Real and synthetic scenarios generated for the development, training, virtual testing and validation of CCAM systems

SYNERGIES

D9.1 Preliminary report on stakeholders' engagement

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1 EXECUTIVE SUMMARY

Deliverable D9.1 reports on stakeholder engagement activities implemented under Task 9.1 of the SYNERGIES project from project start until Month 18. Task 9.1 aims to establish a structured, targeted, and sustainable stakeholder engagement framework supporting the development, validation, adoption, and future exploitation of the SYNERGIES Scenario Dataspace and Tools Marketplace for scenario-based safety validation of Connected, Cooperative and Automated Mobility (CCAM) systems.

Up to Month 18, stakeholder engagement activities have focused on four complementary operational pillars:

1. The identification, categorisation, and prioritisation of stakeholders relevant to CCAM safety validation, regulatory acceptance, and platform uptake.
2. The consolidation and extension of an online cooperation platform to enable sustained interaction with an established expert community.
3. Structured engagement with key CCAM stakeholder groups through targeted workshops, events, bilateral exchanges, and Advisory Board interactions.
4. Continuous alignment of stakeholder needs and feedback with technical progress and exploitation-related activities across the project.

Concretely, the SYNERGIES cooperation platform has been implemented using Zulip, enabling structured thematic discussions, document sharing, and expert exchanges. More than 150 stakeholders from industry, public authorities, research organisations, and CCAM-related initiatives have been invited to the platform, with approximately 35% active participation at the time of reporting. The GDPR-compliant migration of contacts from the SUNRISE project ensured continuity with an established expert network while progressively expanding the stakeholder base.

In parallel, stakeholder engagement has been supported through participation in major European and international CCAM-related events, bilateral exchanges with policy, regulatory, and industrial actors, and preparatory activities for dedicated SYNERGIES stakeholder workshops linked to the first release of the platform. Individual meetings with Advisory Board members during the first year of the project enabled early strategic feedback, supporting alignment with external expectations and helping to identify enablers and potential barriers related to regulatory acceptance, industrial uptake, and long-term sustainability.

Stakeholder engagement activities have been closely coordinated with technical work packages to ensure that stakeholder inputs directly inform platform design, scenario requirements, and exploitation planning. At this stage, engagement activities primarily serve to validate assumptions, refine priorities, and de-risk future adoption and governance pathways rather than to deliver final exploitation or ownership models.

This deliverable documents the stakeholder landscape, engagement objectives, mechanisms implemented up to Month 18, and the role of stakeholders in supporting regulatory alignment, industrial relevance, and long-term sustainability of SYNERGIES results. It establishes a clear baseline for the continuation and intensification of stakeholder engagement in subsequent project phases, particularly in view of the public release and progressive uptake of the SYNERGIES platform beyond Month 18.

Keywords: CCAM, Stakeholder Engagement, Scenario-based Safety Validation, Scenario Dataspace, Online Cooperation Platform, Regulatory Alignment.

2 OBJECTIVES AND SCOPE OF STAKEHOLDER ENGAGEMENT

The SYNERGIES stakeholder engagement strategy, developed under Task 9.1, supports the project's overarching objective of advancing scenario-based safety validation for Connected, Cooperative and Automated Mobility (CCAM) through a unified European framework for scenario collection, generation, processing, and exchange. The strategy is explicitly aligned with European priorities on CCAM deployment, data sharing, interoperability, and competitiveness, and is designed to support both the uptake and long-term sustainability of the project results.

Stakeholder engagement activities are designed in close interaction with the structure and intended role of the SYNERGIES federated platform, composed of a Scenario Dataspace and a Tools Marketplace. Together, these components address a key structural challenge in CCAM safety validation: the limited availability of interoperable, trusted, and regulator-relevant scenario assets that can be reused across organisations, tools, and national contexts. By enabling seamless scenario exchange, virtual simulation, and data-driven decision-making, the platform is positioned as a shared European asset supporting industrial development, regulatory validation, and research activities.

Figure 1 provides an overview of the SYNERGIES stakeholder engagement strategy, illustrating the relationship between stakeholder groups, engagement phases, and the SYNERGIES Scenario Dataspace and Tools Marketplace.

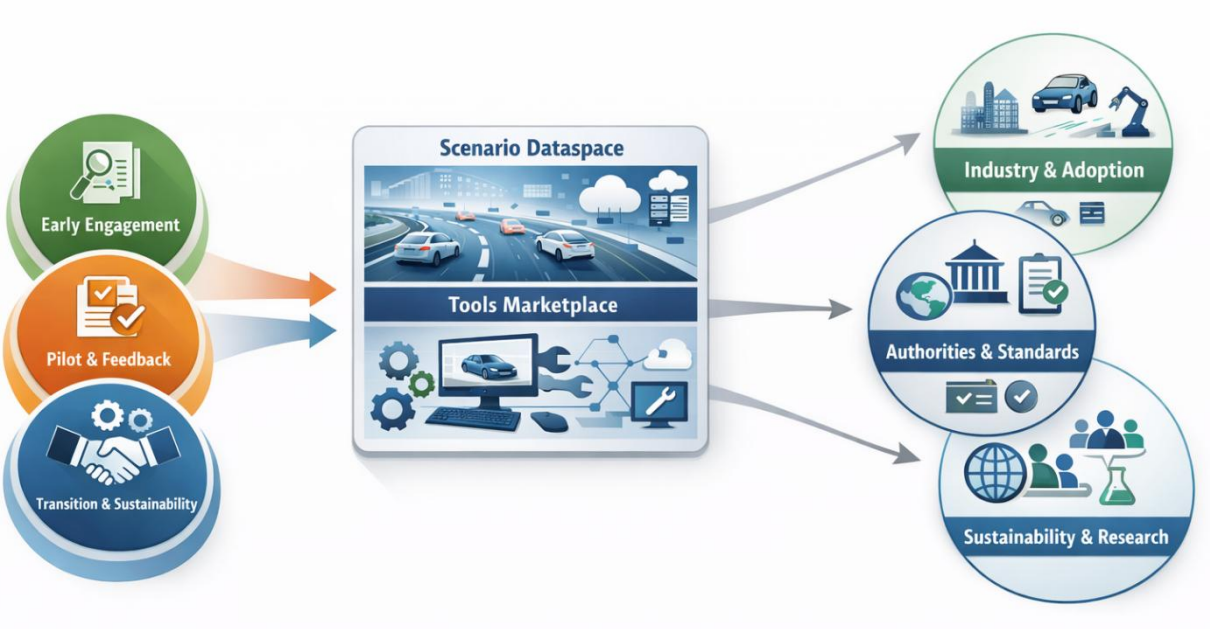

Figure 1 Overview of the SYNERGIES stakeholder engagement strategy and exploitation pathway

2.1 Stakeholders focus and prioritization

This report targets stakeholders that are central to CCAM safety validation and adoption, rather than aiming for exhaustive coverage of the broader CCAM ecosystem. Stakeholders are prioritised based on their functional role in the value chain and their ability to influence adoption and sustainability, specifically:

- **Adoption and operational use** of scenario-based validation approaches, including OEMs, Tier-1 suppliers, SMEs, and tool providers.

