



Project: 101074381 — E-BOOST — SMP-COSME-2021-CLUSTER

SME electromobility map including needs analysis

e.boost

31/08/2023



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Start date of the project	01/12/2022
Duration of the project	30 months
Deliverable number and name	D3.1 – SME electromobility map including needs analyses
Version	0.3
Work package number	3
Due date	31/05/2023
Actual date	31/08/2023
Participant responsible	ANL
Main authors	Freek de Bruijn

Nature of the Deliverable

R	Document, report (excluding the periodic and final reports)	X
DEM	Demonstrator, pilot, prototype, plan designs	
DEC	Websites, patents filing, press & media actions, videos, etc.	
DMP	Data Management Plan	
OTHER	Software, technical diagram, etc.	

Dissemination Level

PU Public, fully open, e.g. web

Sustainable mobility is at the core of the European strategy to accelerate the ecological and digital transition, as the transport sector is a major contributor to GHG emissions. Electricity and green hydrogen both represent two sources of energy not yet exploited enough in all transport modes and especially in railways, maritime, or long-distance transport (freight or people). The European Green Deal and many other documents such as the directive on the deployment of alternative fuels infrastructure

Alternative Fuels Infrastructure Directive (AFID) or “Fit for 55” package encourage the deployment of clean hydrogen, fuel cells and alternative fuels such as electricity to decarbonize the transport sector.

Cutting-edge technologies and services brought by Small and Medium-sized Enterprises (SME) involved in the electromobility sector need to be supported to take advantage of new market opportunities in third countries and to boost a competitive, sustainable, and circular European transport industry and to drive the transformation towards a carbon-neutral society. Europe is facing at the dawn of neutral carbon continent and to achieve this goal and reach a momentum of change E-BOOST Eurocluster will adopt a systemic approach to build a united and skilled ecosystem, ready to develop singular products and services to reach international market.

The E-BOOST Eurocluster is represented by a strong consortium ensuring a large coverage of electromobility at the European level. The project will focus on building a strong and dynamic platform for electromobility stakeholders to enhance cooperation among the whole electromobility value chain, thus strengthening EU resilience in the Mobility-Transport-Automotive industrial ecosystem (chosen strand). Direct financial and non-financial support to SMEs and clusters towards green and digital

transformation will be the cornerstone of the project. The signature of cooperation and business agreements will ensure the development of SMEs solutions at global scale and foster cross-sectoral activities which are key to support their economic growth in the context of a striking economic crisis. Mentoring programmes for clusters and SMEs based on the skills gaps identified will be designed and capacity building planned so that markets are prepared for the introduction of new electromobility solutions.

This document contains an analysis of several companies that are operational within the electromobility sector. To conduct the analysis properly, all consortium partners prepared a list of 292 SME's that they know are operational within electromobility in their respective countries. These SMEs are operational in SMcomntpr



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This task (T3.1) is all about mapping the electromobility ecosystem in the EU (SMEs and cluster organizations) and their needs. Task leader is ANL. This section focuses on the methodology behind the actions carried out. What steps were followed until the final mapping of the electromobility system in which the partners within the E-BOOST consortium are active?

For the E-BOOST project, the categorization of the ecosystem ((air)port, corridor, logistics, mountains, rural and urban) will be further detailed based on technological (battery, charging infrastructures, hydrogen, etc.) and sectoral (automotive, maritime, rail, etc.) topics to best match European SMEs and cluster organizations.

Specifically, each consortium partner has compiled a list from their own country of companies known to them that are already operational within the electromobility sector. In total 292 companies were identified and listed. Following this mapping activity by each partner, guided by ANL, and within the framework of the International Strategy Plan (WP5), SME needs will be identified based on strategic gaps, bottlenecks, disruptions, dependencies, and opportunities for collaboration. Input substitutes, alternative technologies and infrastructures will also be explored.

This mapping is the ground foundation for establishing collaboration models that are designed and built to facilitate value chain linkages between electromobility ecosystems. Examples may include site visits, matchmaking events and investor/sponsor days that are essential to start key partnerships and prepare for Business Continuity Plans part of T3.2.

It is no secret that the world of mobility, and with it the automotive industry, is under pressure. Consider external factors such as inflation, scarcity of raw materials, shortage of employees, as well as the developments going on in Ukraine and the aftermath of COVID-19. Therefore, it was decided to identify how these factors have affected the companies. Was this positive? Or also negative? And how can we as the E-BOOST consortium position ourselves in such a way that we will support these companies later in this project?

Task leader ANL sent two templates to the consortium partners.

The first template is about completing an overview and categorization of SMEs. SME are being categorized in the following topics:

1. Name and location of SME
2. Ecosystem categorization
3. Technology field
4. Sectoral

The second template is more general and deals with E-Mobility in Numbers. How many e-vehicles are we talking about? It is about an overview of the number of registered vehicles, vessels, aircraft, trains by country from December 2022 with an electric (BEV, FCEV or, PHEV) propulsion system.

The interview guideline was created through a brainstorming session with all project partners to check the relevance of the questions to 1 SME per project partner. After evaluating the first results from the SMEs, the interview guideline was further adjusted. Then the interview guideline was finalized and turned into a survey.

The survey was published and was prepared via Google Forms. It can be found at:

<https://docs.google.com/forms/d/1u4u1wNiAZjw50vLaoBulNkXVs6gZpv91siW5-REAcSA/edit?ts=6438176d>

In the Grant Agreement we stated that we need a response rate of minimum 15 companies per partner. Having six partners within the E-BOOST consortium that makes a KPI total of 90. However, the E-BOOST consortium received responses only from 62 companies. It means we are missing 28 responses. The main reasons for this is that the European ecosystem is going through an economic crises, Ukraine war, rise of resource prices, lack of labour, etc. Filling out this survey was simply not on their priority list. This means that we are dealing with a fragile electromobility sector that needs to be closely supported thanks to E-BOOST activities. Therefore, we believe that 62 answers are enough to complete a qualitative analysis and dedicated attention for some ecosystem that might need more support. Feedback collected was analysed, leading to the definition of a top-5 regarding the needs of European SMEs and cluster organizations for the electromobility sector.

After July 7, all data from both templates and the survey were analysed by lead partner ANL. The results of the findings can be found in the next section.

Date	Action
14-03-2023	Initial meeting for discussing the approach
17-03-2023	Two templates were sent to all consortium partners
28-03-2023	Finishing interview guidelines, sent to consortium partners to test with 1 SME each
06-04-2023	Deadline feedback from 1 SME per partner
12-04-2023	Final survey has been published, to be filled in 15 SMEs per partner
26-05-2023	Initial deadline for retrieving answers from SMEs
07-07-2023	Extended deadline for retrieving answers from SMEs
10-07-2023	Analysing results from templates and online survey
18-08-2023	Final modifications
31-08-2023	Submission E-BOOST D3.1

The previous section focused on the methodology behind obtaining the necessary data within T3.1. In this section, we address the data obtained itself. It starts by demonstrating the number of electrically registered vehicles in each country in which the E-BOOST consortium is located. This can be found in chapter 2.1. Then in chapter 2.2 the list of SMEs will be presented categorized into ecosystem, technological field and sectoral area. Next, in chapter 2.3 the questions asked, and their answers will be addressed from the survey discussed earlier. The section ends with a brief conclusion in which E-BOOST consortium has identified a top six needs for the electromobility sector.

In this section, we discuss the number of registered vehicles per country in which this consortium operates. These include Germany, France, Spain, Poland, Italy and the Netherlands. During the start of this task, the consortium decided to examine figures from passenger vehicles, light commercial vehicles, trucks over 3.5 tons, buses and lighter electric vehicles (e.g., mopeds and electric bicycles), trains, maritime and aerospace. While conducting the work, it was noticed that some registration reports are easier to track than others. Registrations such as the number of electric trains, ships and aircraft are probably beyond the scope of the cluster partners. Therefore, the consortium decided to omit these three categories. Please find all registered electric vehicles per country below.

