

Polarion User Conference 2014

Coordination of the global E/E X-Site X-Brand Development Process in AGCO

Daniel Höllisch – Stuttgart October 2014
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Electronic Functional Group (EFG)



Abstract

The full Monty. Approach on an X-Site X-Brand coordination of the E/E (Electrics, Electronics and Software) development process encompassing all process artifacts from Product Management to Code Verification.

Pivoting on a E/E BOM (Bill of Material) data base as the central piece.

Finding the recipe for a global defect tracker.

The task, the setup and the effect.

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AGCO Company Introduction



FUSE
TECHNOLOGIES

WE KNOW AGRICULTURE
CONNECTING FARM ENTERPRISES LIKE NEVER BEFORE

LEARN MORE

This banner features a man in a grey jacket looking at a tablet. The background shows a farm scene with a green tractor, a red combine harvester, and grain silos under a sunset sky. A network diagram is overlaid on the scene. Three circular icons are in the bottom left corner.



WE SUPPORT THE FARM
GSI SUPPORTS FARMERS' NEED FOR EFFICIENCY

LEARN MORE

This banner shows several large, illuminated grain silos at night. A network diagram is overlaid on the scene. Three circular icons are in the bottom left corner.



WE HELP FEED THE WORLD
AGRICULTURE IN AFRICA: FROM VISION TO ACTION

LEARN MORE

This banner shows a red Challenger tractor in a field with a person operating it. The background features rolling green hills under a blue sky. Three circular icons are in the bottom left corner.

Challenger

FENDT



VALTRA



AGCO Company Introduction

AGCO is a global leader focused on the design, manufacture and distribution of agricultural machinery. We support more productive farming through a full line of tractors, combines, hay tools, sprayers, forage equipment, tillage, implements, grain storage and protein production systems, as well as related replacement parts. Our products are available in more than 140 countries worldwide and are led by these five core global brands:

- **Challenger**
- **Fendt**
- **GSI**
- **Massey Ferguson**
- **Valtra**

Technical diversity, multiple brands, and global distribution strength are the keys to AGCO's growth strategy. Major market share positions in key agricultural markets of the world have been achieved by our strong focus on customer service, leading edge technology and an independent dealer network of 3,150 independent dealers and distributors.

AGCO's innovative products continuously receive recognition and awards at international exhibitions, but our most coveted award is the recognition of our wide-range of products by farmers and dealers across the globe.



Tractors



Combine Harvesters



Hay & Forage



Application Equipment



Seeding & Tillage



Implements, Attachments & Material Handling



Grounds Care



Power Generation



Precision Farming



Fendt 1000 Vario (SOP Q4 2015)



1038 Vario	380 PS	279 kW
1042 Vario	420 PS	309 kW
1046 Vario	460 PS	338 kW
1050 Vario	500 PS	368 kW

Massey Ferguson 8700



MF 8700 | 290-400 HP

VALTRA T Series 170 – 225 HP



Challenger MT800E



Model	Engine	Engine hp (kW)	PTO hp (kW)
MT845E	AGCO POWER™ 16.8L	450 (336)	365 (272)
MT855E	AGCO POWER™ 16.8L	490 (365)	400 (298)
MT865E	AGCO POWER™ 16.8L	540 (403)	425 (316)
MT875E	AGCO POWER™ 16.8L	590 (440)	425 (316)

Challenger MT900E



Model	Engine	Engine hp (kW)	PTO hp (kW)
MT955E	AGCO POWER™ 16.8L	490 (365)	400 (298)
MT965E	AGCO POWER™ 16.8L	540 (403)	425 (316)
MT975E	AGCO POWER™ 16.8L	590 (440)	425 (316)



Fendt Forage Harvester



Katana 65	653 hp	480 kW
Katana 85	850 hp	625 kW

AGCO Harvesters

Brands

- Massey Ferguson
- Valtra
- Challenger
- Fendt
- Laverda (own series)
- Gleaner (own type)



