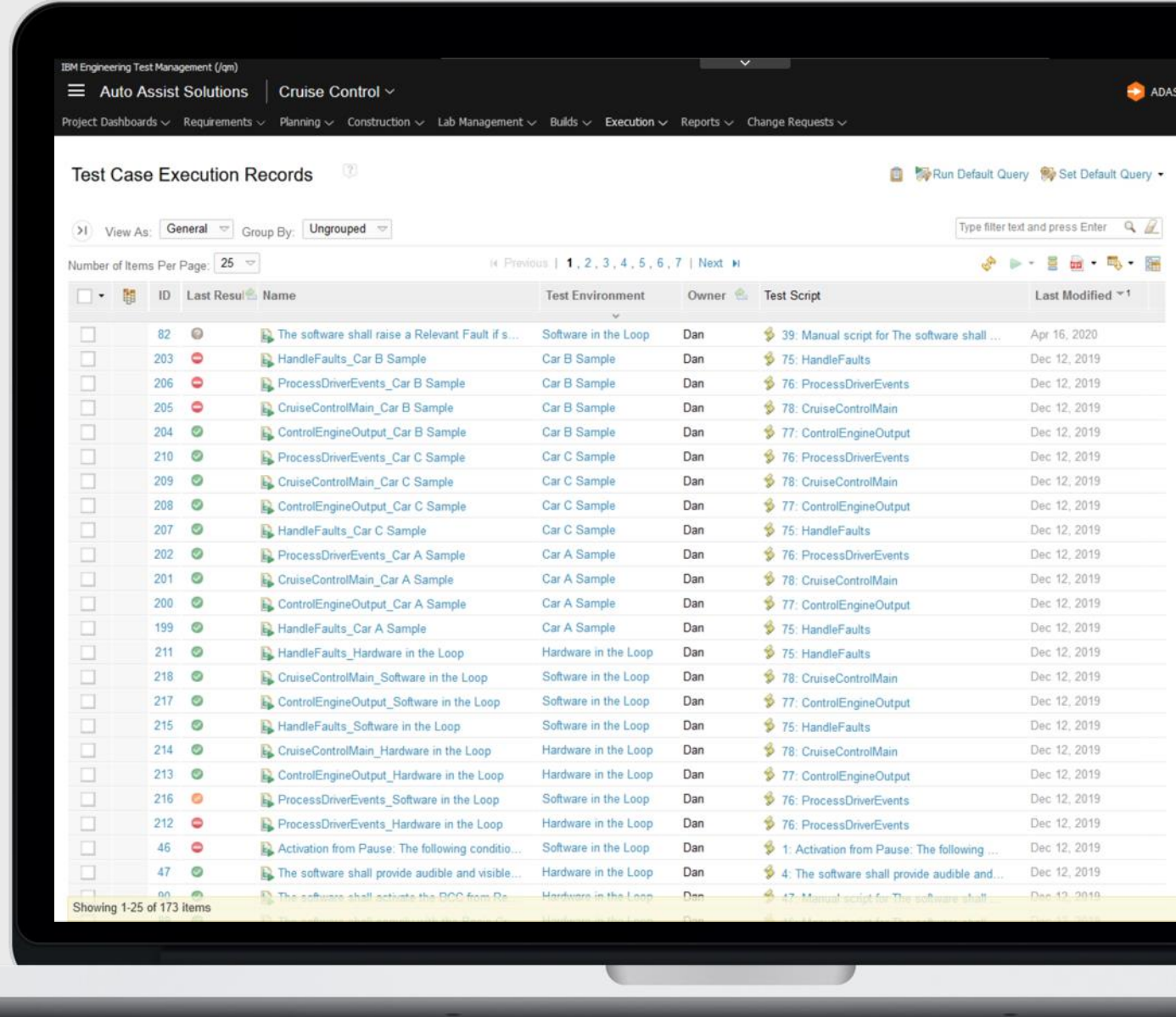
Manage test environments



Link to work items, models and requirements



Integrate 3<sup>rd</sup> party test tools



# 추적성 확보를 위한 Link 정의 > Table 형태에 바로 지정 가능 (Drag and Drop 지원)

Step1-Software Requirements specification > | 1350 SRS\_Template

Create View: Traceability Type to filter by text or by ID

ID	Artifact Type	Contents	Satisfies	Satisfied By	Validated By	ASIL	ASIL 10
1434	Software Requirement	요구사항 식별자 SWR_STR_107_001 요구사항 제목 SSB Label Illumination - Full on Variants All 요구사항 설명 When SSB illumination is required and Tail lamp is OFF, the XXX unit has to activate both outputs: O_SSB_ILLUM_PWR, O_SSB_ILLUM_GND.  요구사항 근거 ESxxxx Rxx_XXX 시스템 기능 사양서 v1.2 [ch 4.1.11] 요구사항 재사용 수정없이 재사용 (HG차종 V4.3 (Pilot최종 사양))	1994:Safety ...	1609:Function DesignID : S...	40: SWUT-001 41: SWUT-002		
1436	Software Requirement	요구사항 식별자 SWR_STR_107_002 요구사항 제목 SSB Label Illumination - Rheostat on Variants All 요구사항 설명 When SSB illumination is required and Tail lamp is ON, the XXX unit has to activate only O_SSB_ILLUM_PWR output and the ground level is provided through the dashboard Illumination intensity rheostat.		1682:플더(패키지) 구조 ( ...	42: SWUT-003 43: SWUT-004		
1440	Software Requirement	요구사항 식별자 SWR_STR_107_004		1696:MCU ( SWAS_Tem...	46: SWIT-002		

상위요건

하위요건

테스트요건

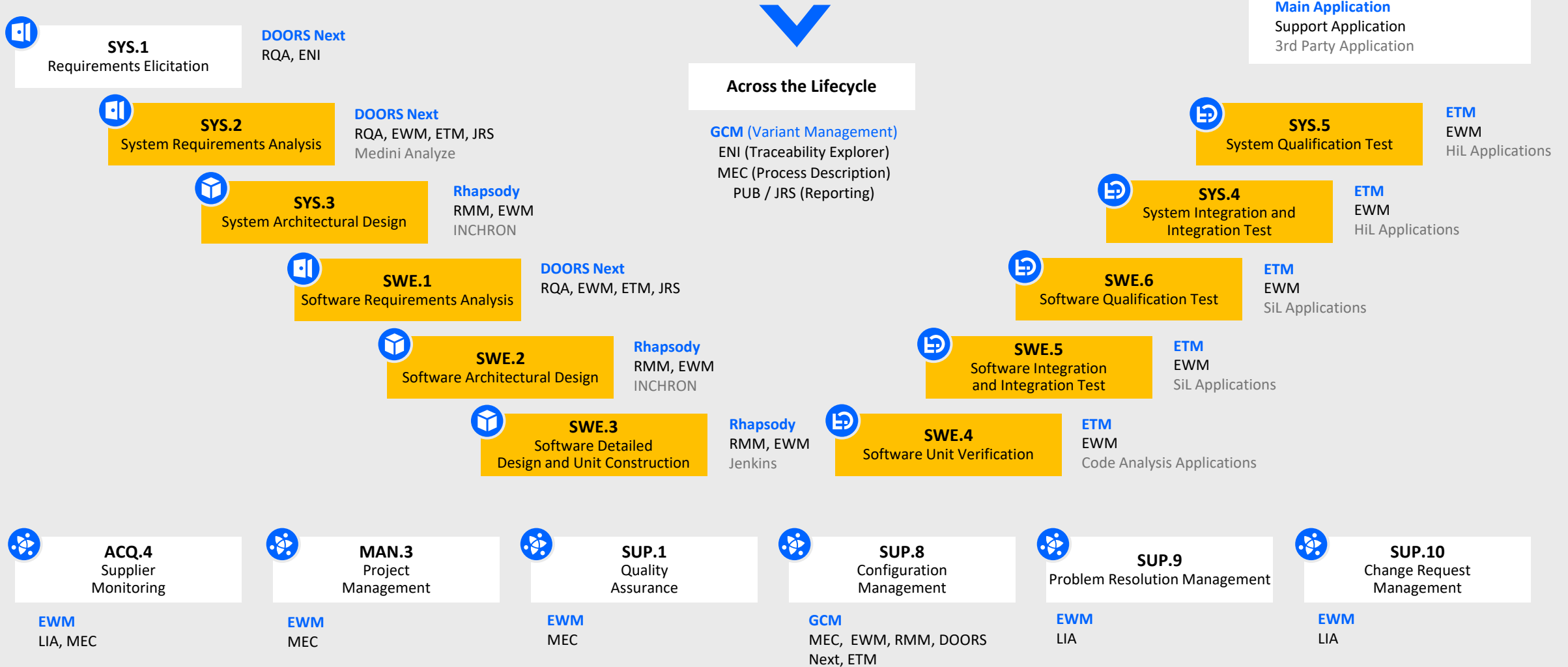


# IBM ELM offers an end-to-end portfolio to support and integrate the ASPICE process groups



## Legend

- Main Application
- Support Application
- 3rd Party Application



# Management Processes

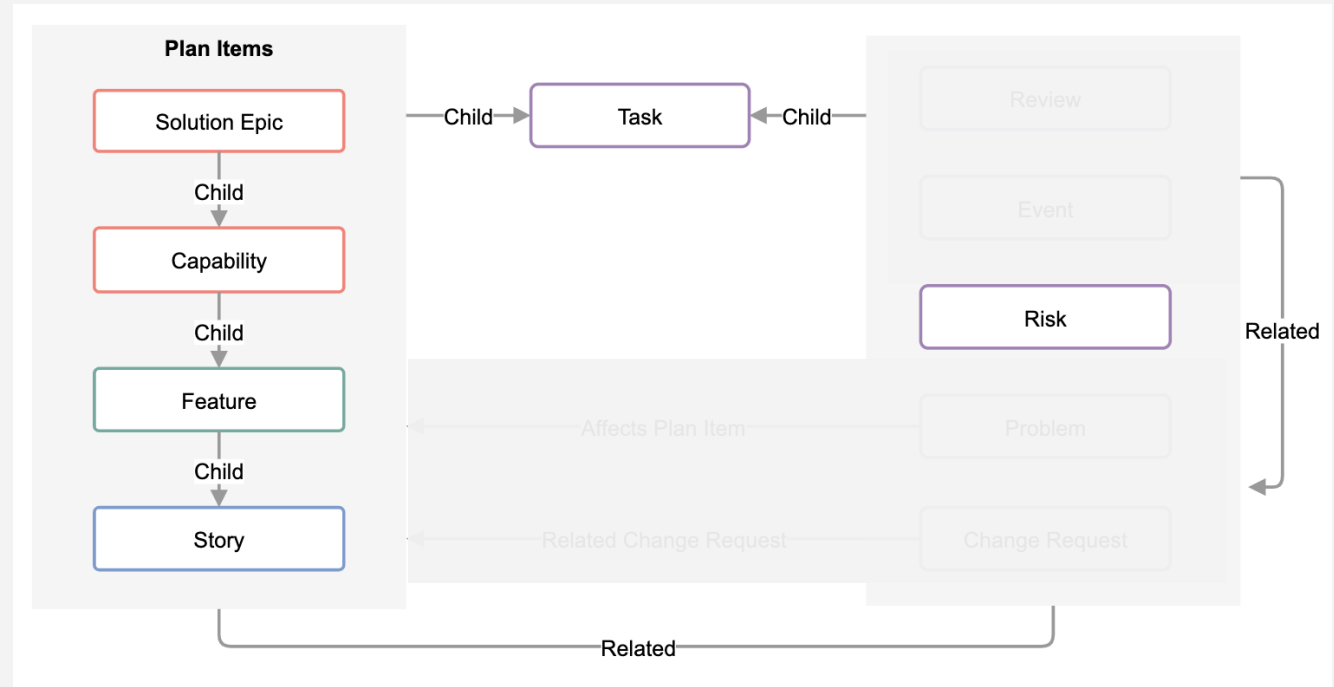
Base ELM functionality and **tailored content**