2.1.1 Germany

Germany 31-12-2022	Total registrations	Electrical registrations	% of total
Personal Cars	BEV FCEV PHEV 48.697.150	1013009 1989 864712 1879710	3,86%
Van's Light Trucks	BEV FCEV PHEV 2.092.500	4924 0 935 5859	0,28%
Trucks >3,5t	BEV FCEV PHEV 23.214	60803 37 496 390	1,68%
Busses	BEV FCEV PHEV 83.025	1884 69 23 1976	2,38%
LEV's	Mopeds Cycles Other 83.282.525	60651 9800000 0 9860651	11,84%

Figure 1 – E-Mobility in numbers registered (31-12-2022) in Germany

2.1.2 France

France 31-12-2022	Total registrations	Electrical registrations	% of total
Personal Cars	BEV FCEV PHEV 1.540.309	202928 193 459212 662333	43,00%
Van's Light Trucks	BEV FCEV PHEV 346.114	16568 2 7658 24228	7,00%
Trucks >3,5t	BEV FCEV PHEV 41.750	163 0 4 167	0,40%
Busses	BEV FCEV PHEV 5.903	781 5 253 1039	17,60%
LEV's	Mopeds Cycles Other 3.355.263	738454 759000 1497454	44,63%

Figure 2 – E-Mobility in numbers registered (31-12-2022) in France

2.1.3 Spain

Spain 31-12-2022	Total registrations	Electrical registrations	% of total
Personal Cars	BEV FCEV PHEV	30521 4 47791	
TOTAL 2022	813.399	78316	9,63%
Van's Light Trucks	BEV FCEV PHEV	4572 0 413	
TOTAL 2022	119.380	4985	4,18%
Trucks >3,5t	BEV FCEV PHEV	160 0 0	
TOTAL 2022	23.428	160	0,68%
Busses	BEV FCEV PHEV	141 7 1	
TOTAL 2022	2.441	149	6,10%
LEV's	Mopeds Cycles* Other	10188 5153 1762	
* (MOPED LESS 4KW)	202.293	17103	8,45%

Figure 3 – E-Mobility in numbers registered (31-12-2022) in Spain

2.1.4 Poland

Poland 31-12-2022	Total registrations	Electrical registrations	% of total
Personal Cars	BEV	11293	2,69%
	HEV	65617	15,63%
	FCEV	41	0,01%
	PHEV	9664	2,30%
	MHEV	71331	16,99%
	419.749	157946	37,63%
Van's Light Trucks	BEV		
	FCEV		
	PHEV		
	62.238		
Trucks >3,5t	BEV		
	FCEV		
	PHEV		
	34.905	1643	4,71%
Busses	BEV	127	10,99%
	FCEV	3	0,26%
	PHEV	41	3,55%
	1.156	171	14,79%
LEV's	Moterbikes	612	1,72%
	Scooters	2751	7,75%
	Other	177	0,50%
	35.501	3540	9,97%

Figure 4 – E-Mobility in numbers registered (31-12-2022) in Poland

2.1.5 Italy

	Total	Electrical	% of total
Italy 31-12-2022	registrations	registrations	
Personal Cars	BEV FCEV PHEV 1.316.726	49165 n.a. 67331 116496	8,85%
Van's Light Trucks	BEV FCEV PHEV 160.114	4254 n.a. n.a. 4254	2,66%
Trucks >3,5t	BEV FCEV PHEV 25.341	17 n.a. n.a. 17	0,07%
Busses	BEV FCEV PHEV 3.255	126 n.a. n.a. 126	3,87%
LEV's	Mopeds Cycles Other 2.063.661	23300 337000 n.a. 360300	17,46%

Figure 5 – E-Mobility in numbers registered (31-12-2022) in Italy

2.1.6 The Netherlands

Netherlands 31-12-2022	Total registrations	Electrical registrations	% of total
Personal Cars	BEV FCEV PHEV 8.893.759	328295 596 186947 515838	5,80%
Van's Light Trucks	BEV FCEV PHEV 1.076.718	13964 14 127 14105	1,31%
Trucks >3,5t	BEV FCEV PHEV 195.000	306 27 56 390	0,20%
Busses	BEV FCEV PHEV 9.127	1444 55 7 1506	16,50%
LEV's	Mopeds Cycles Other 2.039.571	1535 133730 7505 142770	7,00%

Figure 6 – E-Mobility in numbers registered (31-12-2022) in the Netherlands

Within the E-BOOST project, task 3.1 also specifically involves mapping the electromobility sector. To do this, each partner researched within its own country the different companies known to them. These companies were also categorized by sector (automotive, aerospace, maritime and railway). We also looked at what facet within the sector the SMEs are operational on. Examples include light electric vehicle, charging infrastructure and battery developments. Finally, the companies were categorized within a particular context. So where do you find the most vehicles, vessels, and aircraft? Categories are distinguished between urban and rural, as well as airport, port, station, and the logistics sector.

A total of 292 companies have been located and categorized. These companies are potentially approachable to support during the E-BOOST project. Also, most of these companies were approached to complete the survey which is discussed in Chapter 2.3 A list of the complete list of SMEs can be found in Annex I.

From the list of SMEs as discussed in chapter 2.2 during the timespan of this task a total of 62 companies completed the survey (as discussed in chapter 1). Most of them are in France (48%). From the Netherlands we received 11%, Italy 11%, Spain 10%, Germany 17%, and Poland 3%. Below you will find the total number of respondents from each country.

- 30 x France
- 10 x Germany
- 7 x Netherlands
- 7 x Italy
- 6 x Spain
- 2 x Poland

TOTAL of 62 companies

Most companies are positive towards a future for electromobility vehicles in general as it seems that revenue has remained stable (18%) or even some growth (33%) and over 80% even expect to make a profit this year. Of course, there are concerns that companies worry about, such as labour shortages, inflation in materials, and difficulties in the supply chain. Also, the insufficient availability of charging infrastructure could harm the transition towards E-Mobility. Material shortages also play a role, and there are concerns about compliance with emission and pollution targets (e.g., Euro 7/VII, CO2)¹.

Just like in any industry, companies in the electro mobility sector also face personnel shortages, particularly in the fields of engineering and software. Many companies are struggling to find qualified engineers and software developers to meet the growing demands of the industry. The rapid advancement of electric vehicle technology and the increasing complexity of software systems used in these vehicles have created a high demand for skilled professionals.

Furthermore, the companies believe that it is important to collaborate internationally in the transition to E-Mobility.

The E-BOOST project is designed in such a way that it will respond to this need. Examples are the Open Calls to Products & Services Development, access to Innovation Support services, internationalisation opportunities, etc.

¹ https://ec.europa.eu/commission/presscorner/detail/en/ip_22_6495

In conclusion, several companies that are operational within the electromobility sector have been identified for which the E-BOOST consortium can aim its direction on their ecosystem. Out of the contacts with the companies a top six in terms of needs for the electromobility sector was identified:

1. Essence of international cooperation
2. Qualified personnel
3. Legislation / Subsidies
4. Market shortages (logistics, materials, utility)
5. Price increases (materials, freight...)
6. Charging infrastructure

The top six of the findings from the survey will be used as the basis for setting up matchmaking events that will be organized in T3.3.

[illegible]

[illegible]

General questions

1. Company Name
2. Company type
3. Job title
4. First Name
5. Last Name
6. E-mail address
7. In which of the following sectors is your company (most) active?
8. Which is more relevant to your company in relation to Electromobility? Based on your answer, go to the section that is referred to.

It is also possible to respond to questions in both sections.

