

Mid-Term Presentation 15 / 16 March 2022

Usage of Baselineing and Traceability Demonstrator Developed in VVM

Kim Steinkirchner, PROSTEP AG

Christian Bühler, PROSTEP AG

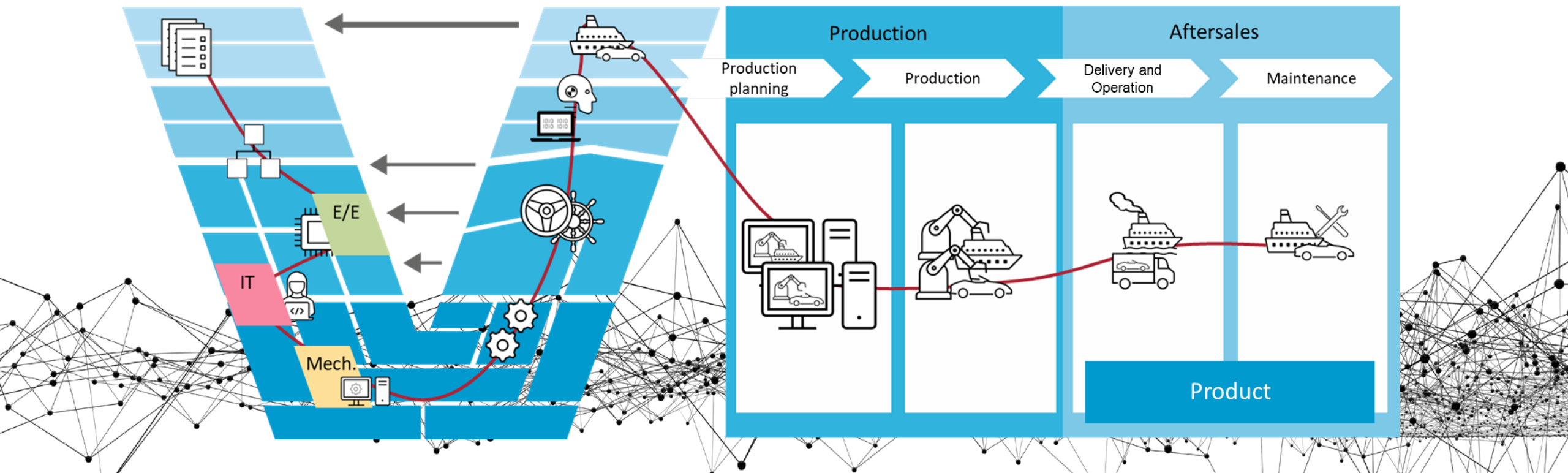
Supported by:



Federal Ministry
for Economic Affairs
and Climate Action

on the basis of a decision
by the German Bundestag

- ▶ End to end **consistency** and **traceability** are crucial for the development, production as well as the operation and maintenance of modern technical systems
- ▶ To ensure **consistency**, one of the key VVM-project approaches is the use of **assurance argumentation** to **prove compliance** and at the same time to use it as a structuring approach to **mastering complexity**



Assure Compliance

- distill & store information
- support processes
- revision safety, auditing

Driving Efficiency

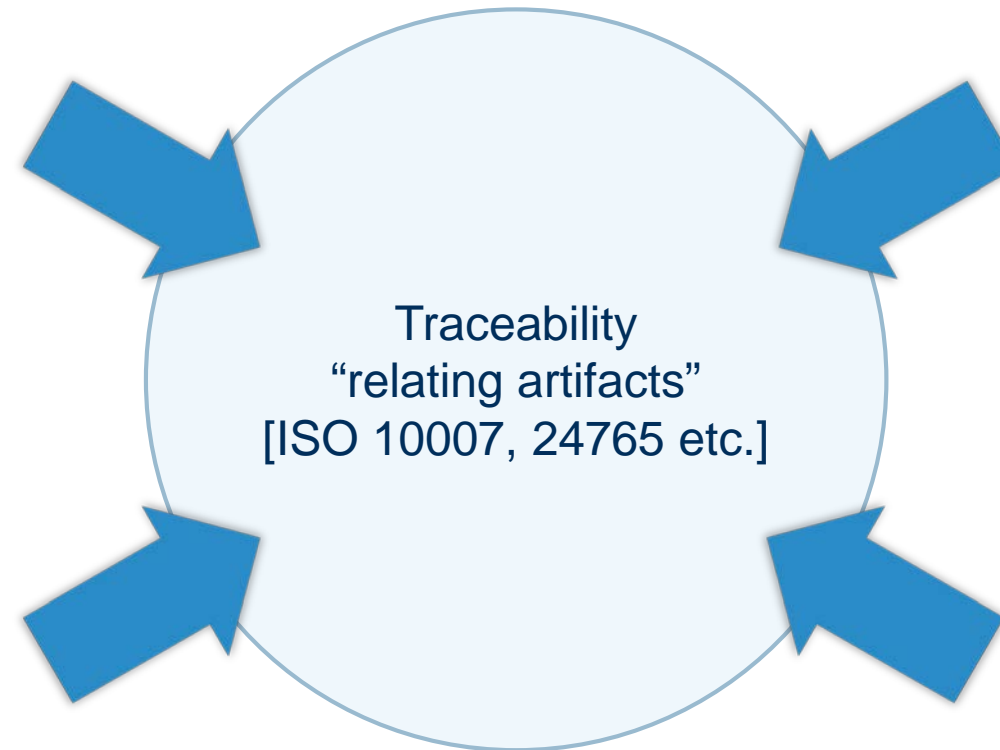
- search & reuse
- front-loading
- automation
- collaboration

