TRiREME

DIGITAL & GREEN SKILLS TOWARDS FUTURE OF THE MOBILITY ECOSYSTEM

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SURVEY ON TRENDS IMPACTING THE AUTOMOTIVE-MOBILITY ECOSYSTEM IN 2024

WORK PACKAGE 2 "Continuous Skills Intelligence Gathering"

TASK 2.2 "Continuous Periodic Continuous Surveys and Interviews"

DELIVERABLE D2.1 "Sectoral Skills Intelligence: Reactive Response" – Part Survey

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EXECUTIVE SUMMARY AND INTRODUCTION

The report is part of the TRIREME project, aiming to assess the evolving trends in the automotive-mobility ecosystem and their impact on skills and workforce requirements. The survey was conducted by the project consortium between July and September 2024, targeting key stakeholders to gather insights on sectoral trends such as digitalization, green sustainability, value chain resilience, and new business models.

The findings show that while organizations are aware of these trends, there is often a gap in preparedness, particularly in high-priority areas like AI, Machine Learning and Data Analytics. Electromobility and circular economy practices emerged as crucial for sustainability, with growing demands for green transformation experts and energy engineers. Additionally, Mobility as a Service (MaaS), Maintenance as a Service, Aftermarket Services and Digital retail are transforming the business landscape, driving the need for new customer service and digital transformation roles.

The report underscores the pressing need for upskilling and reskilling the workforce to address these changes. Key roles such as software developers, data scientists, logistics specialists, and engineers are expected to be in higher demand. As the sector embraces digital transformation and sustainability, training in AI, electric vehicle technology, and digital skills is essential to bridge the gap between current capabilities and future needs. Proactive efforts in workforce development will be critical to ensuring resilience and competitiveness in the evolving automotive-mobility ecosystem.

This report serves as a foundation for future work to further support the sectors's adaptation to these emerging trends.

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1 IDENTIFICATION OF THE RESPONDENT

This section provides detailed information on the respondents that completed the survey (105), including the type of organization where they operate, position in the value chain, size, market reference, country and area of operation.

1.1 Type of organization and position in the value chain

The pie chart shows that the largest share of all respondents belongs to the "Company" category, which represents 25% of the total answers. The second main group is "Education Provider – Tertiary Education", which accounts for 14% of the answers. The third main sector is "Education Provider – VET Level", which represents 11% of the answers. "Consultancy" accounts for 9% of the answers, followed by "Research Centre" and "Sectoral/Industrial Association" which both stand at 8%. "Trade Union" and "Technology Centre", as well as other categories such as "Engineering Services", represent 4% of the total. "Social Partner" accounts for 3% of the respondents, "Chamber of Commerce" for 2% and "Government Body", "Regional Authority/Municipality" and "Employment Service" for 1%.

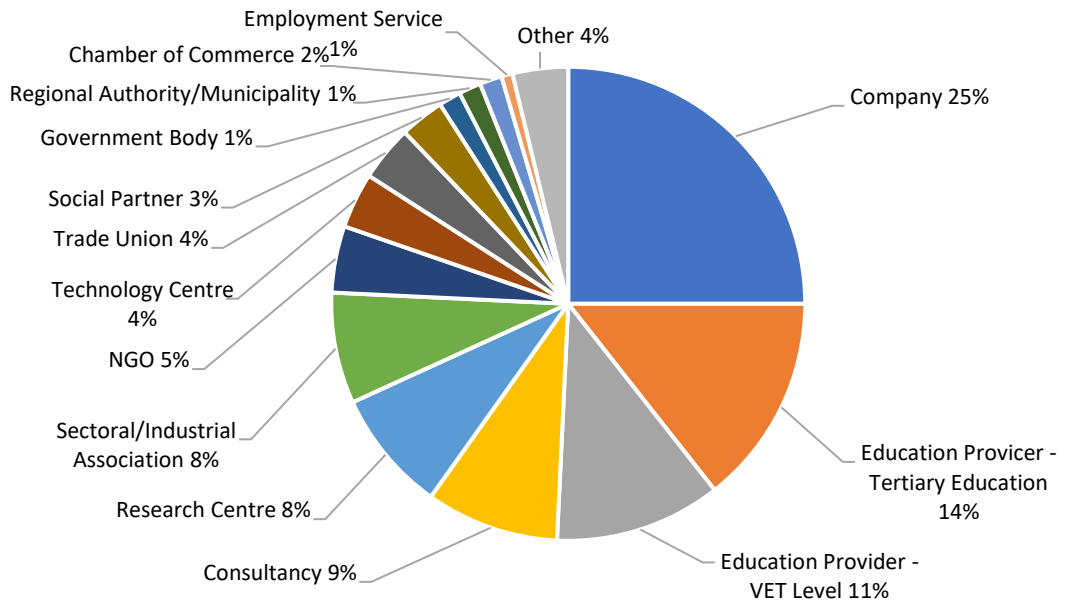

Figure 1: Type of organisation

When it comes to the position of companies in the value chain, the analysis of the responses shows that most of the company participants are Tier 1 Suppliers (33%), immediately followed

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by OEMs, which stands at 30%. The third main category is Aftermarket/Spare Parts, which represents 21% of the total answers. Tier 2 Suppliers represents 12% of the total responses and Tier 3 Suppliers, as well as 'Other' categories, such as IT companies, account for 2%.

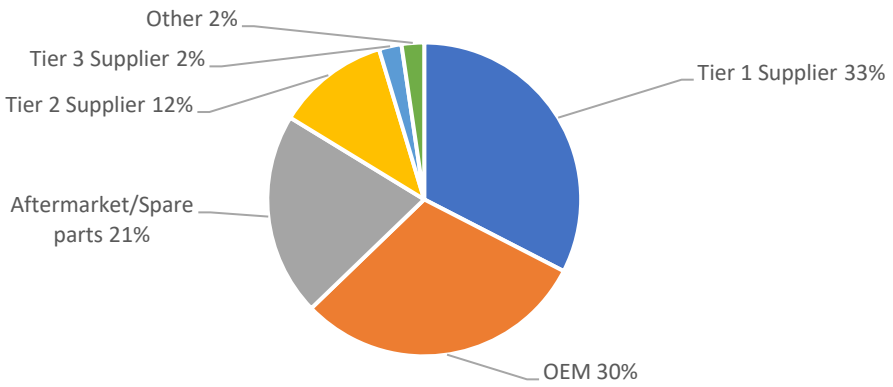

Figure 2: Position of companies in the automotive-mobility sector's value chain

1.2 Pertaining activities, size and market of reference

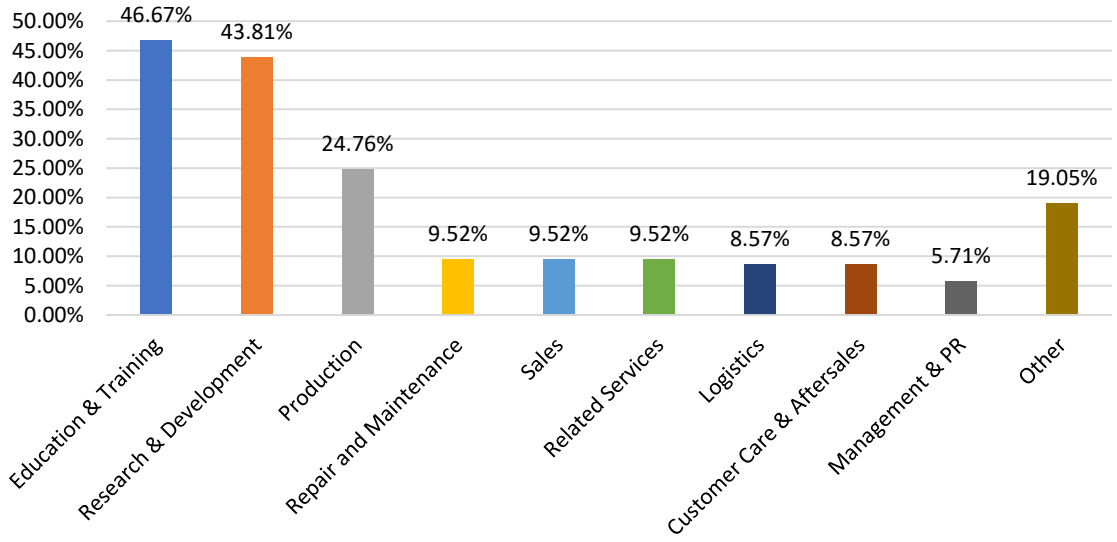

Figure 3: Main activities of the organisation

The bar chart shows that the main activities of the organizations replying to the survey are "Education & Training" and "Research & Development", which are carried out by 46,67% and 43,81% of the respondents respectively. Another significant sector is "Production", which is performed by nearly 25% of the respondents. Activities such as "Repair and Maintenance", "Sales", "Related Services", "Logistics", "Customer Care & Aftersales" and "Management &

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PR" were all selected by less than 10% of the respondents. 19,05% of the respondents selected "Other", which included mainly "Automotive & Engineering Services", followed by "Trade Unions & Labor Relations", and to a lesser extent "Business Advisory & Market Analysis" and "Networking & Ecosystem Building".

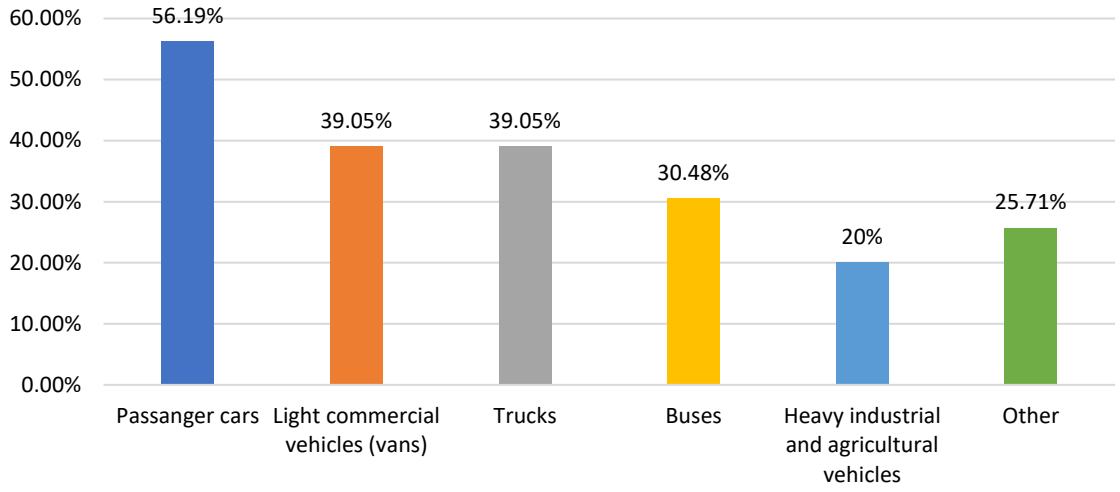

Figure 4: Market sectors and industry segments of organisation's operation

Respondents were also asked in which market sectors or industry segments does their organisation operate. Over 56% of respondents indicated that their organisations operate In the segment "Passenger Cars", followed by segments of "Light Commercial Vehicles (Vans)" and "Trucks", both being selected by slightly over 39% of respondents. 30% indicated their organisation operates in "Buses" segment, and 20% in "Heavy industrial and agricultural vehicles". 25,17% of respondents selected "Other".

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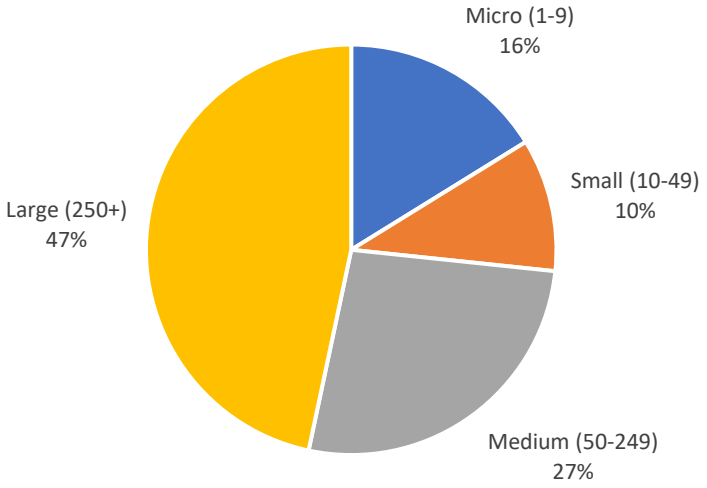

Figure 5: Size of organisation

With regards to the size of the organizations, nearly half – 47% – of the respondents represent large organizations, with headcount of over 250. The second largest share of respondents is associated with medium sized organizations, representing 27% of the total. Finally, 16% of the survey participants represent micro-organizations, and 10% small organisations.

1.3 Country and area of operation

The respondents were asked to indicate the area of operation of their organisation, both in broad terms, for example the European Union as a whole, and individual countries worldwide. Respondent organisations that operate in the EU were then asked to specify the states.