### Primary Artifacts

- Task
- [Solution Epic](#)
- [Capability](#)
- Feature
- Story
- Risk

### Plan Views

- Roadmap Plan
- Kanban Board
- Work Breakdown
- [Ranked List \(WSJF\)](#)
- [Risk Roaming Board](#)



### Management Process Group (MAN)

**MAN.3**  
Project Management

**MAN.5**  
Risk Management

**MAN.6**  
Measurement

# SUP.1, SUP.2, SUP.8, SUP.9, SUP.10

## Supporting Processes

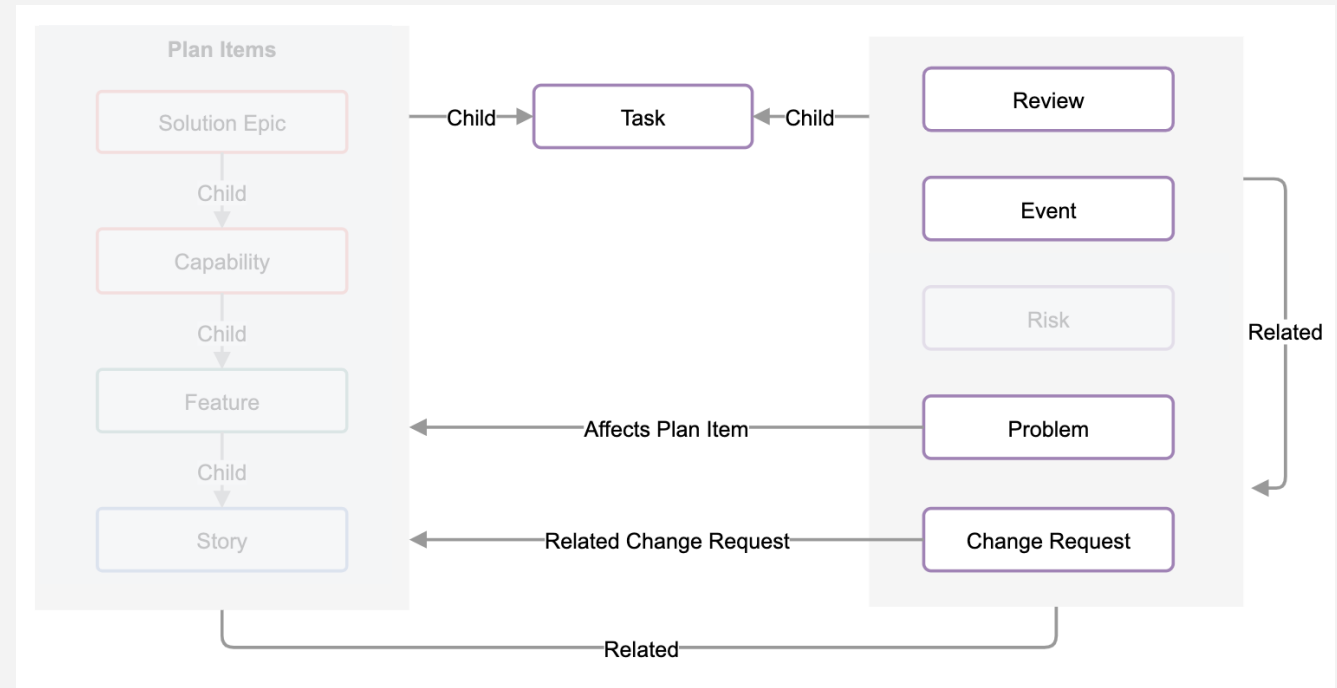
Base ELM functionality and **tailored content**

### Primary Artifacts

- Task
- Change Request
- Review
- Risk
- Problem
- Event

### Additional Artifacts

- Review Document in DOORS Next
- Custom Type "Finding" for DOORS Next



### Supporting Process Group (SUP)

**SUP.1**  
Quality Assurance

**SUP.2**  
Verification

**SUP.4**  
Joint Review

**SUP.7**  
Documentation

**SUP.8**  
Configuration Management

**SUP.9**  
Problem Resolution Management

**SUP.10**  
Change Request Management



IBM Engineering

# Workflow Management



Custom and out-of-the-box workflows



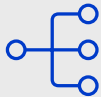
Plan releases and milestones



Plan and assign tasks and issues



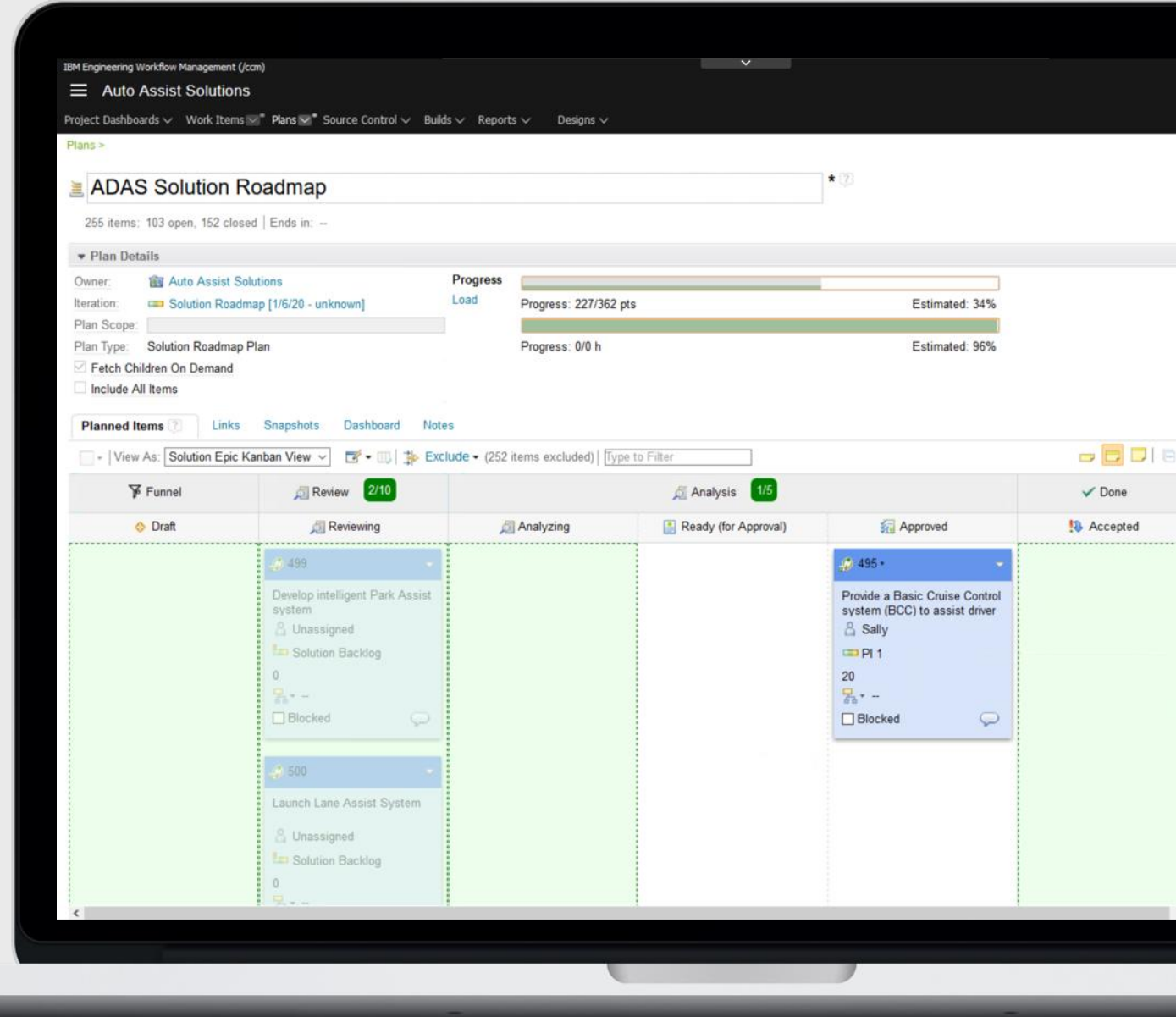
Track progress and process exceptions



Link to tests, models and requirements



Manage source code and documents



# 형상 관리

> 소스코드 형상관리

The screenshot displays a software development tool interface. At the top, a window titled 'Defect 9240' shows a summary: 'Remove deprecated attachment support from RMT migration utilities'. Below this, a 'Links' section lists 'Change Sets' with details like 'Changes in Planning - Add attachment queries with id and external id - Praveen K. Sinha Jan 28, 2009 1:03 PM'. A 'Pending Changes' section shows '1 unresolved local, 51 incoming change sets, 3 component changes'. At the bottom, a 'Merges' table lists various changes with their IDs and comments, such as '9240: Remove deprecated attachment support from RMT migration utilities - Merges'.

