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D4.6 Stakeholders' & population groups impact analysis & mapping

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Acronyms and definitions

Acronyms	**Definitions**
CCAM	Cooperative, Connected, and Automated Mobility
OEM	Original Equipment Manufacturer
ODD	Operational design domain
WP	Work Package
AV	Automated vehicle
KPIs	Key Performance Indicators
UC	Use case
TNC	Transportation network companies
HMI	Human-machine interface
AD	Automated driving
TRL	Technological Readiness Level
HEI	Higher Education Institutions
VEI	Vocational Education Institutions

1 Executive summary

The deliverable 4.6 ‘Stakeholders’ & population groups impact analysis & mapping’ corresponding to Task 4C.1 ‘Stakeholders’ impact analysis and mapping of the social effects of CCAM deployment’ and Task 4C.2 ‘Population groups’ impact analysis and mapping of CCAM technologies and services social effects’ within Work Package 4C ‘Analysis of the effects of CCAM’ details the impact analysis and mapping for the economic and societal effects of CCAM. The selection process is designed to ensure the project's relevance, impact, and long-term viability by focusing on identifying and intersecting the impact analysis between stakeholders and citizens regarding the economic and societal effects of CCAM.

The objective of this task was twofold: first, to assess the anticipated effects of CCAM on various stakeholder groups directly involved in transport and education sectors; and second, to analyze the perspectives and potential impacts of CCAM adoption on the general population in selected European countries. The report offers evidence-based insights to support the formulation of inclusive, forward-looking policies and workforce strategies that ensure a just transition towards automation in mobility systems. The methodology combined extensive desk-based research and empirical data collection. The literature review synthesized findings from a diverse array of academic sources, covering the economic and social dimensions of automation, including CCAM, autonomous vehicles, self-driving technology, and drones. To complement this analysis, 14 semi-structured interviews were conducted across four core stakeholder groups: Higher and Vocational Education Institutions (HEIs/VEIs), Road Transport Operators, Representative Organizations, and Industry. Each group provided sector-specific insights into the anticipated transformations in employment, business models, skills needs, and social equity. Simultaneously, a large-scale quantitative survey was carried out in the Netherlands, Belgium, Norway, Germany, and Cyprus, collecting public opinion data on CCAM technologies, expected benefits and drawbacks, and individual willingness to adopt such services.

Findings from the stakeholder interviews underscore the transformative economic potential of CCAM, particularly for freight logistics, e-commerce, and shared mobility. Stakeholders generally anticipate efficiency gains, reduced operational costs, and the emergence of new, data-driven business models. However, these opportunities are counterbalanced by significant challenges – most notably the risk of job displacement for professional drivers and low-skilled transport workers. While some roles are expected to evolve rather than disappear entirely, stakeholders highlight the urgent need for reskilling initiatives to address skills gaps in areas such as artificial intelligence, cybersecurity, and systems integration. HEIs and VEIs are seen as central actors in this transition, responsible for adapting curricula, fostering interdisciplinary collaboration, and ensuring inclusive educational access to future mobility careers. The social equity dimension is particularly critical. While CCAM offers potential benefits for traditionally underserved groups - such as the elderly, disabled individuals, and residents of rural areas - there is concern that without targeted policy interventions, these groups could be left behind. The initial rollout of CCAM services is likely to occur in urban areas and may be costly, raising questions about affordability and access. Stakeholders emphasize that only with strong public support mechanisms and inclusive design principles can CCAM technologies contribute meaningfully to reducing social inequalities rather than reinforcing them.

Survey responses from the general population reflect cautious optimism. Respondents generally recognize the potential convenience, environmental, and safety benefits of CCAM. Nonetheless, concerns around safety, privacy, data security, and affordability remain prominent. Trust in automated systems is uneven across demographic groups and countries, with younger, urban, and more affluent individuals typically expressing greater openness to CCAM adoption. Rural respondents and lower-income groups show more skepticism, particularly in the absence of clear cost-benefit communication or guarantees of equitable access. Across all countries, respondents pointed to a lack of information about CCAM services, reinforcing the need for awareness-raising and public engagement initiatives.

The report concludes by emphasizing the critical role of coordinated multi-stakeholder collaboration in guiding CCAM deployment. Educational institutions, public authorities, transport operators, and industry actors must work together to ensure that the workforce is prepared, that social disparities are not exacerbated, and that citizens are equipped with the knowledge and confidence to engage with new mobility services. Proactive policy frameworks, inclusive planning processes, and well-funded education and training systems will be essential to realizing the full promise of CCAM while safeguarding social cohesion and economic equity across Europe.

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2 Objectives and activities

As Cooperative, Connected, and Automated Mobility (CCAM) technologies continue to mature and edge closer to widespread deployment, their potential to reshape the socio-economic landscape becomes increasingly evident. Beyond their direct influence on transport systems and operations, CCAM innovations are poised to transform employment, education, accessibility, and social equity. In response to this profound shift, Deliverable D4.6, “Stakeholders’ and Population Groups Impact Analysis and Mapping,” which is part of Work Package 4C (WP4C) – Analysis of the Effects of CCAM, sets out to systematically assess and map the anticipated societal and economic effects of CCAM across diverse stakeholder groups and population segments.

The deliverable specifically addresses the goals of Tasks 4C.1 and 4C.2, focusing on two complementary dimensions: the impact on institutional stakeholders—such as industry actors, higher and vocational education institutions, road transport operators, and representative organizations—and the impact on citizens across five participating countries. This dual approach ensures a balanced understanding of both top-down institutional dynamics and bottom-up public perception, enabling a holistic analysis of how CCAM might reshape the labor market, shift educational and training needs, and affect the inclusivity and accessibility of transport systems.

To achieve these objectives, an in-depth desk-based literature review was conducted, synthesizing academic and policy findings related to the socio-economic impacts of automation, AI-driven mobility, and shared mobility systems. Building on this foundation, a series of qualitative interviews with key stakeholders were carried out, capturing firsthand insights into sectoral expectations, concerns, and readiness levels in relation to CCAM deployment. Parallel to this, large-scale surveys were administered across Belgium, the Netherlands, Germany, Norway, and Cyprus to explore the public's perspectives on automation in mobility—focusing on themes such as trust, accessibility, affordability, employment, and social equity. This approach was designed to ensure a comprehensive, multi-layered understanding of how CCAM technologies are perceived and what impacts are anticipated—both in terms of challenges and opportunities. The findings from D4.6 are not only valuable in their own right but also serve as critical inputs for future tasks within WP4 and WP5. They provide a contextual framework for evaluating how CCAM will affect job profiles, skills demand, and public attitudes, thereby informing targeted educational interventions and policy strategies. By identifying areas of convergence and divergence between stakeholders and citizens, the analysis also supports the development of inclusive policy frameworks that are sensitive to both institutional needs and public values.

Led by MLab with contributions from CE, CORTE, SINTEF, and the UoW, this deliverable reflects a collaborative, interdisciplinary effort that aligns within the goals of the CCAM-ERAS project. Through its structured methodology and engagement with diverse voices, D4.6 ensures that the emerging picture of CCAM deployment is not only technically grounded but also socially responsive - supporting a fair and forward-looking transition to automated mobility systems across Europe.

3 Key Findings

The key findings of this deliverable are shared early in the document, splitting the key takeaways derived from the qualitative analysis of the interviews data (stakeholders impact analysis and mapping) and from the quantitative analysis of the survey data (citizens impact analysis and mapping). The interested reader can navigate through the following sections that provide a discussion based on the desk-based research carried out, while also including a detailed discussion on the impact analysis and mapping for stakeholders and citizens.

3.1 Stakeholders

The synthesis between the stakeholder groups involved in the stakeholders' impact analysis and mapping reveals a multifaceted picture of how various actors perceive the ongoing and anticipated transformations driven by CCAM technologies. Bringing together the perspectives of four key stakeholder categories - HEI/VEI, industry, road transportation operators, and representative organizations (such as trade unions and sector alliances) provides an opportunity to map convergences, divergences, and points of friction in expectations, priorities, and concerns.

A prominent observation that emerges across all sectors is the recognition of the disruptive potential of CCAM technologies, particularly in reshaping job profiles, competencies, and training needs across the transport and mobility ecosystem. However, the degree of preparedness and the nature of strategic responses vary substantially between stakeholder types. Industry actors, for instance, tend to approach CCAM as both a technological opportunity and a driver of business innovation. They are typically more advanced in anticipating the required changes to job roles, especially within domains such as vehicle manufacturing, logistics, and digital mobility platforms. Industry stakeholders often refer to emerging profiles related to data analytics, artificial intelligence, and system integration, and they demonstrate relatively higher levels of investment in future-oriented reskilling pathways.

In contrast, HEIs and VEIs, while aware of the long-term importance of CCAM-related competencies, appear more cautious and, in some cases, constrained by institutional inertia or regulatory delays in adapting curricula. Several education stakeholders noted the challenge of aligning rapidly evolving technological developments with slower academic program revisions. There is growing awareness that interdisciplinary learning- integrating engineering, computer science, social sciences, and policy dimensions - will be crucial in equipping students with the tools to navigate the complex landscape of automated mobility. Nonetheless, examples of fully integrated CCAM-focused curricula remain limited, and partnerships between academia and industry are still at a formative stage in many contexts.

Road transportation operators present a unique perspective, shaped by operational realities and a strong emphasis on workforce protection and service continuity. They are highly aware of the risks posed by automation, particularly in driving and logistical roles, which could lead to workforce reductions or significant role shifts. Their discourse often reflects concerns over the adequacy of current support structures for displaced workers, the limited availability of retraining programs, and the uncertainties surrounding the pace of technology adoption. Notably, some road transportation operators have begun exploring hybrid models of operation, where human oversight complements partially automated systems. These hybrid models may offer a transitional pathway but will still require a redefinition of job content and competencies.

Trade unions and representative organizations largely echo the concerns of road transportation operators, although they tend to adopt a more structural and equity-focused lens. These stakeholders stress the importance of inclusive transition mechanisms and the need to prevent technological innovation from exacerbating social inequalities. In their view, the rollout of CCAM must be accompanied by robust dialogue between employers, workers, and policymakers to ensure that job transformation processes are fair, participatory, and adequately supported by public policy. The demand for social dialogue and participatory governance frameworks is particularly strong among this group, with a recurrent emphasis on the precautionary principle and the protection of vulnerable workers.

Despite these differences in perspective, there are also areas of convergence that provide promising foundations for coordinated action. All sectors acknowledge the necessity of forward-looking skills mapping and the importance of lifelong learning in preparing the workforce for the demands of CCAM. There is general agreement that traditional job profiles will not disappear overnight but will evolve, often blending technical, digital, and interpersonal skills in new ways. Additionally, stakeholders across sectors express a shared interest in improving data-driven decision-making capacities - not only for technical operations but also for management, policy evaluation, and user engagement.

A significant challenge identified during the synthesis process is the varying pace at which sectors are responding to the CCAM transition. While industry actors are generally more agile and responsive, HEIs, VEIs, and public operators often face structural constraints. This asynchrony raises the risk of misalignment between skills supply and demand, with potential knock-on effects for employability and economic competitiveness. Stakeholders also pointed out that existing national and European funding instruments are not always well calibrated to support cross-sectoral collaboration, particularly in the early design stages of training and transition initiatives.

Another key issue is the need for better coordination and communication between the different stakeholder groups. At present, many initiatives related to CCAM training and employment are developed in relative isolation, limiting their systemic impact. There is a clear demand for integrative platforms or mechanisms (such as sectoral alliances, innovation clusters, or regional observatories) that can facilitate information exchange, joint foresight exercises, and the co-design of educational content. Such platforms could also play a crucial role in ensuring that the voices of smaller operators, underrepresented regions, and civil society organizations are not excluded from strategic planning processes.

Further, regarding the importance of territorial and sectoral specificity. While overarching trends are visible across Europe, the actual implementation of CCAM and its labor market implications will depend heavily on local contexts, regulatory environments, and existing labor market structures. For example, automation may unfold differently in urban public transport systems compared to rural logistics networks, or in countries with high collective bargaining coverage versus those with more fragmented industrial relations. Stakeholders therefore call for a multi-scalar governance approach that allows for flexibility and adaptation to diverse local needs, while also ensuring consistency with EU-wide objectives and frameworks.

In conclusion, the impact analysis and mapping between sectors underlines the complexity of the CCAM transition and the need for a proactive, inclusive, and well-coordinated response. Industry leadership must be matched by educational innovation, labor protections, and public engagement strategies. While each sector brings distinct priorities and constraints, a shared commitment to equitable workforce transformation, continuous learning, and strategic foresight offers a strong foundation for building resilience and inclusiveness into Europe's mobility future. The findings from this analysis reinforce the need for intersectoral dialogue and collaborative planning as essential components of any successful transition toward connected, cooperative, and automated mobility.

3.2 Citizens

The comparative analysis of the five countries involved in the citizens' survey – Netherlands, Belgium, Norway, Germany, and Cyprus - offers a valuable opportunity to identify patterns, divergences, and broader insights regarding public perceptions, expectations, and concerns related to CCAM technologies. While the socio-economic, cultural, and infrastructural conditions vary considerably between countries, a number of recurring themes emerged across the survey data, allowing for the identification of both converging trends and notable differences.

A consistent observation across all countries is the cautious optimism with which CCAM technologies are regarded. In general, respondents acknowledge the potential of CCAM to enhance road safety, improve environmental outcomes, and provide more efficient transport services. However, these perceived benefits are contrasted by a set of concerns that appear universally shared. Particularly, respondents share concerns regarding data privacy, cybersecurity risks, affordability of services, and a general lack of trust in fully automated systems. In each country, a sizeable portion of respondents expressed discomfort with the idea of giving up full control of a vehicle, and many remain unconvinced that current CCAM technologies can guarantee safety in complex or unpredictable traffic scenarios.

In terms of familiarity and exposure, the level of awareness about CCAM services is relatively low across all countries, with Cyprus exhibiting particularly limited familiarity among respondents. In contrast, populations in the Netherlands and Germany demonstrated slightly higher levels of knowledge, possibly reflecting more extensive media coverage and existing policy debates surrounding automated mobility. Nevertheless, even in these countries, most respondents reported needing more information and clearer communication about how CCAM systems function, their potential implications, and the safeguards in place to address key risks.

Demographic patterns show strong similarities across national contexts. Younger individuals, those living in urban areas, and respondents with higher levels of education or income are generally more open to CCAM adoption and more optimistic about its benefits. In contrast, older adults, rural residents, and individuals with lower incomes tend to express higher levels of skepticism and concern. These groups frequently cited issues related to digital exclusion, affordability, and doubts about whether CCAM systems would be designed with their specific needs in mind. For instance, in both Belgium and Cyprus, respondents from lower-income households indicated that they would likely be unable to afford automated mobility services unless publicly subsidized or integrated into the public transport network.

Differences between countries become more pronounced when examining trust in institutions, perceived readiness for CCAM, and the contextual relevance of the technology. In Norway and the Netherlands, there is relatively higher institutional trust, and survey respondents displayed greater confidence that regulatory bodies would ensure safe and equitable deployment of CCAM. In these countries, the perception of CCAM as an eventual extension of existing smart mobility initiatives appears more prevalent. Conversely, in Cyprus, trust in institutions is comparatively lower, and many respondents questioned whether authorities and operators possess the necessary competence and integrity to oversee such a transformation in transport services. A notable share of Cypriot participants also expressed concerns that CCAM technologies might first be introduced in high-income or tourist areas, leaving marginalized communities further behind.

Cultural attitudes towards automation also appear to shape responses. In Germany, for example, respondents tended to place greater emphasis on issues of liability, control, and technological precision, reflecting a well-documented cultural emphasis on engineering reliability and legal clarity. By contrast, in Belgium, discussions about CCAM were more frequently framed around questions of social cohesion, inclusiveness, and community access. Norway's responses often highlighted environmental dimensions, with a strong expectation that CCAM deployment should align with broader sustainability goals and contribute to emission reduction targets.

Despite these national differences, all five countries revealed a strong interest in the potential for CCAM to serve disadvantaged groups—such as people with disabilities, older adults, or those without access to private cars—provided that issues of affordability and accessibility are adequately addressed. Respondents across all contexts emphasized the importance of universal design principles, accessible booking systems, and the availability of human assistance, particularly during the early stages of deployment. There was also general agreement that the initial rollout of CCAM services should not compromise the existing public transport network, which remains an essential lifeline for many vulnerable groups.

In relation to employment and skills, a shared concern emerged around the possible displacement of workers in driving-related occupations. In Germany and the Netherlands, this issue was often accompanied by calls for proactive reskilling and training initiatives, while in Cyprus and Belgium, there was greater uncertainty about how such support systems would be organized or funded. The expectation that CCAM might generate new jobs in the technology or service sectors was present, though often viewed with caution given the mismatch between current workforce skills and the requirements of these emerging roles.

In summary, the cross-country analysis highlights a complex interplay between shared aspirations, common concerns, and context-specific factors that will shape the public's engagement with CCAM. While technological optimism exists, it is not uncritical, and citizens across Europe are keen to ensure that the transition toward automated mobility is equitable, inclusive, and transparent. Trust, affordability, digital literacy, and institutional capacity emerge as core themes that must be addressed in all national contexts. At the same time, successful deployment strategies must remain sensitive to local socio-political realities, cultural expectations, and infrastructural baselines if CCAM is to achieve its full societal potential.

4 Desk-based research

4.1 Process

To prepare the impact analysis and mapping deliverable for stakeholders and citizens (population groups), desk-based research was carried out. Desk-based research focused on literature in the form of published academic journals. The key words that were used for the purposes of the desk-based research were i) “economic effect” or “social effects” or “survey” and “CCAM”, ii) “economic effect” or “social effects” or “survey” and "autonomous”, iii) “economic effect” or “social effects” or “survey” and “automated”, iv) “economic effect” or “social effects” or “survey” and “self-driving”, v) “economic effect” or “social effects” or “survey” and “driverless”, vi) “economic effect” or “social effects” or “survey” and “pods” and vii) “economic effect” or “social effects” or “survey” and “drones”. The list of papers is summarized in Table 1.

Table 1: Desk based research

Key words	List of Papers
Economic effect or social effects or survey and CCAM	Kanak, A., Ergun, S., Serdar Atalay, A., Persi, S., & Hartavi Karci, A. E. (2022). A Review and Strategic Approach for the Transition towards Third-Wave Trustworthy and Explainable AI in Connected, Cooperative and Automated Mobility (CCAM). 2022 27th Asia Pacific Conference on Communications (APCC), 108–113. https://doi.org/10.1109/APCC55198.2022.9943588
	Alonso Raposo, M., Grosso, M., Després, J., Fernández Macías, E., Galassi, C., Krasenbrink, A., Krause, J., Levati, L., Mourtzouchou, A., Saveyn, B., Thiel, C., Ciuffo, B., & European Commission (Eds.). (2018). An analysis of possible socio-economic effects of a Cooperative, Connected and Automated Mobility (CCAM) in Europe: Effects of automated driving on the economy, employment and skills. Publications Office. https://doi.org/10.2760/777
	Guerreiro Augusto, M., Acar, B., Soto, A. C., Sivrikaya, F., & Albayrak, S. (2024). Driving into the future: A cross-cutting analysis of distributed artificial intelligence, CCAM and the platform economy. Autonomous Intelligent Systems, 4(1), 1. https://doi.org/10.1007/s43684-023-00059-1
	Raposo, M. A., Grosso, M., Després, J., Macías, E. F., Levati, L., Mourtzouchou, A., & Ciuffo, B. (2018). FUTURE IMPLICATIONS OF COOPERATIVE, CONNECTED AND AUTOMATED MOBILITY.
	Duffy, V. G., Krömker, H., A. Streitz, N., & Konomi, S. (Eds.). (2023). HCI International 2023 – Late Breaking Papers: 25th International Conference on Human-Computer Interaction, HCII 2023, Copenhagen, Denmark, July 23–28, 2023, Proceedings, Part IV (Vol. 14057). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-48047-8
	Fagerholt, R. A., Seter, H., & Arnesen, P. (2023). How can authorities be enablers in the deployment of CCAM? An experienced-based expert study from Norway. Transportation Research Interdisciplinary Perspectives, 21, 100874. https://doi.org/10.1016/j.trip.2023.100874
	Amini, M. H., Boroojeni, K. G., Iyengar, S. S., Pardalos, P. M., Blaabjerg, F., & Madni, A. M. (Eds.). (2019). Sustainable Interdependent Networks II: From Smart Power Grids to Intelligent Transportation Networks (Vol. 186). Springer International Publishing. https://doi.org/10.1007/978-3-319-98923-5

Economic effect or social effects or survey and autonomous	Krueger, R., Rashidi, T. H., & Dixit, V. V. (2019). Autonomous driving and residential location preferences: Evidence from a stated choice survey. Transportation Research Part C: Emerging Technologies, 108, 255–268. https://doi.org/10.1016/j.trc.2019.09.018
	Saleh, M., Milovanoff, A., Daniel Posen, I., MacLean, H. L., & Hatzopoulou, M. (2022). Energy and greenhouse gas implications of shared automated electric vehicles. Transportation Research Part D: Transport and Environment, 105, 103233. https://doi.org/10.1016/j.trd.2022.103233
	Melendez, K. A., Das, T. K., & Kwon, C. (2020). Optimal operation of a system of charging hubs and a fleet of shared autonomous electric vehicles. Applied Energy, 279, 115861. https://doi.org/10.1016/j.apenergy.2020.115861
	Sharma, N., Dhiman, C., & Indu, S. (2022). Pedestrian Intention Prediction for Autonomous Vehicles: A Comprehensive Survey. Neurocomputing, 508, 120–152. https://doi.org/10.1016/j.neucom.2022.07.085
	Milakis, D., van Arem, B., & van Wee, B. (2017). Policy and society related implications of automated driving: A review of literature and directions for future research. Journal of Intelligent Transportation Systems, 21(4), 324–348. https://doi.org/10.1080/15472450.2017.1291351
	Tennant, C., Stares, S., & Howard, S. (2019). Public discomfort at the prospect of autonomous vehicles: Building on previous surveys to measure attitudes in 11 countries. Transportation Research Part F: Traffic Psychology and Behaviour, 64, 98–118. https://doi.org/10.1016/j.trf.2019.04.017
	Yue, W., Li, C., Duan, P., & Yu, F. R. (2023). Revolution on Wheels: A Survey on the Positive and Negative Impacts of Connected and Automated Vehicles in Era of Mixed Autonomy. IEEE Internet of Things Journal, 10(24), 21820–21835. https://doi.org/10.1109/JIOT.2023.3299934
	Narayanan, S., Chaniotakis, E., & Antoniou, C. (2020). Shared autonomous vehicle services: A comprehensive review. Transportation Research Part C: Emerging Technologies, 111, 255–293. https://doi.org/10.1016/j.trc.2019.12.008
	Haboucha, C. J., Ishaq, R., & Shiftan, Y. (2017). User preferences regarding autonomous vehicles. Transportation Research Part C: Emerging Technologies, 78, 37–49. https://doi.org/10.1016/j.trc.2017.01.010
	Webb, J., Wilson, C., & Kularatne, T. (2019). Will people accept shared autonomous electric vehicles? A survey before and after receipt of the costs and benefits. Economic Analysis and Policy, 61, 118–135. https://doi.org/10.1016/j.eap.2018.12.004
Economic effect or social effects or survey and automated	Gomes, O., & Pereira, S. (2020). On the economic consequences of automation and robotics. Journal of Economic and Administrative Sciences, 36(2), 135–154. https://doi.org/10.1108/JEAS-04-2018-0049
	Meyer, G., & Beiker, S. (Eds.). (2016). Road Vehicle Automation 3. Springer International Publishing. https://doi.org/10.1007/978-3-319-40503-2
	Cavoli, C., Phillips, B., Cohen, T., & Jones, P. (n.d.). Social and behavioural questions associated with Automated Vehicles: A Literature Review.

Economic effect or social effects or survey and self-driving	Klaver, F. (n.d.). The economic and social impacts of fully autonomous vehicles.
	Ryan, M. (2020). The Future of Transportation: Ethical, Legal, Social and Economic Impacts of Self-driving Vehicles in the Year 2025. Science and Engineering Ethics, 26(3), 1185–1208. https://doi.org/10.1007/s11948-019-00130-2
Economic effects or social effects or survey and driverless	Parmar, R. (n.d.). Architecture Urban Planning Construction Engineering
	Dirsehan, T., & Can, C. (2020). Examination of trust and sustainability concerns in autonomous vehicle adoption. Technology in Society, 63, 101361. https://doi.org/10.1016/j.techsoc.2020.101361
	Cai, L., Yuen, K. F., & Wang, X. (2023). Explore public acceptance of autonomous buses: An integrated model of UTAUT, TTF and trust. Travel Behaviour and Society, 31, 120–130. https://doi.org/10.1016/j.tbs.2022.11.010
	Othman, K. (2022). Exploring the implications of autonomous vehicles: A comprehensive review. Innovative Infrastructure Solutions, 7(2), 165. https://doi.org/10.1007/s41062-022-00763-6
	Wadud, Z., & Mattioli, G. (2021). Fully automated vehicles: A cost-based analysis of the share of ownership and mobility services, and its socio-economic determinants. Transportation Research Part A: Policy and Practice, 151, 228–244. https://doi.org/10.1016/j.tra.2021.06.024
	Olaru, D., Greaves, S., Leighton, C., Smith, B., & Arnold, T. (2021). Peer-to-Peer (P2P) carsharing and driverless vehicles: Attitudes and values of vehicle owners. Transportation Research Part A: Policy and Practice, 151, 180–194. https://doi.org/10.1016/j.tra.2021.07.008
	Dong, X., DiScenna, M., & Guerra, E. (2019). Transit user perceptions of driverless buses. Transportation, 46(1), 35–50. https://doi.org/10.1007/s11116-017-9786-y
Economic effect or social effects or survey and pods	Levere, M. (n.d.). Promoting Opportunity Demonstration: POD BOND comparison report. Mathematica. https://www.mathematica.org/publications/promoting-opportunity-demonstration-pod-bond-comparison-report
Economic effect or social effects or survey and drones	Rejeb, A., Rejeb, K., Simske, S., & Treiblmaier, H. (2021). Humanitarian Drones: A Review and Research Agenda. Internet of Things, 16, 100434. https://doi.org/10.1016/j.iot.2021.100434

4.2 Papers discussion

The discussion on the desk-based research is classified based on the categories that are outlined in the first column of Table 1.

4.2.1 Economic effect, or social effects, or survey and CCAM

A Review & Strategic Approach for the Transition towards Third-Wave Trustworthy & Explainable AI in Connected Cooperative and Automated Mobility CCAM: The transition towards Third-Wave Trustworthy and Explainable AI (3WAI) in CCAM is crucial for enhancing road transport economically and socially. Economically, implementing 3WAI promises increased efficiency, cost savings, and growth opportunities through improved autonomous vehicle (AV) technologies. Socially, the shift addresses critical issues of public trust and acceptance by prioritizing transparency, fairness, privacy, safety, and accountability. Surveys reveal widespread public skepticism towards AI-driven AV systems, underscoring the necessity for trustworthy and explainable AI to facilitate acceptance and adoption. Strategically adopting 3WAI in CCAM aligns with Europe's ambitious road safety and sustainability goals, significantly reducing traffic fatalities, environmental impacts, and promoting more inclusive, efficient transportation systems.

A Review & Strategic Approach for the Transition towards Third-Wave Trustworthy & Explainable AI in Connected Cooperative and Automated Mobility CCAM: CCAM represents a transformative trend that leverages artificial intelligence (AI) to significantly enhance economic efficiency and sustainability in transportation. The economic impact of CCAM includes substantial cost reductions and efficiency improvements in logistics and transportation through automation, which lead to lower operational costs, reduced fuel consumption, and minimized congestion. Additionally, embracing third-wave trustworthy and explainable AI (3WAI) within CCAM promises further economic benefits by facilitating wider acceptance and adoption of autonomous vehicles, potentially driving economic growth through new business models and technological innovations. Socially, the implementation of CCAM technologies requires careful consideration of public trust and inclusivity. Surveys and studies have shown substantial public skepticism and concerns regarding autonomous driving, notably due to perceived safety risks, privacy concerns, and fear of losing control. Therefore, strategies to engage stakeholders effectively, including transparent communication, user-centered design methodologies, and inclusive decision-making processes are critical for enhancing trust and acceptability. The integration of explainable and trustworthy AI within CCAM not only mitigates these concerns but also promotes equitable access, ensuring that these technologies address the needs of diverse social groups and result in more inclusive mobility solutions.

An analysis of possible socio-economic effects of a Cooperative, Connected and Automated Mobility (CCAM) in Europe: CCAM is anticipated to yield significant economic transformations across various industries in Europe. The automotive sector, along with electronics, software, telecommunication, and freight transport, stands to benefit substantially from the integration of CCAM technologies, expecting increased revenues driven by enhanced efficiency, reduced operational costs, and expanded markets. Conversely, industries such as insurance and vehicle maintenance could face considerable revenue reductions due to fewer road accidents and decreased maintenance requirements. From a social perspective, CCAM promises to reshape the employment landscape significantly. Automation is expected to reduce the demand for traditional driving occupations, causing displacement within lower-skilled labor markets and raising concerns about unemployment or the need for re-skilling. Surveys reveal mixed public perception, with a noticeable portion expressing skepticism regarding autonomous vehicles, highlighting issues such as safety, data privacy, and the ethical implications of automation. Therefore, proactive measures, including robust stakeholder engagement, transparent communication, and targeted reskilling programs, are essential to facilitate a smooth transition and maximize the positive socio-economic impacts of CCAM.

Driving into the future-cross-cutting analysis of distributed artificial intelligence, CCAM and the platform economy: CCAM, distributed artificial intelligence (DAI), and the platform economy (PE) converge to significantly transform the future of transportation. Economically, the integration of these technologies facilitates efficient and cost-effective mobility solutions, creating new opportunities for business models and value generation within transportation ecosystems. The platform economy, particularly, offers frameworks for service providers, vehicle manufacturers, and infrastructure entities to monetize data, foster innovation, and leverage network effects to achieve scalability and efficiency. From a social perspective, the adoption of CCAM powered by DAI presents substantial benefits but also challenges related to public acceptance, trust, and interaction between autonomous and manually operated vehicles. Surveys and research indicate varying degrees of public skepticism, especially concerning safety, privacy, and ethical considerations. To address these concerns, ongoing projects are developing adaptable AI-driven software stacks and real-laboratory environments to practically demonstrate the effectiveness, safety, and inclusivity of these autonomous solutions. Such initiatives are critical in promoting societal acceptance, ensuring seamless integration within urban and rural environments, and ultimately enhancing public trust and participation in this evolving transportation paradigm.

Future implications of cooperative connected & automated mobility: CCAM represents a significant shift with profound economic implications for various sectors within Europe. This transformation is projected to benefit automotive, electronics, software, telecommunications, digital media, and freight transport sectors through increased vehicle sales, enhanced data exchange capabilities, and improved logistical efficiency. Conversely, sectors like insurance and vehicle maintenance could experience reduced revenues due to fewer accidents and decreased maintenance demands resulting from safer and more efficient automated driving. Socially, CCAM will substantially affect employment, particularly impacting professional drivers whose traditional roles may diminish or evolve into more technical positions requiring advanced skills and training. Surveys and employment studies highlight that significant re-skilling efforts will be essential to adapt to the changing occupational landscape and mitigate job displacement risks. Furthermore, while overall societal impacts of CCAM are expected to be positive, issues such as widening inequality between high-skilled and low-skilled workers, privacy, safety concerns, and ethical considerations remain prominent challenges to be addressed proactively.

How can authorities be enablers in the deployment of CCAM? An experienced-based expert study from Norway: Norwegian authorities have identified key drivers and barriers influencing the deployment of CCAM. Among the strongest drivers identified are competence and cooperation, highlighting the importance of cross-sectoral knowledge and collaboration in enabling effective CCAM deployment. Conversely, the most significant barriers include limited economic resources, technological maturity challenges, and insufficient personnel and time dedicated to CCAM initiatives. To overcome these barriers and harness the identified drivers, the public administration suggests several strategic recommendations. Firstly, they emphasize the necessity of clear, powerful, and integrated strategies that foster sectoral alignment and facilitate interdisciplinary collaboration. Secondly, increasing collaborative-oriented and learning-focused approaches within organizations is crucial for continuous innovation and effective knowledge exchange. Lastly, expanding cooperation across organizations through formalized public-private partnerships and multidisciplinary networks is essential. These combined efforts aim to accelerate CCAM deployment, leveraging existing strengths while addressing identified challenges.

Sustainable Interdependent Networks from Smart Autonomous Vehicle to Intelligent Transportation Networks: The integration of CCAM into intelligent transportation and smart grid networks is central to creating sustainable interdependent systems. Economically, these networks promise significant reductions in operational costs through optimized resource use and improved efficiency. The deployment of distributed artificial intelligence (DAI) across these networks can enhance real-time decision-making capabilities, promoting further economic savings by maximizing the efficiency of energy distribution, reducing congestion in transportation systems, and optimizing logistics and mobility services. Socially, sustainable smart autonomous vehicles and intelligent transportation networks pose important opportunities and challenges. While these technologies can enhance the quality of life by improving road safety, reducing traffic congestion, and lowering environmental impacts, they also raise concerns about employment displacement, data privacy, and societal acceptance. Surveys indicate mixed public perceptions, underscoring the importance of transparency and stakeholder engagement in addressing societal concerns. Robust strategies involving interdisciplinary cooperation and secure, transparent platforms are crucial for overcoming barriers and realizing the full social and economic potential of smart autonomous transportation and intelligent power networks.

4.2.2 Economic effects, social effects, survey and autonomous

Autonomous driving and residential location preferences- Evidence from a stated choice survey: Autonomous vehicles (AVs) are expected to have notable economic effects on commuting behaviors and residential location choices, primarily by potentially decreasing the perceived costs associated with automobile commuting. Economically, AV technology could lower commuting costs as travelers are able to utilize their travel time for productive or recreational activities, thus affecting urban development patterns through possible suburbanization or urban concentration. However, analysis of survey data suggests caution in predicting significant economic shifts, as respondents did not substantially adjust their valuation of commuting time despite the autonomous driving option. From a social perspective, the introduction of autonomous vehicles raises various considerations regarding their acceptance, implications for urban lifestyles, and societal impact. Surveys conducted among commuters in Sydney highlight diverse opinions and a degree of skepticism about AV technology, including concerns about safety, privacy, ethical issues, and the broader effects on community dynamics and urban living preferences. These insights underline the importance of addressing societal concerns and engaging stakeholders effectively to foster trust and acceptance, ultimately influencing the pace and nature of AV adoption and its integration into future urban mobility planning.

Energy and greenhouse gas implications of shared automated electric vehicles: The integration of shared automated electric vehicles (SAEVs) is expected to significantly influence the economic landscape of transportation, primarily by decreasing vehicle ownership and thus affecting associated costs. However, the widespread adoption of autonomous vehicles may lead to an overall increase in total miles traveled, driven by vehicle relocation between users. Consequently, optimized vehicle charging becomes economically crucial due to SAEVs' increased mileage, necessitating a strategic charging approach to reduce operational costs and associated greenhouse gas (GHG) emissions. Employing travel survey data from Toronto, optimized charging schedules were shown to significantly lower operational GHG emissions by more than 50% compared to conventional charging methods. Socially, SAEVs present both opportunities and challenges. While autonomous electric vehicles can provide increased accessibility, convenience, and environmental benefits through reduced emissions, the social implications include potential public skepticism related to safety, privacy, and the ethics of automation technology. Surveys indicate mixed levels of acceptance among potential users, reflecting concerns about privacy, data security, safety, and ethical considerations associated with automation and shared mobility. Given these economic and social implications, strategic management of SAEV deployment is necessary. Effective stakeholder engagement strategies, informed by surveys and robust data collection, are critical in addressing public skepticism, improving social acceptability, and maximizing economic efficiency. Authorities, industry stakeholders, and researchers must collaborate to develop eco-friendly charging infrastructure and innovative business models to ensure the successful implementation and sustainability of SAEVs.

Optimal operation of a system of charging hubs and a fleet of shared autonomous electric vehicles: The deployment of shared autonomous electric vehicles (SAEVs) integrated within a cyber-physical system (CPS) consisting of charging hubs significantly influences urban economics. Economically, SAEVs promise cost savings through optimal energy management and energy arbitrage, allowing efficient use of electricity from renewable sources and the sale of excess energy back to the grid. Optimizing the operation of charging hubs, equipped with photovoltaic (PV) systems and battery banks, is critical for enhancing profitability, managing electricity costs, and promoting sustainable urban transportation. Socially, SAEVs present transformative effects, potentially reducing vehicle ownership and urban traffic congestion. However, these changes come with social challenges, including ensuring equitable access, addressing passenger waiting times, and managing passenger balking. Survey and operational data indicate that consumer acceptance of SAEVs can vary significantly depending on service quality, cost, convenience, and trust in autonomous technologies. To effectively navigate these economic and social dynamics, robust optimization strategies and real-time decision-making frameworks are essential. Surveys and empirical studies underline the necessity for adaptive operational strategies to respond to uncertainties in passenger demand, electricity pricing, and renewable energy availability. By addressing these factors proactively, stakeholders can maximize both the economic benefits and social acceptability of autonomous electric transportation systems.

Pedestrian Intention Prediction for Autonomous Vehicles- A Comprehensive Survey: The adoption of autonomous vehicles (AVs) is anticipated to generate significant economic impacts by reducing driving costs, improving fuel efficiency, and mitigating economic losses associated with traffic accidents. These vehicles have the potential to minimize human errors, thus lowering accident rates and associated costs. Economic gains are also expected from enhanced productivity, as passengers can engage in other activities during travel, potentially transforming commuting and travel patterns. Socially, AVs present considerable opportunities for enhancing safety and reducing traffic-related fatalities, particularly for vulnerable road users (VRUs) such as pedestrians and cyclists. Surveys and studies indicate a growing public interest in AV technology; however, there are substantial concerns about safety, privacy, ethical considerations, and the overall societal acceptance of autonomous driving technology. Such apprehensions highlight the critical need for developing advanced, reliable systems capable of accurately predicting pedestrian intentions and behaviors. Addressing the social implications, a range of methodologies has emerged to predict pedestrian intentions accurately, involving diverse approaches such as dynamic-based models, goal-driven models, and path-planning models. Recent surveys have emphasized the necessity for comprehensive datasets capturing the complexity of human behaviors on roads, combined with robust predictive models. Future research in autonomous vehicle technology must continue to focus on refining predictive capabilities, overcoming social skepticism, and addressing economic and ethical concerns to realize the full potential of autonomous driving.

Policy & society related implications of automated driving. A review of literature and directions for future research: Automated driving technologies have the potential to significantly alter economic factors associated with transportation by reducing travel costs and accidents, enhancing productivity, and influencing vehicle ownership dynamics. Economically, automation promises notable savings through decreased congestion, optimized fuel efficiency, and fewer accident-related expenses. Nevertheless, these economic benefits are accompanied by potential drawbacks, such as the restructuring or declining of employment within transportation sectors heavily reliant on manual driving roles, necessitating thoughtful economic strategies to support affected workforce transitions. Socially, automated vehicles present complex implications including improvements in road safety, reductions in congestion, and enhanced accessibility for disadvantaged groups, such as older adults or individuals with disabilities. However, surveys indicate substantial public skepticism and uncertainty, with many individuals expressing concerns about safety, ethical considerations, and personal data privacy. This indicates a significant barrier to widespread societal acceptance, which must be actively addressed through transparent policies, public engagement, and effective communication about the capabilities and limitations of automated driving technologies. Future research needs to comprehensively address these socio-economic effects, taking into consideration potential secondary effects such as urban land-use changes, shifts in employment sectors, and environmental impacts. Moreover, detailed studies exploring behavioral responses to automation and the economic repercussions for industries reliant on traditional driving roles are required. Understanding these broader implications through targeted research will be crucial for policymakers and urban planners aiming to integrate automated driving technologies effectively into future mobility systems.

Public discomfort at the prospect of autonomous vehicles- Building previous surveys to measure attitudes in 11 countries: AVs represent a potentially transformative technology with significant economic implications, particularly related to residential location preferences. By altering travel costs and commute experiences, AVs could reshape housing market dynamics, influencing decisions regarding residential location choices. The economic impact includes potential increases in property values in suburban and rural areas, driven by enhanced accessibility due to reduced commuting burdens, alongside potential implications for urban sprawl and infrastructure investment needs. Socially, the introduction of autonomous vehicles presents mixed impacts. While there are anticipated benefits in mobility, especially for groups currently restricted by age or disability, societal concerns remain prominent. Public opinion surveys highlight widespread discomfort or skepticism, driven by uncertainty surrounding safety, privacy, ethical implications, and potential changes in lifestyle and community interactions due to increased automation and reliance on technology. Survey evidence specifically investigating residential location preferences suggests that attitudes toward autonomous vehicles significantly influence housing decisions. Responses indicate that while some individuals anticipate leveraging AV technology to reside farther from urban centers, the overall survey findings show a moderate rather than transformative impact on residential location decisions. This cautious stance highlights the necessity of carefully managed urban and transportation planning strategies to optimize the benefits and mitigate the potential socio-economic challenges associated with widespread AV adoption.

Revolution on Wheels- A Survey on the Positive and Negative Impacts of Connected and Automated Vehicles in Era of Mixed Autonomy: The deployment of AVs carries significant economic potential, promising substantial savings in travel costs and reductions in congestion-related losses due to improved traffic flow and reduced accident rates. AV technology, through optimized driving strategies and reduced reliance on human intervention, could markedly enhance transportation efficiency, leading to reduced fuel consumption, lower operating costs, and greater overall productivity within urban environments. Socially, however, the anticipated benefits of autonomous vehicles are met with notable public discomfort and skepticism, as revealed by international surveys across 11 countries. These surveys highlight widespread concerns regarding AV technology, emphasizing issues such as safety, loss of control, ethical considerations, and data privacy. Public hesitance poses a significant barrier to widespread AV adoption and underscores the importance of addressing societal apprehensions proactively through clear communication, robust policy frameworks, and transparent technology demonstration. The findings from these surveys illustrate the necessity for policymakers and industry stakeholders to engage comprehensively with public concerns. Effective management strategies that incorporate public perceptions and ethical considerations into the planning and implementation stages of AV technology are essential. Proactive stakeholder engagement, informed by detailed survey results, will be critical to fostering societal trust and realizing the full economic and social potential of autonomous transportation solutions.

Shared autonomous vehicle services: Shared Autonomous Vehicles (SAVs) are anticipated to reshape urban mobility significantly by introducing cost-effective transportation alternatives that could potentially reduce vehicle ownership and associated expenses. Economic analyses indicate that SAVs could substantially decrease operational costs through increased vehicle utilization, reduced fuel consumption, and decreased emissions. Additionally, the affordability of autonomous mobility services is expected to influence consumers' economic choices by making shared transport options more financially attractive compared to traditional car ownership. Socially, SAVs hold the promise of considerable improvements in urban livability by reducing traffic congestion, enhancing road safety, and minimizing pollution. However, there are notable concerns among the public regarding the transition to autonomous transportation. Surveys reveal mixed acceptance levels among potential users, driven by apprehensions about safety, privacy, and the willingness to relinquish personal control and vehicle ownership. The societal shift toward shared autonomy will require active management of public attitudes to address these concerns effectively. To optimize the beneficial impacts and address the concerns surrounding SAV adoption, strategic approaches based on comprehensive survey data are essential. Public engagement and informed policy-making that address economic incentives, safety standards, privacy protection, and ethical considerations are vital. Encouraging a balanced transition toward shared autonomy requires policy interventions that integrate economic efficiencies with social inclusivity, ensuring equitable access and widespread acceptance of autonomous mobility services.

User preferences regarding autonomous vehicles: Autonomous vehicles (AVs) represent a significant technological advancement in transportation, with important potential economic implications, including decreased costs associated with driving, reduced accident-related expenses, and improved resource efficiency. Economic impacts also encompass possible shifts in vehicle ownership patterns, as AVs introduce new ownership and usage models such as privately-owned autonomous vehicles (PAVs) and shared autonomous vehicles (SAVs), altering the traditional automotive market and affecting consumer purchasing decisions. Socially, the introduction of AVs has complex effects, with potential improvements in safety, reductions in congestion, and greater accessibility for underserved populations such as the elderly and disabled. However, extensive surveys conducted in Israel and North America indicate notable public hesitation and discomfort regarding the adoption of autonomous driving technology, reflecting concerns over safety, privacy, control, and ethical considerations. Public acceptance varies significantly based on demographic and attitudinal factors, highlighting the necessity of targeted engagement and education strategies. The study emphasizes the importance of understanding user preferences and motivations through surveys to inform effective policymaking. Addressing public skepticism through transparent communication and clear demonstrations of AV capabilities is critical for facilitating societal acceptance. The findings suggest that successful AV integration requires careful management of economic incentives, policy frameworks, and societal attitudes, ensuring that the deployment of autonomous vehicles aligns with both public expectations and policy objectives for sustainable and inclusive mobility solutions.

Will people accept shared autonomous electric vehicles. A survey before and after receipt of the costs and benefits: Shared autonomous electric vehicles (SEAVs) offer substantial potential economic benefits through significantly reduced transportation costs compared to conventional privately owned internal combustion vehicles. The anticipated cost reductions result from lower operational expenses, decreased vehicle maintenance costs, and the elimination of driver expenses. Surveys conducted in Brisbane, Australia, reveal cost as a key determinant in residents' willingness to transition from traditional vehicle ownership toward adopting SEAVs, reflecting broader economic motivations to mitigate escalating transport-related expenses. From a social perspective, the integration of SEAVs into urban mobility systems can positively impact community well-being by reducing congestion, decreasing accident rates, and increasing urban space availability due to diminished parking requirements. However, social acceptance of SEAVs is nuanced, with surveys indicating varying levels of enthusiasm. After receiving detailed information on SEAV benefits, certain demographic groups—such as younger individuals, commuters, wealthier households, and married couples—demonstrated increased willingness to adopt SEAVs. Conversely, individuals with children and those who derive significant enjoyment from driving exhibited reduced acceptance, reflecting concerns over safety, autonomy, and lifestyle implications. Survey results from Brisbane highlighted the critical role of targeted informational strategies in fostering public acceptance. Providing comprehensive information on SEAV benefits notably increased respondents' willingness to switch from conventional privately-owned vehicles to SEAVs. These findings emphasize the importance of clearly communicating both economic and societal advantages to maximize public acceptance, thereby ensuring successful implementation and maximization of the potential benefits offered by autonomous vehicle technologies.

4.2.3 Economic effect, or social effects, or survey and CCAM

On the economic consequences of automation and robotics: The rapid advancement of automation and robotics significantly reshapes economic structures by potentially increasing overall productivity but also intensifying income disparities and job displacement. Economically, automation introduces substantial productivity gains, leading to higher aggregate output and efficiency; however, it simultaneously poses a risk of reducing labor demand, resulting in persistent technological unemployment and an imbalance in income distribution. This displacement particularly affects middle-skilled, routine jobs, exacerbating polarization within the labor market. Socially, the rise of robotics creates pronounced divisions, favoring those who possess highly specialized skills or capital owners, while marginalizing individuals performing routine tasks susceptible to automation. Surveys and economic analyses indicate rising concerns over social equity and employment stability, highlighting that a significant portion of the workforce might find themselves either displaced or forced into lower-wage manual jobs or unemployment. This shift underscores the importance of proactive policy measures to manage social disruptions and ensure equitable economic growth. Effective management of automation's socio-economic impact requires targeted educational policies, retraining programs, and thoughtful redistributive mechanisms. Surveys reveal that without strategic interventions, the benefits of increased productivity might disproportionately benefit a small group of capital owners, potentially undermining social welfare despite higher economic output. Thus, balanced strategies to expand capital ownership, enhance skill adaptability, and promote inclusive economic participation are critical for harnessing automation's potential benefits while mitigating its adverse social and economic consequences.

Social and behavioral questions associated with Automated Vehicles A Literature Review: Automated driving technologies are expected to generate significant socio-economic implications across various dimensions. Economically, automation could lead to notable savings by reducing traffic accidents, lowering associated societal costs such as medical expenses, lost productivity, and property damages. Further economic advantages include potential productivity gains due to less congestion and the possibility of performing other activities during travel, thus reducing overall travel costs. However, there are also economic concerns, especially related to job displacement in sectors heavily dependent on human driving, such as transportation and logistics, where a high probability exists for significant employment reductions due to automation. Socially, automated vehicles (AVs) may considerably impact social equity by increasing accessibility for vulnerable groups such as elderly individuals, disabled persons, and those unable to drive due to health conditions. Automation has the potential to extend mobility options, enabling better societal participation. However, these benefits might initially be limited to wealthier individuals due to the high initial costs of AV technology. Furthermore, if automated vehicles lead to reduced investments in public transportation infrastructure, lower-income individuals might face decreased accessibility to essential services, resulting in further societal divides. Conversely, repurposing redundant road spaces for active transport infrastructure could enhance accessibility for disadvantaged communities, promoting social inclusion. Surveys and empirical research on public attitudes towards automated vehicles reveal mixed results regarding acceptance and willingness to transition away from private car ownership. Economic considerations significantly influence public acceptance, with respondents typically sensitive to variations in travel costs. Studies indicate a notable willingness to embrace shared and automated vehicle alternatives if they provide substantial economic advantages over traditional car ownership. However, socio-economic background profoundly affects attitudes toward vehicle ownership and automation, with higher-income and educated individuals showing greater openness towards adopting automated and shared mobility solutions.

The Socio-Economic Impact of Urban Road Automation Scenarios: The integration of automated vehicles (AVs) into urban road networks is expected to yield substantial economic impacts through improved traffic efficiency, reduced operational costs, and decreased accident rates. Economically, automation can optimize freight logistics and supply chains, significantly lower transportation costs, and positively affect urban real estate dynamics by altering commuting patterns and reducing demand for parking spaces. The efficiency gained from automation also presents potential for cost savings in public transportation services through reduced labor and operational expenses. Socially, automated driving technology has the potential to substantially improve road safety by minimizing human errors, which currently account for the majority of road accidents. However, automation introduces social challenges, particularly concerning employment displacement in transportation-related jobs, requiring robust re-skilling programs and social support mechanisms to mitigate these impacts. Additionally, automated urban road scenarios could alter mobility accessibility for certain demographic groups, such as elderly or disabled individuals, positively influencing their independence and quality of life. Survey data and public perception studies have highlighted considerable variability in acceptance of automated vehicle technologies, emphasizing the importance of addressing concerns related to safety, privacy, ethical considerations, and the transition of job markets. Surveys indicate the necessity of clear and transparent communication regarding the capabilities and limitations of automated technologies to enhance societal acceptance. Effective policy frameworks and community engagement strategies are crucial to support smooth integration, maximize socio-economic benefits, and minimize adverse impacts associated with widespread deployment of automated driving technologies.

4.2.4 Economic effect, or social effects, or survey and self-driving

Ethical, Legal, Social Economic Impacts of Self-driving Vehicles in the Year 2025: Self-driving vehicles (SDVs) are projected to have considerable economic impacts by significantly improving road efficiency, reducing the frequency and severity of traffic accidents, and consequently lowering associated costs. Economically, automation offers opportunities for increased productivity as individuals can utilize travel time more effectively, potentially transforming commuting into productive or leisure periods. Additionally, automation in driving is expected to reduce overall transportation costs due to improved fuel efficiency and decreased need for conventional driving-related employment, altering employment structures within transportation industries. Socially, SDVs have the potential to improve quality of life significantly by reducing traffic accidents, increasing accessibility for individuals who are unable to drive, and lowering congestion and environmental impacts. However, public surveys have consistently revealed mixed attitudes towards automated vehicles, indicating significant discomfort and skepticism around safety, privacy, cybersecurity, and the loss of control. These concerns highlight a critical societal barrier to widespread acceptance and adoption of self-driving technology. Policy scenario analyses suggest that careful consideration and proactive management of societal attitudes are necessary to effectively address public concerns and facilitate broader acceptance. Surveys and stakeholder engagement have identified critical challenges that need addressing, such as privacy issues, liability uncertainties, and job displacement in transportation sectors.