Handle Complexity

- impact
- maturity
- tracking & steering
- changes

Safeguard Quality

- right information, in time etc.
- consistency
- completeness



A traceability tool has to map the central relationships, and thus show the **traceability** between **argumentation and development processes**

Traceability Software Demonstrator TRACY

Software Demonstrator for Traceability in SET Level and VVM

PROSTEP's **neutral** web-based software used in SET Level and VVM

- Support Engineering & Testing of safety-critical systems
 - Completeness, correctness, safety
- Realize a **powerful but thin layer** on-top of the relevant systems

TRACY **reduces complexity by creating a smart information network** over existing systems and data repositories.

Smart cross-x linking of **artifacts**, persisting **relationships** and **rationales**, change **impact** analyses, coverage **analyses**, project **status** analyses, **reuse** of components, **automation**, neutral **data exchange** etc.



- Every conference participant can try out TRACY: <https://vvm-mid-term.tracy.prostep.com/tracy/>
- Username: **readonly** Password: **VVM-midterm2022**

Traceability Software Demonstrator TRACY

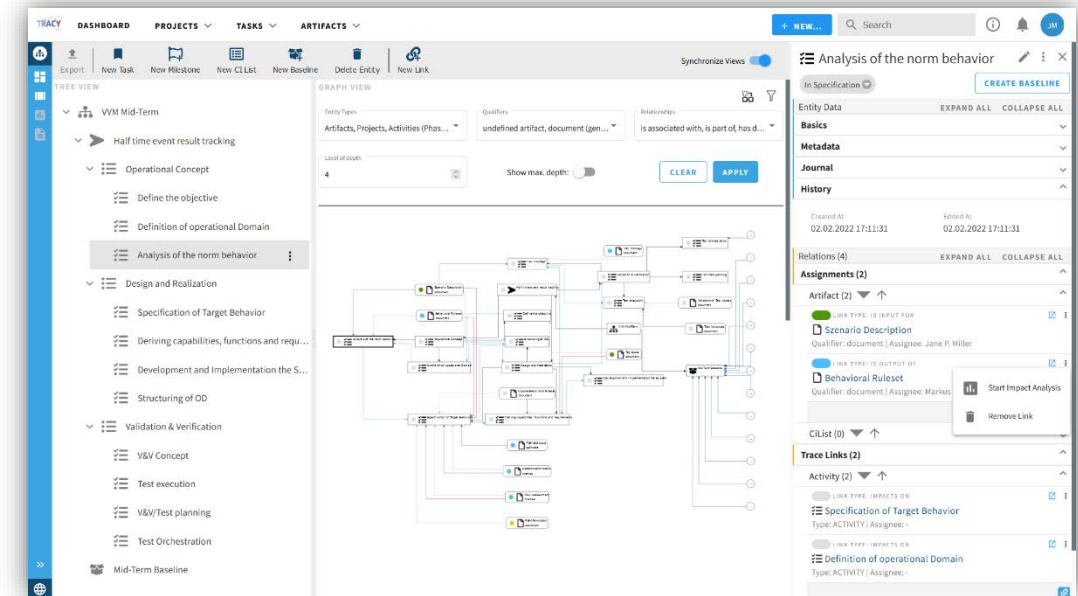
TRACY is a lean and smart solution creating Digital Threads across domains.