9. Are you a member of the following clusters?

SECTION 1: Applicable to e-mobility Production/Supply Companies

1. Which of the following types of technology is your company focused on?
2. What is your outlook for your industry based on the expected revenues and profitability?
3. What is your forecast for the revenues of your company in the next 12 months?
4. What overall profitability do you expect for 2023? (Select one)
5. How do you currently balance your focus between margin recovery / protection vs. investments into future growth?
6. How significant are the following issues in the transition to E-mobility? [Supply Chain Disruption]
6. How significant are the following issues in the transition to E-mobility? [Infrastructure]
6. How significant are the following issues in the transition to E-mobility? [Inflation of Products / Materials]
6. How significant are the following issues in the transition to E-mobility? [Personnel Shortage]
6. How significant are the following issues in the transition to E-mobility? [Legislation / Subsidies]
7. In which functions has the acquiring of good talent become more difficult over the last 5 years? (Select all that apply)
8. Which actions are most efficient to recover or improve profitability in the current market? (Select all that apply)
9. Do you consider international cooperation as an essential factor in transitioning to E-mobility
10. Please, rank the importance of the following global themes in disrupting the development of E-mobility. 1 (most important) - 5 (least important) [Economical]
10. Please, rank the importance of the following global themes in disrupting the development of E-mobility. 1 (most important) - 5 (least important) [Political]
10. Please, rank the importance of the following global themes in disrupting the development of E-mobility. 1 (most important) - 5 (least important) [Educational]
10. Please, rank the importance of the following global themes in disrupting the development of E-mobility. 1 (most important) - 5 (least important) [Technological]
10. Please, rank the importance of the following global themes in disrupting the development of E-mobility. 1 (most important) - 5 (least important) [Environmental]
10. Please, rank the importance of the following global themes in disrupting the development of E-mobility. 1 (most important) - 5 (least important) [Societal]
11. How do you perceive the following threats or concerns within the next 12 months? [Difficulty to pass on production cost increases to OEMs]
11. How do you perceive the following threats or concerns within the next 12 months? [Difficulty to implement (OEM) requirements (e.g., CO2 reduction targets)]
11. How do you perceive the following threats or concerns within the next 12 months? [Suppliers forced out of the automotive business / moving adjacent industries]
11. How do you perceive the following threats or concerns within the next 12 months? [Decreasing EU competitiveness, increased attractiveness to source outside EU (e/g, production costs, access to finance)]
11. How do you perceive the following threats or concerns within the next 12 months? [Compliance with emission and pollution targets (e.g., Euro 7/VII, Co2)]
11. How do you perceive the following threats or concerns within the next 12 months? [(Smaller) Suppliers facing bankruptcy]
11. How do you perceive the following threats or concerns within the next 12 months? [Raw material shortages]
11. How do you perceive the following threats or concerns within the next 12 months? [Limited freight / Logistic capacities]
11. How do you perceive the following threats or concerns within the next 12 months? [Demand reduction / potential recession]
11. How do you perceive the following threats or concerns within the next 12 months? [Utility shortages (E.g., gas, electricity)]
11. How do you perceive the following threats or concerns within the next 12 months? [Other]
- 12a) Financial impact due to Semiconductor shortage (pre-crisis)
- 12b) Financial impact due to Raw material cost inflation's
- 12c) Financial impact due to Utility (Gas, Electricity) shortages & cost inflation's
- 12d) Financial impact due to other cost increases (freight, volume fluctuations, FX effects)
13. Does China play a big role for importing batteries? Are you implementing any measures to reduce your exposure and dependencies from China?
14. How important is cash management for your company?
15. Which of the following cash management measures is your company implementing to optimize liquidity?

SECTION 2: Applicable for E-mobility Customers / End users

1. How significant do you consider the risk that an insufficient availability of charging infrastructure could harm the transition towards e-mobility?
2. What type of vehicles do you have in operational use
3. Do you already have experience with the use of electric vehicles in your company?
4. If yes: With which types of electromobility do you have experience within your company?
5. If yes: What kind of experiences have you had? (Positive or Negative)
6. If yes: For which distances do you want to use the vehicles?
7. What are the current obstacles to use e-mobility solutions in your company?
8. Are there any obstacles in relation to Q7 that are not on the list?
9. Do you plan to expand the use of alternatively powered vehicles in your company?
10. Is there something that would make the use of E-mobility in your company more attractive?

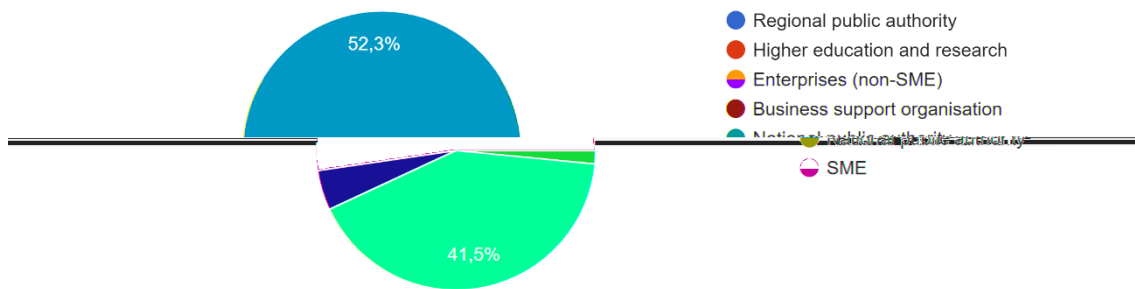
Conclusion

1. Would you be interested in creating an ecosystem with other stakeholders?
2. May we approach you for follow-up sessions in the future? This could be a second survey, or a telephone conversation.
3. With the E-BOOST project, we plan to organise matchmaking sessions and missions. Could we approach you for this in the future?

Questions 1 till 7 were generated to acquire general information about the companies that completed the survey. Some questions are not implanted this annex due to GDPR reasons (company name, name of the respondents, email-addresses).

