

Public acceptance survey report



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UNMANNED TRAFFIC MANAGEMENT 4D PATH PLANNING TECHNOLOGIES FOR DRONE SWARM TO ENHANCE SAFETY AND SECURITY IN TRANSPORT

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Abstract	This report contains the main results of the study performed to validate the acceptance of the Labyrinth project's 4 use cases, in Europe.



VERSIONING & CONTRIBUTION HISTORY

Version	Date	Modified by	Modification reason
1.0	04/05/2023	Appinio	Creation
2.0	17/05/2023	Ana Gómez	Updated version
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Introduction

Concept of the study

The objective of this study is to validate the acceptance of the Labyrinth project's 4 use cases, in Europe.

The Labyrinth project, as well as this study, begins by covering the overall acceptance of drone solutions. A second stage of analysis was created to deep-dive in the security applications of drones for these specific cases:

- Road transport
- Waterborne transport
- Air transport
- Emergency services

The last aspect covered by this study was drone regulation.

For this, the study consisted of asking 500 people with a Nationally Representative distribution (age and gender) in the following countries:

- Germany
- Spain
- Austria
- Italy
- Belgium
- Sweden
- Poland
- Romania
- Greece

All data and filters may be found in the following link:

research.appinio.com/#/en/survey/public/H4Ro7NLVG

1. Results

1. General knowledge of drone solutions
2. Use cases of drone solutions:
 1. Road transport
 2. Waterborne Transport
 3. Air transport
3. Drone regulation
4. Other findings

2. Study Design

1. Study Design
2. Sample structure

3. Appendix

1 Results



1.1

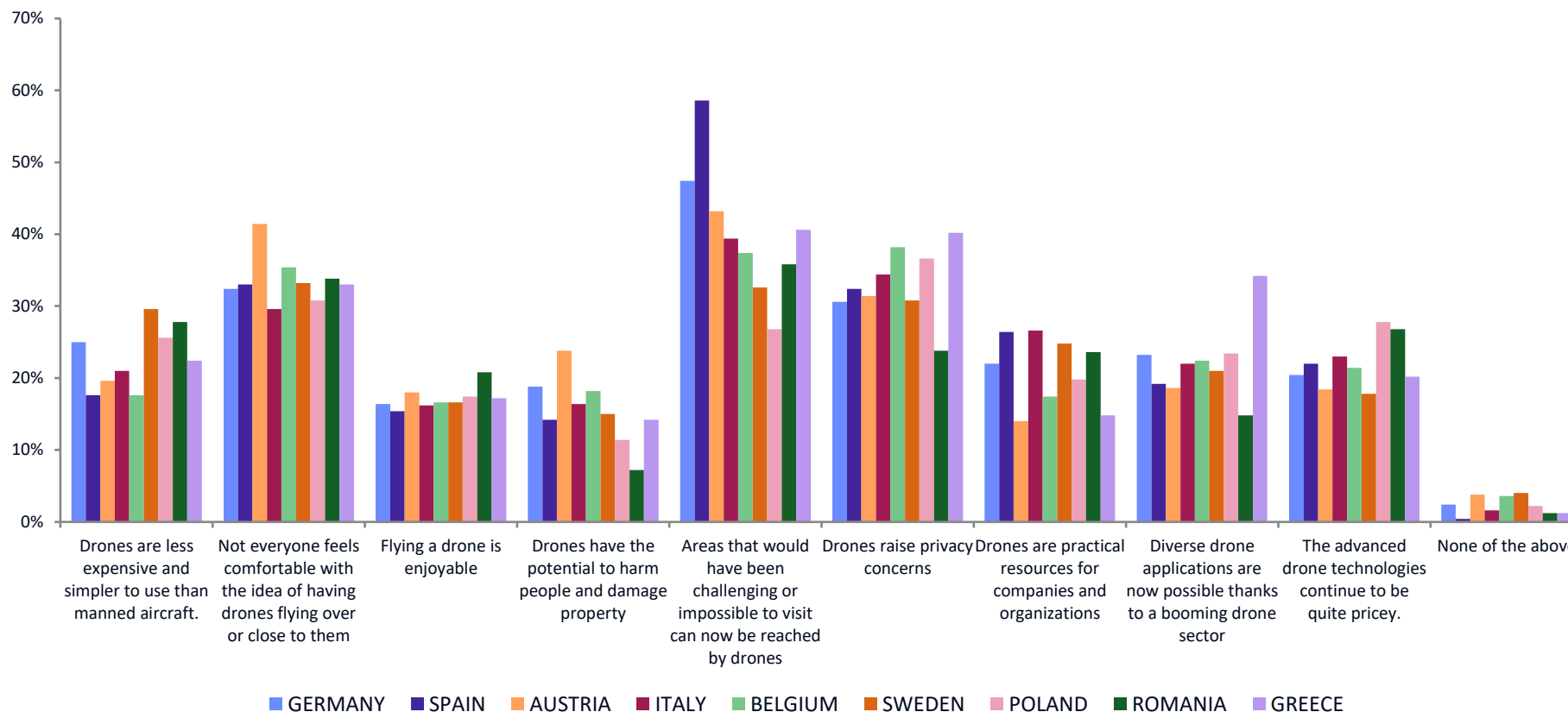
Results

General knowledge on drone solutions



Opinions about drone usage

Accessability to remote areas, not everyone being comfortable and privacy concerns are top opinions.



