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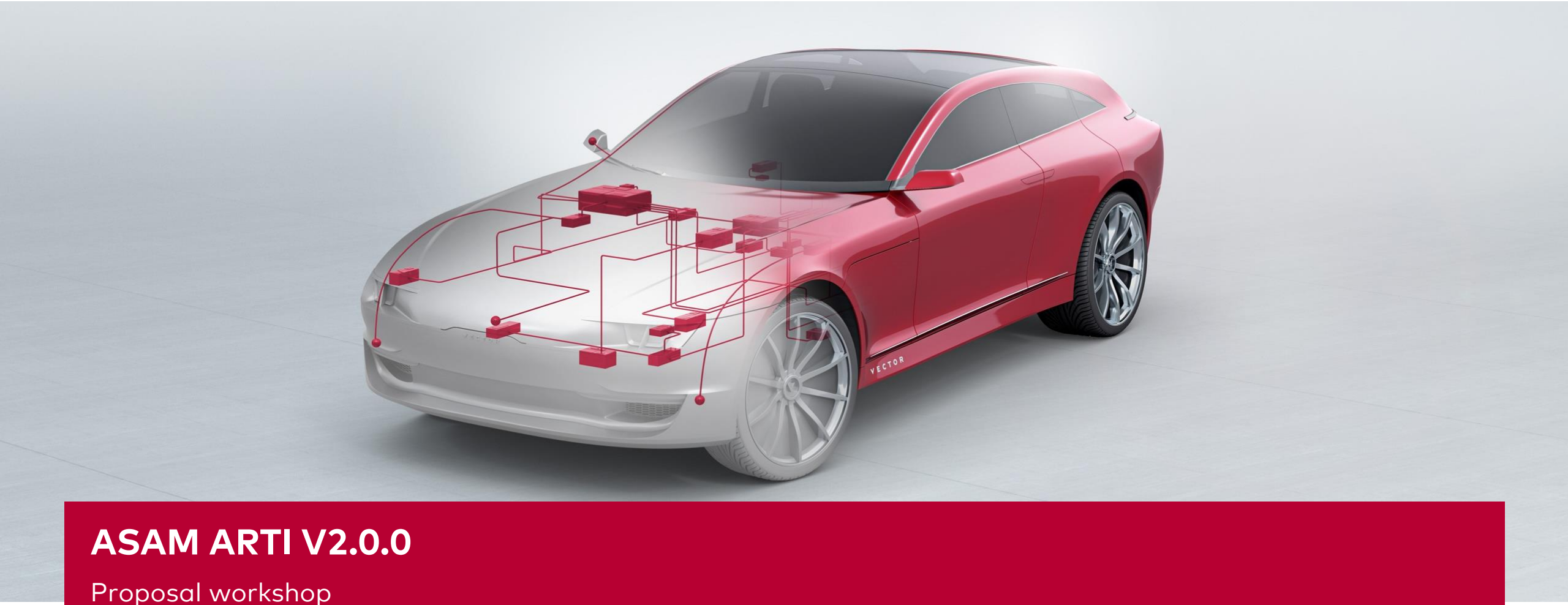

ASAM ARTI V2.0.0

Proposal workshop

V0.1 | 2024-04-18

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Agenda

- Strategic Context
  - Project Insight: A snapshot of the project's importance and overarching impact
  - Evolution Strategy: Discussing the imperative to evolve independently from AUTOSAR ARTI standards

- In-Depth Technical Session
  - Technical Deep Dive: Exploring the granularities of data types, trace classes, and core identifier management Project Resources and Timeline
  - Solutions Synthesis: Addressing identified discrepancies and information gaps