- **Validation, legitimacy, and regulatory acceptance** of safety evidence, including public authorities, regulators, and standardisation bodies.
- **Long-term governance, sustainability, and ecosystem building**, including European initiatives, associations, and research organisations with a mandate or capacity to support continuity beyond the project duration.

This prioritisation ensures focused, realistic engagement within the project's timeframe and resources, while maximising impact through organisations capable of acting as multipliers and long-term anchors for SYNERGIES outcomes.

In practice, this prioritisation has guided the selection of stakeholders invited to the cooperation platform, the focus of bilateral exchanges, and the target audience for upcoming SYNERGIES workshops. Stakeholder categories with high influence on regulatory acceptance and industrial uptake have been prioritised for early engagement, while broader ecosystem actors are progressively involved through dissemination-oriented channels.

2.2 High-level and specific objectives

The stakeholder engagement strategy is structured around two complementary high-level objectives:

- **Strategic orientation**. Support European Union objectives for CCAM leadership by fostering alignment on data sharing, interoperability, competitiveness, and sustained adoption of scenario-based safety validation approaches by industry, regulators, and research and innovation actors.
- **Core ambition**. Establish the SYNERGIES Scenario Dataspace and Tools Marketplace as a European reference framework for safe, cost-effective CCAM development, training, virtual testing, and validation, enabling the reuse of scenarios and tools across borders, organisations, and application domains.

Together, these objectives guide a stakeholder strategy that positions SYNERGIES as a credible and trusted reference for CCAM safety validation, while identifying key influencers and adopters required to maximise uptake, impact, and continuity beyond the project.

To operationalise the high-level objectives, the stakeholder engagement strategy pursues the following specific objectives:

1. Support emerging EU priorities relevant to CCAM safety validation, including large-scale cross-border testbeds, regulatory sandboxes, and European Automated Driving Corridors.
2. Collaborate with new and emerging initiatives such as the European Connected and Autonomous Vehicle Alliance [1] to ensure alignment and mutual reinforcement.
3. Engage organisations capable of promoting and amplifying the SYNERGIES platform, including the CCAM Association [2] and the CCAM States Representatives Group [3].
4. Identify organisations with the potential to contribute to post-project governance, ownership, or maintenance of the platform, such as the Joint Research Centre [4], ERTICO – ITS Europe [5] or Applus+ IDIADA.
5. Involve organisations that can enhance platform tools and functionality, including scenario and data providers, tool developers, and service providers.
6. Exchange knowledge and results with European research and innovation projects (e.g. CCAMbassador, CERTAIN) to ensure coherence and avoid duplication.

7. Support and align with related European initiatives, including mobility data spaces and the implementation of the AI Act [6] and the Data Act [7].

The engagement objectives and priorities have been validated through iterative exchanges with the Steering Committee, Advisory Board, Expert Network, and Work Package Leaders, ensuring alignment with technical progress, exploitation planning, and external stakeholder expectations.

2.3 Link to Exploitation and Sustainability

Stakeholder engagement under Task 9.1 is conceived as a precursor to adoption and long-term exploitation, rather than as a stand-alone dissemination activity. Engagement activities are structured to support a progressive pathway from early interaction to sustained use, namely:

- **Early-stage engagement**: validation of stakeholder needs, requirements, and expectations, and trust-building around scenario-based safety validation concepts.
- **Mid-stage engagement**: trial use, feedback, and alignment of the SYNERGIES platform with industrial workflows, regulatory practices, and standardisation activities.
- **Late-stage engagement**: preparation for post-project governance, ownership, and maintenance models, supporting the transition towards sustained operation and exploitation.

Through this approach, stakeholder engagement contributes directly to the project's exploitation strategy, supporting the transition from engagement → adoption → sustained use, in coordination with activities under WP1 and WP10.

At M18, these activities remain preparatory in nature and are intended to de-risk future exploitation activities rather than to deliver final governance or business models.

3 STAKEHOLDER ENGAGEMENT ACTIVITIES IMPLEMENTED DURING M1-M18

This chapter describes the work carried out under Task 9.1 - Stakeholder Engagement Strategy and Cooperation Platform. The work is structured into four interlinked components that together establish a coherent and actionable stakeholder engagement approach supporting CCAM safety validation, platform adoption, and long-term exploitation.

First, the **strategic foundations and vision** are defined, aligning stakeholder engagement with European CCAM policy priorities and the overall objectives of the SYNERGIES project. Second, **stakeholder identification** is presented, focusing on organisations that directly influence CCAM safety validation, regulatory acceptance, and platform uptake. Third, **stakeholder categorisation and prioritisation** are applied using power–interest, salience, and role-based perspectives to ensure focused and realistic engagement. Finally, the **stakeholder engagement strategy** is detailed, specifying interaction mechanisms, governance structures, communication channels, and measures supporting uptake and long-term sustainability.

This structured approach ensures that stakeholder engagement under T9.1 goes beyond information exchange and directly supports adoption, validation, and exploitation of the SYNERGIES Scenario Dataspace and Tools Marketplace.

3.1 Foundations established during the project early-stage

The SYNERGIES stakeholder engagement strategy is defined against a background of **geopolitical uncertainty, increased global competition, and accelerating technological change** in the CCAM domain. These factors place strong pressure on Europe to move rapidly from fragmented, national-level pilots towards **a coherent and competitive single market for automated driving**, underpinned by credible and scalable safety validation approaches.

In this context, the stakeholder strategy is designed to support both **European strategic priorities** and the **long-term uptake of SYNERGIES results**, building a shared vision among key actors involved in CCAM safety validation. The strategic foundations are informed by two complementary dimensions.

First, the strategy aligns with the **Automotive Industrial Action Plan 2025 (COM (2025) 95)**[1], which explicitly calls for the transition from isolated national initiatives towards integrated European solutions for safe and validated automated driving. Key elements include the establishment of large-scale cross-border testbeds, regulatory sandboxes, and European Automated Driving Corridors, as well as the harmonisation of approval procedures for ADAS and ADS testing and deployment.

Second, the strategy is anchored in the **SYNERGIES project context**, taking into account the project's governance structure, expected results, and exploitation objectives. This includes the development of a federated Scenario Dataspace, a Tools Marketplace, and a virtual toolchain supporting scenario-based safety validation across different abstraction levels.