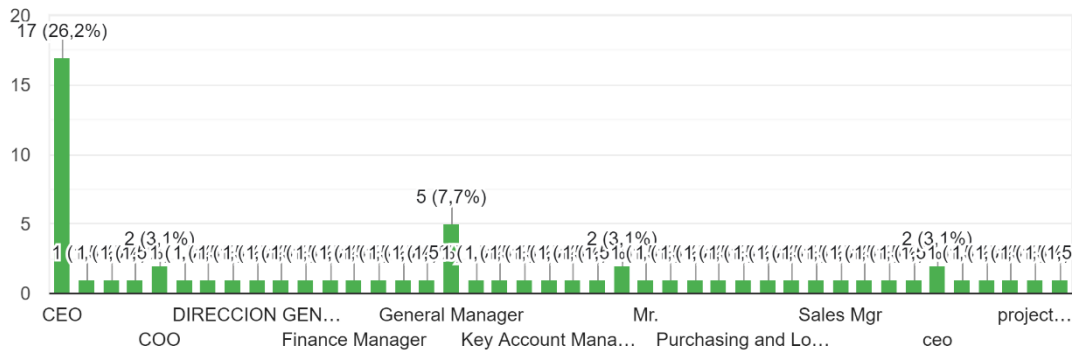
2. Company type

65 antwoorden



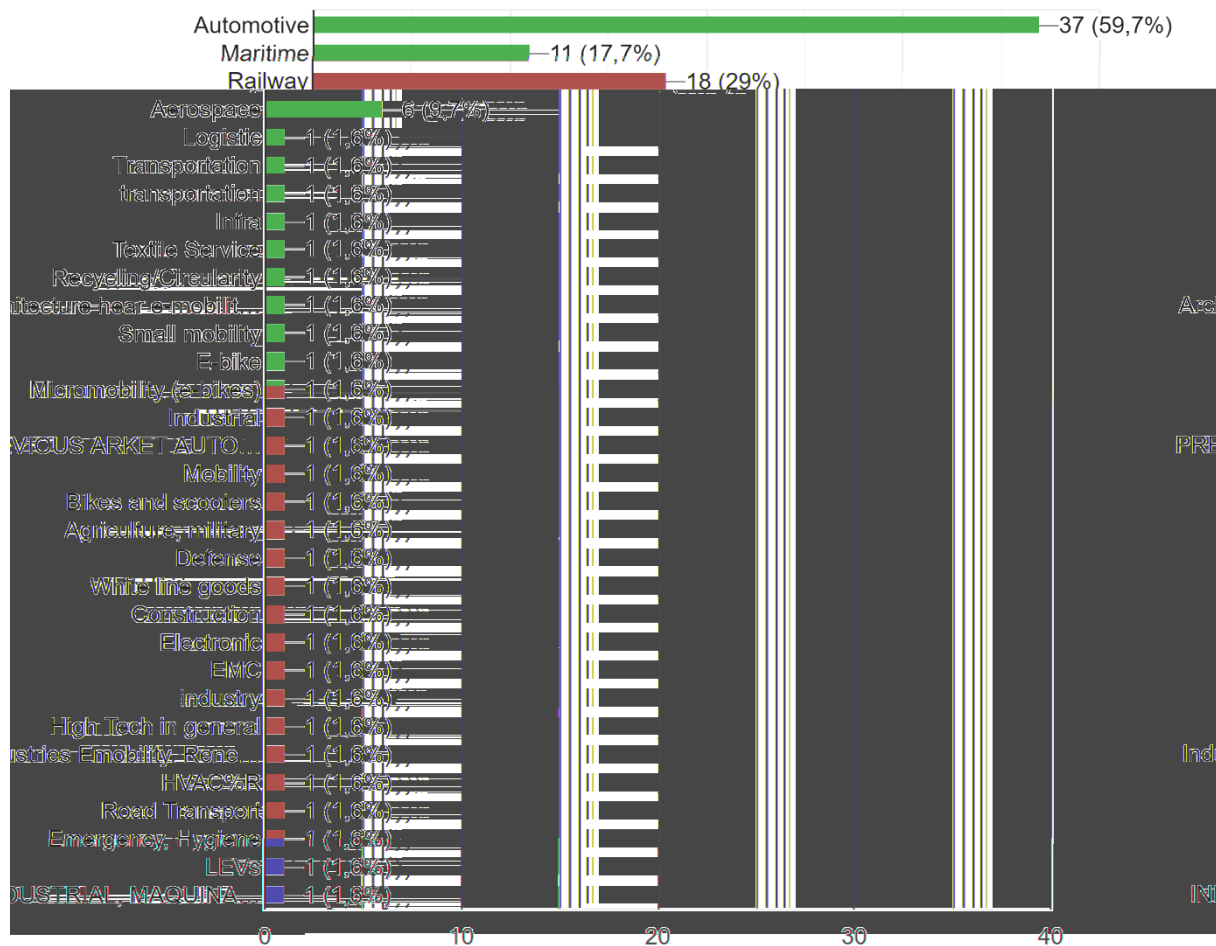
3. Job title

65 antwoorden

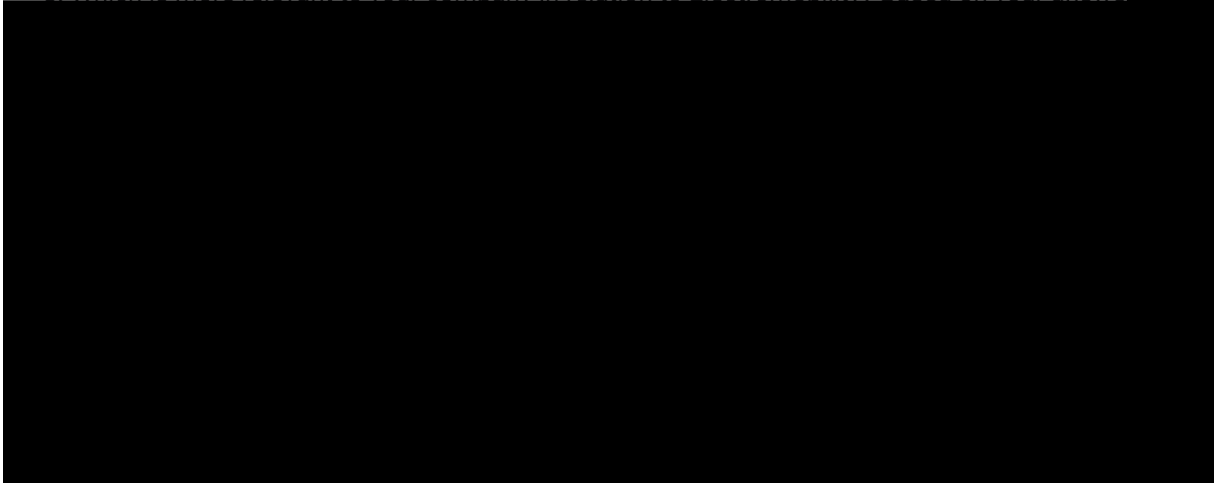


7. In which of the following sectors is your company (most) active?

62 antwoorden

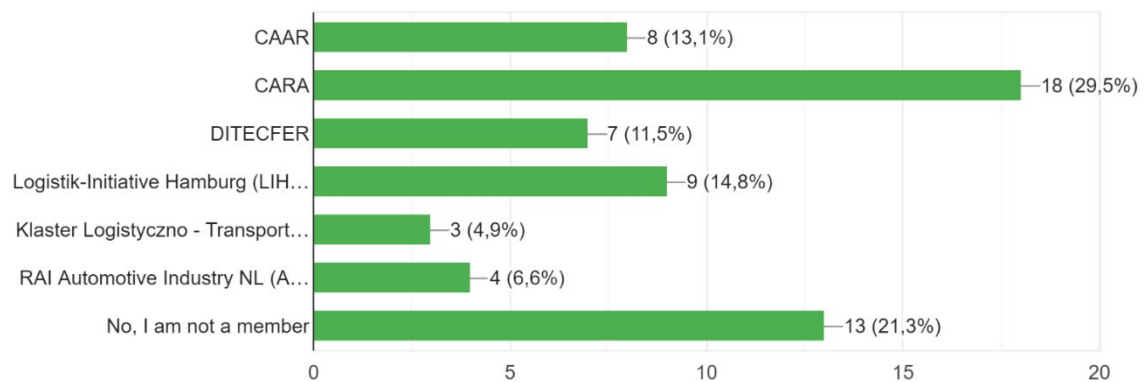


8. Which is more relevant to your company in relation to Electromobility? Based on your answer, go



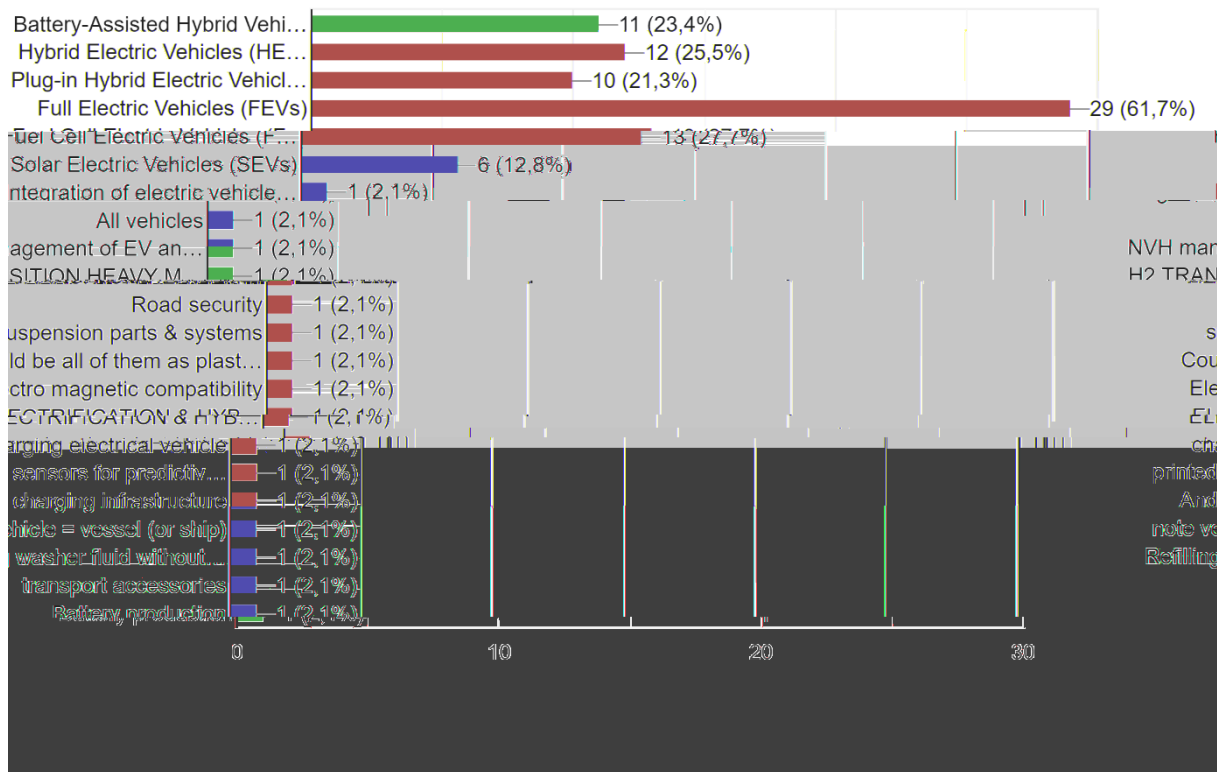
9. Are you a member of the following clusters?