Accessibility to remote areas was the top opinion with which respondents agreed, led by Spain, with a large difference from other countries.

Austria stood out in the opinion that not everyone feels comfortable with drones flying over them.

As for positive opinions, we saw that flying drone is not particularly seen as enjoyable by many, and that drones are not really seen by the general population as practical for companies or organizations.

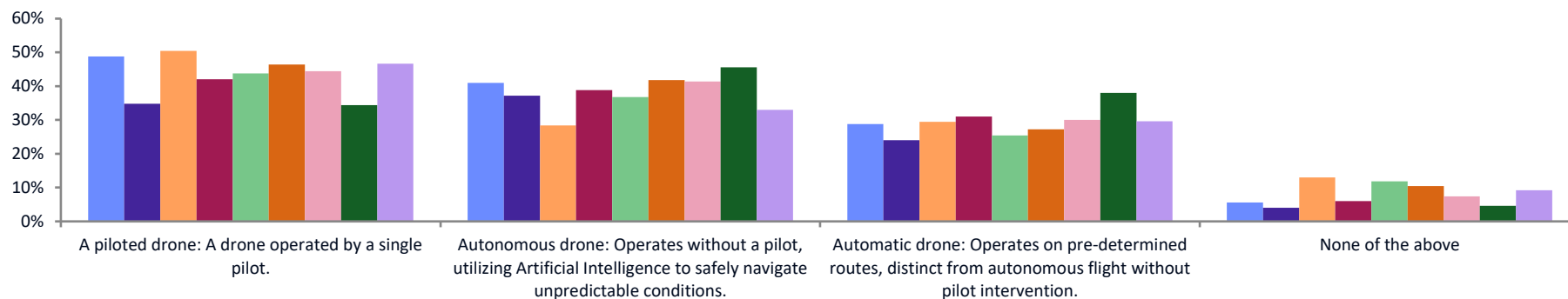
Total N = 500 per country

Q12. Select the sentences from the list below that best express your opinion about the use of drones.

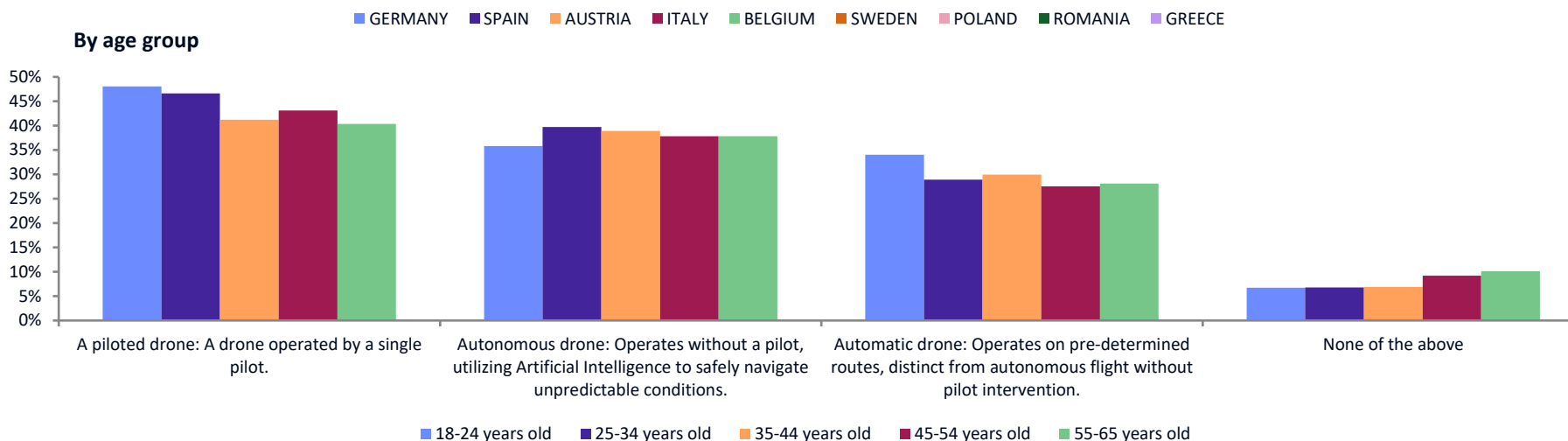
Receptivity on drone types

Piloted drones have the greater receptivity, especially among younger demographics.

