OPENPASS WORKSHOP

ARCHITECTURE COMMITTEE, SINDELFINGEN, MARCH 28 2018

DRAFT GUI CONCEPT FOR OPENPASS

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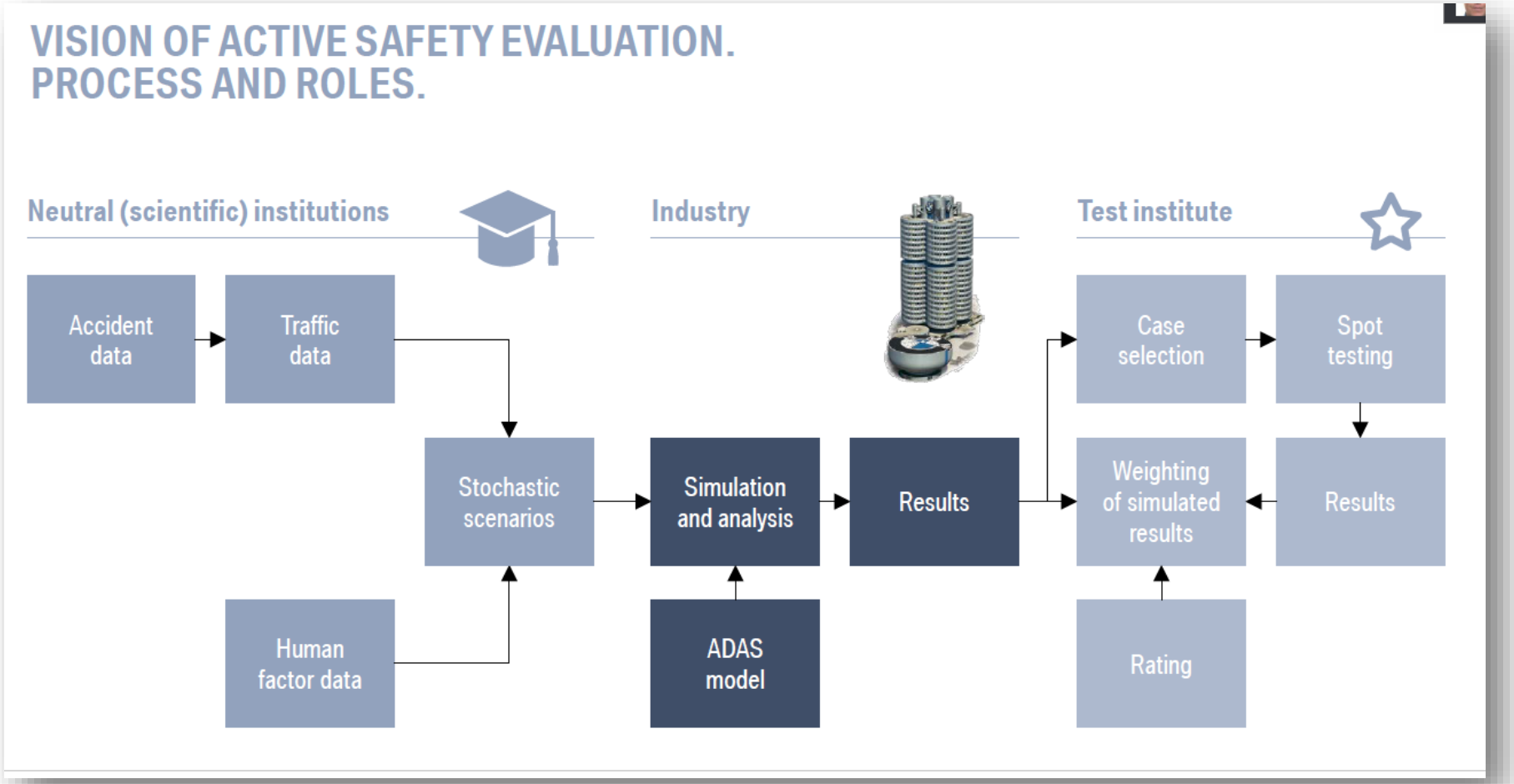
VISION: OPENPASS DELIVERS OPEN SIMULATION FRAMEWORK FOR FULL EVALUATION OF ADAS/AD MODELS



Source: Multi-functional open-source simulation platform for development and functional validation of ADAS and automated driving, Lei Wang, Timo Vogt, Jan Dobberstein, Jörg Bakker, Olaf Jung, Thomas Helmer, Ronald Kates, Fahrerassistenzsysteme 2016