MF Activa
176-209 PS



MF Activa S
243-306 HP



MF Beta
306-360 PS



MF Delta
496 PS



MF Centora
379-404 PS

Challenger RoGator 600 - Applicator



...and many more

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The Task

- Definition of a project template that makes everybody happy
- Global defect tracking
- A product DB
- Migration of already started projects from other environments (HPQC, Case Complete)
- Definition of reports that make sense out of all that data
- Backlogs for the local teams that find all the tasks that are distributed across the projects

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1 AGCO Company Introduction

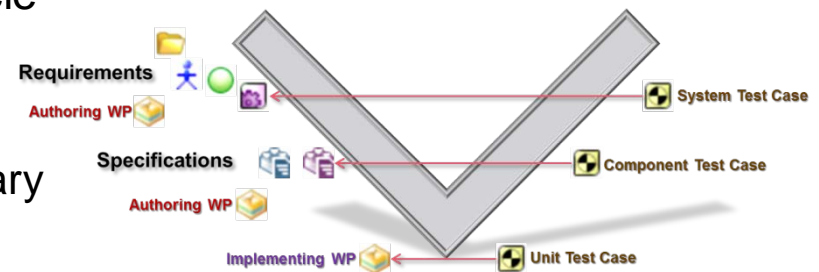
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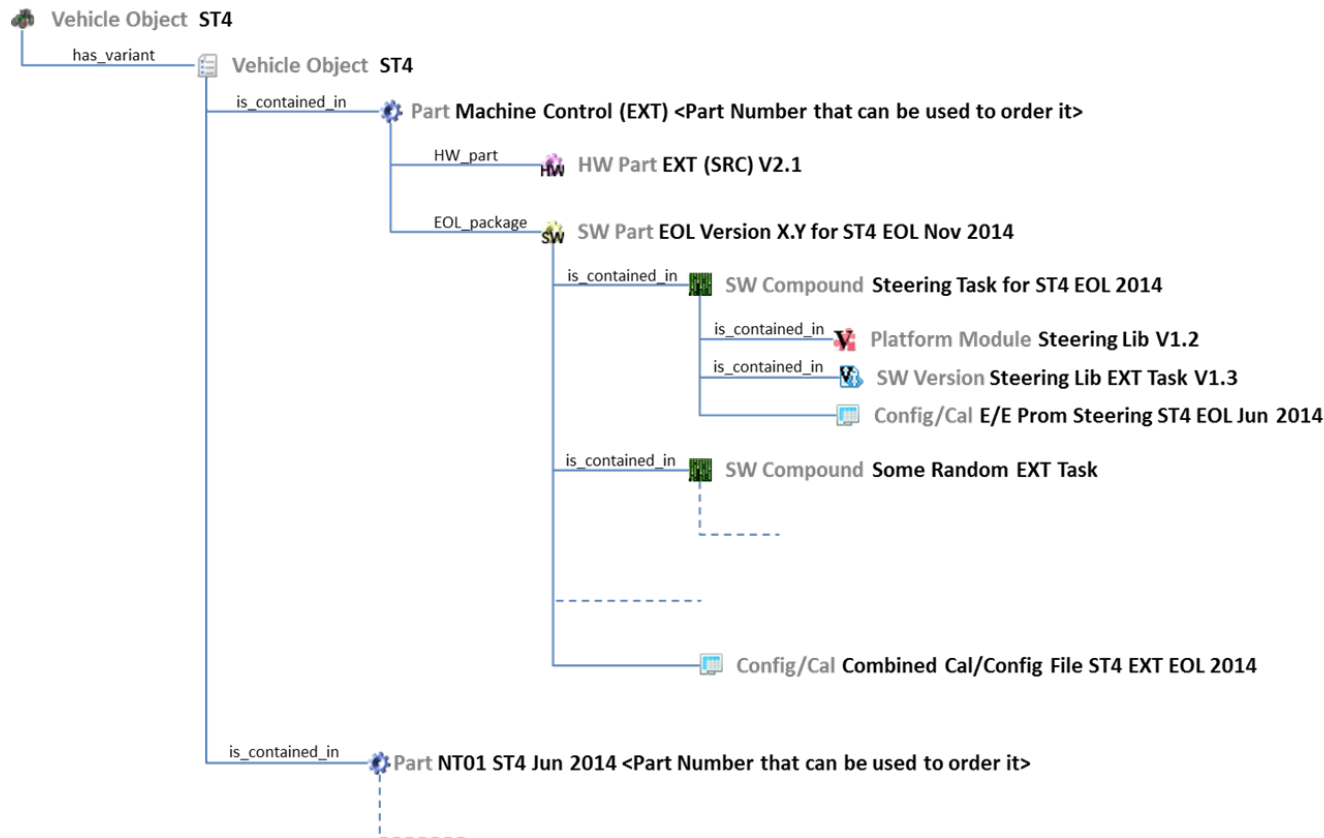
The Setup – Project Template