1.3.1 Area of operation

Largest share of the respondents, over 91%, stated the European Union as area of operation of their organisations. Number of respondents' organisations is spread out worldwide in their operations, with the second largest share (19,05%) of respondents indicating the United States as their organisations' area of operation, followed by the United Kingdom (14,29%), People's Republic of China (12,38%), Japan (10,48%), and South Korea (6,67%).

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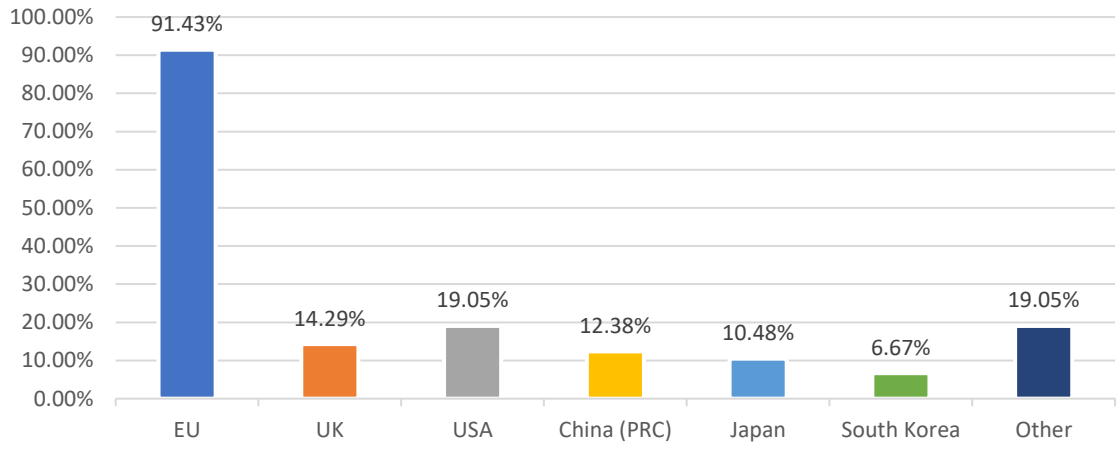

Figure 6: Area of operation

19,05% of respondents selected 'Other', amongst which (single or multiple) areas or countries of operation are: India (2,8%), Brazil, Serbia, Turkey, all of which represent 1,9% share, and Albania, Bangladesh, Iceland, Israel, Kosovo, Malaysia, Mexico, North Macedonia, Norway, Switzerland, Vietnam, as well as unspecified 'North of Africa (Maghreb)', 'Central and South America', and 'developing countries' – all being below 1%.

1.3.2 Country of operation in the European Union

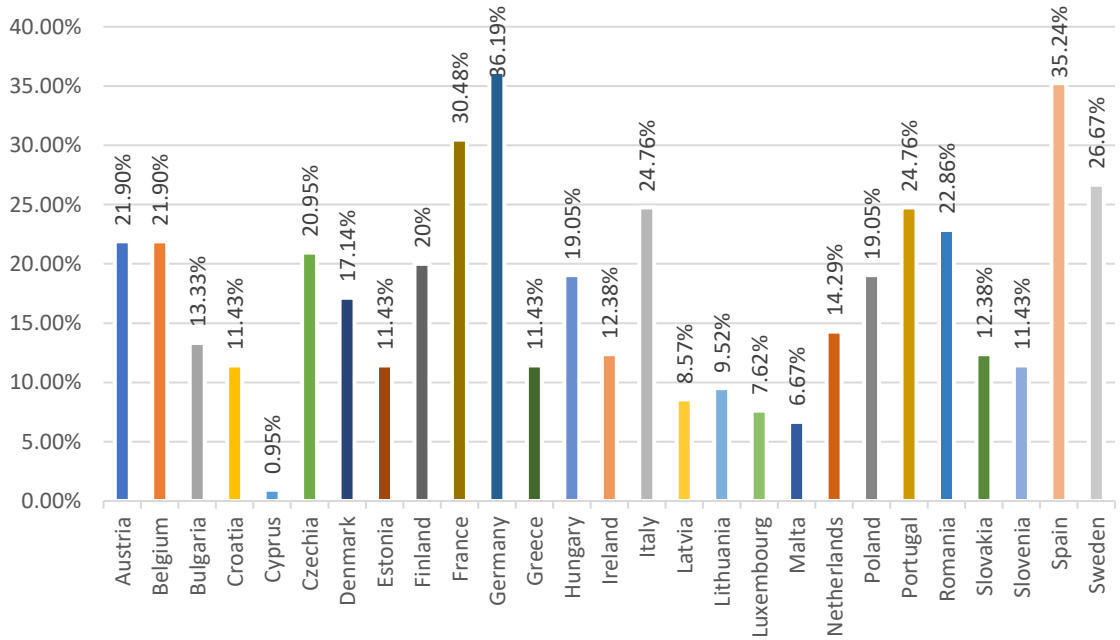

Figure 7: Area of operation in the EU

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The respondents of the survey, whose organisations operate in the European Union, were asked to specify the individual countries; some of the organisations operate in multiple countries in the European Union. Largest share of organisation participating in the survey indicated that they operate in Germany (36,19%), followed by Spain (35,24%), and France (30,48%), Sweden (26,67%), Italy (24,76%), Portugal (24,76%), Romania (22,86%), Austria (21,9%), Belgium (21,9%), Czechia (20,95%) and Finland (20%).

EU member states which were marked as their organisations' countries of operation by less than 20% of the respondents are Hungary (19,05%), Poland (19,05%), Denmark (17,14%), Netherlands (14,29%), Bulgaria (13,33%), Ireland (12,38%), Slovakia (12,38%), Croatia (11,43%), Estonia (11,43%), Greece (11,43%), Slovenia (11,43%), Latvia (8,57%), Cyprus (7,62)% and Malta (6,67%).

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2 SECTORAL TRENDS: AWARENESS, RELEVANCE & IMPACTS

This section provides an in-depth analysis on four macro topics and related sub-categories which have been identified as the main trends the project aims at better investigating (see figure below).

Figure 8: The four main trends analysed

2.1 DIGITALISATION

Digitalization is transforming the automotive industry by enhancing digital services and connectivity, utilizing technologies such as digital twins, simulation, virtual and augmented reality (VR and AR), and autonomous driving. As the sector embraces these advancements, it presents both substantial strengths and notable challenges. The following sections investigate the level of awareness, preparedness, relevance and impacts of each of the subcategories within this trend, in order to better understand the perceptions and status of the respondents.

2.1.1 Awareness

Respondents rated their awareness of digitalisation trends currently influencing the automotive-mobility sector on a scale from 1 (least aware) to 5 (most aware).

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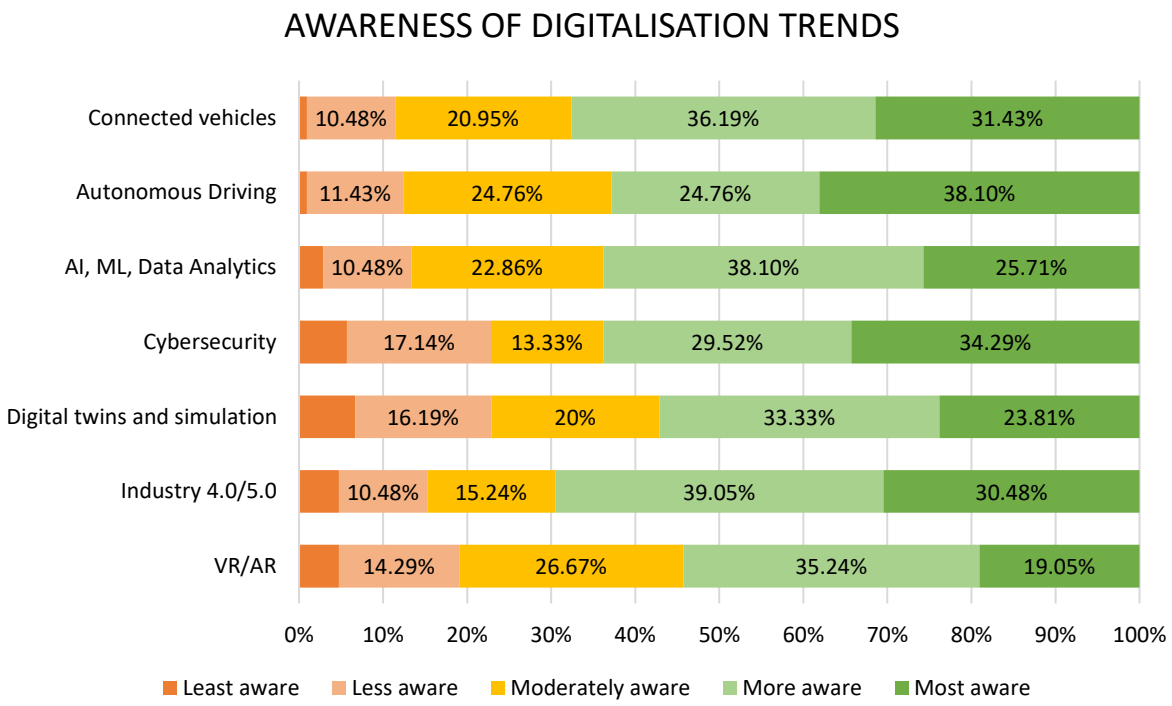

Figure 9: Awareness of digitalisation trends currently influencing the automotive-mobility sector

Most of the respondents indicated that they are either “More Aware” or “Most Aware” of the given trends, thus delineating that there is common general knowledge of the sub-categories belonging to the digitalisation trends and sub-trends. However, we can also underline the existence of slightly lower degree of awareness when it comes to “Cybersecurity” trends and “Digital Twins and Simulations” trends, each registering a little over 20% of less aware and least aware respondents.

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2.1.2 Relevance

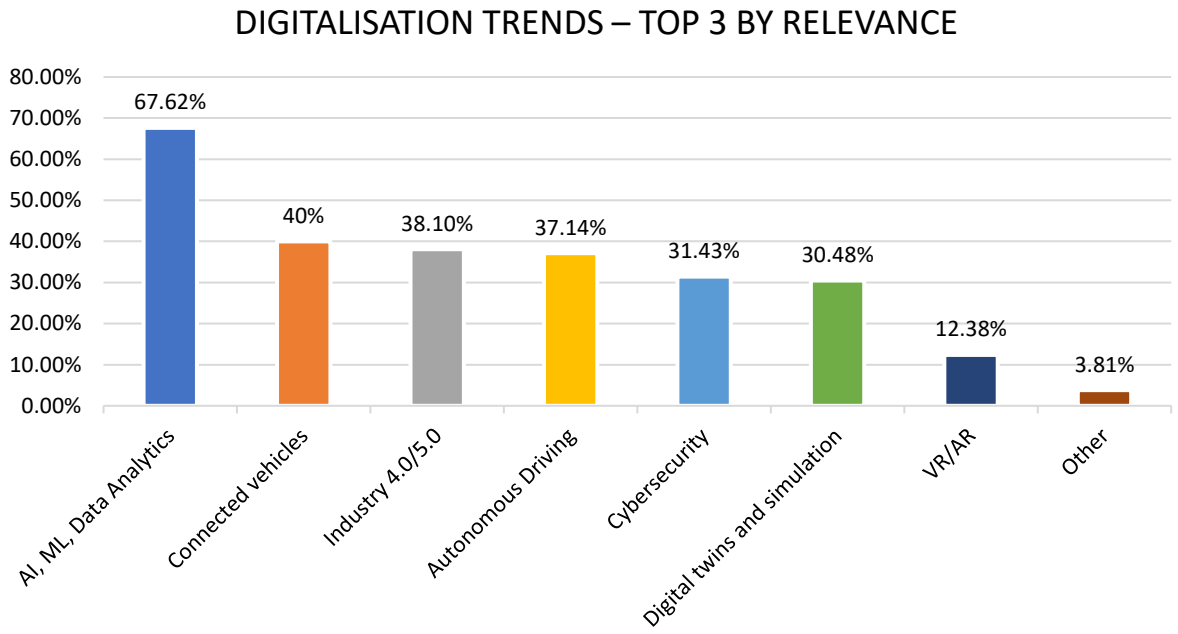

Figure 10: Relevance of digitalisation trends for development of organisations in the near future

Respondents were asked to select between 1 and 3 digitalisation trends that they consider the most relevant for the successful development of their organisation. “AI, ML, Data Analytics” was selected by 67,62% of respondents as at least one of the top three most relevant trends. Trends of “Connected Vehicles” and “Industry 4.0/5.0” were chosen by 40% and 38,1% respondents respectively, followed by “Autonomous driving” (37%), “Cybersecurity” (31,43%) and “Digital twins and simulation” (30,48%). The trend of “VR/AR” was selected markedly less, by only 12,38% of respondents. 3,81% of respondents selected ‘Other’.

Amongst the respondents that selected ‘Other’ and were asked to specify which trends they consider relevant for the successful development of their organisation in the near future, most stated “electrification”, in combination with “eMobility”, “Hydrogen”, “omnichannel, scaling, new entrants”.