61 antwoorden



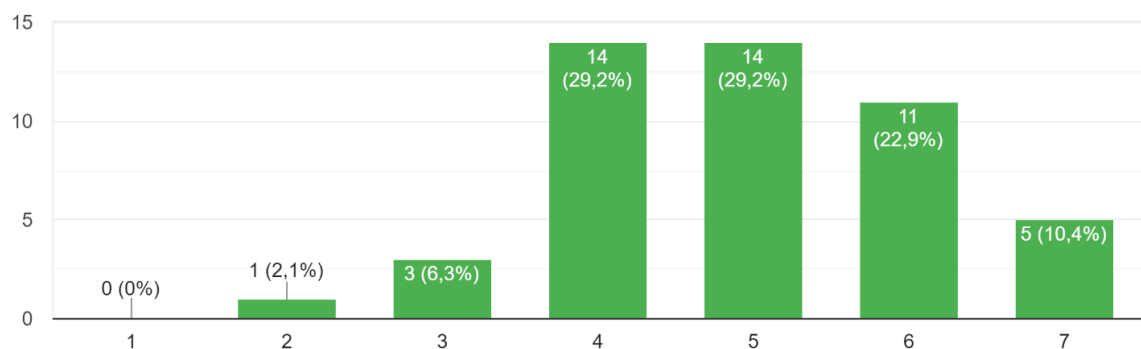
1. Which of the following types of technology is your company focused on?

47 antwoorden



2. What is your outlook for your industry based on the expected revenues and profitability?

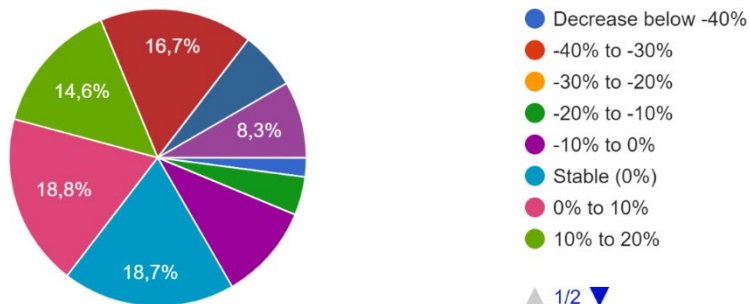
48 antwoorden



1 = very negative → 7 = very positive

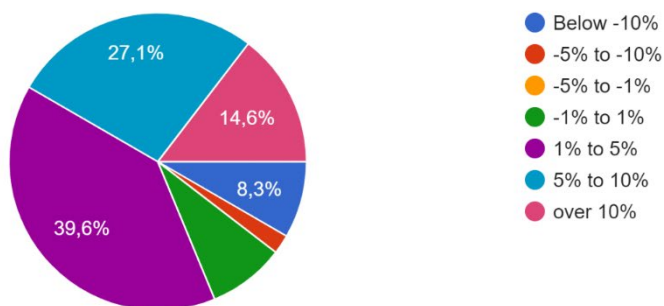
3. What is your forecast for the revenues of your company in the next 12 months?

48 antwoorden



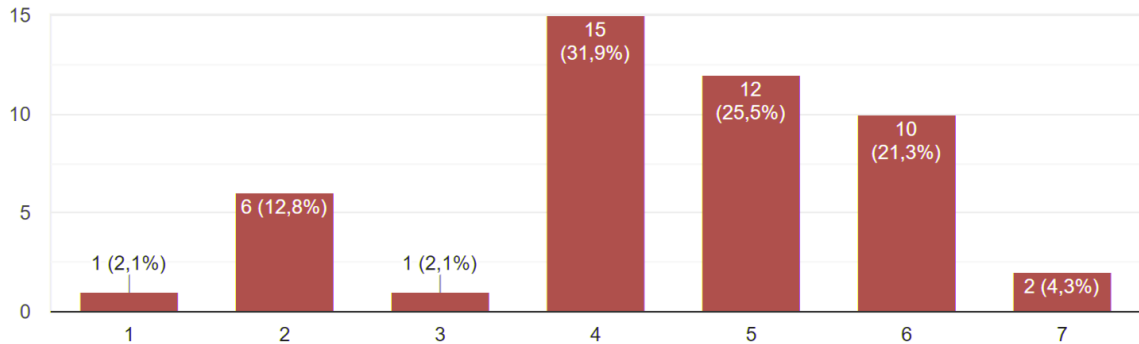
4. What overall profitability do you expect for 2023? (Select one)

48 antwoorden



5. How do you currently balance your focus between margin recovery / protection vs. investments into future growth?

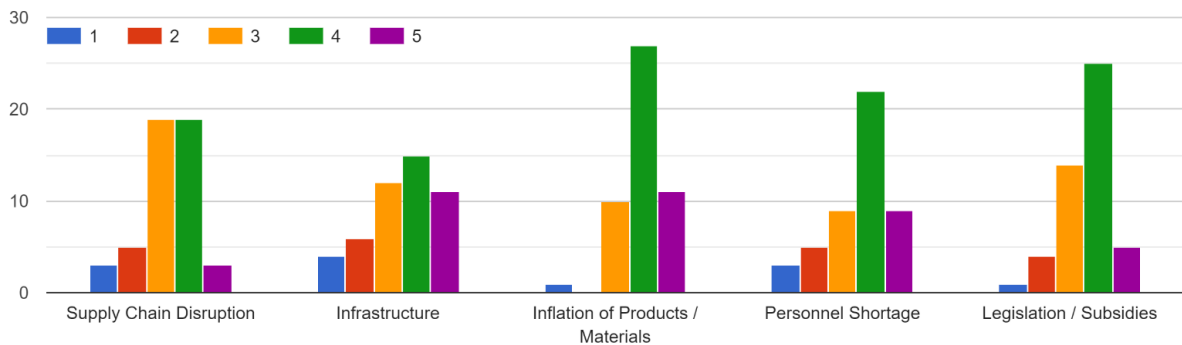
47 antwoorden



1 = Margin recovery – our focus is clearly on margin recovery, while investments into future growth opportunities are canceled or delayed →

7 = Growth investments – We have already fully recovered market headwinds and our main focus is to capture future growth opportunities

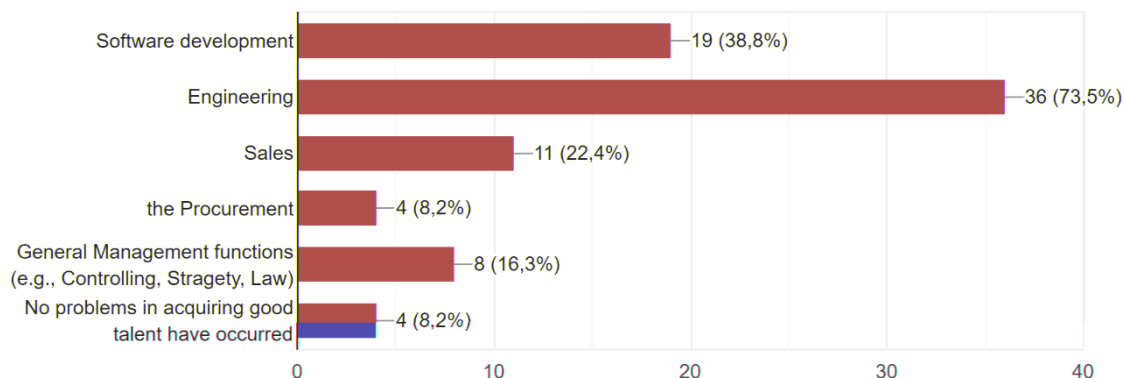
6. How significant are the following issues in the transition to E-mobility?