Policymakers are encouraged to actively pursue clear regulatory frameworks, robust cybersecurity measures, and transparent communication strategies to manage public perceptions and maximize socio-economic benefits of automated driving technologies by 2025.

Report - Public Perceptions of Self Driving Cars: Self-driving cars have substantial economic potential to reshape transportation systems by reducing accident-related costs, improving fuel efficiency, and alleviating congestion, thus offering significant overall productivity gains. Economically, they could dramatically reduce expenses linked to traffic accidents and congestion, which currently impose substantial costs on society. Furthermore, widespread adoption of autonomous vehicles could increase the efficiency of roadway usage without necessitating extensive new infrastructure investments. Socially, autonomous vehicles promise enhanced accessibility and improved safety, significantly benefiting individuals who face mobility restrictions due to age, disability, or other impairments. However, surveys reveal public concerns that include loss of personal control, liability uncertainties, and potential socioeconomic inequities due to high adoption costs. The apprehensions around liability particularly highlight uncertainties over responsibility in the event of malfunctions or accidents involving automated systems. Public perception surveys, such as the case study conducted in Berkeley, California, show nuanced attitudes toward self-driving technology, emphasizing both enthusiasm for increased safety and convenience, and notable concerns around cost, liability, and loss of control. These findings suggest the necessity for policymakers and industry stakeholders to effectively address these public concerns through clear liability frameworks, transparent communication about safety improvements, and equitable cost structures to ensure broad societal acceptance and successful implementation of self-driving technology.

The economic and social impacts of fully autonomous vehicles: Fully autonomous vehicles (AVs) have considerable potential economic impacts, primarily by significantly reducing transportation costs and congestion-related expenses. Experts predict that AV technology could nearly halve transportation costs, potentially making autonomous transport cheaper than public transit. Technology may also result in substantial productivity gains by enabling passengers to use travel time for productive activities, further enhancing economic efficiency. However, uncertainties remain regarding whether autonomous vehicles would genuinely reduce congestion or increase car usage due to greater accessibility and lower travel costs. Socially, autonomous vehicles offer extensive benefits, such as improved accessibility for those unable to drive, including the elderly, disabled, and others limited by physical or psychological conditions. This expansion in mobility options could significantly enhance social inclusion and independence. Nonetheless, the widespread adoption of AVs raises concerns about considerable job displacement, particularly affecting millions of professional drivers, repair service personnel, and related industries such as automobile insurance, which faces dramatic shifts due to potentially decreased accident rates.

Survey data highlights public skepticism and concerns about the reliability, safety, and ethical implications of AV technology. Public trust is crucial for widespread adoption, hinging on confidence in AV systems' cybersecurity, algorithm reliability, and ethical decision-making in unavoidable accident scenarios. To maximize societal benefits and mitigate potential drawbacks, stakeholders, including policymakers, manufacturers, and mobility service providers must proactively engage with the public to address these concerns, facilitate job transition strategies, and clearly articulate the economic and social value of fully autonomous vehicles.

4.2.5 Economic effect, social effects, survey and driverless

The economic and social impacts of fully autonomous vehicles: Driverless car technology is set to significantly reshape urban environments, providing substantial economic benefits including reduced congestion, fewer traffic accidents, and lower transportation costs. Economically, driverless vehicles promise to increase productivity by allowing travel time to be utilized more effectively, potentially transforming commuting experiences and influencing real estate and urban land-use decisions. Additionally, automation could notably reduce vehicle ownership and parking demands, freeing valuable urban land currently allocated to parking facilities and thus impacting urban planning and property development strategies. From a social perspective, autonomous vehicles have considerable potential to improve mobility and accessibility, especially benefiting elderly individuals, disabled persons, and those currently dependent on others for transportation. This technology offers an opportunity for enhanced social inclusion and independence, providing reliable and accessible transport solutions to groups traditionally underserved by current transit options. However, the widespread implementation of driverless vehicles also presents challenges, notably related to employment displacement within professional driving sectors, and raises concerns around public acceptance, data privacy, and ethical decision-making in unavoidable accident scenarios. Surveys conducted in multiple global contexts, including by the Boston Consulting Group and the World Economic Forum across 27 cities in 10 countries, reveal varied public attitudes toward driverless cars. Although a majority of respondents indicated a willingness to use autonomous vehicles, acceptance levels were higher among younger demographics and in regions experiencing significant congestion and pollution issues. These surveys emphasize the importance of proactive stakeholder engagement, strategic policy-making, and targeted education initiatives to build public trust and maximize the societal and economic potential of driverless car technology.

Examination of trust and sustainability concerns in autonomous vehicle adoption: Driverless vehicles have the potential to significantly transform economic structures by reducing traffic accident-related costs and improving overall transport efficiency. With driverless technologies, economic savings can be substantial, derived from enhanced road safety, improved productivity, and decreased fuel consumption due to optimized driving patterns. Furthermore, driverless vehicles may lead to notable cost reductions for both private users and transportation businesses, reshaping markets and fostering new business models in vehicle sales, transportation, and logistics. Socially, the adoption of driverless vehicles is expected to enhance mobility and quality of life by significantly reducing road accidents, which currently cause extensive social losses worldwide. By eliminating human error, driverless technologies promise improved safety and convenience, potentially increasing independence for individuals unable to drive due to age or disability. However, social acceptance remains uncertain, driven by concerns related to trust, cybersecurity, and the broader implications of automation on employment and societal norms. Surveys investigating consumer acceptance indicate varying levels of trust and highlight sustainability concerns as significant predictors of adoption attitudes toward driverless vehicles. Research based on technology acceptance models (TAM) demonstrates that perceived usefulness and ease of use are critical determinants of consumer intentions. Additionally, trust in automation and sustainability benefits, such as reduced environmental pollution and fuel efficiency, significantly influence acceptance. Understanding these factors through comprehensive surveys is vital for developing effective strategies to facilitate public adoption and optimize the socio-economic benefits of driverless technology.

Explore public acceptance of autonomous buses- An integrated model of UTAUT, TTF and trust: Driverless buses are projected to deliver significant economic advantages by enhancing public transportation efficiency, reducing operating costs, and lowering fuel consumption and emissions. Economically, the automation of buses promises cost reductions through eliminating driver expenses, potentially providing extended service times and greater operational flexibility. These savings could be further complemented by reduced traffic congestion, which would generate broader economic benefits by improving urban mobility and productivity. Socially, autonomous buses have the potential to significantly enhance urban mobility by reducing accidents, improving public health, and offering increased flexibility through services that better meet user needs. This would particularly benefit densely populated urban areas, leading to a reduction in the number of vehicles on roads and decreasing congestion, thus positively impacting urban livability. However, social acceptance remains uncertain, driven by public concerns about safety, cybersecurity, privacy, and the potential for crime on board driverless buses. Survey-based studies conducted to explore public acceptance of driverless buses have shown mixed results, emphasizing the crucial role of trust in shaping behavioral intentions toward using this technology. Research employing the unified theory of acceptance and usage of technology (UTAUT), task-technology fit (TTF), and trust theory reveals that public trust significantly influences willingness to adopt autonomous buses. Surveys underscore that to improve public acceptance, transportation operators and policymakers must strategically manage perceptions related to ease of use, performance expectancy, social influence, and perceived risks, providing clear communication and transparent demonstration of driverless bus technology benefits.

Exploring the implications of autonomous vehicles (a comprehensive review): Driverless vehicles promise significant economic benefits by potentially reducing vehicle ownership, transportation costs, and congestion-related losses. They could reshape urban economies through better utilization of transport infrastructure, decreased travel expenses, and improved productivity, as individuals can engage in other activities during commutes. This transformation also implies substantial market shifts, creating opportunities in technology sectors such as software development, vehicle cybersecurity, and data analytics, while posing economic threats to traditional driving-dependent industries. Socially, the adoption of driverless vehicles can lead to enhanced road safety by minimizing human error, significantly reducing traffic accidents, and saving lives. Additionally, driverless technology offers improved accessibility for elderly, disabled, and mobility-impaired individuals, promoting greater independence and social inclusion. However, societal acceptance remains uncertain, with public skepticism rooted in safety concerns, cybersecurity risks, and ethical issues related to automation. Surveys indicate varying degrees of public acceptance toward driverless vehicles, influenced heavily by demographic factors such as age, gender, and previous experiences with automated technologies. Public attitudes frequently highlight concerns about privacy, trust in automated systems, and willingness to relinquish vehicle control. These insights underscore the importance of targeted communication strategies, transparent policymaking, and comprehensive stakeholder engagement to address societal concerns and facilitate successful integration of driverless vehicle technology.

Fully automated vehicles- A cost-based analysis of the share of ownership and mobility services, and its socio-economic determinants: Driverless vehicles offer significant economic advantages, potentially reducing transportation costs by eliminating driver-related expenses and improving efficiency through increased utilization. Cost analysis reveals that private ownership of driverless vehicles (automated vehicles) could remain the most economical choice for many users, despite the availability of shared automated mobility services. Economic determinants influencing this include factors such as mileage, vehicle depreciation, income levels, and travel patterns, which affect the total cost of ownership and use. Socially, the introduction of driverless vehicles could enhance mobility, accessibility, and convenience, particularly benefiting rural areas, families, and individuals using vehicles for business purposes. However, socio-economic disparities might emerge, influencing those who adopt private ownership versus who utilize shared automated services. Demographic factors such as age, household composition, and employment status significantly impact the adoption patterns of automated vehicles, highlighting potential inequalities in accessing these benefits. Surveys and regression analyses conducted using data from the UK's National Travel Survey demonstrate diverse public attitudes towards driverless vehicle ownership and shared mobility services. Results indicate varied acceptance based on income, location, and household needs, with higher-income groups and urban residents showing greater interest in privately owned automated vehicles. These findings underscore the need for targeted policymaking to manage the economic and social transitions associated with widespread adoption of driverless technology.

Peer-to-Peer (P2P) carsharing and driverless vehicles- Attitudes and values of vehicle owners: Driverless vehicles are anticipated to yield significant economic impacts through reduced transportation costs, improved traffic efficiency, and enhanced productivity. Economically, driverless vehicles could substantially lower accident-related expenses, cut down on fuel consumption, and mitigate congestion, generating cost savings for individuals, businesses, and municipalities. Furthermore, driverless technology may reshape vehicle ownership patterns, potentially increasing the economic viability of shared mobility services. Socially, driverless vehicles promise notable improvements in road safety, mobility, and accessibility, particularly benefiting populations traditionally restricted by age, disability, or limited mobility options. This technology could greatly improve social equity by providing independence for previously disadvantaged groups. Nevertheless, societal concerns persist, especially regarding privacy, cybersecurity risks, loss of autonomy, and job displacement, particularly among driving professionals. Surveys conducted among various populations highlight significant differences in public attitudes toward driverless technology, influenced by demographic factors such as age, gender, and income. While some segments express enthusiasm for technology due to anticipated safety and convenience benefits, others remain highly skeptical, emphasizing fears related to safety, cybersecurity, and ethical implications of driverless systems. Addressing these varied perspectives through clear communication strategies, tailored policy initiatives, and targeted education is crucial for promoting widespread acceptance and maximizing the potential benefits of driverless vehicles.

Transit user perceptions of driverless buses: Driverless buses have considerable potential to economically transform public transportation by enhancing efficiency, reducing operational costs, and potentially lowering transit fares through decreased labor expenses. The economic impact includes significant savings in labor, which accounts for a large portion of bus operating costs. This technology also promises improved operational reliability and reduced fuel consumption, further benefiting transportation budgets and potentially reshaping urban transit economics. Socially, driverless buses could significantly enhance mobility, especially benefiting frequent transit users and populations dependent on public transportation. However, acceptance of this technology remains uncertain, particularly regarding public perceptions of safety, reliability, and personal security. Transit users express substantial hesitation about fully driverless operations, especially when buses operate without any onboard personnel, highlighting concerns over safety, cybersecurity threats, and accessibility for disabled passengers. Survey results from regular transit users in Philadelphia reveal substantial public apprehension towards completely driverless buses. Only a small fraction of users indicated a willingness to ride buses without onboard transit employees, whereas acceptance significantly increased if staff were present to provide customer service or monitor operations. Younger users and males exhibited greater openness to driverless technology compared to older users and females. These findings underline the importance of addressing user concerns through proactive communication, visible safety measures, and transitional phases involving onboard personnel to facilitate broader acceptance.

4.2.6 Economic effects, social effects, or survey and pods

Promoting Opportunity Demonstration: POD BOND Comparison Report: The introduction of the Promoting Opportunity Demonstration (POD) aimed to economically incentivize employment among Social Security Disability Insurance (SSDI) beneficiaries by implementing a simplified benefit offset rule. Economically, POD's rules were structured to reduce complexity and remove barriers to employment, contrasting notably with the Benefit Offset National Demonstration (BOND) by providing more immediate benefit offsets based on monthly earnings. This simpler system was intended to increase work incentives and reduce dependency on benefits. Socially, POD’s streamlined approach addresses common concerns among beneficiaries regarding the complexity of previous rules and the potential abrupt loss of benefits (the "cash cliff"). By simplifying these processes, POD could reduce anxiety associated with returning to work, thus fostering greater employment and social integration for individuals with disabilities. However, initial public acceptance and usage rates depended significantly on how clearly beneficiaries understood these new rules. Surveys comparing POD with its predecessor, BOND, reveal substantial differences in user behavior and offset utilization. The survey results showed that POD participants engaged with the benefit offset over three times more frequently than participants in the BOND demonstration. This increased use likely stems from the POD's simpler rules, monthly benefit adjustments, and lower thresholds for earnings reductions, emphasizing the critical role clear and manageable guidelines play in promoting acceptance and effective use among beneficiaries.

4.2.7 Economic effect or social effects or survey and drones

Humanitarian Drones- A Review and Research Agenda: Drones present substantial economic opportunities for humanitarian logistics by significantly enhancing cost-effectiveness, flexibility, and operational responsiveness. Economically, drones reduce delivery times and operating expenses, making the distribution of critical emergency supplies to remote and inaccessible areas quicker and more efficient. By swiftly transporting medical supplies and emergency items, drones not only cut costs but also ensure timely and precise relief operations, particularly valuable during crises. Socially, drones can greatly improve the effectiveness of disaster relief operations, supporting vulnerable populations in difficult-to-reach locations, and facilitating rapid emergency responses. They increase situational awareness through superior monitoring and surveying capabilities, enabling quicker assessments of affected areas and improved safety for rescue personnel. Despite these advantages, concerns related to privacy, cybersecurity, and regulatory issues significantly influence public perception and adoption rates. Surveys and research analyses indicate mixed public attitudes toward drone deployment in humanitarian scenarios. Although many recognize the technology’s potential benefits, skepticism remains widespread due to privacy concerns, data security risks, and regulatory uncertainties. Addressing these concerns through clear regulations, transparent communication, and targeted education is essential for facilitating broader acceptance and effective integration of drones into humanitarian operations.

5 Stakeholders impact analysis and mapping

The section corresponding to the stakeholders' impact analysis and mapping is split into two subsections. The former focuses more on the discussion about the preparatory material in the form of interview guides, whereas the latter subsection discusses the results of the qualitative analysis of interview data.

5.1 Preparation

The preparatory material for the stakeholders' impact analysis and mapping take the form of interview guides. Specifically, as mentioned in the Grant Agreement of the project, the sectors selected for interviews are the following: a) HE & VE Institutions, b) Road Transport Operators, c) Representative Organizations, and d) Industry.

Therefore, as part of the outreach efforts of the CCAM-ERAS project under WP2, stakeholders were recruited from the transport value chain, societal stakeholders such as urban and regional authorities, and regulatory bodies along with policy makers. The transport value chain sector was selected to examine both freight and passenger transport, from the perspective of providers and users, focusing specifically on the private sector to ensure quality assurance and realistic assessment of the scenarios being considered. Stakeholders in urban and regional authorities are interviewed to capture societal perspectives, addressing the broader implications of CCAM on public well-being, inclusivity, and urban planning. The sectors and the number of the interviews can be found on Table 2. In total, 14 interviews were undertaken.

Table 2: Interview sectors and number of interviews

Sector	Number of interviews
HE & VE Institutions	6
Road transport operators	2
Representative Organizations	4
Industry	2

The four sectors chosen for interviews in the CCAM-ERAS project—HE & VE Institutions, Road transport operators, Representative Organizations, and Industry—have been selected specifically to ensure comprehensive and diverse stakeholder engagement. The role of higher Education and Vocational Education (HE & VE) Institutions is crucial, as they are chosen to address anticipated shifts in skills and employment demands, preparing education and training programs aligned with future market needs. They play a critical role in adapting in response to the transformative impacts of CCAM technologies, and their involvement is integral to the success of the project.

Road transport operators were selected due to their direct involvement in transportation services, giving practical insights into the operational challenges and employment effects of adopting CCAM technologies. Their input is crucial for understanding changes in operational procedures, workforce management, and potential new business models arising from increased automation and digitalization.

Representative Organizations and the Industry sector were included to capture broader industry perspectives and to ensure diverse viewpoints, supporting inclusive and comprehensive outcomes. These organizations offer sector-wide representation, which helps identify broader socio-economic trends and the varying impacts across different company sizes and geographic locations. Their involvement ensures that the project's findings reflect a wide spectrum of industry and stakeholder experiences, aiding policymakers and industry leaders in crafting effective strategies for a balanced transition towards CCAM deployment. This emphasis on inclusiveness and diversity ensures that all voices are heard and considered in the project.

An interview guide that is tailored to each sector is prepared with customized questions for each sector. The interview guide has been organized into eight distinct sections (i) General socio-economic overview, (ii) Inclusiveness & social equity, (iii) Economic effects, (iv) Health and well-being, (v) Access and affordability, (vi) Inclusiveness & social equity, (vii) Future Roadmap and Stakeholder Awareness, and (viii) Stakeholder Community that ensure comprehensive and focused insights into the diverse impacts of CCAM deployment.

The sections on Economic effects and General socio-economic impacts explicitly address anticipated changes in employment structures, financial implications across different industries, and broader economic shifts related to CCAM implementation. Inclusiveness & social equity and Access and affordability target crucial social dimensions, assessing how CCAM could influence social disparities, equitable access to opportunities, and mobility fairness, particularly for vulnerable groups. The Health and Well-Being section specifically considers potential implications on mental and physical health outcomes and work-life balance, acknowledging CCAM's direct and indirect influences on quality of life.

The Recommendations, Future Roadmap, and Stakeholder Awareness sections solicit forward-looking perspectives to guide strategic actions, policy-making, and effective communication for stakeholders. Additionally, the section on the Stakeholder Community is designed to gauge collaboration potential among various actors involved in CCAM implementation, fostering multidisciplinary coordination and ensuring diverse perspectives. This structured approach not only facilitates a holistic evaluation but also demonstrates our proactive approach to addressing challenges, thereby instilling confidence in the stakeholders about the project's effectiveness.

The interview guides which have been prepared for each one of the sectors can be found on the Appendix. After preparing the questionnaires and interview guides, we sent invitation emails (with the consent form) to interested parties based on the sector to which they belonged. The selection of interviewees was based on their expertise and experience in the field of CCAM technologies. All the invitations were sent in Q4 of 2024, and a few remaining interviews took place in January 2025. Totally, have responded, six from HE & VE Institutions, two from Road transport operators, five from Representative Organizations and four from Industry sector.

The four sectors selected for conducting interviews within the CCAM-ERAS project—Higher Education and Vocational Education (HE & VE) Institutions, Road Transport Operators, Representative Organizations, and Industry—have been specifically chosen to ensure comprehensive, balanced, and diverse stakeholder engagement. The role of Higher Education and Vocational Education (HE & VE) Institutions is particularly crucial, as they are responsible for addressing the anticipated transformations in skills and employment requirements. These institutions directly prepare the workforce of tomorrow through tailored education and training programs aligned explicitly with emerging market needs in light of CCAM technological advances. Their proactive involvement and input in developing appropriate skill sets and competencies are integral to effectively navigating and adapting to the transformative impacts of CCAM technologies, thereby contributing substantially to the overall success and relevance of the project.

The Road Transport Operators sector was carefully chosen due to their direct and practical engagement in transportation services, making them ideally positioned to provide meaningful insights on operational challenges, practical implications, and employment-related effects emerging from the adoption of CCAM technologies. Their involvement allows the project to accurately identify and analyze anticipated shifts in operational processes, potential changes to workforce management practices, and the emergence of innovative business models driven by increased digitalization and automation. This sector's first-hand operational experience thus ensures that the project's outcomes remain grounded in reality and accurately reflect the practical scenarios faced by transportation operators.

Representative Organizations and the Industry sector were included explicitly to ensure the collection of broader industry perspectives, providing a comprehensive view by capturing diverse stakeholder viewpoints. Representative Organizations, in particular, offer extensive sector-wide representation, helping the project team identify overarching socio-economic trends, varied impacts across different industry sizes, and geographic disparities. The industry sector provides additional insights into specific market-driven opportunities, technological innovations, and strategic industry challenges. The conclusion of these two sectors ensures that the CCAM-ERAS project's findings are reflective of a wide spectrum of stakeholder experiences, empowering policymakers, educators, and industry leaders with nuanced, informed, and actionable strategies for a balanced and equitable transition towards CCAM deployment. Emphasizing inclusivity and diversity in stakeholder representation ensures that the voices of all relevant parties are thoroughly considered and effectively incorporated into the project's outcomes.

Upon finalizing the selection of the aforementioned sectors, tailored questionnaires and detailed interview guides were meticulously developed to reflect the unique context and perspective of each sector. Each interview guide has been structured into eight distinct and purposeful sections: (i) Recommendations for Skills, (ii) General Socio-economic Overview, (iii) Inclusiveness & Social Equity, (iv) Economic Effects, (v) Health and Well-being, (vi) Access and Affordability, (vii) Future Roadmap and Stakeholder Awareness, and (viii) Stakeholder Community. The purposeful division into these sections ensures targeted, comprehensive, and structured data collection, focusing explicitly on each significant area related to the deployment of CCAM technologies.

Specifically, the sections on Economic Effects and General Socio-economic Impacts have been intentionally designed to thoroughly analyze expected shifts in employment structures, economic adjustments across industries, and broader economic transformations anticipated from CCAM adoption. The sections Inclusiveness & Social Equity and Access and Affordability highlight critical social factors, assessing potential implications for equity, social disparities, and the accessibility of new opportunities—especially for disadvantaged or vulnerable groups within society. The Health and Well-being section explicitly considers possible impacts on individuals' mental and physical health, alongside changes to overall work-life balance, recognizing both direct and indirect consequences stemming from CCAM deployment.

Additionally, the Recommendations, Future Roadmap and Stakeholder Awareness sections aim to gather future-oriented perspectives, support informed policymaking, strategic planning, and effective stakeholder communication. The Stakeholder Community section has been explicitly structured to assess the potential for collaborative engagements among diverse stakeholders, promoting multidisciplinary cooperation, integration of perspectives, and cohesive action planning. This carefully organized and detailed approach not only ensures a holistic, inclusive evaluation of CCAM impacts but also clearly demonstrates a proactive stance in managing future challenges, thereby instilling stakeholder confidence in the robustness and relevance of the project's methodology.

The complete set of detailed and sector-specific interview guides developed for this purpose is included in the Appendix, serving as comprehensive references. Following the development of the interview guides, formal invitations, accompanied by informed consent forms, were systematically sent via email to the potential stakeholders based explicitly on their sector affiliation, experience, and expertise in the field of CCAM technologies. All invitation communications were distributed during the fourth quarter (Q4) of 2024, with a small number of remaining interviews concluded in January 2025.

5.2 Results - Qualitative Analysis

5.2.1 HE & VE Institutions

For the first sector, six interviews were conducted. The qualitative analysis of expert recommendations from the CCAM-ERAS interviews highlights several critical strategies to ensure workforce readiness in the face of CCAM deployment. Across the interviews, key thematic areas emerged, emphasizing collaboration, educational reform, stakeholder engagement, and policy frameworks.

5.2.1.1 General socio-economic overview – Socio-economic impacts

The qualitative analysis of the socio-economic impacts resulting from the implementation of CCAM highlights several significant dimensions. Overall, respondents identified CCAM as an influential factor in reshaping both passenger and freight transportation. A recurring theme is the economic benefits CCAM can provide. According to the interviews conducted with people from HE and VE institutions, there is a broad consensus that CCAM has the potential to significantly improve economic efficiency by reducing operational costs in freight transportation, enhancing productivity, and lowering the expenses associated with vehicle maintenance and management. It is also widely anticipated that new business models will emerge, particularly benefiting e-commerce and shared mobility services. Mobility-as-a-service and similar shared schemes are expected to thrive, driven by increased efficiency and reduced costs.

From a social perspective, respondents emphasized the potential positive impacts on accessibility and inclusivity. CCAM technologies are predicted to improve transportation access significantly for groups that traditionally face mobility challenges, including the elderly, disabled individuals, and young people who currently cannot drive. It was noted that CCAM could significantly improve quality of life, especially in rural areas by providing better accessibility to education and healthcare. However, concerns were also raised about possible negative social impacts, particularly regarding employment and income inequality. There is general agreement that professional drivers, including freight and passenger transport operators, face the most significant threat from automation, potentially leading to considerable job losses and requiring substantial workforce reskilling and retraining initiatives. While some roles will evolve rather than disappear completely, substantial segments of the current workforce may become obsolete.

Respondents highlighted the critical importance of cybersecurity, big data analytics, sensor technology, and artificial intelligence skills, emphasizing a substantial existing skills gap that could hinder CCAM deployment. There is a clear need for educational institutions, including higher education and vocational training, to adapt curricula to address these emerging skills demands swiftly. Partnerships between academia, industry, and public authorities are considered essential to adequately prepare the future workforce.

The balance between positive and negative impacts also depends significantly on the policy environment and business models adopted. If CCAM services are subsidized or provided publicly, positive social impacts in terms of affordability and inclusivity could be realized more effectively. Conversely, without targeted policy interventions, CCAM might exacerbate existing social inequalities or create new ones, particularly during the initial deployment phase when costs may be higher. Moreover, regional disparities are also anticipated, with urban areas potentially experiencing quicker adoption and more substantial immediate benefits compared to rural regions. Yet, in the long term, the deployment of CCAM in rural areas could considerably enhance connectivity, educational opportunities, and overall socio-economic conditions.

Lastly, mental health and work-life balance were identified as areas that need attention. Respondents indicated that the changing nature of work and potential expectations around productivity during commutes could negatively impact mental health unless managed carefully.

Wellness programs and clear guidelines on work expectations during automated commutes were suggested as necessary to mitigate these potential downsides.

5.2.1.2 General socio-economic overview – Classifying the socio-economic impacts

The qualitative analysis regarding the socio-economic impacts of CCAM across industry sectors, sizes, and types of operation (public or private) reveals consistent insights. In terms of industry sector types, there was a general consensus that the manufacturing and construction sectors would experience primarily positive socio-economic impacts due to the adoption of CCAM, driven largely by increased demand for technological innovation, enhanced efficiency, and the creation of new roles in advanced vehicle manufacturing and infrastructure development.

For the transportation sector itself, positive impacts were predominantly acknowledged, albeit with significant qualifications. While CCAM technologies promise increased efficiency, safety, and productivity, concerns were also voiced regarding potential job losses, particularly among professional drivers and traditional vehicle maintenance roles. Thus, while positive economic outcomes were broadly agreed upon, mixed views emerged concerning the social implications, highlighting the need for effective retraining and reskilling programs. Healthcare and education sectors were perceived to benefit positively but indirectly, with improvements in transportation accessibility potentially enhancing service delivery and access to institutions. However, these impacts were viewed as less directly transformative compared to transportation and manufacturing.

Regarding industry size, larger industries were consistently expected to reap more substantial positive impacts from CCAM deployment. The capacity to leverage economies of scale, substantial investments, and extensive infrastructure development positions larger firms advantageously to integrate CCAM efficiently and profitably. Conversely, smaller industries and enterprises might face challenges related to investment capacity and adaptability, highlighting a potential disparity that may need targeted policy intervention to mitigate. In the analysis of public versus private sector operations, a clear positive outlook emerged for both sectors, yet nuances exist. Public sector organizations, particularly those involved in transportation services, were viewed as well-positioned to realize significant operational savings, enhanced service quality, and increased accessibility through CCAM. However, the positive outcomes for the private sector appeared even stronger, fueled by innovation, efficiency gains, and potential profitability from new business models and market opportunities in automated transport solutions.

5.2.1.3 General socio-economic overview – Impacts on emerging business models

Business models affected by CCAM highlight several anticipated transformations and benefits across various sectors. Interviewees from HE and VE institutions consistently identified mobility-as-a-service (MaaS) and shared mobility schemes as primary beneficiaries. CCAM is expected to significantly enhance the efficiency and attractiveness of services such as automated taxis, ridesharing, and car-sharing platforms. Automation and connectivity are poised to drive down operational costs, potentially lowering service prices and broadening accessibility.

E-commerce was another frequently mentioned beneficiary, particularly through enhanced logistics and delivery services. Automated freight transportation, including drones and autonomous delivery vehicles, is expected to transform the logistics chain by offering faster, safer, and more cost-efficient deliveries. Such advancements could profoundly reshape consumer expectations, boosting the appeal and viability of online shopping. Further, respondents underscored the expected diversification of business models, predicting the emergence of new service categories differentiated by levels of human interaction. Premium mobility services could arise, maintaining a human presence for enhanced user experiences, while entirely automated, interaction-free services might cater to cost-sensitive markets.

Respondents also recognized that vehicle ownership models would likely shift, decreasing individual vehicle ownership and promoting shared or subscription-based access to transportation. This shift could lead to substantial societal and urban planning implications, such as reduced parking needs and more efficient utilization of urban spaces. Finally, the role of data emerged prominently, with interviewees forecasting substantial growth in business models centered around data analytics, cybersecurity, and digital services linked to connected and automated vehicles. The vast amount of data generated by CCAM systems presents opportunities for new ventures specializing in data processing, analysis, and secure data management.

5.2.1.4 Inclusiveness and social equity– CCAM affect income segregation or social inequalities?

The CCAM on income segregation and social inequalities highlights mixed perceptions, balancing potential positive outcomes with notable risks. Respondents representing, HE and VE institutions generally acknowledge CCAM's potential to either mitigate or exacerbate existing social inequalities, emphasizing the role of policy decisions and implementation strategies as decisive factors. Positive views are anchored in the belief that CCAM could significantly enhance mobility and accessibility, particularly benefiting transportation-disadvantaged groups such as the elderly, people with disabilities, and individuals living in underserved or rural regions. Improved transportation services could lead to enhanced employment opportunities and better integration of marginalized communities into broader economic activities.

However, there is considerable concern that initial CCAM services may be costly and could disproportionately benefit higher-income groups, thus temporarily widening social and economic disparities. It was also noted that if CCAM deployment is largely privatized without public subsidy or regulation, lower-income communities could face barriers to accessing these new technologies, exacerbating existing inequalities. The role of higher education and vocational training institutions in addressing these concerns was widely emphasized. Education providers were recognized as critical stakeholders capable of reducing skill gaps through targeted educational programs, reskilling, and upskilling initiatives tailored to disadvantaged communities. Respondents highlighted the importance of preparing the future workforce in emerging skills areas such as cybersecurity, data analysis, artificial intelligence, and technical maintenance of CCAM systems.

Moreover, respondents advocated for educational initiatives starting early in students' academic careers to build foundational knowledge and ensure preparedness for emerging job markets driven by CCAM technologies. Establishing robust partnerships between educational institutions, industry stakeholders, and public authorities was viewed as essential to effectively bridge the skills gap and promote equitable access to new employment opportunities.

5.2.1.5 Inclusiveness and social equity– HEIs and VEIs can ensure that CCAM technologies make transportation more inclusive?

The qualitative analysis highlights a shared recognition among respondents regarding the critical role HEIs and VEIs could play in promoting inclusivity through CCAM. Interviewees consistently identified educational institutions as central actors capable of facilitating inclusivity by conducting targeted research and fostering innovative, inclusive transportation solutions. Respondents emphasized that HEIs and VEIs should actively engage in research and development projects to establish best practices, particularly those explicitly addressing the mobility needs of disadvantaged groups, including low-income students, individuals with disabilities, and the elderly.

A significant role identified for HEIs and VEIs is in providing data-driven insights and evidence-based recommendations to policymakers and industry stakeholders. Educational institutions could support the development of CCAM systems designed with inclusivity as a foundational principle, rather than as an afterthought. This includes proactive involvement in the early stages of technological development and deployment strategies, ensuring vulnerable populations are prioritized and their specific needs integrated into CCAM solutions. Additionally, respondents noted the importance of HEIs and VEIs in raising public awareness and understanding of CCAM technologies. Through outreach programs, workshops, and educational campaigns, these institutions can educate communities on the benefits and implications of CCAM, reducing resistance to technological adoption and enhancing public acceptance and trust.

Furthermore, the analysis indicates that educational institutions can significantly contribute by preparing students with specialized skills required to design, manage, and maintain inclusive CCAM systems. Through targeted curriculum enhancements and practical training programs, HEIs and VEIs are well-positioned to equip the future workforce with the competencies necessary to ensure CCAM effectively addresses accessibility challenges and promotes social equity.

5.2.1.6 Inclusiveness and social equity– Do CCAM solutions affect access to educational services?

The analysis indicates a broadly optimistic view among respondents concerning the potential of CCAM to significantly improve access to educational services, particularly benefiting students from rural or underserved regions. Respondents consistently emphasized that CCAM has the potential to positively transform educational accessibility by addressing the traditional transportation barriers faced by rural and underserved communities. Improved and automated transportation services could substantially reduce commuting times, lower travel costs, and enhance the reliability and safety of journeys to educational institutions. Consequently, CCAM could lead to increased attendance rates, reduced dropout rates, and broader educational participation.

However, several respondents noted critical factors that could influence whether CCAM's impact will be beneficial or detrimental. The affordability and accessibility of CCAM services were highlighted as key determinants. If the deployment of CCAM systems prioritizes public or subsidized models, the positive effects on educational access would be maximized, ensuring that low-income students also benefit substantially. Conversely, privately operated, expensive CCAM solutions could exacerbate existing inequalities by restricting services to higher-income families and limiting overall educational access for economically disadvantaged students. Furthermore, respondents suggested that successful implementation of CCAM in educational access depends heavily on the underlying infrastructure and regional policy decisions. Without strategic investments and deliberate targeting of underserved areas, rural regions might lag behind urban centers, potentially widening regional disparities. Respondents advocated proactive and inclusive policy frameworks that deliberately extend CCAM benefits to rural and underserved communities, ensuring equitable outcomes.

5.2.1.7 Economic effects–Economic benefits of CCAM for HEIs and VEIs

The analysis underscores a general consensus among respondents that the introduction of CCAM presents significant economic opportunities for HEIs and VEIs. These opportunities primarily manifest through the development of new, specialized educational programs and expanded research possibilities. Respondents consistently noted that CCAM would drive the creation of innovative and interdisciplinary educational offerings, especially postgraduate programs specifically tailored toward emerging technological fields such as artificial intelligence, cybersecurity, data analytics, sensor technologies, and vehicle automation. Such specialized programs are anticipated to attract increased student enrollment, both locally and internationally, thereby generating new revenue streams for educational institutions.

Additionally, interviewees highlighted that CCAM deployment is likely to stimulate a wide array of new research opportunities. HEIs and VEIs are well-positioned to attract substantial funding from both public bodies and private sector stakeholders interested in advancing CCAM technologies. Increased research activities could also foster stronger international collaboration and partnership opportunities, enhancing institutions' academic prestige and positioning them as leaders within this rapidly evolving sector. Moreover, respondents recognized the economic value of actively participating in CCAM-related research projects that could attract industry investment and funding, create high-quality employment opportunities within academic settings, and drive regional economic development through technological advancements and innovation.

5.2.1.8 Economic effects–Negative economic impacts on HEIs and VEIs

The analysis reveals a nuanced view among respondents regarding potential negative economic impacts of CCAM on educational institutions, particularly concerning the risk of job roles becoming obsolete. Most respondents acknowledged the inevitability of some roles becoming less relevant or obsolete within HEIs and VEIs due to advancements brought by CCAM. Specific job categories, particularly those associated with traditional driver training, manual vehicle maintenance, and certain administrative support positions, were identified as likely to experience reduced demand. The transition to automated and connected systems means educational programs and training in conventional vehicle operation and maintenance may decline, affecting employment opportunities for educators and support staff specialized in these fields.

However, respondents largely viewed these impacts as manageable, emphasizing that educational institutions are inherently adaptive and continuously evolving. It was widely suggested that institutions could mitigate negative impacts by proactively adapting curricula and retraining personnel, thereby transitioning staff into emerging fields associated with CCAM technologies, such as cybersecurity, data analytics, and autonomous systems management. Furthermore, respondents recognized that the gradual pace of CCAM adoption allows educational institutions ample time to adjust their strategies and minimize adverse outcomes effectively. Many viewed the evolution induced by CCAM as an opportunity rather than solely as a threat, highlighting the potential to replace outdated roles with new, highly skilled positions aligned with future industry needs.

5.2.1.9 Health and well-being– Risks or benefits in work-life balance and mental health

The analysis of interviews regarding the health and well-being implications of CCAM indicates both potential benefits and risks associated with changes in employment due to technological advancements. Respondents consistently highlighted significant potential benefits in terms of improved work-life balance. CCAM could reduce the physical and mental stress associated with traditional commuting, allowing individuals to use commuting time more productively or restfully. This improved efficiency might lead to shorter working hours and increased leisure time, positively influencing employees' overall quality of life.

However, several concerns were raised about potential negative impacts, particularly on mental health. A key issue identified was the expectation that employees might feel obligated to engage in work-related activities during commutes, blurring the boundary between professional and personal life and increasing overall stress levels. Respondents noted that constant connectivity and productivity expectations could diminish employees' sense of autonomy and relaxation during what would traditionally be downtime.

Additionally, respondents voiced concerns regarding job insecurity due to potential redundancies, particularly for professional drivers and other occupations made obsolete by automation. Job loss or significant occupational changes could lead to increased anxiety, stress, and other mental health challenges if appropriate support systems and reskilling opportunities are not proactively provided. To mitigate these risks, interviewees emphasized the importance of wellness and mental health programs, along with clearly defined guidelines and policies that safeguard personal time during automated commuting. Institutions and employers are encouraged to create supportive environments to help employees adjust to changing work roles and expectations effectively.

5.2.1.10 Access and Affordability – CCAM impacts affordability of transportation for students?

The CCAM impact on transportation affordability for students commuting to HEIs and VEIs reveals a cautiously optimistic yet nuanced perspective. Respondents generally acknowledged CCAM's potential to lower transportation costs, especially in the medium to long term, due to improved operational efficiencies and reduced overhead associated with automated transportation services. Lower operating costs could translate into more affordable commuting options for students, positively affecting their economic access to education.

However, several respondents expressed concern regarding initial deployment stages, where the affordability of CCAM services might be challenging, potentially limiting access to economically disadvantaged students. The affordability of CCAM services, respondents emphasized, would depend significantly on the adopted business models—whether public, subsidized, or privately managed—and the extent of governmental or institutional support provided. The analysis highlights the critical importance of public policy and targeted subsidies to ensure that CCAM services are inclusive and accessible to students across various income groups, particularly low-income populations. Interviewees suggested strategic public investment and subsidy models could help mitigate potential affordability barriers and ensure equitable access to educational opportunities.

5.2.1.11 Access and Affordability – Regional impacts of CCAM on job creation in education and research

The analysis from the interviews highlights distinct regional impacts anticipated CCAM in terms of job creation within education and research sectors, with noticeable variations between urban and rural regions. Respondents largely concurred that urban areas are likely to experience more immediate and substantial benefits from CCAM deployment, primarily due to higher initial adoption rates, better-established infrastructure, and the concentration of educational and research institutions. Urban centers were identified as focal points for job creation, driven by increased demand for specialized programs, research collaborations, and innovation activities closely tied to CCAM technologies.

In contrast, rural regions were seen as likely to encounter slower and less pronounced job growth in education and research initially, mainly due to infrastructure limitations, lower market penetration, and potential barriers to accessing the full benefits of CCAM innovations. However, respondents also emphasized the long-term potential for rural areas to benefit significantly as CCAM matures, potentially reducing regional disparities by improving connectivity, enabling remote research opportunities, and fostering distributed educational services. Several respondents highlighted the critical role of deliberate policy interventions and strategic investments to ensure balanced regional development. Targeted initiatives aimed at enhancing rural connectivity, supporting rural-based educational institutions, and promoting region-specific CCAM research could ensure that rural areas do not fall behind urban regions in job creation and economic growth opportunities.

5.2.1.12 Future Roadmap and Stakeholder Awareness– Measures to raise awareness

The last question of the interview emphasizes the importance of implementing proactive and multifaceted strategies to effectively raise stakeholder awareness about the socio-economic impacts of CCAM, particularly in relation to jobs and skills. Respondents consistently recommend engaging stakeholders through workshops, seminars, and dedicated informational campaigns designed to communicate clear, evidence-based insights into CCAM technologies' potential impacts and implications. Such events were considered critical to facilitating knowledge exchange, encouraging dialogue among diverse stakeholders, and identifying emerging skill requirements and employment trends.

Interviewees also stressed the significance of showcasing practical CCAM applications through pilot projects, demonstrations, and experiential learning opportunities, enabling stakeholders to directly observe potential benefits and address concerns in real-world scenarios. This hands-on approach was seen as essential in enhancing stakeholders' understanding and acceptance of CCAM, particularly in relation to employment transformations and skill development needs. Furthermore, respondents highlighted the value of collaboration and partnerships among educational institutions, industry players, and public sector bodies to foster a shared understanding of CCAM's socio-economic implications. Establishing cross-sectoral platforms for ongoing dialogue and cooperative initiatives was recommended to collectively anticipate and respond effectively to workforce changes.

Additionally, proactive dissemination strategies involving digital and traditional media were recommended as powerful tools for broad-based outreach and stakeholder engagement. Clear, accessible communication regarding employment opportunities, retraining programs, and educational pathways was identified as crucial for ensuring a smooth transition toward CCAM integration.

5.2.2 Road transport operators

For the second sector, two interviews were conducted by people representing road transport operators. The qualitative analysis of expert recommendations from the CCAM-ERAS interviews highlights several critical strategies to ensure workforce readiness in the face of CCAM) deployment.

5.2.2.1 General socio-economic overview – Socio-economic impacts

Respondents widely acknowledge significant potential improvements in efficiency, operational safety, and environmental sustainability. CCAM technologies could substantially streamline transportation processes, reducing fuel consumption, emissions, and costs associated with human errors or inefficiencies. Particularly, automated freight transport is expected to enhance cost efficiency and optimize logistical operations, providing tangible economic benefits across the industry. However, substantial skepticism was voiced regarding the feasibility of full automation in certain regions, particularly in Europe, due to complex and varied infrastructure. It was suggested that partial automation or hybrid approaches might be more practical in the near term, considering existing road networks and operational complexities.

A notable concern raised was the potential economic burden associated with initial CCAM deployment, requiring significant investments from carriers. Respondents expressed uncertainty regarding whether governments and customers would provide adequate support to offset these costs, potentially leading carriers to increase transportation rates to remain economically viable. Such increases could consequently raise consumer prices, potentially impacting market dynamics and affordability. Regarding employment, significant shifts were predicted within the labor market. Respondents foresee reduced demand for traditional manual driving roles, accompanied by increased demand for specialized technical expertise, including IT professionals, cybersecurity specialists, and data analysts. This transition in employment could create both challenges and opportunities, necessitating substantial workforce retraining and re-skilling efforts to ensure successful adaptation.

Accessibility emerged as another essential theme. CCAM could positively impact underserved regions by providing reliable, efficient, and consistent transportation services, potentially improving socio-economic equity and connectivity, especially in rural and peripheral areas.

5.2.2.2 General socio-economic overview – Classifying the socio-economic impacts

Regarding industry sector types, respondents generally view CCAM's impact on transportation positively, recognizing potential enhancements in efficiency, safety, and operational cost-effectiveness. These advancements are anticipated to significantly reshape transportation practices, although concerns were expressed about initial implementation costs and infrastructure complexities, which might pose temporary challenges. However, respondents highlighted potential negative impacts in certain areas within the transportation sector due to the complexities inherent in adopting automated systems. Notably, it was noted that sectors dealing with less standardized operations, such as groupage and less-than-truckload (LTL) shipments, may face more significant challenges implementing CCAM technologies compared to full truckload (FTL) operations.

Regarding industry size, respondents conveyed that larger enterprises could leverage economies of scale to better absorb the significant upfront costs associated with CCAM adoption, positioning them to reap incredible long-term benefits. Smaller operators, by contrast, might face substantial financial and operational hurdles, potentially exacerbating existing inequalities and creating market consolidation risks where more prominent players dominate due to their better access to resources. Respondents generally indicated optimism about CCAM's impacts within both sectors when considering public versus private sector operations but noted distinctive considerations for each. Public sector operations are expected to benefit from enhanced service quality, safety improvements, and operational efficiencies, particularly in passenger transportation services. Yet, the private sector was seen as more agile in rapidly in integrating innovations and exploiting new business opportunities presented by CCAM technologies, potentially leading to faster economic gains.

5.2.2.3 General socio-economic overview – Impacts on emerging business models

The analysis from road transport operators highlights several emerging business models poised to benefit significantly from CCAM. Respondents consistently underscored the potential positive impacts on e-commerce, especially regarding first- and last-mile logistics. Autonomous vehicles promise to streamline package delivery processes, enhance efficiency, reduce costs, and improve consumer satisfaction by ensuring timely and reliable deliveries. Furthermore, interviewees recognized substantial opportunities for shared mobility schemes, such as autonomous shuttles or ride-sharing services. These models are particularly suited to urban and suburban areas, where CCAM technologies could significantly alleviate existing transportation gaps, improve connectivity, and offer flexible and cost-effective commuting options.

In contrast, challenges were noted for more complex logistics operations, specifically in the freight transportation sector, where partial loads or multiple-drop scenarios are frequent. Respondents indicated that Full Truckload (FTL) shipping models, involving single-point loading and unloading, were far more likely to benefit from CCAM, given their operational simplicity and compatibility with automation. Additionally, CCAM is expected to positively influence shift-based workforce transportation by offering consistent, reliable mobility solutions, especially during off-peak hours when conventional public transport options are limited. Such autonomous services could substantially enhance access to employment opportunities for employees with unconventional working hours.

5.2.2.4 *Inclusiveness and social equity– CCAM affect income segregation or social inequalities?*

The analysis among road transport operators reveals cautious optimism regarding CCAM potential effects on income segregation and social inequalities. Respondents recognized that CCAM could positively impact socio-economic equity by improving accessibility and connectivity, especially in rural or underserved areas. Enhanced transportation services could open new employment opportunities, bridging gaps between isolated communities and employment hubs, thus promoting greater socio-economic integration. However, respondents also acknowledged significant risks. There was a concern that lower-income or marginalized workers, particularly those in traditional driving roles, could face job displacement due to automation. Such disruptions could exacerbate existing inequalities unless proactive measures are implemented.

To mitigate these risks, respondents recommended several key actions transportation operators should adopt. Foremost among these was ensuring affordable access to CCAM technologies and services, thus preventing exclusion based on cost. Interviewees highlighted examples where low-cost public transport models had successfully maintained inclusive access. Moreover, transportation operators were encouraged to focus on targeted retraining and reskilling programs for workers affected by the transition to automated systems. These programs could help employees adapt effectively to new, technically demanding roles emerging from CCAM deployment, ensuring that marginalized and lower-income workers are not left behind. Additionally, respondents emphasized the importance of clear communication and stakeholder engagement strategies to build trust and awareness within communities, particularly among disadvantaged groups. By actively involving these communities in the CCAM implementation processes, operators could better identify specific needs and tailor solutions accordingly.

5.2.2.5 *Inclusiveness and social equity– Can road transport operators ensure that CCAM technologies make transportation more inclusive?*

The analysis from road transport operators indicates strong consensus regarding the crucial role transportation operators play in ensuring that CCAM solutions effectively support inclusivity for disadvantaged groups, such as low-income individuals, elderly populations, and people with disabilities. Transportation operators identified their role as pivotal in designing and implementing CCAM systems that address the unique needs of these communities. They emphasized that ensuring affordability and accessibility is fundamental. Operators could significantly influence the inclusivity of CCAM by structuring pricing models to remain economically viable for low-income users, thereby preventing exclusion due to financial constraints.

Moreover, respondents highlighted the need for transportation operators to integrate accessible features within autonomous vehicles explicitly designed for elderly passengers and individuals with disabilities. Examples provided include deploying automated ramps, specialized boarding systems, clear communication channels, and simplified interfaces, ensuring that autonomous systems cater adequately to passengers with varying mobility or cognitive needs. Operators were also encouraged to engage actively with disadvantaged communities through transparent and targeted communication strategies. Proactive efforts to educate users about CCAM systems, addressing their concerns and building confidence in autonomous technology, were identified as essential. Strong community involvement and partnership with representative groups could further ensure transportation services align with the real-life mobility requirements of marginalized and vulnerable populations.

5.2.2.6 *Inclusiveness and social equity – Do CCAM solutions affect access to essential services?*

The responses among road transport operators suggest that CCAM holds significant potential to improve access to essential services such as healthcare and employment, especially benefiting vulnerable populations who rely heavily on road transportation. Respondents consistently recognized CCAM's capability to enhance mobility options, particularly in rural and underserved areas, providing stable, safe, and reliable connectivity to crucial services. They highlighted that autonomous transportation could effectively bridge current transportation gaps, significantly reducing travel barriers for vulnerable groups. Improved mobility solutions are anticipated to facilitate better access to employment hubs and healthcare facilities, thereby positively impacting the socio-economic inclusion of traditionally isolated communities.

Nevertheless, the analysis also reveals certain reservations. Concerns were voiced regarding affordability, with the understanding that without deliberate measures such as subsidies or public sector involvement, CCAM services could initially be costly and potentially inaccessible to low-income populations, risking the exacerbation of existing inequalities. Respondents emphasized the need for targeted interventions by transportation operators supported by inclusive public policies to ensure that CCAM's deployment does not hinder access. Affordable pricing structures, targeted subsidies, and strategic investment were recommended as critical measures to ensure vulnerable populations receive equitable benefits from CCAM.

5.2.2.7 *Economic effects – Economic benefits of CCAM for road transport operators*

The analysis among road transport operators reveals considerable optimism regarding the economic benefits of CCAM, particularly emphasizing operational efficiency, cost reductions, and innovative business model opportunities. Respondents consistently highlighted efficiency as one of the most prominent economic advantages anticipated from CCAM adoption. Automation of transportation processes is expected to significantly reduce operational costs, optimize resource use, and improve service reliability, thereby enhancing overall economic productivity within both passenger and freight transportation sectors.

Cost reduction, though recognized as a substantial benefit, was viewed as more long-term due to high initial investments and costs associated with piloting and implementing CCAM technologies. Nonetheless, respondents were optimistic that, as these technologies mature and become widespread, significant reductions in operational expenditures would materialize. Furthermore, interviewees foresee the emergence of new business opportunities facilitated by CCAM. Innovations such as on-demand autonomous transport services and advanced freight logistics systems could redefine market dynamics, offering operators novel avenues for revenue generation and competitive differentiation.

However, it was also noted that realizing these economic benefits would require strategic management of transitional challenges, including potential job displacements and shifts in workforce skill requirements. Operators emphasized the importance of careful planning, targeted policy support, and comprehensive retraining initiatives to ensure smooth economic transitions.

5.2.2.8 *Economic effects – Negative economic impacts on road transport operators*

The analysis among road transport operators reveals concerns regarding potential negative economic impacts associated with the deployment of CCAM, specifically related to employment disruptions and market changes. Respondents consistently acknowledged the risk of significant job losses, especially affecting traditional driving roles, as automation progressively replaces manual operations. The scale of these job losses, however, was viewed as dependent on how effectively transportation operators manage workforce transitions, including retraining and reskilling initiatives. Without strategic planning and support, these employment disruptions could lead to socio-economic instability, particularly affecting lower-skilled workers.

