

ASAM OpenLABEL

Results from the ideation Workshop Dec. 3rd 2019

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Ideation Workshop who attended?

Interested Parties



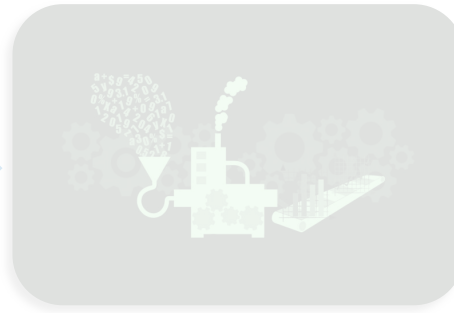
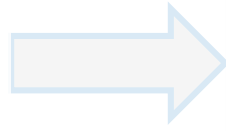
Ideation Workshop

what did we talk about?

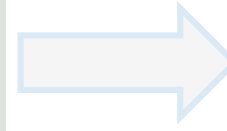
Life of the recorded data



AD vehicles produce data while driving (real/simulated), **capturing scenarios every second**



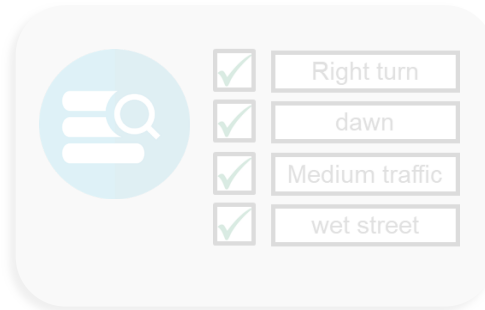
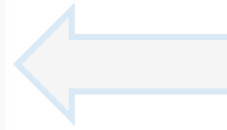
Data **pre-processing** and labeling. Detecting captured scenarios. Analyse vehicle behavior according to defined KPI's



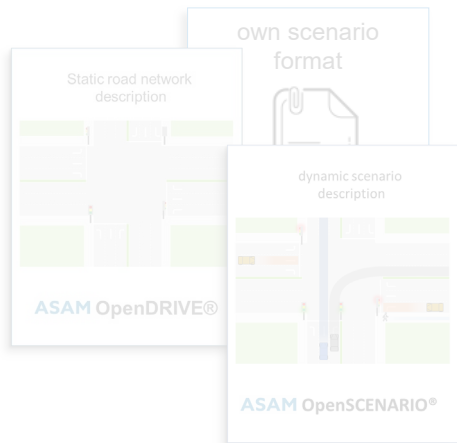
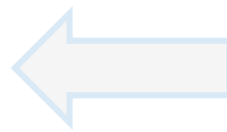
Store the captured data in large data centers and make the data sets available for post processing activities



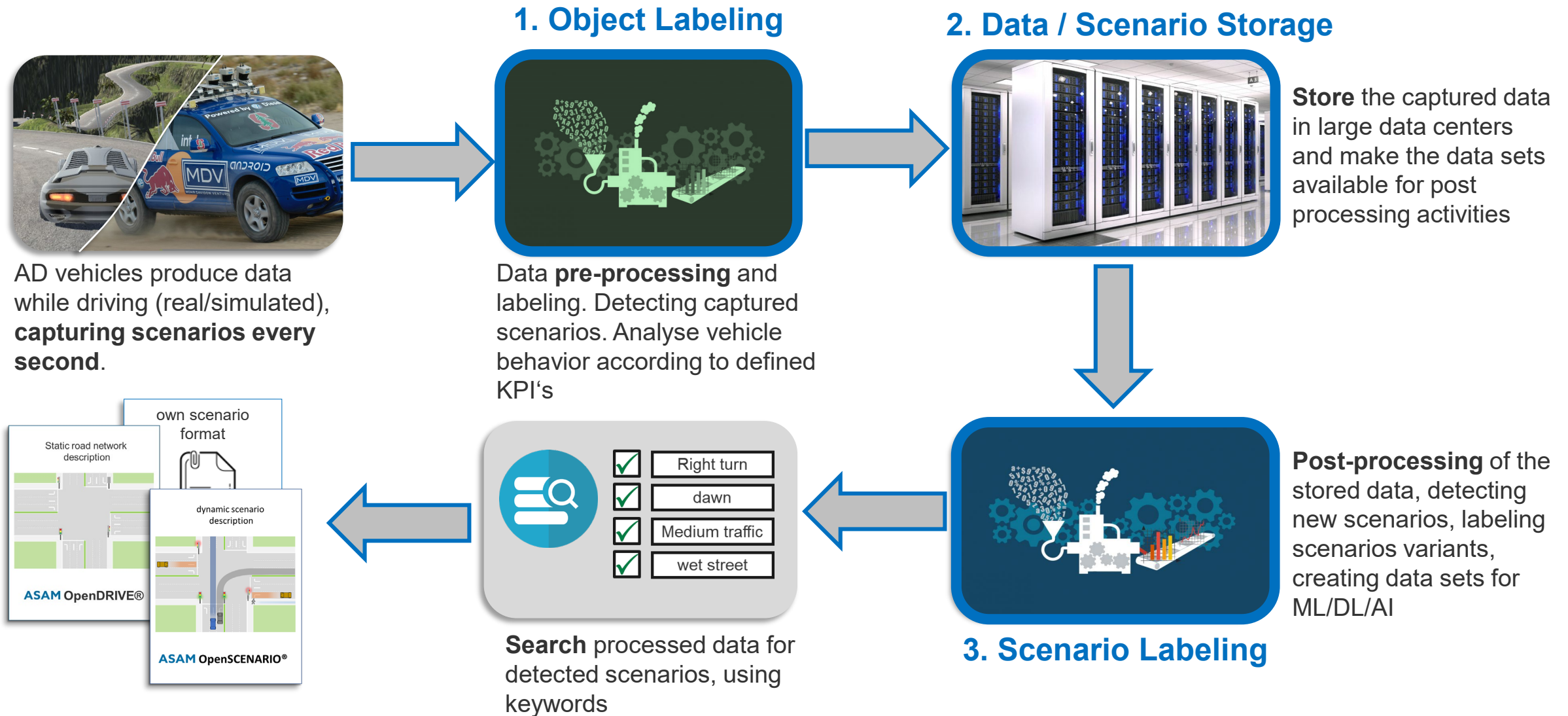
Post-processing of the stored data, detecting new scenarios, labeling scenarios variants, creating data sets for ML/DL/AI