1 = not a problem → 5 = very

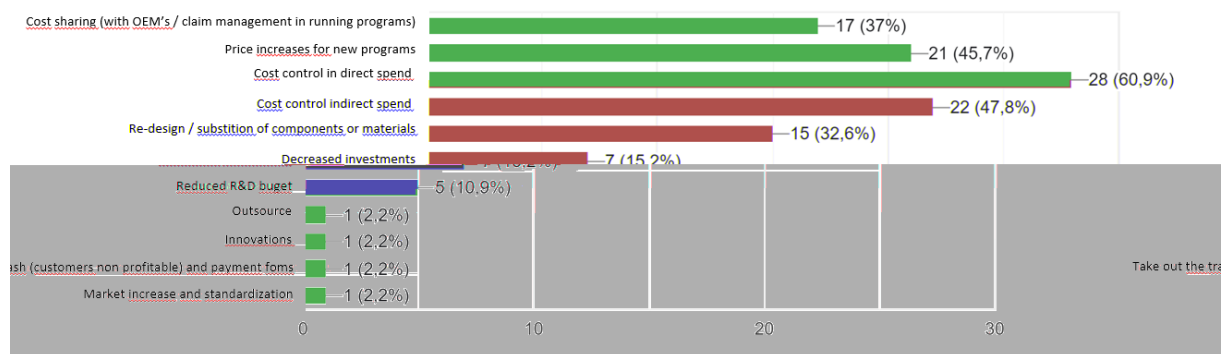
7. In which functions has the acquiring of good talent become more difficult over the last 5 years?
(Select all that apply)

45 antwoorden



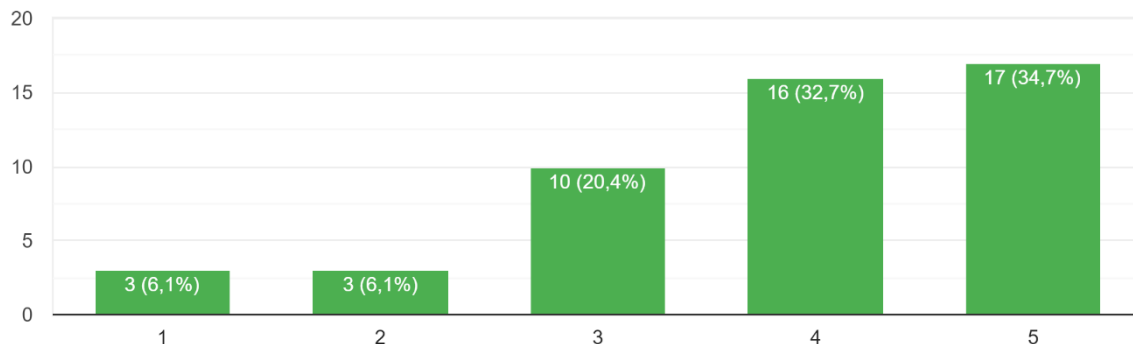
8. Which actions are most efficient to recover or improve profitability in the current market? (Select all that apply)

46 antwoorden

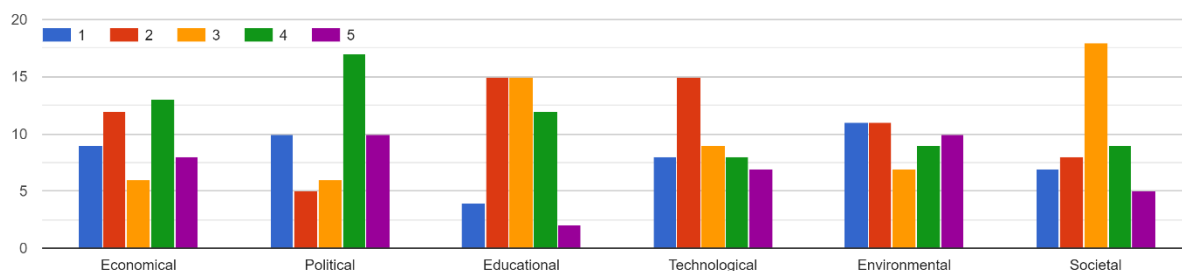


9. Do you consider international cooperation as an essential factor in transitioning to E-mobility

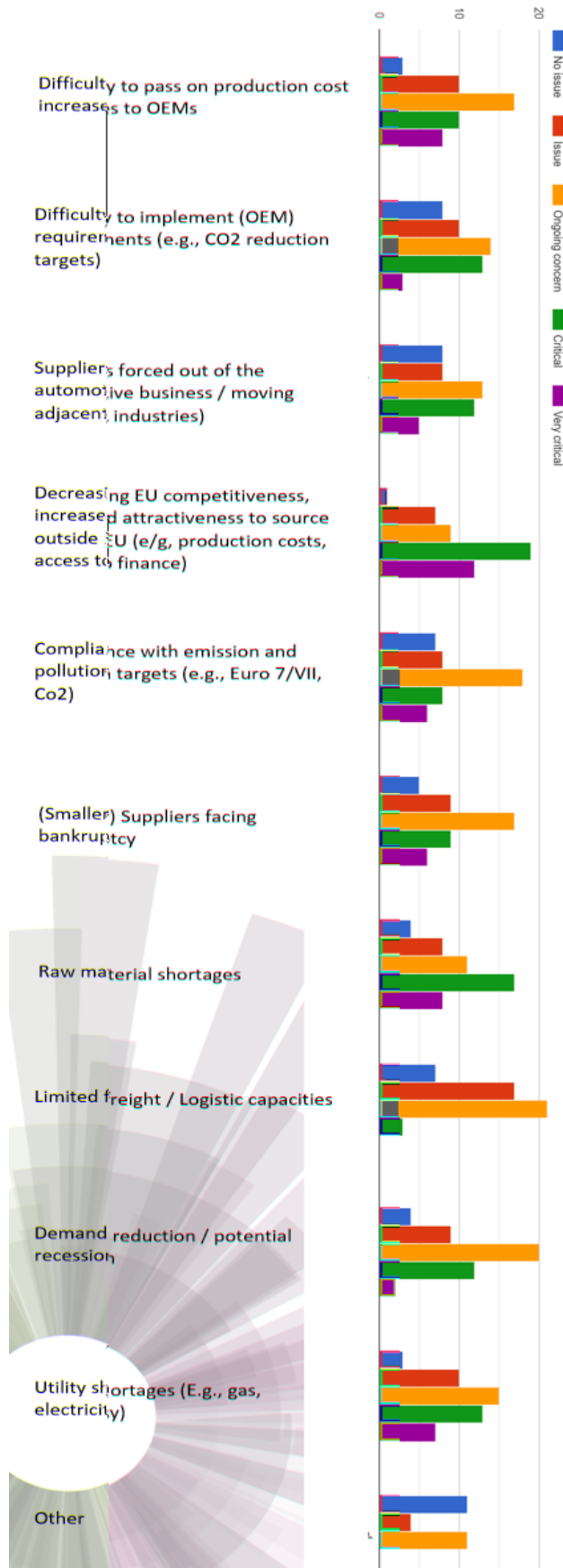
49 antwoorden



10. Please, rank the importance of the following global themes in disrupting the development of E-mobility. 1(most important) - 5 (least important)

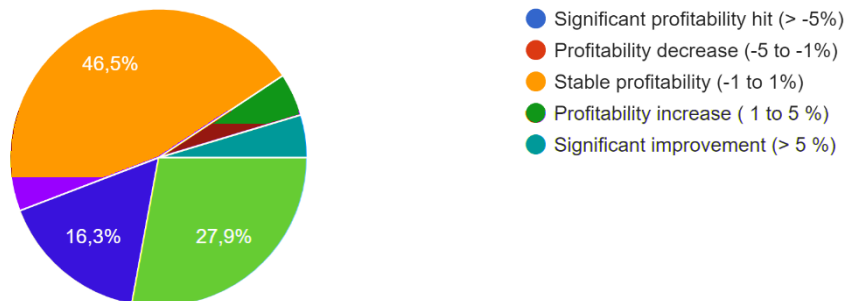


11. How do you perceive the following threats or concerns within the next 12 months?



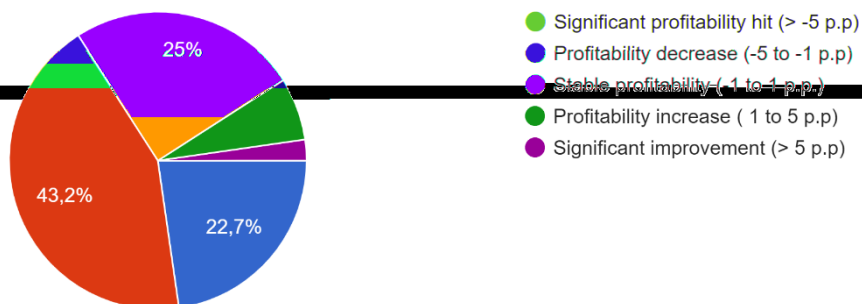
12a) Financial impact due to Semiconductor shortage (pre-crisis)