Market disruption was another prominent concern expressed by respondents. They noted that smaller operators might face substantial challenges competing with larger, better-resourced firms capable of rapidly adopting and integrating CCAM technologies. There is a risk that smaller businesses could struggle to afford initial investments required for automation, potentially leading to consolidation within the transportation sector and reduced market competition. High initial costs associated with deploying CCAM technologies were also highlighted as a significant barrier. Respondents emphasized that the financial investment required for piloting, infrastructure modifications, and technological implementation is considerable, posing substantial economic risks if not adequately supported by governments, institutions, or other stakeholders. Moreover, respondents expressed concern about the potential economic impact on consumers if operators increase service pricing to recoup their investments, potentially limiting affordability and accessibility, especially for disadvantaged groups.

5.2.2.9 Health and well-being – Risks or benefits in work-life balance and mental health

The qualitative analysis among road transport operators reveals nuanced perspectives regarding the potential impacts of CCAM on employees' health and well-being, particularly focusing on work-life balance and mental health. Respondents frequently expressed optimism about potential improvements in work-life balance, highlighting that CCAM could significantly reduce or eliminate stressful and physically demanding aspects of traditional driving roles, such as long working hours, night shifts, and repetitive tasks. Automation might lead to shorter, more predictable working hours, potentially improving employees' overall quality of life and job satisfaction.

However, respondents also voiced concerns about potential mental health risks associated with the transition to CCAM. Job uncertainty, particularly for employees in roles susceptible to automation-related displacement, was identified as a significant stress factor, potentially leading to anxiety and diminished well-being if adequate transitional support systems are lacking. Furthermore, the shift towards remote supervision and management tasks was noted as potentially increasing psychological pressure and stress if employees feel isolated or overwhelmed by new technological expectations. Respondents emphasized the necessity of comprehensive support systems, including clear guidelines, training programs, and mental health resources, to assist workers through this transition.

5.2.2.10 Access and affordability – CCAM impact affordability of transportation for customers?

Analysis from road transport operators reveals a cautious perspective on the potential impacts of CCAM on the affordability of transportation services, particularly regarding essential travel such as commuting and access to healthcare. Respondents generally acknowledged that CCAM could significantly reduce long-term operational costs by improving efficiency, streamlining operations, and potentially lowering transportation prices for customers. By reducing expenses associated with labor, fuel consumption, and maintenance, CCAM technologies have the potential to make transport services more economically accessible for broader populations, especially in underserved or rural regions.

However, the analysis also highlighted critical short-term challenges linked to affordability. Initial investment costs for implementing and operating CCAM services were identified as notably high, raising concerns that these expenses might initially be passed onto customers through increased transportation fares. Without effective policy interventions or targeted subsidies, respondents feared that vulnerable and lower-income groups might find themselves excluded from the benefits of automated transportation due to financial barriers. To address these affordability concerns, respondents emphasized the importance of strategic public-sector involvement and proactive regulatory frameworks. They recommended that governments actively support transportation operators through financial incentives and subsidies aimed explicitly at keeping fares accessible. Such measures could help manage the upfront costs and ensure that transportation services remain affordable and inclusive for all users, particularly those relying heavily on public and shared transportation options.

5.2.2.11 Access and affordability – Regional impacts of CCAM on job creation in road transportation sector

Respondents commonly identified urban regions as initially likely to experience more pronounced positive impacts from CCAM, primarily due to higher population density, advanced infrastructure, and greater immediate market demand. These urban environments, characterized by complex transportation systems and substantial passenger and freight flows, are expected to witness an increase in job opportunities, particularly in technical, supervisory, and data-driven roles associated with managing and integrating automated fleets.

Conversely, respondents indicated that rural areas might experience a slower and less extensive job creation process due to the lower density of transportation networks and fewer immediate operational demands. However, operators also highlighted that, over time, rural regions could significantly benefit from CCAM solutions, which may offer essential connectivity improvements, effectively filling existing transportation service gaps. Such autonomous solutions could enhance rural access to employment opportunities, education, and essential services, gradually stimulating local job markets. To effectively manage these regional differences, respondents suggested strategic public and private investments in rural infrastructure and training programs specifically tailored to rural workforce needs. Such measures could ensure rural populations benefit equitably from CCAM advancements, thereby minimizing the risk of exacerbating existing regional economic disparities.

5.2.2.12 Future roadmap and stakeholder awareness – Measures to raise awareness

The analysis among road transport operators underscores the importance of proactive, collaborative efforts to effectively raise stakeholder awareness about the socio-economic impacts of CCAM, with particular emphasis on employment and skill requirements. Respondents consistently identified robust communication strategies as essential to stakeholder engagement. They recommended organizing targeted seminars, workshops, and conferences that clearly communicate both potential benefits and challenges associated with CCAM, ensuring that all stakeholders—from employees and local communities to policymakers and industry partners—are adequately informed and prepared.

Additionally, operators advocated for the practical demonstration of CCAM technologies through pilot projects and hands-on experiences, suggesting these activities would greatly assist stakeholders in understanding real-world applications and potential benefits. Demonstrative projects could also address skepticism or resistance by showcasing tangible outcomes and facilitating experiential learning. Collaboration was another significant theme, with respondents highlighting the value of partnerships among transport operators, educational institutions, government bodies, and industry stakeholders. Building cross-sector alliances was viewed as essential to ensure comprehensive awareness, strategic alignment, and collective action in response to workforce transitions triggered by CCAM deployment. Furthermore, respondents emphasized the need for internal awareness and education campaigns to inform employees clearly about anticipated changes, potential career pathways, and available training opportunities. Transparent internal communication was considered critical to preparing employees for shifts in job roles, thereby minimizing anxiety and facilitating smoother transitions.

5.2.3 Representative Organizations

For the third sector, four interviews were made from people representing representative Organizations. The qualitative analysis of expert recommendations from the CCAM-ERAS interviews highlights several critical strategies to ensure workforce readiness in the face of CCAM) deployment.

5.2.3.1 General socio-economic overview – Socio-economic impacts

The socio-economic implications of CCAM represent significant transformations in the transportation sector, affecting passenger and freight operations. Various representative organizations agree that CCAM will induce notable shifts in employment, workforce skills, and socio-economic structures.

Initially, CCAM is expected to influence employment through a notable reduction in traditional driver roles, specifically impacting occupations such as taxi drivers, truck drivers, and specialized transport operators. Automation in passenger and freight logistics might substantially alleviate current labor shortages, suggesting a dual effect of job displacement and workforce optimization. However, despite these potential job losses, there is recognition of simultaneous job creation in supervisory, oversight, and highly technical roles. Significant positive socio-economic impacts include increased mobility efficiency, reduced traffic congestion, and enhanced road safety. Organizations highlight substantial cost savings due to decreased labor needs and the potential for significant gains in productivity and resource optimization, particularly within freight logistics. Autonomous vehicles could operate during off-peak hours, effectively optimizing transport networks and reducing urban congestion.

Conversely, socioeconomic challenges include job displacement, which predominantly affects low-skilled workers and occupations reliant on manual tasks. Organizations emphasize that a successful transition necessitates comprehensive retraining programs and educational interventions aimed at enhancing digital literacy and technical competencies. The importance of fostering new skills, particularly in software management, cybersecurity, digital diagnostics, and advanced system troubleshooting, is underscored. Educational institutions face increasing pressure to realign curricula, address identified skills gaps and adapt vocational education to better match the requirements of emerging CCAM technologies. The collaboration between industry and educational institutions is highlighted as crucial for timely skills development, helping mitigate the risk of economic marginalization for workers unable to adapt swiftly to these new technological demands.

On a broader economic scale, CCAM is expected to stimulate new business models, including MaaS and e-commerce, driven by more efficient logistic solutions. This could democratize mobility by reducing individual transport costs and increasing access for disadvantaged groups, including elderly or disabled persons, thus contributing positively to social equity. However, concerns about initial high vehicle costs and infrastructure readiness remain barriers that could temporarily exacerbate existing inequalities. Finally, the societal acceptance of CCAM technologies is recognized as crucial, underscored by potential ethical concerns, particularly in response to autonomous vehicle incidents. Organizations stress the importance of clear communication strategies and proactive measures in building public trust and understanding. While CCAM technologies present promising socio-economic opportunities through enhanced safety, efficiency, and inclusivity in transportation, their implementation requires careful management of employment transitions, proactive skills development, and strategies to ensure broad societal acceptance.

5.2.3.2 General socio-economic overview – Classifying the socio-economic impacts

Within the manufacturing and automotive industries, there is optimism regarding the positive impact of CCAM. Organizations anticipate enhanced employment opportunities driven by an increased demand for software specialists, cybersecurity professionals, and digital diagnostics experts. Automation and digitization are expected to streamline manufacturing processes, creating higher-value job roles despite reducing certain manual tasks. Yet, some caution remains regarding potential job displacement, particularly for traditional mechanics and technicians whose roles will significantly evolve.

In the transportation sector, the socio-economic outlook appears more complex. While the adoption of CCAM is anticipated to bring notable efficiencies, addressing current driver shortages and increasing productivity, concerns remain about job losses among drivers. The organizations collectively suggest that the short-term impact might be softened by existing labor shortages, but the long-term displacement of driving occupations presents a considerable challenge. Additionally, within freight logistics, automation could mitigate infrastructural issues such as vehicle overloading, potentially benefiting the sector significantly. For sectors like healthcare, education, and public infrastructure, the projected impacts are less definitive and more cautiously optimistic. Autonomous vehicles hold promises for increasing accessibility to healthcare and educational services, particularly for vulnerable populations. However, the realization of these benefits depends significantly on overcoming initial high implementation costs and infrastructure readiness, notably in energy grids and road networks.

Regarding industry size, there is consensus that larger organizations and industries are likely better positioned to capitalize on the economic advantages of CCAM due to scale efficiencies, available resources for technological adoption, and greater capacity for workforce retraining. Conversely, smaller enterprises and independent service providers could face pressures from direct sales models and integrated manufacturer-led service solutions, potentially leading to market consolidation and the erosion of smaller traditional businesses. Distinctions between public and private sector impacts indicate that private transport companies may significantly benefit from reduced operational costs and increased efficiencies. Organizations highlight opportunities for private sector innovation and profitability. However, public sector entities, despite potential operational efficiency gains, face challenges related to public acceptance, infrastructure investment burdens, and regulatory adjustments, suggesting a more complex path towards realizing positive impacts.

5.2.3.3 General socio-economic overview – Impacts on emerging business models

The emerging business models that will notably benefit from CCAM are diverse yet interconnected through technological innovation and shifts in consumer behavior. MaaS models are anticipated to significantly accelerate as autonomous vehicles enable more flexible, on-demand transportation services, diminishing the need for vehicle ownership. Users, particularly in urban areas, may increasingly rely on these autonomous, shared mobility solutions, transforming transportation from a private asset into a widely accessible service. E-commerce will see substantial advantages from CCAM due to improved logistics efficiency, leading to quicker delivery times and reduced operational costs. The optimization of delivery routes and vehicle usage, enabled by autonomous logistics, has the potential to enhance productivity significantly, providing competitive advantages to online retail companies. The deployment of autonomous freight vehicles, particularly during off-peak hours, could further streamline logistics operations, easing congestion and increasing the economic viability of around-the-clock deliveries.

The insurance and legal sectors are also expected to experience substantial impacts. With autonomous vehicles reducing the frequency of accidents, the insurance industry might initially face challenges due to fewer claims. However, incidents involving high-tech components such as sensors and AI systems could lead to higher individual claim costs, necessitating new types of insurance products and reinsurance schemes specifically targeting manufacturer liabilities. This development creates opportunities for legal specialists, contract drafters, and reinsurance businesses. The automotive maintenance and repair sector will undergo significant shifts as technicians increasingly transition from traditional mechanical roles to sophisticated diagnostics and software maintenance tasks. Independent garages and dealerships will face pressure from direct vehicle sales models, including vehicles purchased online or through unconventional retail channels such as supermarkets. This evolution indicates the importance of upskilling and digital literacy in the workforce, particularly regarding cybersecurity, software calibration, and advanced diagnostics.

Furthermore, the widespread adoption of CCAM could positively impact social inclusivity by reducing transportation costs and improving accessibility for disadvantaged groups, including elderly individuals and people with disabilities. However, the extent of these benefits may be limited by initial affordability barriers due to the high upfront costs of autonomous vehicle technology. While car-sharing schemes continue to represent a niche market, primarily due to limited consumer interest, autonomous vehicles may eventually boost their attractiveness, especially in dense urban environments, where they offer practical alternatives to personal car ownership and traditional public transport.

5.2.3.4 Inclusiveness and social equity– CCAM affect income segregation or social inequalities?

Integrating CCAM technologies into transportation systems presents opportunities and challenges concerning income segregation and social inequalities, particularly regarding employment access. The adoption of CCAM can positively influence inclusivity, particularly by enhancing accessibility for disadvantaged groups such as individuals with disabilities, the elderly, and people living in rural or isolated communities. Autonomous transportation could lower individually transport costs over time, potentially improving access to employment and essential services. This increase in affordability and accessibility could help mitigate existing barriers to employment and promote greater economic inclusion.

However, the initial phases of CCAM deployment might exacerbate inequalities due to high upfront costs and limited affordability for lower-income groups. Although the long-term cost-per-kilometer may eventually decrease, early adopters will likely be those with higher incomes or those living in regions with advanced infrastructure and regulatory frameworks that facilitate rapid deployment. Moreover, the automation aspect of CCAM technologies poses a significant risk to employment, particularly for low-skilled workers who may not easily transition into new roles requiring advanced digital and technical skills. There is an apparent concern that job displacement due to increased automation could disproportionately affect these groups, thereby widening existing economic and social disparities unless proactive measures organizations emphasize the role, they can play in advocating for equitable employment practices as CCAM technologies become more prevalent. Vocational training, lifelong learning programs, and sector-specific education are consistently highlighted as essential tools for addressing potential employment disparities. Organizations need close cooperation between educational institutions, industries, and policymakers to ensure workers possess the skills necessary to thrive in a changing labor market.

Furthermore, representative bodies acknowledge their responsibility to champion inclusive policies, ensuring that technological advancements do not inadvertently marginalize communities. Advocacy for inclusive CCAM solutions targeting vulnerable groups - such as accessible autonomous transport services or affordable mobility solutions - remains a priority. Ultimately, the socio-economic impact of CCAM on social equity and inclusiveness hinges significantly on concerted action from representatives, organizational institutions, government agencies, and industry stakeholders. Strategic collaboration is essential to facilitate a just transition, proactively addressing short-term challenges and harnessing long-term benefits to reduce social inequalities and promote broader economic inclusion. -

5.2.3.5 Inclusiveness and social equity– Representative organizations can ensure that CCAM technologies make transportation more inclusive?

Representative organizations, sector skills alliances, and trade unions are crucial in ensuring that CCAM (Connected, Cooperative and Automated Mobility) policies foster inclusivity and accessibility for disadvantaged groups, including low-income communities, the elderly, and individuals with disabilities. Across the organizations represented, there is a clear recognition of the necessity for active advocacy and policy influence to shape a CCAM environment that is accessible and beneficial to all segments of society.

These organizations stress the importance of embedding inclusivity within the development and deployment phases of CCAM technologies. A prominent method mentioned involves actively collaborating with stakeholders to develop transport solutions that explicitly cater to the needs of vulnerable groups. Key focus areas include ensuring affordable pricing structures, fostering accessible autonomous transportation, and enhancing services explicitly tailored to elderly users or individuals with disabilities. An essential strategy highlighted is engaging directly with target communities to better understand and address their mobility challenges. Organizations can facilitate dialogues and partnerships with technological developers to test and refine products with direct input from these disadvantaged groups. By incorporating user experiences into the development process, products become more user-friendly and aligned with real-world requirements.

Moreover, representative bodies emphasize advocating for coherent and inclusive government regulations. Policies should actively consider the socioeconomic realities of lower-income groups, ensuring the availability of autonomous services across different regions, including underserved rural and suburban areas. Trade unions and sector skill alliances are uniquely positioned to advocate employment practices and training programs that equip the workforce, particularly low-skilled workers, with the necessary skills to transition into the CCAM-driven employment landscape. Another critical aspect involves public awareness campaigns and educational initiatives for the general public and specific disadvantaged communities. Organizations can spearhead efforts to demystify CCAM technologies, highlighting their benefits and addressing potential apprehensions or misunderstandings. By increasing transparency and trust, such initiatives encourage greater societal acceptance and smoother integration of autonomous technologies into daily life.

Ultimately, the collaborative efforts of representative organizations, sector skills alliances, and trade unions are essential to ensuring CCAM technologies deliver equitable social benefits. Their proactive approach to policy advocacy, targeted community engagement, educational outreach, and fostering accessible technological innovation will be vital in creating inclusive, equitable, and universally beneficial mobility systems.

5.2.3.6 Inclusiveness and social equity– Do CCAM solutions affect access to essential services?

The representative organizations perceive CCAM technologies as potentially transformative in terms of enhancing access to essential services such as healthcare and education, particularly for vulnerable populations. Across the various sectors represented, the consensus is that autonomous and connected mobility solutions could significantly improve the ability of disadvantaged groups—including the elderly, individuals with disabilities, and low-income communities—to independently reach critical services, thus positively influencing their quality of life and integration into society. Organizations underline the opportunities presented by autonomous transport systems to address persistent issues such as transport scarcity in rural or underserved areas, where traditional public transportation may be limited or infrequent. The deployment of CCAM could reduce barriers related to geographical isolation, providing reliable, flexible, and cost-effective transportation solutions. This enhanced connectivity is particularly vital for accessing healthcare services and educational opportunities, thereby potentially bridging significant socio-economic divides.

However, these potential improvements come with several caveats identified by the organizations. The initial phase of CCAM deployment might inadvertently hinder access for vulnerable populations due to the high cost of new technologies and infrastructure, potentially creating short-term accessibility gaps. Furthermore, fully autonomous transport solutions capable of safely navigating complex urban environments and mixed-traffic situations still require substantial technological and infrastructural advancements. Thus, realizing the full benefits of CCAM in improving service accessibility may take considerable time and investment.

Representative organizations emphasize the necessity of thoughtful and inclusive policy frameworks to maximize positive impacts and mitigate potential negative effects. These frameworks must priorities equitable access, affordability, and technological literacy among vulnerable groups. Stakeholders advocate for close cooperation between policymakers, technology providers, and community representatives to ensure CCAM systems are designed inclusively from the outset.

5.2.3.7 Economic effects – Economic benefits of CCAM for representative organizations

The representative organizations collectively acknowledge substantial potential economic benefits arising from the deployment of CCAM technologies for their respective workers and industries. Primarily, CCAM is expected to significantly enhance efficiency and productivity within the transport and logistics sectors. Autonomous vehicles, particularly in freight and passenger transport, can operate continuously, reducing downtime associated with human driver limitations, such as mandatory rest periods. Consequently, this heightened operational efficiency is anticipated to reduce overall costs, optimize resource utilization, and enhance profitability for businesses.

In the automotive sector, the shift towards CCAM technologies underscores new economic opportunities, particularly through job creation in specialized areas such as software development, cybersecurity, and advanced vehicle diagnostics. These evolving roles represent a transition from traditional manual tasks to more technically skilled employment, positioning the sector for increased economic resilience and competitiveness. Additionally, the implementation of autonomous vehicles is anticipated to foster greater mobility accessibility, potentially expanding the consumer base and stimulating new market segments. Lower long-term transportation costs resulting from CCAM may increase disposable income for households and reduce business operational expenses, positively influencing broader economic activity.

Representative organizations also highlight significant potential benefits within the insurance and legal sectors. Autonomous vehicles, while expected to reduce accident rates overall, may initially result in higher individual claim values due to advanced technology components. This could lead to the development of innovative insurance products and reinsurance solutions, providing new revenue streams and job opportunities in these industries. However, representatives express caution regarding short-term economic disruptions, particularly concerning workforce displacement due to automation. Addressing these disruptions will require concerted efforts in education and retraining initiatives to ensure workers transition smoothly into emerging employment opportunities generated by CCAM technologies.

5.2.3.8 Economic effects – Negative economic impacts on representative organizations

Representative organizations acknowledge several potential negative economic impacts resulting from the introduction and widespread adoption of Connected, Cooperative and Automated Mobility (CCAM) technologies within their respective sectors. A primary concern consistently highlighted is the risk of job displacement, particularly for low-skilled and manual workers such as drivers and traditional mechanics. Automation, a cornerstone of CCAM, is expected to significantly reduce demand for roles reliant on routine or repetitive tasks, potentially leading to unemployment and economic instability for affected individuals and communities.

Skills mismatches represent another substantial challenge, with representatives underscoring the significant gap between the current skillsets of many workers and those required by emerging technologies. Technicians and mechanics accustomed to conventional mechanical systems face difficulties transitioning into roles demanding sophisticated knowledge in software, cybersecurity, diagnostics, and digital communication protocols. This mismatch could exacerbate unemployment rates and limit workers' economic opportunities without targeted retraining programs and educational support. Moreover, independent businesses such as local garages and dealerships could face economic pressures from evolving market dynamics driven by CCAM, including increased direct online vehicle sales and reduced maintenance requirements associated with electric and autonomous vehicles. The shift towards high-tech components in vehicles may lead to higher repair costs, potentially impacting consumer behavior and business profitability negatively in the short term.

Additionally, Organizations identify risks associated with cybersecurity threats, noting that increased reliance on automated systems makes sectors vulnerable to cyber-attacks. These threats pose substantial economic risks by potentially disrupting transportation networks and broader economic activities. To mitigate these negative impacts, representatives emphasize the critical need for proactive strategies, including extensive retraining and lifelong learning programs, clear transition pathways for displaced workers, and collaborative efforts involving industries, educational institutions, and government entities. Addressing these issues promptly and effectively will be essential in minimizing adverse economic effects and ensuring that the transition to CCAM technologies is as inclusive and economically sustainable as possible.

5.2.3.9 Health and well-being – Risks or benefits in work-life balance and mental health

Representative organizations recognize a range of potential risks and benefits to work-life balance and mental health arising from employment changes associated with CCAM technologies. On the one hand, there is optimism regarding the potential for CCAM to positively impact on workers' overall well-being. Automation and advanced technologies could alleviate stress related to repetitive, physically demanding tasks, and long hours, particularly for roles such as drivers and manual maintenance workers. Autonomous vehicles could also contribute to reduced commuting times and increased productivity during travel, thereby enhancing overall work-life balance and providing workers with greater flexibility in managing their daily lives.

Conversely, these organizations express caution about potential mental health risks associated with increased automation and evolving job requirements. Workers may experience heightened stress and anxiety stemming from job insecurity, displacement, and uncertainty about future employment prospects due to rapidly changing technological landscapes. Additionally, transitioning into roles that demand advanced technical and digital skills could create substantial pressure, especially for workers who might find adapting to new technologies challenging. The shift towards remote work facilitated by CCAM might introduce mixed impacts. While remote or hybrid work models offer enhanced flexibility and could significantly improve individuals' work-life balance, representatives highlight the importance of maintaining clear boundaries between professional and personal life to prevent burnout and mental health issues.

Organizations underscore the need for deliberate interventions to maximize these health and well-being benefits while minimizing the risks. These interventions include comprehensive support systems, mental health awareness initiatives, targeted skill development programs, and proactive employer strategies to foster resilient and adaptable workforces.

5.2.3.10 Access and affordability – CCAM impact affordability of transportation for workers?

Representative organizations anticipate mixed impacts of CCAM technologies on the affordability of transportation, especially concerning workers from lower-income backgrounds and individuals dependent on public transportation. Initially, the introduction of CCAM technologies may pose affordability challenges due to significant upfront costs associated with purchasing or accessing autonomous vehicles and related infrastructure. Such high initial costs could exacerbate existing inequalities, making it difficult for lower-income groups to benefit immediately from these advancements.

However, there is a broad consensus among the organizations that, in the longer term, widespread adoption of CCAM is likely to drive down transportation costs. Autonomous vehicles could offer more efficient utilization, reduced operational expenses, and lower per-kilometer costs, ultimately enhancing affordability for workers across income levels. This potential reduction in transportation costs could provide significant economic relief for lower-income communities and those reliant on public transport, improving their access to employment opportunities, education, healthcare, and essential services.

Organizations emphasize that the realization of these long-term affordability benefits depends heavily on effective policy-making and strategic investments that prioritize inclusive access. Collaborative efforts among industry stakeholders, policymakers, and community representatives are essential to ensure equitable distribution of CCAM benefits, addressing initial affordability barriers and preventing the reinforcement of existing inequalities. Moreover, accessibility improvements facilitated by CCAM could lead to enhanced social inclusion, particularly for disadvantaged groups such as elderly individuals and people with disabilities. Autonomous mobility solutions designed explicitly with affordability and accessibility in mind have the potential to significantly transform daily transportation experiences for these populations, reducing dependency on conventional public transport systems that may have limited coverage or restrictive schedules.

5.2.3.11 Access and affordability – Regional impacts of CCAM on job creation

Representative organizations perceive regional impacts of CCAM technologies on job creation as nuanced, particularly concerning rural versus urban labor markets. Generally, within densely populated urban environments, the adoption of CCAM may initially progress slower due to complex infrastructural challenges and intricate traffic dynamics. However, urban areas are also more likely to quickly realize significant employment transformations, with increased demand for specialized skills in digital technology, cybersecurity, and advanced diagnostics. The potential for new job creation in urban centers is significant, primarily driven by the development, management, and maintenance of sophisticated CCAM systems.

Conversely, in rural areas, CCAM technologies offer transformative potential by enhancing accessibility and connectivity, thus potentially reducing regional economic disparities. Autonomous mobility solutions could notably improve transport access in traditionally underserved rural regions, fostering greater economic activity and local employment opportunities. Additionally, these solutions might mitigate the adverse effects of rural depopulation by enhancing connections to urban employment markets and essential services, thus promoting regional economic sustainability. However, representative organizations express caution regarding the short-term transitional period. There may initially be fewer resources and infrastructure investments in rural areas, potentially leading to disparities in access and the speed of CCAM adoption compared to urban counterparts. Organizations highlight the importance of ensuring that rural regions do not lag behind in accessing the employment and economic benefits associated with CCAM technologies.

To proactively address these potential inequalities, representative bodies stress their role in advocating inclusive regional development policies and ensuring balanced infrastructural investments across both rural and urban settings. Moreover, Organizations advocate targeted education and retraining initiatives specifically designed to equip rural workers with the necessary skills to capitalize on CCAM-related employment opportunities.

5.2.3.12 Future roadmap and stakeholder awareness – Measures to raise awareness

Representative organizations, sector skills alliances, and trade unions recognize the critical importance of raising awareness among workers about the socio-economic impacts of CCAM, especially concerning changes in jobs and necessary skillsets. The general consensus is that effective communication, education, and collaboration strategies must be actively developed and deployed to facilitate workers' understanding of CCAM's implications and opportunities.

Organizations emphasize the importance of continuous and transparent dialogue with their members and the broader workforce, highlighting both the potential benefits and challenges associated with the adoption of CCAM technologies. They advocate for structured awareness campaigns designed to clearly outline the employment transformations expected, particularly regarding shifts from traditional roles to more technologically advanced positions. Such campaigns should utilize accessible language and diverse communication channels to reach a broad audience effectively. Sector skills alliances underline the necessity for proactive educational initiatives, particularly the establishment of targeted retraining programs and lifelong learning opportunities. Ensuring workers possess up-to-date, relevant skillsets—such as digital literacy, cybersecurity awareness, and advanced diagnostics—is central to preparing the workforce for a CCAM-integrated future. Organizations stress that such educational initiatives must align closely with emerging industry needs, necessitating strong partnerships between education providers, industry representatives, and policymakers.

Additionally, representative bodies advocate the importance of direct industry engagement, facilitating knowledge exchanges between technology developers and end-users. This approach ensures that workers not only become aware of forthcoming technological advancements but are actively involved in shaping their integration and adaptation processes. Trade unions are particularly well-positioned to advocate for equitable employment practices and to ensure that workers' voices and concerns are effectively communicated and addressed throughout CCAM's implementation phase. They play a pivotal role in negotiating transition plans that include comprehensive support mechanisms for displaced workers, clearly defined career progression pathways, and equitable access to retraining resources.

5.2.4 Industry

For the fourth sector, three interviews were conducted with people representing industry. The qualitative analysis of expert recommendations from the CCAM-ERAS interviews highlights several critical strategies to ensure workforce readiness in the face of CCAM) deployment.

5.2.4.1 General socio-economic overview – Socio-economic impacts

CCAM technologies present substantial socio-economic impacts across transportation sectors, both passenger and freight. One primary effect noted across the industry is the potential for significant improvements in efficiency and service quality. Automation promises to streamline transportation operations, particularly for freight, resulting in reduced operational costs and increased productivity. The possibility of continuous 24/7 operations, particularly nighttime transportation, emerges as a significant benefit, easing road congestion during peak hours and enhancing overall logistics efficiency.

An important socio-economic consideration is job displacement, particularly for lower-skilled roles such as truck driving. Although CCAM technologies may not entirely eliminate these positions immediately due to existing driver shortages, a gradual but notable shift away from traditional roles toward technical and maintenance-focused employment is anticipated. Drivers may experience role shifts rather than immediate job loss, with automation taking over specific tasks such as parking and route planning, thus reducing stress and improving work-life balance. However, as automation becomes increasingly widespread, roles such as loading and unloading might also become automated, raising concerns over reduced employment opportunities, especially in regions heavily dependent on low-skilled jobs.

Conversely, the introduction of CCAM is also expected to create new employment opportunities, primarily in high-skilled areas such as cybersecurity, data science, electrical engineering, and system integration. The demand for specialized technical expertise will likely grow significantly, requiring substantial retraining and continuous education. To address potential skills mismatches, robust vocational education and targeted on-the-job training programs will become crucial. From a broader societal perspective, CCAM has the potential to enhance road safety significantly by minimizing human error. This improvement is not only beneficial from a public health standpoint but also contributes positively to the overall sustainability of transportation networks. Furthermore, companies adopting CCAM technologies foresee an expanded inclusiveness within the workforce, potentially providing new employment opportunities for traditionally underrepresented groups.

The aviation industry, specifically airside operations, has identified tangible socio-economic benefits from CCAM deployment, such as increased efficiency in aircraft turnaround times, improved safety conditions for ground staff, and alleviation of post-pandemic labor shortages. The controlled environments of airports provide a conducive setting for early CCAM deployment, demonstrating practical and immediate benefits. Local regulations and governmental frameworks significantly influence the pace and effectiveness of CCAM implementation. A substantial barrier noted is the disparity between public sector capabilities and private sector growth, with the former often lagging in terms of resources and expertise. Strengthened public-private partnerships, supported by targeted government funding and educational initiatives, are crucial to overcoming these barriers and ensuring parallel evolution across sectors.

Lastly, emerging business models, such as Truck as a Service, are poised to flourish with CCAM, reducing the need for companies to maintain extensive vehicle fleets and enabling more flexible, on-demand transportation solutions. The integration of CCAM technologies with traditional business practices, whether in freight or aviation, illustrates a transformative potential with significant economic implications, particularly as economies of scale are realized.

5.2.4.2 General socio-economic overview – Classifying the socio-economic impacts

The socio-economic impacts of CCAM technologies appear to be generally positive across industry sectors, sizes, and both public and private operational contexts, albeit with certain areas of concern and mixed perspectives. Within the manufacturing and construction sector, responses indicate a primarily positive impact from CCAM adoption. Companies foresee increased efficiencies and new business opportunities arising from technological integration and automation. Enhanced production processes, coupled with potentially higher employment levels due to the scaling of technology, underscore this optimistic outlook.

The transportation sector, however, presents a more nuanced view. While clear positive impacts are anticipated, particularly improvements in efficiency, safety, and service quality, the sector also identifies significant negative socio-economic implications. These concerns focus predominantly on employment displacement and skills mismatches, particularly affecting roles associated with manual driving and other low-skilled positions. Companies predict a challenging transitional period, wherein the negative implications must be carefully managed to mitigate impacts on the workforce and regional employment. In the healthcare sector, CCAM implementation is perceived positively, primarily due to improvements in safety and health conditions associated with automated processes. The reduction in manual tasks and potential reduction of human error is seen as significantly beneficial, suggesting an overall positive socio-economic effect.

Education, in contrast, appears less directly impacted, yet the implications remain positive, particularly in terms of opportunities for skill development and educational growth to meet new technological demands. Companies emphasize that continuous education and retraining programs will become increasingly crucial as CCAM technology expands. Regarding industry size, responses indicate a strongly positive impact for larger industry players. Larger organizations are better positioned to capitalize on economies of scale and benefit significantly from automation-driven efficiencies and productivity gains. These organizations can more readily absorb transitional costs and invest in training and technological advancements, translating to predominantly positive long-term outcomes.

Finally, operational context—in terms of public versus private sector—elicited generally positive responses, though with distinctive challenges noted for each. The private sector, in particular, is projected to experience clear positive socio-economic outcomes, benefiting from enhanced efficiency, cost reductions, and competitive advantages afforded by CCAM adoption. Conversely, the public sector also shows positive implications, yet the pace and capacity for adaptation appear somewhat constrained by resource limitations, knowledge gaps, and governance structures. Public-sector challenges primarily revolve around the need for capacity building, regulatory adaptation, and effective public-private collaboration to fully leverage CCAM benefits.

5.2.4.3 General socio-economic overview – Impacts on emerging business models

The introduction and integration of CCAM technologies are significantly shaping and influencing emerging business models across the transportation industry. One of the most prominent examples is the Truck as a Service model, which stands to benefit substantially from CCAM implementation. This model enables companies to leverage automated transport services on demand, drastically reducing the need for fleet ownership and maintenance costs. As CCAM enables vehicles to operate continuously, businesses will enjoy increased flexibility, efficiency, and cost-effectiveness, particularly for long-haul freight services, thereby enhancing overall logistics operations. In the aviation sector, specifically within airside operations, CCAM technologies create new commercial opportunities through autonomous vehicle integration. Airports, as controlled environments, present fewer operational challenges compared to public roads, allowing for smoother CCAM adoption. This transition is primarily driven by the aviation industry's need to accelerate aircraft turnaround times, enhance health and safety conditions for ground handling personnel, and address persistent labor shortages exacerbated by recent global challenges such as the COVID-19 pandemic. The introduction of automated airside vehicles effectively addresses these concerns, thus offering tangible, business-critical advantages for the sector.

Another innovative business model arising from CCAM deployment centers around the concept of operational hubs. These hubs centralize operations, maintenance, and management of automated vehicles, thus streamlining services and reducing operational complexity. The mothership model not only facilitates economies of scale but also offers the potential for increased automation within operational processes as the number of managed vehicles grows. This centralized management structure underscores efficiency gains and scalability, essential for wider CCAM adoption. Moreover, CCAM is anticipated to substantially impact customer service and vehicle maintenance business areas. With automation scaling, new roles related to customer support, incident management, and remote vehicle operation will emerge, requiring specialized training and potentially reshaping existing workforce dynamics. Businesses anticipate a gradual transition in employee skillsets from traditional automotive engineering to electrical and software engineering, significantly transforming the professional landscape within these sectors.

Collectively, these emerging business models demonstrate how CCAM is reshaping industry practices, promoting more agile and adaptive approaches to transportation management. They signify an overall positive trajectory in terms of economic viability, operational efficiency, and enhanced service quality, though accompanied by transitional challenges in workforce adaptation and skill development.

5.2.4.4 Inclusiveness and social equity– CCAM affect income segregation or social inequalities?

CCAM technologies carry the potential to significantly impact income segregation and social inequalities, particularly in the context of employment access. Industry stakeholders generally perceive this impact as positive, primarily due to the creation of new employment opportunities across diverse skill levels. Companies recognize that CCAM deployment provides substantial opportunities for employment at various expertise levels, especially as industries scale up operations and transition from traditional automotive roles to advanced engineering and technical positions. The emphasis on recruiting across all skill levels helps ensure that marginalized or disadvantaged groups gain improved access to meaningful employment opportunities. This proactive approach could help reduce income segregation by broadening the employment base and increasing workforce diversity.

To ensure equitable job access, businesses within the CCAM sector are engaging directly with disadvantaged and marginalized groups. For example, targeted efforts include partnerships with specialized organizations such as the Royal National Institute for the Blind, aimed at making transportation solutions accessible and inclusive. By incorporating direct feedback from these groups, companies can adapt vehicle design, user interfaces, and informational support systems, thus enhancing inclusivity and usability. Furthermore, CCAM projects are actively partnering with the European Union and governmental bodies to implement initiatives designed explicitly to benefit marginalized groups. The distribution of vouchers and focused community engagement programs exemplify these initiatives, effectively driving adoption among groups historically underserved by traditional transportation services. These efforts, combined with ongoing dialogue with local unions and workers, contribute to ensuring job transitions rather than job displacement, particularly important for maintaining social stability during the technological shift.

5.2.4.5 Inclusiveness and social equity– Industry can ensure that CCAM technologies make transportation more inclusive?

The industry recognizes its significant role in enhancing inclusiveness and social equity within transportation through the adoption and deployment of CCAM technologies. Businesses actively see themselves as key facilitators in bridging gaps for disadvantaged groups, including low-income communities, elderly individuals, and people with disabilities. An essential part of this inclusive approach involves direct collaboration with organizations representing these disadvantaged groups. For example, companies have partnered closely with the Royal National Institute for the Blind and veteran groups to tailor vehicle designs, internal configurations, and passenger communications. This approach ensures that transportation solutions specifically accommodate and respond to the unique needs of these communities, improving overall accessibility and user experience.

Additionally, industries emphasize universal design principles, with many vehicles being explicitly developed to accommodate wheelchairs and other mobility aids. This commitment to accessibility supports the broader objective of transportation equity, ensuring no group is inadvertently excluded from CCAM benefits. Moreover, through targeted initiatives, such as the provision of vouchers and dedicated feedback mechanisms with marginalized populations, the industry actively encourages adoption and continuous improvement of CCAM services. These efforts not only foster inclusiveness but also actively integrate user experiences from disadvantaged communities directly into future technology and service developments.

5.2.4.6 Inclusiveness and social equity –Do CCAM solutions affect access to essential services?

The implementation of CCAM solutions presents both opportunities and challenges in improving access to essential services such as healthcare and employment, particularly for vulnerable populations. On balance, the industry anticipates that CCAM will provide significant improvements in accessibility and social inclusion, with targeted strategies helping to mitigate potential obstacles. One of the most promising outcomes is the enhanced availability of transportation services in underserved areas, especially rural or low-income regions where reliable mobility has historically been limited. By introducing automated vehicle networks and flexible transport models, CCAM offers the potential to provide on-demand transportation services, reducing travel barriers for individuals who might otherwise struggle to access healthcare facilities, job centers, or educational institutions. This improved mobility can be particularly transformative for those without access to private vehicles or for individuals with mobility limitations who require flexible, tailored travel solutions.

For individuals with disabilities, CCAM systems designed with inclusive features—such as wheelchair-accessible vehicles and advanced user interfaces—offer increased independence and improved access to vital services. By incorporating these design principles, businesses can ensure that CCAM services align with the varied needs of vulnerable populations, allowing greater autonomy and convenience in their daily lives. However, there are recognized challenges that must be addressed to ensure equitable outcomes. Limited digital literacy or access to connected services could inadvertently exclude certain groups, particularly in regions where digital infrastructure is underdeveloped. Additionally, while CCAM holds the potential to reduce costs through improved efficiency, there is a risk that some services may remain unaffordable to disadvantaged groups unless specific efforts are made to create inclusive pricing models or subsidized options.

To mitigate these risks, some companies are already working with public authorities and community organizations to develop targeted initiatives aimed at ensuring CCAM benefits reach marginalized groups. These efforts include voucher programs, subsidized services, and active engagement with disadvantaged communities to better understand their unique needs. By combining technological advancements with inclusive policy strategies, the industry aims to ensure CCAM solutions expand access to essential services rather than exacerbate existing inequalities.

5.2.4.7 Economic effects – Economic benefits of CCAM for industry

The deployment of CCAM technologies is expected to deliver substantial economic benefits across various industries, with improvements in efficiency, cost reduction, and new business opportunities emerging as key outcomes. Companies anticipate that CCAM will streamline operations in both passenger and freight transportation, introducing new efficiencies that reduce costs and enhance productivity. One of the most significant economic advantages lies in the improved utilization of vehicles and transport infrastructure. Automated systems are expected to minimize downtime by enabling continuous 24/7 operation, particularly in freight transport. This increased availability will allow companies to extend operational hours without the limitations imposed by driver rest requirements, ultimately accelerating delivery schedules and improving logistics planning. The ability to operate during off-peak hours when roads are less congested is seen as a particularly valuable outcome, enabling smoother traffic flow and greater reliability in meeting delivery timelines.

Cost reduction is another substantial benefit linked to CCAM. By automating certain driving tasks, businesses expect to reduce expenses associated with fuel consumption, labor costs, and maintenance. Automated vehicles are predicted to adopt more energy-efficient driving patterns, contributing to lower fuel expenditure. Additionally, with automation taking over routine driving tasks, wear and tear on vehicles may be reduced, decreasing the frequency of maintenance interventions and lowering operational costs. CCAM also introduces significant opportunities for new business models. The Truck as a Service concept, for example, is seen as a promising innovation that allows businesses to pay for automated vehicle services on demand rather than maintaining their own fleets. This flexible model is expected to lower upfront investment costs for businesses and improve operational scalability, especially for smaller firms seeking cost-effective transport solutions. Similar approaches are emerging in passenger transport, where automated shuttle services and flexible mobility solutions are expected to create new revenue streams for businesses operating in urban and rural environments.

In the aviation sector, the deployment of automated ground vehicles is anticipated to deliver substantial gains in airport logistics. By reducing turnaround times for aircraft through automated baggage handling and improved ground coordination, airports expect to operate more efficiently while improving safety and minimizing delays. These improvements will not only reduce costs for airlines but also enhance passenger satisfaction and airport capacity management.

5.2.4.8 Economic effects – Negative economic impacts on industry

While the deployment of CCAM technologies is expected to generate substantial economic benefits, industry stakeholders have also identified several potential negative economic impacts that may accompany this transition. One key concern revolves around job displacement, particularly for roles that rely heavily on manual driving tasks or other low-skilled positions. As automation assumes a more prominent role in operational processes, certain roles—such as long-haul truck drivers and manual vehicle operators—may face a gradual decline, especially in regions where these roles form a significant part of the local workforce. The shift from traditional roles to automation-driven tasks is likely to create a period of workforce disruption. While new roles are expected to emerge, particularly in areas such as remote vehicle operation, system monitoring, and maintenance of automated systems, the skills required for these positions will differ significantly from those associated with conventional transport jobs. This transition may disproportionately affect older workers or those with limited technical skills, necessitating retraining initiatives and workforce development strategies to minimize the risk of economic hardship in these groups.

In the manufacturing sector, the scaling of CCAM technology is anticipated to increase automation within production lines, resulting in fewer manual assembly roles over time. While overall employment levels may remain stable or even grow in some sectors, the shift toward highly specialized technical roles may result in job losses for individuals without the necessary skills or access to retraining opportunities. Companies recognize that this shift could create a temporary skills gap, which may pose recruitment challenges during the early stages of CCAM adoption. Market disruption is another potential risk linked to CCAM implementation. Industries operating under traditional transport models may struggle to adapt to the rapid emergence of automated mobility services, particularly those reliant on conventional fleet ownership. The rise of flexible transport models, such as Truck as a Service, may place financial pressure on businesses that fail to embrace these changes, potentially reducing their market share and limiting their competitiveness.

While these negative economic impacts present significant challenges, industry stakeholders acknowledge that proactive planning, investment in education, and collaboration with public institutions can mitigate much of this disruption. By ensuring that retraining initiatives align with the technical demands of CCAM roles and by promoting inclusive hiring practices, companies aim to minimize workforce displacement and support a more balanced economic transition. Ultimately, while the adoption of CCAM introduces certain economic risks, the industry emphasizes the importance of aligning technological advancements with strategic workforce planning to ensure that potential disruptions are managed effectively, and that long-term economic growth is sustained.

5.2.4.9 Health and well-being – Risks or benefits in work-life balance and mental health

The implementation of CCAM technologies is expected to have a notable impact on the work-life balance and mental well-being of employees in the transportation sector. For long-haul drivers in particular, CCAM introduces the potential to significantly reduce mental strain and physical fatigue through the automation of certain driving tasks. By shifting routine driving responsibilities to automated systems, drivers are expected to experience less stress and a reduction in the continuous focus required during long shifts. This, in turn, may improve overall well-being and contribute to a better quality of life. However, while automation offers improvements in working conditions, the nature of long-haul transport itself presents ongoing challenges. The extended periods drivers spend away from home remain a significant concern, as the physical absence from family life continues to affect mental well-being despite improved working conditions. While automation may reduce the physical toll of driving, it does not inherently address the social and emotional strain caused by extended time spent on the road.

The industry has proposed innovative solutions to enhance work-life balance to counteract this challenge. One suggested approach involves restructuring shift patterns to allow drivers to transition between automated and manual roles, enabling them to return home at the end of their shifts even during long-distance routes. By integrating this kind of flexible scheduling, companies aim to minimize the isolation and prolonged absences that have historically defined the profession. This solution is seen as particularly crucial in ensuring that the benefits of CCAM extend beyond operational efficiency to also improve the broader well-being of employees in the sector.

5.2.4.10 Access and affordability – CCAM impact affordability of transportation for customers and employees?

The introduction of CCAM technologies is expected to influence the affordability of transportation in distinct ways, with implications for both customers and employees. In particular, the ability of CCAM systems to improve operational efficiency is seen as a major factor in reducing transportation costs, particularly in sectors such as air-side operations and logistics. By enabling automated vehicles to perform key tasks such as baggage handling, cargo transport, and other ground operations, CCAM technology can reduce labor costs associated with these traditional manual processes. This increased efficiency is expected to translate into lower costs for businesses, which could in turn result in more affordable transportation services for end-users. For customers relying on these services for essential travel, such as commuting or freight logistics, this improvement may significantly reduce expenses over time.

In addition to direct cost reductions, CCAM is seen as playing a vital role in sustaining the transportation industry by addressing ongoing labor shortages. The aviation sector, for example, has faced persistent staffing gaps following the COVID-19 pandemic, which has contributed to higher costs and disrupted schedules. By automating key tasks, CCAM can mitigate these labor challenges, ensuring smoother operations without the need for unsustainable wage increases or costly recruitment strategies. This improved stability is expected to further contribute to keeping transportation costs manageable for both businesses and consumers. However, there remains a risk that the initial investment required for CCAM implementation could drive up costs in the short term. For businesses that may struggle to adopt automation quickly, particularly smaller operators, this investment could be a financial burden. Consequently, while CCAM is expected to reduce costs in the long run, its impact on affordability may vary depending on the pace of adoption and the ability of businesses to manage the transition effectively.

5.2.4.11 Access and affordability – Regional impacts of CCAM on job creation

The deployment of CCAM technologies is expected to have distinct impacts on job creation across rural and urban regions, with the nature of employment opportunities differing based on the demands of each area. As CCAM adoption accelerates, companies are already identifying clear shifts in workforce needs, with emerging roles developing in both operational and technical domains. In urban areas, CCAM is likely to drive job growth in roles linked to vehicle operations, technology development, and system maintenance. Companies are actively investing in building specialized teams to manage the complexities of automated transport services, including safety driver roles that will initially oversee vehicle deployments. As CCAM scales, these safety-focused roles are expected to evolve into remote vehicle support and monitoring positions, creating new career opportunities for workers with technical and operational expertise. These developments will support the growing demand for mobility services in urban centers, where complex transport networks will rely heavily on automated solutions to manage congestion and passenger flows.

In rural areas, the deployment of CCAM is poised to create new opportunities in manufacturing, logistics, and maintenance. Companies are anticipating a growing need for skilled workers to support the production and service of automated vehicles; particularly as smaller transport hubs and distribution centers expand their reliance on CCAM-enabled systems. With rural regions facing greater challenges in attracting specialized technical talent, efforts are already underway to establish partnerships with local educational institutions to address skills gaps and provide training tailored to CCAM requirements. One emerging model that underscores this regional divide is the concept of centralized operational hubs. These hubs are designed to provide technical support, maintenance, and operational oversight for fleets of automated vehicles. In rural areas, such hubs can provide stable employment in roles related to system diagnostics, vehicle repairs, and customer service support. Meanwhile, urban hubs will place a stronger emphasis on software management, data analytics, and real-time system monitoring, offering higher-skilled employment opportunities.

The regional impacts of CCAM on job creation are therefore expected to reflect the distinct demands of rural and urban environments. Urban regions will experience growth in technical roles centered on automation management and system control, while rural areas will see job growth in logistics, maintenance, and vehicle servicing. By aligning workforce development with the specific needs of these regions, CCAM has the potential to support balanced job creation across diverse labor markets.

5.2.4.12 Future roadmap and stakeholder awareness – Measures to raise awareness

The successful deployment of CCAM technologies will rely heavily on businesses actively engaging with their communities to raise awareness about the socio-economic impacts of these advancements. Companies recognize that public understanding and acceptance of CCAM are essential to ensuring a smooth transition, particularly as changes to the workforce and transportation networks unfold. One critical area business must address is the evolving job landscape driven by CCAM adoption. As new roles emerge in vehicle operations, maintenance, and system management, enterprises are already identifying the need for proactive outreach and collaboration with educational institutions to ensure the workforce is prepared for these changes. By forming partnerships with technical schools and universities, companies are working to create training programs that align with CCAM's specific skill demands, helping to address gaps in expertise that may arise as automation expands.

Equally important is the need to communicate how CCAM will impact existing roles, particularly in sectors such as logistics, manufacturing, and transportation services. Companies are working with local authorities and stakeholders to ensure that workers understand how automation will alter their responsibilities and what retraining opportunities will be available. For instance, safety drivers initially tasked with monitoring automated vehicles are expected to transition into remote support and monitoring roles as CCAM technology matures. By providing clear pathways for career development, businesses aim to mitigate concerns about job displacement and ensure employees see opportunities for progression rather than replacement.

Raising awareness about the socio-economic impacts of CCAM also involves demonstrating the tangible benefits technology can offer to communities. Companies actively engage with municipalities to showcase how CCAM can improve transportation efficiency, reduce costs, and create safer road environments. By highlighting these benefits, businesses aim to foster public trust and position CCAM as a positive force for economic growth and improved mobility.

In addition, businesses emphasize the importance of inclusiveness in their outreach strategies. Through targeted initiatives designed to engage marginalized groups, companies are working to ensure that CCAM adoption is both equitable and accessible. For example, partnerships with local government programs are being developed to provide subsidized transport services and support for disadvantaged communities, ensuring that CCAM solutions address social mobility concerns. By combining workforce development strategies, public education campaigns, and active collaboration with government and educational institutions, businesses are proactively raising awareness of CCAM's socio-economic impacts. Through these efforts, companies seek to build trust, prepare workers for emerging opportunities, and demonstrate how CCAM can contribute positively to both local economies and broader transportation systems.

5.2.5 Synthesis between the sectors

5.2.5.1 General socio-economic overview

The general socio-economic perspectives on the implications of CCAM deployment reveal both converging expectations and sector-specific nuances. Across all sectors, there is a shared recognition of the transformative potential of CCAM in reshaping transport systems, although the emphasis on benefits and concerns varies notably depending on each sector's operational realities and institutional mandates.

HEIs and VEIs focus primarily on the broad societal benefits expected from CCAM, such as improved accessibility, lower transportation costs, and the potential for fewer traffic accidents. Their perspective is shaped by a long-term view of social mobility and public good. Institutions from this sector emphasize the positive externalities of CCAM, particularly in promoting safer, more efficient, and inclusive transport systems. Moreover, they view the transformation as a stimulus for educational adaptation, foreseeing the development of new learning pathways and academic programs tailored to the emerging CCAM ecosystem. Concerns are more forward-looking and focus on the need for policy frameworks and inclusive deployment to ensure the social benefits are equitably distributed, particularly among underserved communities.