- A project template that covers the full V-Cycle
 - Rich set of link-roles
 - In-line process documentation
 - Use of LiveDocs where possible / necessary
 - Various status reports
- Next step
 - functional safety elements will be introduced (ISO25119)
 - The user requirements layer will be added on top for the Product Management team



The Setup – E/E Products DB – Bill of Material

- A product database that manages everything that is produced by E/E
 - By that we are also able to manage the detailed E/E view of the vehicle / system configurations (E/E Bill of Material)

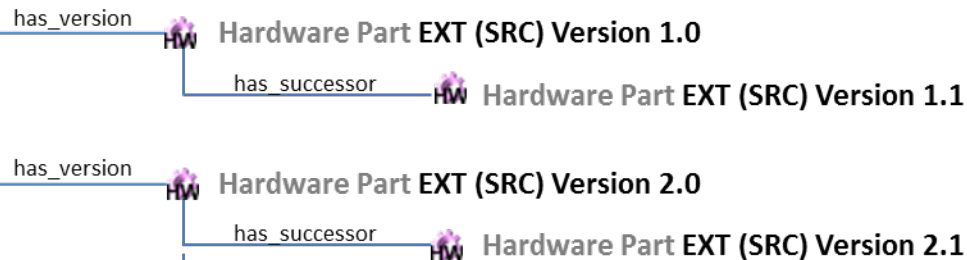


The Setup – E/E Products DB – Version trees

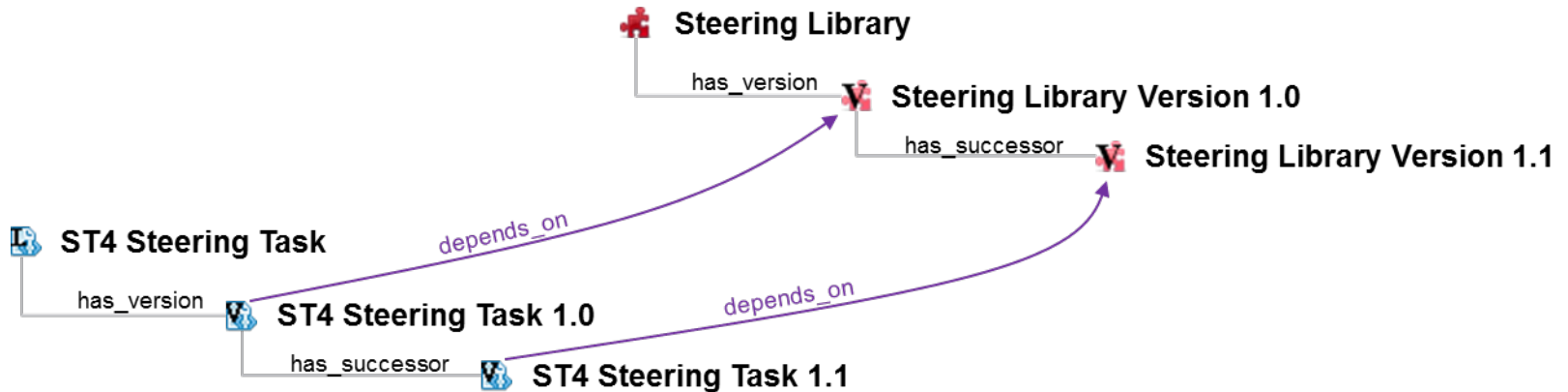
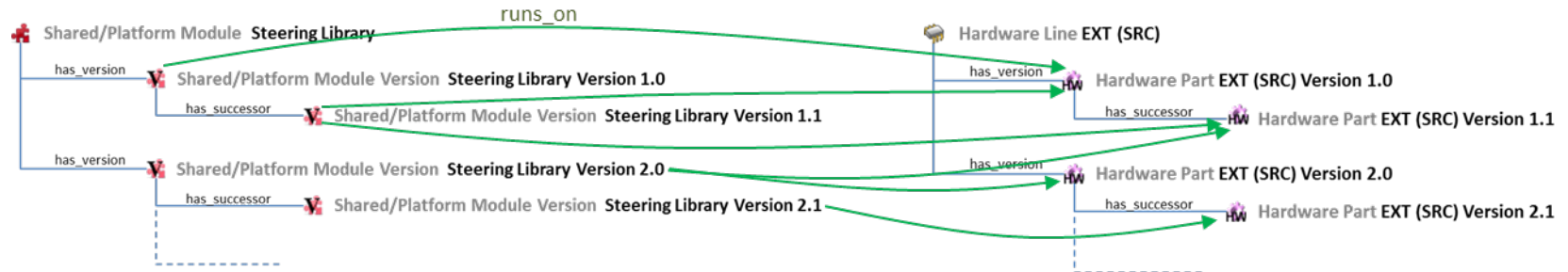
Shared/Platform Module Steering Library



