Uni - DAS
Driving Automation Systems

Reflections on collaboration in ECAVA[1]

In August 2025, the European Commission opened applications for the European Connected and Autonomous Vehicle Alliance (ECAVA)[2] to take the next step in providing a discussion forum and a strategic advisory forum to coordinate technological developments and cooperation between automotive stakeholders in both European and global markets.

The automotive industry forms a cornerstone of European prosperity and is an essential part of Europe´s identity. The sector is facing **3 major challenges** with respect to automated and connected vehicles, which need to be addressed fast in order **to regain global competitiveness**:

1. Agile updates and upgrades of vehicle functions require a **radically new software architecture**, which in its core needs to be Open Source in order to be globally usable, including AI-supported processes and tools in order to ensure the software´s quality and short time to market ("China Speed").
2. On a global scale, Europe is not competitive in terms of the **acquisition and usage of big data** for training powerful AI-based functions, due to strict rules on GDPR and dependencies on third countries.
3. While global competition is important for technological progress, a **level playing field needs to be achieved** in order to assure a sufficient level of safety especially with regard to largely AI-based functions like AD SAE Level 2 to Level 4.

Currently, especially IT-rooted OEMs e.g. from the U.S. and China turn out to have superior technology allowing not only for fast software-updates, but also short development cycles.

This is facilitated by huge investments, but is also due to favorable boundary conditions in these countries, illustrated in *Figure 1*.

Figure 1: Regulatory pressure pushes R&D of companies out of Europe, especially to the U.S. and CN

Ad 1: Automotive Open Source Software

This huge challenge **requires collaboration**, which ideally builds on S-CORE coordinated by ECLIPSE SDV as well as Android Automotive Open source and COVESA, with **qualified partners contributing Open Source Software** (OSS) and Open Data on non-differentiating functions onboard and offboard the vehicle.

Mastering this challenge requires

- a **strong commitment of industry to cooperate** on the basis of OSS, on all management levels and also among competitors;
- a **well-orchestrated approach** in order to make use of existing funding instruments;
- **new trust-based funding instruments** based on a brief description of the Open Artefact to be created and its integration and test as decisive deliverable;
- Shared **Scenarios** and **Corner Cases** to challenge respective OSS contributions;
- Leveraging the **potential of AI for DevOps** trained with existing automotive grade software;
- **Open Hardware** e.g. RISC V for GPU etc.

Ad 2: AI-toolchain and acquisition and use of big data

Making use of the full potential of AI requires the acquisition and storage of huge amounts of raw data from cameras and other sensors as a prerequisite. In terms of performance and validity, these raw data must be used for training of large AI-models, which requires large-scale compute-clusters.

While the EC has already recognized this (ref. Euro-HPC) and initiated AI-Factories in many EU-member countries, mastering this challenge also requires:

- A **purpose-based exempt from GDPR** for the acquisition and use of big data for training and inference of AI for automotive;
- **Stable boundary conditions and incentives** for European entities **to heavily invest** in **large-scale data centres** and **AI Gigafactories** including new mechanisms beyond the current cyclic funding;
- Shared domain-specific **Teacher Models** for AI;
- A **fast-track for anti-trust clearance**, avoiding the approval of all individual member states, allowing for an agile formation of joint ventures;
- An **attractive environment and funding** for start-ups on AI-based technologies and solutions, at the same time allowing for IP to be used in Europe.

Ad 3: Achieving a sufficient level of safety

While European car makers and suppliers need to be technologically fully transparent in important foreign markets, foreign car makers can introduce AI-based functions with insufficient transparency to all European Member States.

Accident data shows, that even SAE Level 2 functions may impose a significant risk to traffic safety, if not designed and

[1] The Authors have been awarded a procurement contract EC-CNECT/2025/VLVP/0045 in order to cover expenses like travel costs.

[2] https://digital-strategy.ec.europa.eu/en/policies/vehicle-alliance

tested adequately. Therefore, an **orchestrated approach for safety assurance** of ADAS and AD and their updates is needed. Furthermore, **European testbeds** for Autonomous Driving and AI are needed in order to invite industry to test in Europe under favorable conditions.

ECAVA offers the chance to **promote cooperation** and facilitate dialogue **on agile processes** and evaluation methods in order **to assure an acceptable level of safety**. While the EC has established a regulatory framework on highly automated vehicles, the de facto market introduction is up to **individual EU member states** and depends on their specific rules.