Strategic alignment between EU policy objectives and project results is essential to foster **trust, legitimacy, and coordinated stakeholder action**, enabling meaningful collaboration rather than isolated engagement activities.

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52025DC0095

Within this strategic context, Task 9.1 activities up to M18 focused on translating policy alignment into concrete engagement mechanisms, including the definition of stakeholder categories, preparation of targeted engagement formats, and the establishment of an online cooperation platform enabling sustained interaction.

3.1.1 Alignment with EU policy priorities

Table 1 summarises the relationship between selected flagship actions of the Automotive Industrial Action Plan and their relevance for CCAM safety validation, highlighting corresponding strategic alignment within the SYNERGIES project. The analysis focuses on elements directly relevant to the scope and objectives of this deliverable.

Table 1 Automotive Action Plan and SYNERGIES Priority Alignment

Automotive action plan and Flagship actions related to Safety Validation	SYNERGIES Project – Strategic alignment
Testbeds for autonomous driving *"To boost market readiness and commercialisation of autonomous vehicles, the Commission **will work with Member States to rapidly establish at least three large-scale cross-border testbeds**, related regulatory sandboxes and European Automated Driving Corridors."*	Focus on how the simulation platform, reports and performance indicators can support member states representatives in decision-making processes. Strategic collaboration through: - The CCAM States Representatives Group (SRG) through the CCAM partnership. - CCAMbassador project which fosters collaboration and harmonised approaches at both country level and between the EU Member States/Associated countries.

Automotive action plan and Flagship actions related to Safety Validation	SYNERGIES Project – Strategic alignment
Towards a Single Market for autonomous driving *"The Commission will further develop, as a priority, the regulatory framework for autonomous vehicles, starting with allowing the approval of unlimited series of vehicles* ***with automated parking systems in 2025 and more use cases*** *(e.g. hub-to-hub freight transport) in 2026 ensuring their safety. Furthermore, the Commission will draw up refined rules to better support pre-deployment of ADS (automated driving systems) and ADAS (advanced driver assistance systems) testing on public roads. Testing innovative ADAS and ADS technologies on public roads in Europe typically requires permits based on exemptions from national rules, which requires multiple approvals across different Member States.* ***The Commission will propose harmonised admission approval procedures in early 2026 to facilitate all ADAS and ADS testing on open roads across the EU."***	SYNERGIES Key exploitable results include scenarios, platform and tools in line with the 2026 single market proposed. The project will follow up this activity to identify the actors or organizations that can benefit from the project results in relation to: - Regulatory framework for autonomous vehicles - Automated parking systems use cases and scenarios - Harmonization of approval procedures for ADAS and ADS.
European Connected and Autonomous Vehicle Alliance (ECAVA) *"The Commission will therefore launch, without delay, the* ***European Connected and Autonomous Vehicle Alliance****, building on the preparatory work done in the European Vehicle of the Future Initiative, and the Horizon Europe automotive-related Partnerships, in particular 2Zero, CCAM and the Chips Joint Undertaking"*	SYNERGIES project will define collaboration topics with ECAVA once the members are defined and the alliance established.
Access to vehicle data, functions and resources *"Adequate measures on access* ***to vehicle data, functions and resources including guidance on Data Act*** *and if needed, a* ***legislative proposal on access to vehicle data****. Review of the Motor Vehicle Block Exemption Regulation (MVBER) and Supplementary Guidelines."*	The project platform relies and is built on data providers, on databases and scenarios, and tool providers. Relevant on the discussions to define of the data needed to ensure CCAM safety and the legislative proposal.

From a policy perspective, SYNERGIES contributes to ongoing discussions on how **simulation platforms, scenario databases, and performance indicators** can support regulatory and decision-making processes at both national and European levels. In particular, the project provides concrete inputs relevant to:

- Regulatory frameworks for automated vehicles.
- Use cases such as automated parking and hub-to-hub transport.

- Harmonisation of approval and testing procedures for ADAS and ADS.

Engagement with actors such as the **CCAM States Representatives Group (SRG)** and European R&I initiatives (e.g. CCAMbassador) is therefore positioned as a strategic mechanism to align project outputs with emerging regulatory and policy needs.

3.1.2 Strategic role of the SYNERGIES Platform

From the project perspective, the stakeholder engagement strategy aims to strengthen the **credibility and acceptance of virtual, scenario-based toolchains** for CCAM systems validation. This is essential to enable short-term testing approvals and to support the **commercialisation and deployment of CCAM systems** in the medium to long term.

The effectiveness of the SYNERGIES platform depends on coordinated engagement with stakeholders operating at different levels of the CCAM ecosystem:

- **External stakeholders**, whose involvement is critical for long-term exploitation and sustainability of the platform, and
- **Internal stakeholders**, whose feedback and contributions are required to refine platform functionality, tools, and business models.

At the **external level**, engagement activities are designed in alignment with the high-level structure of the SYNERGIES platform supporting governance and exploitation considerations (Figure 2). These activities focus on:

- CCAM-related organisations influencing policy and strategic orientation at European level (e.g. EU institutions, ECAVA).
- Stakeholders involved in regulatory, homologation, and type-approval processes, including Member State representatives, vehicle safety bodies, standardisation organisations, and OEMs.
- Identification and engagement of organisations with the potential to assume future roles in platform governance, ownership, or maintenance.
- End users of the SYNERGIES platform, whose operational use and feedback are essential for validation and continuous improvement.

Figure 2 illustrates the high-level structure of the SYNERGIES platform, providing the reference framework that underpins external stakeholder engagement activities and supports long-term exploitation and sustainability considerations.

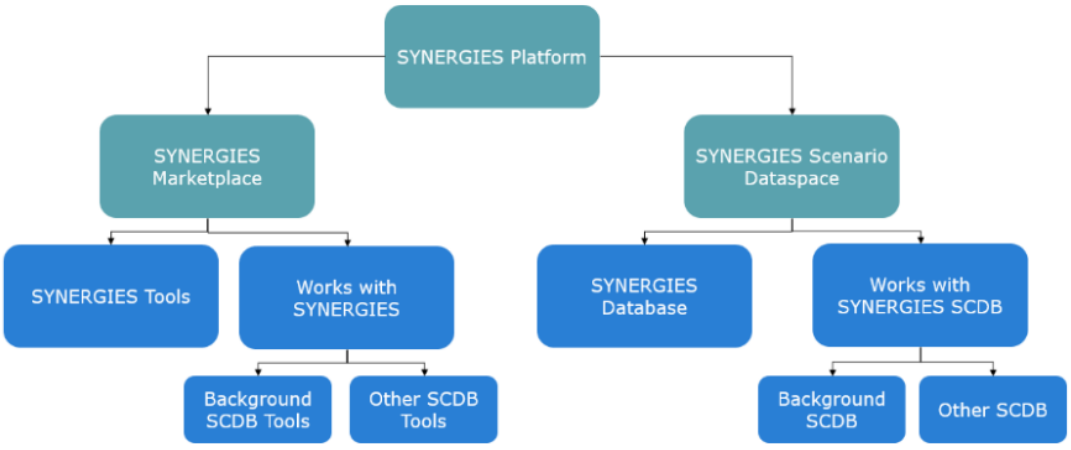

Figure 2 SYNERGIES Platform - High Level Platform Structure

At the **internal level**, stakeholder engagement focuses on improving the **usability, relevance, and completeness** of the platform, its functions, and its tools, while contributing to the refinement of the exploitation and business models. This includes systematic feedback collection to strengthen the project's key exploitable results and to enrich the platform with new scenarios and datasets.