OPENPASS “3-IN-1 TOOL”

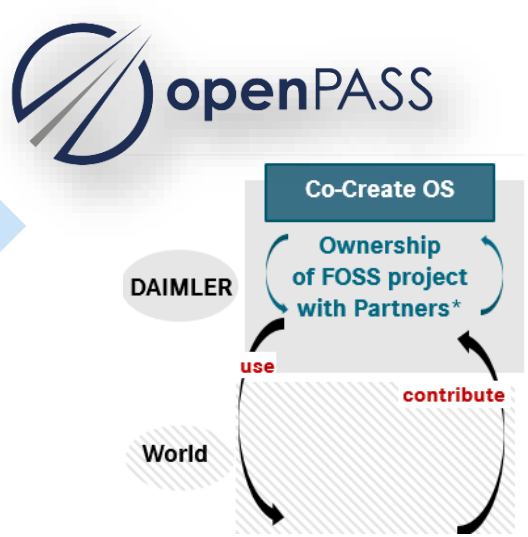
Goal of prospective evaluation of safety systems – independent of methods, data and tools:

What are the effects of safety systems and automated driving functions with regard to safety?

Accident research & safety system development

Need to assess functions with virtual simulation

Common simulation platform & harmonized modules



openPASS aims to unify various virtual assessment approaches on <u>one platform</u>:

Accident re-simulation

Re-run reconstructed accident trajectories

Scenario variation

Virtual test catalogue of complex multi agent scenarios

Traffic simulation

Traffic model with driver behaviour as baseline risk

USE CASE „ACCIDENT RE-SIMULATION“ (PCM DATA => V0.5)

Goal: what-if simulation of reconstructed accident trajectories

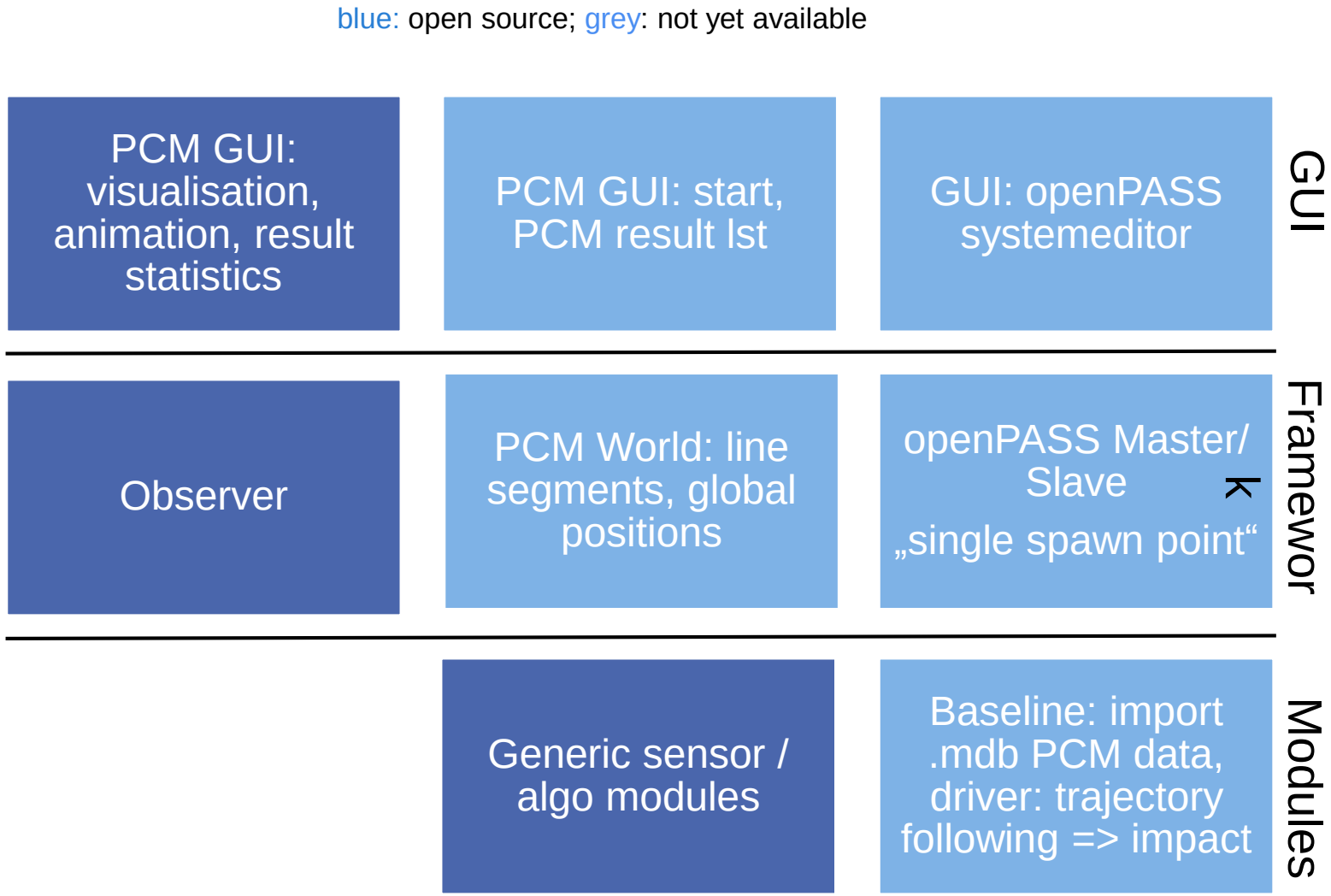
Various in-house tools like rateEFFECT, PRAEDICO, CARS – now open source alternative based on openPASS