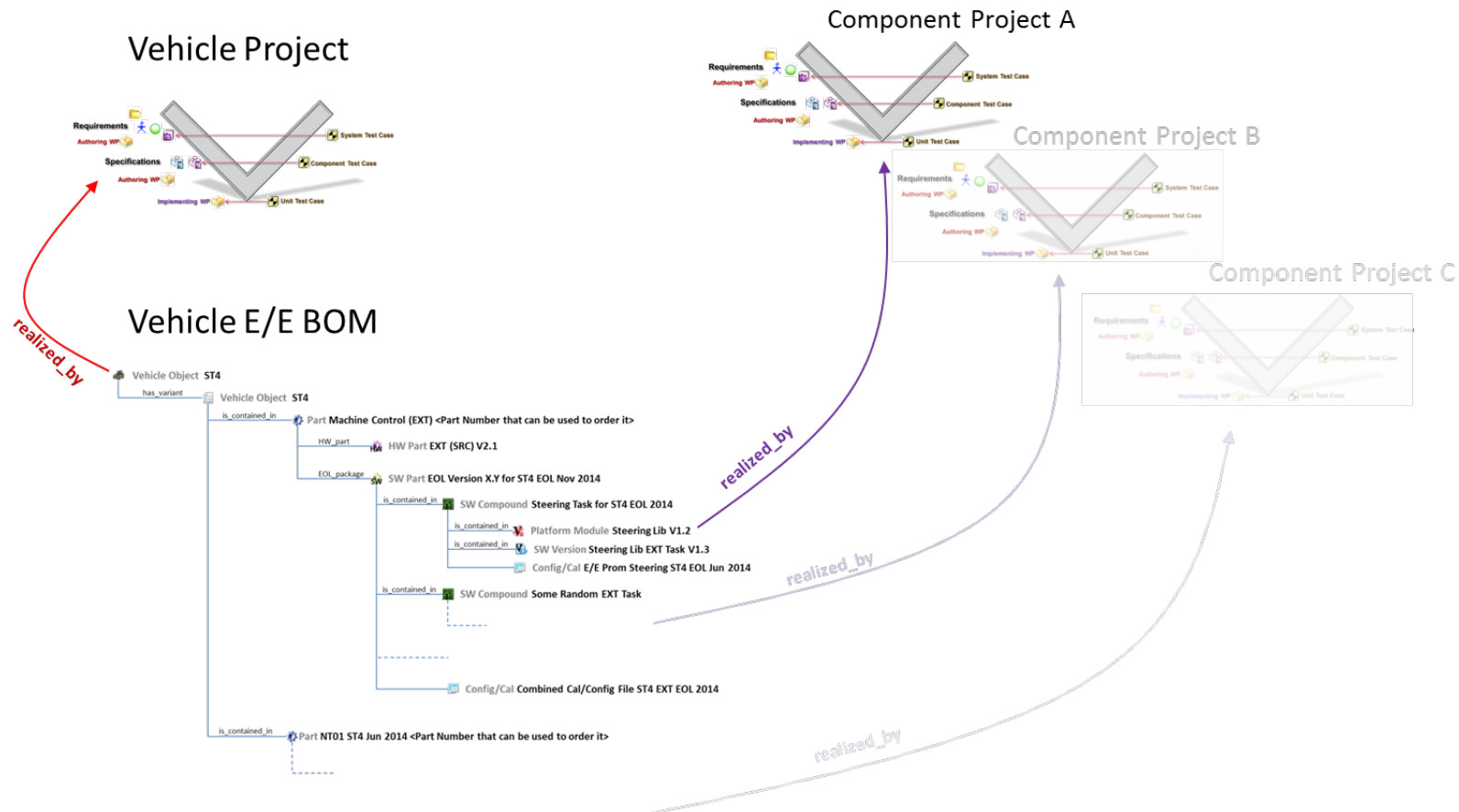
Hardware Line EXT (SRC)