Internal engagement builds on requirements and insights previously identified in **D2.1 Stakeholder high-level requirements** [9] and **D2.2 Storylines definition and technical and interoperability requirements** [10], and requires close collaboration across the following roles, illustrated in Figure 3:

- scenario and data providers,
- tool developers and providers,
- database providers,
- project teams across the SYNERGIES work packages.

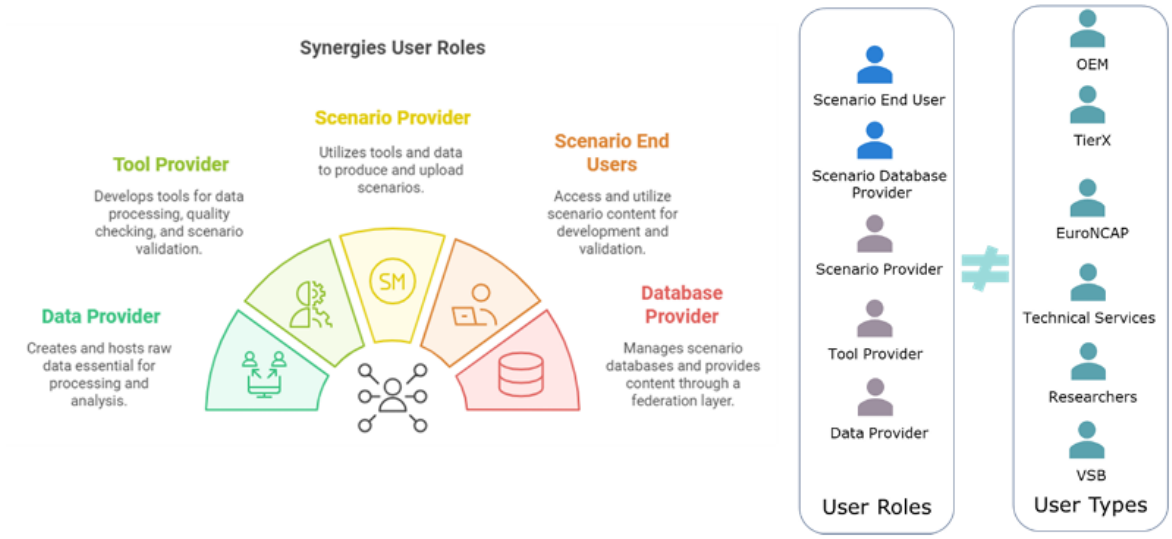

Figure 3 User Roles within the SYNERGIES storylines. Source: D2.1's user types and roles.

Figure 3 presents the user roles within the SYNERGIES storylines, linking functional roles to user types and illustrating how different stakeholders interact with the platform across the value chain.

3.2 Definition of stakeholder categories and roles

Building on the strategic foundations and vision described in Section 3.1, the SYNERGIES stakeholder engagement strategy identifies and categorises stakeholders that are relevant for **CCAM safety validation**, **platform adoption**, **regulatory acceptance**, **and long-term exploitation**. The identification process focuses on organisations and communities that either influence or are directly affected by the development, validation, and uptake of scenario-based safety validation methodologies and the SYNERGIES platform.

Stakeholders are analysed and categorised using complementary dimensions to ensure a structured and actionable engagement approach:

- **Strategic relevance** (key vs. non-key stakeholders). The Key Stakeholders are actors with significant influence on project direction, acceptance, or exploitation outcomes.
- **Degree of involvement** (primary vs. secondary stakeholders). Stakeholders directly affected by, or directly contributing to, project results versus those indirectly impacted or acting as intermediaries.
- **Position relative to the project** (internal vs. external). Entities within the consortium and project governance structures versus organisations outside the project boundaries.
- **Functional role** in relation to CCAM safety validation, platform use, governance, and exploitation (e.g. decision-makers, contributors, validators, adopters, enablers, potential blockers).

This multi-dimensional categorisation enables the project to **prioritise engagement efforts**, tailor interaction mechanisms, and directly link stakeholder engagement activities to uptake, regulatory alignment, and sustainability objectives under Task 9.1.

3.2.1 Stakeholder landscape

Table 2 presents the consolidated stakeholder landscape for SYNERGIES, grouping stakeholders by category, listing representative organisations, and clarifying their engagement dimension and role in relation to the project. The table reflects stakeholders relevant across the policy, regulatory, industrial, research, operational, and societal layers of the CCAM ecosystem.

The identified stakeholders cover:

- **European policy and programme actors**, including EU institutions and CCAM Partnership bodies, which shape strategic orientation, funding priorities, and expectations related to CCAM safety, interoperability, data sharing, and exploitation.
- **Regulatory, type-approval, and standardisation bodies**, whose acceptance of scenario-based evidence and alignment with standards are critical enablers—or potential blockers—for CCAM deployment.
- **Public authorities and road administrations**, which define deployment frameworks, public procurement requirements, and local, national, and cross-border conditions for CCAM testing and operations.
- **Industrial stakeholders**, including OEMs, Tier-1 suppliers, tool providers, and service providers, which act as primary adopters, contributors, and validators of the Scenario Dataspace and Tools Marketplace.
- **Scenario, data, and database owners**, including existing scenario databases and European CCAM projects, which provide legacy assets, interoperability inputs, and reference implementations for the federated platform.
- **Research organisations and European R&I projects**, contributing methods, tools, scenarios, and scientific validation approaches, and supporting continuity across the CCAM research ecosystem.
- **Operational stakeholders**, such as testbeds, proving grounds, road operators, and pilot sites, which supply real-world data, validate scenarios, and demonstrate end-to-end workflows.
- **Societal and user-representative organisations**, including consumer organisations and road-user representatives, which influence trust, acceptance, and safety expectations.