Status (v0.5):

- GUI 1: framework + flexible system editor to edit function parameters
- GUI 2: start window to select GIDAS cases, list of result values
- World: PCM line segments from sketches
- Basic agent model: trajectory follower + two-track vehicle dynamics and impact model

Next steps:

- Improve trajectory following behaviour (more naturalistic), add world features,
- GUI: Automatic result evaluation, dynamic animation



USE CASE V0.6

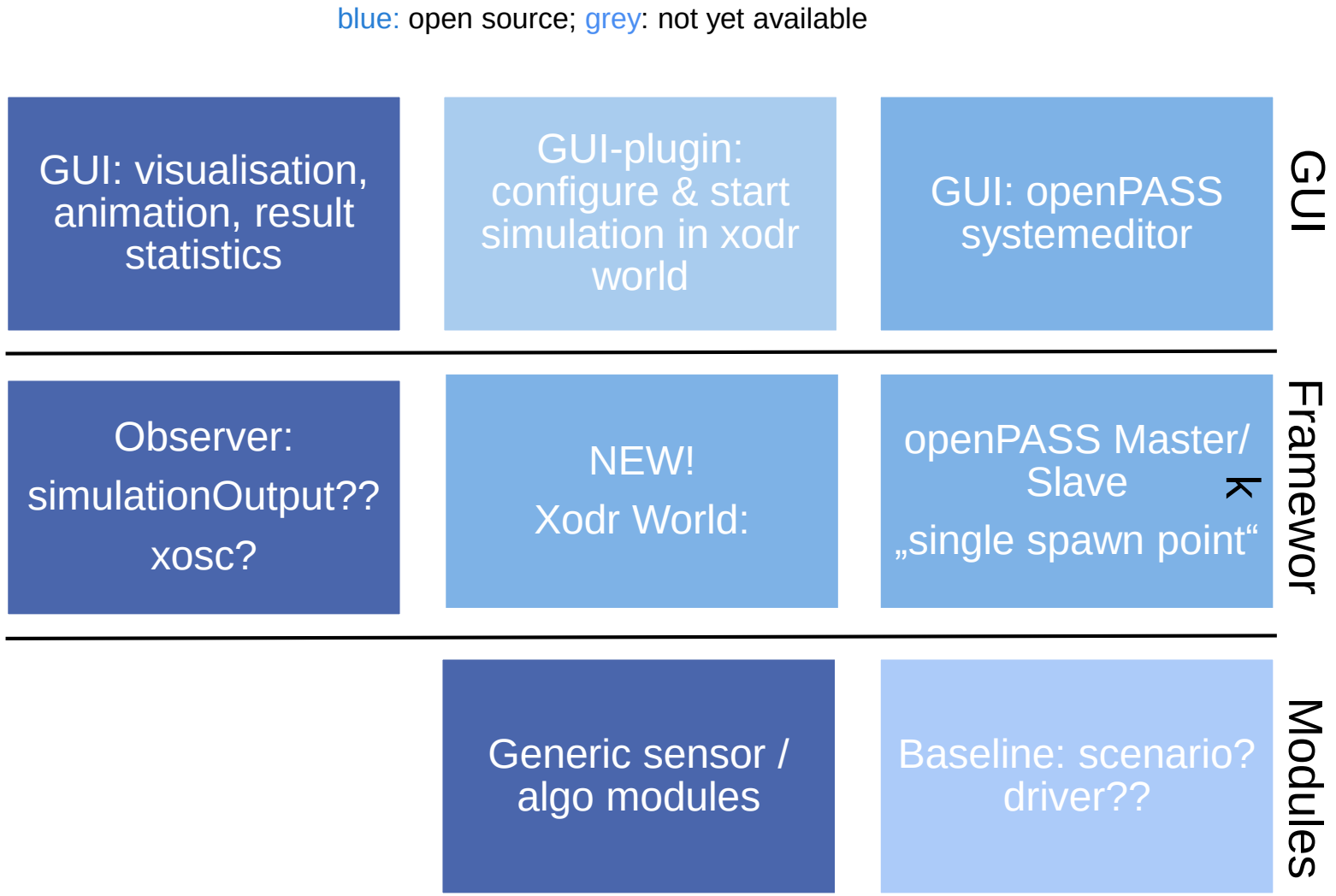
Goal: configure, start & run scenario in xodr world