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2.1.3 Level of preparedness

The respondents rated level of preparedness of their organisation to tackle the challenges posed by the digitalisation trends on a scale from 1 (lest prepared) to 5 (most prepared), with the option of choosing “Not applicable”, if the trend would not impact their organisation.

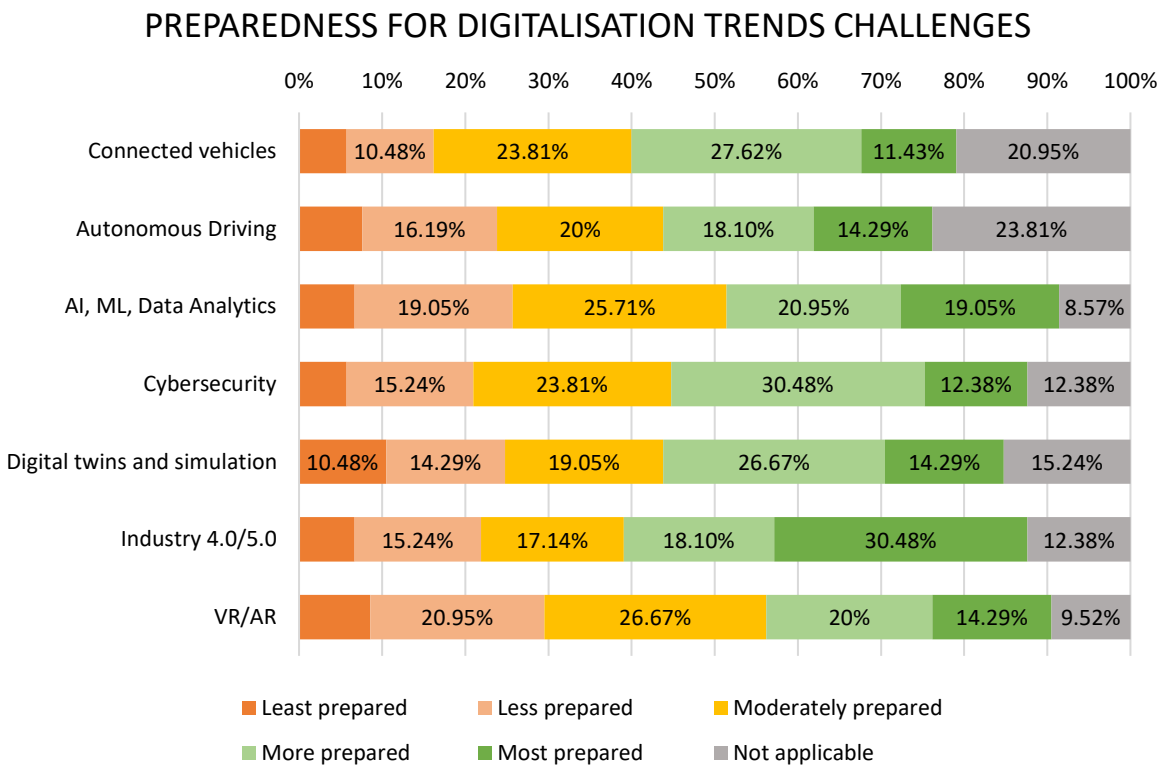

Figure 11: Level of preparedness for the challenges posed by digitalisation trends

There is somewhat good general level of preparedness for the challenges posed by the analysed trends. Majority of the respondents have stated that they are at least “Moderately prepared”, and often “More prepared” for all the listed trends. It is notable that over 30% of all respondents considered themselves as “Most Prepared” when it comes to “Industry 4.0/5.0”, a trend with one of the most positive ratings in terms of preparedness. At the same time, there is lesser degree of perceived preparedness when it comes to “VR/AR” and “AI, ML; Data Analytics”, which sees between 25% and 30% of respondents as “Less prepared” and “Least prepared”. The trends of “Autonomous Driving” and “Connected vehicles” each registered over 20% of respondents who indicated the trends are “Not applicable” to them.

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2.1.4 Contrast: Relevance & Preparedness

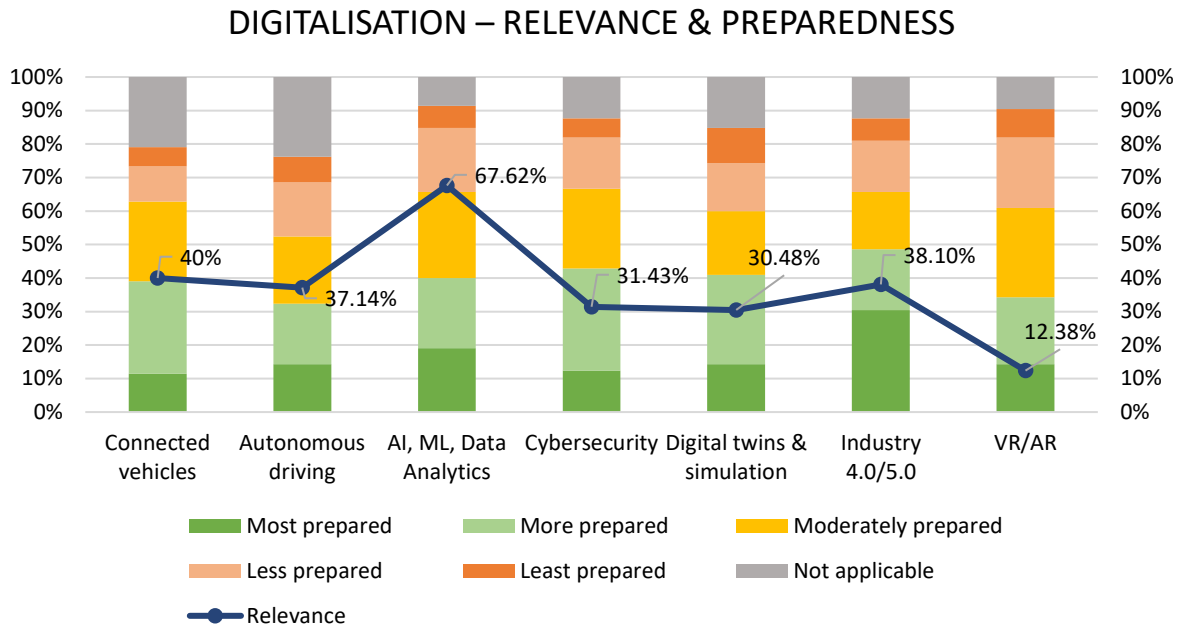

Figure 12: Comparison of relevance and preparedness for digitalisation trends

"AI, ML, Data Analytics" trend stands out with the highest relevance (67.62%) but only moderate combined preparedness levels (40%). "Industry 4.0/5.0" has the highest level of combined preparedness (48.58% of "more prepared" and "most prepared") but slightly lower relevance (38.10%). Notably, "VR/AR" trend shows relatively low relevance (12.38%) and moderate preparedness (34.29%). "Cybersecurity" trend demonstrates stronger preparedness (42.86%) but moderate levels of relevance (31.43%), suggesting it's a well-prepared but less top-ranked trend.

While certain trends like "AI, ML, and Data Analytics" are deemed highly relevant, the levels of preparedness often lag, except for "Industry 4.0/5.0", which enjoys corresponding levels of relevance and preparedness. Meanwhile, "VR/AR" trend has low relevance (12.38%) despite moderate preparedness (34.29%), indicating it is less of a priority. Overall, respondents show stronger preparedness in areas like "Industry 4.0/5.0" and "Cybersecurity", but highly relevant trends like "AI, ML, Data Analytics" and "Autonomous driving" show room for improvement in readiness.

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2.1.5 Impact of digitalisation

Figure 13: Word cloud: Impact of digitalisation on organisations' level of production or operation

Respondents were asked "At what level of operation or production does digitalisation influence your organisation?" and provided a wide range of answers regarding the topic, highlighting its impact across various operational levels. "Training and Education" stood out as the most frequently mentioned area, followed closely by "Manufacturing", accounting for a significant portion of the responses (each between 10-15 %). "Logistics", "R&D", and "Sales" were also commonly cited, indicating their crucial roles in digital transformation. Areas such as "IT operations", "Data Science", "Processes", and "Product development" were similarly emphasized, reflecting their increasing digitalisation needs.

While digitalisation is prevalent in core operational functions like "Production", "Maintenance", and "Quality control", it also affects areas like "HR", "Legal affairs", and "Finance", showing its broader organizational reach. Less frequently mentioned sectors include "Artificial intelligence" development, "Automation", "Marketing", and "Customer services", which still reflect growing technological integration. Overall, digitalisation is recognized as crucial across a spectrum of both core and support functions, with manufacturing and education receiving the greatest focus.

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Figure 14: Word cloud: Digitalisation trends' impact on job roles and skills in the near future

Respondents were asked "Which job roles and skills [they] think will be impacted the most by the aforementioned digitalisation trends in the near future?". The respondents identified a broad range of job roles and skills expected to be significantly affected by digitalisation trends. The most frequently mentioned roles include "Software developers", Engineers in general, "Data analysts and scientists", and "AI/ML Experts and Specialists", reflecting the increasing demand for advanced technical skills. Additionally, Cybersecurity professionals at various levels were cited often, highlighting the growing importance of digital security.

Other key roles mentioned include those related to "Product development", "Manufacturing job roles", "System Engineering", and "Automation engineers and technicians", demonstrating the impact on both product creation and operational processes. More specialized positions, such as "Digital twin specialists", "Mechatronic specialists", and "Power electronics engineers", were also highlighted, indicating a shift toward more niche technical expertise.

Moreover, Management, Leadership, and "Project Management" roles were mentioned, suggesting the need for strong digital oversight. Additionally, the importance of Adaptability and continuous learning was emphasized, indicating that digitalisation will require ongoing skill development across many sectors.

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2.2 GREEN, SUSTAINABILITY AND CIRCULAR ECONOMY

The automotive industry is increasingly embracing the principles of green practices, sustainability, and a circular economy. This trend focuses on electromobility, the adoption of alternative fuels, and innovative approaches to resource management, aiming to create a more sustainable future. The following sections investigate the level of awareness, preparedness, and relevance of each of the subcategories within this trend, in order to better understand the perceptions and status of the respondents.

2.2.1 Awareness

There is a general high level of awareness with regards to the topics covered, with over 80% of respondents indicating “Electromobility” and “Hybrid Vehicles” as the trends of which they are either “more aware” or “most aware”. When accounted for “moderately aware”, both trends reach to around 95% rating.

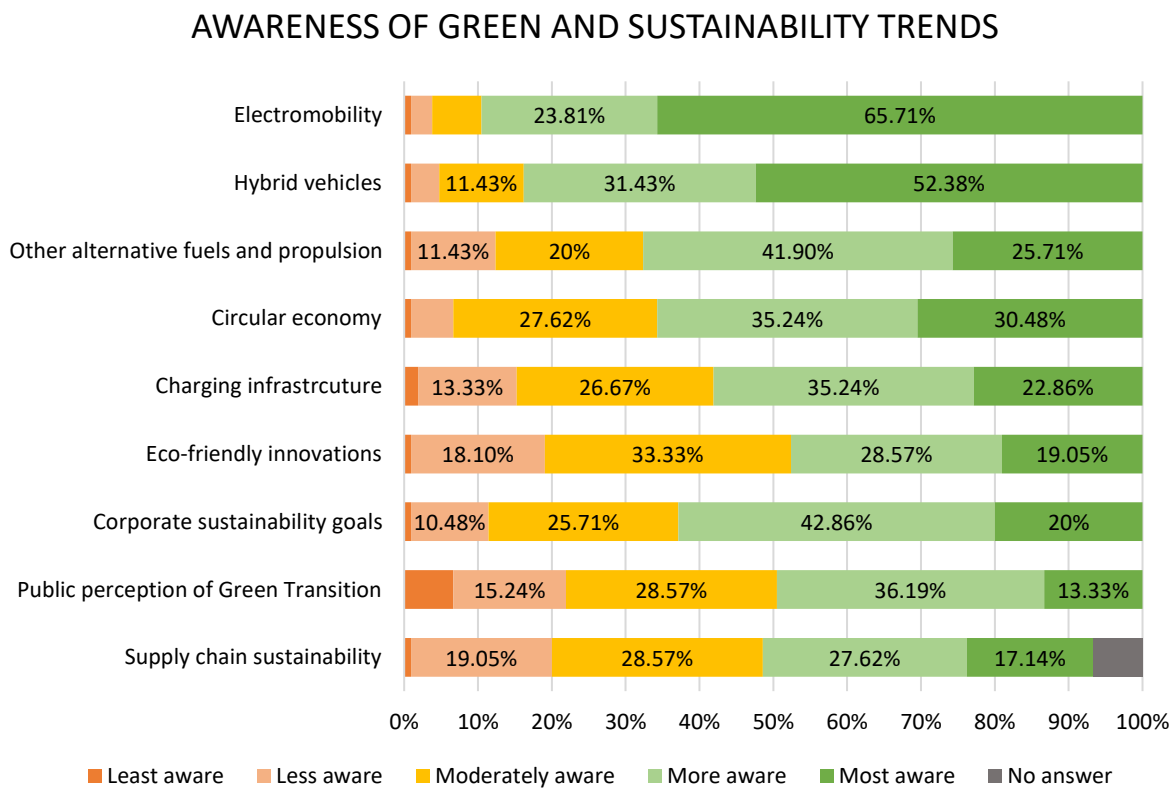

Figure 15: Awareness of green and sustainability trends currently influencing the automotive-mobility sector

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Respondents have indicated high levels of awareness with all analysed trends, with the lowest rated trends still reaching 40-50% of awareness, and generally up to around 80% when accounted for “moderately aware”. The one trend with higher degree of “least aware” and “less aware”, combined at around 20%, is “public perception of green transition”, “supply chain sustainability” and “eco-friendly innovations”.