By country



By age group



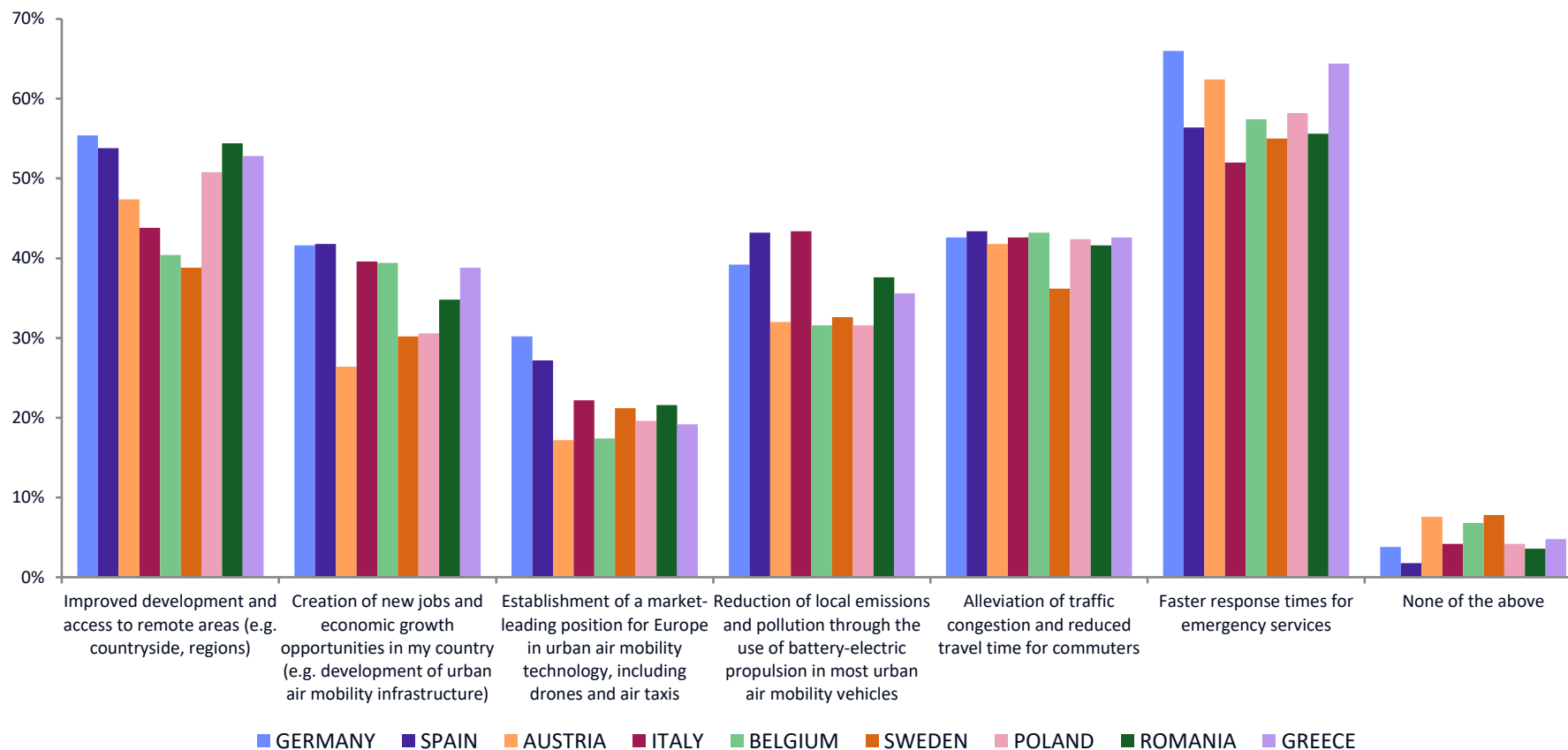
Overall, piloted drones received 44% of the votes, whereas autonomous got 38% and automatic received 29%. Spain, Romania were the only two countries that preferred autonomous drones over piloted ones.

As for age groups, we could see that younger generations are more accepting of piloted drones, whereas older generations seem to be more hesitant with more representation in the “None of the above” response.

Total N = 500 per country

Advantages of urban air mobility for the EU

Response for emergency services was the highest benefit, while access to remote areas was more uneven.



Total N = 500 per country

Q10. What benefits and opportunities do you think the development of urban air mobility could bring for the EU and its citizens?

*Graph available in the Appendix

In Sweden and Belgium, access to remote areas was seen as less important than in other countries. These two countries (along with Austria) had the highest percentages of people seeing no benefit to urban air mobility.

Reduction of local emissions and pollution had a disparity of opinion among two groups:

- Southern Europe + Germany
- Northern Europe

Younger generations see the creation of new jobs as a greater benefit, while access to remote areas, alleviation of traffic and faster response to emergencies are mentioned more by older generations.*

Based on the survey results, the top three benefits and opportunities that people believe the development of urban air mobility could bring for the EU and its citizens are faster response times for emergency services (59% of respondents), improved development and access to remote areas (49% of respondents), and alleviation of traffic congestion and reduced travel time for commuters (42% of respondents).