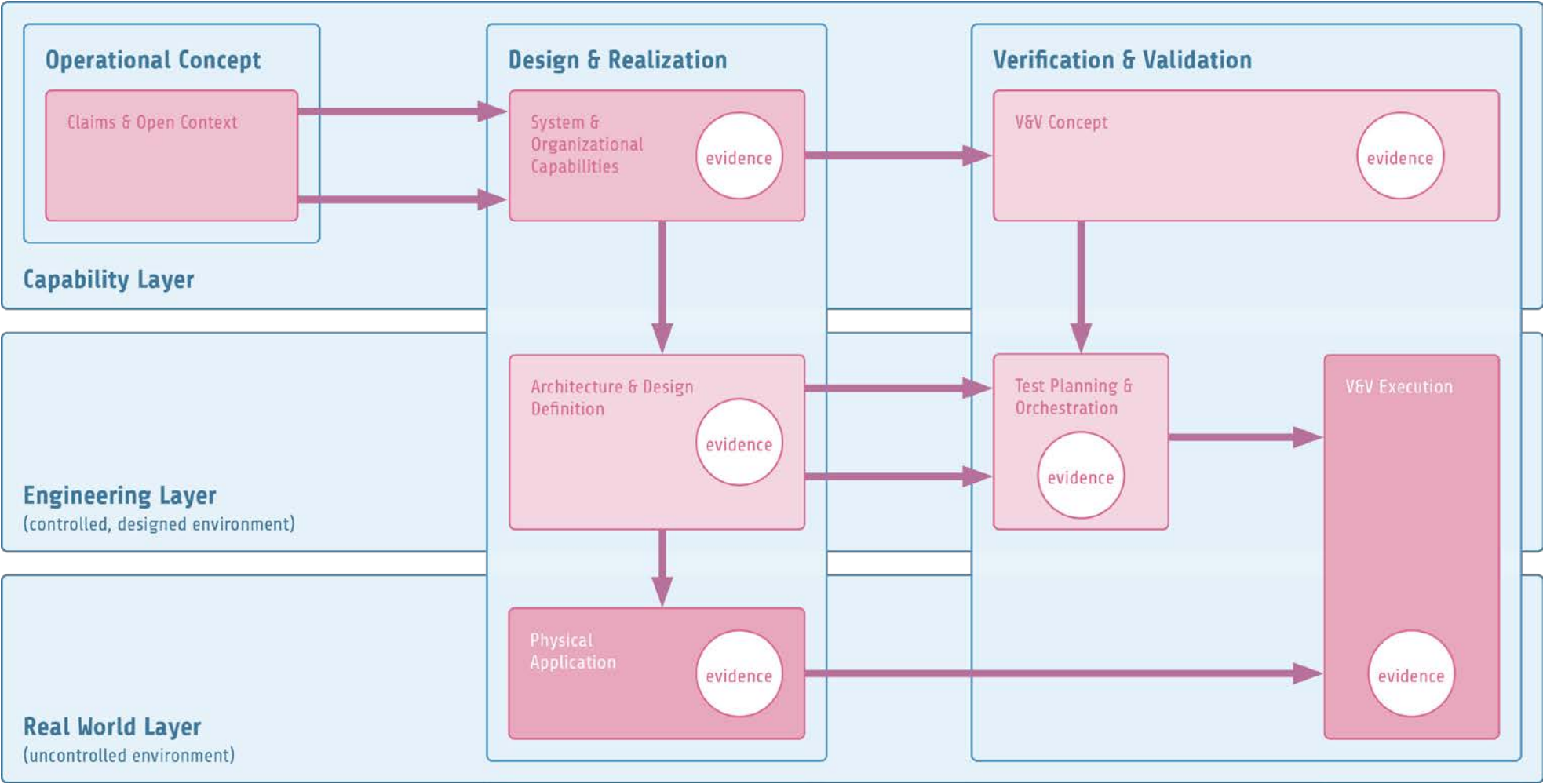
Forward-Steering (Efficiency, Quality, Compliance)

- Process guidance, progress monitoring, change management

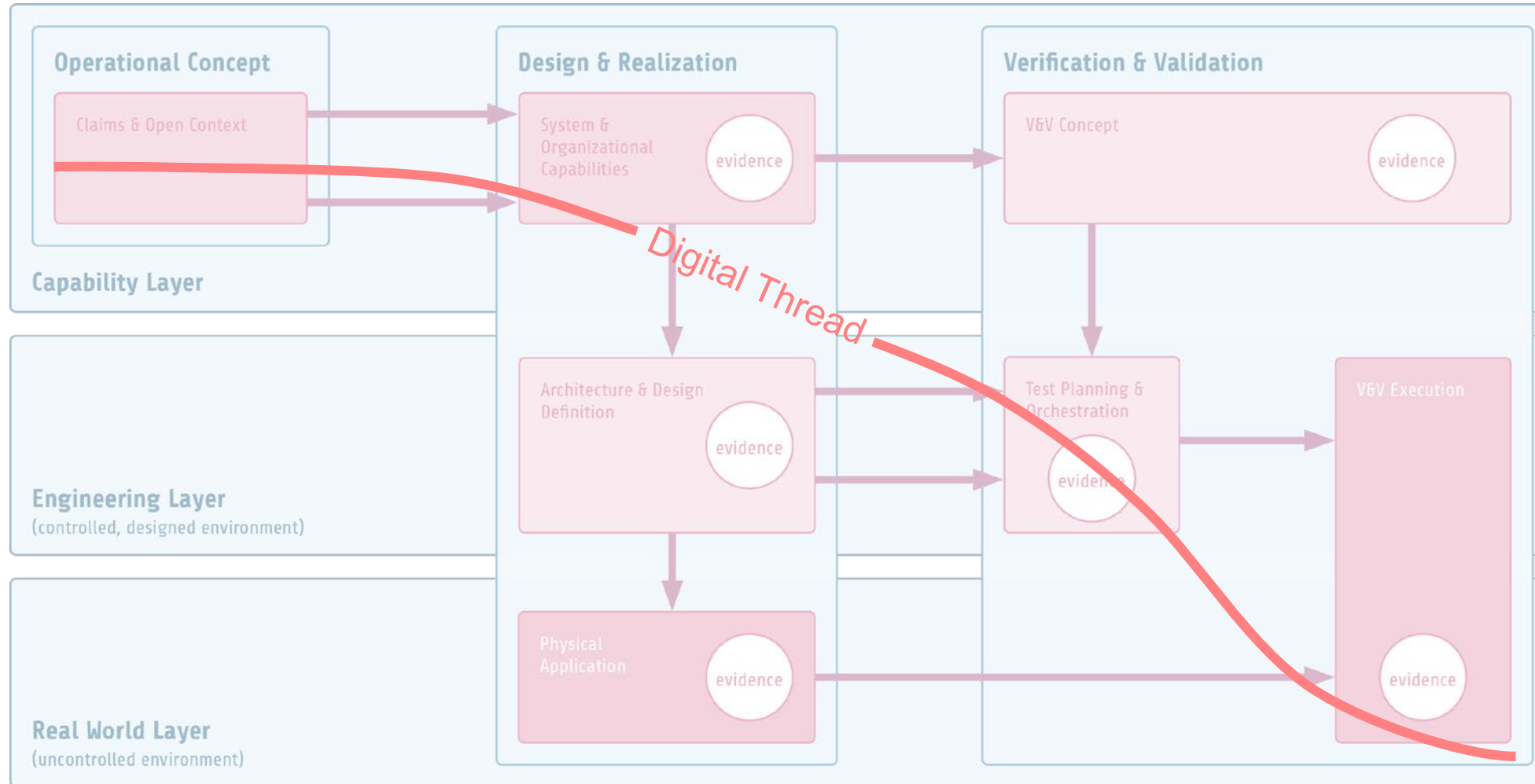
Backward-Tracing (Analyses, Reports, Revision Safety)