Search processed data for detected scenarios, using keywords

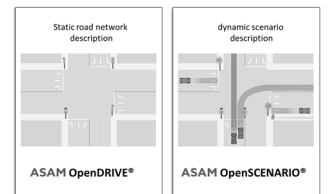
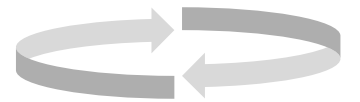


Life of the recorded data



IDEA: Standardize the data labeling

- Exchangeable Datasets can enhance the learning process of algorithms in the industry and can accelerate the definitions of new relevant scenarios for validation and homologation purposes.
- Make Data sets searchable and extendable
- Standardized labeled vehicle data can improve the analysis capabilities of independent parties for recorded data
- Make Labeled Datasets exchangeable:
 - Public Datasets are becoming more common
 - <https://waymo.com/open/>
 - <https://bdd-data.berkeley.edu/>
 - <http://apolloscape.auto/>
 - <https://blog.cambridgespark.com/50-free-machine-learning-datasets-self-driving-cars-d37be5a96b28>
- Data produced by simulations can be labeled and matched to real vehicle data and vice versa
- Labels should be synchronized with other OpenX activities



ASAM Ideation Workshop

Labeling

In the Ideation Workshop 3 topics were prioritized by the attendees:

1. Define a base set of labels for objects of interest. Including guidelines on extending this base set.
2. Extension to 1) with a base set of labels for description of scenarios (maneuvers, environment, etc.)
3. Define a labelling format, including guidelines on creating converters for datasets

Topics that are postponed for now, topics for future development projects

1. Raw Sensor Annotation
2. Data Storage

Here you can find the detailed presentations from the Ideation Workshop:

<https://www.asam.net/conferences-events/detail/standardized-labelling-and-storage-for-scenarios-and-vehicle-data>

ASAM Ideation Workshop -> today

Activities till now and ToDo's for today

At the ideation workshop a small group committed to write a project proposal based on the three main topics. This project proposal contains:

1. Use cases & Requirements
2. Technical Content
 - Labeling Taxonomy Design
 - Labeling Specifications Design
 - Labeling Data Format
 - OpenLABEL documentation
3. Project Resources
4. Project Plan

ToDo's for today:



Discuss the use cases defined in the project proposal and produce requirements for new standard



Discuss the individual tasks and features.
Refine the current project proposal.