체인지셋과 작업항목과의 추적성 연계  
(Drag & Drop 방식 제공)

개발자(Outgoing) 및 팀원(Incoming)의  
변경 소스 목록 제공 및 관리

소스 변경 히스토리 제공

소스 파일과의 추적성

The screenshot shows a web-based source control interface. The breadcrumb path is 'Source Control > Streams > Radar Develop Basic Stream > Radar Develop > RadarJava > src > radar'. The main content area displays 'A2DConverter.java (Version: 3)'. Below this, there are tabs for 'Overview', 'History', and 'Links'. A warning message states: 'Warning: No global configuration is available. Links to related artifacts might not show the correct information.' Below the warning, there is a table with columns 'Validity' and 'Artifact Links'. The table contains one entry: '543: The hardware shall provide a standard 16 bit +/- 12 V Analogue to digital converter'.

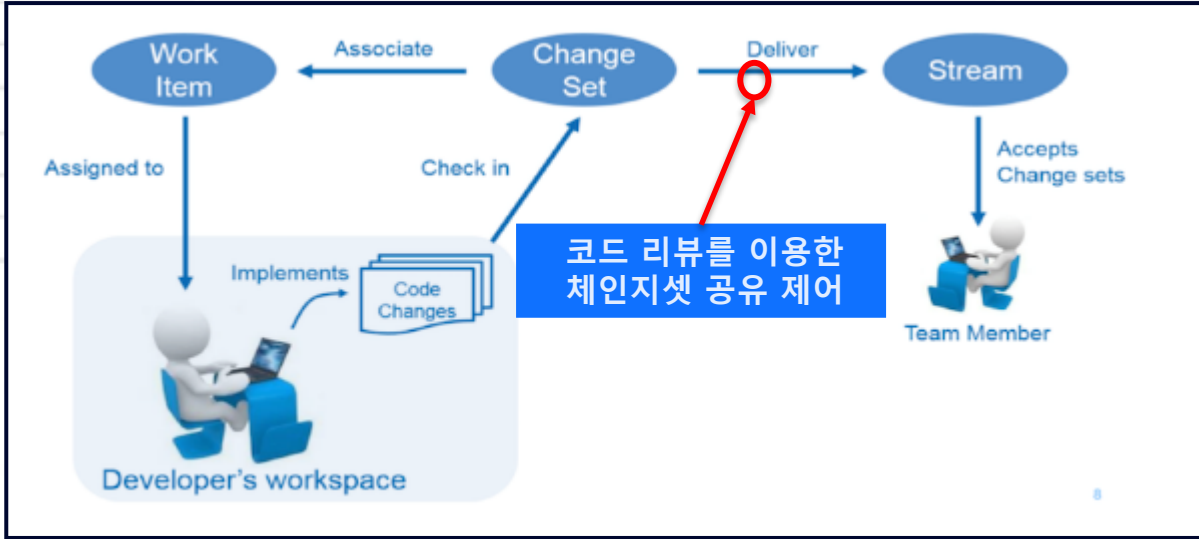
# 코드 리뷰

> 코드 리뷰 및 코드 리뷰를 이용한 체인지셋 공유 제어

The screenshot shows a code review tool interface for 'Task 63'. The summary is 'Expand JUnit math tests'. There are tabs for Overview, Links, Approvals, and History. Under Approvals, it shows 'Approvals (2) - 1 approved, 1 rejected' with an 'Add Approval' button. A table lists the review details:

Type	Name	State
Review	Code Review-2	Approved
	Jason Mitchell	Approved

At the bottom, there are links for 'Changes in: JUnit - new test for modulus - Rick Maludzinski - 21-Nov-2016 ...' and 'Issues (showing only must fix issues)'. The issues list includes 'General Issues' and a specific issue for '/JUnit Examples/src/com/ibm/team/junit/examples/Math.java'.



The screenshot shows a code editor with a 'Compare Editor' view. A blue callout box at the top says 'Compare Editor를 이용한 코드 리뷰 및 이슈 등록' (Code review and issue registration using Compare Editor). The editor displays Java code for 'AllTests.java'. A blue arrow points from the 'Open Code Review' button at the bottom to the code. An 'Issues' panel on the left lists three issues, with the first one selected. A modal window for 'Issue 2' is open, showing a summary 'Use our testCase class', raised by 'Markus Kent', and a description: 'Our TC class initializes the db connection and flushes the caches on startUp(). Also it cleans up during tearDown()'. A 'Save' button is at the bottom right of the modal.

# 빌드

> 빌드 요청, 빌드 결과, 빌드 이력 및 빌드 비교 등 제공

The screenshot displays a web-based build management system. The main window shows the details for a build named 'brm.continuous C20120510-0436 빌드'. The build status is '완료' (Completed) with a duration of 5분, 31초. It includes a '컨트리뷰션 요약' (Contribution Summary) section with links for '다운로드' (Download), '변경사항 표시' (Show Changes), '스냅샷' (Snapshot), '작업 항목' (Jobs), '저장소 작업공간' (Repository Workspace), '컴파일' (Compile), and '테스트' (Test). A '관련된 릴리스' (Related Releases) section indicates that the build is available for selection. A '빌드 상세 정보' (Build Details) section lists the user 'jfsadmin', build name 'brm.continuous', engine 'jke.dev.engine', and tags 'ready\_for\_test, tested, iteration\_1'. A table at the bottom shows a list of builds with columns for build name, version, status, start time, duration, and tags.

빌드	레이블	진행상태	메상 완료...	시작...	지속 시간	태그
brm.continuous	C20120510-0436	완료		2012년 5...	5분, 31초	iter...
brm.continuous	C20120503-1015	완료		2012년 5...	6분, 22초	
brm.continuous	C20120426-1258	완료		2012년 4...	5분, 37초	test...

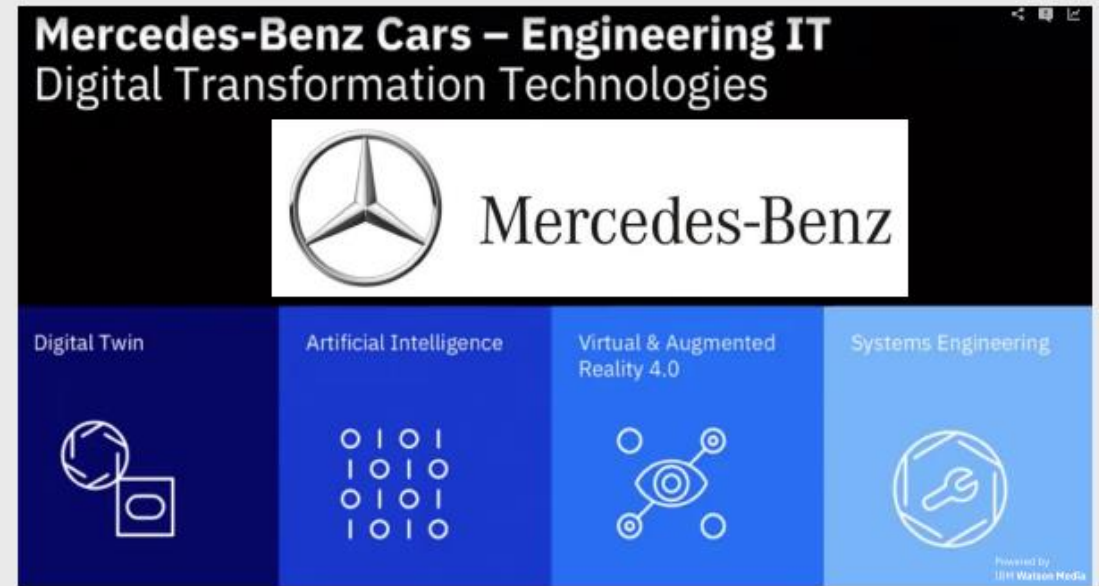
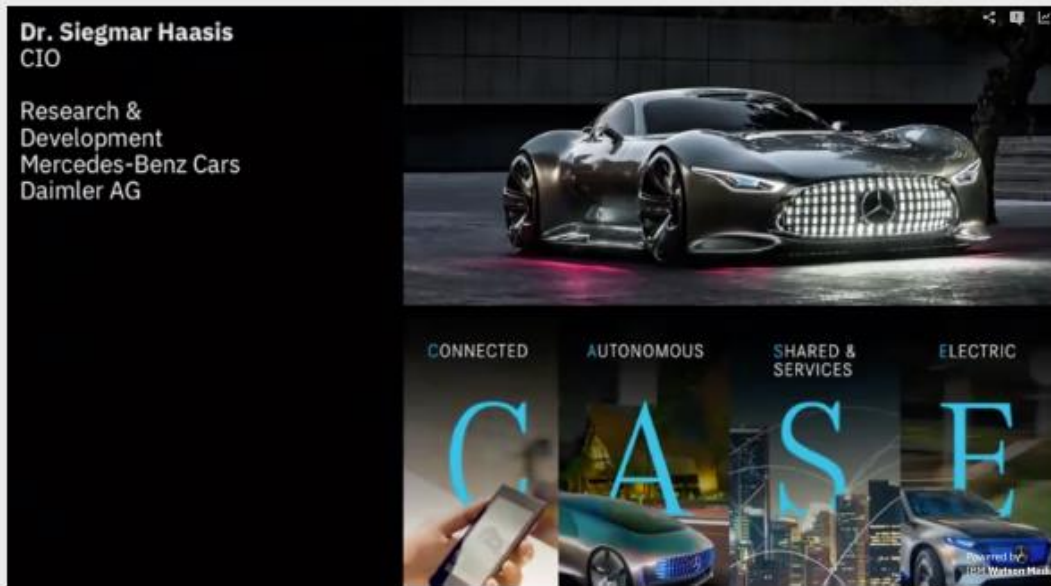
빌드 서버 상에서의 팀 빌드 및 개인 빌드 제공

빌드에 대한 결함 보고 및 보고된 목록 확인

- 빌드에 새로 추가된 파일 등 체인지셋 제공
- 빌드시 사용한 소스코드에 대한 베이스라인 제공
- 빌드 실패시 체인지셋 제공 개발자 및 어드민에 이메일 통보 기능 제공

- 빌드 결과 내역을 제공
- 빌드 비교를 통해 추가된 체인지셋 및 변경 파일 목록 및 내용 확인

# IBM ELM supports Mercedes Benz' Digital Transformation Power



**“The number of customer functions are exploding.... We need systems engineering .... IBM is a close partner.”**  
**“The next phase is to lift text-based requirements engineering to model-based systems engineering... This is a game-changer.... We are doing this in close cooperation with IBM.**  
**- Dr. Siegmund Haasis, CIO R&D, Mercedes-Benz**

Dr. Siegmund Haasis is CIO Research and Development Mercedes-Benz Cars, Daimler AG, Böblingen, where he oversees nine departments and more than 1,000 employees worldwide. At Mercedes-Benz, Dr. Haasis is responsible for MBC Engineering processes, methodologies, and IT systems globally. He is the author of five technical books, numerous papers and proceedings, and has three patents in the field of process innovation.

