



DIGITAL TRANSFORMS PHYSICAL

INTRODUCING PTC ALM

Osman Soner Aydın

Business Development / ALM-IoT-AR

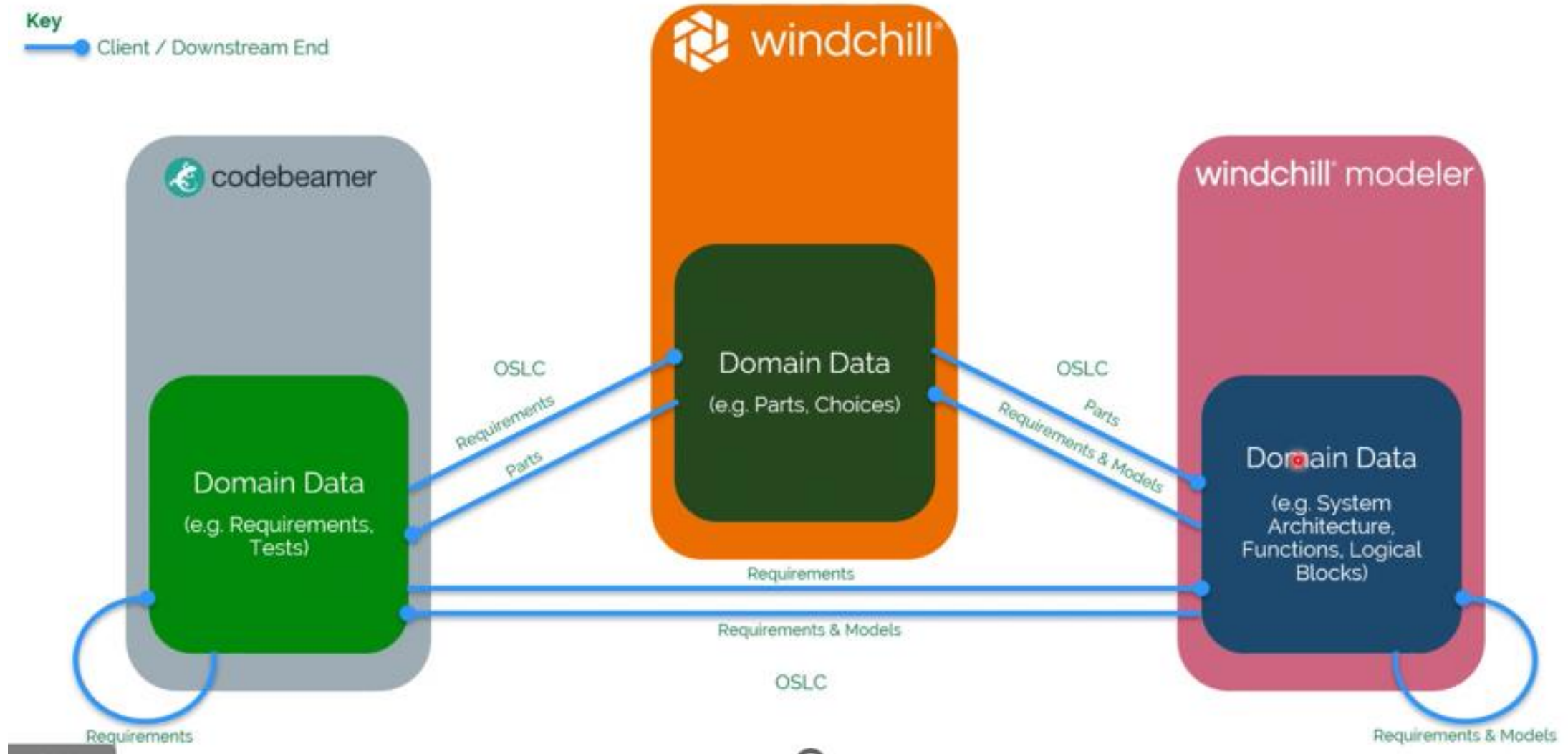
INFORMATIK
INNOVATION EXPERTS

20.10.2023



PTC DIGITAL PRODUCT TRACEABILITY

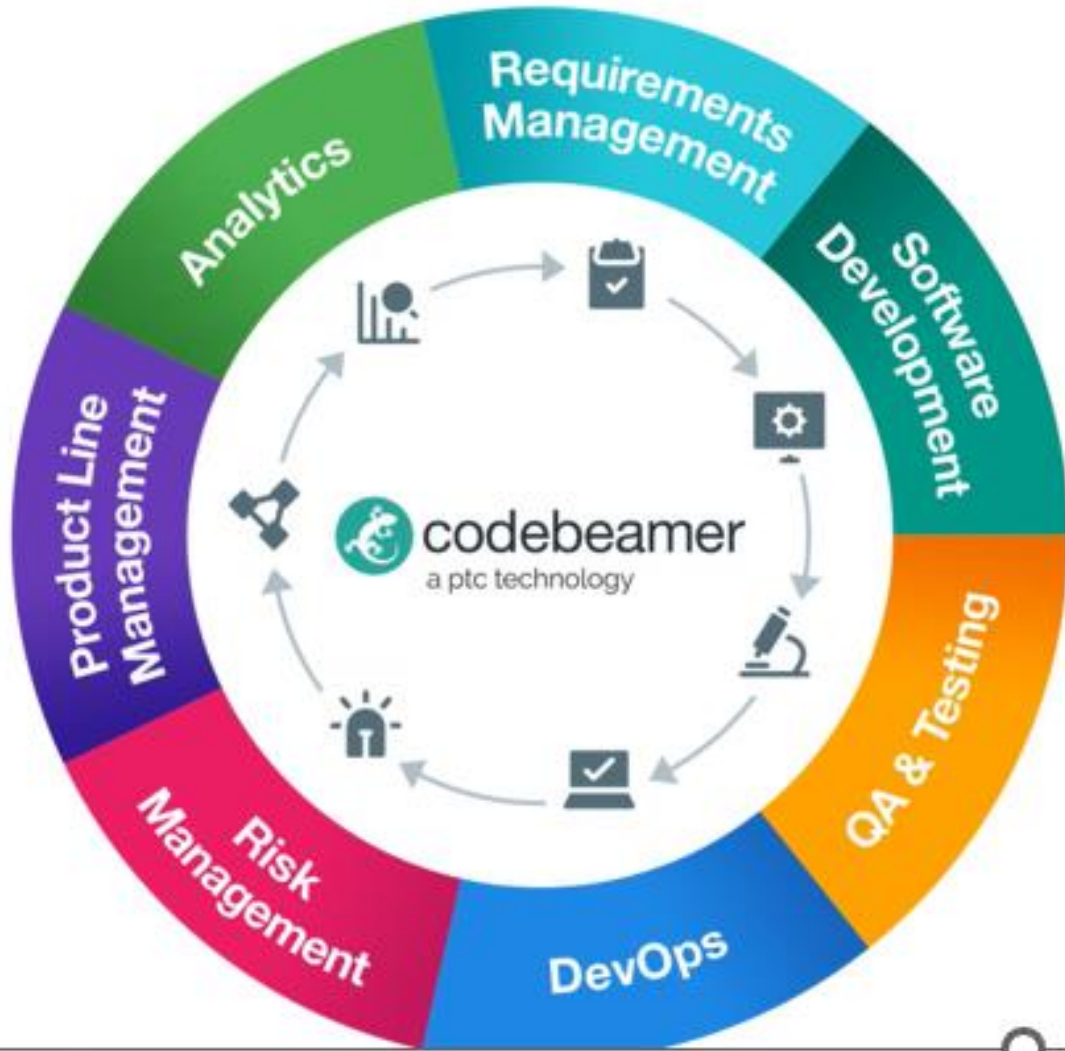
Key
● Client / Downstream End














































CODEBEAMER

CODEBEAMER SOLUTION



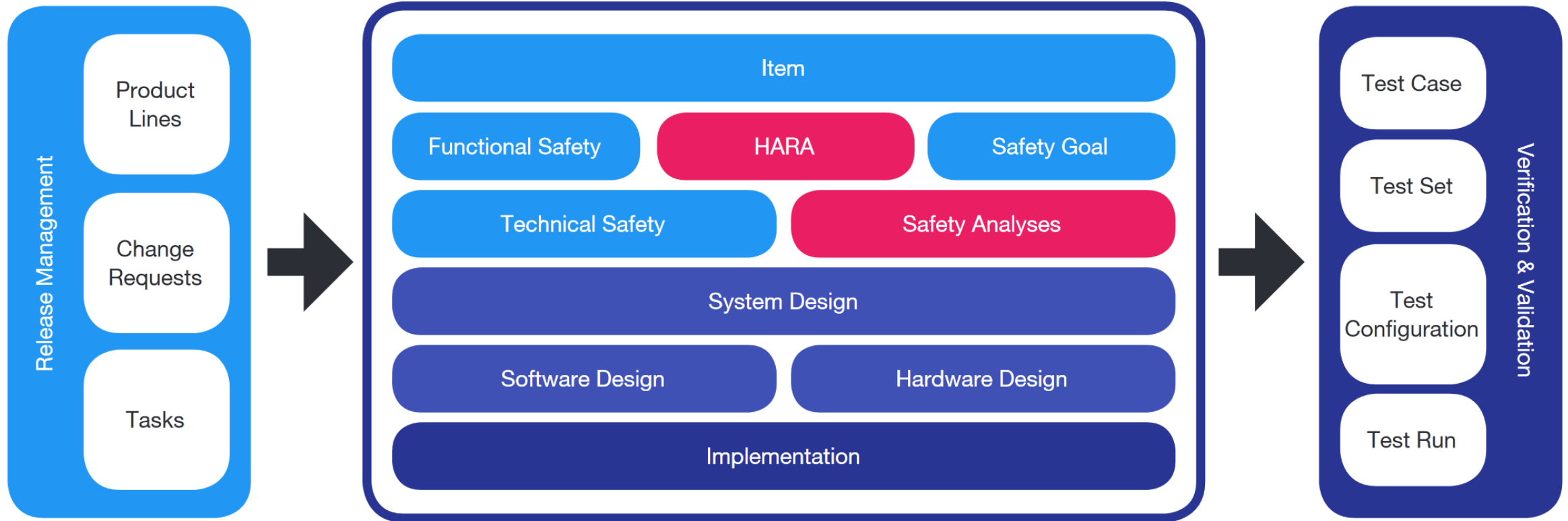
INTEGRATIONS&ECO SYSTEM

Microsoft Word		Mircrosoft Project		Microsoft Excel		Microsoft Teams		Microsoft Office 365		CMD Interface	
Microsoft Azure		Amazon Web Services		PTC		Atlassian Jira		Atlassian Bitbucket		{ REST : API }	
IBM Lotus Notes		IBM Rational Doors		XML ReqIF		SLACK		Enterprise Architect		Vector	
GitLab		GitHub		git		Red Hat OpenShift		Jenkins		QA Systems CANTATA	
Apache JMeter		Apache Subversion		JetBrains TeamCity		Tasktop Integration Hub		Swagger		Docker	
Parasoft		HP Quality Center		agosense		Selenium		JUnit		Preforce	
kubernetes		LDRA		LDAP		MathWorks Simulink		Plastic SCM		Pure::Systems	

RAPID TIME TO VALUE THROUGH INDUSTRY TEMPLATES



SCOPE OF INTLAND'S AUTOMOTIVE ISO 26262:2018 & ASPICE TEMPLATE



AUTOMOTIVE CUSTOMERS

OEM logos:



TIER 1 logos:



AVIONICS&DEFENSE CUSTOMERS

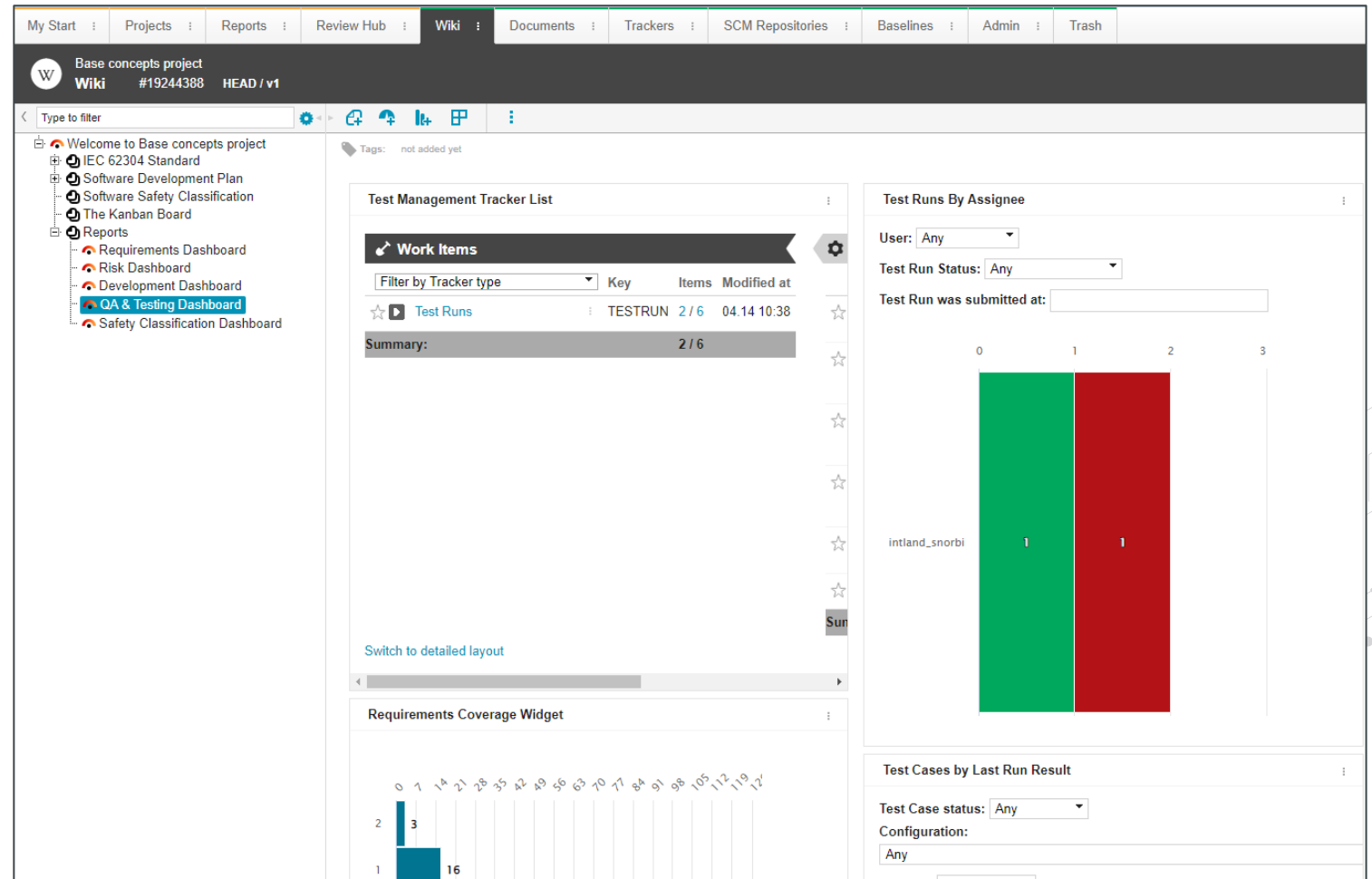




DEMO

- **Knowledge Base** to show Project-related
 - Information
 - Guidelines
 - Standard Operating Procedures
 - Terms & Definitions etc.

- **Dashboards** visualize project related **KPIs** and **Metrics** using **Widgets**



The screenshot displays the Codebeamer Wiki interface for a project named "Base concepts project" (ID: #19244388, HEAD / v1). The navigation menu includes: My Start, Projects, Reports, Review Hub, Wiki, Documents, Trackers, SCM Repositories, Baselines, Admin, and Trash.

The main content area is divided into several sections:

- Left Sidebar (Knowledge Base):** A tree view showing project-related documents:
 - Welcome to Base concepts project
 - IEC 62304 Standard
 - Software Development Plan
 - Software Safety Classification
 - The Kanban Board
 - Reports
 - Requirements Dashboard
 - Risk Dashboard
 - Development Dashboard
 - QA & Testing Dashboard** (highlighted)
 - Safety Classification Dashboard
- Test Management Tracker List:** A table showing work items.