This leads to the neccessity that each national road authority needs to build significant competence on SDV and AD and, moreover, that OEMs have to interact with them individually. This causes not only **huge efforts for all stakeholders**, but also intransparent and inconsistent levels of safety including loopholes for companies with little safety tradition.

ECAVA Governance

In order to make the governance of ECAVA as **effective** and as lean as possible, it is important to focus on decision makers of all willing European-headquartered automotive companies as well as of all relevant Directorates General (DG) of the European Commission.

The **matrix** depicted in *Figure 2* shows, that industry including R&D is influenced by many, if not all DGs. In order to **be globally competitive**, OEMs and suppliers always need to decide, **where they conduct their research, development and production** – in Europe or in the Americas, China or elsewhere in the world. R&D for Truck automation, for example, is today mainly based in the U.S., also R&D by European companies.

Therefore, the alignment of interests in the **ECAVA Steering Committee forms a huge chance** to drive the **urgently needed actions** by industry and the European Commission in order **to make Europe globally competitive**.

According to the described three major challenges and the proposed actions, **ECAVA** organized by DG CNECT should promote/orchestrate the communication with **all relevant DGs**, starting with

- **DG Communications Networks, Content and Technology** (CNECT): orchestration of the ECAVA Steering Committee and the inclusion of all other DGs
- **DG Research and Innovation (RTD)**: coordination of funding and provision of a new agile funding scheme for Open Source Software research projects.
- **DG Mobility and Transport** (MOVE): set-up and coordination of pilot test facilities
- **DG Justice and Consumers** (JUST) – provision of purpose-specific exempts on GDPR
- **DG Competition (COMP)** – provision of a lean process for ECAVA members regarding anti-trust clearance
- **DG Internal Market, Industry, Entrepreneurship and SMEs (GROW)** – coordination with and backing by European economic policy and supporting an efficient and effective approval of AD vehicles and systems together with member states.

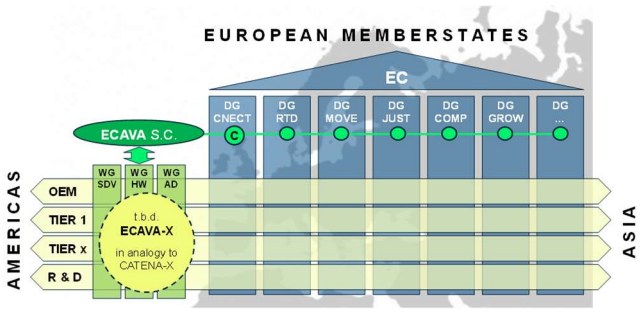

Figure 2: Interaction between EC, ECAVA and Industry

The ECAVA Steering Committee interacts with **Working Groups** established by industry, comprising OEMs, TIERs and R&D-organisations including universities, shown in yellow *Figure 2*. Ideally, ECAVA helps to form a **trustworthy playing field** for entities with headquarters in Europe.

While the current effort to create an open-source middleware for SDV appears to be well-governed by ECLIPSE SDV, the formation of a **non-profit ECAVA-X** association **similar to CATENA-X** has the potential to **drive the necessary changes and actions** in order to address all three challenges outlined at the beginning of this document.

This **non-profit organization** would benefit from learnings of CATENA-X, should therefore be **purely industry-led with** the involvement of relevant OSS-initiatives and **interact with the ECAVA Steering Committee** on a regular and trustful basis.

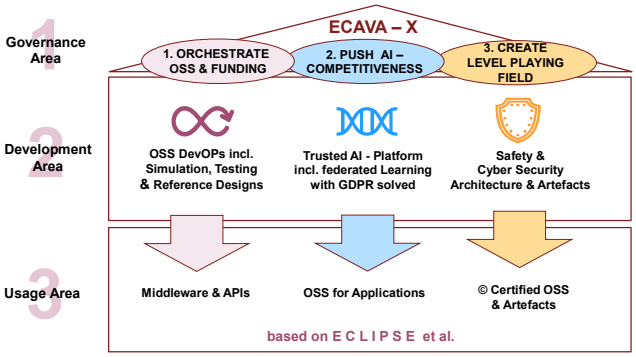

Figure 3: Draft structure of the non-profit association ECAVA-X in analogy to CATENA-X

Since the success of CATENA-X is based on three builing blocks, it appears logical to chose a very similar structure shown in *Figure 3*: the **governance area (1)** of this non-profit organization interacts with the ECAVA Steering Committee, decides on **inclusion / exclusion of members** and drives the implementation of the strategy by **orchestrating funding** from the EC, member states and others. The board should be **European** from the very beginning and define **a code of conduct** and **roles** in order to assure a continued operation.