IBM Think 2019 <https://www.ibm.com/events/think/watch/replay/120157756/>



# Architecture

The screenshot displays the IBM Rational Design Studio interface for the project "Adaptive Cruise Control Designs". The main workspace shows an "Internal Block Diagram: ACC\_Architecture\_Structure" at 100% zoom. The diagram consists of several interconnected components:

- ItaDriver**: Contains a sub-component *pACC\_Control*.
- ItaACC\_System**: A large container component containing:
  - sturl**: Contains sub-components *pDrive*, *pEngineController*, and *pVehicleDisplay*.
  - ItaACC\_Controller**: Contains sub-components *pACC\_Control* and *ItaACC\_Controller*.
  - ItaACC\_Controller**: Contains sub-components *pACC\_Control* and *pVehicleDisplay*.
  - ItaACC\_Controller**: Contains sub-components *pACC\_Control* and *pVehicleDisplay*.
- ItaEngineController**: Contains a sub-component *pACC\_Control*.

Connections between these components are shown with lines and small square handles. A pop-up window titled "Class: A2DConverter" is overlaid on the right side of the diagram, providing details about the class and its associated requirements.

**Class: A2DConverter**

**General**

Name:	A2DConverter
Type:	Class
Last Modified:	Mar 18, 2018, 11:28:12 PM

**Links**

**Satisfies** ▶ (1)

- 543: The hardware shall provide a standard 16 bit +/- 12 V Analogue to digital converter

**Validated By** ◀ (1)

- 38: Standard 16 bit A2D Converter TC



IBM Engineering Systems Design

# Rhapsody



Design Architecture using UML & SysUML



Model dynamic behavior



Run and analyze simulations



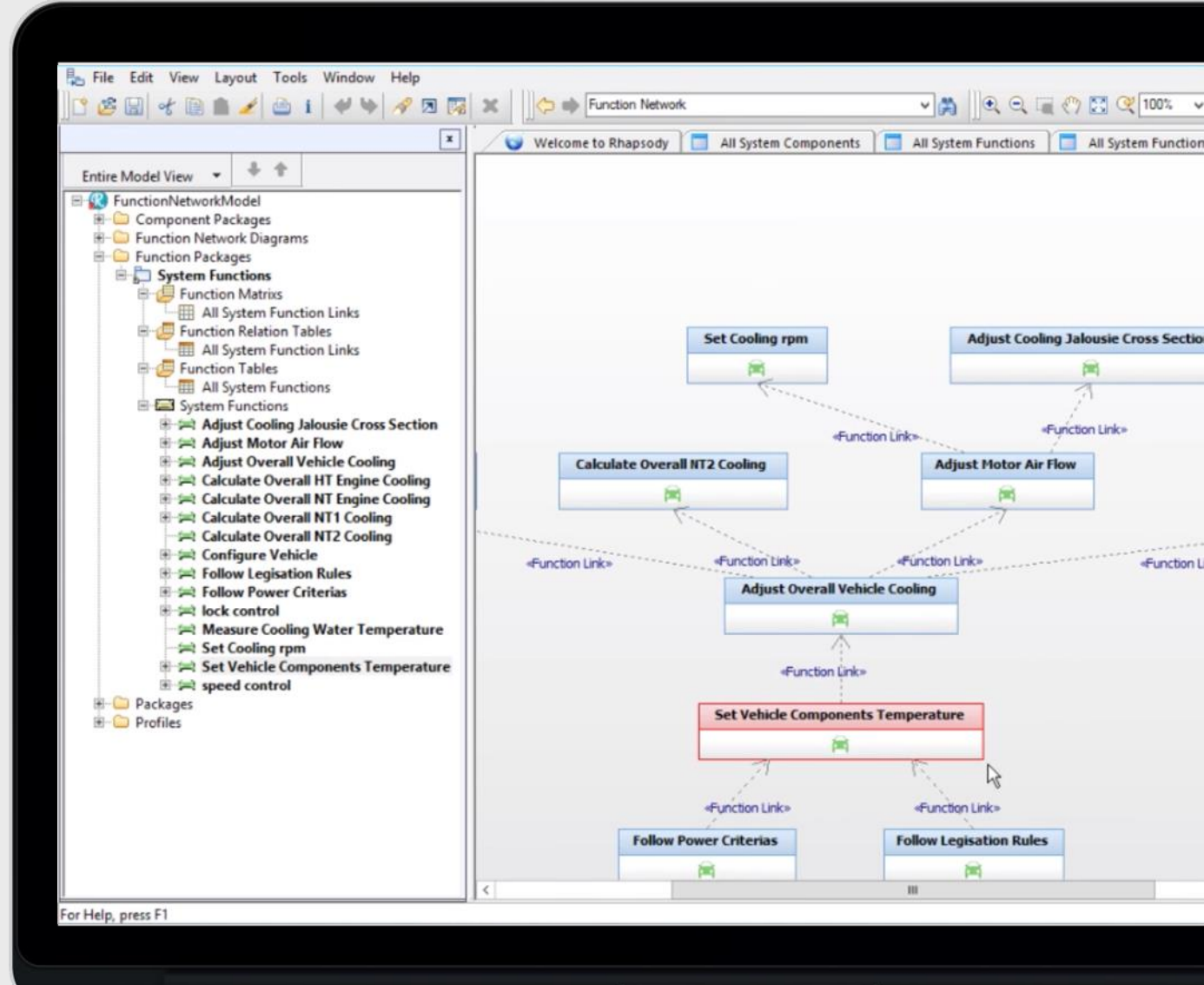
Specify Interfaces

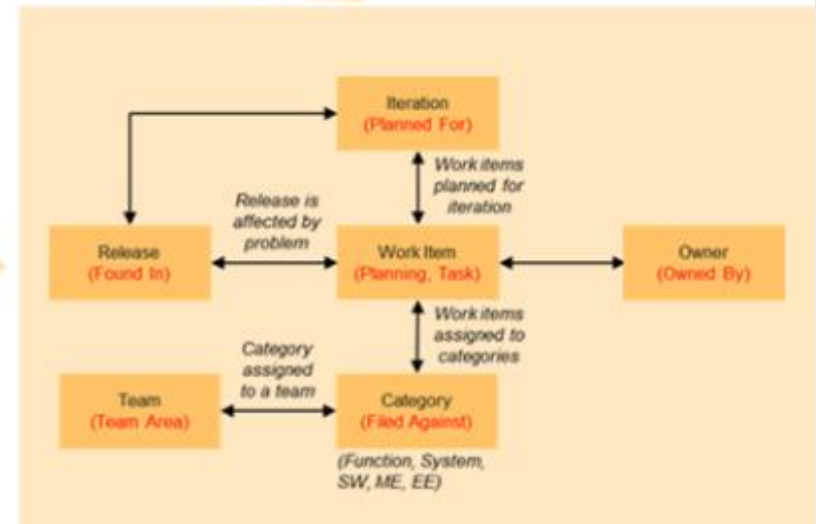
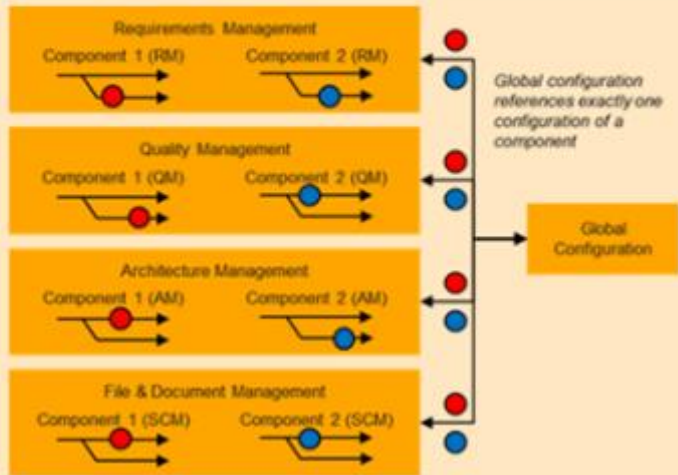
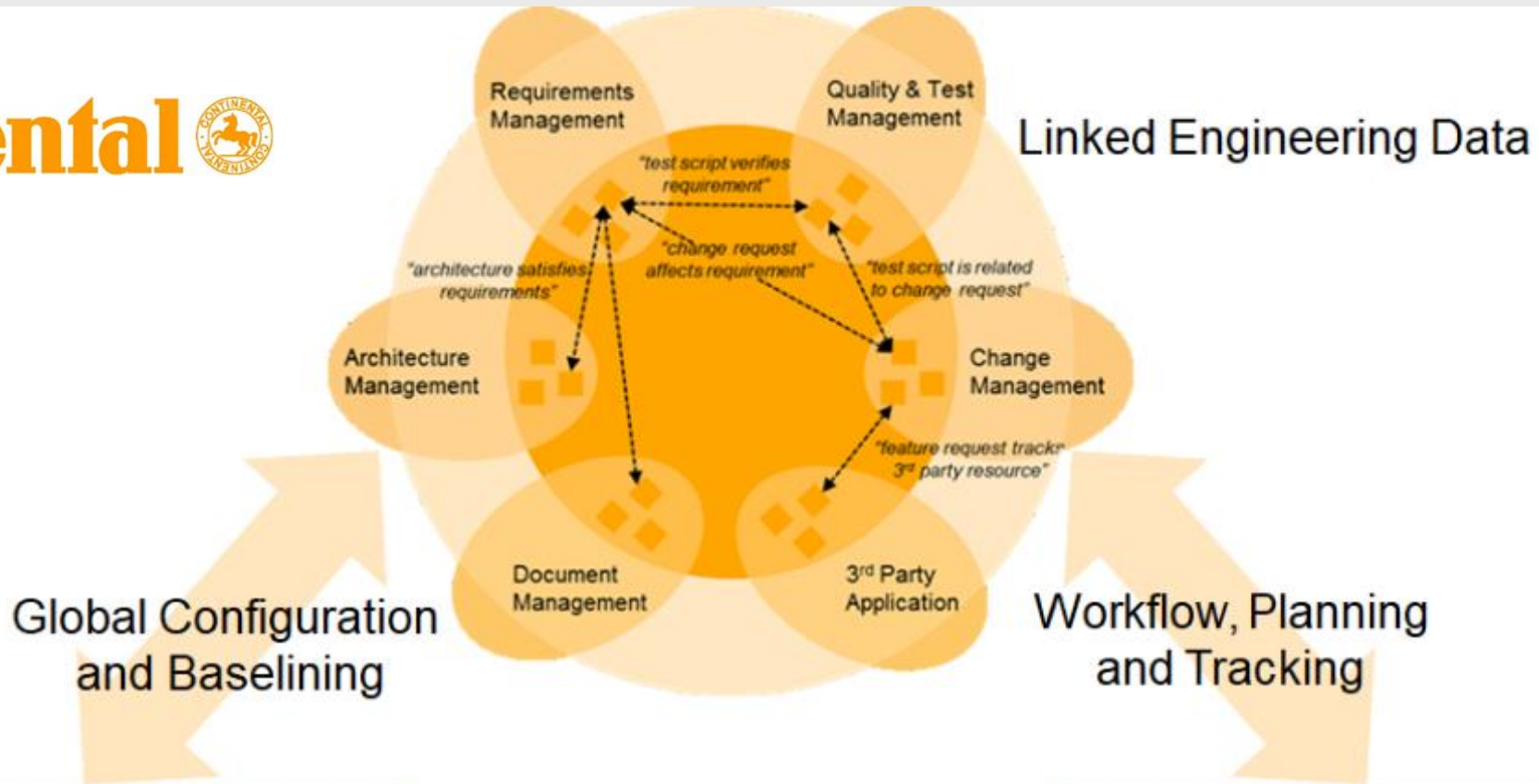