- Baselining, baseline reports, audit support, impact analyses

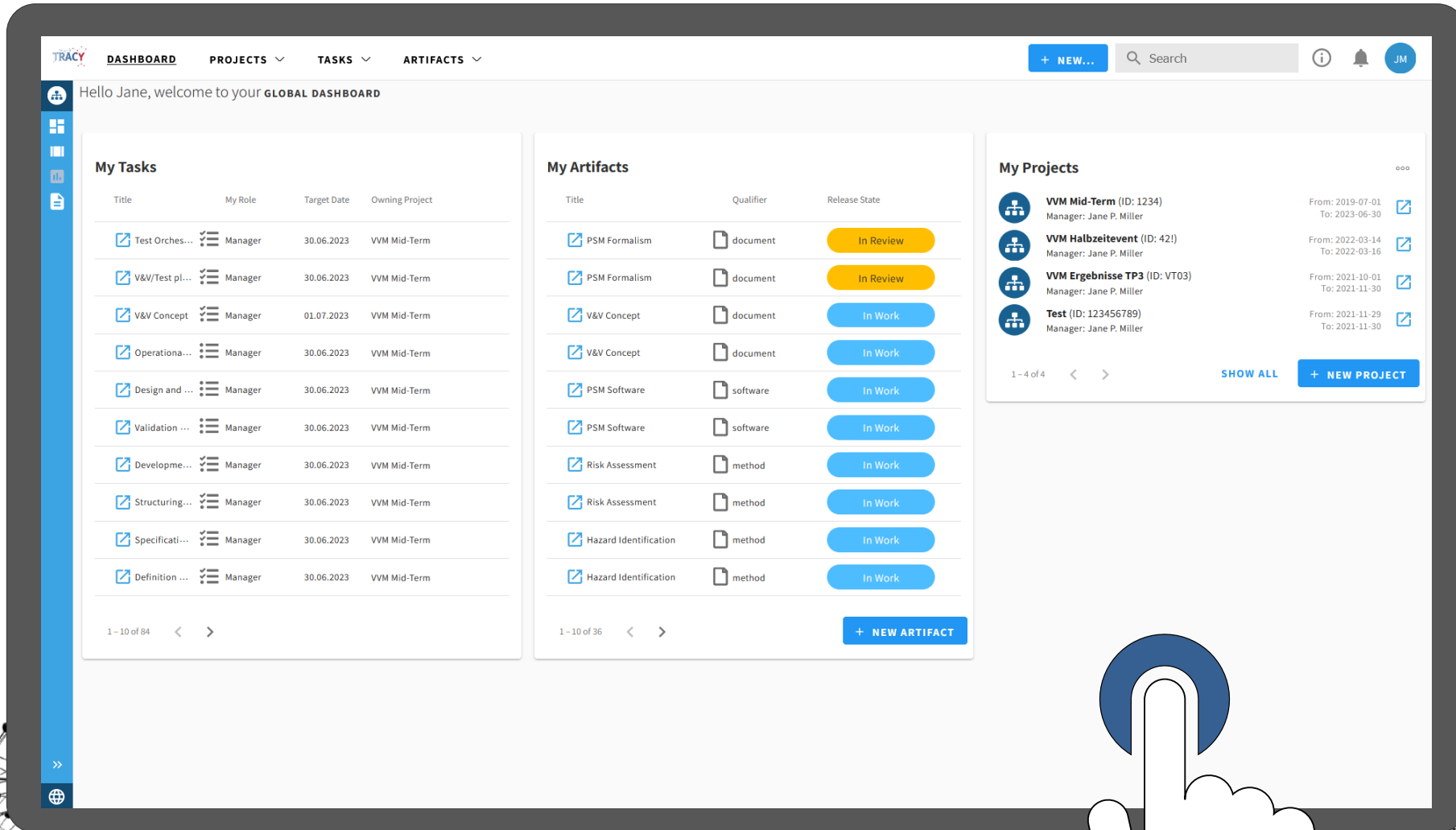




Creating Traceability in VVM



Every conference participant can try out TRACY: <https://vvm-mid-term.tracy.prostep.com/tracy/> Username: **readonly** Password: **VVM-midterm2022**



The screenshot displays the TRACY dashboard for a user named Jane. The interface includes a top navigation bar with tabs for DASHBOARD, PROJECTS, TASKS, and ARTIFACTS. A sidebar on the left contains icons for home, dashboard, projects, tasks, and artifacts. The main content area is divided into three sections:

- My Tasks:** A table listing tasks with columns for Title, My Role, Target Date, and Owning Project. The tasks are all assigned to Jane as the Manager and are related to the VVM Mid-Term project.
- My Artifacts:** A table listing artifacts with columns for Title, Qualifier, and Release State. The artifacts include PSM Formalism, V&V Concept, PSM Software, Risk Assessment, and Hazard Identification, all in various states like 'In Review' or 'In Work'.
- My Projects:** A list of projects with details such as ID, Manager, and date ranges. The projects include VVM Mid-Term, VVM Halbzeitevent, VVM Ergebnisse TP3, and Test.