Improved development and access to remote areas: The second most selected benefit, improved development and access to remote areas, may be attributed to the fact that urban air mobility could offer a new form of transportation that is faster and more efficient than traditional modes of transportation, particularly in areas with limited infrastructure.

Creation of new jobs and economic growth opportunities:

The creation of new jobs and economic growth opportunities in respondents' countries was also seen as a benefit by 36% of respondents. This could be due to the potential for urban air mobility to create new jobs in the areas of manufacturing, infrastructure development, and operations.

Establishment of a market-leading position for Europe in UAM technology: only 22% of respondents selected this as a benefit. This may indicate that respondents are less concerned with the competitive advantage that Europe could gain from developing urban air mobility technology and more focused on the benefits that the technology could provide for citizens.

Reduction of local emissions and pollution: The report notes that UAM can help reduce local emissions and pollution, particularly in urban areas where air quality is a major concern. This is because UAM vehicles can use electric or hybrid-electric propulsion systems, which produce less emissions than traditional internal combustion engines.

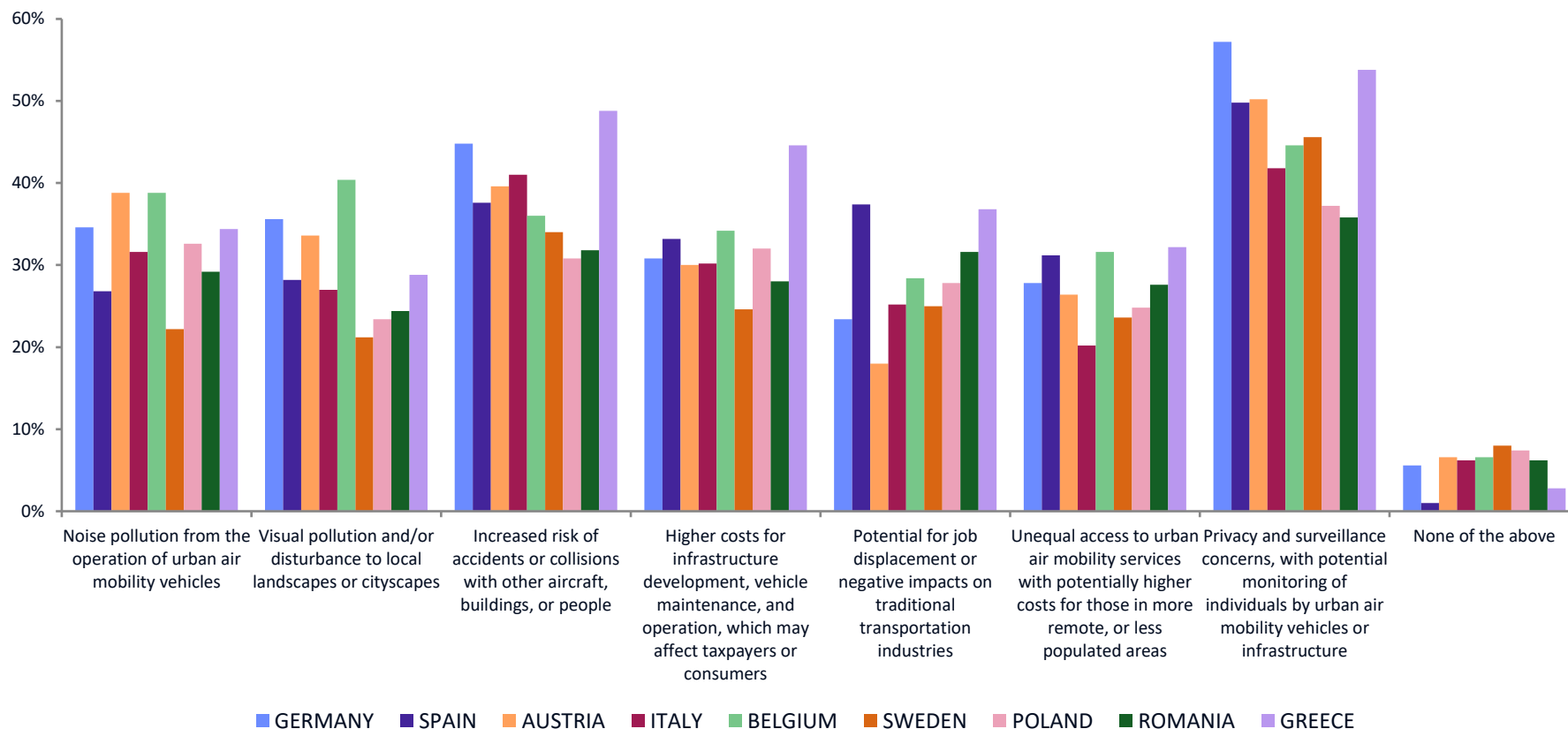
Alleviation of traffic congestion and reduced travel time for commuters:

The third most selected benefit, alleviation of traffic congestion and reduced travel time for commuters, may be due to the potential for urban air mobility to reduce the number of vehicles on the road, particularly in densely populated areas. This could reduce traffic congestion and improve commuting times, which would have a positive impact on the environment and the quality of life for citizens.