- Project Resources and Timeline
  - Discussion on required resources, including man days, technical, and financial
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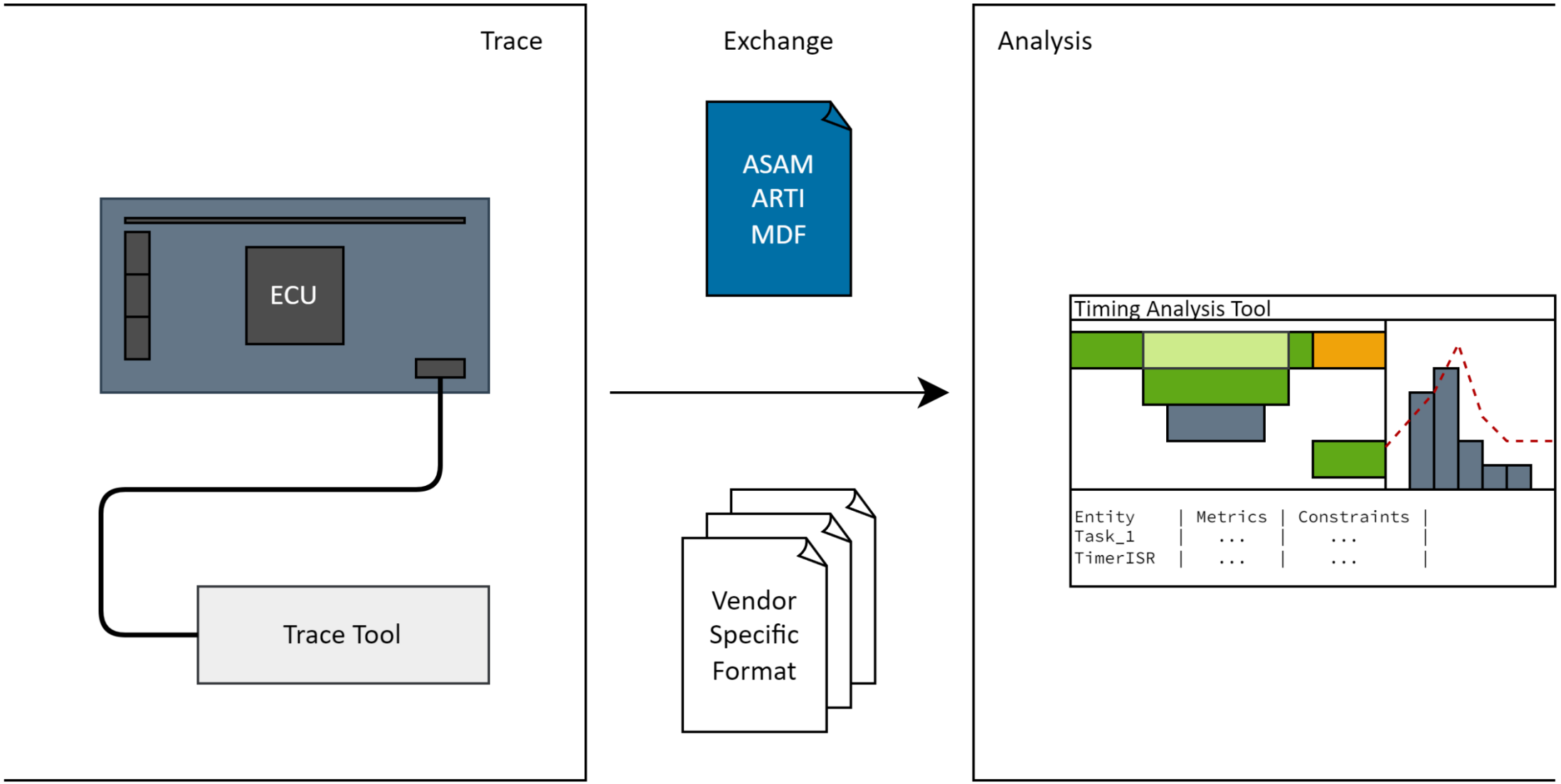
Project Insight: A snapshot of the project's importance and overarching impact