At the bottom of the dashboard, there are pagination links and a '+ NEW PROJECT' button.

9

GRAPH VIEW

...



- ✓ Define the objective

- Definition of operational Domain

n behavior

Target Behavior

- Deriving capabilities, functions an...

- Development and Implementatio...

- ✓ Structuring of OD

Validation & Verification

- ✓= V&V Concept

- ✓= Test execution

- ✓= V&V/Test planning

- ✓= Test Orchestration

Entity Types

Artifacts, Projects, Activities (Phases/Processes), Baseline, CiList,... ▾

Level of depth

4

Show max. depth: ☒

CLEAR

APPLY

Relationships

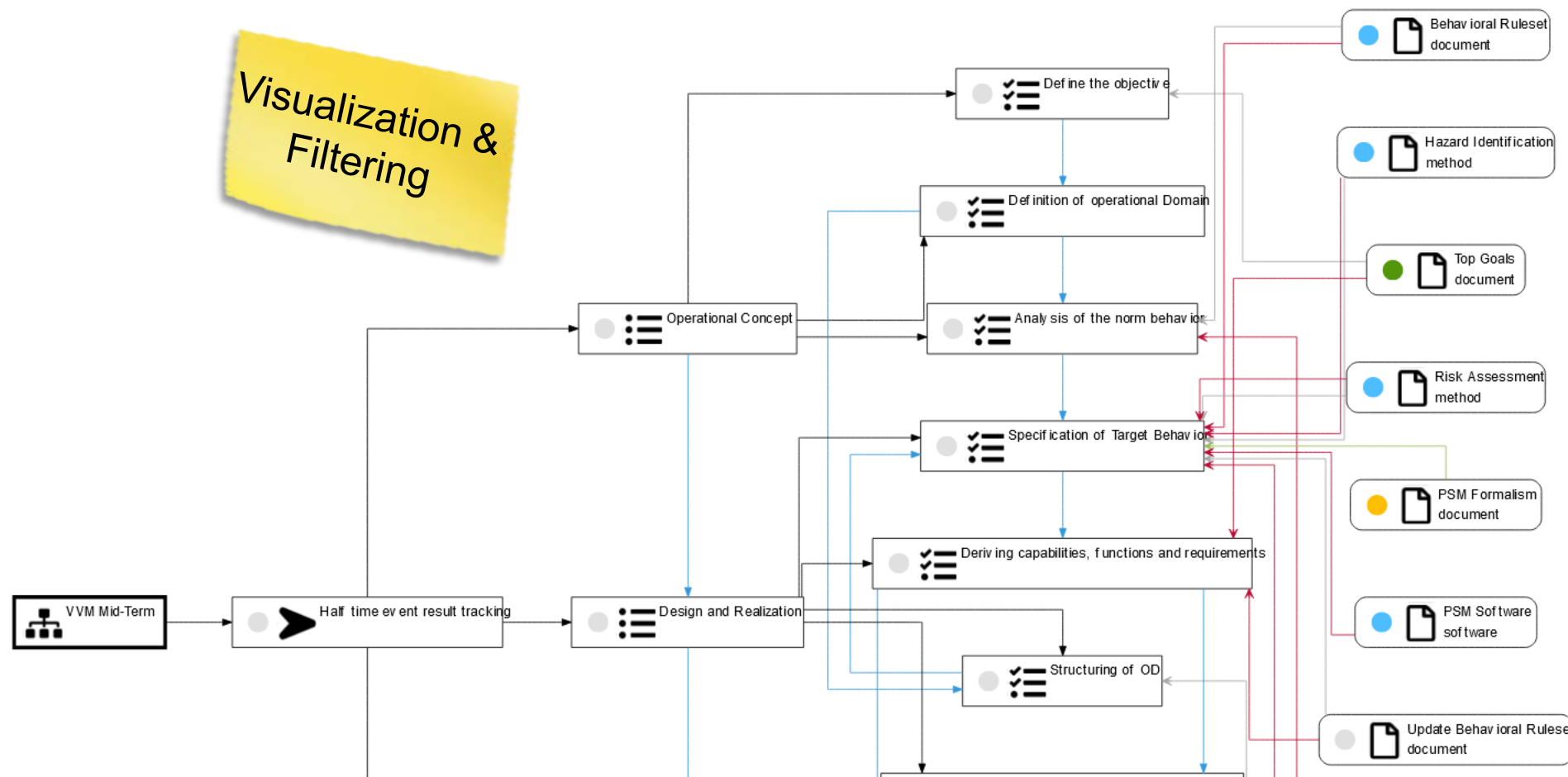
undefined artifact, document (generic), requirement or require...

is associated with, is part of, has deliverable, impacts on, is requi... ▼

Y

Process Navigation

Visualization & Filtering





- [Export](#)
[New Task](#)
[New Milestone](#)
[New CI List](#)
[New Baseline](#)
[Delete Entity](#)
[New Link](#)