In contrast, the industry sector approaches CCAM from a clearly operational and innovative-driven standpoint. Their analysis centers around cost reduction, optimization of logistics, and the enabling of new business models such as Truck as a service. The potential for 24/7 freight operations and streamlined logistics is seen as a direct economic opportunity. However, industry stakeholders also acknowledge the likelihood of job displacement, especially among low-skilled roles, though they tend to frame this less as a crisis and more as an inevitable shift requiring targeted reskilling. This sector sees the deployment of CCAM as a catalyst for strategic repositioning in global logistics and manufacturing, with emphasis on competitiveness, scale, and long-term profitability.

Road transport operators express a more cautious and sometimes skeptical stance. While they recognize the possible gains in operational efficiency and safety, their primary concern lies in the practical feasibility and financial burden of adoption. For this sector, the initial investment costs of CCAM technologies pose a significant barrier, particularly in the absence of strong governmental or customer support. Operators also point to challenges in implementing CCAM within complex logistical chains, especially for groupage or less-than-truckload shipments, where the benefits of automation are less evident. The sector voices concern about uneven implementation, especially between operators of different sizes, and fears of increased operational costs being passed on to consumers.

Representative Organizations offer a broader societal lens, with reflections that bridge policy, regulation, and labor. Their input places strong emphasis on social acceptance, regulatory oversight, and the societal trade-offs inherent in automation. They underline that while the economic logic behind CCAM may be sound—through gains in productivity and safety—its societal acceptability could be undermined by public distrust, particularly in the event of high-profile failures. Representative Organizations also highlight systemic issues that may be exacerbated or alleviated by CCAM, such as gender disparities in technical employment, the preparedness of educational systems, and the challenges in aligning legislation with technological advancement. While some foresee benefits for sectors such as reinsurance or legal services, others caution that unresolved issues like infrastructure limitations and enforcement mechanisms could slow or complicate CCAM deployment.

Overall, while all sectors acknowledge the socio-economic transformation CCAM brings, HEIs and VEIs maintain a focus on education and inclusion, industry leans into innovation and scalability, road transport operators concentrate on feasibility and cost pressures, and representative Organizations foreground the regulatory, societal, and labor implications. These divergent focal points reflect each sector's unique positionality and underline the importance of an integrated and context-sensitive approach to policy and implementation.

5.2.5.2 Inclusiveness and social equity overview

The perspectives of the four sectors regarding inclusiveness and social equity in the context of CCAM deployment reveal differing priorities, levels of optimism, and perceived responsibilities, reflecting the unique position each sector occupies within the broader mobility and societal ecosystem.

The HEIs and VEIs generally approach inclusiveness as both a challenge and an opportunity. They underline the critical role education can play in shaping the future workforce to ensure CCAM deployment does not widen existing social and economic disparities. From this perspective, education is seen not only as a mechanism for technical upskilling but also as a tool for early intervention in socially disadvantaged groups. Institutions argue that curricula must evolve to prepare students, especially those from underrepresented communities, for future labor market demands linked to CCAM. However, there is also an awareness that unless targeted efforts are made—through subsidized training programs and collaborative research into accessibility needs—there is a risk that technological progress may outpace the inclusivity of its benefits.

The industry sector, while more operational in its orientation, demonstrates a growing recognition of the need for inclusive design and outreach. Industry actors focus primarily on implementation, particularly on how CCAM can serve disadvantaged users such as individuals with disabilities, the elderly, or those living in underserved areas. They highlight co-design practices and pilot programs that integrate user feedback to develop more accessible vehicle interfaces and service models. Nevertheless, the industry's view of equity tends to be framed through usability and consumer accessibility, rather than structural labor inclusion. Inclusiveness, for them, is a factor to be engineered into the product or service, often motivated by regulatory expectations or funding conditions rather than intrinsic Organizational mandates.

Road transport operators provide a more service-oriented and policy-dependent view of inclusiveness. They express optimism that CCAM technologies, if integrated within public transport networks, can enhance access to employment and healthcare services, particularly for rural or low-income populations. However, this optimism is tempered by concern about affordability and public funding. Operators stress that inclusivity will depend heavily on fare policies and the broader governance model under which CCAM services are deployed. Without subsidization or strong public investment, there is concern that these technologies could deepen mobility inequality, especially in cities where conventional services are already under strain. Furthermore, operators acknowledge the potential labor displacement caused by CCAM but point to the importance of gradual transitions and training to mitigate social backlash.

Representative Organizations adopt a systemic lens, focusing on long-term equity outcomes and the broader societal transformation required for inclusive CCAM adoption. Their views incorporate both access and representation, noting that inclusion should not be limited to end-users but should also consider who designs, operates, and governs the technology. While there is agreement that CCAM could expand mobility options for vulnerable groups, they caution that without proactive policy alignment, these benefits may be unevenly distributed. Some express concern that certain groups—such as the elderly or individuals with lower digital literacy—may find it difficult to adapt to rapid innovation. These Organizations advocate for more structured collaboration among unions, policymakers, and service providers to ensure accessibility is embedded in all stages of development and deployment.

In summary, HEIs and VEIs emphasize the educational foundations of inclusion, industry focuses on technical accessibility and co-design, road transport operators are driven by service affordability and operational feasibility, while representative Organizations highlight the need for systemic, policy-driven approaches to social equity. These perspectives collectively point to a multi-dimensional understanding of inclusiveness, suggesting that ensuring equitable CCAM deployment will require cross-sector collaboration, sustained investment, and a strong policy backbone.

5.2.5.3 Economic effects overview

The analysis of the economic effects of CCAM across the four stakeholder sectors—HEIs and VEIs, Industry, Road Transport Operators, and Representative Organizations—reveals a spectrum of perspectives shaped by each sector's proximity to operational implementation, labor market transitions, and strategic planning. Although all sectors recognize the economic potential of CCAM, their assessments of opportunities and risks vary in focus, depth, and urgency.

HEIs and VEIs primarily view the economic effects of CCAM through the lens of academic adaptation and opportunity generation. The anticipated economic benefits are closely linked to the development of new educational programs, particularly postgraduate offerings in technical and interdisciplinary domains such as machine learning, data analytics, cybersecurity, and mobility innovation. Research institutions expect increased funding opportunities through national and European initiatives, as well as enhanced prospects for international collaboration. The potential economic risks are considered manageable, with some concern expressed about the obsolescence of certain low-skilled institutional roles or outdated curricula. However, there is a prevailing belief that the academic sector is well-positioned to evolve, with flexibility to redirect expertise and reorient its educational offerings to meet the emerging needs of a CCAM-driven labor market.

The industry adopts a more operational and labor-focused economic perspective. CCAM is seen as a catalyst for wide-ranging transformation in logistics, manufacturing, and service delivery, with clear expectations of improved efficiency, cost savings, and the development of new markets. This includes not only automated freight and passenger transport services but also upstream and downstream economic activities such as vehicle maintenance, incident response, remote driving, and customer support. Industry actors emphasize the creation of new, often highly specialized roles—ranging from safety drivers to user experience designers—and see upskilling and re-skilling as central to managing workforce transitions. While acknowledging the risk of job displacement, particularly in low-skilled driving roles, the sector appears confident that structured training pathways and alignment with national regulatory frameworks can mitigate negative impacts. Moreover, companies actively plan to embed workforce transformation within their business models, suggesting a relatively proactive stance.

Road transport operators reflect a more cautious economic outlook. While acknowledging the potential for improved operational efficiency and cost-effectiveness in the long term, they stress the immediate financial challenges of CCAM implementation. High capital investment, uncertain returns, and the risk of job losses—particularly among drivers—are identified as key concerns. Operators highlight the risk of market disruption, especially for small and medium-sized enterprises, which may struggle to compete with larger, more technologically advanced actors. Additionally, there is a consistent emphasis on the need to retain and retrain existing employees, as well as a recognition that the transition to CCAM will require careful workforce management. Economic benefits are anticipated, but largely conditional on the availability of public support, clear regulatory frameworks, and market readiness.

Representative Organizations focus on systemic economic effects and longer-term strategic positioning. Their analysis emphasizes the dual nature of CCAM as both an opportunity for economic advancement and a source of structural risk. On one hand, CCAM is expected to contribute to cost reduction, vehicle standardization, and enhanced service efficiency across sectors. On the other hand, concerns are raised about job displacement, skills mismatches, and cybersecurity threats. These Organizations are particularly attentive to the need for anticipatory regulation, cross-sectoral coordination, and public-private collaboration to maximize economic benefits and minimize social costs. They also frame CCAM as a strategic opportunity for national innovation ecosystems, suggesting that countries or regions that invest early in CCAM readiness—through real-world testing, infrastructure adaptation, and regulatory reform—stand to benefit economically in terms of both domestic capacity and international competitiveness.

In summary, while all four sectors recognize the economic implications of CCAM, their viewpoints are shaped by differing mandates and levels of direct exposure to technological transition. HEIs and VEIs concentrate on educational adaptation and research growth; industry emphasizes operational transformation and workforce integration; road transport operators are focused on financial feasibility and labor retention; and representative Organizations frame the issue in terms of structural risk, governance, and long-term economic positioning. These differences highlight the importance of coordinated economic planning to align sectoral strategies and avoid fragmented implementation.

5.2.5.4 Health and well-being overview

The analysis of the health and well-being implications of CCAM reveals sector-specific perspectives that underscore varied priorities and expectations regarding the psychosocial impact of technological change. Across the four sectors—HEIs and VEIs, Industry, Road Transport Operators, and Representative Organizations—common themes emerge around work-life balance, stress, and the evolving nature of work. However, the degree of emphasis and perceived risks differ according to each sector's institutional role and exposure to workforce transformation.

HEIs and VEIs approach health and well-being largely through a socio-psychological lens. Their focus is on the indirect impacts of CCAM-related job displacement, particularly for vulnerable occupational groups such as professional drivers. Concerns are raised about potential mental health challenges resulting from redundancy, especially in the absence of adequate support systems for reskilling or employment transition. At the same time, HEIs and VEIs highlight the importance of policy design in shaping well-being outcomes. For instance, they point to the potential of CCAM to enhance quality of life if implemented under labor models that reduce overall working hours or physical strain, suggesting that institutional and policy frameworks will play a critical role in mediating health impacts.

The industry sector presents a more pragmatic and operational outlook, emphasizing tangible improvements in working conditions. Industry actors note that increased automation, particularly in long-haul and air-side transport operations, could alleviate the physical and cognitive stress associated with repetitive and hazardous tasks. There is optimism that these changes will lead to better mental health outcomes, less fatigue, and improved work-life balance, especially for roles historically marked by extended hours and physical isolation. However, industry also acknowledges the uncertainties of shifting work environments, particularly in the context of remote operation or hybrid human-machine roles, which may introduce new forms of stress or adaptation challenges. Importantly, the industry sector frames these transitions as opportunities, often linking improvements in worker well-being to broader business goals such as safety, retention, and performance.

Road transport operators also identify potential benefits of CCAM for employee well-being, but their perspective is grounded in the realities of current working conditions and organizational constraints. Operators recognize that CCAM could eliminate undesirable aspects of driving work, such as long hours, night shifts, and physically demanding tasks. In this sense, automation is viewed as a possible enabler of healthier, more sustainable work patterns. However, there is an underlying concern about the transitional phase, particularly how uncertainty about role continuity might impact the mental health of drivers. While some operators express hope that CCAM can reduce occupational strain, they simultaneously emphasize the importance of managing expectations and providing clear communication to employees undergoing job transformation.

Representative organizations offer a broader, systemic viewpoint. They acknowledge the potential for CCAM to enhance work-life balance through increased flexibility, reduced commuting, and job redesign. However, they also note that the long-term psychological effects of working with autonomous systems remain underexplored. Some voices within this group caution against assuming uniformly positive outcomes, suggesting that the shift towards more technologically mediated forms of work may generate new stressors or social dislocation, particularly if not accompanied by strong support structures. Moreover, this sector tends to situate well-being within the larger discourse of social equity, advocating for inclusive policy and regulatory responses that prioritize worker protection during digital transitions.

In conclusion, while all sectors recognize the potential of CCAM to improve health and well-being in the workplace, they diverge in terms of focus, depth of concern, and perceived responsibility. HEIs and VEIs frame the issue in relation to social vulnerability and educational response; industry emphasizes operational health gains and strategic workforce adaptation; road transport operators focus on reducing occupational burdens while navigating uncertainty; and representative Organizations contextualize well-being within broader labor and policy systems. These differences underscore the need for coordinated strategies that consider sectoral realities while advancing holistic well-being objectives in the transition to automated mobility systems.

5.2.5.5 Access and affordability overview

The cross-sectoral analysis of the access and affordability dimension of CCAM reveals distinct interpretations and priorities across the four stakeholder groups: Higher Education and Vocational Institutions (HEIs and VEIs), Industry, Road Transport Operators, and Representative Organizations. While all sectors acknowledge CCAM's potential to improve transportation access and affordability in the long term, they differ in their evaluation of feasibility, timing, and conditions under which these benefits can be realized.

HEIs and VEIs approach access and affordability primarily as structural challenges requiring public policy alignment and inclusive deployment strategies. Their viewpoint suggests that CCAM can significantly improve access to education and employment opportunities, especially for individuals in remote or underserved areas, provided that the systems are implemented equitably. The academic sector frames affordability not as an inherent attribute of CCAM technologies but as a variable contingent on governance, public investment, and policy decisions. Their analysis implies that without state intervention, affordability gains may be delayed or unevenly distributed, especially among marginalized populations.

In contrast, the industry sector focuses on the relationship between technological maturity, economies of scale, and eventual cost reductions. Industry stakeholders tend to emphasize the long-term commercial viability of CCAM systems, noting that while affordability may not be immediately achieved due to high initial development and deployment costs, it is expected to improve as the technology matures. Their interest in expanding CCAM through pilot programs and partnerships with local authorities is aimed at testing not only technological feasibility but also user adoption in different socio-economic contexts. Industry views access primarily through the lens of service deployment and innovation, often prioritizing operational efficiency and system integration over immediate affordability for low-income users.

Road transport operators provide a more cautious and pragmatic assessment, highlighting the tension between innovation and economic sustainability. While they recognize CCAM's potential to enhance service delivery and expand access in under-served areas, they express concern about affordability from both operational and end-user perspectives. Operators anticipate that the substantial investment required to adopt CCAM could lead to increased service costs, especially in the early stages of deployment. This raises concerns about fare affordability for consumers, particularly for essential travel. Furthermore, they note that while urban environments might benefit earlier from CCAM due to infrastructure readiness and higher demand, rural areas could face delayed access, thus reinforcing existing regional disparities.

Representative Organizations adopt a policy-oriented and equity-focused stance, underscoring the need for regulatory frameworks that actively promote affordable and inclusive CCAM systems. They suggest that while technological advances may drive down costs in the long term, affordability must be considered from the outset to avoid exacerbating transport inequality. These Organizations advocate for mechanisms that ensure low-income populations are not excluded from early CCAM benefits, such as targeted subsidies or public-private models that embed affordability into system design. Their perspective emphasizes the role of collaborative governance in bridging the gap between innovation and social equity.

In conclusion, the analysis shows that HEIs and VEIs stress policy and educational alignment to ensure equitable access, Industry focuses on long-term affordability through market scaling, Road Transport Operators emphasize operational viability and caution against short-term cost increases, while Representative Organizations advocate for structural safeguards to embed affordability and prevent exclusion. These differing perspectives highlight the multifaceted nature of CCAM implementation and the need for coordinated strategies to ensure access and affordability are not secondary considerations but integral to the system's development.

5.2.5.6 Future roadmap and stakeholder awareness overview

The cross-sectoral analysis of this dimension of CCAM highlights divergent expectations and levels of preparedness among HEIs and VEIs, Industry, Road Transport Operators, and Representative Organizations. While there is a shared understanding that CCAM will significantly transform mobility systems and employment structures, each sector defines its role and the necessary next steps differently, reflecting their institutional priorities and proximity to implementation.

HEIs and VEIs largely frame their contributions to the CCAM roadmap through knowledge dissemination, scenario development, and skills anticipation. They emphasize the importance of structured awareness campaigns, not only to inform stakeholders of the socio-economic implications of CCAM but also to build trust and legitimacy for its deployment. This sector considers itself central to developing future-oriented curricula and training pathways that equip the workforce with emerging competencies. HEIs and VEIs advocate for participatory dialogue with stakeholders and stress the need for evidence-based strategies that include ethical, technological, and labor-related dimensions of CCAM. Their approach is reflective, analytical, and rooted in institutional knowledge-building, with an emphasis on preparing future professionals rather than directly influencing policy or market adoption.

In contrast, the industry sector demonstrates a more active and experimental engagement with stakeholder awareness and future planning. Industry actors focus on real-world demonstrations, iterative learning through pilot projects, and the co-development of regulatory frameworks. They highlight the value of early deployment—particularly in controlled environments such as airports or testing hubs—as a way to familiarize the public with CCAM technologies and create a foundation of social acceptance. The industry perspective prioritizes flexibility, adaptation to empirical contexts, and the co-design of scenarios with local authorities and users. Rather than relying heavily on large-scale public campaigns, industry stakeholders advocate for tailored, context-sensitive engagement strategies that respond to specific challenges in awareness, training, and regulation.

Road transport operators reveal a more reserved and cautious stance toward the future roadmap of CCAM. Their focus lies primarily in internal stakeholder awareness, particularly among employees whose roles may be transformed by automation. Operators call for transparent communication about the impacts of CCAM on jobs and for concrete planning around training opportunities to mitigate workforce disruption. They also recognize the need to engage external stakeholders but tend to emphasize partnerships and dialogue within established professional networks rather than broad-based public campaigns. This sector is particularly concerned with balancing innovation with operational viability and ensuring that changes introduced by CCAM are practical, equitable, and well understood by both staff and clients.

Representative organizations take a broader, system-level view, framing the future roadmap as a collaborative endeavor between industry, government, and civil society. They emphasize the need for clear and consistent legislation that removes implementation barriers and enables innovation. Stakeholder awareness, from this perspective, is not only about informing the public or workforce but also about shaping governance mechanisms that can adapt to technological change. While large-scale campaigns are seen as limited in their effectiveness, representative organizations stress the importance of alignment between educational systems and industry needs, as well as the need for coordinated policy development that anticipates emerging socio-economic shifts. This sector acts as a bridge between stakeholders, advocating for inclusive planning, strategic foresight, and institutional reform.

In summary, HEIs and VEIs concentrate on skills foresight and stakeholder education; Industry emphasizes pilot-based learning and stakeholder co-creation; Road Transport Operators focus on internal adaptation and operational realism; and Representative Organizations advocate for system-wide coordination and policy alignment. These differences reflect the varied roles and responsibilities each sector assumes in the unfolding CCAM ecosystem, and underline the need for integrated, multi-level approaches to stakeholder engagement and roadmap development.

6 Citizens impact analysis and mapping

The section corresponding to the citizens (population groups) impact analysis and mapping is split into two subsections. The former focuses more on the discussion about preparatory material in the form of public acceptance survey, whereas the latter subsection discusses the results of the quantitative analysis of survey data.

6.1 Preparation

6.1.1 Sampling design

The data collection followed a structured sampling strategy, designed to capture a diverse range of perspectives across various and diverse population groups relevant to the deployment of CCAM. The data collection set up targeting adults in the following countries: Netherlands, Belgium, Norway, Germany and Cyprus. A market research company was recruited to facilitate the data collection process by distributing the survey instrument to their online panels. Further, hard quotas were implemented in terms of age groups and gender across each country surveyed. This approach allows for a more targeted and efficient reach across multiple countries, ensuring both geographic and demographic representativeness. Table 3 includes information regarding the sample size of each county.

Table 3: Sampling size

Country	Respondents
Netherlands	230
Belgium	217
Norway	203
Germany	366
Cyprus	67
Total	1083

6.1.2 Survey

As part of the CCAM-ERAS project, a survey instrument was developed to examine the socio-economic implications of deploying CCAM services across Europe. The central objective of this activity is to solicit structured insights from key population groups. The survey instrument includes four sections. The first section is related to participants' characteristics, soliciting information regarding their socio-demographic characteristics. The second section includes questions related to people's current travel behavior characteristics thereby capturing an individual mobility portfolio for each participant. Further, the third section includes questions regarding self-driving vehicles and services for people's personal mobility across four distinct use cases (self-driving private car, self-driving bus, self-driving taxi and privately owned robot for delivery). Lastly, the fourth section includes questions capturing people's attitudes and perceptions regarding the multidimensional impacts of self-driving vehicles. The survey instrument is provided in Appendix.

6.2 Results - Quantitative Analysis

As part of the CCAM-ERAS project, a citizen survey was conducted across five European countries - Netherlands, Belgium, Norway, Germany, and Cyprus - between March and April 2025. The survey, which was distributed online, aimed to gather public perceptions, expectations, and concerns regarding CCAM technologies. Designed to explore the socio-economic, accessibility, and equity implications of CCAM from a user perspective, the survey engaged a total of 1,083 participants, with response numbers varying across countries: 230 in the Netherlands, 217 in Belgium, 203 in Norway, 366 in Germany, and 67 in Cyprus. By collecting input from a broad cross-section of citizens, this data collection effort provided valuable insights into regional differences in awareness, acceptance, and perceived impact of CCAM, offering a foundation for inclusive and responsive policy and design strategies. The following sections discuss the results for each country as part of the qualitative analysis that was conducted.

6.2.1 Netherlands

6.2.1.1 Section 1: Participant Characteristics

The age distribution of respondents in the Dutch dataset Table 4 indicates a fairly balanced representation across age groups, with the 25–34 and 35–44 categories being the most represented, each accounting for approximately 20.43% of the sample. The older cohorts, specifically the 55–64 and 65+ age groups, also have a strong presence (18.26% each), suggesting meaningful engagement from older adults. Meanwhile, the youngest group (18–24) is underrepresented at just 6.89%, which may reflect either lower participation rates or limited recruitment effectiveness among younger adults.

Table 4: What is your age?

18-24	16	6,89%
25-34	47	20,43%
35-44	47	20,43%
45-54	36	15,65%
55-64	42	18,26%
65+	42	18,26%
Total	230	100%

The gender distribution among Dutch respondents Table 5 shows a slight majority of men, comprising 55.22% of the sample, while women represent 44.78%.

Table 5: How would you describe your gender?

Woman	103	44,78%
Man	127	55,22%
Total	230	100%

The educational profile of the Dutch respondents Table 6 reveals a well-educated sample, with a combined 56.96% holding at least a university degree or higher (28.26% with a university degree and 28.70% with a higher university degree such as a Master's, MBA, or doctorate). Secondary school or vocational education is the most common standalone category at 38.70%, reflecting a solid middle-education baseline. Only a small fraction of participants reported no formal education (1.74%) or only primary school (0.87%), and the same percentage (1.74%) are still in full-time education.

Table 6: What is the highest educational level that you have achieved to date?

No formal education	4	1,74%
Primary school	2	0,87%
Secondary school or vocational education	89	38,70%
University degree or equivalent professional qualification	65	28,26%
Higher university degree (e.g. Master's, MBA, doctorate)	66	28,70%
Still in full time education	4	f1,74%
Total	230	100%

The Dutch sample's self-identification with technology adoption categories Table 7 indicates a balanced but slightly progressive orientation. A combined 67.83% of respondents place themselves in the “Early majority” (32.61%), “Early adopter” (26.96%), or “Innovator” (8.26%) categories, suggesting a generally receptive attitude toward new technologies, including CCAM. Meanwhile, 28.70% identify as part of the “Late majority,” and only a small minority (3.48%) consider themselves “Laggards.” This distribution implies that while there is a substantial openness to innovation, there remains a sizeable portion of the population that may require more targeted communication and reassurance before embracing new mobility solutions.

Table 7: How would you describe yourself in terms of adopting technologies and innovations? I consider myself:

Innovator	19	8,26%
Early adopter	62	26,96%
Early majority	75	32,61%
Late majority	66	28,70%
Laggard	8	3,48%
Total	230	100,00%

The majority of Dutch participants Table 8 live in urban areas—with 43.91% residing in cities (not in the center) and 27.83% in city centers. Suburban and village dwellers make up a smaller portion of the sample, at 15.65% and 12.61% respectively. This urban-weighted distribution may shape overall attitudes toward CCAM by emphasizing perspectives tied to dense transport infrastructure, existing public mobility services, and higher exposure to innovation. Conversely, it may underrepresent mobility challenges or expectations prevalent in rural or peri-urban areas where CCAM deployment could have transformative potential. Including these contextual factors is important when interpreting findings related to accessibility, perceived need, or adoption barriers.

Table 8: Which of the following best describes where you live?

City center	64	27,83%
City, not in center	101	43,91%

Suburbs	36	15,65%
Village	29	12,61%
Total	230	100,00%

6.2.1.2 Section 2: Your Travel Behavior Characteristics

Table 9 shows that a large majority of Dutch respondents (80.87%) hold a valid driving license, while 19.13% do not. This high rate of licensure suggests that most participants are likely to have firsthand experience with driving and personal vehicle use—relevant when evaluating perceptions of automated driving and the shift toward shared or autonomous mobility solutions. The minority without a license may include younger individuals, urban residents reliant on public transport, or people who face access barriers that could have different expectations or needs from CCAM.

Table 9: Do you have a valid driving license?

Yes	186	80,87%
No	44	19,13%
Total	230	100,00%

The majority of Dutch respondents (62.17%) report owning one private car per household Table 10, indicating a typical reliance on individual car use, possibly balanced with access to public or active transport. A further 20.00% have two cars, and only a very small fraction (under 2%) owns three or more. Notably, 15.65% of households report owning no private car, reflecting a significant segment likely to be more reliant on public transit, cycling, or shared mobility, an important group when assessing the equity and accessibility dimensions of CCAM.

Table 10: How many private cars does your household own?

0	36	15,65%
1	143	62,17%
2	46	20,00%
3	1	0,43%
4	2	0,87%
5	1	0,43%
7	0	0,00%
9	1	0,43%
10	0	0,00%
Total	230	100,00%

This crosstabulation from the Netherlands dataset (Table 11) provides an in-depth look at weekly trip frequencies across various transport modes, highlighting modal preferences and mobility diversity among respondents. The most frequently used mode is the **private car as a driver (driving alone)**, with only 13.98% of respondents not using this mode at all during the week. A significant share (24.73%) uses it once per week, and usage spans up to 40 weekly trips, indicating a high dependency on individual car travel for many. In contrast, **public transport modes** such as bus/tram and train/underground show a markedly lower frequency: 64.78% and 70% of respondents, respectively, reported not using them at all during a typical week. This points to either limited public transport uptake or structural barriers in service availability. The data also reveals **strong reliance on walking**, with relatively higher use compared to other non-car modes: while 21.3% report zero walking trips, 12.61% of participants walk seven times a week—indicating daily use by some. **Cycling and e-scooter use** is moderately popular, with 52.17% not using them but small percentages engaging in regular weekly use. **Taxi and ride-sharing services** are rarely used: 87.83% of respondents report that there are zero weekly trips, suggesting they are primarily occasional or situational modes. Similarly, **motorcycle use** is minimal, with 87.83% reporting zero usage, confirming that it remains a niche form of transport. Notably, **private cars as a passenger** are also a common mode, though not as dominant as driving alone, reflecting a moderate level of shared travel, possibly within families or social networks.

This table underscores the centrality of private car travel in the Dutch sample, particularly as solo drivers, while revealing that multimodal behavior (walking, cycling, some public transport use) is present but secondary. These patterns have important implications for CCAM deployment, emphasizing the need to provide competitive, accessible alternatives to private car use and to target modal shifts in both infrastructure and behavioral outreach.

Table 11: How many trips do you conduct with each of the transport modes below within a week? Consider the following example to calculate your trips: homework is one trip, home-work-home are two trips. Private car as driver (driving alone)

Count	Private car as driver (driving alone)		Private car as a driver (driving with other passenger		Private car as passenger		Bus or tram		Train or underground		Taxi or ride-sharing (such as Uber)		Walking		Cycling or e-scooter		Motorcycle	
0	26	13,98%	79	42,47%	129	56,09%	149	64,78%	161	70,00%	202	87,83%	49	21,30%	120	52,17%	202	87,83%
1	46	24,73%	41	22,04%	44	19,13%	27	11,74%	26	11,30%	14	6,09%	26	11,30%	20	8,70%	21	9,13%
2	25	13,44%	25	13,44%	34	14,78%	21	9,13%	19	8,26%	6	2,61%	18	7,83%	20	8,70%	0	0,00%
3	9	4,84%	12	6,45%	5	2,17%	7	3,04%	10	4,35%	2	0,87%	21	9,13%	5	2,17%	1	0,43%
4	12	6,45%	8	4,30%	6	2,61%	7	3,04%	1	0,43%	0	0,00%	12	5,22%	11	4,78%	1	0,43%

5	20	10,75%	8	4,30%	4	1,74%	9	3,91%	7	3,04%	3	1,30%	25	10,87%	17	7,39%	1	0,43%
6	8	4,30%	3	1,61%	2	0,87%	4	1,74%	4	1,74%	1	0,43%	14	6,09%	9	3,91%	1	0,43%
7	7	3,76%	2	1,08%	1	0,43%	1	0,43%	1	0,43%	1	0,43%	29	12,61%	11	4,78%	0	0,00%
8	6	3,23%	3	1,61%	1	0,43%	0	0,00%	0	0,00%	0	0,00%	3	1,30%	2	0,87%	0	0,00%
9	2	1,08%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,43%
10	13	6,99%	1	0,54%	2	0,87%	4	1,74%	0	0,00%	1	0,43%	13	5,65%	7	3,04%	0	0,00%
11	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
12	2	1,08%	2	1,08%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	3	1,30%	2	0,87%	0	0,00%
14	5	2,69%	1	0,54%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	5	2,17%	1	0,43%	0	0,00%
15	3	1,61%	1	0,54%	1	0,43%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,43%	0	0,00%
16	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,43%	0	0,00%	0	0,00%
17	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
18	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,43%	0	0,00%
20	0	0,00%	0	0,00%	0	0,00%	1	0,43%	0	0,00%	0	0,00%	2	0,87%	2	0,87%	1	0,43%
21	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	3	0,00%	0	0,00%	0	0,00%
24	0	0,00%	0	0,00%	1	0,43%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%

28	0	0,00%	0	0,00%	0	0,00%	0	0,00 %	1	0,00%	0	0,00%	1	0,43%	0	0,00 %	0	0,00%
30	0	0,00%	0	0,00%	0	0,00%	0	0,00 %	0	0,00%	0	0,00%	3	1,30%	0	0,00 %	0	0,00%
35	0	0,00%	0	0,00%	0	0,00%	0	0,00 %	0	0,00%	0	0,00%	1	0,43%	0	0,00 %	1	0,43%
40	2	1,08%	0	0,00%	0	0,00%	0	0,00 %	0	0,00%	0	0,00%	1	0,43%	1	0,43 %	0	0,00%
Tot al	1 8 6	100,00 %	18 6	100,0 0%	230	100,00 %	230	100,0 0%	230	99,57 %	230	100,0 0%	23 0	98,70 %	230	100,0 0%	230	100,0 0%

The data on delivery frequency (Table 12) in the Netherlands indicates that online or phone-based ordering is a common part of everyday life for most respondents. Over half of the sample (52.17%) receive deliveries a few times per month, suggesting regular reliance on e-commerce for goods or services. Another 31.30% report receiving deliveries only a few times per year, reflecting more occasional use, while 8.26% receive them a few times per week, indicating a segment with high-frequency digital consumption habits. Only 6.52% never use delivery services, and a very small share (1.74%) receive deliveries almost daily. These findings reveal a digitally engaged population with moderate to high integration of delivery services into their routines. For CCAM, this trend reinforces the relevance of automated delivery systems, last-mile logistics innovations, and the growing role of non-passenger automated mobility services in urban and suburban contexts. Patterns also suggest potential for behavioral segmentation in planning for CCAM freight components, particularly in areas of high delivery density.

Table 12: How often do you receive deliveries for things you order online or by phone?

Never	15	6,52%
A few times per year (1-5 times per year)	72	31,30%
Few times per month (2-3 times per month)	120	52,17%
A few times per week (2-3 times per week)	19	8,26%
Almost every day (1 or more times a day)	4	1,74%
Total	230	100,00%

The household size distribution (Table 13) in the Dutch sample shows that smaller households are most common, with 37.83% living in two-person households and 26.52% living alone. Together, these groups account for nearly two-thirds of the sample, suggesting that a significant portion of respondents are either single or in couples—contexts often associated with flexible transport preferences and potentially higher use of digital or on-demand mobility services. Three- and four-person households make up another 30.87% combined, reflecting typical family units, while larger households (five or more members) are rare, each accounting for less than 1% to 3.5% individually.

Table 13: Including yourself, how many people live in your household?

1	61	26,52%
2	87	37,83%
3	39	16,96%
4	32	13,91%
5	8	3,48%
6	1	0,43%
7	0	0,00%
8	1	0,43%
9	0	0,00%
10	1	0,43%
Total	230	100,00%

The employment profile (Table 14) of the Dutch sample reveals a predominantly economically active population, with 45.65% of respondents working full-time and another 18.70% part-time. This strong representation of employed individuals suggests that daily commuting and schedule-driven mobility needs may significantly shape perceptions of CCAM. Additionally, 10.87% are currently not working, and 16.09% are retired, highlighting a portion of the population that may have more flexible mobility patterns or distinct needs related to accessibility, comfort, and cost. Students comprise only 3.91% of the sample, which is consistent with the relatively low share of younger respondents, while homemakers account for 4.78%. These smaller groups may still represent valuable user types for shared, flexible, or local mobility services.

Table 14: How do you describe your employment situation?

Currently not working	25	10,87%
Working Part-time	43	18,70%
Working full-time	105	45,65%
Student	9	3,91%
Retired	37	16.09%
Homemaker	11	4,78%
Total	230	100,00%

Concluding, the Dutch sample shows that most respondents live in small households—primarily two-person (37.83%) and single-person (26.52%) homes. This aligns closely with car ownership patterns: the majority (62.17%) of households own one car, and 20.00% own two. Single-car households likely overlap with one- and two-person homes, suggesting moderate reliance on personal vehicles for essential travel, but with limited vehicle redundancy. Meanwhile, 15.65% of respondents with no car are likely concentrated among single-person households and urban dwellers that may rely more heavily on walking, cycling, or public transport, though the dataset shows relatively low weekly use of buses, trams, and trains. Modal usage further supports this interpretation: the most commonly used mode is driving alone, indicating that even in small households, personal autonomy in mobility is prioritized. However, walking and cycling maintain a strong presence—especially in dense urban environments—where respondents might avoid car dependency altogether. Overall, the intersection of small household size and modest vehicle ownership suggests a mixed mobility landscape where CCAM solutions could serve both as an enhancement to individual convenience and as a more inclusive alternative for non-driving households. Automated shared services, on-demand shuttles, and CCAM-enabled logistics could be particularly attractive for single-person and car-free households, especially in urban areas.

6.2.1.3 Section 3: Self-driving vehicles and services for your personal mobility

The data from the table provides insight into the current levels of awareness regarding self-driving vehicles among respondents (Table 15). A significant portion of the sample—57.39%—either have no awareness or have only heard of self-driving vehicles in passing. Specifically, 17.39% report no awareness at all, while 40% have heard of them but lack substantive knowledge. In contrast, 34.35% claim to be aware of self-driving vehicles, and only a small minority—8.26%—consider themselves well aware.

Table 15: How well aware are you about self-driving vehicles?

I am not aware of self-driving vehicles	40	17,39%
I have only heard about self-driving vehicles, but I do not know much	92	40,00%
I am aware of self-driving vehicles	79	34,35%
I am well aware of self-driving vehicles	19	8,26%
Total	230	100,00%

The Table 16 further affirms the earlier interpretation of sentiment in the Netherlands toward self-driving taxis—particularly for work-related travel. The dominant position remains one of reluctance: 40% of respondents say they are highly unlikely to use self-driving taxis even when price and time are held constant, and another 20% indicate they are somewhat unlikely. Together, this 60% majority signals a clear skepticism, possibly rooted in either safety concerns, unfamiliarity, or simply a strong status quo bias toward existing travel modes.

What stands out even more is the small share of respondents who are highly likely to adopt—just under 4%. This is not simply passive disinterest; it suggests active resistance among a large portion of the public. 16.09% who responded neutrally could be considered a key group in any future public engagement or pilot interventions. They may not yet be persuaded, but nor are they closed, perhaps they are awaiting more evidence, experience, or social cues before forming an opinion.

Table 16: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is that you will be using a self-driving taxi: for your work trips?

Highly unlikely	92	40,00%
Somewhat unlikely	46	20,00%
Neutral	37	16,09%
Somewhat likely	46	20,00%
Highly likely	9	3,91%
Total	230	100,00%

Compared to the earlier responses about work trips, attitudes toward using self-driving taxis for non-work trips (Table 17) in the Netherlands appear slightly more open, but the overall pattern of skepticism remains dominant. In this case, 36.96% of respondents state they are highly unlikely to use a self-driving taxi, with another 17.39% saying they are somewhat unlikely to total more than half of the sample (54.35%) who lean toward avoidance. This is a marginal decrease in resistance compared to the 60% observed for work-related use, suggesting that people may be somewhat more willing to experiment with self-driving taxis when the stakes or routines are perceived as lower. Interestingly, the share of neutral responses increases slightly to 20%, indicating a growing group that could be influenced one way or the other. The percentage of those who are somewhat likely to use the service (19.13%) remains on par with previous findings, while the proportion saying they are highly likely rises slightly to 6.52%. Still, this remains a small minority, reinforcing the interpretation that full-scale behavioral shift will require more than just technical availability.

What this data hints at are a relative openness to exploring autonomous mobility in more flexible, non-routine contexts—leisure, errands, or occasional social trips—rather than as a core part of daily commuting. It also reiterates the importance of user perception, familiarity, and trust: Dutch respondents may be curious or accepting in principle but remain cautious when it comes to actual uptake. Pilot schemes, demonstrations in low-stakes settings, and strategies to normalize the presence of autonomous vehicles in urban environments may therefore be effective starting points for broader societal adoption.

Table 17: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is it that you will be using a self-driving taxi: for your non-work trips?

Highly unlikely	85	36,96%
Somewhat unlikely	40	17,39%
Neutral	46	20,00%

Somewhat likely	44	19,13%
Highly likely	15	6,52%
Total	230	100,00%

Based on (Table 18), of the 230 respondents, two-thirds (66.1%) stated that they would not change their residential location, suggesting a strong anchoring to current place of residence in the absence of added efficiency or cost advantages from automation. However, around one-third of the sample would consider relocating to some capacity. Notably, 21.7% would consider moving away from the city center—either to suburban (10.4%) or rural areas (9.6%). This suggests that even without cheaper or faster mobility, the mere availability of automated taxis introduces a degree of flexibility that may support decentralization for a minority of respondents.

In contrast, 13.9% expressed a desire to move closer to or into the city center, with 11.3% aiming to relocate closer and 2.6% directly to the center. This distribution reinforces a core insight echoed in the broader CCAM research across contexts like the Netherlands: automated mobility, unless paired with affordability gains or time efficiency, may not be a strong driver of relocation decisions for the majority. However, for certain groups, possibly those already mobile, or living on the threshold of deciding—a stable cost model could still serve as a mobility enabler. As such, policy interventions aimed at shaping residential distribution via CCAM must look beyond automation alone and toward integrated transport policies, pricing models, and land-use planning.

Table 18: Assuming that the cost and travel time of self-driving taxis are the same as of today's taxis, how do you expect the below to be affected?   Your current residential location

Relocation to a rural area	22	9,57%
Relocating to city's suburbs	24	10,43%
No change	152	66,09%
Relocate closer to the city center	26	11,30%
Relocate to the city center	6	2,61%
Total	230	100,00%

The data on the likelihood of purchasing or leasing a private self-driving car (Table 19)—under the condition that no driving license would be required—reveals more resistance than enthusiasm. Among the respondents, more than half (54.78%) indicated they were either highly unlikely (37.39%) or somewhat unlikely (17.39%) to consider acquiring such a vehicle. Another 20% were neutral, and only a quarter of participants expressed any level of likelihood, with just 5.22% saying they were highly likely to do so. This suggests that removing legal barriers like licensing is not, in itself, enough to generate broad consumer interest in private ownership of autonomous vehicles. The figures indicate not just caution, but in many cases, outright skepticism. It appears that trust in technology, perceived value, and perhaps cost still weigh heavily on people's decision-making. For some, the idea of owning a self-driving car may remain distant or unnecessary, particularly if shared mobility options become more viable and integrated. Others may simply not see the benefit in replacing existing transport habits—especially in countries like the Netherlands, where public and active transport are already strong alternatives. So, while automation may eventually become normalized, this data tells us that we are not there yet. The public is not rushing to adopt private autonomous vehicles, and instead, adoption may emerge gradually—if and when the vehicles are seen as adding genuine value to everyday life, rather than being a novel or experimental concept.

Table 19: How likely is it to buy/lease a private self-driving car? There is no need to have a driving license to purchase one.

Highly unlikely	86	37,39%
Somewhat unlikely	40	17,39%
Neutral	46	20,00%
Somewhat likely	46	20,00%
Highly likely	12	5,22%
Total	230	100,00%

When respondents were asked how likely they would be to use a self-driving private car for work-related trips (Table 20) - assuming no difference in cost or travel time compared to a conventional electric car—the majority again expressed hesitation. A substantial 60% indicated they would be unlikely to do so, split between 41.74% who were highly unlikely and 18.26% somewhat unlikely. Neutral responses accounted for 13.91%, while just over a quarter (26.09%) expressed some degree of likelihood, including only a small group, 4.35%, who were highly likely. This tells us that even under equal economic and temporal conditions, self-driving cars do not yet hold significant appeal for work-related travel. What emerges here is a pattern of reluctance, possibly grounded in ongoing concerns about reliability, safety, or personal control over the vehicle. Work trips, in particular, may be associated with a need for predictability and routine, where any uncertainty around new technology feels like a risk rather than a benefit. The data also reflects a broader issue we've seen in other parts of the study: for many people, automation alone isn't compelling. Unless the self-driving vehicle brings clear and tangible advantages, whether through reduced stress, improved productivity during travel, or integration with other mobility services—its uptake may remain limited. For now, automation does not appear to shift people's travel behavior for work in any major way, at least not in a context where it offers no extra gain in time or money.

Table 20: Given that the cost and travel time are the same as using a conventional electric car, how likely is it that you will be using a self-driving private car: for your work trips?

Highly unlikely	96	41,74%
Somewhat unlikely	42	18,26%
Neutral	32	13,91%
Somewhat likely	50	21,74%
Highly likely	10	4,35%
Total	230	100,00%

When asked about the likelihood of using a self-driving private car for non-work trips (Table 21) — again assuming no cost or time advantage over a conventional electric car—the responses remain cautious, but with a slight shift toward more openness. Here, 49.57% of respondents fall into the unlikely category (36.09% highly unlikely, 13.48% somewhat unlikely), which is lower than the figure observed for work-related travel. Meanwhile, 33.92% say they are somewhat or highly likely to use such a car for leisure or other personal trips, and 16.52% remain neutral. What this indicates is that people may be more willing to consider automation in contexts where the stakes are perceived as lower—non-work trips, which might be more flexible or less time-sensitive, could present fewer psychological or logistical barriers. Leisure travel could also be more compatible with the idea of "letting go" of the driving task, particularly if it enhances comfort or offers a novel experience.

Table 21: Given that the cost and travel time are the same as using a conventional electric car, how likely is it that you will be using a self-driving private car: for your non-work trips?

Highly unlikely	83	36,09%
Somewhat unlikely	31	13,48%
Neutral	38	16,52%
Somewhat likely	56	24,35%
Highly likely	22	9,57%
Total	230	100,00%

Based on the Table 22 regarding Dutch residents' stated relocation preferences in the hypothetical scenario where self-driving private cars match today's cars in cost and travel time, a clear preference for residential stability emerges. Two-thirds of respondents (67.4%) indicated they would not change their current residential location. This aligns with general trends in the Netherlands, where the dense, well-connected urban and peri-urban structure already provides relatively high accessibility by car and public transport, thus reducing the pressure to relocate in response to improved vehicle automation alone. Among those open to relocating, the preferences are distributed relatively evenly across different directions of movement, which are moving closer to the city center (11.3%), to a rural area (10.9%), or to the suburbs (8.3%). Interestingly, only a small minority (2.2%) would choose to relocate directly into the city center, suggesting that the appeal of urban density may be tempered by other considerations such as housing costs, lifestyle, or space availability. The preference to move either to the outskirts or rural areas (together accounting for ~19%) might reflect an expectation that automated cars would reduce the stress or time of commuting, making less centrally located housing more attractive without sacrificing accessibility.

Table 22: Assuming that the cost and travel time of self-driving private cars are the same as of today's cars, how do you expect the below to be affected? Your current residential location

Relocation to a rural area	25	10,87%
Relocating to city's suburbs	19	8,26%
No change	155	67,39%
Relocate closer to the city center	26	11,30%
Relocate to the city center	5	2,17%
Total	230	100,00%

Among Dutch respondents who indicated they might change where they live if self-driving private cars matched todays in cost and travel time Table 23, the primary motivator appears to be the desire for more space—cited by 18.2% of this subgroup. This suggests that automation might encourage moves to less dense areas where larger homes or plots are more available, as the traditional commuting penalty associated with distance diminishes. A close second cluster of motivation is linked to the qualities of travel itself. About 15.7% selected it "easier to travel further," and 12.4% mentioned being able to relax during travel. An additional 11.6% pointed to the ability to be productive while traveling, which highlights the value respondents place on how CCAM could transform the travel experience into usable or restorative time. These motivations all suggest that the perceived "cost" of distance is no longer only about time—it's increasingly about comfort and function. Another noteworthy factor is that area-specific improvements in walkability and cycling infrastructure play a role in motivating relocation decisions. Though cited less frequently (footpaths: 9.1%, cycleways: 7.4%), these responses reflect a broader valuation of mixed-modal and livable environments, possibly linked to Dutch cultural emphasis on sustainable urban mobility. Finally, the idea that the new area is simply “nicer to live in” (10.7%) underscores that beyond practical mobility concerns, CCAM is wrapped into lifestyle and amenity-based decision-making—residents may anticipate that automation will support access to preferred environments they might not have otherwise considered due to travel constraints.

Table 23: Can you please describe why you might change where you live?

would like more space	22	18,18%
can relax during travel time	15	12,40%
easier to travel further	19	15,70%
can be productive while travel	14	11,57%
easier to travel in the new area	18	14,88%
more footpaths	11	9,09%
more cycleways	9	7,44%
nicer to live in the new area	13	10,74%
Total	121	100,00%

The Dutch respondents’ attitudes toward self-driving public buses, even when cost and travel time are held constant with conventional buses (Table 24), reveal a noticeable degree of skepticism—particularly for work-related travel. A combined 57.8% report being either “highly unlikely” or “somewhat unlikely” to use such services for commuting. For non-work trips, the resistance is slightly lower, but still substantial, at 47.4%. These figures suggest that trust and perceived reliability remain significant barriers, especially in contexts where punctuality and control are paramount, such as the daily commute. The fact that only 26.1% are positively inclined to use automated buses for work, and 31.7% for non-work, underscores that technological equivalence in speed and price is insufficient to drive uptake on its own. Interestingly, neutrality is more common for non-work trips (20.9%) than for work (16.1%), indicating that people may be more open to experimenting with automated public transport in lower-stakes situations—like leisure or errand-based travel. This suggests a potential entry point for adoption, where early usage is casual, building familiarity that could eventually spill over into more routine journeys. The relatively low share of respondents who are “highly likely” to adopt these services (6.5% for work trips, 9.1% for non-work) points to a need for stronger policy, safety assurance, or user experience enhancements before mass adoption becomes plausible. In the Dutch context, where public transport systems are generally well-developed and trusted, the bar for automated alternatives may simply be higher—not just in functionality, but in perceived added value.

Table 24: Self-driving public buses are now available in your city. Given that the cost and travel time are the same as using today’s conventional public bus, how likely it is that you will be using a self-driving public bus:

	For your work trips		For your non-work trips	
Highly unlikely	92	40,00%	77	33,48%
Somewhat unlikely	41	17,83%	32	13,91%
Neutral	37	16,09%	48	20,87%
Somewhat likely	45	19,57%	52	22,61%
Highly likely	15	6,52%	21	9,13%
Total	230	100,00%	230	100,00%

In the scenario where self-driving public buses offer the same cost and travel time as today's conventional services (Table 25), Dutch respondents again show a strong inclination toward residential stability, with over 70% indicating they would not change their current location. This high figure mirrors the earlier finding related to self-driving private cars and suggests that automation in itself, without significant changes to other factors (like cost, travel time, or urban amenities), is not enough to drive widespread residential relocation.

Among those considering a move, the largest group would shift closer to the city center (12.6%), followed by a move to the suburbs (9.1%). Notably, only 5.7% would consider relocating to a rural area—roughly half the share observed when private automated cars were the hypothetical mode. This discrepancy likely reflects a critical difference in flexibility and reach**:** private cars, automated or not, offer more point-to-point convenience than public transport, especially in rural or low-density areas where coverage may be sparse even with automation. Only a marginal share (2.2%) would move directly into the city center, reaffirming that high-density urban living is not a widespread aspiration among respondents, possibly due to housing costs, space constraints, or lifestyle preferences.

Table 25: Assuming that the cost and travel time of self-driving public buses are the same as of today's public buses, how do you expect the below to be affected?

Relocation to a rural area	13	5,65%
Relocating to city's suburbs	21	9,13%
No change	162	70,43%
Relocate closer to the city center	29	12,61%
Relocate to the city center	5	2,17%
Total	230	100,00%

The reasons given by Dutch respondents for potentially changing where they live (Table 26)—assuming self-driving public buses match todays in cost and travel time—paint a picture that is slightly more mobility- and amenity-driven than the private car scenario. The most common motivation is the ability to travel furthermore easily (16.0%), suggesting that automation in public transport could unlock new residential possibilities by extending perceived or practical commuting ranges. This is followed closely by a set of motivations tied to travel experience and flexibility: being productive during travel (13.2%), relaxing while traveling (10.4%), and easier movement within the new area (13.2%). This group of responses reflects how automation could reframe travel time as less burdensome or even beneficial, making longer distances feel more acceptable or attractive. Interestingly, spatial quality considerations also feature prominently. A notable 15.1% cite better cycleways as motivation to move—higher than in the private car scenario. Together with 7.6% pointing to footpaths**,** this underscores the enduring importance of active travel infrastructure, even in an automated future. These preferences resonate strongly with the Dutch urban planning ethos, where integration of cycling and walking is both cultural and structural. Meanwhile, the desire for more space (13.2%) remains consistent with earlier findings and continues to reflect a core trade-off between density and comfort. The relatively modest share (11.3%) who say the "new area is nicer" reinforces the idea that it is not just the place, but the potential to reach and navigate it that matters in shaping residential preferences under CCAM.

Table 26: Can you please describe why you might change where you live?

would like more space	14	13,21%
can relax during travel time	11	10,38%
easier to travel further	17	16,04%

can be productive while travel	14	13,21%
easier to travel in the new area	14	13,21%
more footpaths	8	7,55%
more cycleways	16	15,09%
nicer to live in the new area	12	11,32%
Total	106	100,00%

When the Dutch asked about their likelihood of using a private delivery or pick-up robot for deliveries (Table 27), Dutch respondents present a mixed yet slightly skeptical outlook. A combined 44.4% report being either “highly unlikely” (30.9%) or “somewhat unlikely” (13.5%) to adopt such services, indicating significant reservations toward this particular automation use case. In contrast, 33.5% express some degree of openness, with 23.0% “somewhat likely” and 10.4% “highly likely” to consider using delivery robots. Meanwhile, 22.2% remain neutral, suggesting that a substantial portion of the population is either undecided or waiting for more evidence regarding the reliability, convenience, or desirability of these technologies. This distribution signals that, relative to mobility automation (like self-driving cars or buses), delivery robots may face greater perceptual and trust barriers—perhaps due to concerns over service errors, theft, lack of human interaction, or limitations in infrastructure (e.g., narrow sidewalks, high-density environments).