43 antwoorden



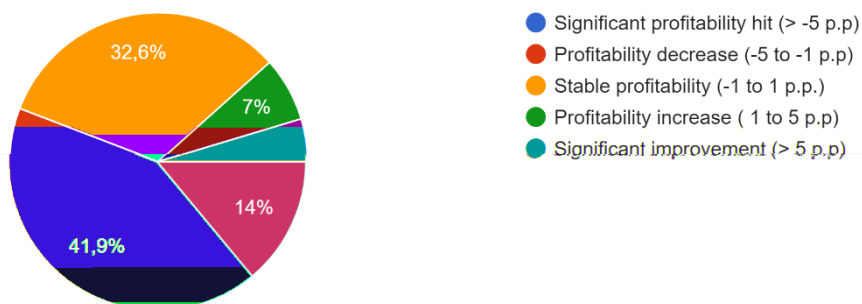
12b) Financial impact due to Raw material cost inflation's

44 antwoorden



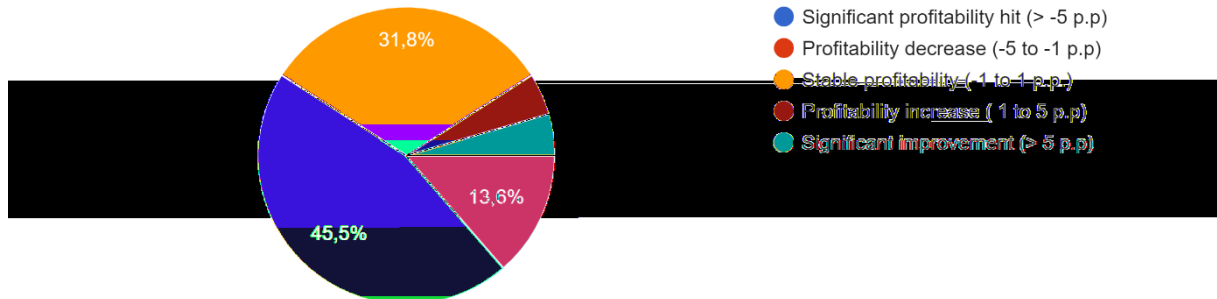
12c) Financial impact due to Utility (Gas, Electricity) shortages & cost inflation's

43 antwoorden



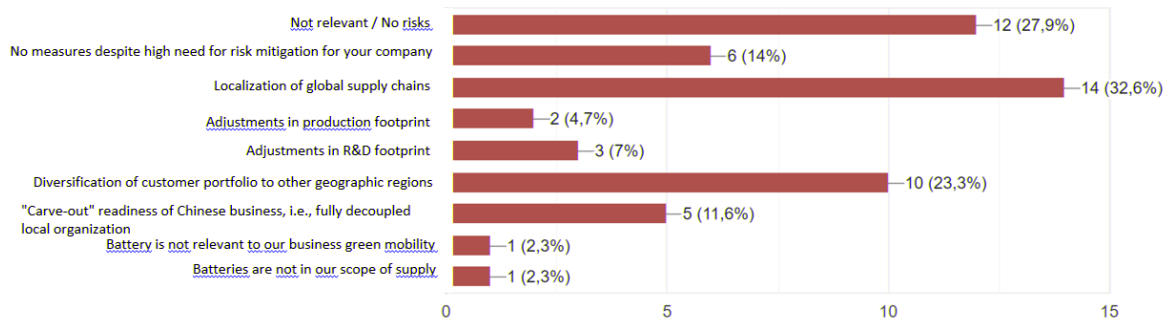
12d) Financial impact due to other cost increases (freight, volume fluctuations, FX effects)

44 antwoorden



T3. Does China play a role in your business? Are you implementing any measures to reduce your exposure and dependencies from China?

43 antwoorden



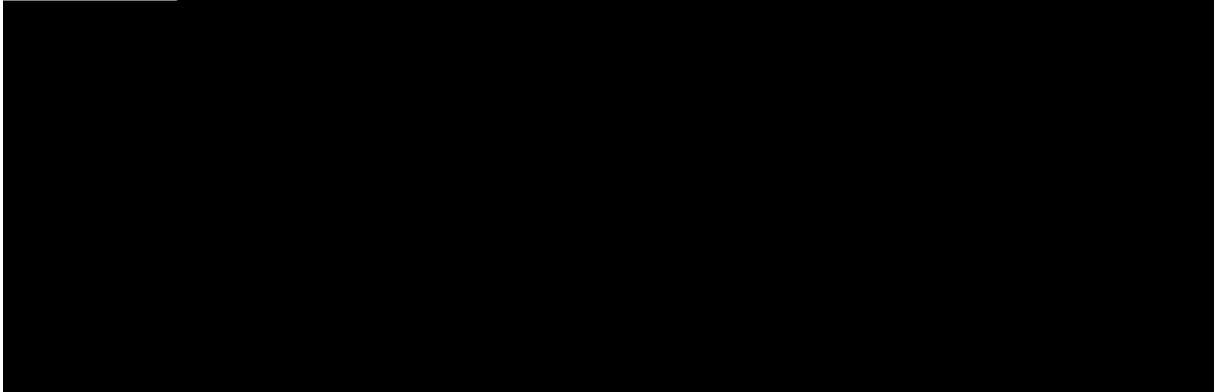
14. How important is cash management for your company?

43 antwoorden



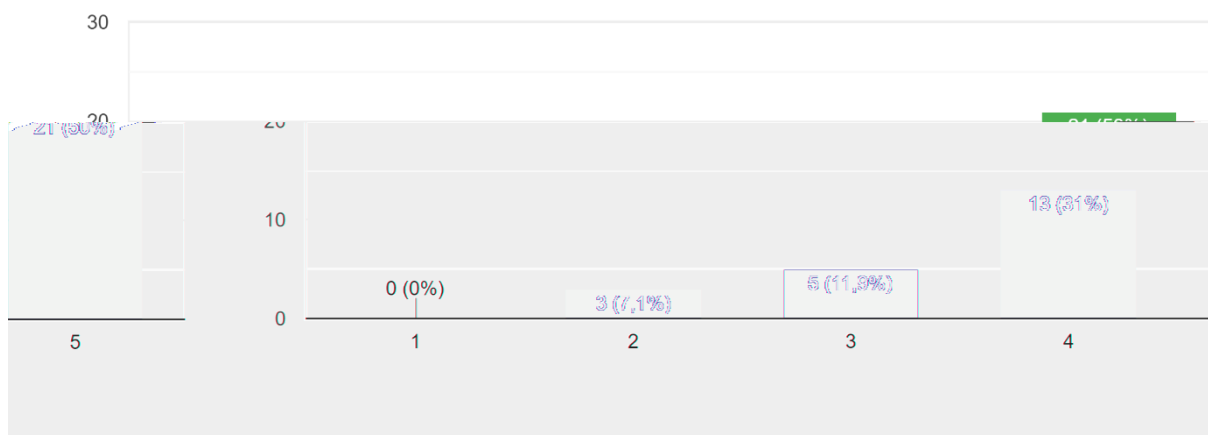
15. Which of the following cash management measures is your company implementing to optimize liquidity?