Faster response times for emergency services: The high percentage of respondents who selected faster response times for emergency services as a benefit of urban air mobility may be due to the fact that air transportation can provide a faster and more direct route to an emergency than ground transportation. This could be particularly important for critical situations where time is of the essence, such as medical emergencies or disaster response.

Disadvantages of urban air mobility for the EU

People recognize the practical benefits of drones but also have concerns regarding their use.



Privacy, risk of accidents and noise pollution are the highest risks for all countries.

Although Greece showed high levels of acceptance to various drone use (slide 4), the population shows a lot of concerns at the same time.

Sweden, Poland and Romania show the lowest average concern.

People under the age of 34 are most concerned about noise pollution and costs of infrastructure that may affect them through higher taxes, whereas people over the age of 35 are most concerned with privacy and risks of accidents.*

As education level increases, concerns like visual pollution, unequal access in more remote locations and privacy concerns rise.*

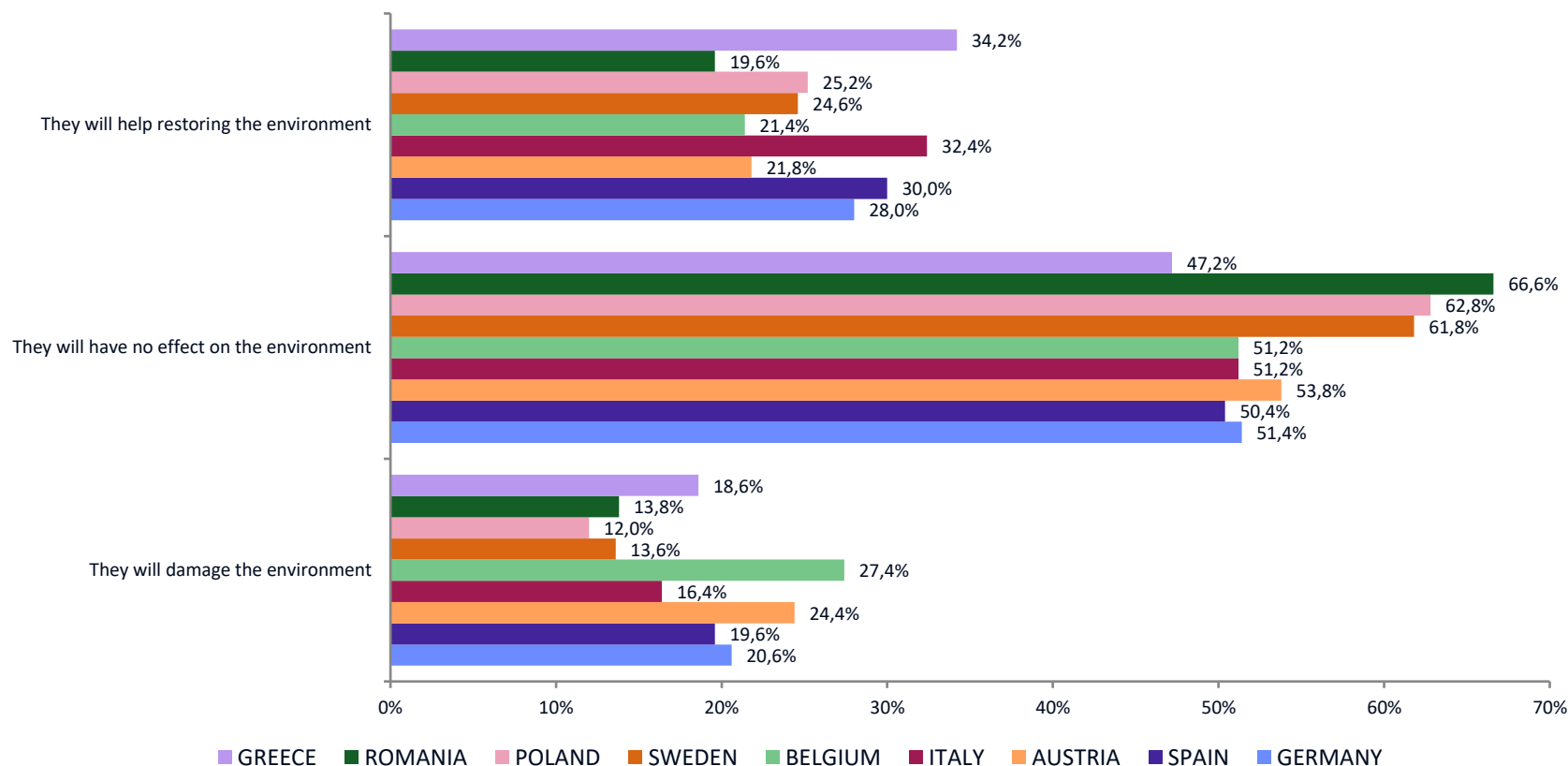
Total N = 500 per country

Q11. What disadvantages or challenges do you think the development of urban air mobility could bring for the EU and its citizens?