Links to work items, tests and requirements



Generate Code





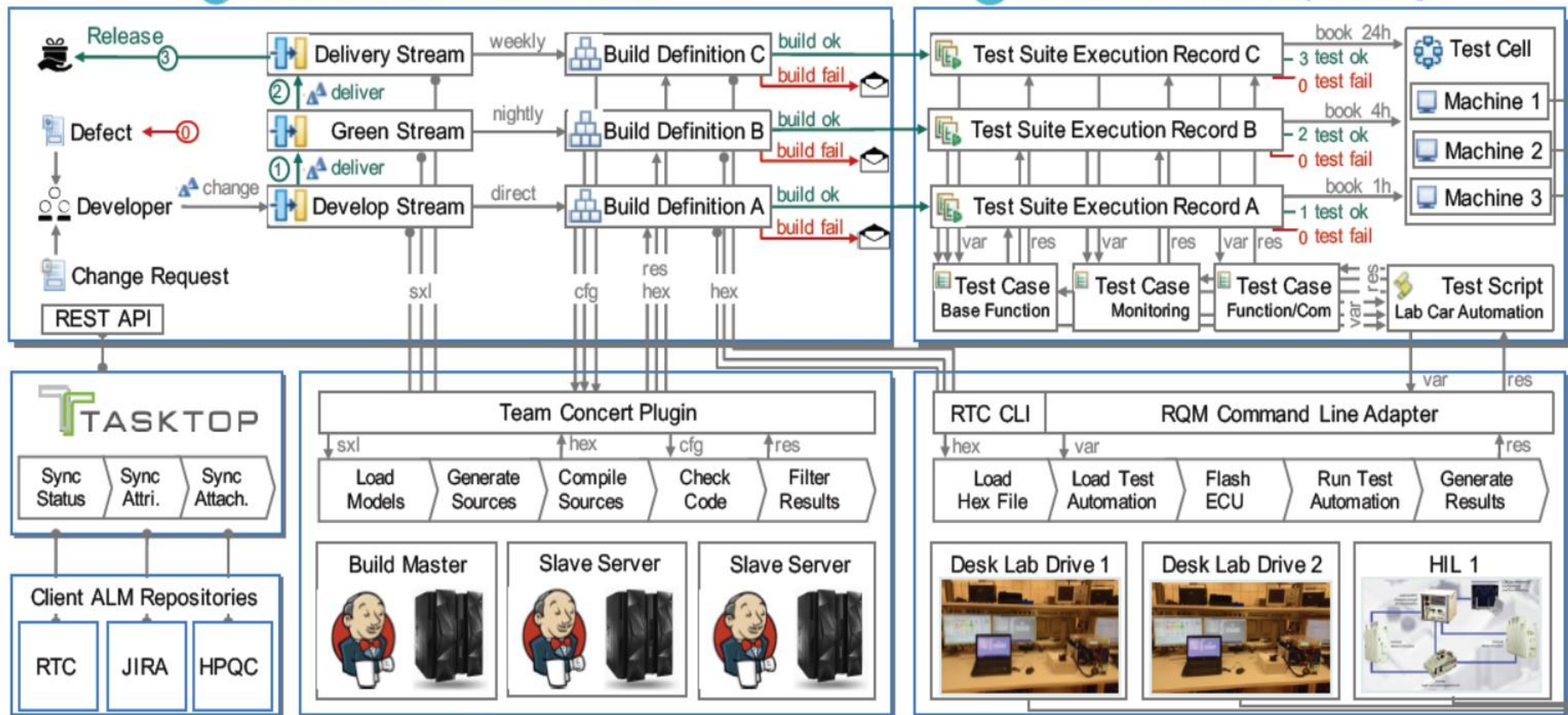


# BOSCH

Invented for life

## IBM Rational Team Concert

## IBM Rational Quality Manager



→ trigger  
 ● load



### ETAS Lab Car Automation

Gasoline Systems

GS-EH/ESS8 Spranger| 2/23/2016 | © Robert Bosch GmbH 2016. All rights reserved, also regarding any disposal, exploitation, reproduction, editing, distribution, as well as in the event of applications for industrial property rights.

# IBM Engineering is one holistic solution

**Requirements**  
DOORS Next

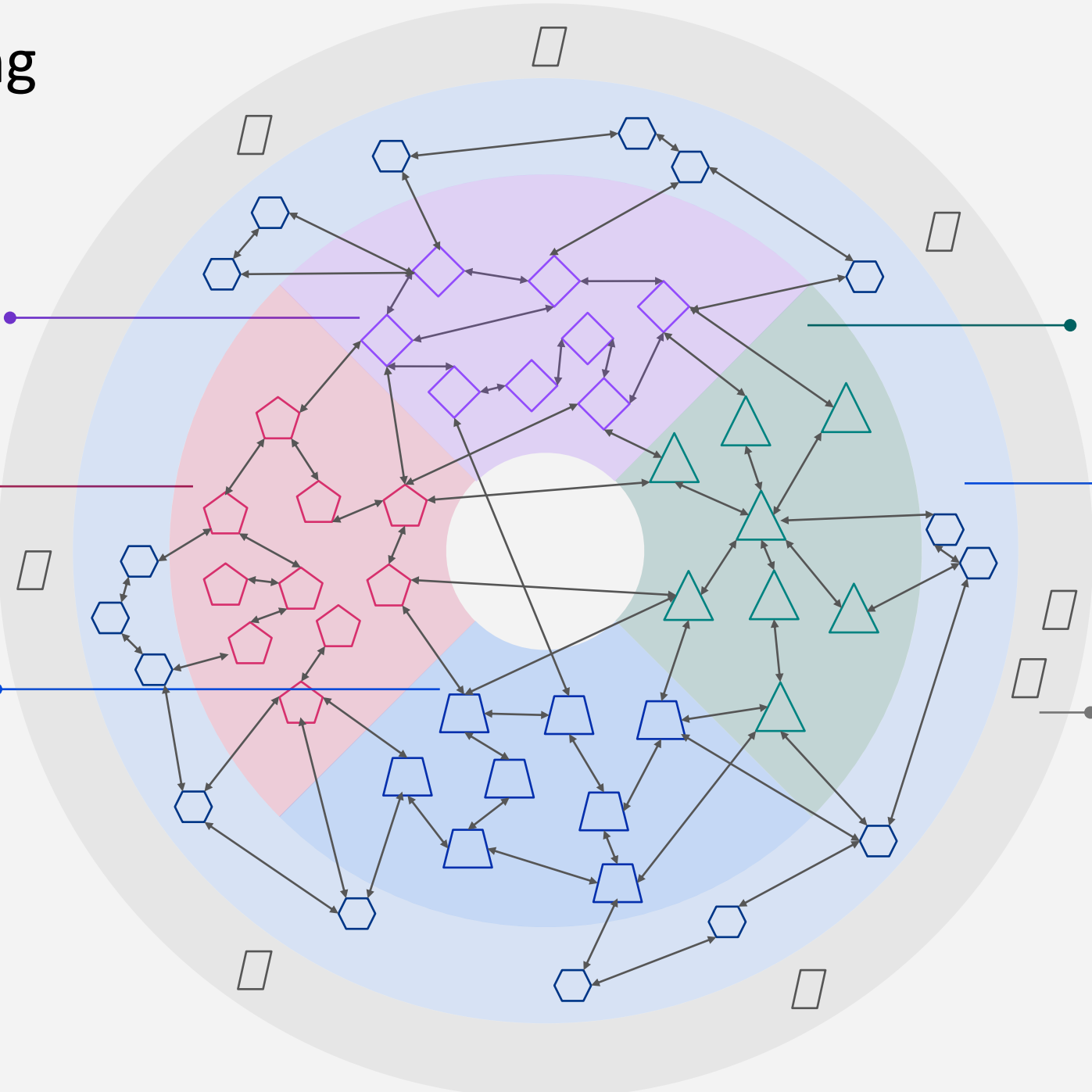
**Design / Architecture**  
Rhapsody Systems Design  
Rhapsody Model Manager

**Code & Documents**  
Engineering Workflow Source  
Code Management  
(EWM SCM)

**Test Assets**  
Test Management (ETM)

**Plans & Work Items**  
Engineering Workflow  
Management (EWM)

**Reporting**  
Jazz Reporting Service (JRS)  
Publishing (PUB) Engineering  
Insights (ENI)



*the key concept is  
linking of data*

# Contents

ASPICE Guide

ASPICE 산출물 관리

추적 View

# 프로젝트 대시보드

> 다양한 대시보드 구성을 제공

The screenshot displays the 'Adaptive Cruise Control Development' dashboard. The main interface includes a navigation bar with 'Project Dashboards', 'Work Items', 'Plans', 'Source Control', 'Builds', and 'Reports'. A search bar for 'Work Items' is present. The dashboard content is organized into several widgets:

- All Assigned Work Items (73) Priority:** A pie chart showing the distribution of work items by priority: High (red), Medium (yellow), Low (blue), and Unassigned (grey).
- All Assigned Work Items (73) Status:** A horizontal bar chart showing the status of work items: Closed, Resolved, In Progress, and New.
- Useful Links:** A list of links, including 'ISO 26262 Practice Content'.
- Plans (1):** A section for 'Current Iteration: Concept Phase'.