2.2.2 Relevance

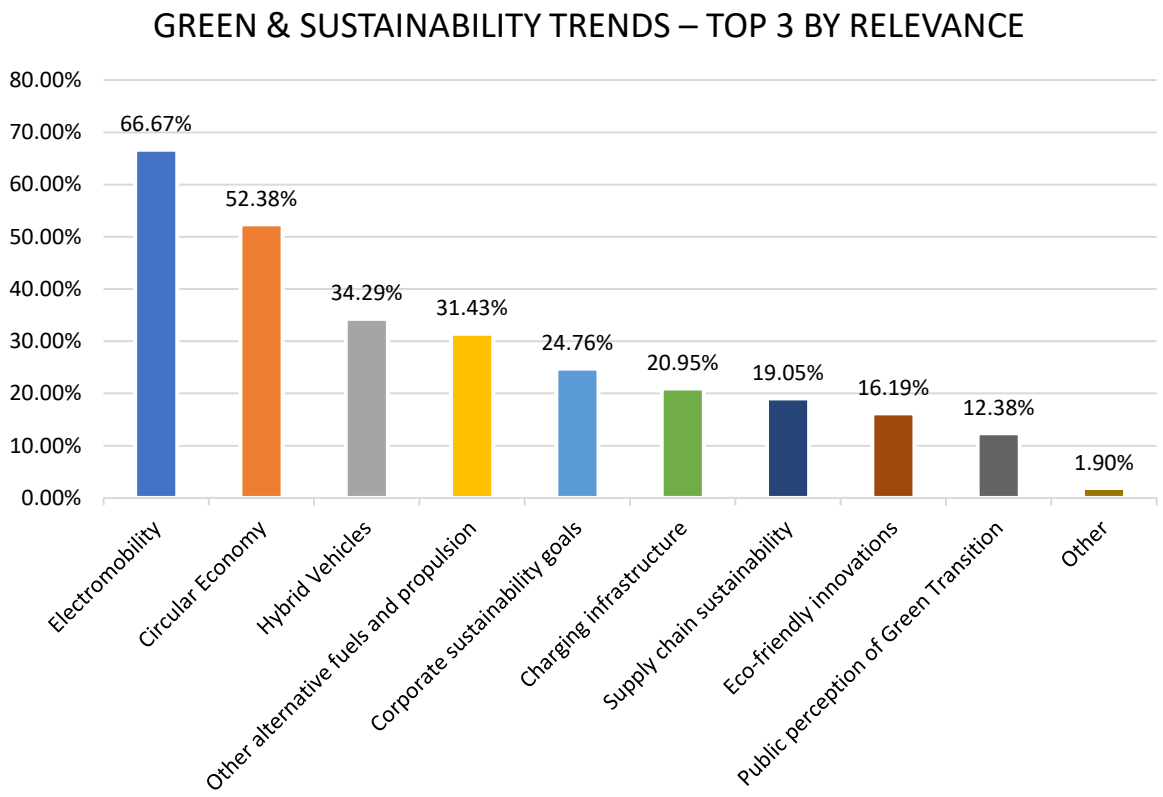

Figure 16: Relevance of green and sustainability trends in the near future

Figure 16 highlights strong relevance of the trends “Electromobility” and “Circular Economy”, which were selected by respectively 66% and 52% of the respondents. Other categories registering higher level of relevance are “Hybrid Vehicles” and “Other alternative fuels and propulsion”, both of which were selected by over 30% of respondents.

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2.2.3 Level of preparedness

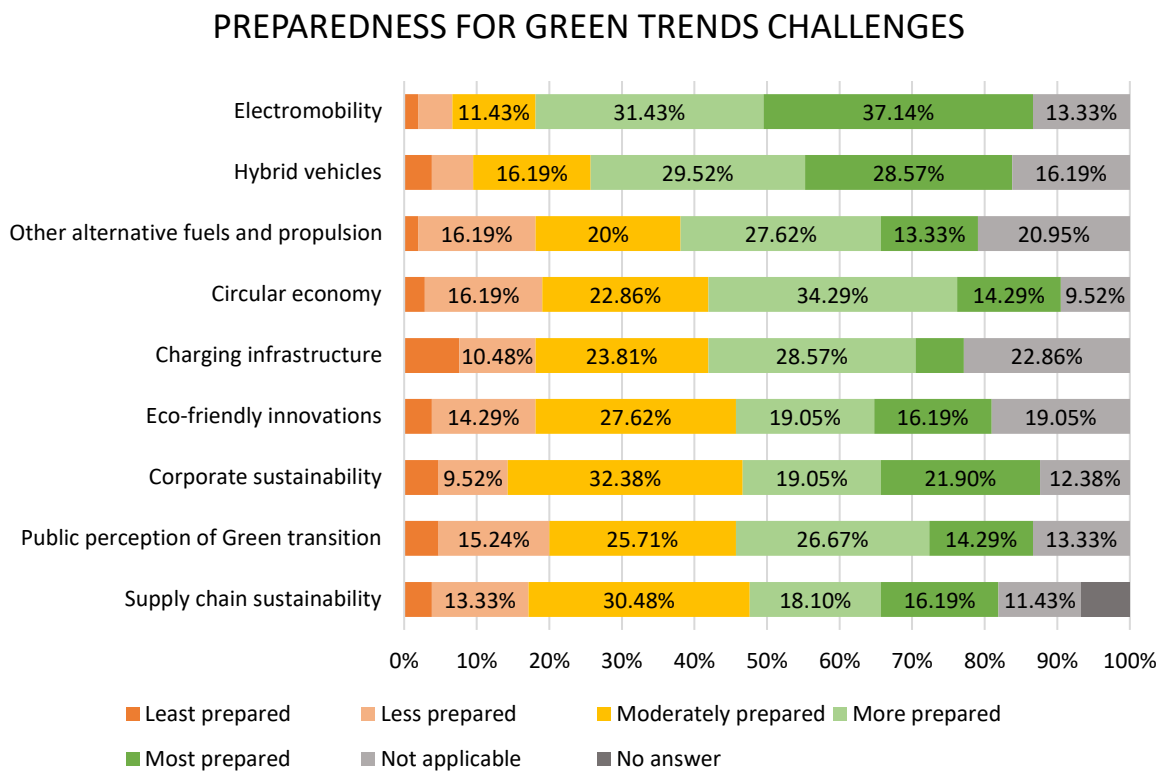

Figure 17: Level of preparedness for the challenges posed by green and sustainability trends

Respondents indicated there is a high level of preparedness for the challenges posed by green and sustainability trends, with most of the participants falling under the categories of "Moderately Prepared" and "More Prepared". The highest level of preparedness can be noticed with the trends of "Electromobility" and "Hybrid Vehicles", where over 68% and 58% of respondents, respectively, indicated they are either "more prepared" or "most prepared".

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2.2.4 Contrast: Relevance & Preparedness

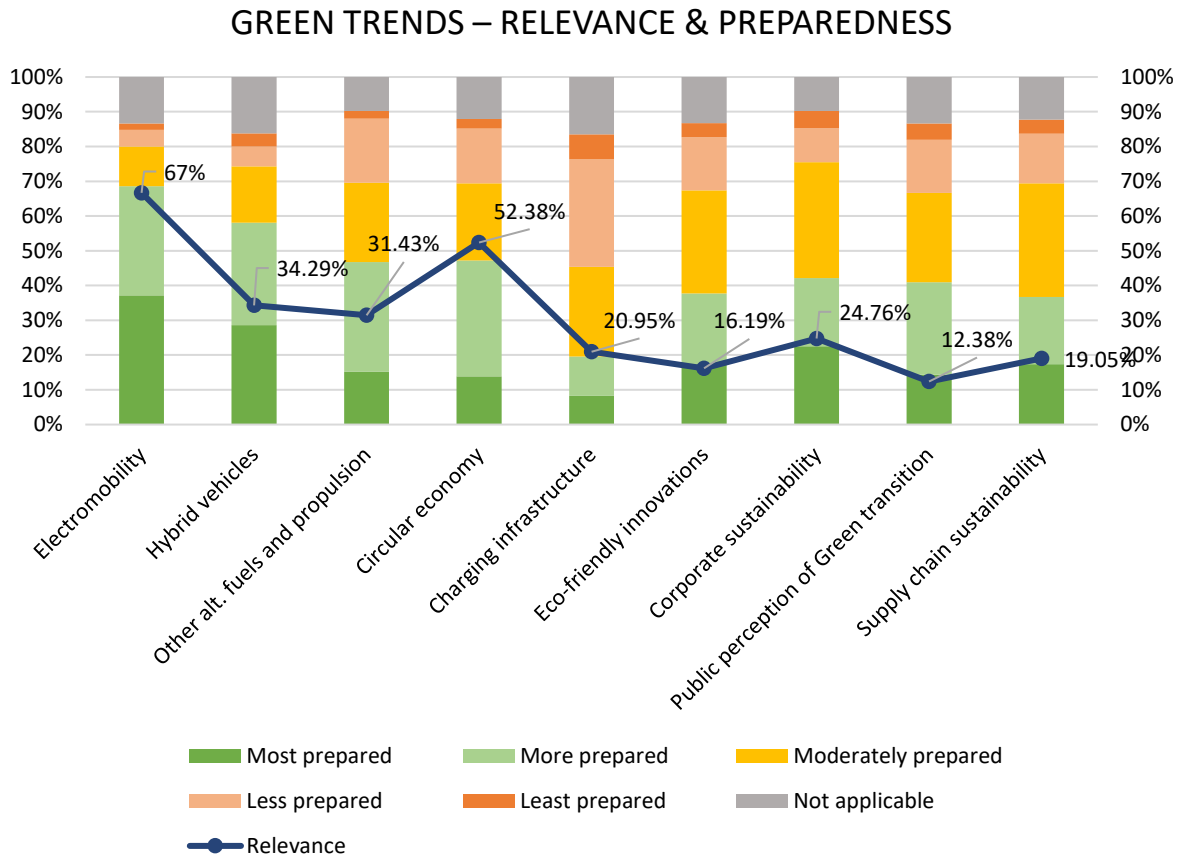

Figure 18: Comparison of relevance and preparedness for Green and Sustainability trends

"Electromobility" stands out with the highest relevance (67%) and strong preparedness (68.57% combined). "Hybrid vehicles" also show decent preparedness (58.09%) but lower relevance (34.29%). "Circular economy" has high relevance (52.38%) and moderately high preparedness (48.58%). "Charging infrastructure", however, shows a significant drop, with only 18.1% combined preparedness and 20.95% relevance. "Corporate sustainability" and "supply chain sustainability" exhibit moderate relevance (24.76% and 19.05%, respectively) but lack high preparedness, indicating room for improvement. Trends like "public perception of the green transition" (12.38% relevance) and "eco-friendly innovations" (16.19%) also rank low in relevance and preparedness, signalling less emphasis from organizations. Overall, "electromobility" and the "circular economy" trends show the best alignment between relevance and preparedness.

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2.2.5 Impact of Green and Sustainability trends

Figure 19: Word cloud: Impact of Green and Sustainability trends on level of production or operation

The respondents were asked “At what level of production or operation does green transition and related trends influence your organisation the most?”

The respondents highlighted several areas where the green transition and related trends significantly influence their organizations. Education and training development emerged as a key theme, appearing frequently in responses, signifying its critical role in adapting to green trends. Manufacturing facilities and operations were also frequently mentioned, underlining the need for sustainability in production processes.

Other areas of emphasis included CO2 reduction and targets, Energy Management and Efficiency, and the rise of Electric vehicles and electromobility, reflecting growing attention to environmental impact and energy efficiency across industries. The Circular economy, Recycling, and Sustainable material sourcing were also mentioned, pointing to shifts toward resource conservation and waste reduction.

Additionally, Research and Development (R&D) and Product Development were highlighted as key drivers in the green transition, along with Supply Chain Management and Logistics, signalling that sustainability is impacting both upstream and downstream processes. Overall, the responses reflect a broad and deep organizational shift toward sustainability across operations, production, and innovation.

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The respondents were asked to "Name which job roles and skills [they] think will be impacted the most by the aforementioned Green and sustainability trends in the near future?"

