prostep IVIP

### Cross Disciplines Lifecycle Collaboration Forum Setting up the digital thread across engineering & the value chain

Peter Gerber (Schaeffler A.G.) - CDLC Chair Pierre Bodin (Mews Partners GmbH)

© 2018, prostep ivip e.V. Cross-Discipline Lifecycle Collaboration Forum

# All of these products that are changing our lives have one thing in common...











## ... they are an intelligent combination of multiple technologies, and the fruit of the work of experts from multiple disciplines & companies



prostep IVIP

For these increasingly complex products to function properly at affordable cost, real-time, cross-discipline and value chain coordination is today a must





For these increasingly complex products to function properly at affordable cost, prostep IVIP real-time, cross-discipline and value chain coordination is today a must Our Vision: cross-discipline, real-time navigation and data update through Federated architecture / data links Syst. Architecture. Software Hardware Hardware Verification & Requirements Mgt Electrical / **Mechanical Electronics** Customers

uppliers

S

#### **Our Objectives**



Identify **key principles** and **best practices** for cross-discipline engineering collaboration, using **industrial use cases** 

Formalize interoperability-relevant roles, activities and artefacts, their relationships and needed tool capabilities



Identify supporting technologies (incl. OSLC), prove feasibility and deliver implementation recommendations based on demonstrators

#### The CDLC Forum Team



Multi-profile team of OEM & suppliers, SW vendors and process/tool experts



#### **Our demonstrator cases: The Mars Rover & SUV ADAS**

We are proving the **feasibility of cross-discipline interoperability** through **demonstrators** from the participating vendors:

2 Use cases are considered for the demonstrators:

- **Increase of the autonomy range** of the Nasa Jet Propulsion Laboratory **Mars Rover** open source design. The dataset is currently being enriched to include:

- Requirements Breakdown
- SysML Model
- Mechanical 3D Model
- Electronics Design
- SW Design
- EBOM
- MBOM & Process flow



- Upgrade an Hybrid SUV from Automatic Cruise Control (ACC) to an autonomous driving system (ADAS)

#### **Data Links Examples**







#### **Demonstrators Architecture**

4 Demonstrators variants ( 📚 ptc .....



Note: Toolset under confirmation - additional Dassault System Demonstrator TBC

#### **First outcome: Aras Demonstrator**





#### **CDLC Next steps**

- End 2018: Demonstrators first version
- mid 2019: Demonstrators Extension & Final recommendations



prostep IVIP

#### **Conclusions**





**Linked solutions** to support cross-discipline, cross-value chain collaboration



Consistent **demonstrators** covering operational use cases to identify best practices and prove technical feasibility



No claim for being universally complete



New ideas and participants are **welcome** 

#### Next steps will be thrilling, join us!



### 

#### Contact:

**Peter Gerber** (Schaeffler AG) – CDLC Chair gerbepte@schaeffler.com

Pierre Bodin (Mews Partners GmbH) pierre.bodin@mews-partners.com +49 171 33 55 611

Nora Tazir (PROSTEP AG) Nora.tazir@prostep.com +49 178 95 09 215