Filter by Tracker type	Key	Items	Modified at
Test Runs	TESTRUN	2 / 6	04.14 10:38
Summary:		2 / 6	
- Test Runs By Assignee:** A bar chart showing test runs assigned to users.

Assignee	Count
intland_snorbi	1
- Requirements Coverage Widget:** A bar chart showing requirements coverage metrics.

Metric	Value
0	3
1	16
- Test Cases by Last Run Result:** A section for filtering test cases by status and configuration.



Shared & collaborative environment to

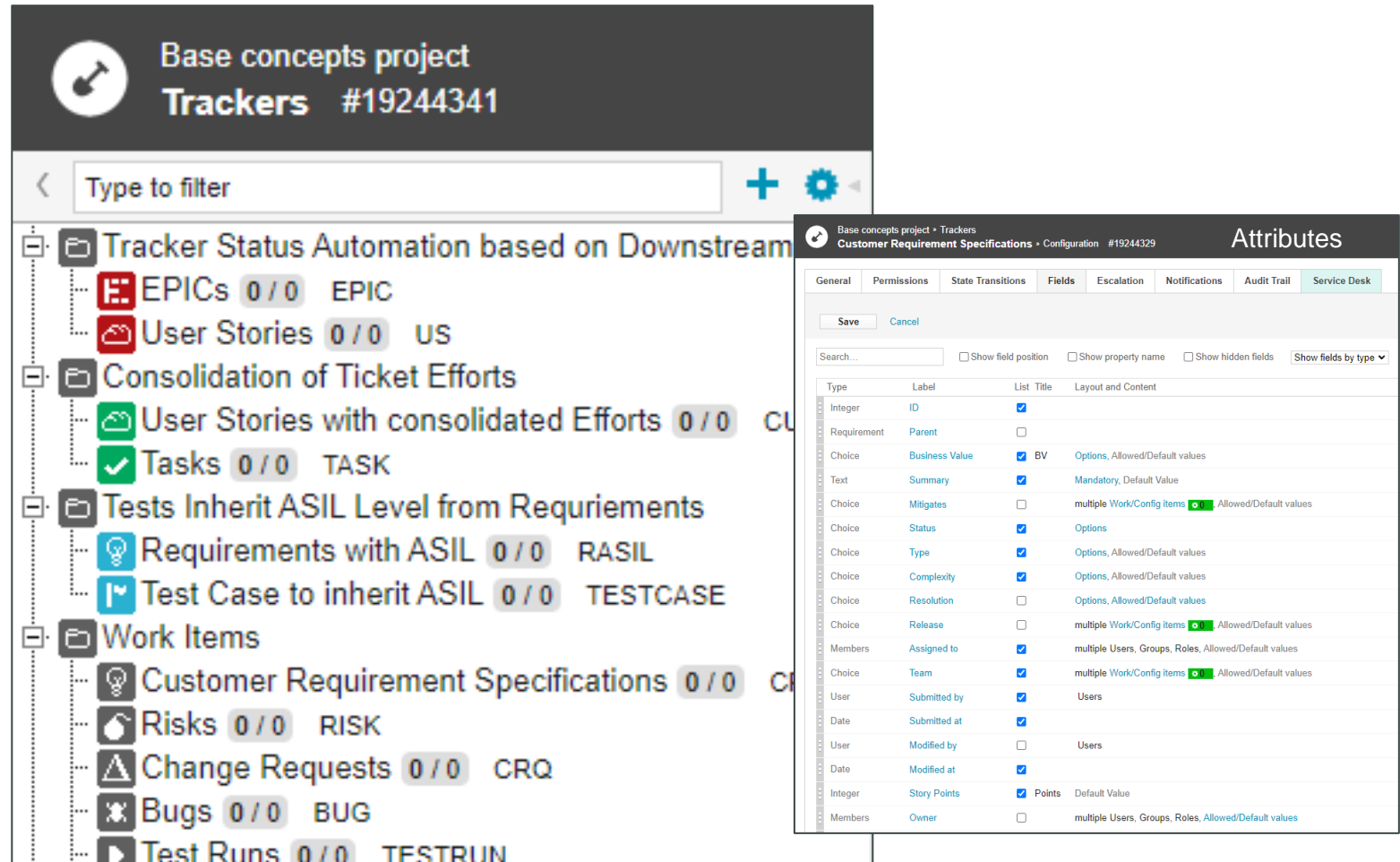
- Store &
- Manage project related
- Documentation
- Ideas
- Content
- Requirements
- Risks
- Tests etc.