- **Data protection and cybersecurity authorities and experts**, which act as compliance enablers and potential blockers by ensuring alignment with EU data protection, cybersecurity, and ethical requirements.
- **Project-internal stakeholders**, including project coordination, advisory structures, and work package leadership, responsible for strategic alignment, risk management, and governance decisions.

Table 2 Stakeholder Identification and Categorization

Stakeholder category	Representative organisations	Dimension	Role in SYNERGIES and CCAM safety validation
EU Institutions & CCAM Partnership bodies	European Commission (HORIZON-CL5), CCAM Partnership, relevant DGs and Programme Committees.	Key; Secondary; External	Strategic sponsors and decision-makers defining policy priorities, funding frameworks, and expectations for CCAM safety, interoperability, data sharing, and long-term exploitation.
Regulators, type-approval & standardisation bodies	UNECE WP.29 community, national type-approval authorities, CEN/CENELEC, ISO, ETSI, SAE, ASAM	Key; Secondary; External	Policy and regulatory authorities acting as enablers or blockers; alignment of SYNERGIES outputs with regulatory frameworks and standards; potential acceptance of scenario-based evidence in safety cases.
Public authorities & road administrations	BASt, DGT, ENISA, JRC, Helmond City, Luxembourg Ministry of Economy, RDW, Rijkswaterstaat, Red Sea Global, Swedish Transport Administration, THI, TRB (US), UC Berkeley (US), UK DoT, VIAS Belgium.	Key; Secondary; External	Implementers of CCAM testing and deployment frameworks; define local, national, and public-procurement requirements; contribute operational constraints and policy feedback.
CCAM testbeds, pilot sites & proving grounds	European test tracks, open-road pilots, living labs	Primary; External	Operational contributors providing real-world data; validation of synthetic scenarios; demonstration of end-to-end scenario-based validation workflows.
Industrial CCAM OEMs	Audi, BMW, Daimler, Renault, Toyota, Stellantis, Volvo Cars, Volkswagen, Nissan, Honda, IVECO, Volvo Autonomous Solutions	Key; Primary; External	Strategic adopters and decision-makers; provide industrial use cases, requirements, and data; validate industrial usability and business relevance of the Scenario Dataspace and tools.

Stakeholder category	Representative organisations	Dimension	Role in SYNERGIES and CCAM safety validation
Industrial CCAM Tier-1s	Bosch, AVL, Denso, Magna, Mobileye, ZF, Veoneer, Valeo, GMV, NXP, SIEMENS, CLEPA, FORVIA.	Key; Primary; External	Technical contributors and adopters; provide system-level requirements, validation workflows, and tool integration feedback.
CCAM tools, simulation & data providers	SMEs and technology providers across Europe (e.g. Brussels, Barcelona, Eindhoven, Graz, Dresden)	Key; Primary; Internal & External	Technical experts integrating and offering tools via the Marketplace; support scalability, innovation, and maintenance of the platform.
Existing scenario database owners	Safety Pool™, ADScene, StreetWise, Scenario Centre, AVL Scenius, Hi-Drive, SUNRISE, SAKURA.	Key; Primary; External (with internal interfaces)	Strategic contributors enabling interoperability; provide legacy assets; align licensing, governance, and technical interfaces for the federated Scenario Dataspace.
European CCAM R&I projects	Projects identified in D1.5 Initial Exploitation Plan.	Key; Primary–Secondary; External	Strategic multipliers and early adopters; contribute scenarios, methods, and data; ensure methodological alignment and continuity across the CCAM R&I ecosystem.
Research organizations	Leading European research institutes and universities with strong expertise in automated driving, AI, data processing, and safety assurance	Secondary; External	Methodology developers for safety assurance, AI, data processing, and scenario validation; scientific validation of SYNERGIES approaches.
Road users & consumer organizations	ADAC, AstaZero, Euro NCAP, IRU, OAMTC, TÜV Rheinland, TÜV Süd	Secondary; External	Societal enablers or blockers; represent end-user safety expectations, transparency, trust, and acceptance of CCAM systems.
CCAM community networks & associations	CCAM Association, CLEPA, ACEA, 5GAA, UITP, AutonomotiveN, AVSC, BasqueCCAM, Car2Car consortium, EUCAR, EARPA, SOGEI.	Secondary; External	Multipliers and advocacy actors; support dissemination, alignment with other initiatives, and ecosystem-level uptake.

Stakeholder category	Representative organisations	Dimension	Role in SYNERGIES and CCAM safety validation
Data protection & cybersecurity authorities / experts	Partner DPOs, national DPAs, cybersecurity experts.	Secondary; Internal & External	Compliance experts and potential blockers; ensure alignment with EU data protection, cybersecurity, and ethical requirements.
Project coordination & governance bodies	Project Coordinator, Advisory Board, WP Leaders	Key; Primary; Internal	Strategic and operational decision-makers; steer scope, resources, risk management, and platform governance during the project.

3.2.2 Role of stakeholder categorisation in the engagement strategy

The categorisation presented in Table 2 serves as the **analytical backbone** for the stakeholder engagement activities implemented under Task 9.1. By distinguishing stakeholder influence, roles, and proximity to exploitation, the project can:

- prioritise engagement with stakeholders critical to regulatory acceptance, industrial adoption, and platform sustainability.
- tailor engagement formats (policy dialogue, technical workshops, pilots, expert exchanges) to stakeholder roles.
- anticipate and manage enablers and blockers related to regulation, data protection, standardisation, and public acceptance.
- support the transition from stakeholder engagement to adoption, governance, and long-term exploitation of the SYNERGIES platform.

The stakeholder landscape is treated as a **living reference**, updated as project results mature and new exploitation opportunities emerge, ensuring continued alignment between engagement activities and the project's impact objectives.

3.3 Stakeholder engagement mechanisms

The SYNERGIES stakeholder engagement strategy is designed to address the complexity of the **CCAM safety-validation ecosystem**, encompassing OEMs, Tier-1 suppliers, tool and data providers, testbeds, regulators, public authorities, and users of the Scenario Dataspace and Tools Marketplace. The strategy reflects the **influence, roles, and degree of impact** of different stakeholders on the platform, while balancing **European strategic priorities**—as outlined in the Automotive Industrial Action Plan—with the project's long-term impact and exploitation objectives.

The first release of the SYNERGIES platform in November 2025 represents a key enabler for stakeholder engagement, providing a concrete and operational basis for interaction. This initial version supports both:

- the prioritisation of technical, regulatory, and operational topics with stakeholders; and
- the early involvement of organisations with potential roles in **post-project ownership, governance, or maintenance**, supporting long-term exploitation of project results.