*Graph available in the Appendix

Drones on the environment

55% of respondents believe that drones will have no effect on the environment.



More than 50% believe drones will not affect the environment, and 26% believe their effect will be positive.

Countries like Romania, Poland and Sweden have a more neutral response. Greece, Italy, Spain and Germany show more optimism than others in the positive effect of drones on the environment.

Approximately 1 in 5 women and 1 in 6 men believe that drones will have a negative impact on the environment, according to a survey.

Total N = 500 per country

Q14. How do you think drones will affect the environment?

1.2

Results

Use cases for drone solutions



1.2.1

Results

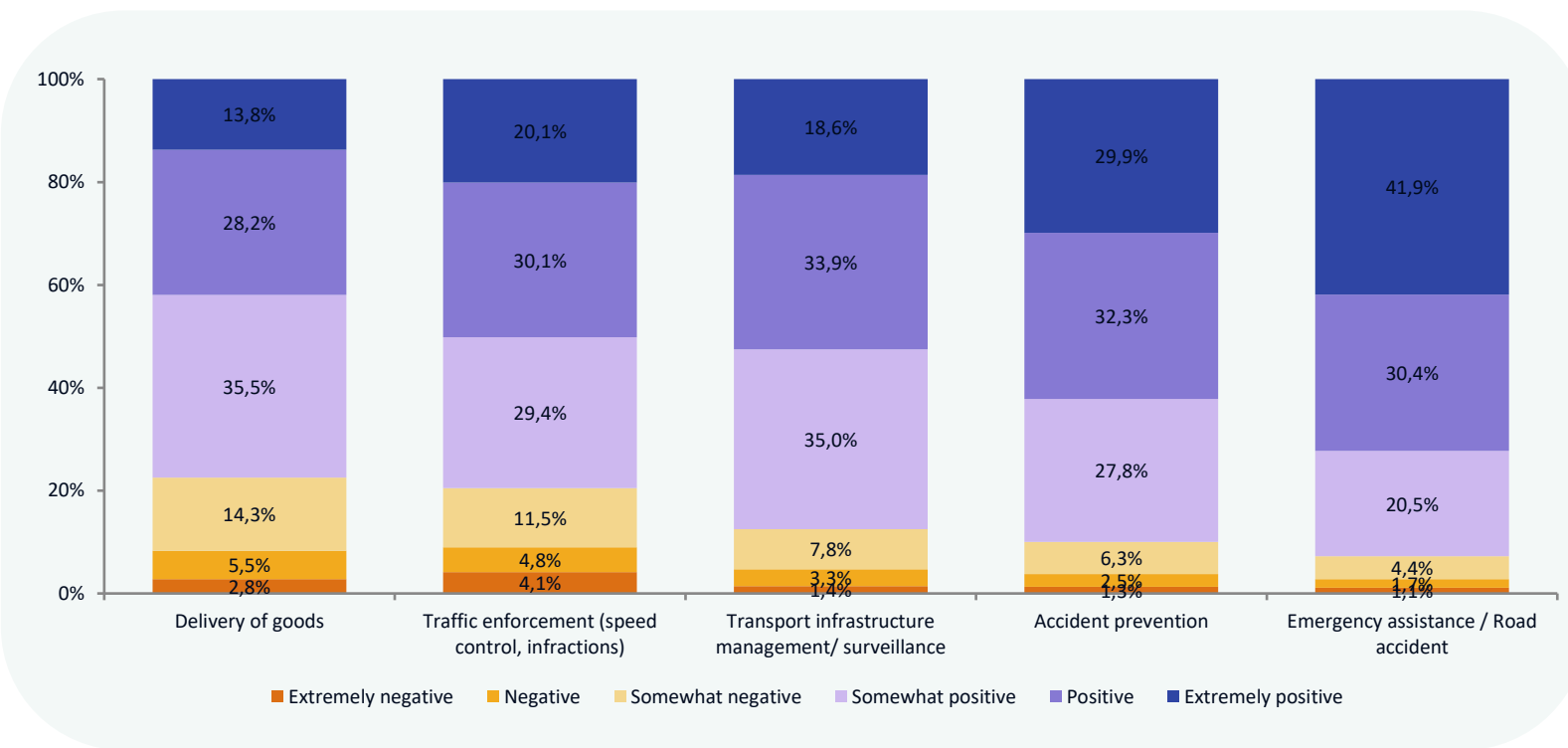
Use cases for drone solutions:
Road Transport



Drone applications use on public highways

The results show that the majority of respondents have a positive attitude towards the use of drones in **public highways** for various applications. While older participants tend to be slightly more positive than younger participants, the differences are generally small.