The screenshot displays the Codebeamer Project Browser interface. At the top, there are navigation tabs: My Start, Projects, Reports, Review Hub, Tags, and System Admin. Below this is the Project Browser header with a search bar and tabs for Projects List, Projects Tree, Available to Join, Compact List, Project Groups, and Removed. The left sidebar shows 'STATUS FILTERING' and 'CATEGORIES' with a search bar and a list of categories including 'Useful Showcase Projects', '1. For Demonstrations...', 'Automotive Demo', 'Avionics Demo', 'Medical Device Develo...', 'Onboarding', 'Training', 'Demo', 'Webinar', and 'Medical - Safety'. The main content area shows a list of project folders: 'Automotive Demo' (1 project), 'Medical Device Development' (5 projects), and 'Training' (3 projects). Each folder contains a list of projects, each with a status indicator 'ON TRACK' and a dropdown arrow.

Folder	Project Name	Status
Automotive Demo (1)	Automation Examples' Project	ON TRACK
Medical Device Development (5)	HEVI AI - Intland Software's Medical Demo (Extended)	ON TRACK
	Intland Software's Medical Demo (Extended)	ON TRACK
	Medical SAFe Project	ON TRACK
	MH Intland Software's Medical Demo (Extended)	ON TRACK
	Test Intland Software's Medical Demo (Extended)	ON TRACK
Training (3)	Academy Test Project	ON TRACK
	Copy of Intland Academy MH	ON TRACK
	Irene auto demo_trial	ON TRACK



- **Logical Containers for Codebeamer data**
 - Like database tables
- **User for Product lifecycle**
- **Defaults out-of-the-box, Customer Configurable & Extensible**



The screenshot displays the Codebeamer interface for a project named "Base concepts project Trackers #19244341". The main view shows a hierarchical tree of containers:

- Tracker Status Automation based on Downstream
 - EPICs 0/0 EPIC
 - User Stories 0/0 US
- Consolidation of Ticket Efforts
 - User Stories with consolidated Efforts 0/0 CU
 - Tasks 0/0 TASK
- Tests Inherit ASIL Level from Requiements
 - Requirements with ASIL 0/0 RASIL
 - Test Case to inherit ASIL 0/0 TESTCASE
- Work Items
 - Customer Requirement Specifications 0/0 CR
 - Risks 0/0 RISK
 - Change Requests 0/0 CRQ
 - Bugs 0/0 BUG
 - Test Runs 0/0 TESTRUN