3.3.1 Stakeholder in-depth analysis and engagement approach

The stakeholder matrix presented in Table 3 translates the stakeholder landscape identified in Section 3.2 into an **actionable engagement framework**. For each stakeholder category, the matrix combines **interest and influence levels** with tailored engagement strategies adapted to the SYNERGIES context of scenario-based safety validation and the federated Scenario Dataspace and Tools Marketplace.

Interest reflects the degree to which stakeholders are concerned with or affected by SYNERGIES outcomes:

- **High**: stakeholders directly impacted by, or strongly invested in, the success of the platform and its adoption.
- **Medium**: stakeholders with indirect involvement or partial dependency on project outcomes.
- **Low**: stakeholders with limited involvement or peripheral interest.

Influence reflects the stakeholder's ability to affect project direction, decisions, or outcomes:

- **High**: stakeholders able to shape strategy, allocate resources, or act as enablers or blockers.
- **Medium**: stakeholders able to provide meaningful input or support without decisive control.
- **Low**: stakeholders with limited capacity to influence outcomes.

Engagement strategies follow a recognised stakeholder engagement model (Inform, Consult, Involve, Collaborate, Empower) and are applied proportionately, based on stakeholder role, influence, and relevance to CCAM safety validation and exploitation.

The **role in stakeholder engagement** clarifies each stakeholder's specific contribution to cross-sectoral or cross-regional collaboration, regulatory alignment, platform adoption, or long-term sustainability.

Table 3 therefore serves as a **management and decision-support tool**, guiding the selection of engagement mechanisms, the allocation of effort, and the sequencing of stakeholder interactions throughout Task 9.1.

Table 3 Stakeholder Engagement Matrix - SYNERGIES

Stakeholder category	Interest / Influence	Engagement Strategy	Role in stakeholder engagement and exploitation
EU institutions & CCAM Partnership bodies	High / High	Collaborate / Empower	Strategic alignment with EU CCAM priorities, SRIA objectives, and multi-cluster coordination; validation of relevance for EU-level safety, data, and exploitation frameworks.
Regulators, type-approval & standardisation bodies	High / High	Collaborate	Alignment with UNECE WP.29 and relevant standards; assessment of scenario-based evidence for safety cases, type-approval, and certification processes.
Public authorities & road administrations	High / High	Collaborate	Enable deployment conditions and testing permissions; provide public infrastructure data; align local, national, and cross-border deployment frameworks.
CCAM testbeds, pilot sites & proving grounds	High / Medium	Involve	Supply real-world data; validate synthetic scenarios; demonstrate end-to-end scenario-based validation workflows.
Industrial CCAM OEMs	High / High	Collaborate	Define industrial use cases and requirements; contribute data; validate industrial usability and business relevance of the platform.
Industrial CCAM Tier 1s	High / Medium	Involve	Perform system-level testing and validation; integrate scenario-based approaches within supply chains.
CCAM tools, simulation & data providers	High / high	Collaborate	Integrate and provide tools via the Marketplace; drive continuous platform innovation and technical robustness.

Stakeholder category	Interest / Influence	Engagement Strategy	Role in stakeholder engagement and exploitation
Existing scenario database owners	High / Medium	Collaborate	Enable data and methods federation; support interoperability alignment; contribute legacy assets and reference implementations.
European CCAM R&I projects	High / Medium	Collaborate	Exchange scenarios and methods; support joint validation activities; ensure continuity across the CCAM R&I ecosystem.
Research organizations	High / Medium	Involve	Develop and validate methodologies, AI-based approaches, and safety assurance concepts supporting platform evolution.
Road users & consumer organizations	Medium / Low	Inform / Consult	Provide feedback on safety expectations, trust, transparency, and societal acceptance of CCAM systems.
CCAM community networks & associations	Medium / Medium	Consult	Support dissemination and ecosystem alignment; amplify engagement activities across the CCAM community.
Data protection & cybersecurity authorities / experts	High / Medium	Consult / Involve	Ensure GDPR, cybersecurity, and ethical compliance; identify and mitigate risks related to data sharing and platform operation.
Project coordination & governance bodies	High / High	Empower	Steer engagement activities; coordinate across WPs; take decisions on priorities, scope, and risk management related to stakeholder engagement.

3.3.2 Online cooperation platform: extension and operation

To ensure continuity and scalability of stakeholder engagement, SYNERGIES builds on the collaboration platform originally established under the **SUNRISE project** [11]. This platform brought together experts from OEMs, Tier-1 suppliers, research organisations, public authorities, and other CCAM stakeholders. Following the conclusion of SUNRISE, SYNERGIES integrated and extended this platform to preserve accumulated expertise and sustain the expert network.

Several collaboration tools were assessed to support expert interaction, knowledge exchange, and dissemination of project materials. Based on **functionality, usability, and cost considerations**, the project selected Zulip as the core online cooperation platform. Alternative platforms considered included Microsoft Teams, Basecamp, and Slack, each offering specific advantages but also limitations in terms of cost, scalability, or user experience:

- **Microsoft Teams [12]**: Accessible and cost-effective option. Easy to use and users are normally familiar with the platform. Plenty of integrations such as calendar, planner, polls etc. that can help with the engagement with users. The negative side is that experts can feel overwhelmed receiving messages in the platform while they are working.
- **Basecamp [13]**: It is used by other EU initiatives, which generates trust. It is intuitive and it is great to organise different groups and create engaging conversations. However, Basecamp is quite expensive.
- **Zulip [14]**: Zulip is a very practical platform for users to engage in conversations and threads about different topics. However, it is not as known as the other platforms. Another good side is that the free version offers enough features for what the project is looking for.
- **Slack [15]**: Slack is a very complete platform, especially the feature about having the possibility to make certain channels private and others public. The price is the negative side and the need to contact the sales team to know more about the options.

To date, **over 150 individuals from SYNERGIES consortium partners** have been invited to join the Zulip platform, with approximately **35% active registration** at the time of reporting. GDPR-compliant consent procedures were implemented to enable the migration of contacts from the SUNRISE project. In parallel, informal discussions have been initiated with CCAM stakeholders in Europe and internationally, supporting early awareness and engagement beyond the consortium.

Figure 4 illustrates the SYNERGIES online cooperation platform based on Zulip.