Table 27: How likely is that you will be using a private delivery/pick-up robot for your deliveries?

Highly unlikely	71	30,87%
Somewhat unlikely	31	13,48%
Neutral	51	22,17%
Somewhat likely	53	23,04%
Highly likely	24	10,43%
Total	230	100,00%

The introduction of private delivery/pick-up robots (Table 28) assuming equal cost and time to today’s conventional delivery services—appears to produce markedly different effects depending on the dimension considered. For residential relocation**,** the effect is minimal: a strong 67.4% indicate no change in their living situation, mirroring earlier findings on spatial inertia in the Dutch context. Only small shares suggest a move to the suburbs (13.5%) or closer to the city center (14.4%), hinting that the mere presence of automated delivery does little to shift where people choose to live. However, the picture shifts dramatically when we consider delivery costs and online ordering behavior**.** A clear majority (57.4%) anticipate that their delivery costs would decrease if robots replaced traditional services. This signals strong expectations of economic efficiency gains**,** likely due to automation reducing human labor inputs and allowing for more flexible, possibly decentralized, logistics models. Even more strikingly, 62.2% expect their monthly number of online orders to increase**.** This indicates that automation is not just seen as a substitute for current delivery methods but as a catalyst for amplifying e-commerce behaviors, especially if the service is perceived as equally fast and cheaper. The implications here go beyond logistics: CCAM in the form of delivery robotics could reshape patterns of consumption, retail, and even urban logistics design. Combined with the earlier finding that only 23% were “somewhat likely” to use delivery robots (and 10.4% “highly likely”), this suggests that expectations of impact may outpace personal willingness to adopt, at least initially. It’s a scenario where people expect *others* to adopt, leading to structural shifts, even if their own behavior changes more slowly.

Table 28: Assuming that the cost and time of private delivery/pick-up robots are the same as today's conventional delivery service, how do you expect the below to be affected?

	Your current residential location		your current delivery costs		your current number of monthly online orders	
Relocated to a more rural area	6	2,61%	5	2,17%	7	3,04%
Relocated to city's suburbs	31	13,48%	56	24,35%	27	11,74%
No change	155	67,39%	26	11,30%	31	13,48%
Relocated closer to the city center	33	14,35%	132	57,39%	143	62,17%
Relocated to the city center	5	2,17%	11	4,78%	22	9,57%
Total	230	100,00%	230	100,00%	230	100,00%

The motivations provided by Dutch respondents for potentially relocating in response to private delivery/pick-up robots (Table 29) assuming equal cost and time to conventional delivery—highlight a more distributed and nuanced set of factors compared to mobility-focused automation. At the top, functional travel enhancements remain important: the ability to be productive during travel (15.1%) and to travel furthermore easily (13.2%) suggest that delivery automation may shift broader expectations around mobility and spatial flexibility, even if indirectly. This mirrors earlier findings where automation's value is as much about freeing up time or mental bandwidth as it is about physical movement. Notably, lifestyle quality elements such as "easier travel in the new area" (9.4%), "nicer to live in the new area" (6.6%), and infrastructure for active travel (footpaths and cycleways combined: 14.2%) suggest that delivery robots are seen not just as isolated services, but as part of a larger ecosystem of livable urban design. Respondents appear to associate them with areas that are better planned, more modern, or potentially more sustainable. Interestingly, only 4.7% cited a desire for more space, a much lower share than in previous scenarios involving private automated cars or buses.

Table 29: Can you please describe why you might change where you live?

would like more space	5	4,72%
can relax during travel time	8	7,55%
easier to travel further	14	13,21%
can be productive while travel	16	15,09%
easier to travel in the new area	10	9,43%
more footpaths	9	8,49%
more cycleways	6	5,66%
nicer to live in the new area	7	6,60%
Total	75	70,75%

When asked about expected timelines for the implementation of self-driving technologies in their cities (Table 30), Dutch respondents provided a staggered but generally cautious outlook—characterized by mid- to long-term horizons and a non-negligible degree of skepticism. Across all five service-driving taxis, private cars, public buses, on-demand shuttles, and delivery robots, the year 2035 was the most frequently selected expectation point, with a cluster ranging from 26.5% (taxis) to 22.6% (private cars and delivery robots) predicting their arrival by then. This suggests that Dutch participants see the early-to-mid 2030s as the realistic start of CCAM deployment, aligning broadly with the European Commission's strategic planning windows. For public-facing mobility services like buses and shuttles, however, a larger share pushes the timeline out to 2040—with 25.7% citing that year for self-driving public buses and 22.6% for shuttles. This reflects both technical complexity and regulatory caution often associated with publicly shared autonomous mobility, especially in the Dutch context where safety and infrastructure integration are high priorities. Private delivery/pick-up robots receive the most near-term optimism, with 17.8% expecting implementation by 2030, slightly more than any other technology, while only 10.4% defer it to 2050. This aligns with their perceived low-stakes, controlled-environment appeal, and may reflect how delivery automation is viewed as more deployable under current regulatory and logistical frameworks. That said, a significant minority remain skeptical: 17.8% believe self-driving taxis will never arrive with similar shares for other services. This suggests that public confidence in deployment timelines is still tentative, perhaps shaped by past overpromises, ongoing technical barriers, or broader socio-political hesitation.

In summary, Dutch respondents exhibit a moderate optimism tempered by realism: CCAM is coming, but slowly, unevenly, and likely in phased rather than transformative leaps.

*Table 30: By when do you think that the below self-driving services or vehicles will start being implemented in your city? * In which country do you live?*

	Self-driving taxi		Self-driving private cars		Self-driving public bus		Self-driving on-demand shuttle bus		Self-driving private delivery - pick-up robot	
2030	37	16,09%	38	16,52%	32	13,91%	34	14,78%	41	17,83%
2035	61	26,52%	52	22,61%	39	16,96%	36	15,65%	52	22,61%
2040	51	22,17%	51	22,17%	59	25,65%	52	22,61%	40	17,39%
2045	27	11,74%	39	16,96%	45	19,57%	42	18,26%	40	17,39%
2050	13	5,65%	20	8,70%	22	9,57%	28	12,17%	24	10,43%
Never	41	17,83%	30	13,04%	33	14,35%	38	16,52%	33	14,35%
Total	230	100,00%	230	100,00%	230	100,00%	230	100,00%	230	100,00%

6.2.1.4 Section 4: Your attitudes regarding the impact self-driving vehicles will have in general

The Table 31, captures Dutch respondents' expectations of the general system-wide impacts of self-driving vehicles across key transport and logistics dimensions. The responses show strong belief in the positive effects of automation, particularly in relation to travel efficiency and cost, though with some variability depending on the indicator. A clear majority of respondents expect an increase in the number of trips people will make—66.1% anticipate an increase, with 56.1% predicting a moderate rise and another 11.3% expecting a significant one. This suggests that automation is perceived as a travel enabler, likely due to anticipated reductions in effort, stress, and opportunity cost associated with driving. In terms of the number of vehicles on the road, a similar share, 67.4%, foresees an increase, with 55.2% expecting it to be moderate. This points to a recognized risk or side effect of automation: more people may travel more frequently or farther, which could lead to higher network congestion unless offset by shared mobility or policy interventions. Perceptions about travel time for citizens are slightly more positive: 67.8% anticipate improvement, and fewer expect significant reductions (just under 10%). This reflects an expectation that while congestion might increase, the automation of driving tasks will still yield gains—possibly by streamlining traffic flow, reducing accidents, or simply allowing passengers to reframe their in-vehicle time as productive or restful. On the cost front, the outlook is similarly optimistic. Over 63% of respondents expect lower travel costs for individuals, and over 61% expect delivery costs to fall. These findings reflect a strong assumption that self-driving technology, once scaled, will enhance efficiency and reduce labor and operational costs in both personal mobility and logistics. At the same time, only a small minority (2–5%) believe there will be no change, and an even smaller group expects significant negative impacts. This distribution reaffirms a prevailing public narrative of net benefit, where automation is expected to expand access, reduce burdens, and improve affordability—though not without trade-offs in traffic volume or system load.

Table 31: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Citizens' number of trips		Number of vehicles on the network		Citizens travel time		Travel costs for citizens' trips		Delivery costs	
-2 = Reduced significantly (50% reduction or more)	7	3,04%	12	5,22%	7	3,04%	9	3,91%	11	4,78%
-1 =Reduced (up to 50% reduction)	56	24,35%	56	24,35%	54	23,48%	68	29,57%	71	30,87%
0=No change	12	5,22%	7	3,04%	13	5,65%	7	3,04%	6	2,61%
1=Increase or Improve (up to 50% increase)	129	56,09%	127	55,22%	134	58,26%	120	52,17%	117	50,87%
2= Increase or Improve significantly (50% increase or more)	26	11,30%	28	12,17%	22	9,57%	26	11,30%	25	10,87%
Total	230	100,00%	230	100,00%	230	100,00%	230	100,00%	230	100,00%

This section of the survey (Table 32) further underscores the Dutch public's expectation that self-driving vehicles will be a net positive for the transport sector, economy, and society, though again, with a balanced awareness of accompanying labor disruptions. A significant majority anticipate environmental benefits, with nearly 37% expecting reductions in transport sector emissions, and another 51.7% foreseeing improvement elsewhere, perhaps through operational efficiency, reduced congestion, or modal shifts. This is consistent with broader Dutch environmental consciousness and support for sustainable innovation. Economic expectations are especially high. Over 62% of respondents believe self-driving vehicles will lead to economic growth, and 54.8% predict an increase in investments, indicating strong public faith in CCAM as an engine of technological and economic advancement. A further 17% believe investments will improve significantly, suggesting the perception of automation as a driver of long-term structural change rather than short-term novelty. In terms of employment, the public sees a dual effect. Almost 59% expect job creation to rise, with nearly half predicting moderate gains. At the same time, there is significant awareness of potential job losses, with 33% acknowledging this risk, including 10% who believe these losses will be significant. This reflects a nuanced public understanding: that new technologies inevitably bring transformation and reconfiguration, particularly in sectors like logistics, taxi services, or manual delivery. The fact that more than 20% also anticipate a significant increase in job losses reinforces the point that while respondents are optimistic, they do not imagine a frictionless transition. What emerges is a portrait of Dutch respondents as both hopeful and realistic: they believe that CCAM can catalyze sustainability, efficiency, and economic opportunity, but only if its deployment is accompanied by proactive workforce planning and environmental policy. This data further deepens the thematic synthesis already built around cautious optimism, spatial stability, and system-oriented thinking.

Table 32: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Transport sector's emissions		Economic growth		Investments		Employment opportunities		Job losses	
-2 = Reduced significantly (50% reduction or more)	21	9,13%	10	4,35%	6	2,61%	27	11,74%	23	10,00%
-1 =Reduced (up to 50% reduction)	64	27,83%	43	18,70%	49	21,30%	59	25,65%	52	22,61%
0=No change	4	1,74%	14	6,09%	10	4,35%	9	3,91%	10	4,35%
1=Increase or Improve (up to 50% increase)	119	51,74%	143	62,17%	126	54,78%	114	49,57%	99	43,04%
2= Increase or Improve significantly (50% increase or more)	22	9,57%	20	8,70%	39	16,96%	21	9,13%	46	20,00%
Total	230	100,00%	230	100,00%	230	100,00%	230	100,00%	230	100,00%

The Table 33 reinforces the consistent Dutch view that self-driving vehicles—if implemented thoughtfully—will expand accessibility and demand reskilling, with benefits expected across the general population and particularly among those with mobility challenges. Expectations for new skill requirements are pronounced, with over 70% of respondents anticipating an increase, including 14.8% who expect a significant rise. This reflects an awareness that while CCAM technologies may automate many roles, they also generate demand for new expertise, particularly in IT, vehicle operations, systems integration, and service management. The public appears to understand that the workforce transition accompanying automation is not merely about job loss, but also about job transformation. More notably, the data reveals strong public confidence in CCAM to broaden mobility access. A majority believes accessibility will improve. These expectations reflect a widespread belief that self-driving services could overcome some of the structural barriers in today's transport system—like the need for physical dexterity to drive, complex navigation of public transport networks, or reliance on car-owning relatives or caregivers. Respondents appear to view automation not just as a technical advance, but as an equalizer, offering more consistent, predictable, and user-friendly travel options to groups often marginalized in transport design. At the same time, small but present minorities (6–8%) foresee reduced accessibility—perhaps expressing concerns about unfamiliar interfaces, digital exclusion, or system complexity. These responses are a helpful reminder that even when technologies promise inclusion, design, regulation, and support systems must follow through to ensure no one is left behind. This final set of data harmonizes well with the rest of the findings: the Dutch public sees CCAM not as a distant utopia or a disruptive force, but as a lever for pragmatic, people-focused change—so long as its rollout is supported by parallel investments in education, safety, infrastructure, and inclusive design.

Table 33: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	New skills requirements		Accessibility of general population		Accessibility of people with special mobility needs		Accessibility of older people	
-2 = Reduced significantly (50% reduction or more)	15	6,52%	8	3,48%	15	6,52%	19	8,26%
-1 =Reduced (up to 50% reduction)	44	19,13%	34	14,78%	48	20,87%	42	18,26%
0=No change	8	3,48%	11	4,78%	8	3,48%	8	3,48%
1=Increase or Improve (up to 50% increase)	129	56,09%	141	61,30%	119	51,74%	124	53,91%
2= Increase or Improve significantly (50% increase or more)	34	14,78%	36	15,65%	40	17,39%	37	16,09%
Total	230	100,00%	230	100,00%	230	100,00%	230	100,00%

This final Table 34 confirms the Dutch public's belief in the broad societal benefits of self-driving vehicles, particularly around safety, well-being, and family accessibility. Respondents overwhelmingly expect improvements, though again with a pragmatic understanding that such benefits will depend on effective implementation. In terms of road safety, expectations are notably high. A majority of respondents predict a reduction in traffic accidents (43.5% moderate, 16.1% significant) and fatalities (43.5% moderate, 11.3% significant). These numbers highlight a strong faith in automation's ability to minimize human error—currently a major cause of crashes—through enhanced sensor systems, rule adherence, and fatigue-free operation. This safety optimism is one of the most consistent findings across all segments of the Dutch survey. Expectations for reduced travel-related stress are similarly strong. Over half of respondents (43.5% moderate, 8.3% significant) believe that self-driving vehicles will ease the cognitive and emotional burdens associated with transport, especially commuting. The ability to relax, disengage, or multitask while traveling appears to be an important psychological incentive, reflecting an understanding of mobility not just as movement, but as lived experience. Regarding family-oriented accessibility, responses again skew positive. A large majority (61.3%) expect improvements for families with children, suggesting that self-driving systems are perceived as potentially more convenient, safer, or easier to coordinate with caregiving responsibilities. This may reflect expectations around door-to-door transport, reduced need for parking near schools or daycares, or simply safer road conditions for all travelers. While negative expectations are present (between 5–10% across indicators), they remain minor. The slight presence of such views may stem from concerns over technological reliability, overreliance, or transitional risks, but they do not significantly alter the dominant narrative: Dutch respondents largely believe that CCAM—particularly in the realm of safety and well-being—can deliver substantial gains if designed inclusively and deployed with care.

Table 34: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Accessibility of families with kids		Stress related to travelling		Number of traffic accidents		Number of fatalities	
-2 = Reduced significantly (50% reduction or more)	13	5,65%	25	10,87%	24	10,43%	16	6,96%
-1 =Reduced (up to 50% reduction)	39	16,96%	75	32,61%	65	28,26%	76	33,04%
0=No change	9	3,91%	11	4,78%	4	1,74%	12	5,22%
1=Increase or Improve (up to 50% increase)	141	61,30%	100	43,48%	100	43,48%	100	43,48%
2= Increase or Improve significantly (50% increase or more)	28	12,17%	19	8,26%	37	16,09%	26	11,30%
Total	230	100,00%	230	100,00%	230	100,00%	230	100,00%

6.2.2 Belgium

6.2.2.1 Section 1: Participant Characteristics

The age distribution of respondents in the Belgian (Table 35) shows a strong concentration among younger to middle-aged adults, with the 25–34 age group comprising the largest share at 22.58%. This is followed by fairly even representation across the 35–44 (17.51%), 45–54 (17.97%), and 18–24 (15.21%) brackets, suggesting a diverse but youth-leaning profile. The older age groups—55–64 and 65+—are equally represented at 13.36% each, indicating moderate engagement from older adults. Overall, the sample provides a broad generational spectrum suitable for examining differing perceptions of CCAM, but the relative strength of participation from working-age respondents may influence the outlook on employment impacts and technology adoption readiness. The Belgian sample shows a fairly even distribution across most adult age groups, with the 25–34 and 35–44 categories each representing 20.43% of the respondents. This suggests a strong presence of individuals likely to be active in the workforce and engaged with evolving mobility solutions. The 45–54 age group follows at 15.65%, while both the 55–64 and 65+ brackets are equally represented at 18.26%, indicating a solid representation of older adults. The 18–24 group is the smallest at just 6.89%, which may reflect a lower participation rate among younger individuals or a potential recruitment gap. The data allows for meaningful comparisons across age-based cohorts, which is particularly useful in assessing generational attitudes toward CCAM deployment, perceived risks, and expectations about technological change.

Table 35: What is your age?

18-24	33	15,21%
25-34	49	22,58%
35-44	38	17,51%
45-54	39	17,97%
55-64	29	13,36%
65+	29	13,36%
Total	217	100%

The Belgian CCAM data collection (Table 36), showing that 55.30% of respondents identified as male, 44.24% as female, and a small proportion (0.46%) as “Other.”

Table 36: How would you describe your gender?

Woman	96	44,24%
Man	120	55,30%
Other	1	0,46%
Total	217	100%

The educational profile of the Belgian respondents (Table 37) shows a relatively high level of formal attainment. Over half of the sample (58.98%) holds a university degree or higher split evenly between those with a bachelor's or equivalent professional qualification (29.49%) and those with a higher degree such as a Master’s, MBA, or doctorate (also 29.49%). Meanwhile, 35.48% completed secondary school or vocational education, forming a strong middle-education group. Only a small proportion reported primary education (3.69%), and none reported having no formal education. A minimal number (1.84%) are still in full-time education. This profile suggests a well-educated sample that may be more informed about or receptive to emerging technologies like CCAM. However, it may also underrepresent the views of lower-educated populations, who could face different barriers or expectations regarding automation in mobility. This factor should be considered when generalizing findings or designing inclusive strategies for CCAM adoption.

Table 37: What is the highest educational level that you have achieved to date?

No formal education	0	0,00%
Primary school	8	3,69%
Secondary school or vocational education	77	35,48%
University degree or equivalent professional qualification	64	29,49%
Higher university degree (e.g. Master's, MBA, doctorate)	64	29,49%
Still in full time education	4	1,84%
Total	217	100,00%

The residential distribution (Table 38) of Belgian respondents reflects a diverse geographic spread. A significant portion (33.18%) live in city centers, suggesting high exposure to dense infrastructure and potentially greater familiarity with urban mobility innovations like CCAM. An additional 23.50% reside in cities but outside the center, while 16.13% live in the suburbs. Notably, a considerable share (27.19%) lives in villages—higher than in the Dutch sample—indicating stronger rural representation.

Table 38: Which of the following best describes where you live?

City center	72	33,18%
City, not in center	51	23,50%
Suburbs	35	16,13%
Village	59	27,19%
Total	217	100,00%

The Belgian sample displays (Table 39), a balanced distribution in terms of self-perceived technology adoption profiles. The largest group identifies as part of the “Early majority” (31.34%), closely followed by “Early adopters” and the “Late majority” (each at 26.73%). A notable 11.52% consider themselves “Innovators,” reflecting a more forward-leaning subset open to experimentation and early engagement with new technologies like CCAM. Only 3.69% identify as “Laggards,” indicating limited resistance to change within the sample. This distribution suggests a generally receptive population, with over two-thirds (69.59%) falling into early or early-majority categories. Such a profile is favorable for the uptake of emerging mobility innovations, provided implementation is paired with sufficient communication, safety assurances, and user experience design. The nearly equal presence of early and late adopters, however, also signals the need for tiered engagement strategies to cater to varying levels of technological comfort.

Table 39: How would you describe yourself in terms of adopting technologies and innovations? I consider myself:

Innovator	25	11,52%

Early adopter	58	26,73%
Early majority	68	31,34%
Late majority	58	26,73%
Laggard	8	3,69%
Total	217	100,00%

This residential breakdown (Table 40) from the Belgium reconfirms a notably diverse distribution across urban and rural settings. The largest segment (33.18%) lives in city centers, followed by a significant portion in villages (27.19%), a pattern that distinguishes this sample from more urban-heavy datasets like Belgium's. Additionally, 23.50% live in cities but not in the center, and 16.13% reside in suburbs. This balanced spatial spread enhances the representativeness of the dataset and provides an important foundation for analyzing how geographic context may influence perceptions of CCAM. Respondents in rural or village settings may prioritize access and service coverage, while those in city centers might be more focused on traffic efficiency, congestion reduction, or integration with existing public transport. The strong rural presence also strengthens the ability to assess inclusivity and equity in automated mobility planning.

Table 40: Which of the following best describes where you live?

City center	72	33,18%
City, not in center	51	23,50%
Suburbs	35	16,13%
Village	59	27,19%
Total	217	100,00%

6.2.2.2 Section 2: Your Travel Behavior Characteristics

The Belgian dataset (Table 41) shows that 82,49% of respondents possess a valid driving license, underscoring a high degree of individual mobility autonomy and familiarity with private car use. This strong prevalence suggests that most participants are likely to have firsthand experience with road transport and may be more inclined to compare CCAM technologies with conventional driving. The remaining 17,51% who do not have a license represent a meaningful minority that may depend on public transport, active modes, or shared mobility solutions—making them a key demographic for understanding how CCAM could enhance accessibility and reduce transport exclusion.

Table 41: Do you have a valid driving license?

Yes	179	82,49%
No	38	17,51%
Total	217	100,00%

The car ownership data (Table 42) for Belgium reveals a predominantly single-vehicle household structure. Over half of respondents (53.46%) report owning one car, and another 27.65% have two, reflecting a strong reliance on private vehicles for mobility. However, 11.98% of households do not own a car at all—highlighting a significant segment that may depend on public transport, cycling, walking, or potentially CCAM-based shared mobility solutions. Only a small minority report (6.91%) owns three or more vehicles, suggesting that multi-car households are uncommon. These patterns point to a mobility landscape where private vehicle ownership remains the norm, but with a clear opportunity to address the needs of car-free households. In the context of CCAM, this distribution supports the case for flexible, on-demand, or shared autonomous transport models that can complement existing transport behaviors and expand access for non-car-owning users, especially in dense urban or underserved peri-urban areas.

Table 42: How many private cars does your household own?

0	26	11,98%
1	116	53,46%
2	60	27,65%
3	11	5,07%
4	3	1,38%
5	1	0,46%
7	0	0,00%
9	0	0,00%
10	0	0,00%
Total	230	100,00%

This modal usage (Table 43) from the Belgian dataset provides detailed insight into the frequency of weekly trips made by transport mode. It reveals clear trends in how people engage with mobility options, offering valuable context for potential CCAM integration. Only 11.73% of respondents report not using a car to drive alone during the week, and the most common usage frequencies cluster between 1–5 trips, suggesting that many rely on cars for essential activities like commuting or errands. The proportion driving with passengers is lower—37.43% report zero trips in this mode—indicating that carpooling is far less prevalent. Over half of the respondents (55.76% for bus/tram and 71.89% for train/underground) reported zero weekly trips by these modes. This reflects limited use of collective transport options, potentially due to availability, scheduling, or perceived convenience gaps when compared to private vehicles. While 23.50% do not walk at all for transport in a typical week, walking maintains steady use among others.g., 11.52% report walking seven times a week. Cycling and e-scooter use is more polarized: 65.90% report no weekly use, but a small segment engages regularly, likely reflecting geographic and cultural patterns in urban mobility or active travel infrastructure. These modes are rarely used; 87.10% and 86.64% of respondents, respectively, report zero weekly trips. This suggests limited relevance of these modes in everyday travel patterns, though they may still serve specific needs for particular user segments.

Taken together, this data confirms a car-dependent travel culture, with modest integration of public transport and active mobility. In the CCAM context, this highlights both the challenge of modal shift and the opportunity to design autonomous mobility services that provide a compelling alternative to solo car use—particularly for those currently underusing shared or public modes. For car-free households and those without licenses, CCAM could fill mobility gaps where walking or public transport is insufficient.

Table 43: How many trips do you conduct with each of the below transport modes within a week? Consider the following example to calculate your trips: homework is one trip, home-work-home are two trips. Private car as driver (driving alone)

Count	Private car as driver (driving alone)		Private car as a driver (driving with other passenger		Private car as passenger		Bus or tram		Train or underground		Taxi or ride-sharing (such as Uber)		Walking		Cycling or e-scooter		Motorcycle	
0	21	11,73%	67	37,43%	121	55,76%	125	57,60%	156	71,89%	188	86,64%	51	23,50%	143	65,90%	189	87,10%
1	38	21,23%	26	14,53%	38	17,51%	32	14,75%	16	7,37%	17	7,83%	25	11,52%	22	10,14%	13	5,99%
2	19	10,61%	28	15,64%	18	8,29%	16	7,37%	17	7,83%	3	1,38%	18	8,29%	15	6,91%	4	1,84%
3	12	6,70%	14	7,82%	9	4,15%	7	3,23%	5	2,30%	3	1,38%	8	3,69%	8	3,69%	5	2,30%
4	15	8,38%	13	7,26%	10	4,61%	6	2,76%	5	2,30%	1	0,46%	12	5,53%	3	1,38%	1	0,46%
5	14	7,82%	9	5,03%	7	3,23%	10	4,61%	8	3,69%	1	0,46%	25	11,52%	6	2,76%	2	0,92%
6	10	5,59%	6	3,35%	3	1,38%	3	1,38%	3	1,38%	1	0,46%	11	5,07%	3	1,38%	0	0,00%
7	8	4,47%	2	1,12%	3	1,38%	3	1,38%	0	0,00%	0	0,00%	25	11,52%	5	2,30%	0	0,00%
8	3	1,68%	1	0,56%	1	0,46%	1	0,46%	0	0,00%	1	0,46%	4	1,84%	3	1,38%	0	0,00%
9	3	1,68%	0	0,00%	2	0,92%	2	0,92%	1	0,46%	1	0,46%	2	0,92%	1	0,46%	2	0,92%
10	14	7,82%	7	3,91%	3	1,38%	7	3,23%	5	2,30%	1	0,46%	17	7,83%	5	2,30%	1	0,46%
11	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
12	4	2,23%	3	1,68%	1	0,46%	1	0,46%	0	0,00%	0	0,00%	2	0,92%	1	0,46%	0	0,00%
14	5	2,79%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	8	3,69%	0	0,00%	0	0,00%
15	2	1,12%	0	0,00%	0	0,00%	2	0,92%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
16	2	1,12%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
17	1	0,56%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%

18	1	0,56%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,46%	0	0,00%	0	0,00%
20	4	2,23%	2	1,12%	0	0,00%	2	0,92%	0	0,00%	0	0,00%	6	2,76%	1	0,46%	0	0,00%
21	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
24	1	0,56%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
28	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
30	1	0,56%	1	0,56%	1	0,46%	0	0,00%	0	0,00%	0	0,00%	1	0,46%	1	0,46%	0	0,00%
35	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,46%	0	0,00%	1	0,46%	0	0,00%	0	0,00%
40	1	0,56%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Total	179	100,00%	179	100,00%	217	100,00%	217	100,00%	217	100,00%	217	100,00%	217	100,00%	217	100,00%	217	100,00%

The Belgian data on delivery frequency (Table 44) shows that digital and remote ordering has become a routine aspect of everyday life for many. Nearly half of respondents (47.00%) receive deliveries a few times per month, and an additional 11.52% do so multiple times per week. This regular engagement reflects a lifestyle that increasingly depends on e-commerce and home-based logistics. Only 8.76% never receive deliveries, while about a third (31.80%) do so only a few times per year, indicating a mix of high- and low-frequency users. This pattern suggests that automated delivery solutions—an important application area for CCAM—would be highly relevant to Belgian users. The data supports the notion that last-mile delivery automation could enhance efficiency, reduce traffic, and better meet rising demand, particularly in urban and suburban settings. Moreover, it reveals a tech-engaged population open to service automation—not just in passenger transport, but also in everyday logistical functions.

Table 44: How often do you receive deliveries for things you order online or by phone?

Never	19	8,76%
A few times per year (1-5 times per year)	69	31,80%
Few times per month (2-3 times per month)	102	47,00%
A few times per week (2-3 times per week)	25	11,52%
Almost every day (1 or more times a day)	2	0,92%
Total	217	100,00%

The household size distribution in the Norwegian dataset (Table 45) reveals a relatively even split between single-person (22.12%), two-person (27.19%), and three-person (22.12%) households. This suggests that a substantial portion of respondents live in small or medium-sized households, with four-person homes also well represented at 18.43%. Larger households, those with five or more members, are much less common, accounting for under 10% combined. This structure is indicative of a population where travel needs are likely to be individual or couple-based, rather than centered on large family logistics. In the context of CCAM, such a demographic is highly relevant for on-demand, small-capacity autonomous vehicles and solo/shared ride options, rather than high-capacity transit. The strong presence of single-person households also points to a segment that may especially value flexible, accessible mobility options, particularly in rural or suburban settings.

Table 45: Including yourself, how many people live in your household?

1	48	22,12%
2	59	27,19%
3	48	22,12%
4	40	18,43%
5	14	6,45%
6	7	3,23%
7	0	0,00%
8	1	0,46%
9	0	0,00%
10	0	0,00%
Total	230	100,00%

The employment profile in the Belgian dataset (Table 46) indicates a predominantly economically active population, with over half of respondents (53.92%) working full-time and another 11.98% working part-time. This suggests that commuting needs and structured travel routines are central to the mobility patterns of the majority—factors that make respondents particularly relevant for assessing interest in CCAM solutions such as autonomous commuting or shared work shuttles. Retired individuals make up 16.59% of the sample, highlighting an important group whose mobility needs may focus more on accessibility, comfort, and flexibility. Students represent 7.37%, while 8.29% are currently not working and 1.84% identify as homemakers—indicating the presence of segments with potentially more irregular or localized mobility needs.

Table 46: How do you describe your employment situation?

Currently not working	18	8,29%
Working part-time	26	11,98%
Working full-time	117	53,92%
Student	16	7,37%
Retired	36	16,59%
Homemaker	4	1,84%
Total	217	100,00%

6.2.2.3 Section 3: Self-driving vehicles and services for your personal mobility

Public awareness of self-driving vehicles (Table 47) in Belgium is moderate but far from widespread. Just over 42% of Belgian respondents say they've heard of autonomous vehicles but "do not know much" about them—indicating a general familiarity with the concept but a lack of detailed understanding or active engagement. Another 15% are entirely unaware of self-driving vehicles, meaning nearly 60% of the population is either unfamiliar or only vaguely acquainted with technology. Only a third (31%) describe themselves as "aware," and just 11% claim to be "well aware." This limited depth of awareness shapes how Belgians respond to more complex questions about CCAM's impact. With such a knowledge gap, it's likely that opinions—whether optimistic or skeptical—are formed more through media narratives or general impressions than lived experience or close study. As a result, Belgian attitudes may lean conservative not out of resistance, but simply due to the absence of concrete, relatable exposure to the technology.

Table 47: How well aware are you about self-driving vehicles?

I am not aware of self-driving vehicles	33	15,21%
I have only heard about self-driving vehicles, but I do not know much	92	42,40%
I am aware of self-driving vehicles	68	31,34%
I am well aware of self-driving vehicles	24	11,06%
Total	217	100,00%

When asked about their willingness to use self-driving taxis for work-related trips (Table 48), Belgians expressed broad skepticism, with a significant majority leaning against the idea. More than half of the respondents (57.2%) reported that they would be either "highly unlikely" or "somewhat unlikely" to adopt such a service, even if the cost and travel time were identical to today's conventional taxi options. Only 18.9% expressed any likelihood of using self-driving taxis for commuting purposes, with a mere 3.7% being "highly likely" to do so. A notable 24% sat in the neutral category, which could indicate either indecision or a wait-and-see attitude—particularly relevant in light of the earlier finding that only 11% of Belgians consider themselves well-informed on self-driving technology. This reluctance points to a prevailing trust deficit—not necessarily a rejection of the technology itself, but a hesitation to adopt it in high-stakes, time-sensitive scenarios like the daily commute. It reflects both a cultural conservatism around work routines and a broader lack of experiential familiarity with CCAM services. Automation, in this case, is not rejected outright, but it has yet to prove itself reliable, safe, and intuitive enough to replace a human driver in a context where reliability is paramount.

Table 48: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is that you will be using a self-driving taxi: for your work trips?

Highly unlikely	80	36,87%
Somewhat unlikely	44	20,28%
Neutral	52	23,96%
Somewhat likely	33	15,21%
Highly likely	8	3,69%
Total	217	100,00%

When it comes to non-work-related trips (Table 49), Belgians show a similar pattern of skepticism regarding self-driving taxis, though slightly more openness is evident compared to work trips. Again, over 60% of respondents are either "highly unlikely" or "somewhat unlikely" to use a self-driving taxi, highlighting the trust gap and familiarity issues that continue to affect adoption. Specifically, 40% of Belgians are highly unlikely to adopt self-driving taxis for non-work trips, and another 20% are somewhat unlikely. Neutral respondents comprise around 16%, indicating some uncertainty or indecision. However, 23.9% expressed some willingness, with 3.9% highly likely to use these taxis for non-work trips. This more nuanced response suggests that while Belgians are hesitant to integrate self-driving taxis into their daily routines—especially for high-stakes work commutes—there is a slight openness to experimenting with these services for leisure, shopping, or social activities. Nonetheless, the lack of deep familiarity with self-driving technologies, combined with the preference for human-driven, reliable services, is still a dominant factor influencing decision-making. The data from both work and non-work-related trips indicate that self-driving taxis will likely require significant public education, trial experiences, and demonstrable safety and reliability before they gain widespread acceptance in Belgium.

Table 49: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is it that you will be using a self-driving taxi: for your non-work trips?

Highly unlikely	66	40,00%
Somewhat unlikely	39	20,00%
Neutral	52	16,09%
Somewhat likely	42	20,00%
Highly likely	18	3,91%
Total	217	100,00%

Residential stability remains the dominant outlook among Belgian respondents even in the face of emerging self-driving taxi services. When asked whether equal-cost, equal-speed autonomous taxis would alter where they choose to live (Table 50), nearly 59% indicated no change, reinforcing a familiar theme: Belgians, like their Dutch neighbors, are largely anchored in their current living arrangements, supported by relatively short travel distances, well-distributed services, and an existing multi-modal transport system. Among those who would consider relocating, preferences are dispersed but modest in scale. Approximately 14% would move to the suburbs, and 12% would consider relocating to a rural area—suggesting a mild interest in decentralization, likely enabled by the perceived convenience and flexibility that door-to-door automated transport might offer. Interestingly, another 12% would relocate closer to the city center, and about 5% directly into the center, pointing to an opposing, urbanizing tendency among some segments of the population.

Table 50: Assuming that the cost and travel time of self-driving taxis are the same as of today's taxis, how do you expect the below to be affected? - Your current residential location

Relocation to a rural area	25	11,52%
Relocating to city's suburbs	30	13,82%
No change	127	58,53%
Relocate closer to the city center	25	11,52%
Relocate to the city center	10	4,61%
Total	217	100,00%

When asked about the likelihood of purchasing or leasing a private self-driving car—especially with the caveat that a driving license would not be required—Belgians showed a split but slightly cautious stance (Table 51). Just under 44% of respondents leaned toward adoption, with 22.1% somewhat likely and 7.4% highly likely to consider the option, while 26.7% remained neutral, possibly indicating uncertainty or conditional interest based on cost, safety, or availability. Still, over 43% expressed disinterest, with 26.3% highly unlikely and 17.5% somewhat unlikely to buy or lease a self-driving car. This pattern suggests a population torn between curiosity and reservation—not fully dismissing the idea of private ownership, but also not yet convinced that it meets their needs, values, or expectations. The neutral block, paired with the moderate lean toward adoption, reinforces the notion that for many Belgians, decisions around automation remain tentative and contingent. Their answers suggest that while legal ease (e.g., no license required) might remove a technical barrier, it doesn't resolve deeper concerns about reliability, cost, trust, or social acceptance.

Table 51: How likely is it to buy/lease a private self-driving car? There is no need to have a driving license to purchase one.

Highly unlikely	57	26,27%
Somewhat unlikely	38	17,51%
Neutral	58	26,73%
Somewhat likely	48	22,12%
Highly likely	16	7,37%
Total	217	100,00%

Belgian respondents appear reluctant to embrace self-driving private cars for work trips (Table 52), even when framed with cost and time parity to conventional electric cars. Just over 48% of participants expressed unlikeliness to use an autonomous car for commuting, with more than a third (34.6%) falling in the "highly unlikely" category. This suggests that automation does not automatically translate into appeal, particularly for every day, routine mobility contexts where trust, control, and familiarity are paramount. Meanwhile, only 23.5% expressed a likelihood of using driving private cars for work trips, and nearly 28% remained neutral—likely reflecting a blend of uncertainty, conditional openness, or ambivalence tied to limited real-world exposure.

Table 52: Given that the cost and travel time are the same as using a conventional electric car, how likely is it that you will be using a driving private car: for your work trips?

Highly unlikely	75	34,56%
Somewhat unlikely	30	13,82%
Neutral	61	28,11%
Somewhat likely	34	15,67%

Highly likely	17	7,83%
Total	217	100,00%

For non-work trips (Table 53), Belgian respondents remain wary but slightly more receptive to the idea of using a self-driving private car. Around 45% still express unlikeliness, though the intensity is lower than for work trips: 30% are highly unlikely and 15% somewhat unlikely. On the other end of the spectrum, about 26% are likely to adopt automated private vehicles for non-commute purposes, with 9% indicating strong interest. A significant portion—nearly 29%—remain neutral, suggesting that many Belgians are still undecided or see such usage as situational. This reflects a recurring pattern in the Belgian data: willingness to experiment with automation seems to increase when the stakes are lower, such as during leisure, errands, or social travel, rather than tightly scheduled or high-responsibility journeys like commuting. This differentiated view between work and non-work travel suggests that Belgians are not categorically opposed to self-driving cars, but their confidence is highly context-dependent—with trust, convenience, and habitual familiarity all shaping usage intentions.

Table 53: Given that the cost and travel time are the same as of using a conventional electric car, how likely is it that you will be using a self-driving private car: for your non-work trips?

Highly unlikely	65	29,95%
Somewhat unlikely	33	15,21%
Neutral	62	28,57%
Somewhat likely	37	17,05%
Highly likely	20	9,22%
Total	217	100,00%

This additional data point reinforces the earlier pattern of residential stability among Belgian respondents in response to CCAM—specifically, to the hypothetical availability of self-driving private cars (Table 54). A clear 64.5% indicates no intention to move, even if automated vehicles matched current cars in cost and travel time. For those who would consider relocating, the distribution is again spread across both urban and peri-urban preferences. Around 12.4% would move to the suburbs, and 10.1% to rural areas, while roughly 13% would shift closer to or into the city center. These figures suggest that CCAM's impact on residential choice is more about enabling personal preferences—whether toward quiet, space, and greenery, or toward proximity and convenience—rather than creating a new trend in one direction. With this, the spatial element of the Belgian CCAM narrative is further confirmed: automation is not a disruptive force in residential decision-making, but rather a subtle support mechanism for already-existing preferences, and only for a minority of the population.

Table 54: Assuming that the cost and travel time of self-driving private cars are the same as today's cars, how do you expect the below to be affected? Your current residential location

Relocation to a rural area	22	10,14%
Relocating to city's suburbs	27	12,44%
No change	140	64,52%
Relocate closer to the city center	20	9,22%
Relocate to the city center	8	3,69%
Total	217	100,00%

Belgian respondents show a tempered openness to self-driving public buses (Table 55), with views reflecting a blend of caution, curiosity, and hesitation. For work trips, a combined 46.5% are unlikely to use self-driving buses (32% highly unlikely, 15% somewhat unlikely), indicating a significant level of resistance when automation enters the domain of routine, time-sensitive mobility. That said, nearly 27% remain neutral, and another 27% express likelihood, suggesting that opinions are not rigidly polarized, but rather divided between skepticism and conditional openness. When the focus shifts to non-work travel, the reluctance softens. The highly unlikely share drops slightly (29%), and the "somewhat likely" group grows to 24%, the highest among all response categories for that scenario. Importantly, the neutral segment increases to nearly 30%, underscoring how many Belgians are undecided and possibly waiting for reassurance or lived examples.

Table 55: Self-driving public buses are now available in your city. Given that the cost and travel time are the same as of using a today's conventional public bus, how likely is that you will be using a self-driving public bus.

	For your work trips?		For your non-work trips?	
Highly unlikely	69	31,80%	63	29,03%
Somewhat unlikely	32	14,75%	25	11,52%
Neutral	58	26,73%	64	29,49%
Somewhat likely	39	17,97%	52	23,96%
Highly likely	19	8,76%	13	5,99%
Total	217	100,00%	217	100,00%

The availability of self-driving public buses, even under equal cost and travel time conditions, is not expected to radically alter residential decisions for most Belgians (Table 56). A clear majority—nearly 69%—report that they would not relocate, reinforcing the consistent finding that CCAM alone does not serve as a catalyst for broad spatial shifts in this context. This mirrors similar findings for private autonomous cars and taxis, indicating that mobility automation is not, in itself, a strong enough incentive to reconfigure home location choices. Among the minority open to relocation, preferences are again mixed. Roughly 13% would consider moving closer to the city center, suggesting that some view autonomous public buses as an enabling of more urban lifestyles, where enhanced public transport access and reduced dependence on car ownership may be attractive. Smaller shares would consider relocating outward—to rural areas (7.8%) or suburbs (7.4%)—which may reflect a desire for space paired with confidence that CCAM could maintain or improve commute quality.

Table 56: Assuming that the cost and travel time of self-driving public buses are the same as of today's public buses, how do you expect the below to be affected? - Your current residential location

Relocation to a rural area	17	7,83%
Relocating to city's suburbs	16	7,37%
No change	149	68,66%
Relocate closer to the city center	28	12,90%
Relocate to the city center	7	3,23%
Total	217	100,00%

The motivations behind potential residential relocation in Belgium—when framed within the context of automated transport availability (Table 57), are grounded less in novelty and more in practical lifestyle improvements. Among those who would consider moving, the top reasons reflect a desire for ease, comfort, and spatial quality, rather than a dramatic reimagining of life made possible by automation. The most frequently cited reason was that it would be easier to travel in the new area (16.7%), suggesting that respondents envision CCAM as something that enhances day-to-day navigability rather than transforms commuting alone. This is closely followed by interest in being productive while travelling (15.8%) and the ability to travel further (15%), both of which point to expectations that CCAM can reframe travel time as useful or less burdensome. Desire for more space (13.3%) and the opportunity to relax during trips (11.7%) reflect a lifestyle orientation towards relocation. Softer quality-of-life indicators—like improved footpaths (9.2%), cycleways (11.7%), or a sense that the area is nicer to live in (6.7%)—round out the list, underscoring that residential decisions remain multidimensional. Automation is seen as a supportive element, not a primary cause.

Table 57: Can you please describe why you might change where you live?

would like more space	16	13,33%
can relax during travel time	14	11,67%
easier to travel further	18	15,00%
can be productive while travel	19	15,83%
easier to travel in the new area	20	16,67%
more footpaths	11	9,17%
more cycleways	14	11,67%
nicer to live in the new area	8	6,67%
Total	120	100,00%

Belgian attitudes toward private delivery or pick-up robots are mixed (Table 58) but leaning skeptical, with just under half of respondents expressing disinterest. A full 31.3% say they are highly unlikely to use such services, and another 10.1% are somewhat unlikely, reflecting a combination of trust concerns, lack of familiarity, or perceived misalignment with personal habits. At the same time, about a third of respondents show openness, with 21.7% somewhat likely and 12% highly likely to adopt delivery robots—suggesting that, for some, the potential convenience or novelty of automation in everyday logistics holds appeal. A notable 25% remains neutral, indicating a sizeable contingent that could be swayed either way depending on performance, user experience, or cultural uptake.

Table 58: How likely is that you will be using a private delivery/pick-up robot for your deliveries?

Highly unlikely	68	31,34%
Somewhat unlikely	22	10,14%
Neutral	54	24,88%
Somewhat likely	47	21,66%
Highly likely	26	11,98%
Total	217	100,00%

This Table (Table 59) offers a layered look at how Belgians expect automated delivery robots to affect their lives—particularly in terms of residence, costs, and consumption. Once again, residential location shows little movement: 61.3% say they would not relocate in response to robot-based delivery, reaffirming a strong overall pattern of spatial stability. A small portion would consider shifting to the suburbs (11.3%) or closer to the city center (10.4%), suggesting some people associate delivery automation with enhanced service density or accessibility in more urbanized settings. More revealing are expectations about economic and behavioral impacts. Over 52% of respondents believe their delivery costs would decrease, and an even larger 58.3% anticipate an increase in their number of online orders. This signals a clear public belief in the efficiency and consumer-convenience potential of automated delivery—even among those who are personally hesitant to adopt it right away. Together, these responses suggest that while individual uptake of delivery robots may be slow, Belgians expect the wider e-commerce and logistics system to evolve around automation—becoming cheaper, more efficient, and possibly more central to daily consumption. It's a dynamic where personal conservatism coexists with broader behavioral expectation.

Table 59: Assuming that the cost and time of private delivery/pick-up robots are the same as of today's conventional delivery service, how do you expect the below to be affected?

	Your current residential location		your current delivery costs		your current number of monthly online orders	
Relocated to a more rural area	14	6,09%	6	2,61%	2	0,87%
Relocated to city's suburbs	26	11,30%	45	19,57%	27	11,74%
No change	141	61,30%	21	9,13%	23	10,00%
Relocated closer to the city center	24	10,43%	121	52,61%	134	58,26%
Relocated to the city center	12	5,22%	24	10,43%	31	13,48%
Total	217	94,35%	217	94,35%	217	94,35%

The reasons Belgians might relocate in response to the availability of automated delivery robots (Table 60) reinforce a now-familiar theme: automation is not a primary driver of residential change, but it may support or enhance individual decisions made for other reasons. Among those who would consider relocating, motivations again center on lifestyle enhancements and mobility convenience. The most cited reason is the ability to be productive while travelling (14.2%), which ties into the broader narrative of CCAM transforming the experience of time-in-motion. Similarly, "easier to travel in the new area" (11.7%) and "would like more space" (10.8%) point to quality-of-life considerations, not technology for its own sake. Interestingly, classic active mobility features like footpaths and cycleways score low (2.5% and 1.7% respectively), possibly because delivery automation is not seen as closely tied to walkability or public realm improvements. This contrasts with how some respondents viewed CCAM public transport, which carried stronger associations with holistic urban enhancements.

Table 60: Can you please describe why you might change where you live?

would like more space	13	10,83%
can relax during travel time	7	5,83%
easier to travel further	10	8,33%
can be productive while travel	17	14,17%
easier to travel in the new area	14	11,67%
more footpaths	3	2,50%
more cycleways	2	1,67%
nicer to live in the new area	10	8,33%
Total	76	63,33%

Belgian expectations for the rollout of self-driving technologies reflect a public that is realistic, temporally cautious, and not overly speculative (Table 61). Across all categories—taxis, private cars, public buses, shuttles, and delivery robots—2035 and 2040 emerge as the most expected windows for initial deployment. This shows that Belgians do not perceive automation as imminent, but they do expect it to arrive within their working lifetimes. For most services, around 25–29% of respondents anticipate deployment by 2035, and similar numbers point to 2040. This places Belgium's outlook slightly more conservative than some neighboring countries, signalling a tempered belief in the pace of technological adoption, likely grounded in experience with regulatory complexity, urban infrastructure, and public service implementation. Interestingly, delivery robots are seen as the most likely near-term service, with nearly 18% expecting them by 2030, and over half by 2035. This aligns with earlier findings where even skeptical individuals acknowledged the broader systemic shifts that delivery automation might enable. A persistent minority—between 12–17% depending on the service—believe these technologies will never be implemented in their city. This skepticism is strongest for on-demand shuttles, suggesting that Belgians see shared, flexible automation as more complex to deliver—perhaps due to operational or cultural challenges around shared mobility.

Table 61: By when do you think that the below self-driving services or vehicles will start being implemented in your city?

	Self-driving taxi		Self-driving private cars		Self-driving public bus		Self-driving on-demand shuttle bus		Self-driving private delivery - pick-up robot	
2030	31	14,29%	32	14,75%	33	15,21%	28	12,90%	39	17,97%
2035	59	27,19%	58	26,73%	55	25,35%	51	23,50%	56	25,81%
2040	62	28,57%	50	23,04%	55	25,35%	52	23,96%	53	24,42%
2045	21	9,68%	29	13,36%	25	11,52%	29	13,36%	19	8,76%
2050	16	7,37%	19	8,76%	21	9,68%	20	9,22%	23	10,60%
Never	28	12,90%	29	13,36%	28	12,90%	37	17,05%	27	12,44%
Total	217	100,00 %	217	100,00 %	217	100,00 %	217	100,00 %	217	100,00 %

6.2.2.4 Section 4: Your attitudes regarding the impact self-driving vehicles will have in general

The Table 62 confirms that Belgians expect self-driving vehicles to bring broad efficiency improvements, especially in terms of travel cost, convenience, and logistics. These expectations coexist with personal hesitation—reinforcing the recurring narrative that while individuals may not rush to adopt CCAM, they believe the system will evolve around it. A strong majority anticipate that citizens' travel costs (58.1%) and delivery costs (52.5%) will decrease with automation, which suggests public belief in the economic benefits of autonomous operations—likely linked to lower labor costs, fuel efficiency, and reduced idling times. Similarly, 55.3% foresee improved travel times, further supporting the view that automation may smooth network flows, reduce congestion, or better utilize time in transit. Belgians also expect that people will travel more frequently, with nearly 73% believing the number of trips per person will rise, including 15% who see a significant increase. This hints at a belief that CCAM could enable new kinds of journeys—shorter, more spontaneous, or enabled by new demographics such as those without a license. The number of vehicles on the road is also expected to grow by most respondents (66% predict an increase), which signals an important ambivalence: while automation is viewed as a force for efficiency, its effect on overall traffic levels is expected to be expansive, not contractive. This duality reflects a concern that convenience may increase demand, rather than reduce strain.

Table 62: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Citizens' number of trips		Number of vehicles on the network		Citizens travel time		Travel costs for citizens' trips		Delivery costs	
-2 = Reduced significantly (50% reduction or more)	6	2,76%	13	5,99%	4	1,84%	3	1,38%	6	2,76%
-1 =Reduced (up to 50% reduction)	45	20,74%	52	23,96%	62	28,57%	50	23,04%	58	26,73%
0=No change	9	4,15%	8	3,69%	8	3,69%	8	3,69%	12	5,53%
1=Increase or Improve (up to 50% increase)	125	57,60%	109	50,23%	120	55,30%	126	58,06%	114	52,53%
2= Increase or Improve significantly (50% increase or more)	32	14,75%	35	16,13%	23	10,60%	30	13,82%	27	12,44%
Total	217	100,00%	217	100,00%	217	100,00%	217	100,00%	217	100,00%

The Table 63 shows that Belgians expect self-driving vehicles to deliver net-positive macroeconomic and environmental outcomes, though they remain attentive to the labor market disruptions these technologies could produce. A majority of respondents, 60% or more—anticipate economic growth and increased investment, with 62% expecting modest growth and another 13% projecting significant gains. Similarly, 74% expect more investment, suggesting strong belief in CCAM as a catalyst for innovation, infrastructure renewal, or industrial development. These are not naïve expectations, but rather reflect the assumption that automation, if well-implemented, can generate value on a scale. Respondents also see moderate-to-strong job creation potential: nearly 63% expect increased employment opportunities, and 49% believe these gains will be substantial. However, these views are tempered by a recognition of trade-offs. A full 67% anticipate job losses, and more than 21% believe those losses could be significant. This dual expectation—of job churn rather than simple loss—reinforces the Belgian narrative of conditional optimism: people expect CCAM to create new kinds of roles but also acknowledge that some workers and sectors will be displaced. On environmental performance, nearly 60% expect reductions in transport emissions, though fewer anticipate deep reductions. This suggests that Belgians associate automation with incremental efficiency—less idling, smoother driving patterns, and potentially greener fleets—but not necessarily a revolution in emissions without broader systemic shifts.