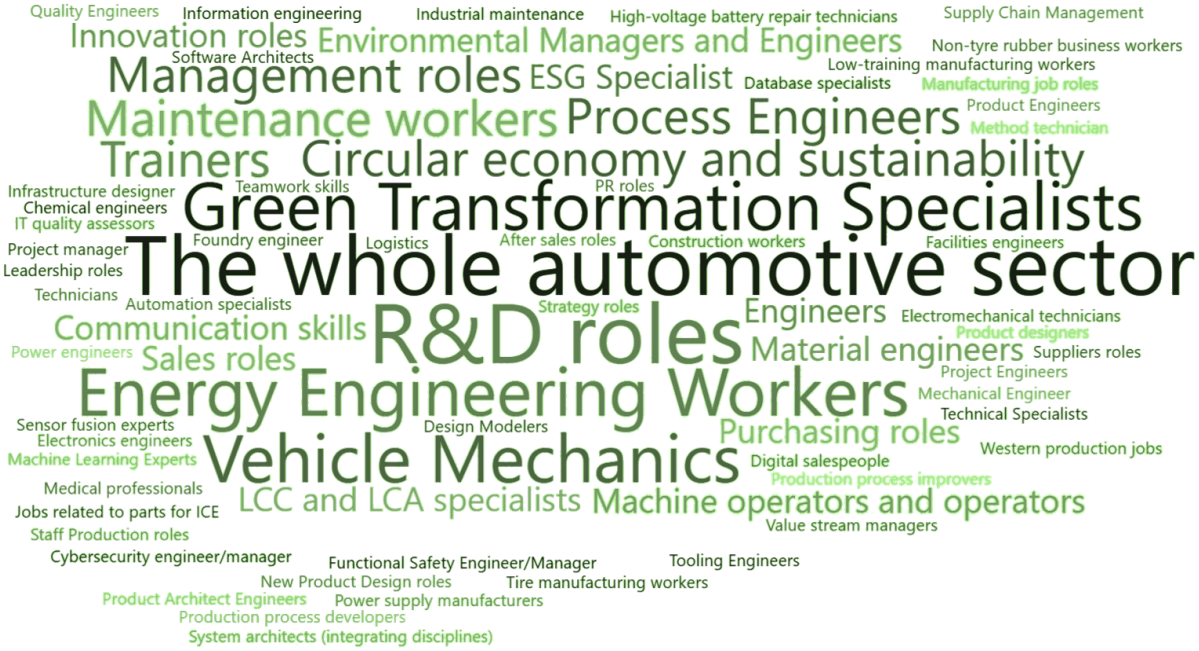

Figure 20: Word cloud: Impact of Green and Sustainability trends on job roles and skills in the near future

The respondents identified a wide range of job roles and skills that will be most impacted by green and sustainability trends. Engineers of various types, such as “Process Engineers”, “Mechanical Engineers”, and “Power Engineers”, were frequently mentioned, underscoring the need for technical expertise in adapting to sustainable practices. “R&D roles” were also highlighted, reflecting the innovation demands driven by sustainability. Many respondents stated that they believe the impact to cover “the whole automotive sector”

Other key roles include “Green Transformation Specialists”, “Energy Engineering Workers”, and “ESG Specialists”, showcasing the importance of roles specifically focused on environmental and sustainability goals. Additionally, “Technicians”, “Vehicle Mechanics”, and “Maintenance workers” will see significant shifts as green technologies and processes evolve.

Furthermore, “Supply Chain Management”, “Logistics”, and “Purchasing roles” were also noted, emphasizing how sustainability will affect both upstream and downstream processes. Overall, a broad array of sectors, from manufacturing to communications and IT, will face changes, reflecting the cross-industry impact of sustainability trends.

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2.3 RESILIENCE OF VALUE CHAINS

The resilience of value chains is becoming increasingly vital in the automotive industry as companies navigate complex global landscapes and respond to ever-changing market demands. This t rend emphasizes the importance of robust logistics, material and software resiliency, repair and maintenance capabilities, and effective manufacturing processes. The following sections investigate the level of awareness, preparedness, relevance and resilience of each of the subcategories within this trend, to better understand the perceptions and status of the respondents.

2.3.1 Awareness

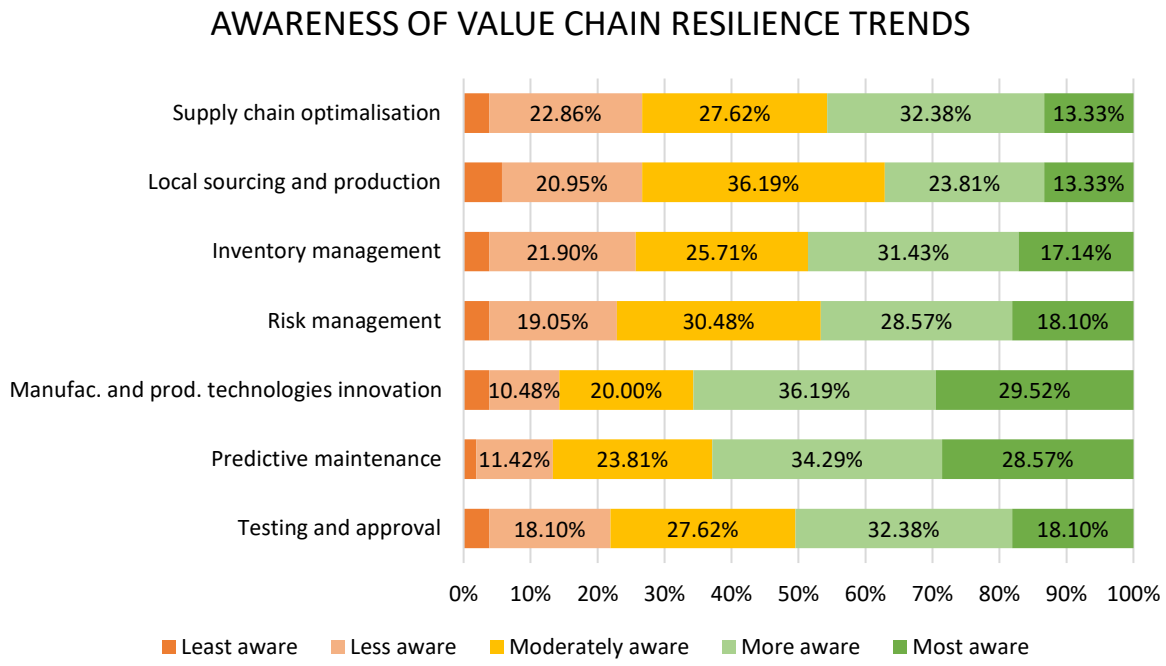

Figure 20: Awareness of trends related to the resilience of value chains

As Figure 20 shows, there is generally high level of awareness of the value chain resilience trends, with most of the respondents indicating they are “More Aware” and “Moderately Aware”, and often “Most aware” of analysed trends. The trends “Predictive Management”, “Manufacturing and Production Technologies Innovation” enjoy the highest levels of overall awareness, between 60–70%, followed by “Testing and approval”, “Inventory management”, “Risk management” and “Supply chain optimalisation”. The trend “Local Sourcing and

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Production" received the lowest amount of positive awareness rating, nevertheless the "Least aware" and "less aware" categories combined remain below 30% of respondents, with the largest share, 36,19%, indicating they are "moderately aware".

2.3.2 Relevance

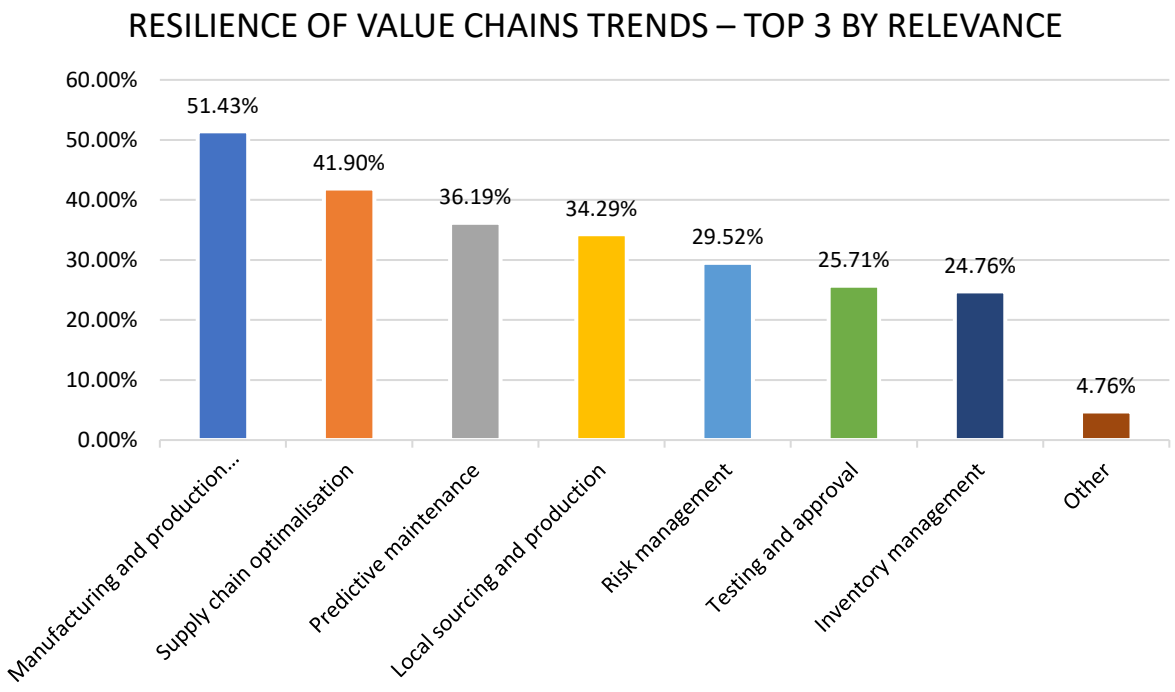

Figure 21: Relevance of trends related to the resilience of value chains in the near future

Respondents were asked to select between 1 and 3 trends aimed at increasing the resilience of value chains, that they consider the most relevant for the successful development of their organisation. "Manufacturing and production technologies innovation" received the highest relevance rating, after being selected by over 51% of respondents. "Supply chain optimalisation" was chosen by nearly 42% of respondents, followed by "predictive maintenance" trend (36,19%), and "Local sourcing and production" (34,29%). The remaining trends of "Risk management", "Testing and approval" and "Inventory management" were selected by less than 30% each, indicating lower degree of relevance by respondents.

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2.3.3 Level of preparedness

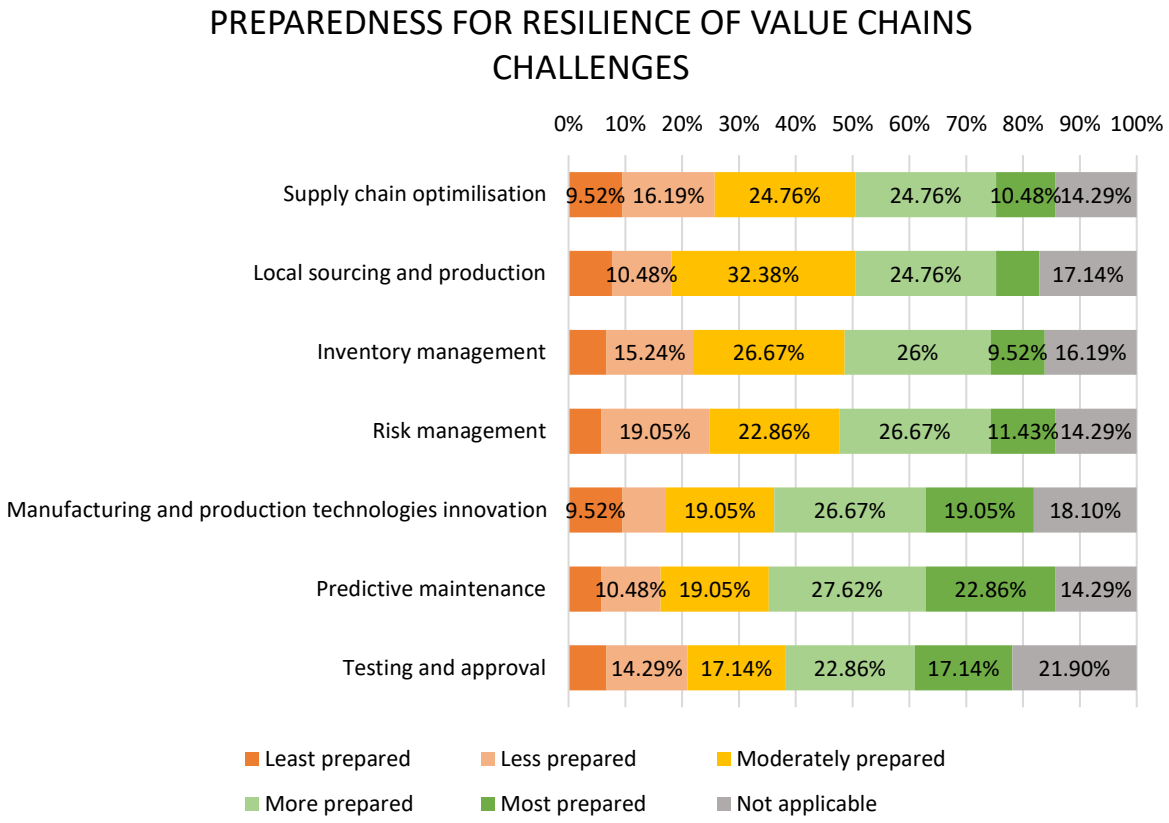

Figure 22: Level of preparedness for the challenges posed by resilience of value chains related trends

As Figure 22 shows, there is a general positive level of preparedness towards the categories examined, considering most of the respondents qualified themselves as “More Prepared” and “Moderately Prepared”. The trends “Predictive maintenance” received the highest rating of preparedness, with 22,86% of respondents indicating they are “most prepared” and 27,62% indicating they are “more prepared”. The trends “Manufacturing and production technologies innovation” and “testing and approval” enjoy similarly high rating of preparedness. At the same time, it is also possible to notice that very few, less than 10% of respondents categorise themselves as “Most Prepared” when it comes to trends such as “Local Sourcing and Production” and “Supply Chain Optimalisation”.