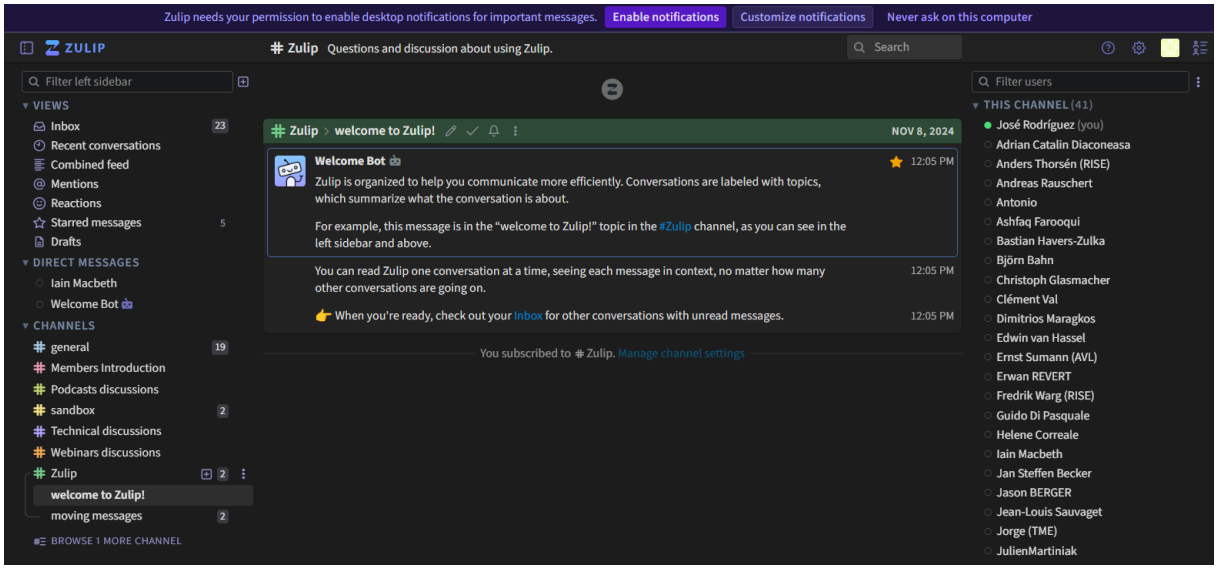

Figure 4 SYNERGIES Project - Zulip Online Cooperation Platform

Key migration and enhancement actions include:

- Migration and update of SUNRISE stakeholder data to preserve historical knowledge and networks.

- Introduction of structured discussion threads, secure document sharing, and real-time interaction features.
- Progressive onboarding of the original expert community (approximately 240 experts) across industry, research, and public authorities.
- Establishment of regular content updates and facilitated exchanges on CCAM scenarios, safety assurance, and platform developments.

3.3.3 Activation of Expert Network and Exploitation Board

As technical results mature, the SYNERGIES Expert Network is progressively activated through **targeted workshops and consultations** to provide structured feedback on platform development. These activities ensure that technical implementation remains aligned **with user needs, regulatory expectations, and exploitation objectives**.

Following the release of the first version of the SYNERGIES platform, dedicated workshops are organised to review relevant work packages and validate the integration of stakeholder requirements. Experts provide guidance on technical specifications, identify critical gaps, and highlight dependencies that may affect future exploitation.

A subset of experts representing key exploitation-relevant stakeholders forms the **Exploitation Board**, supporting the **Innovation & Exploitation Manager** (Task 1.3). This board contributes to the identification of exploitation opportunities, governance options, and synergies with related initiatives.

Continuous interaction through the Zulip-based cooperation platform complements these activities, ensuring alignment between technical progress and exploitation planning.

3.3.4 Stakeholder workshops and events

Since project kick-off, stakeholder engagement has been supported through coordination and dissemination activities documented primarily in **WP1 and WP10**. External stakeholders and related initiatives have been engaged through meetings and exchanges at major events, including **CENEX** (UK), **EUCAD** (Italy), **Autonomous and ADAS Testing Expo** (Germany), **ITS Europe** (Spain), and the **SYNERGIES General Assembly** (France), as well as through interactions with international initiatives such as SAKURA (Japan), SAE International, and stakeholders at the **ITS World Congress** in Atlanta, **Mobility Innovation Week** in Japan and **Automated Transportation Symposium** in San Diego (2024) and Phoenix (2025). These events complemented the online engagement activities by enabling direct interaction and hands-on feedback.

Building on this foundation, engagement activities intensify in preparation for the **first release of the SYNERGIES platform**. Priority is given to:

- Alignment with European institutions and policy priorities.
- Exchange with EU R&I projects for knowledge sharing and methodological coherence.
- Engagement with organisations interested in long-term ownership or maintenance of the platform.
- Interaction with CCAM stakeholders to refine business models and enhance tool quality.

A key milestone is an **in-person SYNERGIES workshop** organised ahead of the **RTR Conference** (10–12 February 2026, Brussels), targeting coordinators of CCAM-related and adjacent EU

projects. Invitations have been extended to leaders from V4SAFETY, PHOEBE, SOTERIA, SINFONICA, CulturalRoad, Diversity, FAME (CCAMbassador), IDriving, EvoRoads, CERTAIN, OptiPEx, AutoTRUST, IN2CCAM, CONDUCTOR, AWARE2ALL, EVENTS, HEIDI, Hi-Drive, MODI, AIGGREGATE, AITHENA, AI4CCAM, PODIUM, AUGMENTED CCAM, IEXODDUS, and FRODDO. Special invitation has been extended to Mr. Moumen Hamdouch, Head of Unit for Sustainable and Intelligent Transport at DG MOVE, who oversees EU policy on ITS, CCAM, and sustainable mobility innovations. The workshop focuses on hands-on evaluation of the Scenario Dataspace and Tools Marketplace, structured feedback collection, and facilitation of continued use beyond the event.

Participants receive access credentials to the platform and are encouraged to disseminate access within their networks to accelerate uptake across the CCAM ecosystem.

Figure 5 presents the SYNERGIES workshop invitation material.