It's important to note that the *"transport infrastructure management/surveillance"* application received the most negative responses compared to the other applications, which suggests that there may be some concerns about the use of drones for surveillance purposes in public spaces. On the other hand, the *"emergency assistance/road accident"* application received the most positive responses across all age groups, indicating strong support for the use of drones in emergency response situations.



The results also reveal that the *"delivery of goods"* application received the most mixed responses, with a relatively high percentage of respondents choosing "somewhat negative" or "negative" options. This suggests that there may be some concerns about the use of drones for commercial purposes, particularly when it comes to privacy and safety.

Drone applications use on public highways

There are some differences in opinion across different age groups. For example, the *younger age groups (18-24 and 25-34)* tend to be more negative towards drone applications compared to the older age groups. One possible explanation for this could be that the younger age groups are more sceptical about new technologies and their impact on society.

On the other hand, the *55-65 age group* tends to have a more positive view of drone applications for **emergency assistance/road accident** and **transport infrastructure management/surveillance** compared to the *younger age groups*. This could be because this age group is more concerned about public safety and security.

There were some notable differences in perception between *men* and *women*. In general, men had a slightly more *positive perception* than women across all categories of drone applications. This difference was particularly pronounced in the case of **traffic enforcement**, where men were more likely than women to have a negative perception.

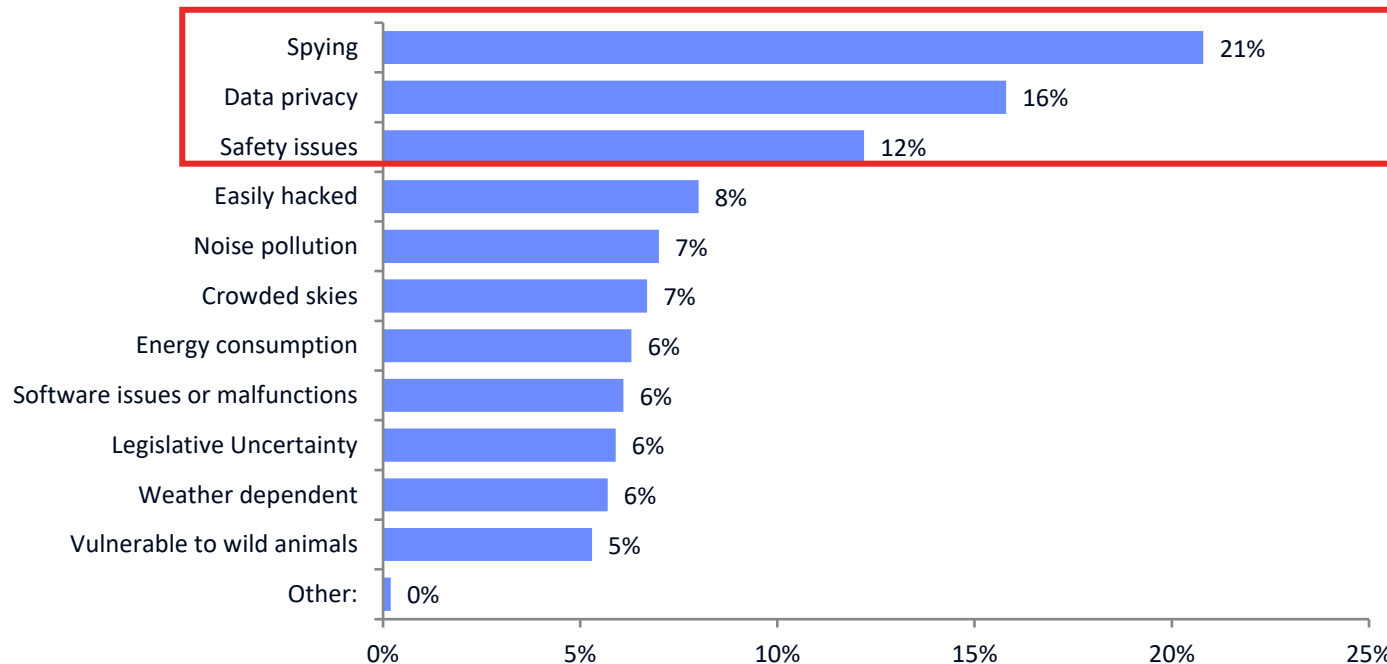


Public Attitudes Towards Drones for Infrastructure Management and Surveillance on Public Highways

The results on the use of drones for **transport infrastructure management and/or surveillance** indicate that privacy concerns are the primary factor shaping negative attitudes towards drone surveillance in public highways. Specifically, the most common concern among respondents was **spying** suggesting that there may be concerns about privacy violations and potential misuse of drone technology for surveillance purposes.