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2.3.4 Perceived resilience of value chains

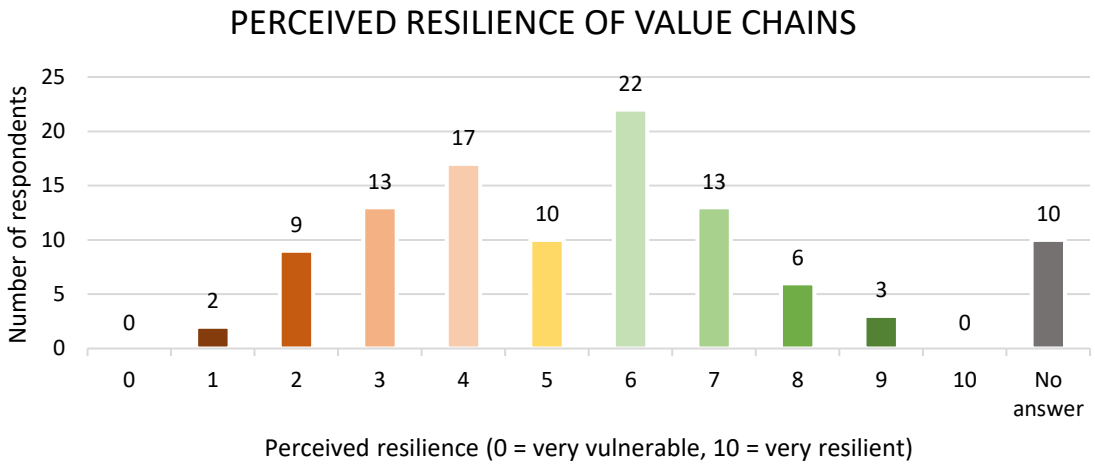

Figure 23: Perceived resilience of value chains in the automotive-mobility sector

Respondents rated how resilient they perceived the value chains in the automotive-mobility sector to be at the present time based on their professional experience and knowledge of the industry on scale ranging from 0, very vulnerable, to 10, very resilient.

The largest share of respondents, 20.95%, indicated their perception of resilience at 6, followed by 16.19% of respondents expressing their perception of resilience at 4. Respondents who rated perceived resilience as either 7 or 3 represented each 12.38% of the total and accounted for the third and fourth largest share of answers. Fifth large share of respondents, 9.52%, rated perceived resilience as 5, followed by 8.57% rating 2, and 5.71% rating 8. Only three respondents, 2.86%, rated perceived resilience as 9, and two respondents, 1.9%, rated as 1. No respondents rated their perception of value chains resilience by the extreme values of either 0 or 10, that is fully as very vulnerable or fully as very resilient. 9. 52% of respondents gave no answer.

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2.3.5 Contrast: Relevance & Preparedness

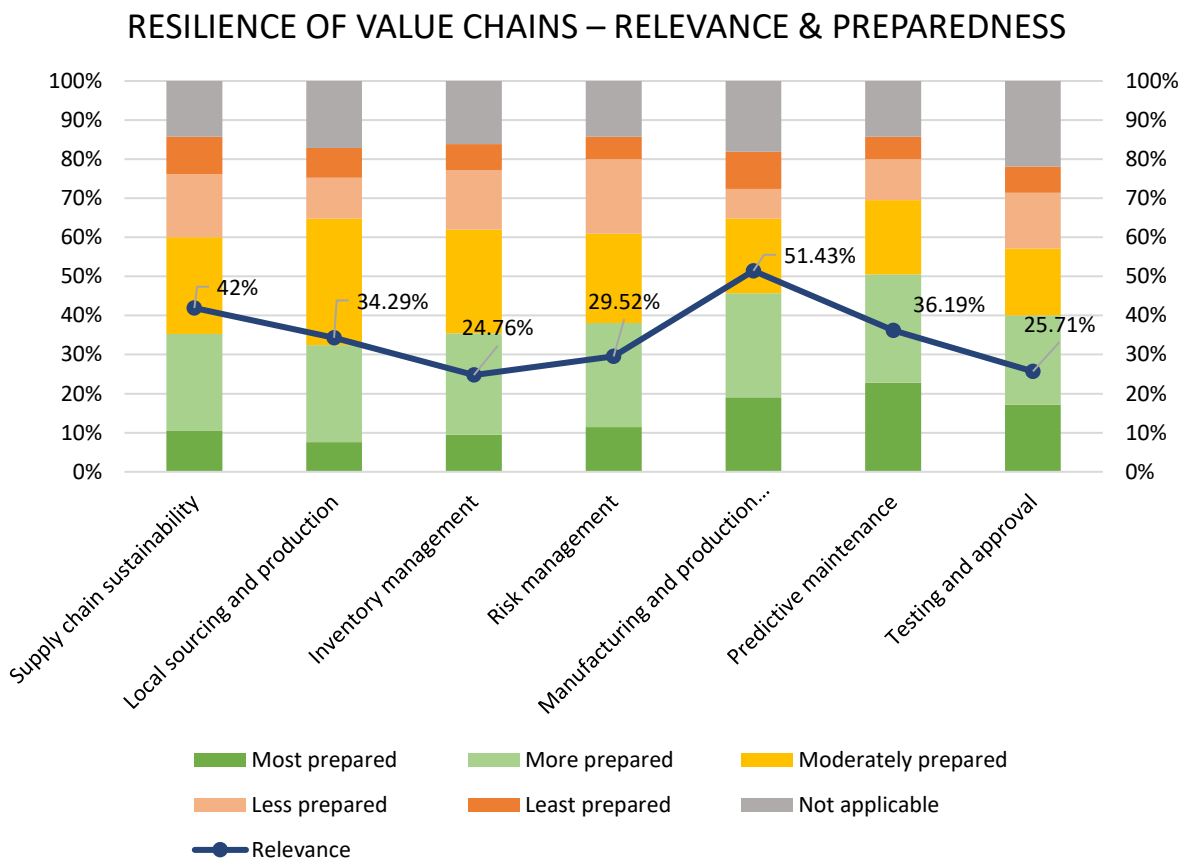

Figure 24: Comparison of relevance and preparedness for Resilience of value chains trends

"Manufacturing and production technologies innovation" ranks highest in relevance (51.43%) and shows strong preparedness, with 45.72% combined in "most" and "more prepared" categories. "Predictive maintenance" follows, with 36.19% relevance and solid preparedness (50.48%). "Supply chain sustainability" is another key trend, with moderate relevance (42%) and preparedness (35.24%). "Local sourcing and production" and "risk management" have moderate relevance (34.29% and 29.52%, respectively), though their preparedness levels are also average. "Inventory management" and "testing and approval" are less relevant (24.76% and 25.71%) and show lower preparedness. Overall, "Manufacturing and production technologies innovation" and "predictive maintenance" stand out in both relevance and preparedness, while other trends exhibit room for improvement in readiness.

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2.3.6 Impact on job roles and skills

Figure 25: Word cloud: Impact of Resilience of value chains trends on job roles and skills in the near future

Respondents were asked to "Name which job roles and skills [they] think will be impacted the most by the aforementioned aimed to increase the resilience of value chains in the near future?" The respondents emphasized several job roles and skills likely to be impacted; “Logistics Personnel”, “Supply Chain Management” (SCM), and “Inventory Management Specialists” were frequently mentioned, highlighting the critical role of supply chain efficiency in ensuring resilience. Additionally, “Product development and management”, Engineers, and Manufacturing job roles were identified as pivotal in adapting to these trends, signalling a strong focus on operational innovation.

“Cybersecurity Specialists”, “Automation and Robotization Specialists”, and “Software Engineering Roles” reflect the increasing reliance on technology and automation to enhance supply chain resilience. Meanwhile, “Green and Digital Skills experts” and “Environmental Specialists” underscore the ongoing importance of sustainability in value chain management.

Leadership Chief Officers roles, “Strategic Planning”, and “Management and Finance roles” were also mentioned, emphasizing the need for top-level oversight and planning.

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2.4 NEW BUSINESS MODELS

The emergence of new business models is reshaping the automotive-mobility landscape, driven by innovations such as Mobility as a Service (MaaS), Tire as a Service, Maintenance as a Service, and evolving customer preferences. The following sections investigate the level of awareness, preparedness, relevance, confidence as well as impacts on job role and skills of each of the subcategories within this trend, in order to better understand the perceptions and status of the respondents.

2.4.1 Awareness

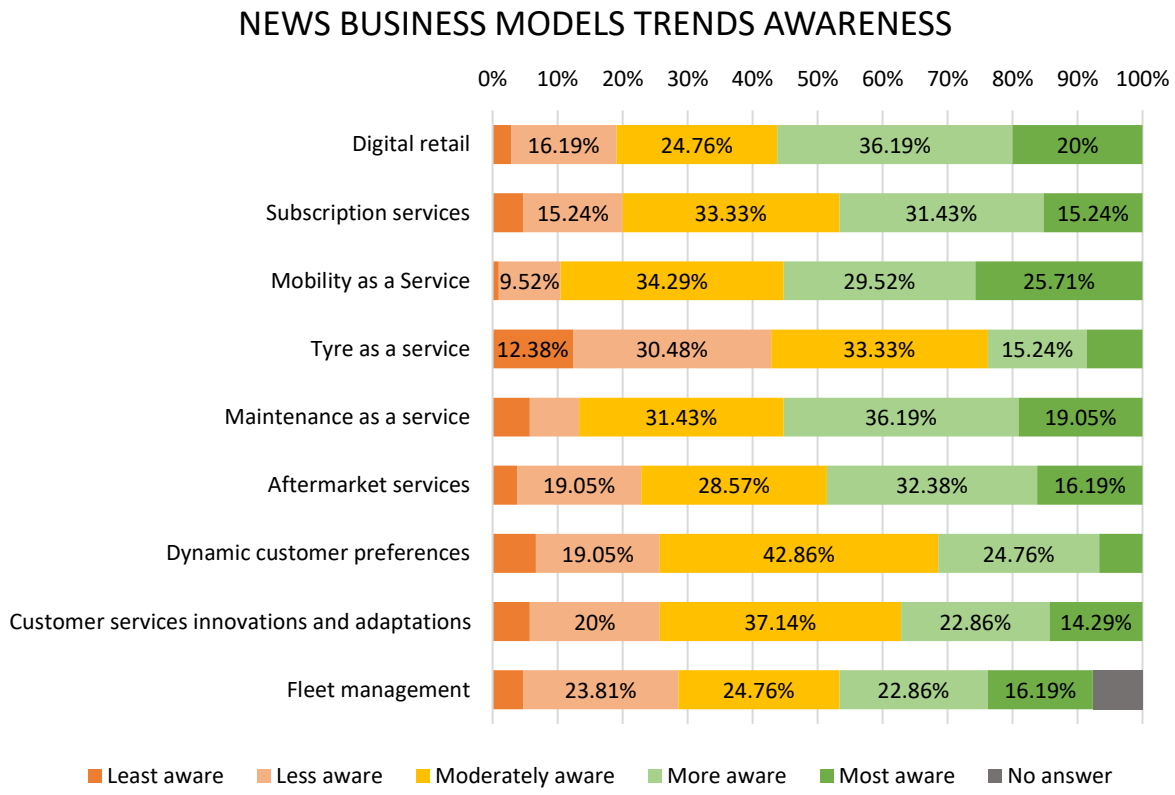

Figure 26: Awareness of New Business Models trends influencing the automotive-mobility sector

The level of awareness towards New business models trends is generally moderate to good, especially with regards to “Maintenance as a Service” and “Digital Retail”, and “Mobility as a Service”. The “Tyre as a Service” trend was indicated as one with least amount of awareness.