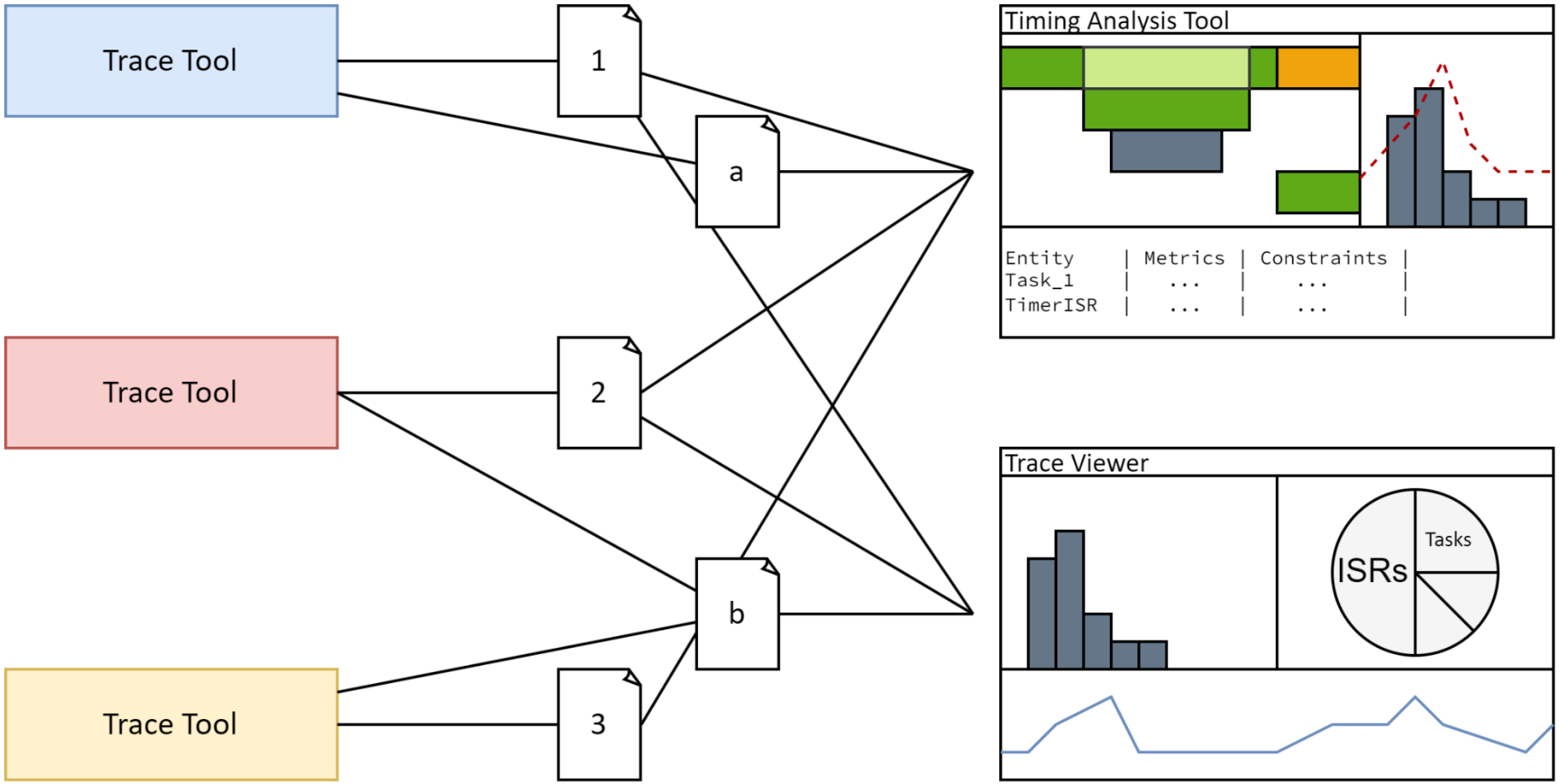
- What is ASAM, ARTI, MDF?
  - MDF
    - The "Measurement Data Format" (MDF, also an ASAM standard) is used as the container format
    - Efficient storage format for different kinds of measurements
    - Provides capabilities to organize data and add meta information
  - ARTI
    - Refers to data stored in MDF
    - Maps closely to the trace information described in AUTOSAR Run-Time Interface
  - ASAM ARTI is a standardized storage format to exchange trace data between Trace Tool Vendors and Analysis Tool Vendors, the standard describes
    - How data shall be stored (MDF)
    - What kind of entities exist (Trace Classes)
    - How these entities behave (State Machines)
    - The structure of the data (MDF Data Channels)
    - Which meta information is stored (Data Conversion from IDs to human readable entity names)