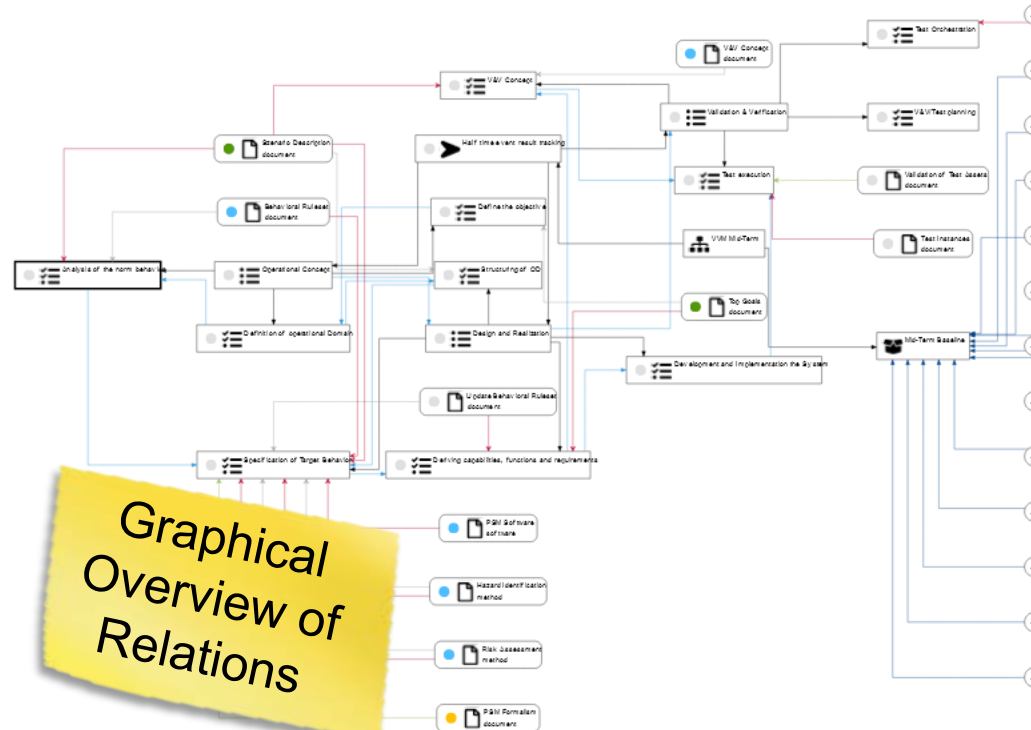
Synchronize Views

TREE VIEW

- ▼ VVM Mid-Term
- ▼ Half time event result tracking
- ▼ Operational Concept
 - Define the objective
 - Definition of operational Domain
 - Analysis of the norm behavior**
- ▼ Design and Realization
 - Specification of Target Behavior
 - Deriving capabilities, functions and requ...
 - Development and Implementation the S...
 - Structuring of OD
- ▼ Validation & Verification
 - V&V Concept
 - Test execution
 - V&V/Test planning
 - Test Orchestration

GRAPH VIEW

Entity Types: Artifacts, Projects, Activities (Phas...
 Qualifiers: undefined artifact, document (gen...
 Relationships: is associated with, is part of, has d...
 Level of depth: 4
 Show max. depth: ☐
[CLEAR](#) [APPLY](#)



Analysis of the norm behavior



In Specification

CREATE BASELINE

Entity Data

Basics

Metadata

Journal

History

Created At
02.02.2022 17:11:31

Edited At
02.02.2022 17:11:31

Relations (4)

EXPAND ALL COLLAPSE ALL

Assignments (2)

Artifact (2)

LINK TYPE: IS INPUT FOR

Scenario Description

Qualifier: document | Assignee: Jane P. Miller

LINK TYPE: IS OUTPUT OF

Behavioral Ruleset

Qualifier: document | Assignee: Markus M. Erikson

CIList (0)

Trace Link

Activity

LINK TYPE: IMPACTS ON

Specification of Target Behavior

Type: ACTIVITY | Assignee: -

LINK TYPE: IMPACTS ON

Definition of operational Domain

Type: ACTIVITY | Assignee: -



Export



New Task



New Milestone



New CI List



New Baseline



Delete Entity



New Link

Synchronize Views



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GRAPH VIEW

Entity Types

Artifacts, Projects, Activities (Phas...

Qualifiers

undefined artifact, document (gen...

Relationships

is associated with, is part of, has d...