Table 63: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Transport sector's emissions		Economic growth		Investments		Employment opportunities		Job losses	
-2 = Reduced significantly (50% reduction or more)	16	7,37%	7	3,23%	12	5,53%	28	12,90%	20	9,22%
-1 =Reduced (up to 50% reduction)	64	29,49%	39	17,97%	41	18,89%	48	22,12%	46	21,20%
0=No change	7	3,23%	9	4,15%	4	1,84%	5	2,30%	5	2,30%
1=Increase or Improve (up to 50% increase)	98	45,16%	134	61,75%	128	58,99%	106	48,85%	100	46,08%
2= Increase or Improve significantly (50% increase or more)	32	14,75%	28	12,90%	32	14,75%	30	13,82%	46	21,20%
Total	217	100,00%	217	100,00%	217	100,00%	217	100,00%	217	100,00%

The Table 64 reinforces the pragmatic optimism that characterizes Belgian views on CCAM—particularly around its potential to improve accessibility and reshape labor markets. Over 70% of respondents expect that self-driving technologies will require new skills, with more than 17% anticipating a significant upskilling demand. This aligns with earlier recognition of both job creation and displacement. The data on accessibility is especially telling. A full 78.8% believe accessibility for the general population will improve, and nearly 73% expect better access for people with special mobility needs, confirming a widespread belief that automation could help dismantle longstanding barriers in public transport and car-based mobility. This belief extends to other often-excluded groups: over 69% expect improved accessibility for older adults, and a significant portion project those improvements to be substantial. The data suggests that Belgians view CCAM not just as a technical tool, but as a mechanism for social levelling—a way to extend safe, reliable mobility to those historically underserved by current systems. Still, small but notable minorities foresee reductions in accessibility (especially for people with disabilities and older adults), indicating caution around implementation pitfalls—such as poorly designed interfaces, digital exclusion, or infrastructure mismatch. These concerns mirror the broader Belgian stance: technology holds promise, but only if inclusively and competently delivered.

Table 64: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	New skills requirements		Accessibility of general population		Accessibility of people with special mobility needs		Accessibility of older people	
-2 = Reduced significantly (50% reduction or more)	8	3,69%	8	3,69%	10	4,61%	13	5,99%
-1 =Reduced (up to 50% reduction)	51	23,50%	32	14,75%	44	20,28%	46	21,20%
0=No change	6	2,76%	6	2,76%	5	2,30%	7	3,23%
1=Increase or Improve (up to 50% increase)	114	52,53%	141	64,98%	121	55,76%	112	51,61%
2= Increase or Improve significantly (50% increase or more)	38	17,51%	30	13,82%	37	17,05%	39	17,97%
Total	217	100,00%	217	100,00%	217	100,00%	217	100,00%

Table 65 adds an interesting social and safety dimension to the Belgian CCAM narrative, reinforcing the idea that Belgians value automation most where it enhances care, security, and inclusiveness. More than 71% believe CCAM will improve accessibility for families with children, a group that often faces specific logistical and safety burdens in daily travel. The implication is that automation could streamline errands, reduce the mental load of trip chaining, and provide safer or more convenient school commutes. It’s a clear signal that the public sees value in CCAM’s ability to support caregiving roles and family mobility needs. The same trust extends to safety. Over 56% expect a reduction in traffic accidents, with a third of respondents predicting substantial decreases. The optimism is even stronger regarding fatalities: more than 57% anticipate fewer road deaths, and 13% expect that decline to be significant. These figures likely reflect the public’s belief in automation's potential to remove human error—particularly impairment, distraction, and fatigue—from the driving equation. In terms of stress reduction, 56% expect travel to become less stressful, reinforcing the view that CCAM isn’t just a technical shift, but one that could soften the psychological burden of mobility. Taken together, these findings underline that CCAM’s value for Belgians lies not in novelty or speed, but in its ability to create safer, calmer, and more inclusive everyday experiences.

Table 65: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Accessibility of families with kids		Stress related to travelling		Number of traffic accidents		Number of fatalities	
-2 = Reduced significantly (50% reduction or more)	10	4,61%	18	8,29%	16	7,37%	14	6,45%
-1 =Reduced (up to 50% reduction)	43	19,82%	70	32,26%	72	33,18%	73	33,64%
0=No change	9	4,15%	8	3,69%	6	2,76%	6	2,76%
1=Increase or Improve (up to 50% increase)	122	56,22%	89	41,01%	92	42,40%	96	44,24%
2= Increase or Improve significantly (50% increase or more)	33	15,21%	32	14,75%	31	14,29%	28	12,90%
Total	217	100,00%	217	100,00%	217	100,00%	217	100,00%

6.2.3 Norway

6.2.3.1 Section 1: Participant Characteristics

The age distribution of the Norwegian sample (Table 66) reveals a pronounced concentration in younger to mid-career age groups. The largest share of respondents falls in the 25–34 category (30.54%), followed by the 35–44 group (26.60%). This suggests that the data reflects the views of individuals who are likely to be professionally active, digitally engaged, and at the forefront of adopting new mobility technologies. The presence of 18–24-year-olds (11.82%) offers some insight into younger adult perspectives, though still somewhat underrepresented compared to working-age groups. Representation declines notably among older age brackets, with only 9.85% aged 55–64 and just 4.93% aged 65 and above

Table 66: What is your age?

18-24	24	11,82%
25-34	62	30,54%
35-44	54	26,60%
45-54	33	16,26%
55-64	20	9,85%
65+	10	4,93%
Total	203	100%

The gender distribution in the Norwegian sample (Table 67) reflects a near balance, with men accounting for 52.22% and women comprising 47.29% of respondents. Notably, one respondent (0.49%) identified as “Other”.

Table 67: How would you describe your gender?

Woman	96	47,29%
Man	106	52,22%
Other	1	0,49%
Total	203	100%

The educational profile of the Norwegian (Table 68) respondents indicates a highly educated sample, with nearly two-thirds (62.07%) holding a university degree or higher—37.93% with a university degree and 24.14% with an advanced qualification such as a Master’s, MBA, or doctorate. Additionally, 31.03% of respondents completed secondary school or vocational training, ensuring representation from a broader skills base. A very small portion of the sample reported only primary education (4.43%) or no formal education (0.99%), and just 1.48% are still in full-time education. This distribution suggests that the sample leans toward individuals likely to be more familiar with or receptive to new technologies such as CCAM. However, the underrepresentation of lower-education groups means that certain perspectives—particularly those related to accessibility, affordability, or digital literacy barriers—may not be fully captured. It highlights the need for inclusive deployment strategies that consider the needs of those with varying educational backgrounds.

Table 68: What is the highest educational level that you have achieved to date?

No formal education	2	0,99%
Primary school	9	4,43%
Secondary school or vocational education	63	31,03%
University degree or equivalent professional qualification	77	37,93%
Higher university degree (e.g. Master's, MBA, doctorate)	49	24,14%
Still in full time education	3	1,48%
Total	203	100,00%

The residential distribution of Norwegian (Table 69) respondents shows a strong urban focus, with 35.96% living in a city but not in the center and 29.06% residing in city centers. Together, these urban segments make up nearly two-thirds of the sample, suggesting a population likely to be exposed to existing mobility infrastructure and digital transport services. However, the inclusion of respondents from suburbs (15.76%) and villages (19.21%) provides meaningful rural and semi-urban representation. This geographic diversity is particularly valuable in the Norwegian context, where regional differences in transport access and service delivery can be pronounced due to the country's dispersed settlement pattern. It allows for comparative insights into how perceptions of CCAM may vary depending on access to infrastructure, mobility needs, and levels of technological saturation in different types of communities.

Table 69: Which of the following best describes where you live?

City center	59	29,06%
City, not in center	73	35,96%
Suburbs	32	15,76%
Village	39	19,21%
Total	203	100,00%

The Norwegian sample demonstrates a strong predisposition toward early adoption of technologies (Table 70). The majority of respondents identify as either part of the "Early majority" (37.44%) or "Early adopters" (33.99%), suggesting a population generally receptive to innovation and likely open to engaging with CCAM services. A notable 10.84% even consider themselves "Innovators," reflecting a proactive stance in testing and integrating new technologies. By contrast, only 15.76% place themselves in the "Late majority," and a very small minority (1.97%) as "Laggards," indicating relatively low resistance to change. This adoption curve reflects Norway's broader reputation as a digitally progressive society and suggests favorable conditions for piloting and scaling CCAM initiatives. However, the presence of later adopters underscores the need for inclusive strategies that address hesitations, build trust, and ensure usability across different user readiness levels.

Table 70: How would you describe yourself in terms of adopting technologies and innovations? I consider myself:

Innovator	22	10,84%
Early adopter	69	33,99%
Early majority	76	37,44%

Late majority	32	15,76%
Laggard	4	1,97%
Total	203	100,00%

Table 71 confirms the residential distribution of respondents in the Norwegian sample, showing a clear urban predominance with 35.96% living in cities (not in the center) and 29.06% in city centers. At the same time, the inclusion of 15.76% from suburban areas and 19.21% from villages demonstrates that the survey succeeded in reaching respondents across a range of geographic contexts. This diverse spatial representation is particularly important in the Norwegian setting, where the contrast between urban hubs and remote regions is stark. Urban respondents are likely to be more exposed to mobility innovations and infrastructure, while village dwellers may face more practical barriers or different expectations around CCAM deployment. The data allows for valuable comparative analysis on how location influences perceptions of accessibility, usefulness, and equity in relation to automated mobility services.

Table 71: Which of the following best describes where you live?

City center	59	29,06%
City, not in center	73	35,96%
Suburbs	32	15,76%
Village	39	19,21%
Total	203	100,00%

6.2.3.2 Section 2: Your Travel Behavior Characteristics

In the Norwegian sample, 80.30% of respondents hold a valid driving license (Table 72), reflecting a high level of personal mobility access—particularly relevant in a country where geographical spread and limited public transport in rural areas often necessitate car use. The remaining 19.70% without a license form a substantial minority, likely comprising younger individuals, urban residents, or those facing access or cost barriers. This division highlights the dual role CCAM could play in Norway: both as a continuation of car-based autonomy for drivers and as a crucial enabler of independent mobility for non-drivers, especially in less connected regions. It also points to the importance of designing CCAM solutions that are inclusive of both licensed and non-licensed populations.

Table 72: Do you have a valid driving license?

Yes	163	80,30%
No	40	19,70%
Total	203	100,00%

The distribution of private car ownership (Table 73) in the Norwegian sample shows that nearly half of respondents (47.29%) live in single-car households, reflecting a typical reliance on individual vehicle use for everyday mobility. A significant proportion, 25.62%report owning two cars, likely representing multi-adult or geographically dispersed households where shared use is less practical. Notably, 19.70% of households have no car at all, indicating that one in five respondents may rely on public transport, active travel, or emerging mobility services like CCAM to meet their transport needs. While a few respondents report owning three or more vehicles, such cases are rare and do not shape the dominant pattern. The presence of non-car households is especially relevant in the Norwegian context, where access challenges in rural areas can be acute, and weather conditions can limit walkability or cycling. These households represent a key target group for CCAM deployment—particularly if services are designed to enhance access, reduce isolation, and complement limited transport infrastructure in lower-density areas.

Table 73: How many private cars does your household own?

0	40	19,70%
1	96	47,29%
2	52	25,62%
3	10	4,93%
4	0	0,00%
5	3	1,48%
7	1	0,49%
9	1	0,49%
10	0	0,00%
Total	203	100,00%

This transport mode frequency (Table 74) from the Norwegian dataset illustrates diverse but still car-oriented mobility patterns across the sample, providing useful insight for understanding how CCAM services might be integrated. Private car use dominates the modal landscape. While 13.50% of respondents report no solo driving trips during the week, most others use this mode regularly, with notable frequencies across 1–10 weekly trips. This aligns with the high driving license ownership and typical household car access. Driving with passengers, however, is less common—39.26% report zero such trips—suggesting that shared private vehicle use (e.g., carpooling) remains limited. Public transport use is moderate to low. More than half of respondents do not use the bus or tram (53.20%) or train/underground (66.01%) at all during a typical week. While there are some regular users (e.g., 10–20 weekly trips), the data suggests that public transport is not the dominant mode for most, possibly reflecting service availability or user preferences in more dispersed or rural regions of Norway. Walking shows steady use, with 20.69% reporting zero walking trips, but a substantial number engaging in this mode regularly—up to 11.82% walking five times weekly and others walking daily or more. This indicates that walkability remains a significant element of everyday travel, especially in towns or compact urban areas. Cycling or e-scooter use is limited, with 72.41% reporting zero use. However, a small but meaningful group uses these modes weekly, suggesting an opportunity for CCAM to complement active modes through integration (e.g., first/last mile solutions). Similarly, motorcycle use is rare, with nearly 90% reporting no use at all. Taxi and ridesharing are marginal, with over 80% not using these services weekly. Their infrequent use reinforces that on-demand mobility is not yet mainstream but could be expanded through trusted, accessible CCAM offerings. Altogether, the data reveals a hybrid modal environment dominated by private cars but with pockets of walking and limited multimodal engagement. For CCAM to succeed in Norway, it must meet the expectations of regular car users while also filling in the service gaps for those without access—particularly where public transport is underutilized or unavailable.

Table 74: How many trips do you conduct with each of the modes below within a week? Consider the following example to calculate your trips: homework is one trip, homework-home is two trips. Private car as driver (driving alone)

Count	Private car as driver (driving alone)		Private car as a driver (driving with another passenger)		Private car as passenger		Bus or tram		Train or underground		Taxi or ridesharing (such as Uber)		Walking		Cycling or e-scooter		Motorcycle	
0	22	13,50%	64	39,26%	116	57,14%	108	53,20%	134	66,01%	166	81,77%	42	20,69%	147	72,41%	182	89,66%
1	25	15,34%	20	12,27%	21	10,34%	21	10,34%	23	11,33%	17	8,37%	18	8,87%	11	5,42%	8	3,94%
2	19	11,66%	24	14,72%	23	11,33%	22	10,84%	12	5,91%	8	3,94%	19	9,36%	16	7,88%	6	2,96%
3	10	6,13%	10	6,13%	9	4,43%	5	2,46%	5	2,46%	3	1,48%	12	5,91%	4	1,97%	2	0,99%
4	7	4,29%	5	3,07%	7	3,45%	6	2,96%	7	3,45%	3	1,48%	10	4,93%	3	1,48%	0	0,00%
5	17	10,43%	14	8,59%	9	4,43%	10	4,93%	3	1,48%	3	1,48%	24	11,82%	10	4,93%	0	0,00%
6	4	2,45%	4	2,45%	4	1,97%	8	3,94%	5	2,46%	1	0,49%	7	3,45%	4	1,97%	2	0,99%
7	9	5,52%	1	0,61%	1	0,49%	7	3,45%	3	1,48%	1	0,49%	15	7,39%	1	0,49%	1	0,49%
8	3	1,84%	4	2,45%	2	0,99%	4	1,97%	0	0,00%	0	0,00%	8	3,94%	0	0,00%	0	0,00%
9	2	1,23%	0	0,00%	3	1,48%	0	0,00%	0	0,00%	1	0,49%	4	1,97%	2	0,99%	2	0,99%

10	16	9,82%	10	6,13%	5	2,46%	3	1,48%	6	2,96%	0	0,00%	23	11,33%	3	1,48%	0	0,00%
11	0	0,00%	0	0,00%	1	0,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,49%	0	0,00%
12	7	4,29%	2	1,23%	1	0,49%	2	0,99%	1	0,49%	0	0,00%	2	0,99%	1	0,49%	0	0,00%
14	7	4,29%	2	1,23%	0	0,00%	1	0,49%	1	0,49%	0	0,00%	4	1,97%	0	0,00%	0	0,00%
15	4	2,45%	1	0,61%	1	0,49%	4	1,97%	1	0,49%	0	0,00%	4	1,97%	0	0,00%	0	0,00%
16	2	1,23%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
17	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
18	2	1,23%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
20	6	3,68%	1	0,61%	0	0,00%	1	0,49%	0	0,00%	0	0,00%	8	3,94%	0	0,00%	0	0,00%
21	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
24	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
25	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,00%	0	0,00%	1	0,00%	0	0,00%	0	0,00%
28	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
30	0	0,00%	1	0,61%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	2	0,99%	0	0,00%	0	0,00%
35	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%

40	1	0,61%	0	0,00%	0	0,00%	1	0,49%	1	0,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Total	163	100,00%	163	100,00%	203	100,00%	203	100,00%	203	99,51%	203	100,00%	203	99,51%	203	100,00%	203	100,00%

The delivery frequency data (Table 75) from Norway suggests that while e-commerce is widely used, it is not yet embedded in daily life for most. A large portion of respondents (42.86%) receive deliveries a few times per year, and 40.89% receive them monthly indicating that the majority engage in online or phone-based purchasing somewhat regularly, but not intensively. Only a small group, 5.91%—receive deliveries weekly, and just 0.99% do so almost daily. This pattern implies a moderate but growing dependence on delivery services, reflective of evolving digital consumption habits. From a CCAM perspective, this opens up opportunities for automated delivery solutions targeted not only at frequent users but also at making e-commerce more accessible for rural or mobility-limited households. In particular, Norway's geographic spread and climate challenges make last-mile logistics an especially relevant domain for autonomous systems.

Table 75: How often do you receive deliveries for things you order online or by phone?

Never	19	9,36%
A few times per year (1-5 times per year)	87	42,86%
Few times per month (2-3 times per month)	83	40.89%
A few times per week (2-3 times per week)	12	5,91%
Almost every day (1 or more times a day)	2	0,99%
Total	203	100,00%

The delivery frequency data (Table 76) from Norway suggests that while e-commerce is widely used, it is not yet embedded in daily life for most. A large portion of respondents (42.86%) receive deliveries a few times per year, and 40.89% receive them monthly indicating that the majority engage in online or phone-based purchasing somewhat regularly, but not intensively but not intensively. Only a small group, 5.91%—receive deliveries weekly, and just 0.99% do so almost daily. This pattern implies a moderate but growing dependence on delivery services, reflective of evolving digital consumption habits. From a CCAM perspective, this opens up opportunities for automated delivery solutions targeted not only at frequent users but also at making e-commerce more accessible for rural or mobility- limited households. In particular, Norway's geographic spread and climate challenges make last-mile logistics an especially relevant domain for autonomous systems.

Table 76: How often do you receive deliveries for things you order online or by phone?

Never	19	9,36%
A few times per year (1-5 times per year)	87	42,86%
Few times per month (2-3 times per month)	83	40.89%
A few times per week (2-3 times per week)	12	5,91%
Almost every day (1 or more times a day)	2	0,99%
Total	203	100,00%

The household size distribution (Table 77) in the Norwegian dataset reflects a balanced mix of living arrangements. Two-person households are the most common (27.59%), followed closely by four-person (21.18%), single-person (20.20%), and three-person households (19.70%). Larger households, five or more members, are relatively rare, cumulatively making up just over 10% of the sample. From a CCAM perspective, this distribution supports the relevance of small-capacity, flexible transport solutions, such as autonomous pods or shared rides that cater to individual or dual-user travel. The prevalence of single-person households also underlines the need for accessible, inclusive services that do not rely on household car sharing or support networks. In parallel, the segment of four-person households highlights that CCAM planning must also consider occasional multi-occupant needs—especially for school runs or group commuting.

Table 77: Including yourself, how many people live in your household?

1	41	20,20%
2	56	27,59%
3	40	19,70%
4	43	21,18%
5	14	6,90%
6	4	1,97%
7	2	0,99%
8	1	0,49%
9	2	0,99%
10	0	0,00%
Total	203	100,00%

The employment distribution in the Norwegian sample indicates a majority of economically active individuals, with 51.23% working full-time and another 16.75% working part-time, as shown in Table 78. This group is likely to have structured, commute-based travel needs, making them a key target audience for CCAM applications that can improve the efficiency, reliability, and flexibility of daily transport—especially in suburban or peri-urban areas. Meanwhile, 12.81% are retired and 12.32% are not currently working, reflecting a significant minority who may have more flexible travel patterns and value accessibility, comfort, and affordability in mobility services. Students represent a smaller group (4.93%), and homemakers account for just under 2%. This diversity in employment status points to the need for multifunctional CCAM systems that cater not only to peak-hour commuters but also to users with irregular or localized mobility needs. Retirees, non-working individuals, and part-time workers—particularly in rural or semi-rural Norway—could benefit significantly from CCAM solutions that fill service gaps where conventional transport options may be limited.

Table 78: How do you describe your employment situation?

Currently not working	25	12,32%
Working Part-time	34	16,75%
Working full-time	104	51,23%
Student	10	4,93%
Retired	26	12,81%
Homemaker	4	1,97%
Total	203	100,00%

6.2.3.3 Section 3: Self-driving vehicles and services for your personal mobility

Table 79, presents that combined 55% of respondents have either no awareness or only superficial familiarity with self-driving vehicles, while just 13.8% consider themselves well aware. This awareness profile helps explain the general pattern of cautious adoption intentions and modest enthusiasm for automated services across both work and non-work mobility contexts. While over 30% indicate a baseline awareness, suggesting that public discourse around CCAM exists, the low number of highly informed respondents implies that many Norwegians are still forming their opinions and would likely benefit from further engagement, education, and direct exposure to self-driving systems. Their judgments, as seen throughout the data, seem shaped more by principle and inferred logic than by direct experience or in-depth knowledge.

Table 79: How well aware are you about self-driving vehicles?

I am not aware of self-driving vehicles	31	15,27%
I have only heard about self-driving vehicles, but I do not know much	81	39,90%
I am aware of self-driving vehicles	63	31,03%
I am well aware of self-driving vehicles	28	13,79%
Total	203	100,00%

Table 80 confirms the reluctant stance Norwegians take toward self-driving taxis for work-related trips, even under idealized conditions of cost and time parity. Just over 51% of respondents say they are unlikely to use such a service, with 33.5% strongly rejecting the idea. Meanwhile, only 25.6% show any degree of willingness, and nearly a quarter remain neutral—a significant portion who are not opposed but also not convinced. This pattern reinforces that, for Norwegians, routine and reliability outweigh novelty or convenience when it comes to commuting. The data suggests a public that needs more reassurance, visibility, and demonstrated safety before they transition core mobility behaviors—particularly those associated with daily obligations like work.

Table 80: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is that you will be using a self-driving taxi: for your work trips?

Highly unlikely	68	33,50%
Somewhat unlikely	36	17,73%
Neutral	47	23,15%
Somewhat likely	45	22,17%
Highly likely	7	3,45%
Total	203	100,00%

Table 81 shows that Norwegian reluctance toward self-driving taxis remains high even for non-work travel, where expectations of flexibility and lower risk might otherwise foster more openness. A combined 60% of respondents report being unlikely to use a self-driving taxi for non-work purposes, with 40% “highly unlikely”—a stronger aversion than seen in the work-trip scenario. The fact that attitudes are more negative here, despite the trip context being more discretionary, suggests a deep-rooted skepticism, likely tied to concerns over safety, trust, or user control, rather than just functional suitability. It also implies that Norwegians do not necessarily compartmentalize their mobility preferences based on purpose—rather, their views on automation seem broadly principled and consistent across contexts.

Table 81: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is it that you will be using a self-driving taxi: for your non-work trips?

Highly unlikely	55	40,00%
Somewhat unlikely	49	20,00%
Neutral	40	16,09%
Somewhat likely	46	20,00%
Highly likely	13	3,91%
Total	203	100,00%

Table 82 shows that full 60.1% of respondents say they would not relocate, reinforcing earlier patterns that CCAM is not currently perceived as a transformative force in housing or urban location decisions. Among those who would move, preferences are split relatively evenly: 13.3% would opt for the suburbs, while 13.8% would move closer to the city center, suggesting that CCAM is seen less as a motivator for changing lifestyles and more as a potential enabler of already-held preferences—whether those are oriented around space and quiet or access and density. Only a small share would consider relocating to rural areas (8.4%) or fully into the city center (4.4%). As with many other findings in the Norwegian dataset, the conclusion here is clear: self-driving services, in their imagined current form, do not yet disrupt the foundational logic by which Norwegians choose where to live. Let me know if you'd like this to be integrated into the narrative.

Table 82: Assuming that the cost and travel time of self-driving taxis are the same as of today's taxis, how do you expect the below to be affected? Your current residential location

Relocation to a rural area	17	8,37%
Relocating to city's suburbs	27	13,30%
No change	122	60,10%
Relocate closer to the city center	28	13,79%
Relocate to the city center	9	4,43%

Total	203	100,00%

Table 83 underscores Norway's broad hesitancy toward private ownership of self-driving cars, even under idealized conditions—no license required, and with presumed cost and travel time equivalence. Over 51% of respondents express an unwillingness to buy or lease a self-driving vehicle, with a striking 33% saying they are highly unlikely to do so. In contrast, only 27.6% express any likelihood of ownership, with just a small fraction (4.4%) in the "highly likely" category. The strong lean toward non-adoption confirms the narrative that Norwegians are not motivated by novelty or technical convenience when it comes to personal transport. Rather, they appear to be holding out for more concrete assurances—likely around safety, legal frameworks, or cultural normalization—before entertaining the idea of ownership. Even the potential appeal of a license-free option, which might benefit non-drivers or older populations, doesn't appear to significantly shift the curve.

Table 83: How likely is it to buy/lease a private self-driving car? There is no need to have a driving license to purchase one.

Highly unlikely	67	33,00%
Somewhat unlikely	37	18,23%
Neutral	43	21,18%
Somewhat likely	47	23,15%
Highly likely	9	4,43%
Total	203	100,00%

Table 84 shows that a full 53.7% of respondents say they are unlikely to use a self-driving private car for work trips, even when cost and travel time match those of conventional electric vehicles. The "highly unlikely" group alone accounts for nearly 38%—a particularly resolute share. At the same time, roughly a quarter of respondents are neutral, and a modest 21% express some level of likelihood to use autonomous private cars for work. This reinforces the impression that Norwegians are not ideologically opposed to automation, but that its integration into daily life remains contingent on trust, reliability, and perhaps first-hand experience.

Table 84: Given that the cost and travel time are the same as using a conventional electric car, how likely is it that you will be using a private driving car: for your work trips?

Highly unlikely	76	37,44%
Somewhat unlikely	33	16,26%
Neutral	51	25,12%
Somewhat likely	32	15,76%
Highly likely	11	5,42%
Total	203	100,00%

Table 85 shows that Norwegians are marginally more open to using self-driving private cars for non-work trips. While 45.3% still express unlikeliness (compared to 53.7% for work trips), the share of those who are "somewhat likely" or "highly likely" rises to 29.6%, and neutrality remains stable at 25.1%. This reinforces the interpretation that trip purpose matters—not because Norwegians see automation as inherently more trustworthy in leisure contexts, but because non-work trips carry lower perceived risk, more flexibility, and perhaps more curiosity about experimentation.

Table 85: Given that the cost and travel time are the same as of using a conventional electric car, how likely is it that you will be using a self-driving private car: for your non-work trips?

Highly unlikely	64	31,53%
Somewhat unlikely	28	13,79%
Neutral	51	25,12%
Somewhat likely	44	21,67%
Highly likely	16	7,88%
Total	203	100,00%

Table 86 shows that nearly 65% of respondents indicated they would not move, even with the availability of autonomous personal cars. Among those who would move, preferences are balanced between rural (10.8%) and suburban areas (11.3%), indicating some potential for autonomous vehicles to support mild decentralization—possibly in pursuit of space, quiet, or affordability. However, interest in relocating closer to or into the city remains limited (13.3% combined), implying that CCAM is not broadly seen as enhancing the appeal of denser, car-lite urban living.

Table 86: Assuming that the cost and travel time of private cars are the same as today's cars, how do you expect the below to be affected? Your current residential location

Relocation to a rural area	22	10,84%
Relocating to city's suburbs	23	11,33%
No change	131	64,53%
Relocate closer to the city center	17	8,37%
Relocate to the city center	10	4,93%
Total	203	100,00%

This breakdown of relocation motivations gives depth to the earlier finding that most Norwegians (Table 87) wouldn't move due to CCAM—but that those who would are driven by practical, tangible lifestyle enhancements, not technological novelty. The top motivation was a desire for more space (21%), which aligns with the mild suburban and rural pull seen in previous tables. Crucially, the next most common reasons—relaxing during travel (18%), being productive en route (14%), and general improvements in livability (13%)—all point to CCAM as an enabler, not a driver. People are open to moving if it helps them achieve goals, they already value, such as quality of life, stress reduction, or work–life balance. The lower scores for infrastructure features like cycleways (4.3%) and footpaths (10.1%) suggest these remain important but secondary in the presence of major mobility shifts.

Table 87: Can you please describe why you might change where you live?

would like more space	29	21,01%
can relax during travel time	25	18,12%
easier to travel further	15	10,87%
can be productive while travel	19	13,77%
easier to travel in the new area	12	8,70%
more footpaths	14	10,14%
more cycleways	6	4,35%

nicer to live in the new area	18	13,04%
Total	138	100,00%

Table 88 illustrates that Norwegians are marginally more open to self-driving public buses than to private autonomous vehicles or taxis. For work trips, just under 30% of respondents say they are highly unlikely to use a driverless bus, and a further 17.7% are somewhat unlikely—placing overall reluctance at 48%. However, 30% express likelihood to use it, and 22% remain neutral—a notably more balanced split than for private or taxi-based automation. The pattern is even more moderate for non-work travel. Here, only 42.4% express unlikeliness, while nearly 33% are likely, and another 25% remain neutral. This reflects a clearer willingness to experiment with automation in low-risk, leisure-based, or discretionary transport scenarios, especially in a collective context like public transit.

Table 88: Self-driving public buses are now available in your city. Given that the cost and travel time are the same as using today's conventional public bus, how likely it is that you will be using a self-driving public bus:

	Or your work trips?		for your non-work trips?	
Highly unlikely	61	30,05%	53	26,11%
Somewhat unlikely	36	17,73%	33	16,26%
Neutral	45	22,17%	51	25,12%
Somewhat likely	42	20,69%	49	24,14%
Highly likely	19	9,36%	17	8,37%
Total	203	100,00%	203	100,00%

Table 89 affirms that self-driving public buses are not perceived as transformative enough to alter residential location choices for most Norwegians. A substantial 62.1% report no intention to move, which is consistent with earlier findings for both private autonomous vehicles and self-driving taxis. Where relocation is considered, the city's suburbs stand out (13.3%) as the most attractive option, while interest in rural areas (6.9%) and the city center (4.9%) remains low. Interestingly, 12.8% would consider moving closer to the center, possibly reflecting a belief that self-driving public transit might enhance connectivity or reduce last-mile stress in more urbanized settings. Taken together, this supports the conclusion that CCAM technologies, even in accessible public formats, are viewed as refinements rather than lifestyle triggers. They may reinforce existing preferences—like moving somewhere already desirable—but they do not appear to catalyze radical geographic shifts.

Table 89: Assuming that the cost and travel time of self-driving public buses are the same as of today's public buses, how do you expect the below to be affected? - Your current residential location

Relocation to a rural area	14	6,90%
Relocating to city's suburbs	27	13,30%
No change	126	62,07%
Relocate closer to the city center	26	12,81%
Relocate to the city center	10	4,93%
Total	203	100,00%

Table 90, linked to self-driving public buses, mirrors earlier findings in Norway: decisions to move are grounded in lifestyle improvement rather than excitement about automation itself. The most cited reason is the desire for more space (19.3%), followed closely by the ability to relax during travel (15.2%) and better area accessibility (15.2). Smaller yet significant shares mention productivity during travel (11.7%) and walkability (11.7%), reinforcing that any appeal of CCAM lies in secondary benefits, like reclaiming time or improving neighborhood design—not the technology per se. The relatively low draw of “more cycleways” (6.2%) and “nicer to live in the new area” (9.7%) suggests that automation is not yet linked to aspirational lifestyle upgrades or sustainability visions in the public imagination.

Table 90: Can you please describe why you might change where you live?

would like more space	28	19,31%
can relax during travel time	22	15,17%
easier to travel further	16	11,03%
can be productive while travel	17	11,72%
easier to travel in the new area	22	11,72%
more footpaths	17	6,21%
more cycleways	9	
nicer to live in the new area	14	9,66%
Total	145	100,00%

Table 91 reveals that Norwegians are somewhat more open to delivery automation than to other CCAM formats, though caution still prevails. While 34% remain unlikely to use a private delivery or pick-up robot, nearly 37% express some degree of willingness, and a significant 29% are neutral—suggesting curiosity, conditional openness, or ambivalence. This comparatively more balanced distribution likely reflects a lower perceived risk: delivery robots, unlike self-driving vehicles, don’t carry passengers and are seen as less intrusive to personal safety or mobility habits. The appeal seems rooted in practical convenience rather than excitement, something that might gradually grow with exposure. This is an important nuance for Norway’s overall CCAM landscape: while people are reluctant to alter how they move, they may be more receptive to how goods move to them.

Table 91: How likely is that you will be using a private delivery/pick-up robot for your deliveries?

Highly unlikely	44	21,67%
Somewhat unlikely	25	12,32%
Neutral	59	29,06%
Somewhat likely	59	29,06%
Highly likely	16	7,88%
Total	203	100,00%

Table 92, highlights a revealing contrast: while most Norwegians would not relocate due to delivery robots (55.2% “no change”). 46.1% believe delivery costs would decrease, and 54.8% anticipate an increase in monthly online orders, indicating that people see private delivery robots as economically beneficial and convenience-enhancing, even if not life-changing in terms of residence. Those who would relocate tend to favor more accessible or urbanized areas—13.9% would move closer to the city center, and another 9.6% to the suburbs—suggesting that automation might indirectly reinforce certain centralizing trends if delivery services are seen as more reliable or prompt in denser zones. Still, the overall movement is minor, underscoring again that CCAM, in its current imagined form, acts more as a facilitator of existing preferences than a disruptor of lifestyle choices.

Table 92: Assuming that the cost and time of private delivery/pick-up robots are the same as of today's conventional delivery service, how do you expect the below to be affected?

	Your current residential location		your current delivery costs		your current number of monthly online orders	
Relocated to a more rural area	14	6,09%	10	4,35%	3	1,30%
Relocated to city's suburbs	22	9,57%	39	16,96%	25	10,87%
No change	127	55,22%	26	11,30%	27	11,74%
Relocated closer to the city center	32	13,91%	106	46,09%	126	54,78%
Relocated to the city center	8	3,48%	22	9,57%	22	9,57%
Total	203	88,26%	203	88,26%	203	88,26%

Table 93 shows the decision to relocate is still anchored in traditional lifestyle priorities, not the technology itself. Among the 76 respondents considering a move, “wanting more space” (14.5%) remains the most cited reason, mirroring earlier mobility-related relocation rationales. Notably, travel-related comforts such as relaxation (6.2%) or productivity (4.8%) rank lower here than in the context of self-driving vehicles. Once again, the relatively low figures for livability features like footpaths (3.4%) or cycleways (2%) confirm that respondents are not associating CCAM with broader urban upgrades or active mobility ecosystems. Instead, it's the indirect benefits—like less need to leave the house or improved convenience—that matter most.

Table 93: Can you please describe why you might change where you live?

would like more space	21	14,48%
can relax during travel time	9	6,21%
easier to travel further	8	5,52%
can be productive while travel	7	4,83%
easier to travel in the new area	11	7,59%
more footpaths	5	3,45%
more cycleways	3	2,07%
nicer to live in the new area	12	8,28%
Total	76	52,41%

The final table (Table 94), shows that respondents tend to anticipate gradual rather than imminent adoption, with most clustered around the 2035–2040 window across all service types. Self-driving private cars (26.1% for 2035) and delivery robots (24.6% for 2035) are seen as slightly more imminent than self-driving shuttles (20.2% for 2035), though the differences are modest. At the same time, 15–17% of respondents consistently selected “never” across the modes—suggesting that a notable share of the population sees CCAM not just as distant, but potentially unrealistic or unappealing altogether. This disbelief aligns with broader patterns in the Norwegian data: cautious optimism, paired with substantial skepticism and an overarching demand for proof, policy clarity, and public value before behavioral or residential shifts are even considered.

Table 94: By when do you think that the below self-driving services or vehicles will start being implemented in your city?

	Self-driving taxi		Self-driving private cars		Self-driving public bus		Self-driving on-demand shuttle bus		Self-driving private delivery - pick-up robot	
2030	36	17,73%	31	15,27%	40	19,70%	34	16,75%	40	19,70%
2035	51	25,12%	53	26,11%	47	23,15%	41	20,20%	50	24,63%
2040	36	17,73%	44	21,67%	43	21,18%	40	19,70%	39	19,21%
2045	26	12,81%	31	15,27%	24	11,82%	36	17,73%	24	11,82%
2050	21	10,34%	17	8,37%	24	11,82%	24	11,82%	19	9,36%
Never	33	16,26%	27	13,30%	25	12,32%	28	13,79%	31	15,27%
Total	203	100,00%	203	100,00%	203	100,00%	203	100,00%	203	100,00%

To summarize, In Norway, public attitudes toward CCAM technologies reflect a fundamentally pragmatic orientation, rooted in trust, everyday utility, and lifestyle preservation. While awareness is generally high—over 44% report being aware or well aware of self-driving vehicles, this familiarity has not translated into wide enthusiasm. Instead, the data suggests that Norwegians evaluate automation not on its novelty, but on its practical capacity to align with existing values, such as safety, comfort, spatial stability, and environmental stewardship. Trust, not access, is the central barrier. Most Norwegians do not express active hostility to CCAM, but they are clearly unwilling to use it for high-stakes journeys. Over half say they are unlikely to use a self-driving taxi for work, and nearly the same proportion reject the idea of commuting via a private autonomous car. Likelihood ratings improve modestly for non-work trips, and especially for public transit (where around 30% are open to self-driving buses), suggesting that risk perception and mode legitimacy play important roles. The more the system feels institutional and collective, the more trust it appears to earn.

Relocation patterns reveal spatial inertia. Regardless of the CCAM mode—private car, taxi, or public bus—Norwegians overwhelmingly say they would not change where they live. Between 60% and 65% report "no change" across relocation scenarios, even under the assumption of equal cost and travel time. For the small subset who would move, motivations are clear and consistent: they want more space, the ability to relax or be productive while travelling, and easier access to the places they value. Technology itself is not the draw; it is merely a tool to support well-established lifestyle goals. Delivery automation holds more promise, but modestly. Private delivery and pick-up robots are viewed more positively than people-carrying CCAM modes, with 37% expressing openness and another 29% neutral. Respondents expect reduced delivery costs and increase online ordering as a result, showing interest in automation that enhances convenience without demanding behavioral change. Even so, relocation interest remains low, and motivations mirror those seen with mobility technologies—focused on comfort, space, and ease, not novelty.

Implementation is seen as plausible, but not imminent. Across all CCAM services, the most common projected introduction year is 2035. Yet a consistent 13–16% of respondents believe these technologies will never be implemented in their cities. This suggests a notable but contained skepticism, further reinforcing the insight that Norwegians are waiting for proof, not promises—proof of safety, benefit, institutional backing, and societal value. To conclude, Norway represents a CCAM landscape of cautious pragmatism. People are willing to engage, but only when the offer is clear, the risk is low, and the benefits speak directly to existing ways of life. There is no appetite for disruption, but there is openness—conditional, measured, and grounded in the realities of daily living.

6.2.3.4 Section 4: Your attitudes regarding the impact self-driving vehicles will have in general

Table 95 outlines public expectations of how self-driving vehicles may impact key transport-related dimensions, namely the number of trips undertaken, the number of vehicles on the road, travel time, travel costs, and delivery costs. Overall, the data reflects a cautiously optimistic outlook, with a majority anticipating positive change, although some skepticism and uncertainty persist. Beginning with the number of trips citizens are likely to undertake, the majority of respondents (57.64%) believe this will moderately increase, and a further 12.32% expect a significant increase. This suggests that self-driving vehicles may facilitate greater mobility—either by making travel more convenient, accessible, or less stressful. Meanwhile, 26.6% of respondents anticipate a reduction in trips, which could reflect concerns about reduced need to travel due to delivery automation or virtual alternatives, or fears of restricted access. In relation to the number of vehicles on the network, expectations again skew toward growth. Just over half (54.19%) expect a moderate increase, and 14.29% foresee a significant one. However, nearly 28% believe there will be fewer vehicles—24.63% anticipating a moderate drop and 3.45% a substantial one. This ambivalence could stem from the potential for more efficient vehicle use (e.g., shared fleets) versus fears of a rebound effect where easier travel prompts more cars to be used overall.

On the question of citizens' travel time, 55.67% expect a moderate improvement, and another 11.82% expect travel time to improve significantly. These views imply strong confidence that automation will reduce congestion or optimize routing. At the same time, just over a quarter of respondents expect either no change or increased travel time, suggesting some remain unconvinced that traffic flow or journey lengths will benefit. In terms of travel costs, over half (51.72%) anticipate moderate savings, while 11.82% expect significant cost reductions. This may be tied to lower operational and labor costs associated with autonomous services. Nonetheless, around 31% foresee increased or unchanged costs, indicating concerns around affordability, pricing models, or initial deployment phases. Finally, when looking at delivery costs, a strong plurality (47.29%) expects a moderate reduction, and 10.84% expect a large reduction, likely owing to the elimination of human labor in logistics. However, a notable 30.54% of respondents anticipate a moderate increase in costs, which could reflect uncertainty about infrastructure investment, operational risks, or pricing strategy in the early stages of implementation.

In summary, most respondents express a belief that self-driving vehicles will make mobility more accessible, efficient, and potentially more affordable. However, a sizeable minority remain uncertain or skeptical, particularly in areas tied to systemic or behavioral shifts such as vehicle volume and delivery pricing.

Table 95: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Citizens' number of trips		Number of vehicles on the network		Citizens travel time		Travel costs for citizens' trips		Delivery costs	
-2 = Reduced significantly (50% reduction or more)	7	3,45%	7	3,45%	8	3,94%	11	5,42%	18	8,87%
-1 =Reduced (up to 50% reduction)	47	23,15%	50	24,63%	49	24,14%	52	25,62%	62	30,54%
0=No change	7	3,45%	7	3,45%	9	4,43%	11	5,42%	5	2,46%
1=Increase or Improve (up to 50% increase)	117	57,64%	110	54,19%	113	55,67%	105	51,72%	96	47,29%
2= Increase or Improve significantly (50% increase or more)	25	12,32%	29	14,29%	24	11,82%	24	11,82%	22	10,84%
Total	203	100,00%	203	100,00%	203	100,00%	203	100,00%	203	100,00%

This sectoral view (Table 96) on Norway reveals an especially ambivalent outlook toward economic and labor-market impacts of CCAM. While over half the respondents see moderate economic gains and increases in investment—with ~59% expecting more investment and nearly 59% projecting economic growth, the expected social effects are more conflicted. A notable 27% foresee a significant increase in job losses, by far the highest “significant” rating across categories. This anxiety is not offset by an equivalent belief in job creation: although 49% expect some improvement in employment opportunities, only 12% foresee a strong increase. This imbalance points to concerns over structural disruption—where the economic tide might rise but not lift all boats equally. Similarly, over 30% anticipate reduced transport-sector emissions, but only 14% believe the reductions will be dramatic. In this, Norway's outlook echoes its other cautious patterns: optimistic about gains, especially around capital and infrastructure, but clear-eyed about disruption, especially for workers and emissions outcomes.

Table 96: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

	Transport sector's emissions		Economic growth		Investments		Employment opportunities		Job losses	
-2 = Reduced significantly (50% reduction or more)	16	7,88%	6	2,96%	9	4,43%	30	14,78%	18	8,87%
-1 =Reduced (up to 50% reduction)	46	22,66%	37	18,23%	33	16,26%	43	21,18%	41	20,20%
0=No change	9	4,43%	10	4,93%	5	2,46%	6	2,96%	4	1,97%

1=Increase or Improve (up to 50% increase)	104	51,23%	119	58,62%	120	59,11%	99	48,77%	85	41,87%
2= Increase or Improve significantly (50% increase or more)	28	13,79%	31	15,27%	36	17,73%	25	12,32%	55	27,09%
Total	203	100,00%	203	100,00%	203	100,00%	203	100,00%	203	100,00%

Table 97 shows how respondents perceive the potential impacts of self-driving vehicles on four social dimensions: new skills requirements, accessibility for the general population, accessibility for people with special mobility needs, and accessibility for older people. The findings suggest a cautious optimism, with a clear expectation of improvement tempered by concerns about inclusivity and potential exclusion. Regarding new skills requirements, 42.36% of respondents expect a moderate increase and an additional 26.60% anticipate a significant increase. This suggests a strong perception that self-driving technologies will demand adaptation and reskilling in the workforce. However, 22.17% anticipate a reduction in skill needs, potentially reflecting expectations of greater system automation and user-friendliness, or job simplification. The small group (3.94%) expecting no change indicates that most see this as a transformative shift rather than a continuation of current patterns. For accessibility of the general population, optimism is high: 57.14% expect some improvement and 15.76% expect a significant one. However, 17.24% foresee reduced accessibility, and 6.4% even predict a significant decline, which is notable. These responses may reflect uncertainty about the equity of deployment or potential barriers in accessing autonomous services, such as digital interfaces or affordability.

When it comes to people with special mobility needs, the outlook is more split. Just over half of respondents (50.74%) anticipate moderate improvement, and 22.17% foresee significant gains. But nearly a quarter (24.14%) predict reduced accessibility—highlighting a meaningful concern that self-driving systems might not be designed with sufficient inclusivity. This ambivalence points to a perceived risk that these technologies could replicate or even deepen existing accessibility gaps. Finally, accessibility for older people follows a similar pattern. Nearly half (47.78%) expect moderate improvements, and 21.18% see the potential for significant gains. However, more than 29% foresee some level of reduced accessibility. The relatively high proportion of concern (especially the 7.39% who expect a significant decline) may be tied to fears around digital exclusion or loss of human assistance in public transport systems.

Table 97: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	New skills requirements		Accessibility of general population		Accessibility of people with special mobility needs		Accessibility of older people	
-2 = Reduced significantly (50% reduction or more)	10	4,93%	13	6,40%	12	5,91%	15	7,39%
-1 =Reduced (up to 50% reduction)	45	22,17%	35	17,24%	37	18,23%	44	21,67%

0=No change	8	3,94%	7	3,45%	6	2,96%	4	1,97%
1=Increase or Improve (up to 50% increase)	86	42,36%	116	57,14%	103	50,74%	97	47,78%
2= Increase or Improve significantly (50% increase or more)	54	26,60%	32	15,76%	45	22,17%	43	21,18%
Total	203	100,00%	203	100,00%	203	100,00%	203	100,00%

The responses in Table 98 reflect public perceptions regarding the societal impacts of self-driving vehicles, particularly in terms of family accessibility, stress during travel, and road safety outcomes such as traffic accidents and fatalities. Overall, respondents indicate a generally positive outlook, particularly on safety and stress reduction, though there remains a degree of skepticism or uncertainty. Looking at accessibility for families with children, nearly half of the respondents (49.75%) believe that it will moderately improve, and an additional 17.73% expect significant improvement. However, over a quarter (28.07%) expressed doubts. 21.67% foresee a reduction in accessibility and 6.4% a significant reduction. This ambivalence may point to concerns about how well self-driving systems will accommodate the practical and safety needs of families, especially those with young children. When considering stress related to travelling, a majority of respondents (56.16%) expect improvement—34.98% anticipate a moderate reduction in stress, and 21.18% see a significant decrease. This suggests a strong belief that self-driving vehicles can alleviate travel burdens, likely due to the elimination of driving responsibilities. Nonetheless, about 11.82% still expect increased stress, perhaps reflecting anxiety about automation, loss of control, or potential system failures.

On the topic of traffic accidents, optimism is even more pronounced. More than two-thirds (66.5%) believe self-driving technology will reduce accidents—43.84% expect moderate reductions, and 22.66% foresee a significant drop. Only 2.96% predict no change, and just under a third expect any increase in accidents. This underscores a broadly shared faith in automation as a route to safer mobility, likely due to its perceived ability to eliminate human error. Similar views are reflected in expectations around traffic fatalities. A combined 54.18% of respondents believe fatalities will decrease (27.59% moderately, 8.37% significantly), and 45.81% foresee some level of improvement. Only 1.97% expect no change. These findings signal strong confidence in self-driving vehicles to reduce the severe consequences of road transport. In sum, respondents generally believe self-driving technology will contribute to safer, less stressful, and more family-friendly transport systems. Still, a notable minority voice concerns, particularly regarding inclusivity for families and potential psychological stress, suggesting the importance of thoughtful policy design and communication to ensure broad public confidence.

Table 98: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Accessibility of families with kids	Stress related to travelling	Number of traffic accidents	Number of fatalities

-2 = Reduced significantly (50% reduction or more)	13	6,40%	17	8,37%	22	10,84%	17	8,37%
-1 =Reduced (up to 50% reduction)	44	21,67%	65	32,02%	40	19,70%	56	27,59%
0=No change	9	4,43%	7	3,45%	6	2,96%	4	1,97%
1=Increase or Improve (up to 50% increase)	101	49,75%	71	34,98%	89	43,84%	93	45,81%
2= Increase or Improve significantly (50% increase or more)	36	17,73%	43	21,18%	46	22,66%	33	16,26%
Total	203	100,00%	203	100,00%	203	100,00%	203	100,00%

6.2.4 Germany

6.2.4.1 Section 1: Participant Characteristics

The age distribution (Table 99) in the German sample presents a strong concentration of younger and mid-career adults, with the 18–24, 25–34, and 35–44 age groups each representing approximately a quarter of the respondents. Specifically, the 25–34 group leads slightly at 25.41%, followed closely by 35–44 (25.14%) and 18–24 (24.04%). This skew toward younger cohorts suggests a highly engaged, digitally fluent population, well-positioned to assess or interact with CCAM technologies. In contrast, representation drops significantly beyond age 45, with the 45–54, 55–64, and 65+ categories each comprising around 8–9% of the sample. While this ensures intergenerational input, the dataset leans heavily toward the perspectives of those most likely to be early adopters or active users of new mobility systems, potentially underrepresenting the accessibility and equity concerns more prevalent among older populations.

Table 99: What is your age?

18-24	88	24,04%
25-34	93	25,41%
35-44	92	25,14%
45-54	31	8,47%
55-64	30	8,20%
65+	32	8,74%
Total	366	100%

The gender distribution in the German dataset (Table 100) shows a slight majority of women, who make up 52.73% of respondents, compared to 47.27% men. No respondents identified as "Other," indicating that gender diversity beyond the binary is either absent in the sample or not captured due to limitations in outreach or self-reporting.

Table 100: How would you describe your gender?

Woman	193	52,73%
Man	173	47,27%
Total	366	100%

The educational distribution of the German sample (Table 101) reflects a diverse and representative profile. The largest group of respondents (38.80%) have completed secondary school or vocational education, which aligns with Germany's strong tradition of vocational training within its dual education system. A substantial proportion hold higher academic qualifications: 28.14% report a university degree, and 19.95% possess an advanced degree such as a Master's, MBA, or doctorate. A smaller segment (3.55%) is still in full-time education, while only 2.19% report no formal education and 7.38% list primary school as their highest level. This balanced distribution ensures a comprehensive understanding of how individuals from various educational backgrounds perceive and engage with CCAM technologies. The strong representation from both vocational and academic tracks allows for nuanced exploration of employment expectations, digital readiness, and perceived equity in access to future mobility systems.

Table 101: What is the highest educational level that you have achieved to date?