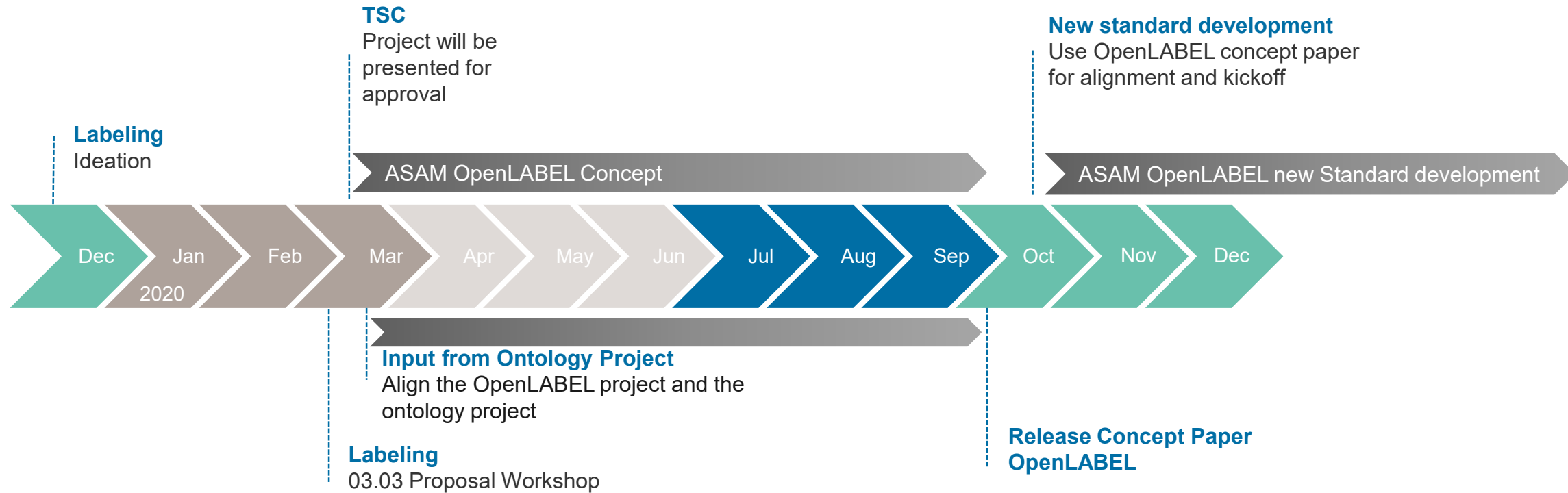


Estimate the required resources for the features
Commitment of the members for the project

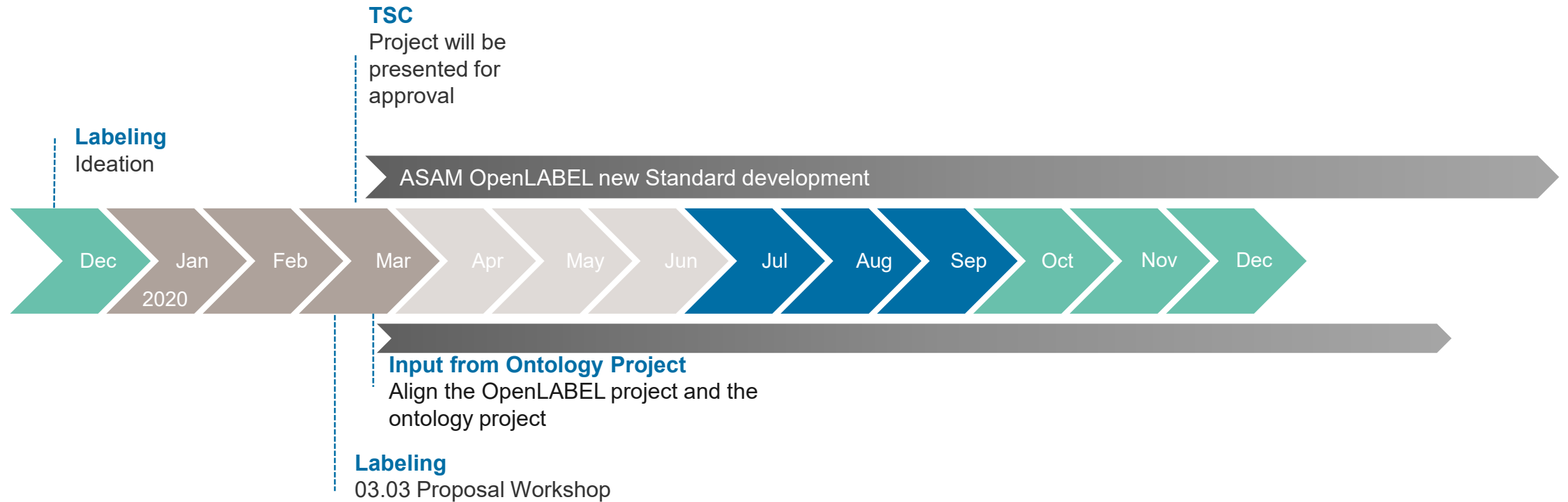


Establish a road map for the project

Timeline for OpenLABEL Option A



Timeline for OpenLABEL Option B



Thank you!

For more information
on ASAM visit

www.asam.net

Standardization Activities

ASAM Standards Portfolio

Data Management & Analysis

CEA ODS

Measurement & Calibration

CDF CPX MCD-1 CCP / XCP
MCD-1 POD MCD-2 MC MDF
MCD-2 CERP

Test Automation

ACI ASAP 3 ATX GDI
MCD-3 D MCD-3 MC XIL

Diagnostics

MCD-2 D MCD-3 D
OTX Extensions

Software Development

CC FSX ISSUE LXF
MBFS MDX

ECU Networks

MCD-2 NET

Simulation

OpenX standards