Level of depth

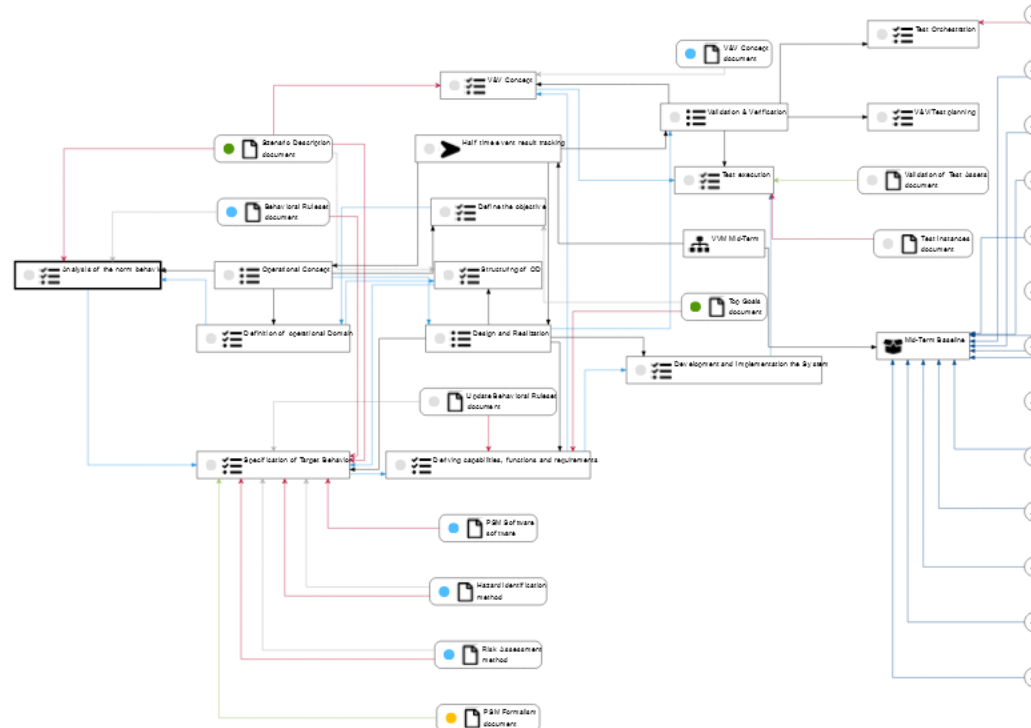
4

Show max. depth:



CLEAR

APPLY



Analysis of the norm behavior



In Specification ▾

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Scenario Description

Qualifier: document | Assignee: Jane P. Miller

LINK TYPE: IS OUTPUT OF

Behavioral Ruleset

Qualifier: document | Assignee: Markus

Go to Impact Analysis

Start Impact Analysis

Remove Link

Specification of Target Behavior

Type: ACTIVITY | Assignee: -

LINK TYPE: IMPACTS ON

Definition of operational Domain

Type: ACTIVITY | Assignee: -

Impact Analysis



GRAPH VIEW



Entity Types
Artifacts

Qualifiers
undefined artifact, document (generic), requirement or requirement specific...

Relationships
is associated with, is part of, has deliverable, impacts on, is requirement for, ...

Level of depth
2

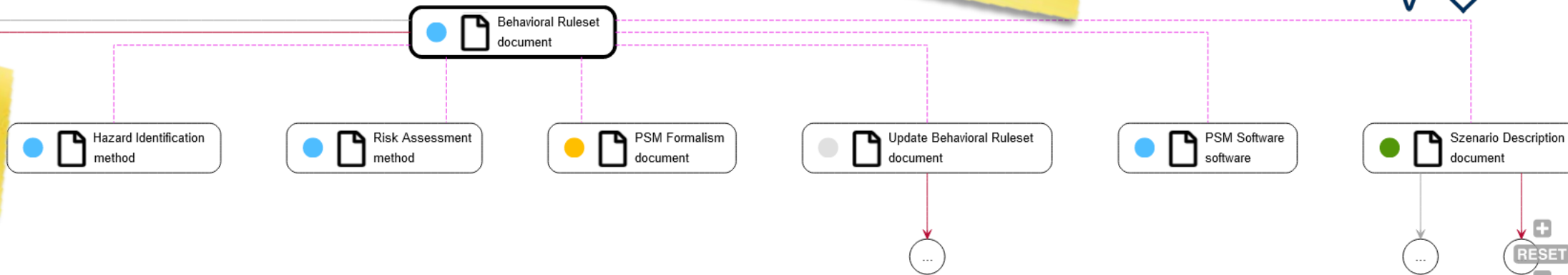
Show max. depth: ☐

CLEAR

APPLY



Impacted Entities



TRACY

DASHBOARD

PROJECTS

TASKS

ARTIFACTS

+ NEW...

Search

JM

Export

New Task

TREE VIEW

VVM Mid

Half time event result tracking

Operational Concept

Define the objective

Definition of operational Do...

Analysis of the norm behavior

Design and Realization

Specification of Target Behav...

Deriving capabilities, functio...

Development and Implemen...

Structuring of OD

Validation & Verification

V&V Concept

Test execution

V&V/Test planning

Test Orchestration

Create New Baseline

Basics

Metadata

Baseline Items (12 of 12 are selected)

Artifacts

Validation of Test Assets

Qualifier: document | Assignee: Markus M. Erikson

Edited At: 2022-02-15T14:58:03Z

V&V Concept

Qualifier: document | Assignee: Markus M. Erikson

Edited At: 2022-02-17T18:47:10Z

Update Behavioral Ruleset

Qualifier: document | Assignee: Markus M. Erikson

Edited At: 2022-02-11T15:44:07Z

Top Goals

Qualifier: document | Assignee: Markus M. Erikson

Edited At: 2022-02-17T18:45:53Z

Test Instances

Qualifier: document | Assignee: Markus M. Erikson

Edited At: 2022-02-15T14:48:27Z

Szenario Description

Qualifier: document | Assignee: Jane P. Miller

Edited At: 2022-02-17T18:45:31Z

PSM Formalism

Qualifier: document | Assignee: Markus M. Erikson

Edited At: 2022-02-17T18:47:27Z

CANCEL

CREATE

VVM Mid-Term

CREATE BASELINE

ty Data

EXPAND ALL

COLLAPSE ALL

sics

ject ID

Used Template

234

blank-project

anager

Start and Target Date

Jane P. Miller

01/07/2019 – 30/06/2023

required

escription

gets

etadata

tory

tions (1)