Status (v0.5):

- GUI 1: framework + flexible system editor to edit function parameters
- Further GUI plugins: simple start plugin in VW GoA commit
- World – new!: OpenDRIVE + OSI
- OpenScenario?
- Basic agent model: mini modules + ????

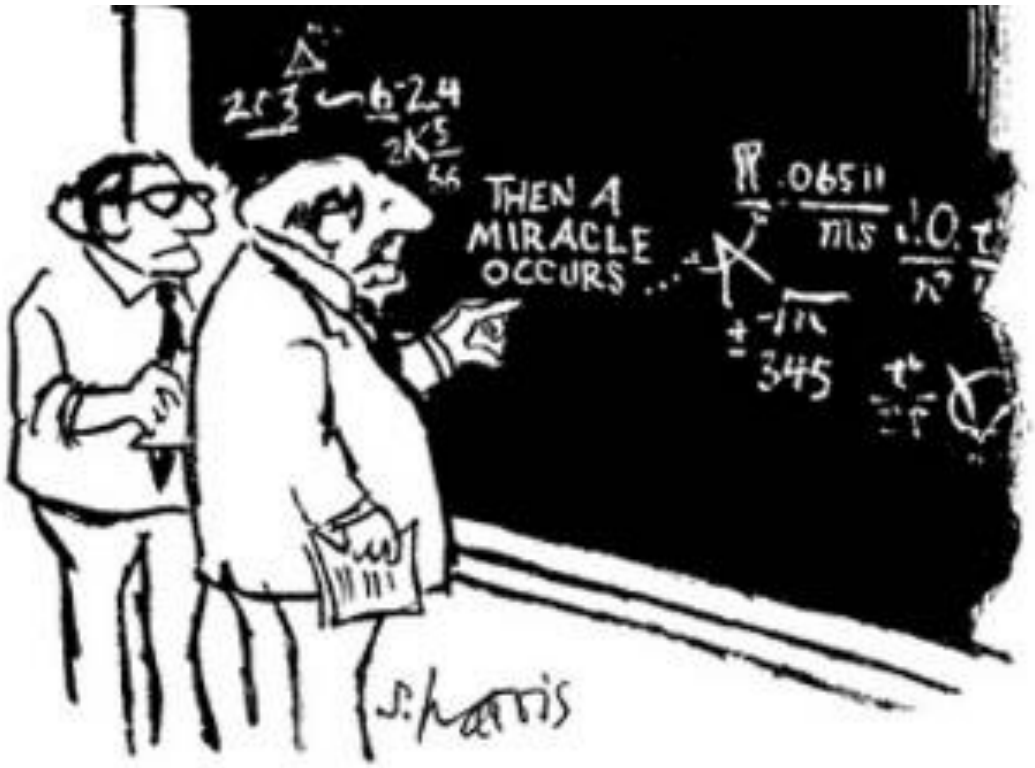
Next steps:

- Definition of baseline scenario (e. g. 3-lane motorway with curves, 10 vehicles per lane)
- Extension of agent modules (sensor, algo)
- GUI plugins:
  - configure scenario
  - Visualize / animate
- Evaluation plug-in



SUMMARY OF NECESSARY NEXT STEPS TO DISCUSS

- GUI architecture: main windows vs. use case specific plugins
- „PCM use case“: open data format, evaluation, generic modules
- Virtual tool chain: integration with numerical sim. (HBM)
- „OpenScenario concept“ – how to implement?
- Open source driver model
- Roadmap to virtual assessment / “openPASS rating”



"I think you should be more explicit here in step two."