The Setup – E/E Products DB – Dependencies



The Setup - Relation between E/E BOM and Projects



Note: We have developed an extension that allows us to display work items based on a lucene query in a drop down list. On save the extension creates links with the proper relations to these work items.

The Setup – Global Bug-tracking

The screenshot displays a bug tracking interface. At the top, there are several bug IDs: PROD-238, PROD-240, PROD-238, and PROD-238. Below them is the main bug entry 'BUG-1 - test' with a sub-entry 'BUG-2'. The interface is divided into several sections:

- Metadata:** Author: Hoellisch, Daniel; Assignee(s): Hoellisch, Daniel; Status: Open; Assessment: 3-Not Acceptable; Resolution: (empty).
- Properties:** Type: Software; Due Date: (empty); Relevant for Customer / Service:
- Software Version Fields:** Found in Software Version: CVT Control Library (PROD-238); Fixed in Software Version: CVT Control Library (PROD-238); Verified in Software Version: CVT Control Library (selected).
- Hardware Fields:** Found in Hardware: (empty); Fixed in Hardware: (empty); Verified in Hardware: (empty).
- Dropdown Menu:** A dropdown menu is open for the 'Verified in Software Version' field, showing a list of software libraries: TECU Library (PROD-244), Hydraulic Control Library (PROD-241), Dual Control (PROD-242), Steering Control Library (PROD-247), GD Task controller (PROD-248), and Error Management Control (PROD-245).

A red arrow points from a yellow text box at the bottom to the dropdown menu. A grey arrow at the top points from the dropdown menu back to the 'Verified in Software Version' field.

The previously mentioned extension which populates the list with search query results and creates links on save.