EXPAND ALL

COLLAPSE ALL

ignments (0)

ce Links (0)

ucture (1)



Export



New Task



New Milestone



New CI List



New Baseline



Delete Entity



New Link

Synchronize Views

TREE VIEW

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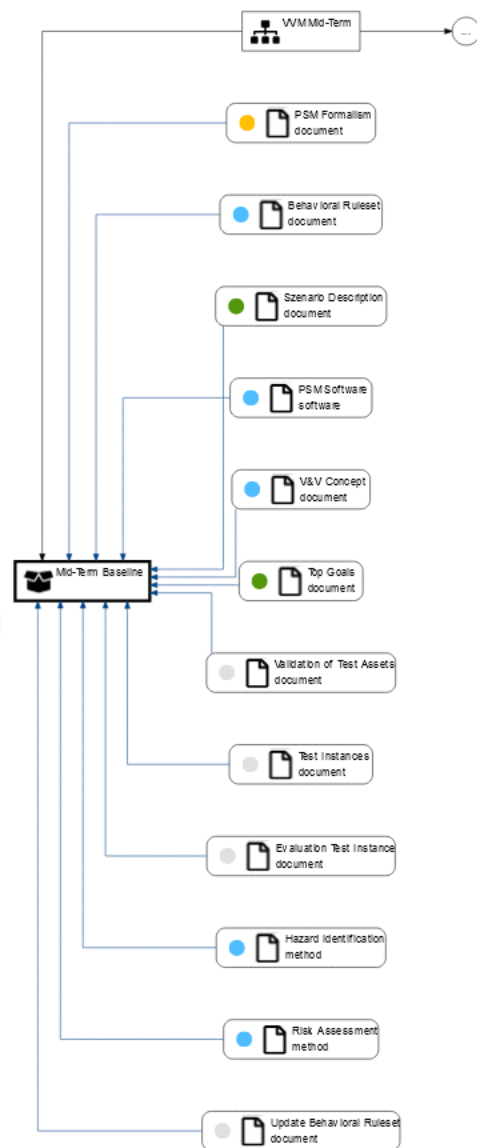


Mid-Term Baseline



GRAPH VIEW

Graph View of
Baseline



Mid-Term Baseline



GENERATE REPORT

Entity Data

EXPAND ALL

COLLAPSE ALL

Basics

Description

Project results baselined in mid-term event

Rationale

For future reference

Metadata

History

Relations (13)

EXPAND ALL

COLLAPSE ALL

Documented Element

Baseline Items (12)

Artifact (12) ▾ ↑

☒ LINK TYPE: IS PART OF

Hazard Identification

Qualifier: method | Assignee: Markus M. Erikson

☐ LINK TYPE: IS PART OF

Validation of Test Assets

Qualifier: document | Assignee: Markus M. Erikson

☒ LINK TYPE: IS PART OF

PSM Software

Qualifier: software | Assignee: Markus M. Erikson

☐ LINK TYPE: IS PART OF

Test Instances

Qualifier: document | Assignee: Markus M. Erikson

☐ LINK TYPE: IS PART OF

Update Behavioral Ruleset

Qualifier: document | Assignee: Markus M. Erikson

Baseline Report

Baseline Report

[GO BACK](#)[PRINT](#)

Created From

Baseline Title
Mid-Term Baseline

Report Created At
17.02.2022 20:00:16

Report Created For
Jane P. Miller

Baseline Creator
Jane P. Miller

Baseline Created At
17.02.2022 19:59:24

Description

Project results baselined in the status they have at the mid-term event

Rationale

For future reference

Total amount of documented Artifacts: 12

No.	Title	Entity Type	Assignee	Edited At	Release Status
1	Update Behavioral Ruleset	Artifact	-	11.02.2022 16:44:07	In Specification
2	Risk Assessment	Artifact	-	17.02.2022 19:46:18	In Work
3	Hazard Identification	Artifact	-	17.02.2022 19:46:10	In Work
4	Evaluation Test Instance	Artifact	-	15.02.2022 15:45:58	In Specification
5	Test Instances	Artifact	-	15.02.2022 15:48:27	In Specification
6	Validation of Test Assets	Artifact	-	15.02.2022 15:58:03	In Specification
7	Top Goals	Artifact	-	17.02.2022 19:45:53	Published
8	V&V Concept	Artifact	-	17.02.2022 19:47:10	In Work
9	PSM Software	Artifact	-	17.02.2022 19:47:00	In Work
10	Szenario Description	Artifact	-	17.02.2022 19:45:31	Published
11	Behavioral Ruleset	Artifact	-	17.02.2022 19:46:04	In Work
12	PSM Formalism	Artifact	-	17.02.2022 19:47:27	In Review

Baselined Entities

- TRACY supports Engineering & Testing of safety-critical systems
- TRACY supports handling complexity
- TRACY forms a smart information network, and thereby realizes traceability
- PROSTEP will transform TRACY into a software product by end of 2023
- TRACY demonstrations are available on request



Thank you!

Kim Steinkirchner

Christian Bühler

Every conference participant can try out TRACY: <https://vvm-mid-term.tracy.prostep.com/tracy/>

Username: readonly Password: VVM-midterm2022



A project developed by the
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