The **development area** "produces" **OSS** and other artefacts like **DevOps** in order to **deliver and manage automotive-grade Software**. Based on the criteria defined by the governance, companies and research organisations are

invited to contribute, e.g. in a public funded project. The focus will expand towards ML-Ops and **ML-based artefacts** not only addressing Automated Driving. **Ensuring a reasonable level of safety** in an agreed and well-founded manner will contribute to **minimize product liability risk** of all ECAVA-X members.

In the **usage area (3)**, OSS and other quality assured artefacts are made available under the respective licences. In order to facilitate a **global use** of the results provided here, the usage area should be as open as possible, also for stakeholders from countries outside Europe.

Next Steps

While the **urgency of the current situation is clear** for most stakeholders, the views on the extent and format of the collaboration are converging at different speeds.

Therefore, it appears wise to **move forward with high pace**, which calls for a lean and stepwise approach, sketched in the following:

Workstream 1 on SDV

1. **European Commission** invites industry to join the ECAVA Strategy Board and sign a MOU on the goals and objectives
2. **Industry** forms a group of „**willing European-headquartered companies**“ who …
   - sign the MOU, while remaining open to others,
   - draft a joint **roadmap** for Open Source SW-components and methodologies,
   - agree on a **reference architecture** for SDV, facilitating the compatibility of SW-artefacts,
   - propose a **strategy** defining which desired artefact would ideally be funded by which instrument.
3. The **ECAVA Steering Committee** should evaluate the proposed R&D-strategy and **recommend actions** supporting its implementation, e.g. founding and funding of a non-profit association ECAVA-X;
4. A **neutral organization** with good contacts to CATENA-X should draft a proposal for the non-profit association ECAVA-X, preferably funded by the EC.
5. **Willing partners from Industry** should convene, decide whether and when to found ECAVA-X.

Workstream 2 on AI and AD

1. A **neutral organization** like ECAVA-X should objectively **compare the global boundary conditions** in terms of regulation, cooperation, funding mechanisms and time-to-market for the most relevant regions (U.S., China, …) and identify **necessary actions to make Europe the most attractive place** for people & industry, R&D, for the production of connected and automated vehicles and for the nascency and growth of an eco-system in connected and automated mobility.
2. The **ECAVA Steering Committee** prioritizes the proposed actions, which should be addressed by the respective DGs on the one hand and by research and industry on the other hand;
3. **DG CNECT** orchestrating ECAVA is asked to assign the agreed actions to the respective DGs and promote their implementation;
4. **Industry** should address their agreed actions on the one hand individually and on the other hand in cooperation, e.g. by empowering **ECAVA-X.**

Workstream 3 on Level Playing Field

1. Based on action point 1 of workstream 2, a **neutral organization** like ECAVA-X should propose an **orchestrated approach** for safety assurance of ADAS and AD and their updates.
2. The **ECAVA Steering Committee** should discuss this approach and ask the EC and especially DG GROW to seek agreement among member states and the relevant national authorities.
3. Depending on the level of agreement, the **ECAVA Steering Committee** should promote adequate funding for ECAVA-X and its members to establish the respective processes and methods for a **harmonized safety assurance** of ADAS and AD.
4. **ECAVA-X** should orchestrate and drive the necessary R&D for the conception and implementation of the required process and methodologies, which should also be largely available as Open Source Software.
5. **Selected OEMs** from Europe and other countries should be asked to follow the implemented approach and report on the results for a selected functionality and its updates
6. The **ECAVA Steering Committee** should recommend on **further steps of implementation** of the validated processes and methods in order to create to a **level playing field as a prerequisite** for a **harmonized safety assurance** of ADAS and AD.

These **proposed steps** for sure need more discussion among the willing stakeholders marked in bold dark red colour. The motivating goal is to form a **European-centric, world-leading SDV-Platform for Automotive**.

The authors Prof. Dr. Lutz Eckstein, Prof. Dr. Mirko Mählisch and Prof. Dr. Steven Peters organized in Uni-DAS are **happy to include** highly-motivated, **industry-experienced professors** from other European countries in order to discuss the respective views or “their” specific companies on a neutral bas.

Having worked in responsible positions in the European automotive industry we are absolutely convinced and committed to **create a new level of cooperation** among all motivated stakeholders, **contributing to globally competitive and safe vehicles** resulting in prosperity and attractiveness of Europe for organisations as well as individuals – **it is them, who take the challenge**.