45 antwoorden



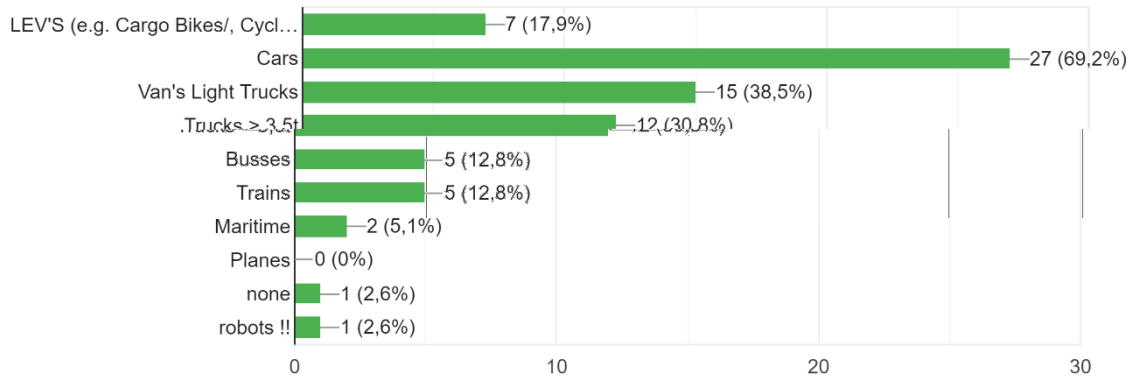
1. How significant do you consider the risk that an insufficient availability of charging infrastructure could harm the transition towards e-mobility?

42 antwoorden



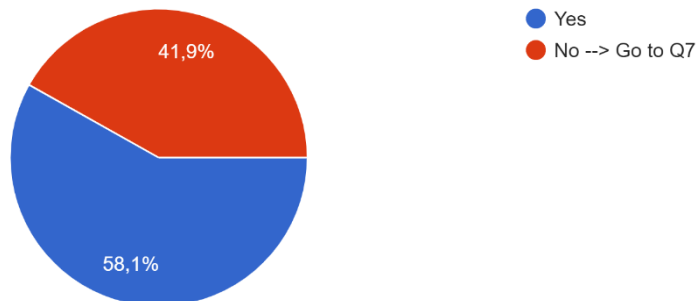
2. What type of vehicles do you have in operational use

39 antwoorden



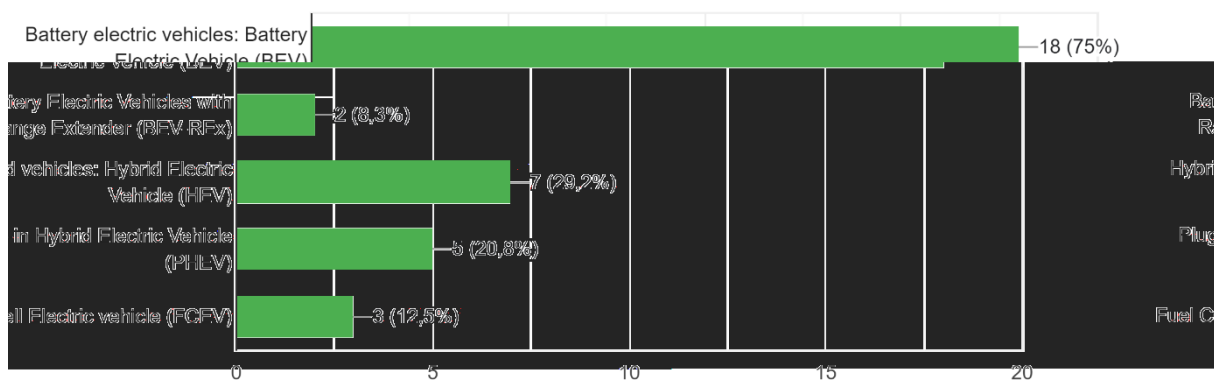
3. Do you already have experience with the use of electric vehicles in your company?

43 antwoorden



4. If yes: With which types of electromobility do you have experience within your company?

24 antwoorden



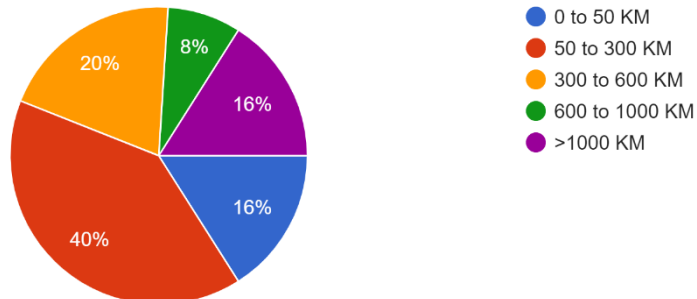
5. If yes: What kind of experiences have you had? (Positive or Negative)

19 x Positive

3 x Negative

6. If yes: For which distances do you want to use the vehicles?

25 antwoorden



7. What are the current obstacles to use e-mobility solutions in your company?

41 antwoorden

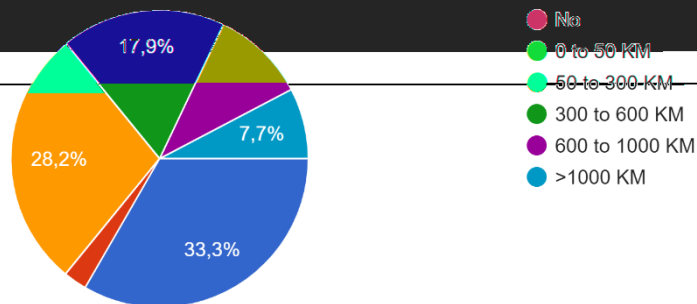


8. Are there any obstacles in relation to Q7 that are not on the list?

- ADR approval
- it is all of it
- Costs, lead time, approvals, subsidies
- 10 x no
- Autonomy
- Autonomie
- low autonomy in km
- Charging time too long
- Nothing missing but more than one obstacle should be chooseable.
- Charging time too long

9. Do you plan to expand the use of alternatively powered vehicles in your company?

39 antwoorden



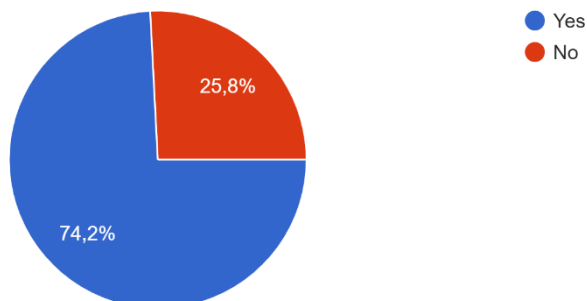
10. Is there something that would make the use of E-mobility in your company more attractive?

- Business Case + certainty of cost advantage
- already we are doing our best to support e-mobility
- More subsidies, larger customer demand, shorter lead times, better availability, lower costs
- more range
- Market with more possibilities.
- More autonomy
- the price,
- Price & Autonomy
- A modular concept would be more then welcome
- No

- marketing
- pricing
- Yes
- Cost
- we use 100% electric locomotives
- Cost
- bring them to an equal or better level (in sum of all economic effects) as the traditional powered vehicles
- nein
- Price of new vehicles
- Cost and charge
- Subsidies
- VEHICLES WITH MORE LOAD CAPACITY

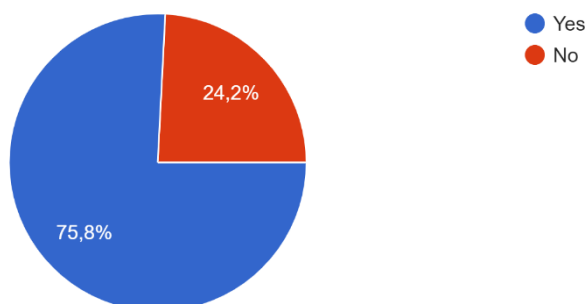
1. Would you be interested in creating an ecosystem with other stakeholders?

62 antwoorden



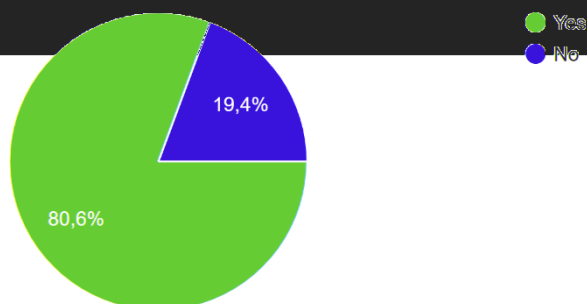
2. May we approach you for follow-up sessions in the future? This could be a second survey, or a telephone conversation.

62 antwoorden



3. With the E-BOOST project, we plan to organise matchmaking sessions and missions. Could we approach you for this in the future?

62 antwoorden





Boost Electromobility for SMEs