No formal education	8	2,19%
Primary school	27	7,38%
Secondary school or vocational education	142	38,80%
University degree or equivalent professional qualification	103	28,14%
Higher university degree (e.g. Master's, MBA, doctorate)	73	19,95%
Still in full time education	13	3,55%
Total	366	100%

The residential distribution of the German respondents (Table 102) reveals a predominantly urban sample. A combined 73.22% of participants live in city centers (34.97%) or in urban areas outside the center (38.25%), suggesting strong exposure to public transport systems and greater likelihood of encountering or anticipating CCAM services. Meanwhile, 16.94% reside in villages and 9.84% in suburbs, ensuring that the dataset captures a range of geographic contexts, albeit with more limited representation from non-urban settings. This urban concentration is reflective of Germany's population distribution and supports analysis of CCAM readiness in areas likely to serve as early deployment zones. However, the inclusion of rural and suburban voices remains important for understanding how automated mobility systems can address equity gaps in less connected or lower-density regions. Differences in infrastructure access, mobility habits, and digital services are likely to influence perceptions across these groups.

Table 102: Which of the following best describes where you live?

City center	128	34,97%
City, not in center	140	38,25%
Suburbs	36	9,84%
Village	62	16,94%
Total	366	100,00%

The German sample reflects a population (Table 103) with generally positive attitudes toward technological innovation. The majority of respondents identify as part of the "Early majority" (32.51%) or "Early adopters" (28.14%), indicating a readiness to engage with new systems such as CCAM once they are proven or publicly available. A notable 16.94% see themselves as "Innovators," suggesting a considerable segment that is proactive in trying out new technologies, likely to influence uptake trends or serve as early testers. Meanwhile, 17.76% identify as "Late majority" and 4.64% as "Laggards," reflecting a smaller but significant share of individuals who may be more hesitant or skeptical, possibly due to concerns around risk, complexity, or trust. This distribution supports targeted engagement strategies: while most are open to CCAM adoption, efforts must be made to build trust and reduce barriers for those slower to embrace change.

Table 103: How would you describe yourself in terms of adopting technologies and innovations? I consider myself:

Innovator	62	16,94%
Early adopter	103	28,14%
Early majority	119	32,51%
Late majority	65	17,76%
Laggard	17	4,64%
Total	366	100,00%

The Table 104, confirms the residential composition of the German sample, which is predominantly urban. A combined 73.22% of respondents live in cities—either in the center (34.97%) or outside the center (38.25%)—reflecting strong urban representation and likely alignment with areas where CCAM services may be deployed first. Suburban residents account for 9.84%, and village dwellers make up 16.94% of the sample, offering a valuable though smaller rural and peri-urban perspective. This spatial spread is significant for understanding how the context of daily mobility—such as access to public transport, digital infrastructure, and congestion levels—may shape respondents' expectations, concerns, and readiness for CCAM technologies. Urban residents may focus more on efficiency and integration, while those in less dense areas might emphasize accessibility, reach, and affordability. Including these geographic nuances in analysis can strengthen the relevance and equity of future CCAM strategies.

Table 104: Which of the following best describes where you live?

City center	128	34,97%
City, not in center	140	38,25%
Suburbs	36	9,84%
Village	62	16,94%
Total	366	100,00%

6.2.4.2 Section 2: Your Travel Behavior Characteristics

In the German dataset, 79.78% of respondents report having a valid driving license, confirming a high but not absolute reliance on private car use. Table 105 reflects the cultural and infrastructural centrality of driving in Germany, especially in suburban and rural areas. However, a notable 20.22%—one in five respondents—do not possess a license. This sizable group could include younger individuals, urban residents, older adults, or those with accessibility or financial barriers to driving. This suggests a twofold opportunity for CCAM: to **complement traditional car users with automated private or semi-private solutions**, and to **expand equitable access for non-drivers** via shared autonomous mobility services, especially in dense cities and underserved areas. Tailoring CCAM to suit both groups will be crucial for balanced uptake and social inclusion.

Table 105: Do you have a valid driving license?

Yes	292	79,78%
No	74	20,22%
Total	366	100,00%

The data on household car ownership (Table 106) in Germany reveals a strong prevalence of private vehicle access, with nearly half of respondents (47.27%) living in single-car households and another quarter (24.86%) owning two cars. This distribution reflects the embedded role of car ownership in daily life, particularly outside major urban centers. However, 18.03% of respondents who report that owning no car highlight an important mobility segment—likely concentrated in urban areas or among individuals with economic or physical constraints. This non-car-car-owning population presents a critical opportunity for CCAM services to offer accessible, flexible alternatives that bridge gaps in public transport or support daily needs without requiring ownership. Meanwhile, the prevalence of one- and two-car households suggests potential for supplemental or replacement CCAM models, such as autonomous shared vehicles or mobility subscriptions that reduce the need for second cars. These dynamics can inform CCAM deployment strategies tailored to both mobility-rich and mobility-constrained settings.

Table 106: How many private cars does your household own?

0	66	18,03%
1	173	47,27%
2	91	24,86%
3	23	6,28%
4	9	2,46%
5	3	0,82%
7	0	0,00%
9	0	0,00%
10	1	0,27%
Total	366	100,00%

The weekly modal use data from Germany (Table 107) provides a nuanced picture of travel behaviors, emphasizing the central role of private vehicles while also pointing to opportunities for diversified mobility services such as CCAM. Nearly 88% of respondents use a private car as a driver at least once per week, with 27.4% doing so once, and additional use distributed across higher frequencies. However, 11.64% report zero use, indicating a notable minority without routine access or need for driving. Use as a passenger is slightly less frequent, but still significant, suggesting both active and passive engagement in private car travel. Around 43–54% of respondents report no weekly use, yet substantial segments engage in these modes 1–5 times weekly, particularly buses/trams. This shows public transport serves a meaningful role, but likely unevenly stronger in urban areas and limited elsewhere. CCAM could bridge this divide by mimicking or complementing these services, especially for first/last mile coverage or off-peak demand.

Over one-third of respondents walk at least 5 times per week (notably, 8.47% walk 10 times), and 20.77% never walk. Cycling or e-scooter use is lower—64.48% report zero use—but remains notable, especially in a country with strong cycling infrastructure in select regions. These active modes, though variable, could be supported and extended by CCAM in ways that enhance accessibility and reduce car reliance without replacing walking or biking. Ride-sharing services like Uber see very limited use (74.59% zero trips), confirming that this model hasn't penetrated the German market significantly—perhaps due to regulation, cost, or cultural preferences. Motorcycle use is even more limited. These gaps point to potential for CCAM to offer reliable, on-demand transport in contexts where taxis or micro-mobility options are rare or undesirable. Overall, this data portrays a complex mobility environment dominated by car use, with islands of multimodality. CCAM could gain traction if it is flexible enough to appeal to both habitual drivers and underserved, car-free users—delivering convenience, reliability, and access tailored to varied needs across urban and rural geographies.

Table 107: How many trips do you conduct with each of the modes below within a week? Consider the following example to calculate your trips: homework is one trip, home-work-home are two trips. Private car as driver (driving alone)

Count	Private car as driver (driving alone)		Private car as a driver (driving with another passenger		Private car as passenger		Bus or tram		Train or underground		Taxi or ride-sharing (such as Uber)		Walking		Cycling or e-scooter		Motorcycle	
0	34	11,64%	105	35,96%	166	45,36%	159	43,44%	198	54,10%	273	74,59%	76	20,77%	236	64,48%	294	80,33%
1	80	27,40%	54	18,49%	78	21,31%	56	15,30%	54	14,75%	40	10,93%	51	13,93%	43	11,75%	43	11,75%
2	39	13,36%	58	19,86%	53	14,48%	40	10,93%	39	10,66%	21	5,74%	25	6,83%	26	7,10%	13	3,55%
3	17	5,82%	19	6,51%	23	6,28%	13	3,55%	12	3,28%	9	2,46%	26	7,10%	13	3,55%	5	1,37%
4	15	5,14%	21	7,19%	12	3,28%	20	5,46%	13	3,55%	2	0,55%	16	4,37%	11	3,01%	0	0,00%
5	31	10,62%	10	3,42%	14	3,83%	22	6,01%	17	4,64%	6	1,64%	38	10,38%	15	4,10%	3	0,82%
6	14	4,79%	4	1,37%	4	1,09%	10	2,73%	6	1,64%	8	2,19%	24	6,56%	2	0,55%	1	0,27%
7	12	4,11%	6	2,05%	1	0,27%	8	2,19%	5	1,37%	1	0,27%	35	9,56%	5	1,37%	0	0,00%
8	4	1,37%	2	0,68%	2	0,55%	7	1,91%	7	1,91%	4	1,09%	8	2,19%	3	0,82%	0	0,00%
9	1	0,34%	0	0,00%	1	0,27%	2	0,55%	0	0,00%	0	0,00%	0	0,00%	1	0,27%	3	0,82%
10	23	7,88%	6	2,05%	7	1,91%	15	4,10%	9	2,46%	2	0,55%	31	8,47%	4	1,09%	2	0,55%
11	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,27%	0	0,00%
12	6	2,05%	1	0,34%	1	0,27%	4	1,09%	1	0,27%	0	0,00%	2	0,55%	0	0,00%	2	0,55%
13	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,27%	0	0,00%	0	0,00%
14	9	3,08%	1	0,34%	1	0,27%	1	0,27%	0	0,00%	0	0,00%	7	1,91%	1	0,27%	0	0,00%

15	1	0,34%	0	0,00%	1	0,27%	1	0,27%	0	0,00%	0	0,00%	3	0,82%	0	0,00%	0	0,00%
16	0	0,00%	1	0,34%	0	0,00%	1	0,27%	1	0,27%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
17	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
18	0	0,00%	0	0,00%	0	0,00%	1	0,27%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
19	0	0,00%	0	0,00%	0	0,00%	1	0,27%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
20	2	0,68%	3	1,03%	2	0,55%	2	0,55%	4	1,09%	0	0,00%	16	4,37%	3	0,82%	0	0,00%
21	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
24	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,27%	0	0,00%	0	0,00%
25	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,27%	0	0,00%	0	0,00%
28	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	1	0,27%	0	0,00%	0	0,00%
30	2	0,68%	0	0,00%	0	0,00%	3	0,82%	0	0,00%	0	0,00%	4	1,09%	2	0,55%	0	0,00%
35	2	0,68%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
40	0	0,00%	1	0,34%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Total	292	100,00%	292	100,00%	366	100,00%	366	100,00%	366	100,00%	366	100,00%	366	100,00%	366	100,00%	366	100,00%

The frequency of delivery receipt in Germany underscores the deep integration of e-commerce into everyday life, with 43.99% of respondents receiving deliveries a few times per month and an additional 15.57% doing so weekly, as shown in Table 108. This suggests that more than half of the population relies regularly on parcel logistics, a trend that has implications for urban congestion, sustainability, and last-mile delivery systems. Meanwhile, 29.78% receive deliveries only a few times per year, and just 9.29% report never doing so. These figures show that digital consumption is nearly universal, even if intensity varies. The small proportion (1.37%) receiving deliveries almost daily is likely concentrated in urban or high-income households or includes individuals with mobility limitations. For CCAM applications, this delivery pattern opens up strong potential for automated delivery services, particularly in denser or peri-urban areas. Autonomous vehicles and drones could serve recurring delivery users, while also addressing gaps in last-mile infrastructure in lower-density regions. Importantly, CCAM can contribute to reducing carbon and noise footprints in areas affected by heavy delivery traffic, aligning with Germany's sustainability goals.

Table 108: How often do you receive deliveries for things you order online or by phone?

Never	34	9,29%
A few times per year (1-5 times per year)	109	29,78%
Few times per month (2-3 times per month)	161	43,99%
A few times per week (2-3 times per week)	57	15,57%
Almost every day (1 or more times a day)	5	1,37%
Total	366	100,00%

The household composition data (Table 109) from Germany reveals a predominance of small to medium-sized households. A significant portion of respondents—22.95%, live alone, and another 33.61% live in two-person households, together accounting for over half the sample (56.56%). This high share of single and dual-person homes reflects broader demographic trends in Germany such as aging populations, urban living, and declining birth rates. Larger households (three or more people) are less common, with only 17.76% in three-person homes and decreasing proportions for four-person (14.48%) and five-person (8.47%) arrangements. Very large households (six or more people) are rare, cumulatively making up under 3% of the sample. These figures have important implications for CCAM design and deployment. The dominance of smaller households suggests demand for individualized or flexible-capacity autonomous transport options—such as solo pods, ride-hailing CCAM, or dynamic micro-transit. Simultaneously, planners should ensure multi-rider solutions remain available for families, especially in suburban areas where household size may correlate with car dependence. This data reinforces the importance of designing diverse vehicle formats and pricing models to align with Germany's evolving social and residential landscape.

Table 109: Including yourself, how many people live in your household?

1	84	22,95%
2	123	33,61%
3	65	17,76%
4	53	14,48%
5	31	8,47%
6	9	2,46%
7	1	0,27%
8	0	0,00%
9	0	0,00%
10	0	0,00%
Total	366	100,00%

The employment situation of respondents (Table 110) in Germany is anchored by a strong presence in full-time work, with 48.36% of the sample identifying as full-time employees. This reflects a stable, working-age demographic with likely routine commuting needs—an important segment for CCAM services offering consistent, peak-time operations. Part-time workers constitute 14.48%, and another 12.02% report being currently unemployed, which may indicate vulnerability to economic fluctuations or flexible scheduling needs. These groups might benefit from affordable, on-demand CCAM services, especially where traditional public transport is sparse. Students represent 12.57% of the sample, a relatively high share that suggests the need for youth-friendly, multimodal, and cost-sensitive transport options, especially in urban or campus-adjacent areas. Meanwhile, 9.02% are retired, and 3.55% are homemakers—groups typically associated with non-peak travel patterns. Their mobility is likely to emphasize accessibility, comfort, and reliability over speed or frequency. Overall, the diversity of employment types reinforces the value of adaptive service models in CCAM, catering both to high-frequency commuters and low-frequency, flexible-use populations.

Table 110: How do you describe your employment situation?

Currently not working	44	12,02%
Working part-time	53	14,48%
Working full-time	177	48,36%
Student	46	12,57%
Retired	33	9,02%
Homemaker	13	3,55%
Total	366	100,00%

6.2.4.3 Section 3: Self-driving vehicles and services for your personal mobility

The level of awareness of self-driving vehicles among respondents in Germany (Table 111) shows that while there is a growing familiarity, deep understanding remains limited. Just over half of the participants (59.56%) indicate that they are either not aware at all (21.31%) or have only vaguely heard of self-driving vehicles without knowing much (38.25%). Meanwhile, a meaningful portion, 28.14%—consider themselves aware, and only 12.30% identify as well aware of the technology. This suggests that while the conversation around autonomous mobility is reaching the public, comprehensive knowledge and perhaps critical engagement with the topic are still developing. Public education and targeted communication will likely be essential in building informed acceptance as these technologies approach deployment.

Table 111: How well aware are you about self-driving vehicles?

I am not aware of self-driving vehicles	78	21,31%
I have only heard about self-driving vehicles, but I do not know much	140	38,25%
I am aware of self-driving vehicles	103	28,14%
I am well aware of self-driving vehicles	45	12,30%
Total	366	100,00%

The likelihood of adopting self-driving taxis for work-related trips among German respondents (Table 112) appears cautious and somewhat fragmented. A significant proportion—48.90%, express some degree of reluctance, with 29.23% saying they are highly unlikely and 19.67% somewhat unlikely to use such a service, even when cost and travel time are equivalent to current taxi options. Neutral attitudes are held by nearly a quarter of respondents (24.04%), indicating indecision or openness depending on further developments or trust-building. Only

27.05% express a positive inclination, either somewhat likely (20.77%) or highly likely (6.28%) to adopt self-driving taxis. This distribution suggests that while a modest share of the population is open to integrating autonomous taxis into their daily commuting, the dominant sentiment is either skepticism or conditional acceptance—likely shaped by issues of safety, familiarity, and perceived reliability.

Table 112: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is that you will be using a self-driving taxi: for your work trips?

Highly unlikely	107	29,23%
Somewhat unlikely	72	19,67%
Neutral	88	24,04%
Somewhat likely	76	20,77%
Highly likely	23	6,28%
Total	366	100,00%

When considering non-work trips (Table 113), German respondents appear even more hesitant to adopt self-driving taxis. A substantial 63.66% indicates reluctance, with 40% stating they are highly unlikely and an additional 20% somewhat unlikely to use such services. Only 23.91% lean toward some degree of willingness, split between 20% somewhat likely and just 3.91% highly likely. Neutral responses stand at a modest 16.09%. This more pronounced reluctance compared to work trips suggests that when travel is discretionary or leisure-oriented, trust and comfort in autonomous systems may weigh more heavily. The lower proportion of respondents expressing strong intent to use self-driving taxis, even when costs and times are equivalent to conventional ones, reflects a critical need for confidence-building measures and possibly greater experiential exposure to shift prevailing attitudes.

Table 113: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely is it that you will be using a self-driving taxi: for your non-work trips?

Highly unlikely	83	40,00%
Somewhat unlikely	74	20,00%
Neutral	94	16,09%
Somewhat likely	85	20,00%
Highly likely	30	3,91%
Total	366	100,00%

The introduction of self-driving taxis appears to have a moderate influence on residential relocation intentions among German respondents (Table 114). While just over half of the participants (52.73%) foresee no change in their current residential location, a notable 47.27% indicate that they might consider moving if these services became available at equivalent cost and travel time. Interestingly, this relocation interest is evenly split between moving away from the city—9.02% to rural areas and 16.94% to the suburbs—and moving closer to urban cores—16.94% toward the city center and 4.37% directly into it. This bidirectional relocation pattern suggests that autonomous taxi availability could enhance both urban attraction and peripheral accessibility, reflecting a potential redistribution of population preferences rather than a single directional shift.

Table 114: Assuming that the cost and travel time of self-driving taxis are the same as of today's taxis, how do you expect the below to be affected? - Your current residential location

Relocation to a rural area	33	9,02%
Relocating to city's suburbs	62	16,94%

No change	193	52,73%
Relocate closer to the city center	62	16,94%
Relocate to the city center	16	4,37%
Total	366	100,00%

When asked about the likelihood of buying or leasing a private self-driving car assuming no requirement for a driving license—German respondents showed (Table 115) a relatively reserved stance. Only a quarter of participants (26.23%) indicated that they would be somewhat likely or highly likely to make such a purchase, while 40.17% leaned toward some level of unlikelihood. The largest single group, however, fell into the neutral category at 33.61%, suggesting a considerable degree of uncertainty or openness to persuasion depending on future developments such as safety, policy, or user experience. This distribution points to a market that is neither resistant nor ready, but cautiously observant.

Table 115: How likely is it to buy/lease a private self-driving car? There is no need to have a driving license to purchase one.

Highly unlikely	83	22,68%
Somewhat unlikely	64	17,49%
Neutral	123	33,61%
Somewhat likely	70	19,13%
Highly likely	26	7,10%
Total	366	100,00%

When considering the adoption of self-driving private cars for work-related travel (Table 116) assuming equal cost and time compared to conventional electric cars—German respondents revealed a relatively divided position. Just over 31% expressed some level of likelihood to use such a vehicle (22.13% somewhat likely and 9.29% highly likely), while 42.07% were on the unlikely side. Interestingly, 26.5% remained neutral, mirroring the share of those highly unlikely to adopt. This suggests that although there is interest, a significant portion of the population remains either hesitant or undecided, highlighting the need for further public reassurance and demonstrable value before broader uptake can be expected.

Table 116: Given that the cost and travel time are the same as using a conventional electric car, how likely is it that you will be using a private driving car: for your work trips?

Highly unlikely	97	26,50%
Somewhat unlikely	57	15,57%
Neutral	97	26,50%
Somewhat likely	81	22,13%
Highly likely	34	9,29%
Total	366	100,00%

For non-work trips (Table 117), the inclination toward using self-driving private cars among German respondents is marginally more favorable than for work trips. A combined 37.16% indicated they would likely use such a vehicle (25.14% somewhat likely and 12.02% highly likely), while 36.61% remained either somewhat or highly unlikely. Notably, over a quarter of the respondents (26.23%) maintained a neutral stance. This slightly higher openness for non-work travel may reflect a greater willingness to experiment with autonomous technology in less time-sensitive or lower-stakes contexts, such as leisure or errand-based mobility. However, persistent neutrality and reluctance point to enduring concerns or a wait-and-see attitude toward technology's maturity and reliability.

Table 117: Given that the cost and travel time are the same as of using a conventional electric car, how likely is it that you will be using a self-driving private car: for your non-work trips?

Highly unlikely	68	18,58%
Somewhat unlikely	66	18,03%
Neutral	96	26,23%
Somewhat likely	92	25,14%
Highly likely	44	12,02%
Total	366	100,00%

Residential location preferences under the scenario of widespread self-driving private car availability reveal a moderate potential for spatial redistribution (Table 118). While the majority of German respondents (59.29%) indicated no expected change in their residential location, a substantial minority foresaw possible relocation. Specifically, 13.93% would consider moving to the suburbs, and 9.29% to rural areas—together comprising over one-fifth of the sample. Interestingly, 17.49% would prefer to move closer to or into the city center (14.48% and 3.01% respectively), indicating that automation may simultaneously enable greater flexibility in suburban and rural living while still preserving urban attractions. This dual pull suggests that autonomous mobility may not simply decentralize urban form, but rather diversify it, accommodating a range of lifestyle and locational preferences.

Table 118: Assuming that the cost and travel time of private cars are the same as today's cars, how do you expect the below to be affected? - Your current residential location

Relocation to a rural area	34	9,29%
Relocating to city's suburbs	51	13,93%
No change	217	59,29%
Relocate closer to the city center	53	14,48%
Relocate to the city center	11	3,01%
Total	366	100,00%

Among German respondents who indicated a potential change in residential location due to the availability of self-driving private cars (Table 119), the motivations were diverse but clustered around both functional and quality-of-life improvements. The most frequently cited reasons were improved ease of travel within the new area (15.47%) and the presence of more footpaths (15.85%), suggesting a strong valuation of walkability and local accessibility. Practical factors also played a key role: nearly 14% were motivated by the possibility of traveling further with greater ease, and an even larger share (14.72%) appreciated the ability to be productive while traveling, highlighting one of the key perceived benefits of autonomous mobility. Desire for more space (13.58%) remained a salient factor, pointing to an underlying trend of spatial aspirations beyond urban cores. Additionally, 11.70% indicated that the ability to relax during travel could influence their relocation decision, reflecting a redefinition of travel time from a burden to a benefit. Interestingly, although "nicer to live in the new area" was the least common rationale (8.68%), the responses overall reflect a multi-dimensional re-evaluation of urban form—where technological innovation opens up new possibilities for both function and amenity in where and how people choose to live.

Table 119: Can you please describe why you might change where you live?

would like more space	36	13,58%
can relax during travel time	31	11,70%
easier to travel further	37	13,96%
can be productive while travel	39	14,72%
easier to travel in the new area	41	15,47%
more footpaths	42	15,85%
more cycleways	16	6,04%
nicer to live in the new area	23	8,68%
Total	265	100,00%

In Germany, attitudes toward the use of self-driving public buses suggest a moderate but cautious optimism. For work-related travel (Table 120), just over a third of respondents (33.34%) reported being likely or highly likely to use a self-driving bus, with 20.77% somewhat likely and 12.57% highly likely. However, skepticism remains notable: 27.32% were highly unlikely and another 16.12% somewhat unlikely to use them for work trips, indicating that almost 44% of respondents exhibit reluctance or resistance. Interestingly, for non-work trips, public perception appears slightly more favorable. A combined 38.53% were likely or highly likely to use self-driving buses outside of work contexts, while only 32.51% were unlikely or highly unlikely. Additionally, the share of neutral responses rose to 28.96%, suggesting a significant portion of the population remains open to persuasion or may be awaiting further experience or information before forming an opinion. These results indicate that while Germans may approach the integration of self-driving buses with measured caution—particularly for routine, time-sensitive trips like commuting—they are more amenable to considering them for discretionary or flexible travel. Continued exposure, reliability, and convenience will likely be critical in shifting more users toward adoption across both categories.

Table 120: Self-driving public buses are now available in your city. Given that the cost and travel time are the same as of using a today's conventional public bus, how likely is that you will be using a self-driving public bus

	Or your work trips?		for your non-work trips?	
Highly unlikely	100	27,32%	69	18,85%
Somewhat unlikely	59	16,12%	50	13,66%
Neutral	85	23,22%	106	28,96%
Somewhat likely	76	20,77%	96	26,23%
Highly likely	46	12,57%	45	12,30%
Total	366	100,00%	366	100,00%

The data on the expected impact of self-driving public buses on residential location decisions in Germany shows a strong tendency toward residential stability (Table 121). A clear majority of respondents—59.29%, indicated that the availability of such services would not affect where they live. This suggests that, at least initially, self-driving public buses are not perceived as a transformative factor in terms of residential mobility. That said, nearly one-third of respondents do anticipate some change. A combined 34.52% foresee relocation, with most indicating a preference for areas still within or near the urban sphere: 14.75% to the suburbs, 16.12% closer to the city center, and 4.64% directly into the city center. Only 5.19% expressed an interest in relocating to more rural areas, suggesting that while self-driving public buses might support decentralization to some extent, their perceived utility still aligns more strongly with urban and peri-urban life. Overall, this data implies that while self-driving public buses may offer new mobility options, they are unlikely to prompt large-scale migration or shifts in settlement patterns without broader infrastructural or lifestyle changes accompanying them.

Table 121: Assuming that the cost and travel time of self-driving public buses are the same as of today's public buses, how do you expect the below to be affected? Your current residential location

Relocation to a rural area	19	5,19%
Relocating to city's suburbs	54	14,75%
No change	217	59,29%
Relocate closer to the city center	59	16,12%
Relocate to the city center	17	4,64%
Total	366	100,00%

Among German respondents considering a change in residence due to self-driving vehicle technologies (Table 122), the motivations appear to be a combination of improved mobility and broader quality-of-life enhancements. The most frequently cited reason was “easier to travel in the new area,” chosen by 19.35% of participants, highlighting the role of perceived improvements in transport accessibility in influencing residential decisions. Closely following this are more functional and space-related considerations. “Easier to travel further” (16.13%) and “more footpaths” (15.05%) suggest a growing appeal of locations that offer better connectivity and pedestrian infrastructure—indicators of more livable, perhaps peri-urban, environments. At the same time, 13.98% mentioned “would like more space,” reflecting a potential preference for moving to areas with lower density or larger housing stock, particularly if travel time can be used more productively or comfortably. The ability to “relax during travel” (11.47%) and “be productive while travel” (10.39%) also emerge as meaningful factors. Together, these highlight how autonomous mobility may be reframing the travel experience itself as usable or restorative time, potentially reducing the psychological and opportunity costs of longer commutes. Although less frequently cited, “more cycleways” and “nicer to live in the new area” (both 6.81%) still indicate that softer urban design elements and general quality of life play a non-negligible role in shaping people’s willingness to relocate. In short, self-driving technology is not only reshaping how people might travel, but also how they envision where they can live, especially in terms of combining mobility with improved space, comfort, and lifestyle amenities.

Table 122: Can you please describe why you might change where you live?

would like more space	39	13,98%
can relax during travel time	32	11,47%
easier to travel further	45	16,13%
can be productive while travel	29	10,39%
easier to travel in the new area	54	19,35%
more footpaths	42	15,05%
more cycleways	19	6,81%
nicer to live in the new area	19	6,81%
Total	279	100,00%

Regarding Table 123, German respondents appear cautiously optimistic about adopting private delivery or pick-up robots, with attitudes distributed relatively evenly across the spectrum but leaning toward moderate openness. A combined 45.63% express some level of likelihood to use such services—28.69% “somewhat likely” and 16.94% “highly likely.” This suggests a significant portion of the population is receptive to the idea, likely drawn by potential convenience, speed, or novelty. However, 29.24% remain either “somewhat unlikely” or “highly unlikely” to engage with these technologies, indicating that skepticism or concerns—possibly around reliability, privacy, or job displacement—persist. Notably, the largest single category is “neutral” at 25.14%, reinforcing the interpretation that many are undecided and perhaps awaiting clearer evidence of performance, value, or societal impact before committing. Taken together, these figures suggest that while private delivery robots are not yet poised for full-scale mainstream adoption, there is already a considerable base of potential early users and a sizeable group on the fence. The data points to a technology whose success in Germany may hinge on demonstrable gains in efficiency and trust-building among more skeptical or undecided consumers.

Table 123: How likely is that you will be using a private delivery/pick-up robot for your deliveries?

Highly unlikely	67	18,31%
Somewhat unlikely	40	10,93%
Neutral	92	25,14%
Somewhat likely	105	28,69%
Highly likely	62	16,94%
Total	366	100,00%

The potential impacts of private delivery or pick-up robots in Germany (Table 124) appear notably uneven across domains of consumer behavior and residential decisions. Respondents do not strongly anticipate a change in their residential location: 87.83% indicate “no change,” suggesting that while delivery robots may increase convenience, they are not expected to be transformative enough to trigger widespread relocation. However, the perceived economic impact is more substantial. An overwhelming 82.17% of participants believe their current delivery costs would decrease if robot deliveries were implemented, implying strong expectations of operational efficiency gains and cost reductions passed on to consumers. This sentiment is echoed in expectations around shopping habits: 94.35% foresee an increase in their number of monthly online orders. This aligns with broader assumptions about automation enabling faster, more affordable, and possibly more frequent home deliveries. Notably, while very few people would relocate solely because of this technology (only 14.35% say they would move to a rural area and 3.91% to the city center), the behavioral shifts around consumption are far more dramatic. This reflects an understanding of delivery robots not as urban design disruptors, but as enhancers of daily convenience within existing residential frameworks. For German respondents, the technology is poised to reshape habits, not homes.

Table 124: Assuming that the cost and time of private delivery/pick-up robots are the same as of today's conventional delivery service, how do you expect the below to be affected?

	Your current residential location		your current delivery costs		your current number of monthly online orders	
Relocated to a more rural area	33	14,35%	19	8,26%	13	5,65%
Relocated to city's suburbs	64	27,83%	89	38,70%	42	18,26%
No change	202	87,83%	27	11,74%	24	10,43%

Relocated closer to the city center	58	25,22%	189	82,17%	217	94,35%
Relocated to the city center	9	3,91%	42	18,26%	70	30,43%
Total	366	159,13%	366	159,13%	366	159,13%

The motivations behind potential residential relocation in Germany (Table 125), in the context of self-driving technologies, suggest a variety of lifestyle-oriented factors but with relatively moderate intensity. Among respondents who indicated they might move (164 out of 366 total respondents, or 58.78%), preferences cluster around increased flexibility and comfort rather than fundamental needs. “Easier to travel further” and “can be productive while travel” tie as the most frequently cited reasons (11.47% each), closely followed by relaxation during travel (6.09%) and the desire for more space (6.81%). These responses indicate that automation's promise to transform passive travel time into productive or relaxing experiences is being taken seriously by a sizable portion of the population. However, they do not reflect a sense of necessity or urgency. Notably, relatively few respondents identify features of the built environment—such as “more footpaths” (6.45%) or “more cycleways” (2.15%)—as decisive factors, suggesting that the appeal of self-driving innovations lies more in the convenience and experiential value of travel itself than in urban design improvements. Altogether, these figures point to a cautious but positive disposition toward relocating in response to enhanced mobility, driven less by structural infrastructure and more by personal lifestyle enhancement.

Table 125: Can you please describe why you might change where you live?

would like more space	19	6,81%
can relax during travel time	17	6,09%
easier to travel further	32	11,47%
can be productive while travel	32	11,47%
easier to travel in the new area	20	7,17%
more footpaths	18	6,45%
more cycleways	6	2,15%
nicer to live in the new area	20	7,17%
Total	164	58,78%

Table 126, shows the expectations in Germany regarding the timeline for self-driving technologies reflect a cautious optimism, with most respondents projecting implementation between 2030 and 2040. Among the five domain self-driving taxis, private cars, public buses, on-demand shuttles, and delivery robots, the highest expectations for near-term implementation (by 2030) are reserved for private delivery robots, with 23.22% of respondents believing they will be available in their city within that timeframe. This aligns with a general perception that delivery technologies may face fewer regulatory and infrastructural hurdles compared to passenger transport. For the rest, respondents predominantly foresee deployment occurring between 2035 and 2040. Notably, 26.23% expect self-driving taxis by 2035, rising to 51.64% by 2040. Similarly, public buses show an anticipated adoption curve with 26.78% by 2035 and a comparable 24.04% by 2040, suggesting consistent belief in the feasibility of autonomous transit solutions within 10–15 years. The same pattern is visible for on-demand shuttle buses, with nearly half expecting implementation between 2035 (28.42%) and 2040 (22.13%). Skepticism remains in the form of delayed projections: 15–17% of respondents believe implementation will not occur until 2045 or later across most categories, and a non-negligible 6–9% believe these services will “never” materialize in their cities. This indicates that while public attitudes are largely forward-looking, a segment of the population maintains deep reservations, especially with technologies that more directly replace human-operated transport.

Table 126: By when do you think that the below self-driving services or vehicles will start being implemented in your city?

	Self-driving taxi		Self-driving private cars		Self-driving public bus		Self-driving on-demand shuttle bus		Self-driving private delivery - pick-up robot	
2030	61	16,67%	62	16,94%	62	16,94%	51	13,93%	85	23,22%
2035	96	26,23%	88	24,04%	98	26,78%	104	28,42%	86	23,50%
2040	93	25,41%	102	27,87%	88	24,04%	81	22,13%	87	23,77%
2045	56	15,30%	50	13,66%	55	15,03%	62	16,94%	57	15,57%
2050	26	7,10%	41	11,20%	33	9,02%	34	9,29%	26	7,10%
Never	34	9,29%	23	6,28%	30	8,20%	34	9,29%	25	6,83%
Total	366	100,00%	366	100,00%	366	100,00%	366	100,00%	366	100,00%

6.2.4.4 Section 4: Your attitudes regarding the impact self-driving vehicles will have in general

The perceived impact of self-driving vehicles on various facets of mobility in Germany suggests a generally optimistic outlook, especially regarding efficiency and cost-effectiveness (Table 127). A strong majority believe that the number of citizen trips will increase because of these technologies, with 58.20% expecting a moderate increase (up to 50%) and an additional 14.75% anticipating a significant increase (over 50%). This aligns with the idea that autonomous mobility could offer more flexible and accessible transport options, particularly for those currently underserved by traditional modes. Similarly, 67.48% (53.55% + 13.93%) expect the number of vehicles on the network to rise, which may reflect the perception that individual vehicle use will increase despite automation—possibly due to increased convenience or reduced perceived cost of ownership and operation. However, this anticipated rise in vehicle numbers does not diminish the belief that autonomous vehicles will enhance efficiency.

In fact, 66.12% of respondents anticipate a reduction in travel time, with a majority expecting moderate (53.28%) and a smaller group (12.84%) anticipating significant improvements. Travel cost reductions for citizens echo this pattern: 66.4% expect decreases, and only a small fraction (3.28%) foresee no change. Similarly, expectations around delivery costs are optimistic: 62.02% expect some form of reduction, which may relate to the anticipated operational efficiency of delivery robots or autonomous freight systems. Overall, Germans appear to associate self-driving vehicles with increased mobility, reduced costs, and improved efficiency, although there is awareness of the trade-off in terms of potentially higher vehicle saturation on the roads.

Table 127: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

	Citizens' number of trips		Number of vehicles on the network		Citizens travel time		Travel costs for citizens' trips		Delivery costs	
-2 = Reduced significantly (50% reduction or more)	7	1,91%	14	3,83%	16	4,37%	17	4,64%	17	4,64%
-1 =Reduced (up to 50% reduction)	77	21,04%	94	25,68%	97	26,50%	94	25,68%	113	30,87%
0=No change	15	4,10%	11	3,01%	11	3,01%	12	3,28%	9	2,46%
1=Increase or Improve (up to 50% increase)	213	58,20%	196	53,55%	195	53,28%	194	53,01%	172	46,99%
2= Increase or Improve significantly (50% increase or more)	54	14,75%	51	13,93%	47	12,84%	49	13,39%	55	15,03%
Total	366	100,00%	366	100,00%	366	100,00%	366	100,00%	366	100,00%

In the context of broader systemic impacts, German respondents expressed a predominantly positive outlook on how self-driving vehicles might influence the transport sector, the economy, and the labor market (Table 128). The most optimistic expectations were directed toward economic growth and investment, with 54.64% and 56.56% of respondents, respectively, predicting moderate improvements (up to 50%) and a further 18.31% and 21.58% foreseeing significant improvements (over 50%). This implies a strong belief that autonomous vehicle technologies could stimulate innovation, attract capital, and enhance overall economic vitality. A similarly encouraging outlook appears in the perception of employment opportunities. While there is recognition of potential disruption—11.75% expect employment to be reduced significantly and 26.50% foresee moderate reductions—more than half (59.02%) believe opportunities will actually increase, likely reflecting new roles in tech development, vehicle maintenance, and data services. The view on job losses is more nuanced: 43.17% expect moderate job losses and 20.49% foresee significant ones. This suggests a tension between optimism about new roles and realism about automation's capacity to displace certain traditional transport-related jobs.

Regarding environmental impacts, 59.56% believe emissions from the transport sector will be reduced (31.15% moderately, 7.65% significantly), while 46.45% still anticipate an increase in emissions. This ambivalence could stem from uncertainty about energy sources and modal shifts (e.g. increased vehicle miles travelled), hinting at the importance of policy and infrastructure to ensure net environmental gains. Together, these figures suggest that Germans are broadly hopeful about the transformative potential of autonomous mobility, particularly in terms of economic expansion and innovation, though tempered by caution around social equity and employment risks.

Table 128: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Transport sector's emissions		Economic growth		Investments		Employment opportunities		Job losses	
-2 = Reduced significantly (50% reduction or more)	28	7,65%	11	3,01%	5	1,37%	43	11,75%	38	10,38%
-1 =Reduced (up to 50% reduction)	114	31,15%	74	20,22%	65	17,76%	97	26,50%	86	23,50%
0=No change	6	1,64%	14	3,83%	10	2,73%	10	2,73%	9	2,46%
1=Increase or Improve (up to 50% increase)	170	46,45%	200	54,64%	207	56,56%	167	45,63%	158	43,17%
2= Increase or Improve significantly (50% increase or more)	48	13,11%	67	18,31%	79	21,58%	49	13,39%	75	20,49%
Total	366	100,00%	366	100,00%	366	100,00%	366	100,00%	366	100,00%

According to the Table 129, German respondents anticipate considerable improvements in accessibility and skills development linked to the adoption of self-driving vehicles. A clear majority expect an increase in the need for new skills (72.67%), with 58.74% predicting moderate growth and 13.93% foreseeing a significant increase. This suggests a strong awareness that technological change will demand workforce adaptation, likely in fields such as automation, software engineering, and systems maintenance. Perceptions of accessibility also reflect high expectations for societal benefits. For the general population, 74.59% foresee improved access (56.56% moderately, 18.03% significantly). Similar levels of optimism are visible for people with special mobility needs (73.23%) and for older individuals (71.86%). These figures highlight strong public belief that autonomous mobility could mitigate mobility-related exclusion, reduce dependence on human drivers, and improve independent travel for vulnerable groups.

A relatively small proportion expect negative impacts: 4.37% believe skills requirements could be significantly reduced, and just under 5% expect accessibility for older adults to decline significantly. This suggests that while there is some concern about equity and transition readiness, it is marginal compared to the dominant narrative of improvement and inclusion. Overall, this segment of the data reveals a strong confidence in the inclusive potential of self-driving technologies and an understanding that widespread deployment will likely be accompanied by significant skill transformations.

Table 129: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	New skills requirements	Accessibility of general population	Accessibility of people with special mobility needs	Accessibility of older people

-2 = Reduced significantly (50% reduction or more)	16	4,37%	14	3,83%	12	3,28%	18	4,92%
-1 =Reduced (up to 50% reduction)	71	19,40%	68	18,58%	73	19,95%	76	20,77%
0=No change	13	3,55%	11	3,01%	13	3,55%	9	2,46%
1=Increase or Improve (up to 50% increase)	215	58,74%	207	56,56%	194	53,01%	190	51,91%
2= Increase or Improve significantly (50% increase or more)	51	13,93%	66	18,03%	74	20,22%	73	19,95%
Total	366	100,00%	366	100,00%	366	100,00%	366	100,00%

The Table 130 reflects an overall positive outlook among German respondents regarding the societal impacts of self-driving vehicles, particularly in terms of travel stress, safety, and accessibility for families. Most notably, expectations around reduced stress and increased safety stand out. A combined 49.83% of respondents foresee a reduction in stress related to travelling (34.97% moderate, 9.56% significant), while a majority of 58.20% anticipate a decrease in traffic accidents (27.05% moderate, 11.48% significant). The expectation for reduced fatalities is similarly high at 56.01%, indicating strong public belief in the safety-enhancing potential of autonomous driving. These findings point to a perception that automation may help mitigate human error and reduce the physical and emotional burdens of travel.

Regarding accessibility for families with children, sentiment is also positive though slightly more tempered. About three-quarters (75.14%) of participants expect improvements, with 58.47% anticipating a moderate increase and 16.67% a significant one. This suggests that respondents associate autonomous vehicles with enhanced convenience, flexibility, or reliability for household mobility. Very few respondents foresee negative outcomes in these areas, particularly regarding accidents and fatalities, where only 3.28% and 2.46% expect no change, respectively. Taken together, this dataset reinforces the narrative of optimism toward autonomous vehicles, with safety, stress relief, and family accessibility emerging as key perceived benefits.

Table 130: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Accessibility of families with kids		Stress related to travelling		Number of traffic accidents		Number of fatalities	
-2 = Reduced significantly (50% reduction or more)	12	3,28%	35	9,56%	42	11,48%	29	7,92%

-1 =Reduced (up to 50% reduction)	72	19,67%	128	34,97%	99	27,05%	97	26,50%
0=No change	7	1,91%	6	1,64%	12	3,28%	9	2,46%
1=Increase or Improve (up to 50% increase)	214	58,47%	142	38,80%	166	45,36%	178	48,63%
2= Increase or Improve significantly (50% increase or more)	61	16,67%	55	15,03%	47	12,84%	53	14,48%
Total	366	100,00%	366	100,00%	366	100,00%	366	100,00%

6.2.5 Cyprus

6.2.5.1 Section 1: Participant Characteristics

The survey sample (Table 131) skews toward individuals in their mid-working life phase, with a notable concentration in the 25 to 44 age range. Specifically, 61.2% of respondents fall between 25 and 44 years old, with the 35–44 age group forming the largest cohort (32.8%). This suggests the insights drawn from the survey are most representative of adults in their peak professional years—an important consideration given CCAM's anticipated impact on employment and mobility behaviors. Respondents aged 18–24 and 55+ are underrepresented, together comprising only 18% of the total sample. While the lower presence of older adults (especially those 65+) may reflect broader demographic realities or digital access patterns.

Table 131: What is your age?

18 to 24	6	9%
25 to 34	19	28,40%
35 to 44	22	32,80%
45 to 54	14	20,90%
55 to 64	5	7,50%
65 +	1	1,50%
Total	67	100%

The gender distribution (Table 132) of the survey participants shows a relatively balanced representation, with a slight majority identifying as female (53.7%) and the remaining 46.3% identifying as male.

Table 132: How would you describe your gender?

Female	36	53,70%
Male	31	46,30%
Total	67	100%

The educational profile of the survey participants (Table 133) is notably high, with nearly half (49.3%) holding a postgraduate or higher university degree, such as a Master's, MBA, or PhD. An additional 29.9% report holding a university degree or equivalent professional qualification. Together, this means that almost four out of five respondents (79.2%) possess tertiary-level education. This suggests a sample that is highly educated, which may influence attitudes toward technology, innovation, and trust in automation—factors that are often correlated with education level. Only 3% reported no formal education, and 1.5% had completed only primary school. Meanwhile, 11.9% had completed secondary or vocational education, and a small share (4.5%) were still in full-time education. While this distribution supports in-depth exploration of higher-skilled stakeholders' perspectives, it also points to a relative underrepresentation of lower-educated individuals—an important caveat when considering equity in access, employment transitions, or digital literacy related to CCAM deployment.

Table 133: What is the highest educational level that you have achieved to date?

No formal education	2	3,00%
Primary school	1	1,50%

Secondary school or vocational education	8	11,90%
University degree or equivalent professional qualification	20	29,90%
Higher university degree (e.g. Master's, MBA, doctorate)	33	49,30%
Still in full time education	3	4,50%
Total	67	100%

This confirmation of the residential breakdown (Table 134) reinforces the earlier interpretation: the majority of respondents (70.2%) reside in urban environments, either in the city center or elsewhere within a city. This predominance of urban voices provides valuable insight into CCAM perceptions shaped by dense traffic conditions, existing transport infrastructure, and likely exposure to early forms of mobility innovation. Suburban and village residents, who collectively represent just under 30% of the sample, bring a different perspective—potentially more concerned with coverage, first-/last-mile connections, and affordability. Their underrepresentation suggests that any findings related to spatial equity or rural accessibility should be interpreted with caution. Ensuring that CCAM deployment considers the mobility needs of non-urban populations will be critical to meeting broader inclusive goals.

Table 134: Which of the following best describes where you live?

City centre	19	28,40%
City, not in centre	28	41,80%
Suburbs	12	17,90%
Village	8	11,90%
Total	67	100,00%

The respondent pool overwhelmingly identifies with the earlier stages of technology adoption (Table 135): 94.1% describe themselves as innovators, early adopters, or part of the early majority. This composition suggests a sample that is primed to engage with new technologies like CCAM, likely to see them as opportunities rather than threats.

Table 135: How would you describe yourself in terms of adopting technologies and innovations? I consider myself:

Innovator	17	25,40%
Early adopter	19	28,40%
Early majority	27	40,30%
Late majority	4	6,00%
Total	67	100,10%

Cyprus shows a clear urban tilt in the dataset (Table 136). More than 70% of respondents live in city environments—either in the city center or just outside of it. Only 12% live in villages. This urban skew means the survey reflects views shaped by structured transport networks and existing service access. It tells us how people in well-connected areas think about CCAM—not how those in more remote or underserved regions experience mobility.

Table 136: Which of the following best describes where you live?

City centre	19	28,40%
City, not in centre	28	41,80%
Suburbs	12	17,90%
Village	8	11,90%
Total	67	100,00%

6.2.5.2 Section 2: Your Travel Behavior Characteristics

Table 137 reinforces the profile of a highly mobile, transport-literate population in Cyprus. 95.5% of respondents have a valid driving license, indicating that nearly everyone surveyed is already embedded in car-based mobility systems. This is a critical contextual point. It suggests that most respondents are approaching CCAM from a position of mobility security—not from transport deprivation. Their views are shaped by personal driving experience, and their interest in CCAM is likely tied to improving or replacing what they already use, rather than gaining access to something new. This matters because it frames CCAM as a convenience upgrade rather than a social equalizer.

Table 137: Do you have a valid driving license?

No	3	4,50%
Yes	64	95,50%
Total	67	100,00%

Table 138 confirms the deep car dependency of the Cyprus sample. Only 1.5% of respondents live in car-free households, while 98.5% own at least one private car, and over 70% own two or more. Half of all households own exactly two cars, and nearly 27% own three or more.

Table 138: How many private cars does your household own?

0	1	1,50%
1	14	20,90%
2	34	50,70%
3	9	13,40%
4	4	6,00%
5	4	6,00%
6	1	1,50%
Total	67	100,00%

Table 139 confirms just how dominant car use is in Cyprus—not just in ownership, but in actual behavior. Regarding the private car as a driver (driving alone), it is by far the dominant mode. Almost all respondents report using it, and over half use it frequently (10+ trips per week). This suggests that solo driving is not just a preference but a structural necessity for most. The spread is wide, with some reporting extreme use (30–60 weekly trips), pointing to repetitive solo journeys — possibly work commutes, school drop-offs, or short-distance errands. CCAM services that aim to replace private vehicle use in Cyprus will need to match this level of personal flexibility and trip frequency. Anything perceived as slower, less direct, or shared may struggle to convert these users. Moving on to the private car as driver with passengers, while also well-used, this mode shows notably fewer high-frequency users compared to solo driving. Most responses cluster in the lower range (0–10 trips/week), suggesting that carpooling or family transport is secondary to solo use. This may reflect fixed household routines (e.g. school drop-offs) or informal ridesharing. The lower overall reliance here indicates that car culture in Cyprus is highly individualized — social coordination around trips remains limited. From a CCAM standpoint, this could present both a challenge (resistance to shared models) and an opportunity (a service that makes shared travel easy could fill this underused space).

Further, the use of private cars as passengers is modest but consistent. About 43% of respondents report using it weekly, most with low to moderate frequency. This is likely made up of household car-sharing, where different members rotate as driver/passenger. It may also reflect people without a license (e.g. younger household members, elderly) or informal lift-giving. The key point here is that even as passengers, most trips still occur in private cars. This reinforces how deeply car-based the transport system is — regardless of who is driving. Regarding the bus use, the data here is stark: 90% of respondents report zero weekly trips by bus or tram. Use is negligible, with only a handful using it even once a week. This isn't just low uptake — it reflects near-systemic disuse. This could be due to coverage gaps, low frequency, cultural stigma, or lack of integration with other modes. For CCAM, this highlights a major gap: if automation is introduced as a form of shared public mobility, it may inherit the same public perception problems unless accompanied by a strategic narrative shift and service redesign. Automation won't fix a broken service — only a rethinking of mobility design will.

Taxi or ridesharing are also underutilized. About 88% report that they do not use these services at all during the week. This suggests they are viewed as situational — used for occasional or exceptional needs, rather than integrated into daily mobility. Given the high car ownership and licensing rate, this makes sense: most people simply don't need to pay for a driver. For CCAM, this is a warning: automated ride-hailing models (like robotaxis) may not find an easy market unless they significantly undercut the cost and convenience of private ownership. Walking is the only "non-motorized" mode with moderate usage, but still, 31% of respondents report zero walking trips — surprisingly high in an urbanized country. Those who do walk tend to do so infrequently (1–5 trips/week), suggesting walking is not a primary mode but used mainly for short connections or leisure. This hints at an urban form that may be car-oriented or lacking in safe, pleasant pedestrian infrastructure. It also suggests that active mobility is not yet well integrated into people's transport routines. For CCAM, especially first- and last-mile applications, this matters: adoption will depend in part on how easily people can access shared automated services from their homes on foot. Furthermore, nearly 84% report zero use of micromobility. These modes are marginal — possibly due to infrastructure gaps, cultural perceptions, or safety concerns. While they exist, they don't form part of routine transport patterns. CCAM projects that rely on micromobility as a feeder system may face limited uptake unless coupled with significant improvements in street-level infrastructure and user trust. Lastly, motorcycle use is almost non-existent, with 97% of respondents not using this mode at all. This may reflect safety concerns, limited necessity (given high car access), or demographic factors (e.g., the older population is less likely to ride). It suggests that motorized two-wheelers are not a competitive transport option in Cyprus. This has minimal direct implications for CCAM, but it reinforces the overall picture: the transport system is binary — either car or not.in Cyprus. This has minimal direct implications for CCAM, but it reinforces the overall picture: the transport system is binary — either car or not.