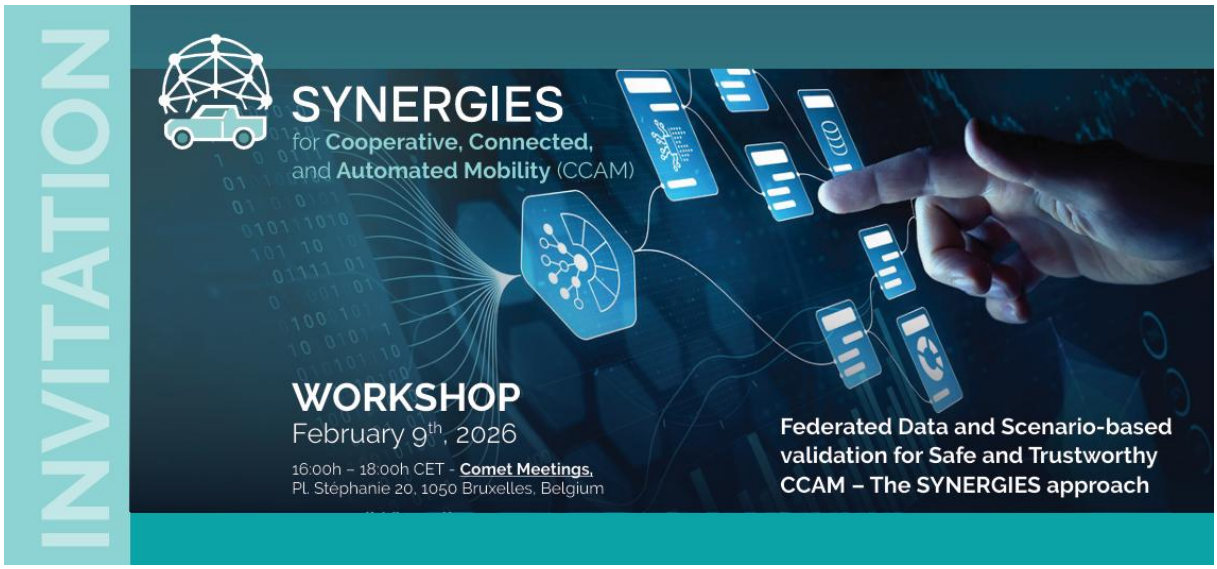

Figure 5 SYNERGIES Workshop - Flyer Invitation

In parallel, dedicated meetings have been initiated with organisations such as the Joint Research Centre (JRC) and ERTICO – ITS Europe to explore interest, roles, and challenges related to platform ownership and long-term maintenance.

3.3.5 Engagement with Advisory Board

The Advisory Board monitors project progress and provides expert guidance on strategic matters, regulations, societal and user priorities, and socio-economic impact requirements. Its role is to deliver targeted recommendations that support strategic decision-making throughout the project. Board members take part in individual advisory board meetings to retrieve feedback and to dissemination events, to actively promote project outcomes, and help establish key connections and dialogues across the CCAM ecosystem.

The Advisory Board includes the following confirmed members:

- Benjamin Engel, CTO at ASAM – Standardization for Automotive Development.
- Biaggio Ciuffo, Smart Mobility Project portfolio leader at European Commission Joint Research Centre (JRC).
- Trent Victor, Director of safety research and Best Practices at WAYMO.

- Steven Shladover, Researcher at UC Berkeley.
- Peter Burns, Chief, Human Factors and Crash Avoidance Research at Transport Canada.
- Ryan Lamm, Executive Director R&D – Robotics & AI at Southwest Research Institute (SwRI), Texas, USA.

During project execution, two additional experts joined the Advisory Board:

- Mr. Alexander F. Walser from Automated Solution Center for Simulation e.V. (ASC-S).
- Prof. Dr.-Ing. Günther Prokop from SCART Institute.

During the first year of the project, bilateral communications were organized with each of the Advisory Board members to present the overall project objectives, explain progress achieved across the technical work packages, and discuss the strategic direction of SYNERGIES. These individual exchanges allowed for focused, in-depth discussions tailored to the specific expertise of each Advisory Board member, covering topics such as scenario-based safety validation approaches, regulatory and standardisation perspectives, data sharing and governance challenges, and long-term exploitation considerations.

The bilateral format facilitated open dialogue and early feedback at a stage where project concepts, platform architecture, and engagement priorities were still being consolidated. Inputs received during these meetings supported the alignment of SYNERGIES activities with external expectations, helped identify potential enablers and barriers related to regulatory acceptance and industrial uptake, and informed the prioritisation of subsequent stakeholder engagement actions. This approach ensured continuous Advisory Board involvement from an early project phase and established a foundation for more structured collective interactions and strategic guidance in later project stages.

4 CONCLUSIONS

By Month 18, Task 9.1 has successfully established the strategic foundations, stakeholder landscape, and operational engagement mechanisms required to support the adoption and long-term exploitation of the SYNERGIES Scenario Dataspace and Tools Marketplace. The stakeholder engagement activities implemented during this period provide a structured and credible basis for interaction with key actors influencing CCAM safety validation, regulatory acceptance, and industrial uptake.

The stakeholder strategy is organised around three complementary dimensions: engagement with stakeholders contributing to EU-level alignment and policy coherence (Table 1), engagement with stakeholders supporting exploitation and sustainability planning, and engagement with stakeholders directly contributing to the quality, relevance, and usability of the project's key exploitable results (Table 3). This targeted approach ensures comprehensive coverage of the CCAM ecosystem while prioritising actors with the highest potential impact on adoption, governance, and long-term continuity.

The deliverable documents a coherent framework combining stakeholder identification and categorisation, engagement procedures, and governance mechanisms. These elements support platform uptake, interoperability with existing scenario databases, and sustained interaction through the extended SUNRISE cooperation platform. Together, they strengthen the positioning of SYNERGIES as a credible European reference for scenario-based safety validation, aligned with EU policy priorities and stakeholder expectations.

At this stage of the project, stakeholder engagement activities are primarily preparatory in nature and are intended to de-risk subsequent adoption and exploitation phases rather than to deliver final governance or business models. Future activities will build on this foundation through continued Advisory Board involvement, targeted workshops linked to platform evolution, and adaptive engagement measures responding to technical progress and stakeholder feedback. This progressive approach positions SYNERGIES to enhance EU leadership in safe and scalable automated mobility while fostering sustained ecosystem-wide cooperation across regulatory, industrial, and research domains.

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A. ABBREVIATIONS AND DEFINITIONS

Term	Definition
AB	Advisory Board
ADAS	Advanced Driver Assistance Systems
ADS	Automated Driving Systems
AI	Artificial Intelligence
AV	Automated Vehicles
CAV	Connected and Automated Vehicle
CCAM	Cooperative, Connected and Automated Mobility
CINEA	European Climate, Infrastructure and Environment Executive Agency
C-ITS	Cooperative Intelligent Transport Systems
DG MOVE	Directorate-General for Mobility and Transport
DoW	Description of Work (Annex I of the Grant Agreement)
DPO	Data Protection Officer
EC	European Commission
ECAVA	European Connected and Autonomous Vehicle Alliance
EU	European Union
GA	Grant Agreement
GDPR	General Data Protection Regulation
IPR	Intellectual Property Rights
ITS	Intelligent Transport Systems
JRC	Joint Research Centre of the European Commission
KPI	Key Performance Indicator
ODD	Operational Design Domain
OEM	Original Equipment Manufacturer
R&I	Research & Innovation

REA	European Research Executive Agency
RIA	Research and Innovation Action
SCDB	Scenario Database
SRG	States Representatives Group (CCAM Partnership)
SRIA	Strategic Research and Innovation Agenda
UNECE	United Nations Economic Commission for Europe
WP	Work Package