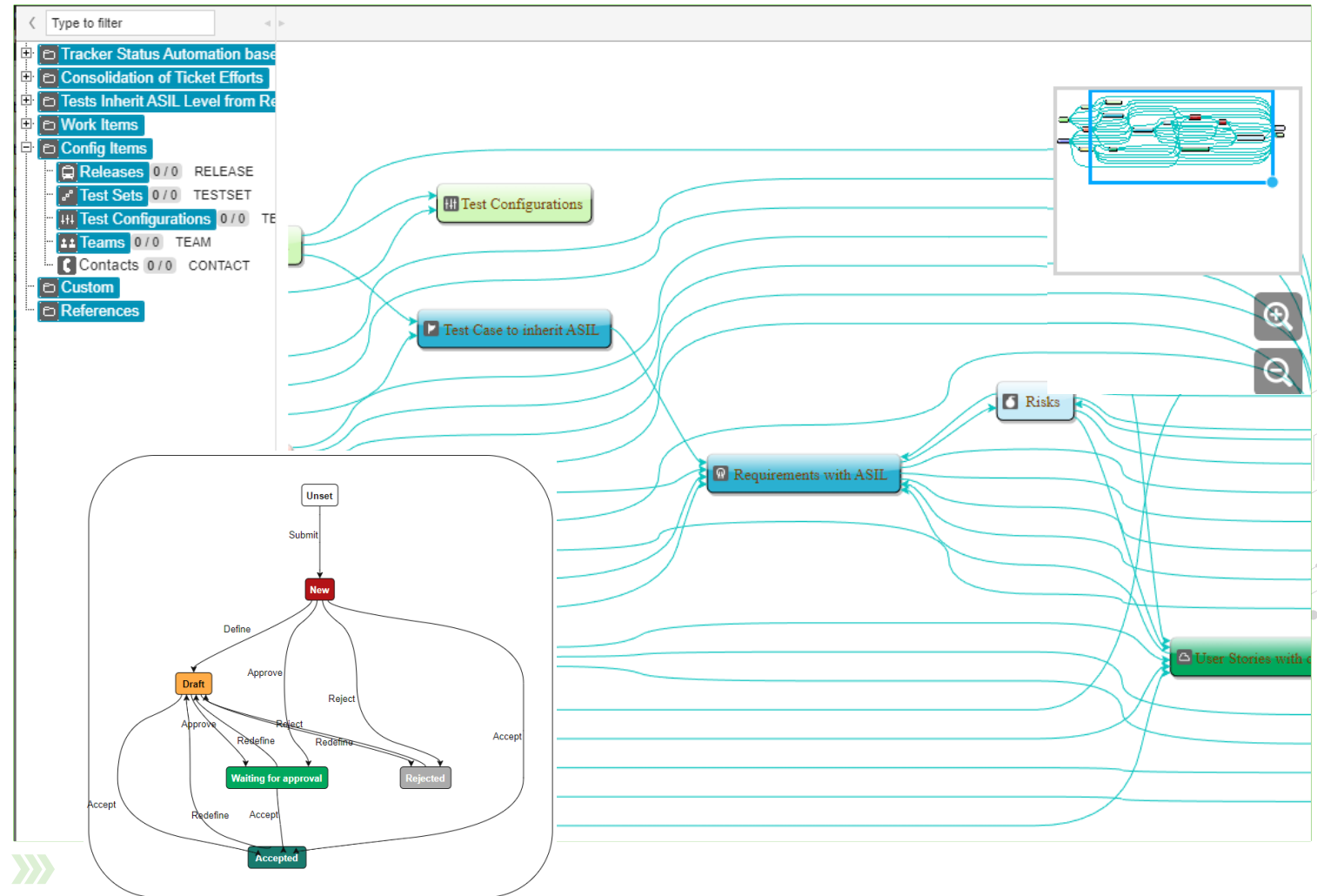
An "Attributes" configuration window is open on the right, showing settings for "Customer Requirement Specifications - Configuration #19244329". The window includes tabs for General, Permissions, State Transitions, Fields, Escalation, Notifications, Audit Trail, and Service Desk. The "Fields" tab is active, displaying a table of attributes:

Type	Label	List Title	Layout and Content
Integer	ID	<input checked="" type="checkbox"/>	
Requirement	Parent	<input type="checkbox"/>	
Choice	Business Value	<input checked="" type="checkbox"/> BV	Options, Allowed/Default values
Text	Summary	<input checked="" type="checkbox"/>	Mandatory, Default Value
Choice	Mitigates	<input type="checkbox"/>	multiple Work/Config items <input checked="" type="checkbox"/> Allowed/Default values
Choice	Status	<input checked="" type="checkbox"/>	Options
Choice	Type	<input checked="" type="checkbox"/>	Options, Allowed/Default values
Choice	Complexity	<input checked="" type="checkbox"/>	Options, Allowed/Default values
Choice	Resolution	<input type="checkbox"/>	Options, Allowed/Default values
Choice	Release	<input type="checkbox"/>	multiple Work/Config items <input checked="" type="checkbox"/> Allowed/Default values
Members	Assigned to	<input checked="" type="checkbox"/>	multiple Users, Groups, Roles, Allowed/Default values
Choice	Team	<input checked="" type="checkbox"/>	multiple Work/Config items <input checked="" type="checkbox"/> Allowed/Default values
User	Submitted by	<input checked="" type="checkbox"/>	Users
Date	Submitted at	<input checked="" type="checkbox"/>	
User	Modified by	<input type="checkbox"/>	Users
Date	Modified at	<input checked="" type="checkbox"/>	
Integer	Story Points	<input checked="" type="checkbox"/> Points	Default Value
Members	Owner	<input type="checkbox"/>	multiple Users, Groups, Roles, Allowed/Default values



codebeamer™ WORKFLOWS & STATES

- Graphical project lifecycle/workflow Definition & Visualization
- Bi-directional traceability
- Enforces Processes
- Fully Customer Configurable



codebeamer™ REQUIREMENTS ENGINEERING

- Visual Requirements Authoring and Editing
- Agile and Real-time Collaboration
- Traceability & Regulatory Compliance
- Improve overall Product Quality
- Innovate and Deliver Faster
- Reduce Risks and Costs