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2.4.2 Relevance

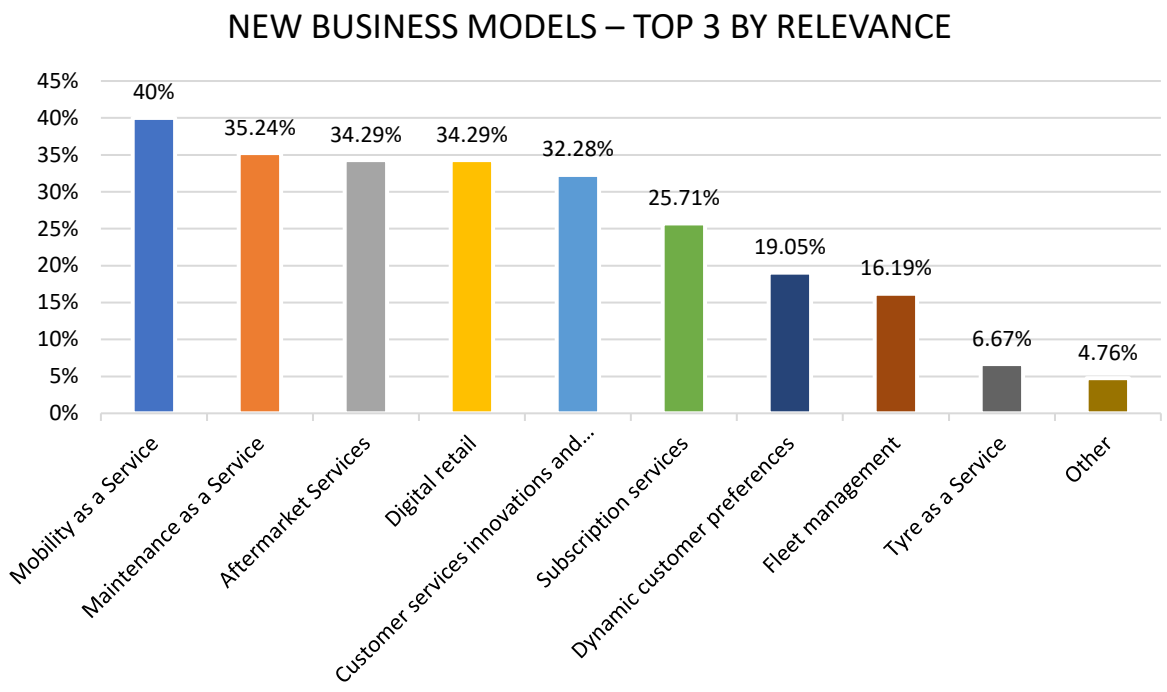

Figure 27: Relevance of New Business Models trends in the near future

Respondents were asked to select between 1 and 3 new business models trends that they consider the most relevant for the successful development of their organisation. “Mobility as a Service” was chosen by 40% of respondents, becoming the most relevant. “Maintenance as a Service” was chosen by more than 35% of respondents, followed by “Digital Retail” and “Aftermarket Service”, both at little over 34%. “Customer services innovations and adaptations” were selected by 32,28% of respondents, followed by a drop in relevance, with “Subscription services” being chosen by nearly 26%. “Dynamic customer preferences” and “Fleet management” trends were amongst the top three most relevant trends of 19,05% and 16,19% of respondents respectively. “Tyre as a Service” was selected by only 6,67% of respondents, thus being selected as the least overall relevant trend.

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2.4.3 Level of preparedness

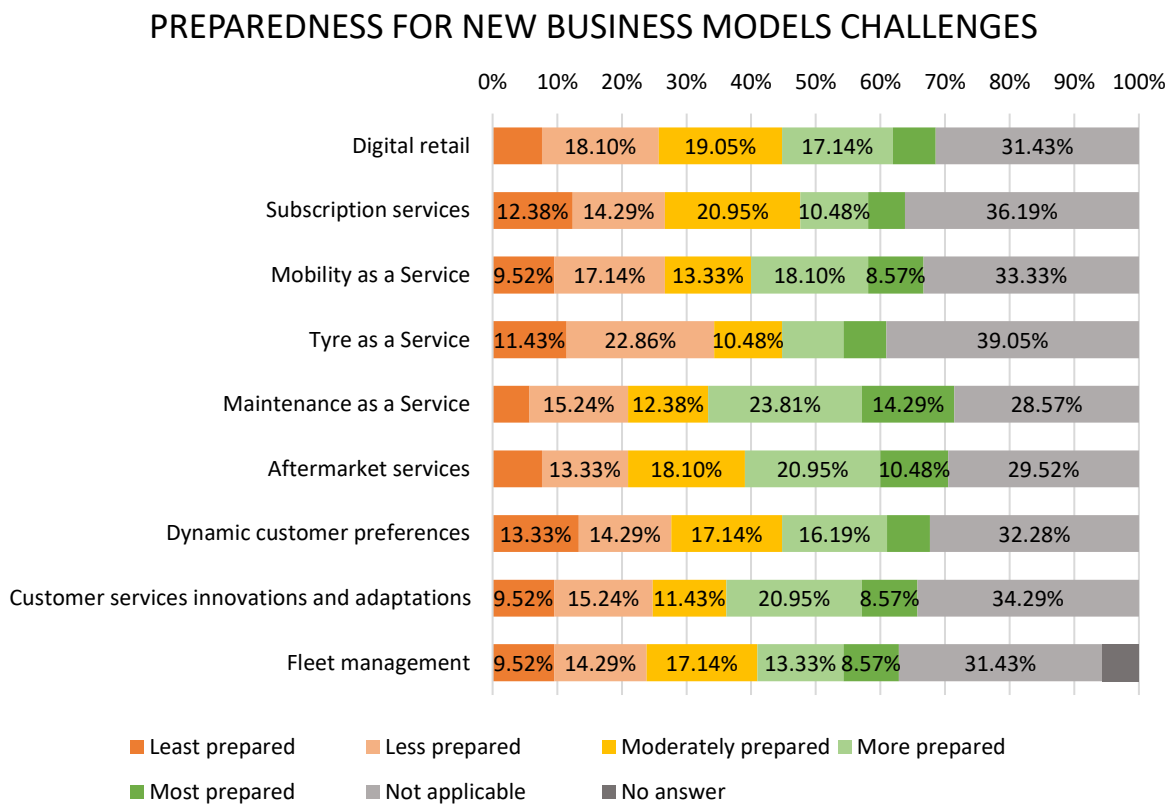

Figure 28: Level of preparedness for challenges posed by the New Business Models trends

As seen in Figure 28, typically around a third of all respondents considered the question related to the level of preparedness as not applicable to their organisations, especially the categories “Tyre as a Service” and “Subscription Services”, with over 39% and 36%, respectively, selecting “not applicable”.

“Tyre as a Service” is also the trend where the highest number of respondents qualified themselves as less prepared, over 22%, followed by “Digital Retail” with 18,1%. Overall, all trends registered less than a third of respondents indicating “more prepared” or “most prepared”, except for “Maintenance as a Service” (together over 38%).

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2.4.4 Confidence in the New Business Models trends

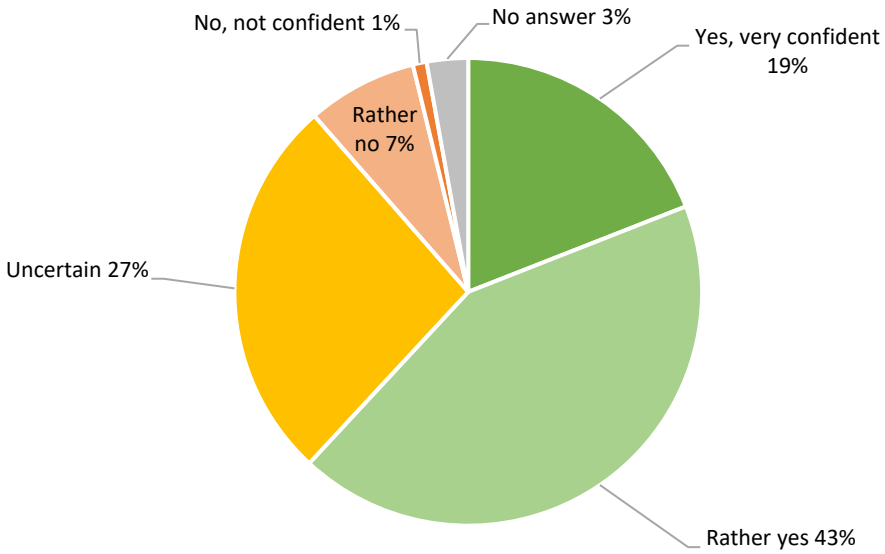

Figure 29: Confidence in the New Business Models

Respondents were asked whether they are you confident that New Business Models trends will positively impact and strengthen the automotive-mobility sector. As the Figure 29 shows, nearly two thirds (62% combined) expressed a positive judgement in terms of confidence towards the new business models trends. 43% of respondents stated they are rather confident in the New Business Models trends, 27% of respondents declared to be uncertain, and 19% said they were very confident. 7% of respondents expressed they are rather not confident, and 1% stated they are not confident at all.

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2.4.5 Contrast: Relevance & Preparedness

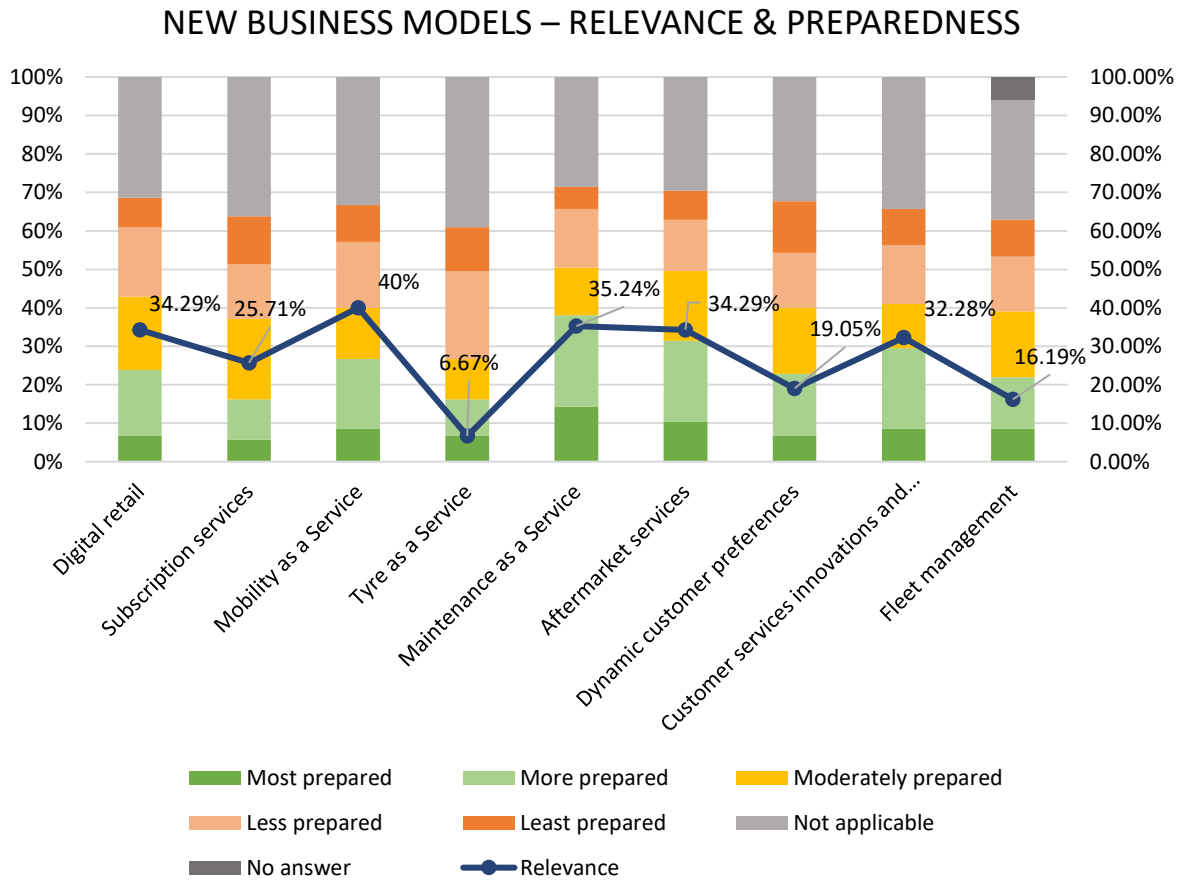

Figure 30: Comparison of relevance and preparedness for New business models trends

"Mobility as a Service" ranks highest in relevance (40%) and has a combined preparedness of 26,67%, indicating moderate readiness. "Maintenance as a Service" also shows higher relevance (35,24%) and the highest preparedness (38,10%). "Digital retail" has moderate relevance (34,29%) but lower preparedness (23,81%). "Aftermarket services" and "customer service innovations and adaptations" display similar trends, with moderate relevance (34,29% and 32,28%) and preparedness levels around 29% and 29,52%, respectively. Conversely, trends like "Tyre as a Service" show very low relevance (6,67%) and minimal preparedness (16,19%). Overall, while some new business models like "Mobility as a Service" and "Maintenance as a Service" show promise, others, such as "Tyre as a Service", lag in both relevance and preparedness.