Project Insight: A snapshot of the project's importance and overarching impact



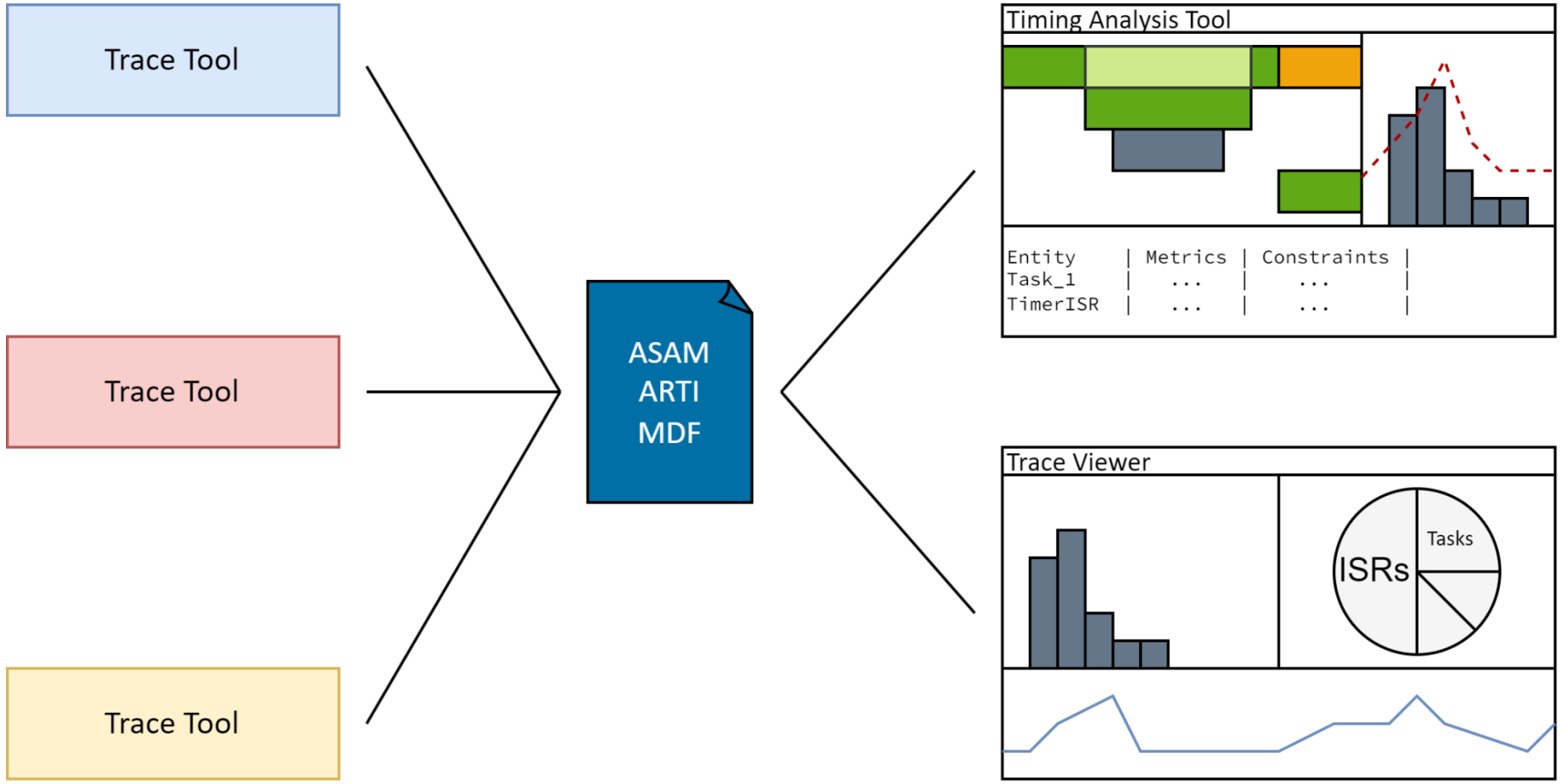
Project Insight: A snapshot of the project's importance and overarching impact