The screenshot displays the Codebeamer Requirements Engineering interface. The top navigation bar shows "Requirement Management Training > Trackers" and "Customer Requirement Specifications > All Items". The main content area is divided into three sections:

- 1 REQ1**: A high-level requirement with a "Welcome to Requirement Management Training" message and a link.
- 1.1 Child item 1**: A sub-requirement.
- 2 Chassis**: A detailed requirement with a description: "In the case of vehicles, the term chassis means the frame plus the 'running gear' like engine, transmission, driveshaft, differential, and suspension. A body (sometimes referred to as 'coachwork'), which is usually not necessary for integrity of the structure, is built on the chassis to complete the vehicle. For commercial vehicles chassis consists of an assembly of all the essential parts of a truck (without the body) to be ready for operation on the road." It includes an image of a futuristic car and a note: "The design of a pleasure car chassis will be different than one for commercial vehicles because of the heavier loads and constant work use. Commercial vehicle manufacturers sell 'chassis only', 'cowl and chassis', as well as 'chassis cab' versions that can be outfitted with specialized bodies. These include motor homes, fire engines, ambulances, box trucks, etc."
- 3 Suspension**: A requirement with a description: "Suspension systems serve a dual purpose — contributing to the vehicle's roadholding/handling and braking for good active safety and driving pleasure, and keeping vehicle occupants comfortable and reasonably well isolated from road noise, bumps, and vibrations, etc."

The right sidebar shows the "DETAILS" for the selected requirement, including fields for Tracker, Business Value, Mitigates, Status (NEW), Type, Complexity, Release, Assigned to, Team, Submitted by, Modified by, Story Points, and Color. Below this are sections for REFERENCES (3), ASSOCIATIONS (0), and COMMENTS (1).

At the bottom, a list of associated test cases is shown, each with a status of "SUSPECTED":

- [CRS-3618678] Meet Emission Standards
- [CRS-3618678] Optional: Dual clutch transmission
- [CRS-3618674] Default: Continuously variable
- [CRS-3618672] Weight transfer
- [CRS-3618671] Wheel rate
- [CRS-3618670] Spring rate
- [CRS-3618668] Carbon-fiber plastic structures
- [TESTCASE-3618680] Test Vehicle emissions EU
- [TESTCASE-3618678] Test Vehicle emissions US
- [TESTCASE-3618675] Minimum Torque
- [CRS-3618673] Transmission
- [CRS-3618668] Suspension
- [CRS-3618667] Chassis
- [CRS-3605894] Child item 1
- [CRS-3605795] REQ1
- [CRS-3605938] REQ2



- Test Plan & Test Step Authoring & Editing
- Test Step Parametrization & Reuse
- Automate Testing
- Predictability via QA reports

Progress: 0 of 1 Test Cases finished Total Running Time: 1m 11s

Running: Quick Test Run for Check ~ion Limits at 2023.05.11 Configuration: Hardware in the loop Release: Kanban test Build: --

1m 11s **Check Emission Limits** 1 of 1

Description:
This test is to crosscheck emission values with various engine parameters.

Test Steps

Critical ? Action*	Expected result	Actual result
#1 - Set powermode to 7 (engine on).	Engine should start.	
#2 - Increase RPM to 1900. Maintain it for 15 sec.	--	
#3 - Check value on the EmissionTool2c screen.	Value should be within +/- 5% of the parameter table range.	
#4 - Lower rev to 1400 rpm. Maintain it for 25 sec.	--	
#5 - Check value on the EmissionTool2c screen.	Value should be within +/- 5% of the parameter table range.	

Conclusion

Pass Step
 Fail Step
 Block Step
 Clear Step
 Not Applicable Step
 Report Bug
 Save & Next Test Case
 Pause Run
 Hotkeys