A pop-up window titled '다양한 빌트인 대시보드용 위젯 제공' (Providing various built-in dashboard widgets) is overlaid on the dashboard. This window shows a 'Select Catalog' dropdown set to 'Change and Configuration Management (/ccm)'. It lists various categories and widgets:

- About Me:** Provides information about a contributor (Bill Cassavelli).
- Advanced Release Burndown:** Shows how much work, as measured using the defined ...
- Blocking Work Items:** Shows a plot of open blocking work items over time.
- Build Duration:** Shows the duration of a build definition over time. A line is used ...
- Build Health:** Shows the health of a build definition by plotting intervals of ...
- Bookmarks:** Provides a customizable list of bookmarks.

The pop-up window also includes an 'Add External Widgets' section with 'Add OpenSocial Gadget' and a 'Products' list: Rational Quality Manager, Rational Requirements Composer, Rational Team Concert, Technology Initiatives, and Jazz Foundation. At the bottom, there are navigation links: 'Previous | 1 - 6 of 66 | Next'.

# 프로젝트 대시보드

> 커스텀 리포트 생성 및 대시보드 위젯으로 활용

**REPORT BUILDER**

CHOOSE DATA | **FORMAT RESULTS** | NAME AND SHARE | RUN REPORT

SAVE | DUPLICATE | CANCEL

**Format**

Table | Graph | Refresh

리포트 빌더

Refresh to see a sample layout of your report.

Organize the columns of your report. Consecutive columns with the same label are combined.

To color your results, click in the Colors section.

Column Label	Attribute	Artifact Type	Sort Type	Sort Order	Calculation	Colors	Actions
Project (Requireme	Project	Requirement				No	↓ ×
Requirement ID	ID	Requirement				No	↑ ↓ ×
Requirement	Name	Requirement				No	↑ ↓ ×
URL (Requirement)	URL	Requirement				No	↑ ↓ ×
Test Case ID	ID	Test Case				No	↑ ↓ ×
Test Case	Name						
URL (Test Case)	URL						

Add columns:

ATTRIBUTE | CALCULATED VALUE

Continue

Advanced

Adaptive Cruise Control Development

Project Dashboards | Work Items | Plans | Source Control | Builds | Reports

All Adaptive Cruise Control Development Dashboards >

**Adaptive Cruise Control Development**

General | A-SPICE Guidance | ISO 26262 Guidance | Planning | Requirements | Development | Testing | My Report

**Requirements**

Filters

10 Items Per Page

Previous | 1 - 10 of 29 items | Next

Project (Requirement)	Requirement ID	Requirement	Test Case ID	Test Case
JK Requirements	192	Validate Loan term and amount	32	Test Validate Loan Term and Amount
JK Requirements	195	Dividend allocation by percentage	23	Dividend Allocation by Percentage
JK Requirements	195	Dividend allocation by percentage	24	Allocate Dividends to a Single Cause
JK Requirements	213	Frequency of dividend transfer	6	Verify dividend transfer frequency
JK Requirements	221	Donors can choose to support an organization	14	Donors Can Choose to Support an Organization
JK Requirements	221	Donors can choose to support an organization	24	Allocate Dividends to a Single Cause
JK Requirements	224	Support dividend processing via mobile devices	34	Mobile donor can contribute
JK Requirements	228	Allocate dividends by amount and frequency	12	Allocate dividends by amount and frequency
JK Requirements	228	Allocate dividends by amount and frequency	24	Allocate Dividends to a Single Cause
JK Requirements	268	Allocating Dividends to a Cause - Mobile		

프로젝트 대시보드에 리포트 위젯 추가

CHOOSE DATA | FORMAT RESULTS | NAME AND SHARE | **RUN REPORT**

SAVE | DUPLICATE | CANCEL

Export | Open in a new window...

리포트 실행

Previous | 1 - 20 of 29 items | Next

Requirement	Test Case ID	Test Case
JK Requirements	192	Validate Loan term and amount
JK Requirements	195	Dividend allocation by percentage
JK Requirements	195	Dividend allocation by percentage
JK Requirements	213	Frequency of dividend transfer
JK Requirements	221	Donors can choose to support an organization
JK Requirements	221	Donors can choose to support an organization



# 요구사항 항목들간의 Traceability Table

(아래 항목 클릭시 해당 요구사항을 담고있는 문서가 열리고 해당 요구사항 문장으로 이동)

## Adaptive Cruise Control Requirements Project Dashboard

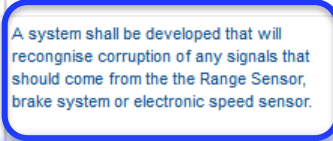
General Traceability

Auto-save Save

Add Widget

ItemDefReq-HE-SG-F SR-TSR-SWSafetyReq

Id	Item Definition Requirement	Id	Hazardous Event	Id	Safety Goal	ASIL	Id	Functional Safety Requirement	ASIL	Id	Technical Safety Requirement	ASIL	Id
737	Adaptive Cruise control safe operation	763	Vehicle Crashes into an obstruction due to failure of the ACC or its associated subsystems, sensor or methods of communication	698	If an error in signalling (within a certain tolerance) are detected, the ACC system shall warn the driver and put itself into a safe state for the vehicle.	B	798	A system shall be developed that will recognise corruption of any signals that should come from the the Range Sensor, brake system or electronic speed sensor.	B	755	The information from both independent bus systems shall be compared to determine that the signals are not different to within a range of +/-3%.	A	
737	Adaptive Cruise control safe operation	763	Vehicle Crashes into an obstruction due to failure of the ACC or its associated subsystems, sensor or methods of communication	698	If an error in signalling (within a certain tolerance) are detected, the ACC system shall warn the driver and put itself into a safe state for the vehicle.	B	798	A system shall be developed that will recognise corruption of any signals that should come from the the Range Sensor, brake system or electronic speed sensor.	B	767	An independently powered, dual channel bus system shall be used to ensure a redundancy of information being passed between all the subsystems	A	
737	Adaptive Cruise control safe operation	763	Vehicle Crashes into an obstruction due to failure of the ACC or its associated subsystems, sensor or methods of communication	698	If an error in signalling (within a certain tolerance) are detected, the ACC system shall warn the driver and put itself into a safe state for the vehicle.	B	916	A system shall be developed that will recognise if any signals that should come from the the brake system or electronic speed sensor fail to arrive at the Adaptive Cruise Control.	B	768	When brake signal corruption is detected by the Brake arbitrator, the	A	
737	Adaptive Cruise control safe operation	763	Vehicle Crashes into an obstruction due to failure of the ACC or its associated subsystems, sensor or methods of communication	698	If an error in signalling (within a certain tolerance) are detected, the ACC system shall warn the driver and put itself into a safe state for the vehicle.	B	916	A system shall be developed that will recognise if any signals that should come from the the brake system or electronic speed sensor fail to arrive at the Adaptive Cruise Control.	B	783	A watchdog running at 2 Khz shall be used by the ACC module to determine if the Speed sensor subsystem fails due to loss of power	A	838
737	Adaptive Cruise control safe operation	763	Vehicle Crashes into an obstruction due to failure of the ACC or its associated subsystems, sensor or methods of communication	698	If an error in signalling (within a certain tolerance) are detected, the ACC system shall warn the driver and put itself into a safe state for the vehicle.	B	916	A system shall be developed that will recognise if any signals that should come from the the brake system or electronic speed sensor fail to arrive at the Adaptive Cruise Control.	B	708	A watchdog running at 2 Khz shall be used by the ACC module to determine if the brake subsystem fails due to loss of power	A	850



클릭시 해당 문서로 이동

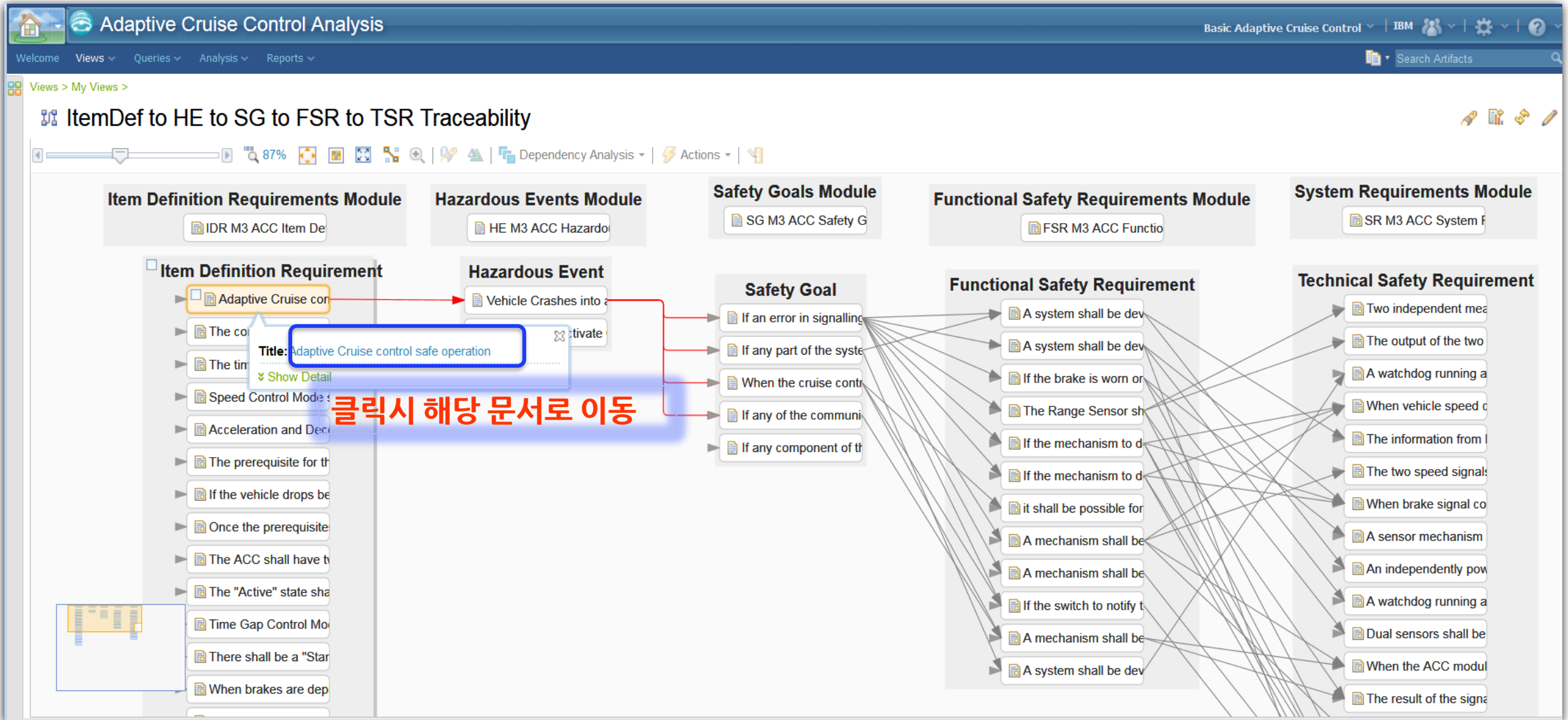
# Traceability Table을 활용한 요구사항 Gap Analysis