- Vendor Specific Formats do not scale very well due to the number of possible permutations



Project Insight: A snapshot of the project's importance and overarching impact

- Either side (Trace Tool Vendors, Analysis Tool Vendors) benefits from this by having only one specification to work against.



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Project Insight: A snapshot of the project's importance and overarching impact

- Motivations for proposing ASAM ARTI V2.0.0
  - The AUTOSAR ARTI standard has evolved since the release of ASAM ARTI V1.0.0
    - E.g., events described for entities of type Spinlock
  - Using ASAM ARTI V1.0.0 in real project revealed inconsistencies and missing items.
    - E.g., handling of core information
  - Improving the interoperability of tools exchanging trace information.

- Impact of this proposal
  - The proposed changes include:
    - Minor wording changes
    - Backwards compatible additions
    - Breaking changes to existing Trace Classes
  - The breaking changes are the main motivation for proposing a new major version
  - The proposal addresses the inclusion of additional meta information to identify the ASAM ARTI version that is used for a given MDF file.

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Evolution Strategy: Discussing the imperative to evolve independently from AUTOSAR ARTI standards

- ASAM ARTI maps closely to AUTOSAR ARTI but is also used in non-AUTOSAR use cases

- We consider it beneficial to decouple the two standards so that ASAM ARTI does not rely on AUTOSAR specific terminology which might not have an equivalent in non-AUTOSAR applications.

- The proposal does however include the explicit goal to realign the scope of the Trace Classes with the latest version of AUTOSAR ARTI.
  ASAM ARTI shall not be limited to what is described in AUTOSAR but shall be capable of reflecting the latest AUTOSAR standard.

AUTOSAR

ASAM

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Technical Deep Dive – Proposal Chapter 3.1 - General

- Clarification of data types
  - Clarify description of the “type” column. Wording “Token, literal text” or “unit32” with a conversion rule to a human readable string.
- Improve wording of Optional or not available information.
  - Clarify how optional or not available information shall be stored. Some values have been identified as either not needed (Analysis Tools) or not available (Trace Tools).
- Handling of ASAM Specification Version in MDF
  - The ASAM ARTI MDF file does not contain the information which ASAM specification it follows.
- Improve use of AUTOSAR wording
  - Wording that relies heavily on AUTOSAR like “OS Short Name”, the inclusion of the ARTI_TRACE macro shall be reworked to be independent of AUTOSAR.
  - The wording used for type names does not follow a well-established scheme.
- Handling of Core identifier
  - Several trace classes need information about the core the events originate from.
    The way this is currently handled is inconsistent and incompatible with expected additions.

Technical Deep Dive – Proposal Chapter 3.2 – Improvements to Trace Classes

- So far, the proposal includes changes to the following trace classes
  - AR_CP_OS_CAT1ISR
    - A trace class for category 1 ISRs should be added.
  - AR_CP_OS_SPINLOCK
  - AR_CP_OS_SERVICECALLS
    - Affected by rework of core identifier
    - Description of “eventName” is not complete
    - Clarify description of “eventParameter” regarding conversion rule for identifier vs. nesting depth information
  - AR_CP_RTE_RUNNABLE
  - AR_CP_SCHM_SCHEDULABLE
    - Affected by rework of core identifier
    - Affected by not available information
  - USER_STOPWATCH
  - USER_DATAFLOW_STOPWATCH
    - We haven’t worked with these trace classes yet. Included to check if changes need to be made (rather now than later)
  - USER_DATAPOINT
    - Minor wording defect
    - Clarify how data is stored (binary representation) in “eventParameter” for types listed in “eventName”

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Your questions are welcome!

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