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2.4.6 Impact on job roles and skills

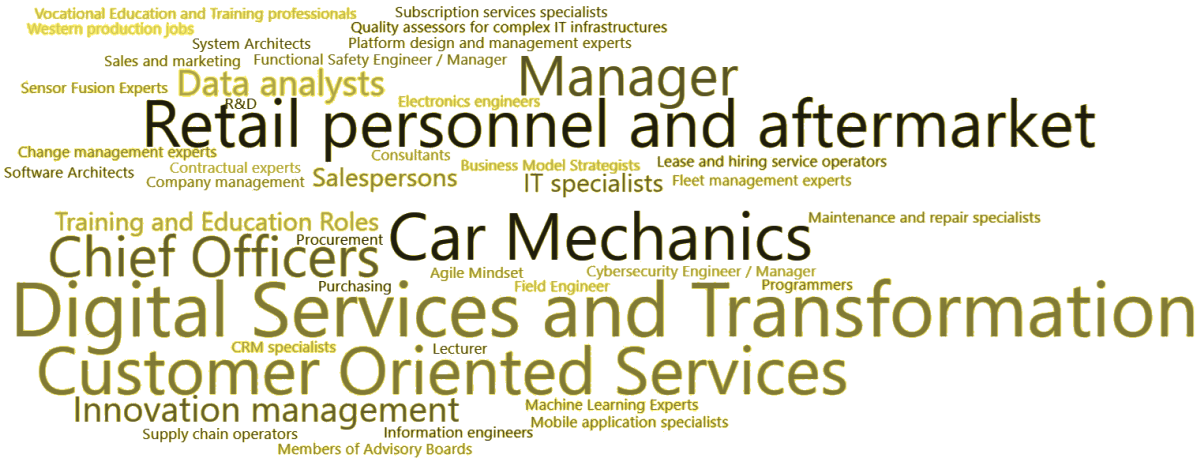

Figure 31: Word cloud: Impact of New Business Models trends on job roles and skills in the near future

Respondents were asked to "Name which job roles and skills [they] think will be impacted the most by the aforementioned new business models trends in the near future".

The respondents identified “Digital Services and Transformation” roles as the most frequently impacted by new business model trends, indicating the significant role of digital transformation in future business strategies. Following closely were “Car mechanics” and “Customer Oriented Services” job roles, reflecting the direct impact on maintenance and customer-facing roles in adapting to new business models.

Leadership positions such as “Chief Officers” and “Company management” were also frequently mentioned, underlining the importance of executive leadership in navigating business model changes. “Data analysts” were another key group, pointing to the growing reliance on data-driven decision-making.

Further roles such as “Salespersons”, “Retail personnel and aftermarket”, and “Managers” were noted, indicating the effects on both sales operations and management. Technical positions like “Cybersecurity Engineers”, “Machine Learning Experts”, “Software Architects” and “System Architects” were also highlighted, showcasing the need for technological expertise to support the digital and operational shifts driven by new business models, and to accommodate the evolving business frameworks.

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3 IMPLICATIONS ON JOBS AND TRAINING: SECTORAL NEEDS

After having identified the main key points within the sectoral trends, this section aims at collecting a first round of information on the sectoral needs in terms of jobs and training implications.[1]

3.1 Assessment of job implications according to category

Respondents were asked to indicate which workforce, in terms of job positions, will be needed in the automotive-mobility sector in the near future, according to their organization's specificities and their own experience.

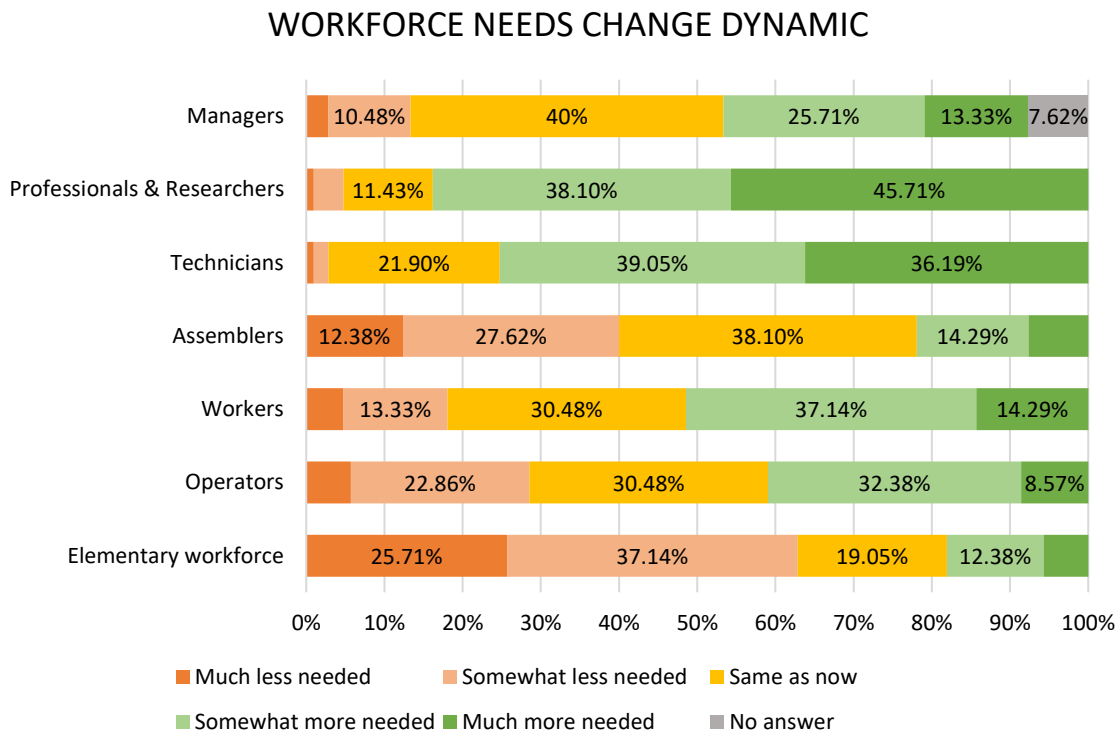

Figure 32: Comparative workforce needs in the automotive-mobility sector in the near future

As for "Managers", 40% of respondents believe that jobs needs will be unchanged; nearly 26% of respondents said it will be "Somewhat More Needed" in the near future; 13,3% of respondents said it will be "Much More Needed"; 10,48% of respondents said it will be

[1] *The second iteration of the survey (part of Deliverable 2.2) will start from this results and then deep dive into such aspects*

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“Somewhat Less Needed”; 7,62% of respondents did not reply, and less than 5% respondents said that it will be “Much Less Needed”.

As for Professionals and Researchers, nearly 46% of respondents believe that the need for this workforce will increase significantly; over 38% of organizations said it will be “Somewhat More Needed” compared to the present; 11,43% of respondents that it will not change, with only around 5% believing that professional and research job roles will be somewhat or much less needed.

As for Technicians, over 39% of respondents replied that this job’s need will face a moderate increase in the near future and over 36% of respondents that it will be “Much More Needed”; nearly 22% of respondents believe the needs will not change; with only minimal share of respondents indicating decreased needs.

As for Assemblers, over 38% of respondents believe there will be no change in terms of need; 27,62% of survey participants said that this job role will be “Somewhat Less Needed” and a little over 12% of respondents that it will be “Much Less Needed”; 14,29% believe it will be “Somewhat More Needed” and only 8% that it will increase significantly.

As for Workers, 37,14% of respondents think that the need for this job’s position will be “Somewhat More Needed” in the near future and 27,62% that it will be unchanged; nearly 15% participants believe in a significant increase; 13,33% of participants considered it will be “Somewhat Less Needed” and around 5% of respondents that it will decrease significantly.

As for Operators, 32,38% of respondents think this job role will be “Somewhat More Needed” and 30,48% of respondents that it will be no change at all; 22,86% of respondents believe it will face a decrease; 8,57% of participants think it will be “Much More Needed” compared to the present and only 5,71% of participants that it will decrease significantly.

As for Elementary Workforce, over 37% of respondents believe this job will be “Somewhat less Needed” compared to the current situation and 25,71% of respondents believe that it will decrease significantly; a little over 19% of participants believe this category will not be affected by any change; 12,38% of participants believe in a moderate increase and less than 6% of participants believe that the increase will be significant.

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3.2 Training needs and availability

Figure 33: Word cloud: Training needs in view of evolutions of the automotive-mobility sector

The respondents were asked “What kind of training do [they] believe is needed in view of the evolutions of the automotive-mobility sector?” and identified a broad range of training needs. “AI/ML training” was the most frequently mentioned, reflecting the growing importance of artificial intelligence and machine learning technologies in this industry. “Electric Vehicles and Electromobility training” was also highly emphasized, highlighting the shift towards sustainable and electric transport solutions.

“Digital Transformation and Skills” training appeared frequently, signifying the need for digital literacy and transformation across all levels of the automotive sector. “Soft Skills Training” was repeatedly noted, indicating the importance of interpersonal and adaptive skills alongside technical expertise.

Other significant areas include “Cybersecurity training”, “Energy Engineering”, and “Automation training”, which reflect the sector’s focus on securing new technologies and automating processes. Additionally, “Virtual and XR” (Extended Reality) training was mentioned often, showcasing the role of immersive technologies in future learning. Overall, the responses point to a combination of both technical and soft skills as crucial to navigating the industry's future.

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The respondents furthermore rated the availability of training which they believe is needed in view of the evolution of the automotive-mobility sector.

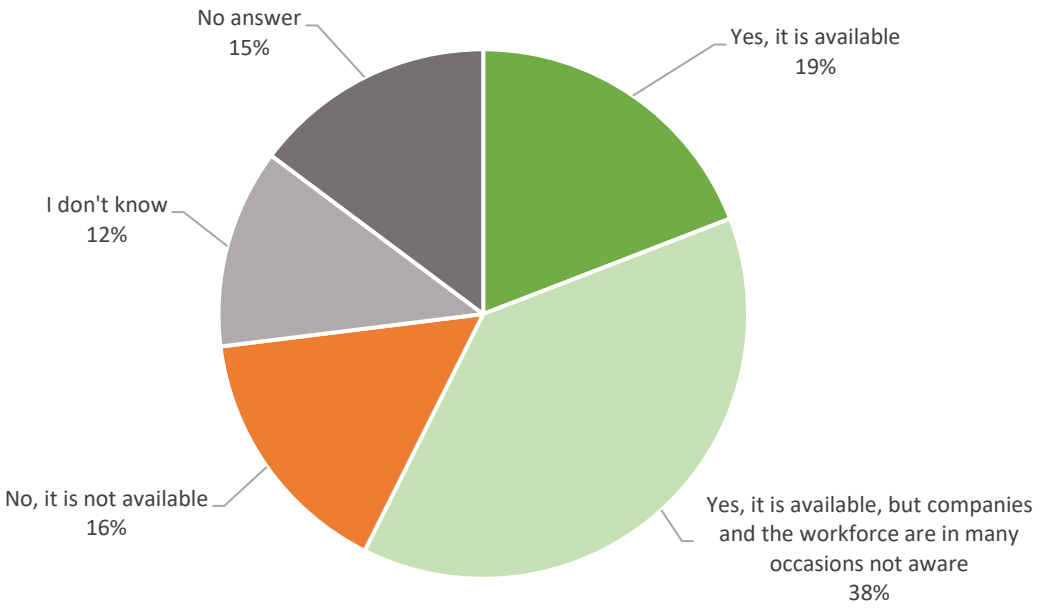

Figure 34: Training availability

19% of the respondents stated that such training is available. 38% of respondents stated that while such training is available, companies and the workforce are on many occasions not aware of it. 16% of respondents stated that such training is not available. 12% of respondents have expressed lack of knowledge on this topic, and 15% of respondents gave no answer.

Therefore, while the majority of the respondents stated that the necessary training is available, most of them stated so with a reservation, pointing out lack of awareness amongst the companies and the workforce. This expression of the largest share of respondents clearly points out the need for a spread of awareness in the regard of training availability.

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CONCLUSIONS

The present survey report (D2.1) is the first iteration of a series of surveys that will be carried out as part of the project TRIREME. It therefore represents the first step aiming at providing a comprehensive analysis of the current trends shaping the automotive-mobility ecosystem, particularly in the areas of digitalisation, green sustainability and circular economy, resilience of value chains, and new business models. The insights gathered reflect a general awareness and preparedness within the ecosystem, but also highlight key gaps in training and workforce skills, especially in the context of new technologies and sustainable practices. The findings underscore the necessity for continued skill development and the adaptation of educational programs to meet the evolving demands of the sector. As the ecosystem navigates these transformative shifts, proactive measures in upskilling and reskilling will be essential to ensure a resilient and future-ready workforce. This report serves as a first crucial step in guiding such initiatives, providing actionable intelligence to drive forward the green and digital transitions.

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