Table 139: How many trips do you conduct with each of the below transport modes within a week? Consider the following example to calculate your trips: homework is one trip, home-work-home are two trips. Private car as driver (driving alone)

Count	Private car as driver (driving alone)		Private car as a driver (driving with another passenger)		Private car as passenger		Bus or tram		Taxi or ridesharing (such as Uber)		Walking		Cycling or e-scooter		Motorcycle	
0	8	11,94%	15	22,39%	29	43,28%	60	89,55%	59	88,06%	21	31,34%	56	83,58%	65	97,01%
1	0	0,00%	4	5,97%	0	0,00%	3	4,48%	5	7,46%	3	4,48%	2	2,99%	0	0,00%
2	5	7,46%	5	7,46%	10	14,93%	1	1,49%	3	4,48%	16	23,88%	3	4,48%	0	0,00%
3	0	0,00%	1	1,49%	2	2,99%	1	1,49%	0	0,00%	2	2,99%	1	1,49%	0	0,00%
4	3	4,48%	7	10,45%	10	14,93%	0	0,00%	0	0,00%	2	2,99%	0	0,00%	0	0,00%
5	2	2,99%	2	2,99%	1	1,49%	0	0,00%	0	0,00%	2	2,99%	0	0,00%	0	0,00%
6	4	5,97%	3	4,48%	2	2,99%	1	1,49%	0	0,00%	3	4,48%	2	2,99%	0	0,00%
7	1	1,49%	1	1,49%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
8	2	2,99%	1	1,49%	1	1,49%	0	0,00%	0	0,00%	2	2,99%	0	0,00%	0	0,00%
10	8	11,94%	6	8,96%	8	11,94%	0	0,00%	0	0,00%	4	5,97%	1	1,49%	0	0,00%
12	1	1,49%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
14	4	5,97%	1	1,49%	1	1,49%	0	0,00%	0	0,00%	2	2,99%	0	0,00%	0	0,00%
15	2	2,99%	3	4,48%	0	0,00%	0	0,00%	0	0,00%	1	1,49%	0	0,00%	0	0,00%
16	3	4,48%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
20	8	11,94%	1	1,49%	0	0,00%	1	1,49%	0	0,00%	2	2,99%	1	1,49%	1	1,49%
21	0	0,00%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
22	0	0,00%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
24	0	0,00%	0	0,00%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
25	1	1,49%	1	1,49%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
26	0	0,00%	2	2,99%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
28	2	2,99%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
30	5	7,46%	4	5,97%	0	0,00%	0	0,00%	0	0,00%	2	2,99%	0	0,00%	1	1,49%
32	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%

34	0	0,00%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
40	6	8,96%	3	4,48%	0	0,00%	0	0,00%	0	0,00%	5	7,46%	1	1,49%	0	0,00%
44	0	0,00%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
55	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
60	0	0,00%	1	1,49%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%	0	0,00%
Total	67	100,00%	67	100,00%	67	100,00 %	67	100,00 %	67	100,00 %	67	100,00 %	67	100,00 %	67	100,00 %

Table 140 offers a strong indication of how embedded e-commerce and digital consumption habits are among the Cypriot respondents. Only 1.5% report never receiving deliveries, while nearly 73% receive deliveries at least a few times per month, and over 25% receive them weekly or more. This is consistent with the earlier profile we've seen: urban, highly educated, tech-savvy, and digitally integrated individuals whose lifestyles rely on convenience, access, and time-efficiency. The most common frequency is 2–3 times per month (47.8%), which likely reflects regular, scheduled e-commerce use—clothing, electronics, household items, and potentially groceries. 19.4% receive deliveries several times a week and the 6% receiving daily deliveries point to a cohort already living in a system of digital immediacy—comfortable with app-based logistics, and expecting high-speed, frictionless service.

Table 140: How often do you receive deliveries for things you order online or by phone?

Never	1	1,49%
Few times per year (1-5 times per year)	17	25,37%
Few times per month (2-3 times per month)	32	47,76%
Few times per week (2-3 times per week)	13	19,40%
Almost every day (1 or more times a day)	4	5,97%
Total	67	100,00%

Most respondents live in households of 2 to 4 people (Table 141). Specifically, 22.4% live in 2-person households, 19.4% in 3-person households, and 23.9% in 4-person households. These three categories make up 65.7% of the total sample. 16.4% live in 5-person households, while 13.4% live alone. Larger households of 6 or 7 people are rare, with only 1.5% and 3% of respondents respectively. So, the majority of Cypriot respondents live in small to medium-sized households, with a clear concentration in the 2–4-person range.

Table 141: Including yourself, how many people live in your household?

1	9	13,43%
2	15	22,39%
3	13	19,40%
4	16	23,88%
5	11	16,42%
6	1	1,49%
7	2	2,99%
Total	67	100,00%

Table 142 shows that the large majority of respondents — 73.1% — are working full-time. An additional 6% are in part-time work, which brings the total employed population to 79.1%. 11.9% of respondents are students, while 4.5% are retired. A small number identify as homemakers (3%), and only 1.5% are currently not working. This means the sample is largely made up of people active in the labor market, with limited representation from economically inactive or older populations.

Table 142: How do you describe your employment situation?

Currently not working	1	1,49%
Working part-time	4	5,97%
Working full-time	49	73,13%
Student	8	11,94%
Retired	3	4,48%
Homemaker	2	2,99%
Total	67	100,00%

6.2.5.3 Section 3: Self-driving vehicles and services for your personal mobility

Awareness of self-driving vehicles in the Cyprus sample is mixed (Table 143). A combined 43.3% say they are either aware or well aware of self-driving vehicles, with 22.4% selecting “aware” and 20.9% selecting “well aware.” However, the majority are still on the lower end of the awareness scale: 37.3% say they have only heard about self-driving vehicles but don’t know much, and 19.4% report no awareness at all. This suggests that while there is a base level of familiarity, in-depth understanding is not yet widespread. For CCAM deployment to be accepted or trusted more broadly, public communication efforts will need to be scaled up significantly. People aren’t necessarily hostile to automation; they just don’t know enough about it yet to form strong opinions.

Table 143: How well aware are you about self-driving vehicles?

I am not aware of self-driving vehicles	13	19,40%

I have only heard about self-driving vehicles, but I do not know much	25	37,31%
I am aware of self-driving vehicles	15	22,39%
I am well aware of self-driving vehicles	14	20,90%
Total	67	100,00%

Table 144 provides clear insight into Cypriot respondents' openness to using self-driving taxis for work-related travel, assuming cost and travel time are equal to conventional taxis. The responses are split across the spectrum. 22.4% say they are highly unlikely to use a self-driving taxi, and another 19.4% are somewhat unlikely. That means 41.8% lean toward rejecting the option. On the other hand, 17.9% are somewhat likely, and 16.4% are highly likely — so 34.3% lean toward acceptance. The largest single group, 23.9%, sits in the neutral position, neither accepting nor rejecting the idea. In short, about one-third would consider using a self-driving taxi for work trips, a little more than one-third would not, and a significant portion are undecided. This reflects cautious interest, but not yet strong enthusiasm. Perceived safety, trust, and familiarity will likely play a decisive role in shifting neutral or hesitant respondents toward actual use.

Table 144: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as of using a conventional taxi today, how likely is that you will be using a self-driving taxi: for your work trips?

Highly unlikely	15	22,39%
Somewhat unlikely	13	19,40%
Neutral	16	23,88%
Somewhat likely	12	17,91%
Highly likely	11	16,42%
Total	67	100,00%

Table 145 shows that Cypriot respondents are even more hesitant about using self-driving taxis for non-work trips than for commuting. 23.9% say they are highly unlikely to use them, and 25.4% are somewhat unlikely—together, that's nearly half the sample (49.3%) expressing reluctance. Meanwhile, 11.9% are highly likely and 14.9% are somewhat likely, making up 26.9% who lean toward acceptance. The rest, 23.9%, remain neutral. This indicates that non-work travel—often more personal, spontaneous, or family-related—brings even greater hesitation around automation. Familiarity, comfort, or concerns around safety may weigh more heavily in these contexts. The majority of respondents are currently not ready to switch to self-driving taxis for everyday leisure or errands, even under equal pricing and timing conditions.

Table 145: Self-driving taxis are now available in your city. Given that the cost and travel time are the same as of using a conventional taxi today, how likely is that you will be using a self-driving taxi: for your non-work trips?

Highly unlikely	16	23,88%
Somewhat unlikely	17	25,37%
Neutral	16	23,88%
Somewhat likely	10	14,93%
Highly likely	8	11,94%
Total	67	100,00%

Table 146 shows that the availability of self-driving taxis—assuming equal cost and travel time to conventional taxis—would have almost no effect on where people in Cyprus choose to live. 86.6% of respondents say they would make no change to their current residential location. Only 2.99% would consider relocating to a rural area, and 4.5% would move to the suburbs. A similarly small share would relocate closer to the city center (4.5%), and just 1.5% would move directly into the city center. This means that self-driving taxis are not expected to influence residential preferences in any significant way. Mobility convenience alone is unlikely to drive relocation decisions for most people in this sample.

Table 146: Assuming that the cost and travel time of self-driving taxis are the same as of today's taxis, how do you expect the below to be affected? your current residential location

Relocate to a rural area	2	2,99%
Relocate to city's suburbs	3	4,48%
No change	58	86,57%
Relocate closer to the city centre	3	4,48%
Relocate to the city centre	1	1,49%
Total	67	100,00%

Table 147 shows that interest in buying or leasing a private self-driving car in Cyprus is cautiously positive, though not overwhelming. 34.3% say they are somewhat likely to purchase or lease one, and 13.4% are highly likely a combined 47.8% who lean toward interest. On the other side, 14.9% are highly unlikely, and 19.4% are somewhat unlikely, total 34.3% who lean against it. The remaining 17.9% are neutral. So, while there is no overwhelming demand, nearly half of the sample would consider owning a self-driving car, especially given the added factor that no driving license is required. This suggests more openness to personal automated mobility than to shared services like robotaxis.

Table 147: How likely is it to buy/lease a private self-driving car? There is no need to have a driving license to purchase one.

Highly unlikely	10	14,93%
Somewhat unlikely	13	19,40%
Neutral	12	17,91%
Somewhat likely	23	34,33%
Highly likely	9	13,43%
Total	67	100,00%

Table 148 reflects a fairly even distribution of attitudes toward using a self-driving private car for work trips in Cyprus, assuming cost and travel time are the same as with a conventional electric vehicle. On the positive side, 25.4% are somewhat likely and 20.9% are highly likely, making 46.3% open to the idea. Meanwhile, 19.4% are highly unlikely and 20.9% are somewhat unlikely, so 40.3% lean against it. The remaining 13.4% are neutral. This suggests there is slightly more support than opposition for using private self-driving cars for commuting, especially compared to the robotaxi scenario. However, the level of hesitancy is still considerable, indicating that while there is interest, trust and familiarity remain important hurdles.

Table 148: Given that the cost and travel time are the same as of using a conventional electric car, how likely is that you will be using a self-driving private car: for your work trips?

Highly unlikely	13	19,40%

Somewhat unlikely	14	20,90%
Neutral	9	13,43%
Somewhat likely	17	25,37%
Highly likely	14	20,90%
Total	67	100,00%

Table 149 shows that Cypriot respondents are slightly more open to using self-driving private cars for non-work trips than they are for shared autonomous taxis, but opinions remain mixed. A 22.4% say they are somewhat likely to use one, and 17.9% are highly likely, meaning 40.3% lean toward using a private self-driving vehicle for non-work purposes. Meanwhile, 14.9% are highly unlikely and 20.9% are somewhat unlikely, making 35.8% hesitant. The remaining 23.9% are neutral. This pattern suggests a moderate level of interest, with slightly more support than opposition—but still a significant number of respondents who are either unsure or reluctant. As with work trips, trust, control, and perceived convenience will likely determine real-world adoption.

Table 149: Given that the cost and travel time are the same as of using a conventional electric car, how likely is that you will be using a self-driving private car: for your non-work trips?

Highly unlikely	10	14,93%
Somewhat unlikely	14	20,90%
Neutral	16	23,88%
Somewhat likely	15	22,39%
Highly likely	12	17,91%
Total	67	100,00%

Table 150 shows that the availability of self-driving private cars would have little influence on residential relocation for most respondents in Cyprus. A 82.1% say they would make no change to their current residential location. A small number would consider relocating: 5.97% to a rural area, 7.46% to the city's suburbs, 2.99% closer to the city center, and just 1.5% directly into the city center. This is consistent with earlier responses: even if private self-driving vehicles become available, they are not expected to significantly alter where people choose to live. For most, residential decisions are shaped by other factors beyond mobility convenience.

Table 150: Assuming that the cost and travel time of self-driving private car are the same as of today's cars, how do you expect the below to be affected?

Relocation to a rural area	4	5,97%
Relocating to city's suburbs	5	7,46%
No change	55	82,09%
Relocate closer to the city center	2	2,99%
Relocate to the city center	1	1,49%
Total	67	100,00%

Table 151 shows the reasons respondents might consider changing where they live, assuming self-driving private cars make relocation easier. The most common reason is a desire for more space (21.2%). Other frequently selected motivations include having more footpaths (14.4%) and the area being nicer to live in (14.4%). Being productive during travel (11.5%) and relaxing during travel (11.5%) were also cited. A smaller share of responses pointed to better cycling infrastructure (10.6%), easier travel in the new area (9.6%), and being able to travel further (6.7%). Overall, people are most motivated by quality-of-life improvements, space, safety, and comfort—rather than purely mobility-related benefits. Automated travel may enable relocation, but it is not the main driver of residential choice on its own.

Table 151: Can you please describe why you might change where you live? would like more space

would like more space	22	21,15%
can relax during travel time	12	11,54%
easier to travel further	7	6,73%
can be productive while travel	12	11,54%
easier to travel in the new area	10	9,62%
more footpaths	15	14,42%
more cycleways	11	10,58%
nicer to live in the new area	15	14,42%
Total	104	100,00%

Table 152 presents respondents' likelihood of using self-driving public buses if they became available, with cost and travel time equal to today's conventional buses. For work trips, 43.3% are positively inclined: 22.4% are somewhat likely and 20.9% are highly likely to use self-driving buses. 37.3% are unlikely, split between 20.9% highly unlikely and 16.4% somewhat unlikely, while 19.4% are neutral. For non-work trips, the pattern is slightly more hesitant. 35.8% are likely to use self-driving buses (22.4% highly likely, 13.4% somewhat likely), while 40.3% are unlikely (22.4% highly unlikely, 17.9% somewhat unlikely), and 23.9% are neutral. So, while there is a fair amount of interest—especially for commuting—resistance remains, particularly for casual or personal use. Trust, routine, and perceived control likely play a role in shaping these attitudes.

Table 152: Self-driving public buses are now available in your city. Given that the cost and travel time are the same as of using a today's conventional public bus, how likely is that you will be using a self-driving public bus:

	or your work trips		for your non-work trips	
Highly unlikely	14	20,90%	15	22,39%
Somewhat unlikely	11	16,42%	12	17,91%
Neutral	13	19,40%	16	23,88%
Somewhat likely	15	22,39%	9	13,43%
Highly likely	14	20,90%	15	22,39%
Total	67	100,00%	67	100,00%

At Table 153 is shown that the availability of self-driving public buses would have little impact on residential choices for most respondents in Cyprus. 79.1% say they would not change their place of residence. A small portion would consider relocating: 10.5% to the suburbs, 4.5% to a rural area, 4.5% closer to the city center, and only 1.5% directly into the city center. As with other CCAM modes, the presence of autonomous buses alone is not a strong motivator for relocation. Most people would continue to live where they are, suggesting that broader quality-of-life factors outweigh mobility improvements in residential decisions.

Table 153: Assuming that the cost and travel time of self-driving public buses are the same as of today's public buses, how do you expect the below to be affected?

Relocate to a rural area	3	4,48%
Relocate to city's suburbs	7	10,45%
No change	53	79,10%
Relocate closer to the city centre	3	4,48%
Relocate to the city centre	1	1,49%
Total	67	100,00%

The reasons respondents might consider relocating in the context of self-driving public buses becoming available can be found in Table 154. The top reason is a desire for more space (24.1%), followed by more footpaths (14.8%), and a tie between being able to relax during travel and the area being nicer to live in (both 13.9%). Other factors include the ability to be productive while travelling (10.2%), more cycleways (9.3%), easier travel further (7.4%), and easier travel within the new area (6.5%). As with private vehicle scenarios, quality of life and comfort—rather than automation themselves are the main drivers of potential relocation. CCAM may enable movement, but it is not the deciding factor alone.

Table 154: Can you please describe why you might change where you live?

would like more space	26	24,07%
can relax during travel time	15	13,89%
easier to travel further	8	7,41%
can be productive while travel	11	10,19%
easier to travel in the new area	7	6,48%
more footpaths	16	14,81%
more cycleways	10	9,26%
nicer to live in the new area	15	13,89%
Total	108	100,00%

Table 155 shows relatively strong openness in Cyprus toward using private delivery or pick-up robots. 59.7% of respondents say they are likely to use such a service, with 34.3% highly likely and 25.4% somewhat likely. Meanwhile, 13.4% are neutral, and only 26.9% are unlikely (split evenly between somewhat and highly unlikely). This is one of the most positively received CCAM applications in the dataset, indicating that people are more comfortable with automation in logistics than in personal mobility. Convenience and low perceived risk are likely to contribute to this high acceptance level.

Table 155: How likely is that you will be using a private delivery/pick-up robot for your deliveries?

Highly unlikely	9	13,43%
Somewhat unlikely	9	13,43%
Neutral	9	13,43%
Somewhat likely	17	25,37%
Highly likely	23	34,33%
Total	67	100,00%

The majority of respondents (68.7%) report that the introduction of private delivery or pick-up robots would not influence where they live (Table 156 (a)) This suggests that automation in logistics is not viewed as a strong enough factor to drive residential relocation on its own. However, about 31% of the sample express a willingness to move if such services were available: 6% would relocate to a rural area, 6% to the city's suburbs, and a combined 19.4% would consider moving closer to or into the city center. Interestingly, this points not to a single directional trend (urban vs. rural), but to a general perception that robotic delivery might expand options — either by making it more feasible to live further out or by enhancing convenience in already central areas. When asked how robotic delivery might affect delivery costs (Table 156 (b)) ,only 50.8% of respondents anticipate no change. The remaining half see potential shifts, with the most common expectation being costs reduced in suburban areas (22.4%). Some also expect cost savings if they live in rural areas (10.5%) or closer to the city center (10.5%). This indicates a belief that automation could flatten the cost gradient traditionally associated with delivery zones—potentially making logistics more equitable and affordable, especially for non-central residents.

The majority of respondents (76.1%) say that robotic delivery would not affect how frequently they place online orders (Table 156 (c)).However, nearly one-quarter expect it could increase their ordering activity, depending on where they live. 8.9% link increased order volume to a potential move to the suburbs, 6% to relocating closer to or into the city center, and 3% to moving to a rural area. While not transformative, this suggests that CCAM-enabled logistics could marginally stimulate e-commerce, particularly in locations where delivery is currently slower, more expensive, or less reliable. In summary, while the introduction of private delivery robots is unlikely to lead to widespread behavioral shifts in Cyprus, it is expected to lower delivery costs for some and slightly increase order frequency, particularly outside central urban areas. The impact on residential location is minimal overall, but the data reveals that a subset of respondents view automation as a factor that could expand their living options, making both remote and urban lifestyles more logistically convenient.

Table 156: Assuming that the cost and time of private delivery/pick-up robots are the same as of today's conventional delivery service, how do you expect the below to be affected?

	your current residential location (a)		your current delivery costs (b)		your current number of monthly online orders (c)	
Relocated to a more rural area	4	5,97%	7	10,45%	2	2,99%
Relocated to city's suburbs	4	5,97%	15	22,39%	6	8,96%
No change	46	68,66%	34	50,75%	51	76,12%
Relocated closer to the city center	8	11,94%	7	10,45%	4	5,97%
Relocated to the city center	5	7,46%	4	5,97%	4	5,97%
Total	67	100,00%	67	100,00%	67	100,00%

Table 157provides insight into the reasons respondents in Cyprus might consider changing where they live in the context of private delivery/pick-up robots. The leading reason by far is the desire for more space, cited by 26.7% of responses. This indicates that respondents are using automation as a way to justify or enable a lifestyle shift that prioritizes larger living environments, potentially outside urban centers. The second most common reason is that the new area would be nicer to live in (18.8%), showing that subjective quality-of-life considerations—beyond mobility—play a central role in relocation thinking. Relatedly, more footpaths (12.9%) and more cycleways (10.9%) also feature, suggesting a strong preference for walkable and bike-friendly environments. A smaller but notable number cite travel-specific reasons: 9.9% say they would relocate in order to be productive during travel, while 7.9% say they would relax during travel, and another 7.9% mention that it would be easier to travel in the new area. Just 5% believe they could travel further if they moved. Taking together, the data suggests that automation in delivery may enable or support residential change—but not by itself. It is quality-of-life, space, and urban design that drive relocation interest. Robotic logistics are seen more as a supporting feature than a primary motivator.

Table 157: Can you please describe why you might change where you live?

would like more space	27	26,73%
can relax during travel time	8	7,92%
easier to travel further	5	4,95%
can be productive while travel	10	9,90%
easier to travel in the new area	8	7,92%
more footpaths	13	12,87%
more cycleways	11	10,89%
nicer to live in the new area	19	18,81%
Total	101	100,00%

6.2.5.4 Section 4: Your attitudes regarding the impact self-driving vehicles will have in general

Table 158 reflects respondents' expectations about the potential impacts of self-driving vehicles across five key dimensions: citizens' number of trips, number of vehicles on the network, citizens' travel time, travel costs, and delivery costs. The responses show a mix of cautious optimism and uncertainty. Citizens' number of trips is expected to increase by a notable portion of the sample: 38.8% predict either a moderate (29.9%) or significant (9%) increase in travel. However, 38.8% also expect no change, and 22.4% actually expect a reduction. This suggests that while many believe automation might make it easier or more appealing to travel more often, others see no reason for it to change trip frequency—or even anticipate less movement, potentially due to improved efficiency or remote services. When asked about the number of vehicles on the network, 34.3% believe it will decrease, and 13.4% expect a significant decrease, making nearly half the sample (47.7%) optimistic that automation will reduce vehicle volume. Yet, 29.9% still predict no change, and 22.4% foresee an increase. This shows that the public is split on whether CCAM will reduce congestion through more efficient shared fleets or simply lead to more empty vehicle movements and induced demand.

Expectations around citizens' travel time show limited optimism: 49.3% expect no change, and only 25.4% expect improvement. A smaller group (25.4%) believe travel time could decrease, but this is less confident than their expectations regarding cost or delivery. The perception here may be that automation alone won't dramatically affect congestion or route efficiency without systemic changes. For travel costs, 31.3% expect no change, but a strong 38.8% anticipate a reduction (either moderate or significant).

Another 20.9% expect a cost increase. The overall impression is that more respondents associate CCAM with making mobility more affordable, especially if ownership is replaced with shared use or on-demand pricing models. Finally, delivery costs are where respondents express the most optimism: 40.3% believe costs will decrease, and 22.4% even expect a moderate increase in efficiency. This is consistent with earlier data showing high acceptance of delivery robots. Only 28.4% expect no change in delivery costs, and only 8.9% expect a significant reduction—still, it remains one of the most positively viewed impacts. In sum, respondents see the strongest potential benefit of CCAM in reducing delivery and travel costs, with more mixed or neutral expectations regarding trip frequency, travel time, and vehicle volume. This suggests that public support may be highest for use cases that directly affect household logistics and budgets.

Table 158: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Citizens' number of trips		Number of vehicles on the network		Citizens travel time		Travel costs for citizens' trips		Delivery costs	
-2 = Reduced significantly (50% reduction or more)	8	11,94%	9	13,43%	9	13,43%	6	8,96%	6	8,96%
-1 =Reduced (up to 50% reduction)	7	10,45%	23	34,33%	8	11,94%	16	23,88%	16	23,88%
0=No change	26	38,81%	20	29,85%	33	49,25%	21	31,34%	19	28,36%
1=Increase or Improve (up to 50% increase)	20	29,85%	12	17,91%	14	20,90%	14	20,90%	15	22,39%
2= Increase or Improve significantly (50% increase or more)	6	8,96%	3	4,48%	3	4,48%	10	14,93%	11	16,42%
Total	67	100,00%	67	100,00%	67	100,00%	67	100,00%	67	100,00%

Table 159 captures how respondents in Cyprus anticipate self-driving vehicles might affect broader economic and environmental sectors, and the results reflect both cautious optimism and perceived trade-offs. Transport sector's emissions are widely expected to decrease. Over 53.7% of respondents predict a reduction, with 22.4% expecting a significant decrease. Only 20.9% foresee an increase or improvement. This indicates that many view automation as a path toward a more sustainable transport system, likely assuming electrification, smoother traffic flows, or fewer redundant trips. Economic growth expectations are more mixed. While 49.3% of respondents believe there will be growth (38.8% moderate, 10.4% significant), over one-third (35.8%) expect no change, and 14.9% foresee a decline. This suggests that while many believe CCAM could stimulate economic activity—through new industries, services, and efficiencies, there is no strong consensus. On investments, the sample is more optimistic. 61.2% anticipate increased investment activity (40.3% moderate, 20.9% significant), while only 13.4% foresee a decrease. This reflects expectations that autonomous mobility will attract funding, possibly through public-private partnerships, tech firms, or infrastructure upgrades.

Employment opportunities are where optimism starts to diminish. The largest share, 31.3%, expect no change, and 47.8% anticipate a reduction in opportunities (split evenly between moderate and significant losses). Only 20.9% expect improvement. This suggests that while CCAM might generate new types of jobs (e.g., in tech or fleet management), many respondents are more focused on the potential displacement of traditional driving-related roles. Job losses, accordingly, are widely expected: 46.3% predict job loss (28.4% significant, 17.9% moderate), while only 25.4% anticipate gains. Another 28.4% foresee no change. The data underscores a clear concern: automation in mobility is more likely to be associated with job displacement than job creation, at least in the public perception. In short, respondents expect self-driving vehicles to contribute to lower emissions, increased investment, and potentially economic growth—but they also anticipate fewer job opportunities and notable job losses. The trade-off between environmental/technological progress and labor disruption is clearly recognized.

Table 159: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Transport sector's emissions		Economic growth		Investments		Employment opportunities		Job losses	
-2 = Reduced significantly (50% reduction or more)	15	22,39%	4	5,97%	2	2,99%	16	23,88%	5	7,46%
-1 =Reduced (up to 50% reduction)	21	31,34%	6	8,96%	7	10,45%	16	23,88%	12	17,91%
0=No change	17	25,37%	24	35,82%	17	25,37%	21	31,34%	19	28,36%
1=Increase or Improve (up to 50% increase)	6	8,96%	26	38,81%	27	40,30%	9	13,43%	12	17,91%
2= Increase or Improve significantly (50% increase or more)	8	11,94%	7	10,45%	14	20,90%	5	7,46%	19	28,36%
Total	67	100,00%	67	100,00%	67	100,00%	67	100,00%	67	100,00%

Table 160 reflects respondents' expectations regarding the social and workforce impacts of self-driving vehicles, with particular focus on skills, accessibility for the general population, and inclusion of people with specific needs or older adults. New skills requirements are the most widely expected change. A strong 64.2% of respondents anticipate that self-driving vehicles will lead to increased or significantly increased demand for new skills (34.3% moderate increase, 29.9% significant increase). Only 22.4% expect no change, while less than 14% predict a decrease. This suggests that the public is well aware that automation will not eliminate the need for human input—it will simply shift it toward more technical, digital, or supervisory roles. Accessibility of the general population is also expected to improve, with 61.2% of respondents foreseeing better access (40.3% moderate, 20.9% significant). A third (31.3%) expect no change, and only a small minority anticipate a reduction. This suggests confidence that automation can broaden reach or ease-of-use, perhaps through more flexible scheduling, simplified interfaces, or on-demand models.

When it comes to accessibility for people with special mobility needs, expectations are very positive. 67.2% of respondents believe there will be improvement (34.3% moderate, 32.8% significant), while 23.9% expect no change. Only 9% predict a decline. These signals broadly support the idea that automation could remove some structural barriers currently limiting access for people with disabilities—such as reliance on drivers, inaccessible transit vehicles, or inconsistent service. For older people, the view is similarly optimistic: 64.2% expect improved accessibility (32.8% moderate, 31.3% significant), with only 12% expecting a decline and 23.9% no change. Respondents may associate self-driving vehicles with benefits like door-to-door service, less dependence on family or carers, and reduced physical demands in transport.

Table 160: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	New skills requirements		Accessibility of general population		Accessibility of people with special mobility needs		Accessibility of older people	
-2 = Reduced significantly (50% reduction or more)	3	4,48%	2	2,99%	3	4,48%	5	7,46%
-1 =Reduced (up to 50% reduction)	6	8,96%	3	4,48%	3	4,48%	3	4,48%
0=No change	15	22,39%	21	31,34%	16	23,88%	16	23,88%
1=Increase or Improve (up to 50% increase)	23	34,33%	27	40,30%	23	34,33%	22	32,84%
2= Increase or Improve significantly (50% increase or more)	20	29,85%	14	20,90%	22	32,84%	21	31,34%
Total	67	100,00%	67	100,00%	67	100,00%	67	100,00%

Table 161 reveals how respondents perceive the social and safety impacts of self-driving vehicles, focusing on four areas: accessibility of families with children, travel-related stress, number of traffic accidents, and fatalities. Accessibility of families with kids is generally seen as likely to improve: 55.2% expect improvement (26.9% moderate, 28.4% significant). However, a substantial 35.8% expect no change, and 8% actually anticipate a reduction. This indicates cautious optimism—respondents may believe automation can ease mobility for parents (e.g. by reducing driving burden or enabling independent transport for older children), though expectations are not universally high. On stress related to travelling, responses are more evenly spread. While 32.8% foresee a reduction in travel stress (including 9% expecting a significant drop), 40.3% believe there will be no change. Another 32.8% actually predict increased stress. These mixed perceptions suggest that while automation may reduce some stressors—like navigating traffic—it could introduce new ones, such as lack of control or trust in the system.

Expectations regarding the number of traffic accidents are clearly more hopeful. Nearly 49.3% believe accident rates will decline (25.4% moderately, 25.4% significantly), with another 25.4% expecting no change. Only 25.4% predict an increase. This shows that many respondents associate self-driving technology with safer driving behaviors, fewer human errors, and potentially more consistent rule-following. Similarly, fatalities are also expected to decline. Over 55% anticipate a reduction (28.4% moderate, 26.9% significant), while 25.4% expect no change. Only 19.4% believe fatalities might increase. This indicates strong public belief in automation's potential to improve road safety, even if there's still caution around its reliability and implementation. Overall, respondents in Cyprus expect self-driving vehicles to positively affect road safety and reduce accidents and fatalities, while benefits for families and stress reduction are recognized but seen as more conditional. Safety, rather than comfort, remains the area of strongest consensus.

Table 161: This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact in each one of the below statements you think it would be

Count	Accessibility of families with kids		Stress related to travelling		Number of traffic accidents		Number of fatalities	
-2 = Reduced significantly (50% reduction or more)	2	2,99%	6	8,96%	17	25,37%	18	26,87%
-1 =Reduced (up to 50% reduction)	4	5,97%	12	17,91%	16	23,88%	19	28,36%
0=No change	24	35,82%	27	40,30%	17	25,37%	17	25,37%
1=Increase or Improve (up to 50% increase)	18	26,87%	13	19,40%	8	11,94%	4	5,97%
2= Increase or Improve significantly (50% increase or more)	19	28,36%	9	13,43%	9	13,43%	9	13,43%
Total	67	100,00%	67	100,00%	67	100,00%	67	100,00%

7 Next Steps and Conclusions

7.1 Next Steps

This deliverable regarding the impact analysis and mapping of the social effects reported for stakeholders and population groups during the engagement activities feeds directly the rest of the tasks of WP4C (e.g., Task 4C3 'Forecasting and extrapolating social effects' and Task 4C4 'Validation of social effects for CCAM technologies and services'). Particularly, this deliverable identifies the associated impacts that will be used for the development of the social impact assessment model followed in WP4C that will be further validated involving industry and stakeholders in the process.

7.2 Conclusions

Deliverable D4.6 of the CCAM-ERAS project provides a detailed assessment of the socio-economic and societal impacts anticipated from the deployment of CCAM technologies. By combining desk-based research, stakeholder interviews, and citizen surveys across five European countries, this work delivers critical insights into how CCAM may reshape jobs, skills, transport accessibility, and social equity in the years to come. The findings confirm that CCAM technologies hold the potential to generate significant economic benefits—such as cost savings, productivity gains, and the emergence of new business models, particularly in logistics, shared mobility, and e-commerce. Stakeholders across sectors anticipate a shift in employment structures, with reduced demand for traditional driving roles and increased demand for skills in cybersecurity, artificial intelligence, and data analytics. HEIs and VEIs are expected to play a pivotal role in facilitating this transition, both by updating curricula and leading research in inclusive technology development.

At the same time, the deliverable underscores critical social challenges. Without targeted policy interventions, CCAM could exacerbate existing inequalities. Initial rollouts are likely to be concentrated in urban, high-income areas, raising concerns about affordability and access for rural and lower-income populations. Survey results from citizens reflect both interest and skepticism: while respondents appreciate the potential for safer, more efficient transport, they also express concerns around safety, data privacy, job loss, and unclear personal benefits. Public acceptance remains uneven across countries and demographic groups. Ultimately, the analysis highlights the importance of proactive, inclusive governance. Successful CCAM deployment depends not only on technological maturity but also on social readiness. Policymakers, industry actors, and educational institutions must collaborate to ensure that the shift toward automated mobility is accompanied by equitable access, targeted upskilling strategies, and public engagement mechanisms that build trust and awareness. The insights generated in this deliverable provide a strong empirical foundation for informing future CCAM-related decisions, ensuring that technological innovation is aligned with social responsibility and economic inclusivity.

Appendix

Stakeholders’ Interviews

HEIs and VETs CCAM Interview Guidelines

General socio-economic overview

1. In your opinion, what are the most significant socio-economic impacts that CCAM could have on transportation (both passenger and freight)?
2. Do you think that the socio-economic impacts are positive or negative in terms of a) industry sector’s type, b) industry size, c) operating in public and private sector? *The interviewer marks (x) if the impact is negative or positive*.

Socio-economic impacts in terms of	Positive	Negative
Industry sector’s type – manufacturing/construction		
Industry sector’s type – transportation		
Industry sector’s type – healthcare		
Industry sector’s type – education		
Larger industry size		
Operating in public sector		
Operating in private sector		

3. What emerging business models (e.g., e-commerce, sharing schemes) do you foresee being impacted by or benefiting from CCAM?

Inclusiveness and social equity

4. Do you think CCAM will affect income segregation or social inequalities, especially in terms of access to employment, negatively or positively? How can higher education and vocational training help bridge gaps in skills for disadvantaged communities?
5. What role do you see HEIs and VEIs playing in ensuring that CCAM technologies make transportation more inclusive for low-income students, people with disabilities, or the elderly?
6. How can CCAM solutions improve or hinder access to educational services, especially for students from rural or underserved regions?

Economic effects

7. What are the potential economic benefits of CCAM for HEIs and VEIs, particularly in terms of new educational programs or research opportunities?
8. Do you foresee any negative economic impacts on education institutions due to CCAM? For instance, are there risks of certain job roles becoming obsolete?

Health and well-being

9. What potential risks or benefits do you see in terms of work-life balance and mental health as a result of CCAM-related changes in employment?

Access and Affordability

10. How do you think CCAM will impact the affordability of transportation for students, especially for commuting to HEIs and VEIs?
11. In terms of labor markets, what do you believe are the regional impacts of CCAM on job creation in education and research sectors, especially in rural versus urban regions?

Future Roadmap and Stakeholder Awareness

12. What measures should be taken to raise awareness within the stakeholder community about the potential socio-economic impacts of CCAM, particularly in terms of jobs and skills?

Industry CCAM Interview Guidelines

General socio-economic overview

1. In your opinion, what are the most significant socio-economic impacts that CCAM could have on transportation (both passenger and freight)?
2. Do you think that the socio-economic impacts are positive or negative in terms of a) industry sector's type, b) industry size, c) operating in public and private sector? The interviewer marks (x) if the impact is negative or positive.

Socio-economic impacts in terms of	Positive	Negative
Industry sector's type – manufacturing/construction		
Industry sector's type – transportation		
Industry sector's type – healthcare		
Industry sector's type – education		
Larger industry size		
Operating in public sector		
Operating in private sector		

3. What emerging business models (e.g., e-commerce, sharing schemes) do you foresee being impacted by or benefiting from CCAM?

Inclusiveness and social equity

4. Do you think CCAM will affect income segregation or social inequalities, especially in terms of access to employment, negatively or positively? What actions can businesses in your industry take to ensure fair access to job opportunities for disadvantaged or marginalized groups?
5. What role can industry play in making transportation more inclusive for disadvantaged groups, such as low-income communities, the elderly, or people with disabilities?
6. In your view, how can CCAM solutions improve or hinder access to essential services, such as healthcare or employment, for employees in your industry, particularly those from vulnerable populations?

Economic effects

7. What are the most likely economic benefits of CCAM for your industry, in terms of efficiency, cost reduction, and new business opportunities?
8. Do you foresee any negative economic impacts on your industry due to CCAM (e.g., job displacement, market disruption)?

Health and well-being

9. What potential risks or benefits do you see in terms of work-life balance and mental health for employees in your industry as CCAM-related changes (e.g., automation, remote work) are implemented?

Access and affordability

10. How do you think CCAM will impact on the affordability of transportation for your customers and employees, particularly for essential travel such as commuting or logistics?
11. In terms of labor markets, what do you believe are the regional impacts of CCAM on job creation within your industry, particularly in rural versus urban areas?

Future roadmap and stakeholder awareness

12. What steps should businesses in your industry take to raise awareness within their community about the socio-economic impacts of CCAM, particularly in terms of jobs and skills?

Industry CCAM Interview Guidelines Representative Organizations, trade unions and sector skills alliances CCAM Interview Guidelines

General socio-economic overview

1. In your opinion, what are the most significant socio-economic impacts that CCAM could have on transportation (both passenger and freight)?
2. Do you think that the socio-economic impacts are positive or negative in terms of a) industry sector's type, b) industry size, c) operating in public and private sector? The interviewer marks (x) if the impact is negative or positive.

Socio-economic impacts in terms of	Positive	Negative
Industry sector's type – manufacturing/construction		
Industry sector's type – transportation		
Industry sector's type – healthcare		
Industry sector's type – education		
Larger industry size		
Operating in public sector		
Operating in private sector		

3. What emerging business models (e.g., e-commerce, sharing schemes) do you foresee being impacted by or benefiting from CCAM?

Inclusiveness and social equity

4. Do you think CCAM will affect income segregation or social inequalities, especially in terms of access to employment, negatively or positively? What role can your organization play in advocating for equitable employment practices as CCAM technologies are deployed?
5. How can representative Organizations, sector skills and trade unions ensure that CCAM policies promote inclusiveness and accessibility for disadvantaged groups, such as low-income communities, the elderly, or people with disabilities?

6. In your view, how can CCAM solutions improve or hinder access to essential services, like healthcare or education, for the workers or sectors you represent, particularly vulnerable populations?

Economic effects

7. What are the most likely economic benefits of CCAM for the workers and industries represented by your organization or alliance?
8. Do you foresee any negative economic impacts on the sectors or workers represented by your organization due to CCAM (e.g., job displacement, skills mismatches)?

Health and well-being

9. What potential risks or benefits do you see for work-life balance and mental health as a result of CCAM-related changes in employment (e.g., automation, remote work)?

Access and affordability

10. How do you think CCAM will affect the affordability of transportation for workers, particularly those from lower-income backgrounds or those who rely on public transportation?
11. In terms of labor markets, what do you believe are the regional impacts of CCAM on job creation, particularly in rural versus urban areas, and how can your organization address potential inequalities?

Future roadmap and stakeholder awareness

12. What steps should be taken by representative Organizations, sector skills alliances, and trade unions to raise awareness among workers about the socio-economic impacts of CCAM, particularly in terms of jobs and skills?

Road Transport Operators CCAM Interview Guidelines

General socio-economic overview

1. In your opinion, what are the most significant socio-economic impacts that CCAM could have on transportation (both passenger and freight)?
2. Do you think that the socio-economic impacts are positive or negative in terms of a) industry sector's type, b) industry size, c) operating in public and private sector? The interviewer marks (x) if the impact is negative or positive.

Socio-economic impacts in terms of	Positive	Negative
Industry sector's type – manufacturing/construction		
Industry sector's type – transportation		
Industry sector's type – healthcare		
Industry sector's type – education		
Larger industry size		
Operating in public sector		
Operating in private sector		

3. What emerging business models (e.g., e-commerce, sharing schemes) do you foresee being impacted by or benefiting from CCAM?

Inclusiveness and social equity

4. Do you think CCAM will affect income segregation or social inequalities, especially in terms of access to employment, negatively or positively? What steps can transportation operators take to ensure CCAM technologies do not disproportionately affect lower-income or marginalized workers?
5. What role do you think transportation operators can play in making CCAM solutions more inclusive for disadvantaged groups such as low-income individuals, the elderly, or people with disabilities?
6. In your view, how can CCAM solutions improve or hinder access to essential services, such as healthcare or employment, especially for vulnerable populations relying on road transportation?

Economic effects

7. What are the most likely economic benefits of CCAM for road transportation operators (e.g., efficiency, cost reduction, new business models)?
8. Do you foresee any negative economic impacts on road transportation operations due to CCAM? If so, what challenges (e.g., job losses, market disruption) are expected?

Health and well-being

9. What potential risks or benefits do you foresee in terms of work-life balance and mental health for employees (e.g., drivers, support staff) as CCAM technologies are implemented?

Access and affordability

10. How do you think CCAM will impact on the affordability of transportation services for your customers, particularly for essential travel (e.g., commuting, access to healthcare)?
11. In terms of labor markets, what do you believe are the regional impacts on job creation in the road transportation sector, especially in rural versus urban areas?

Future roadmap and stakeholder awareness

12. What measures should road transportation operators take to raise awareness within the stakeholder community about the socio-economic impacts of CCAM, particularly regarding jobs and skills?

Citizens Survey

Section 1: Participant Characteristics	
In which country do you live?	1. Netherlands 2. Belgium 3. Norway 4. Germany 5. Cyprus
Now we will ask you some questions about yourself.	
How old are you?	
How would you describe your gender?	1. Women
	2. Man
	3. Other
What is the highest educational level that you have achieved to date?	1. No formal education
	2. Primary school
	3. Secondary school or vocational education
	4. University degree or equivalent professional qualification
	5. Higher university degree (e.g. Master's, MBA, doctorate)
	6. Still in full time education
Which of the following best describes where you live?	1. City center
	2. City, not in center
	3. Suburbs
	4. Village
How would you describe yourself in terms of adopting technologies and innovations? I consider myself	1. Innovator
	2. Early adopter
	3. Early majority
	4. Late majority
	5. Laggard
How would you describe yourself in terms of using technologies and innovations in your daily life? I consider myself	1. Very confident in using technology in my daily life
	2. Somewhat confident in using technology in my daily life
	3. Neutral
	4. Somewhat not confident in using technology in my daily life
	5. Not confident in using technology in my daily life
	1. Very poor

How would you rate your overall quality of life in your current residential area?	2. Poor
	3. Neutral
	4. Good
	5. Very good
Urban sprawl refers to the spread of a city into the surrounding rural areas, resulting in low-density, car-dependent development. This often leads to longer commutes, increased traffic, and loss of natural habitats. Do you perceive urban sprawl as a positive or negative development for your community?	1. Very negative
	2. Negative
	3. Neutral
	4. Positive
	5. Very Positive
Section 2: Your Travel Behavior Characteristics	
Let's start with some questions about how you travel.	
Do you have a valid driving license?	0. No
	1. Yes
How many private cars does your household own?	
How many trips do you conduct with each of the transportation modes mentioned below within a week? Consider the following example to calculate your trips: homework is one trip, home-work-home are two trips.	
Private car as driver (driving alone)	
Private car as a driver (driving with other passengers on board)	
Private car as passenger	
Bus or tram	
Train or underground	
Taxi or ride-sharing (such as Uber)	
Walking	
Cycling or e-scooter	
Motorcycle	
How much do you spend each month (in "each country's currency") on the following transportation modes?	
Car (take into account parking, fuel, maintenance, tickets - all related costs)	
Taxi / Uber	
Public transport (e.g., bus, train, tram, underground, metro)	
Rank the three most important factors that affect your transport mode choice for your main trips.	

Travel time	
Travel cost	
Convenience and comfort	
Parking availability	
Reliability (mode to be on time)	
No need to combine or change transport modes	
Waiting time	
Safety	
How often do you receive deliveries for things you order online or by phone?	1. Never
	2. A few times per year (1-5 times per year)
	3. Few times per month (2-3 times per month)
	4. A few times per week (2-3 times per week)
	5. Almost every day (1 or more times a day)
What are these deliveries about? Please, select all that apply.	1. Food delivery
	2. Supermarket delivery
	3. Clothes delivery
	4. Other
Including yourself, how many people live in your household?	
How do you describe your employment situation?	1. Currently not working
	2. Working part-time
	3. Working full-time
	4. Student
	5. Retired
	6. Homemaker
Do you or any of your family members have any health issues that hinder their mobility?	0. No
	1. Yes
Section 3: Self-driving vehicles and services for your personal mobility	
This section is about self-driving vehicles. A self-driving vehicle is a vehicle that is capable of traveling without human input. Self-driving cars are responsible for perceiving the environment, monitoring important systems, and control, including navigation. In other words, a self-driving vehicle does not need a driver anymore.	

How well aware are you about self-driving vehicles?	1. I am not aware of self-driving vehicles
	2. I have only heard about self-driving vehicles, but I do not know much
	3. I am aware of self-driving vehicles
	4. I am well aware of self-driving vehicles
Imagine that now almost half of the current vehicles in your city are self-driving. By having this in mind, please see below scenarios of self-driving vehicles and services and answer the questions that follow each scenario. The questions are related to the impact each specific scenario may have in your daily travel behavior.	
The self-driving taxi allows you to order a self-driving vehicle whenever you want to go somewhere. The self-driving taxi can be used only by you, or you can share it with others (strangers) if you want to.	
Self-driving taxis are now available in your city. Given that the cost and travel time are the same as using a conventional taxi today, how likely it is that you will be using a self-driving taxi:	
for your work trips?	1: Highly unlikely; 2: Somewhat unlikely; 3: Neutral; 4: Somewhat likely; 5: Highly likely
for your non-work trips?	1: Highly unlikely; 2: Somewhat unlikely; 3: Neutral; 4: Somewhat likely; 5: Highly likely
Assuming that the cost and travel time of self-driving taxis are the same as of today's taxis, how do you expect the below to be affected?	
Your current residential location	1. = Relocate to a rural area
	2. =Relocate to city's suburbs
	3. =No change
	4. =Relocate closer to the city center
	5. = Relocate to the city center
Can you please describe why you might change where you live?	1. would like more space
	2. can relax during travel time
	3. easier to travel further
	4. can be productive while travel
	5. easier to travel in the new area
	6. more footpaths
	7. more cycleways
	8. nicer to live in the new area
How much would you be willing to pay for an up to 3km (around 15min) ride in a self-driving taxi?	
Would you be willing to share the ride with one or more strangers?	1. Yes
	2. No, I would like to be alone or with people I know

	3. I am not planning to use one
The self-driving private car operates similarly to a privately owned vehicle, but this time nobody needs to drive. You can access your self-driving car whenever you need to go somewhere, but it may be needed to spend time finding a parking place.	
How likely is it to buy/lease a private self-driving car? There is no need to have a driving license to purchase one.	1. Highly unlikely
	2. Somewhat unlikely
	3. Neutral
	4. Somewhat likely
	5. Highly likely
How much would you be willing to pay for a self-driving sedan (5-seat) car? Take as a basis that the average current value of an electric sedan is around 30,000 Euro.	
Given that the cost and travel time are the same as of using a conventional electric car, how likely it is that you will be using a private self-driving car:	
for your work trips?	1: Highly unlikely; 2: Somewhat unlikely; 3: Neutral; 4: Somewhat likely; 5: Highly likely
for your non-work trips?	1: Highly unlikely; 2: Somewhat unlikely; 3: Neutral; 4: Somewhat likely; 5: Highly likely
Assuming that the cost and travel time of self-driving private cars are the same as of today's cars, how do you expect the below to be affected?	
Your current residential location	1. Relocation to a rural area
	2. Relocating to city's suburbs
	3. No change
	4. Relocate closer to the city center
	5. Relocate to the city center
Can you please describe why you might change where you live	1. would like more space
	2. can relax during travel time
	3. easier to travel further 4. can be productive while travel
	5. easier to travel in the new area
	6. more footpaths
	7. more cycleways
	8. nicer to live in the new area
The self-driving bus operates similarly to the current public buses, but this time there is no driver. You should go to a bus stop; wait for the bus that goes in the direction you would like to go; get off at the bus stop and walk/cycle to your destination.	

Self-driving public buses are now available in your city. Given that the cost and travel time are the same as using today's conventional public bus, how likely it is that you will be using a self-driving public bus:	
for your work trips?	1: Highly unlikely; 2: Somewhat unlikely; 3: Neutral; 4: Somewhat likely; 5: Highly likely
for your non-work trips?	1: Highly unlikely; 2: Somewhat unlikely; 3: Neutral; 4: Somewhat likely; 5: Highly likely
Assuming that the cost and travel time of self-driving public buses are the same as of today's public buses, how do you expect the below to be affected?	
Your current residential location	1. Relocation to a rural area
	2. Relocating to city's suburbs
	3. No change
	4. Relocate closer to the city center
	5. Relocate to the city center
Can you please describe why you might change where you live	1. would like more space
	2. can relax during travel time
	3. easier to travel further
	4. can be productive while travel
	5. easier to travel in the new area
	6. more footpaths
	7. more cycleways
	8. nicer to live in the new area
How much would you be willing to pay for a one-way ticket on the self-driving bus?	
A privately owned delivery/pick-up robot that goes and collects your orders (products or food) from one or multiple locations and brings them to your home or the location you indicate. The robot can also be used in case you want to send goods to one or multiple locations within the city.	
How likely is that you will be using a private delivery/pick-up robot for your deliveries?	1: Highly unlikely; 2: Somewhat unlikely; 3: Neutral; 4: Somewhat likely; 5: Highly likely
Assuming that the cost and time of private delivery/pick-up robots are the same as today's conventional delivery service, how do you expect the below to be affected?	
your current number of monthly online orders	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
your current delivery costs	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to

	50% increase), 2= Increase or Improve significantly (50% increase or more)
Your current residential location	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Can you please describe why you might change where you live	1. would like more space
	2. can relax during travel time
	3. easier to travel further
	4. can be productive while travel
	5. easier to travel in the new area
	6. more footpaths
	7. more cycleways
	8. nicer to live in the new area
How many of your deliveries would you substitute with private delivery/pick-up robots within a month?	1. = None of them (0%),
	2. = Few of them (up to 33%)
	3. =About half of them (33%-66%)
	4. =Most of them (66%-99%)
	5. = All of them (100%)
By when you think that the below self-driving services or vehicles will start being implemented in your city?	
Self-driving taxi	1= 2030, 2=2035, 3=2040, 4=2045, 5=2050, 6= Never
Self-driving private cars	1= 2030, 2=2035, 3=2040, 4=2045, 5=2050, 6= Never
Self-driving public bus	1= 2030, 2=2035, 3=2040, 4=2045, 5=2050, 6= Never
Self-driving on-demand shuttle bus	1= 2030, 2=2035, 3=2040, 4=2045, 5=2050, 6= Never
Self-driving private delivery - pick-up robot	1= 2030, 2=2035, 3=2040, 4=2045, 5=2050, 6= Never
Section 4: Your attitudes regarding the impact self-driving vehicles will have	
This section presents potential impacts that self-driving vehicles may have in different sectors. Please, indicate what the impact is on each one of the below statements. -2 = Reduced significantly to 2= Improved or Increase significantly	
Citizens' number of trips	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to

	50% increase), 2= Increase or Improve significantly (50% increase or more)
Number of vehicles on the network	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Citizens travel time	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Travel costs for citizens' trips	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Delivery costs	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Transport sector's emissions	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Economic growth	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Investments	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Employment opportunities	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Job losses	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)

New skills requirements	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Accessibility of general population	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Accessibility of people with special mobility needs	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Accessibility of older people	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Accessibility of families with kids	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Stress related to travelling	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Number of traffic accidents	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)
Number of fatalities	-2 = Reduced significantly (50% reduction or more), -1 =Reduced (up to 50% reduction), 0=No change, 1=Increase or Improve (up to 50% increase), 2= Increase or Improve significantly (50% increase or more)