REPORT BUILDER

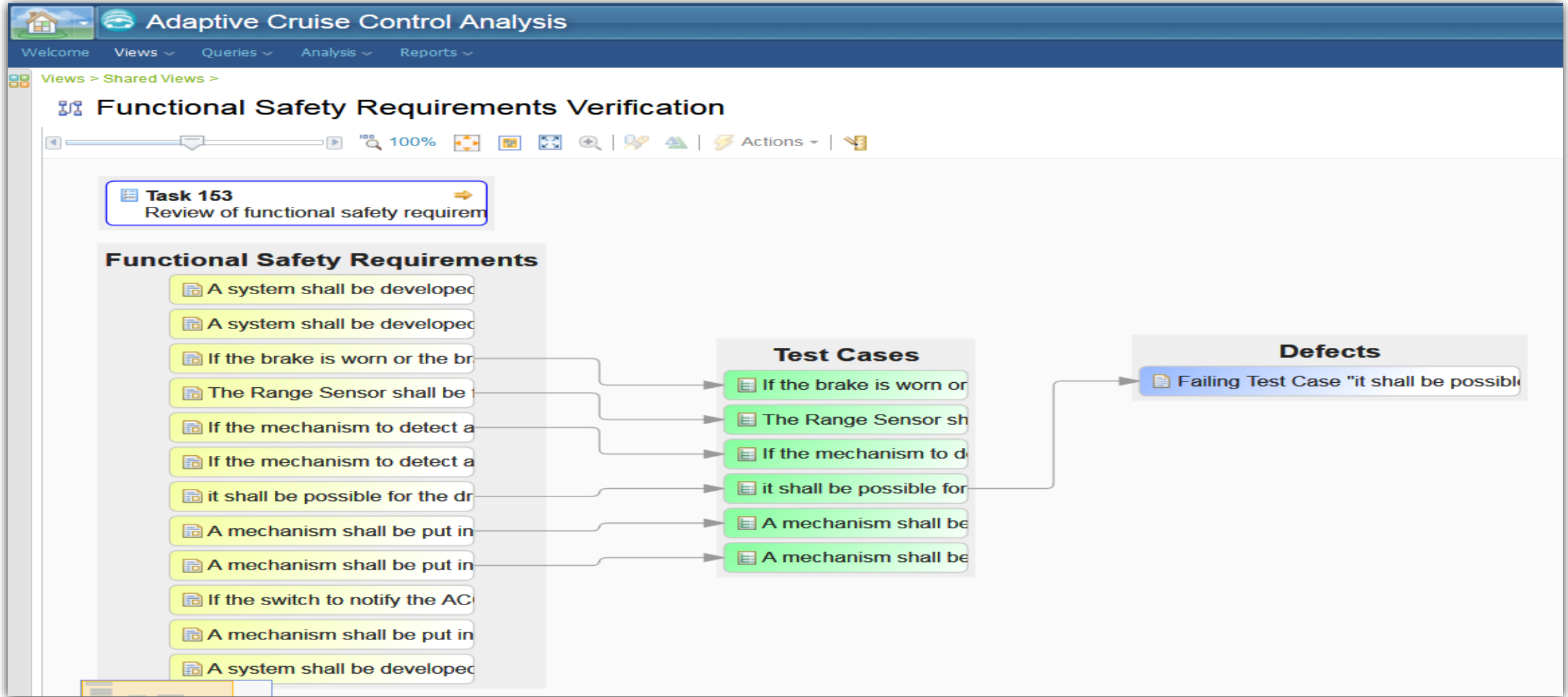
Item Definition Gap Analysis Duplicate Edit

Project Area (Item Definition Requirement)	Item Definition Requirement Id	Item Definition Requirement	Requirement 1 Id	Requirement 1
Adaptive Cruise Control Requirements	759	ACC-ADAS usage information, such as frequency of usage and the geolocations of where it is being used	889	ACC-ADAS usage information, such as frequency of usage and the geolocations of where it is being used
Adaptive Cruise Control Requirements	914	The two main operating modes of the ACC are to maintain a set speed or to maintain time gap to a forward vehicle, whichever speed is lower	790	When entering active ACC control, the vehicle speed is controlled either to maintain a set speed or to maintain a time gap to a forward vehicle, whichever speed is lower.
Adaptive Cruise Control Requirements	897	The time gap shall be controllable by the driver	842	Adjusting The Time Gap - The driver can adjust the time gap via the 'Time Gap +' and 'Time Gap -' switches. Pressing the 'Time Gap +' switch causes the time gap value to increase and therefore the clearance between the two vehicles to increase. Pressing th
Adaptive Cruise Control Requirements	880	The information that shall be feedback shall include	774	The information that shall be feedback shall include
Adaptive Cruise Control Requirements	750	Information from the ACC-ADAS shall be sent back to the marketing and development organisations to capture how the feature is being used, how it affects customer satisfaction and to identify any issues.		
Adaptive Cruise Control Requirements	869	If a slow moving vehicle is detected that forces the vehicle to decelerate quicker than specified in the acceleration and deceleration control requirement then the driver shall be notified and the ACC shall enter the emergency operation state where maximum	900	Reaction to a Slow Moving or Stopped Vehicle - Situations may occur such that the ACC system is not able to maintain the time gap within the deceleration authority of the system (1 mph per 1.5 seconds). The clearance between the ACC vehicle and the forward
Adaptive Cruise Control Requirements	904	When ACC-ADAS feature is active and the deceleration response required by the ACC-ADAS is greater than the limit specified by the deceleration limit.		

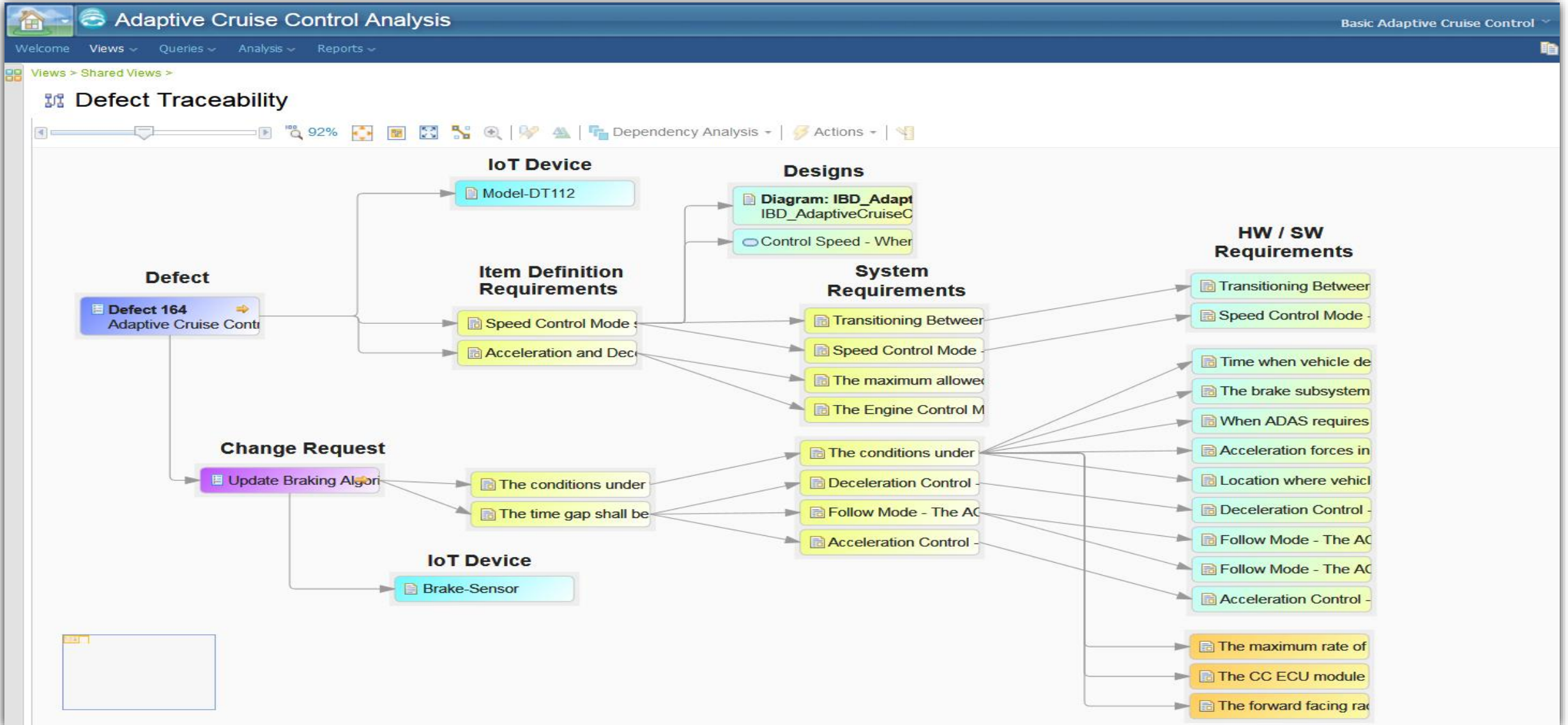
# 요구사항 항목들간의 Traceability View (마우스를 올려놓으면 해당 팝업 정보 팝업을 제공하며 Title 하이퍼링크 클릭시 해당 문서로 이동함)



# 요구사항, 요구사항을 검증 Test Case 및 검증 결과 발생한 Defect 들간의 Traceability View



# Defect, Defect를 처리하기 위한 Change Request, CR로 변경된 System Req 및 HW/SW Req 간의 Traceability View



# CR 목록을 제공하고 선택된 CR과 관련된 요구사항 관련정보를 동적으로 제공하는 Traceability View

**Task**

- Task 122  
3.5 Item Definition
  - Create Item definition
  - Gather preexisting information
  - Create requirements hierarchy
  - Populate requirements hierarchy**

**Selected Task**

- Task 126**  
Populate requirements hierarchy ✓

**Requirements**

- Speed Control Mode shall e
- Acceleration and Deceleration
- The prerequisite for the syst
- If the vehicle drops below a
- Once the prerequisites are n
- The ACC shall have two ma
- The "Active" state shall also
- Time Gap Control Mode sha
- There shall be a "StandbyBy"