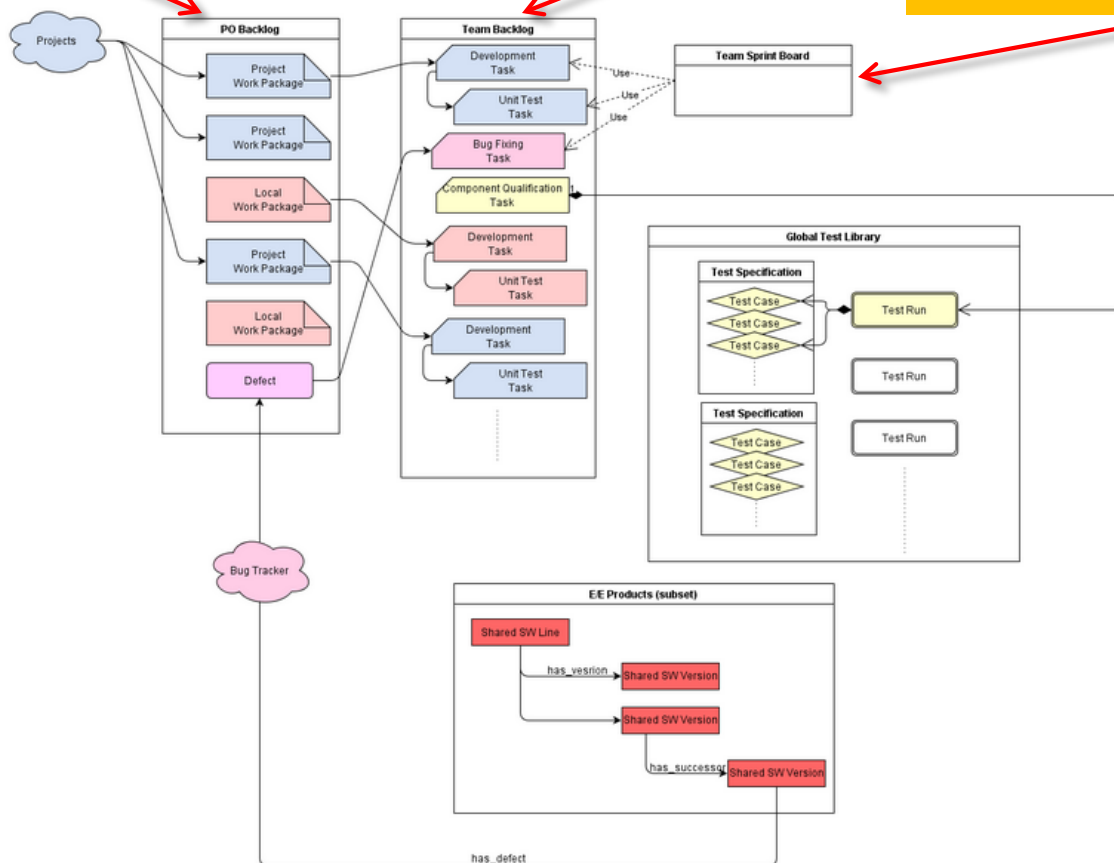
The Setup – Resource Management (Backlog)

Three staged work organization

PO prioritizes work packages stemming from many sources and refines these in small enough tasks for the Team Backlog.

Team Backlog sorted according to the parent WI priorities either as task source for sprint planning or as a KANBAN board

Tasks go into the Sprint Board or in the individual Task Lists when used as a KANBAN board



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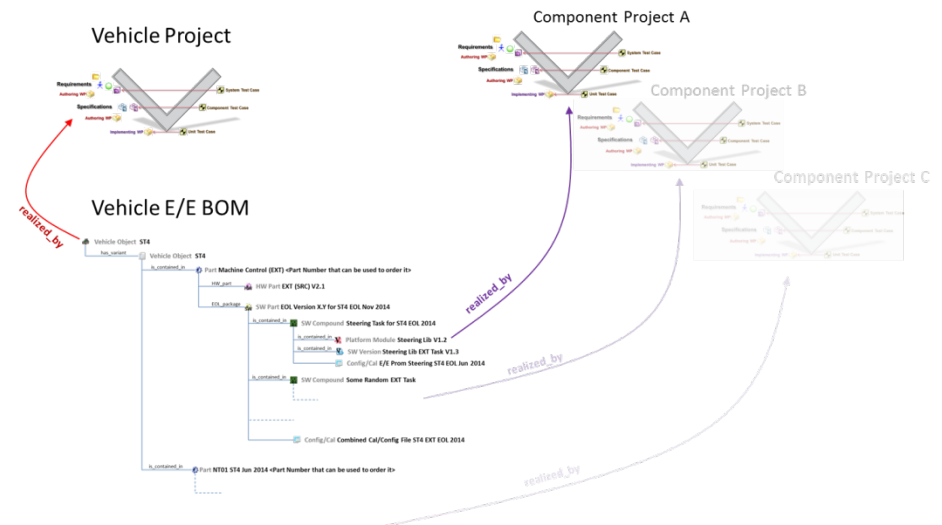
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The Effect

- Proper systems engineering
- Traceability
- Communication
- Ownership
- Control over interdependent global projects



Contact

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