**Use Case Model**

- IBD\_AdaptiveCruiseC
- Control Speed - Wher
- Activate ACC

**Traceability Links:**

- Red box around 'Populate requirements hierarchy' in the Task list.
- Red box around 'Task 126' in the Selected Task panel.
- Red arrow from the selected task to the 'Populate requirements hierarchy' requirement.
- Blue box with text: 안전활동 태스크 목록에서 태스크 선택하면 해당 태스크와 관련된 요구사항 목록 및 관련 Model Element를 표시함
- Orange arrow from the requirement to the 'Activate ACC' use case model element.
- White callout box: Title: refined by

**Click a Child Task to Select It**

# IBM Engineering is one holistic solution

**Requirements**  
DOORS Next

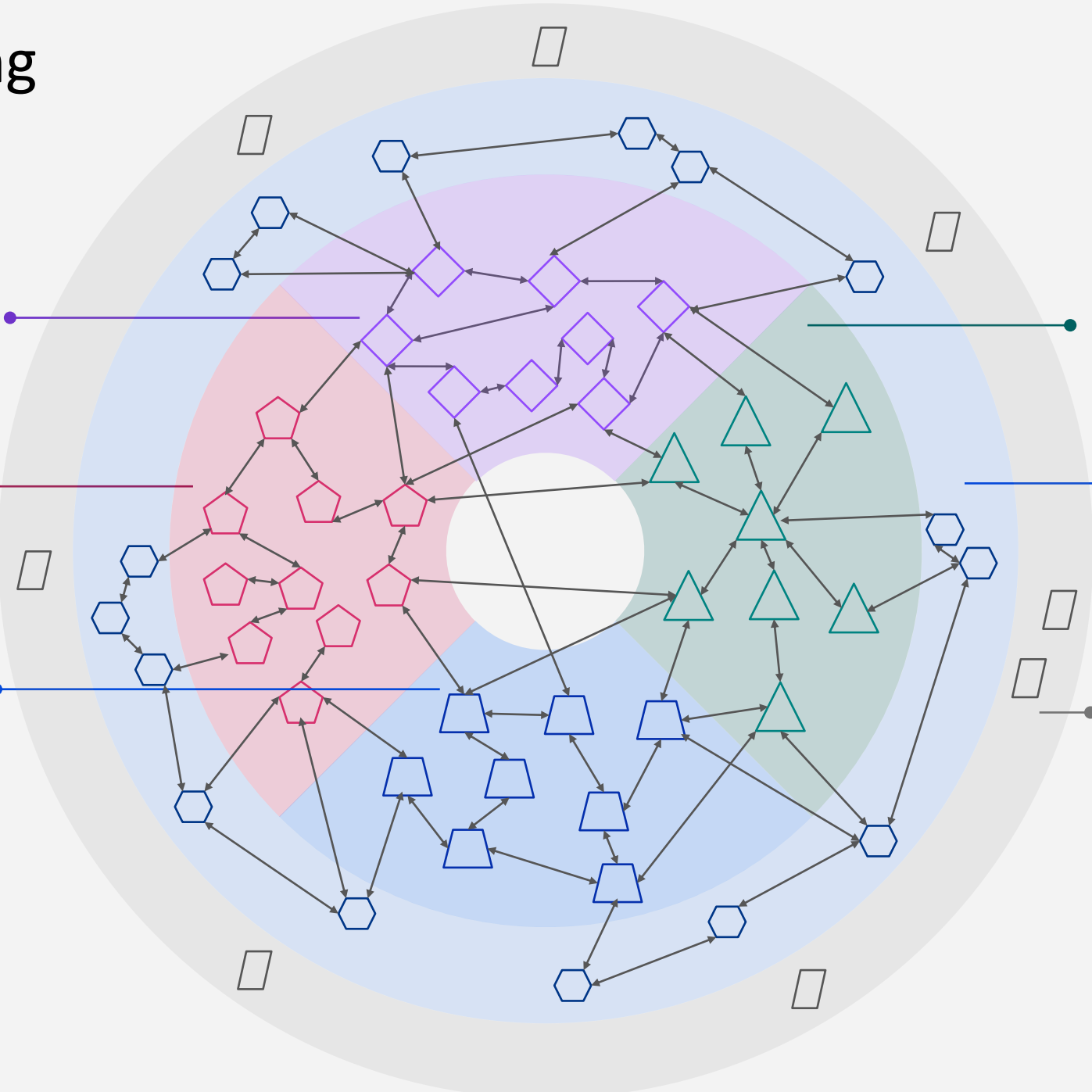
**Design / Architecture**  
Rhapsody Systems Design  
Rhapsody Model Manager

**Code & Documents**  
Engineering Workflow Source  
Code Management  
(EWM SCM)

**Test Assets**  
Test Management (ETM)

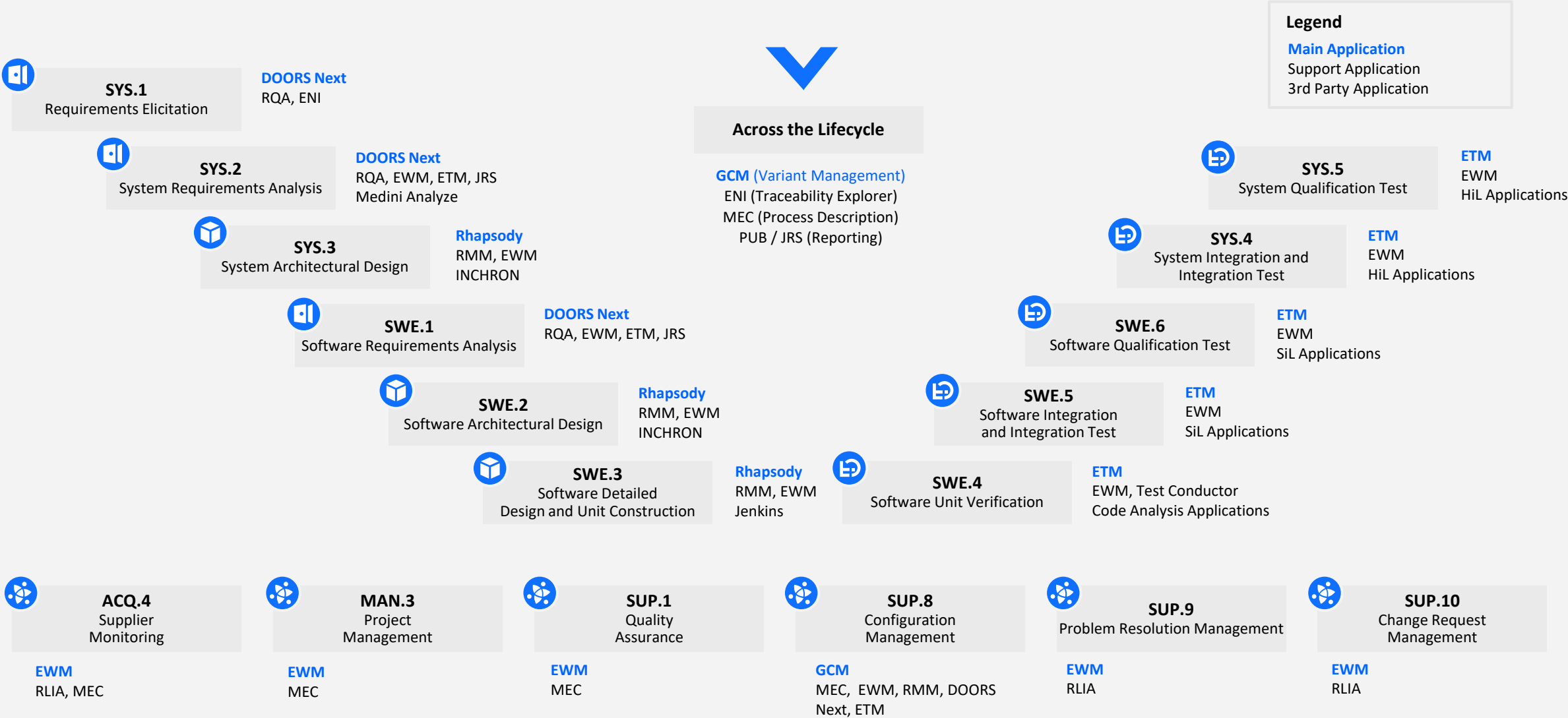
**Plans & Work Items**  
Engineering Workflow Management (EWM)

**Reporting**  
Jazz Reporting Service (JRS)  
Publishing (PUB) **Engineering Insights (ENI)**



*the key concept is linking of data*

# IBM ELM offers an end-to-end portfolio to support ASPICE





# IBM Engineering Lifecycle Management is trusted by industry leaders and analysts



9 of the 10 largest automotive companies



13 of the 15 top electronics OEMs



9 of the 10 medical device manufacturers



13 of the 15 largest Tier 1 automotive suppliers



9 of the 10 largest pharmaceutical companies



8 of the 10 semi-conductor companies

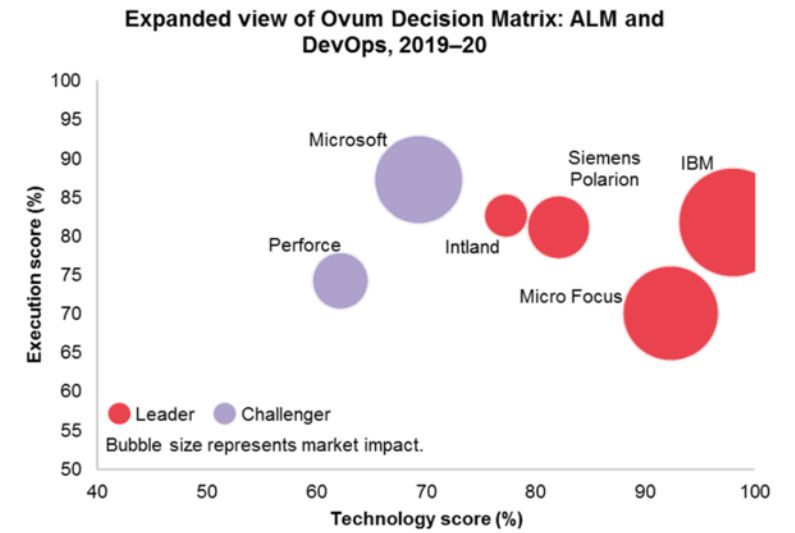


10 of the 10 major aerospace and defense companies



54 Government agencies in 54 countries

Figure 3: Expanded view of Ovum Decision Matrix: ALM and DevOps, 2019–20



Source: Ovum