The concern regarding **data privacy** is likely related to the collection, storage, and use of data obtained through drone surveillance. The high levels of concern about data privacy indicate that stakeholders must prioritize the responsible and ethical use of drone technology.

It is also highlight the need for robust **safety measures** and **reliable technology** in the development and deployment of drone technology, as safety issues were a significant concern among respondents. This concern may be related to the potential risks associated with the use of drones, such as the possibility of accidents or the misuse of data.

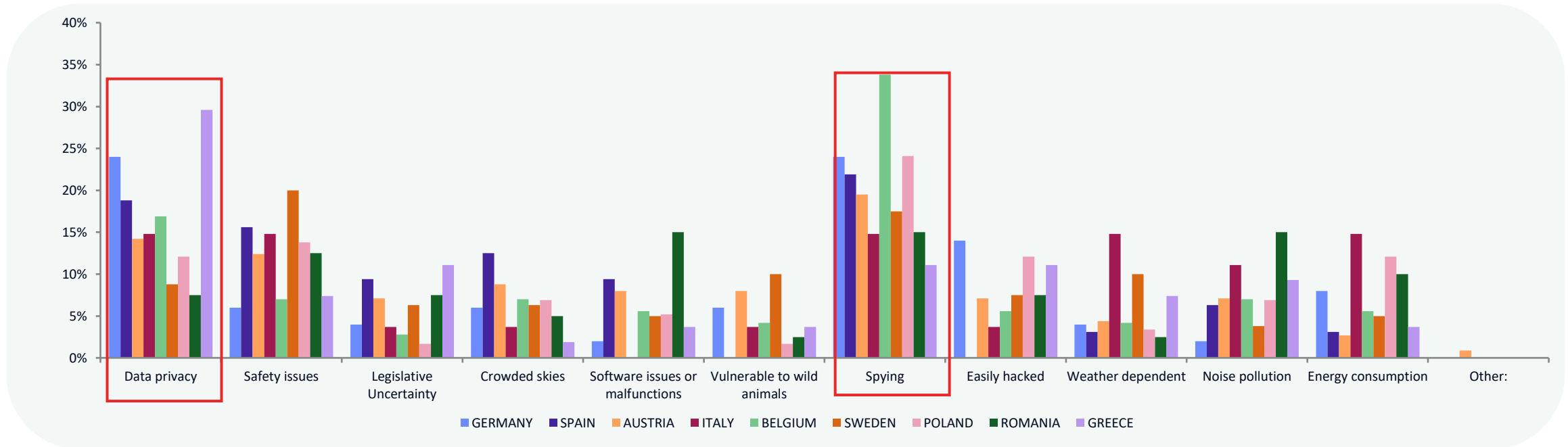


Possible reasons:

1. **Lack of public awareness and education:** Many people may not fully understand the capabilities and limitations of drones, and may have misconceptions about their use in transport infrastructure management and surveillance.
2. **Fear of privacy violations:** Drones equipped with cameras or other sensors can capture images and data that individuals may perceive as an invasion of privacy.
3. **Fear of accidents or crashes:** There may be concerns about the safety of operating drones in crowded urban environments or near moving vehicles.

Public Attitudes Towards Drones for Infrastructure Management and Surveillance on Public Highways by country

While these concerns are consistent across all countries, there is some variation in the degree to which each concern is prioritized. For example, **data privacy** is the biggest concern in *Greece, Germany, and Austria*, while **spying** is the biggest concern in *Spain*. **Safety issues** are a significant concern in *Sweden and Poland*.



It's worth noting that different countries may have different cultural attitudes towards privacy and surveillance. For example, countries with a stronger tradition of individualism may be more likely to prioritize individual privacy rights, while countries with a stronger tradition of collectivism may be more accepting of surveillance for the sake of the common good. These cultural differences may help to explain some of the variation in concerns observed across countries.

Another potential explanation for the variation in concerns across countries is differences in the ways that drones are currently used for transport infrastructure management/surveillance in each country. For example, in Italy, where the concern with crowded skies is relatively high, there may be more drone use in densely populated urban areas, leading to greater concerns around safety and congestion. Similarly, in Poland, where easily hacked is a relatively big concern, there may be more use of drones for sensitive military or government purposes, leading to greater concerns around security risks.

The top concerns of people regarding the use of drones for different applications are as follows:



Transport infrastructure management and/or surveillance:

- Spying (21%)
- Data privacy (16%)
- Safety issues (12%)



Transport enforcement:

- Spying (22%)
- Legislative uncertainty (13%)
- Data privacy (17%)



Emergency assistance/road accident:

- Spying (18%)
- Legislative uncertainty (12%)
- Data privacy (10%)



Monitoring possible infractions:

- Spying (22%)
- Data privacy (16%)
- Safety issues (13%)



Accident prevention:

- Data privacy (16%)
- Safety issues (13%)
- Legislative uncertainty (9%)

Data privacy is the top concern across all countries: Across all countries surveyed, **data privacy** was the most common concern related to the use of drones for *transport infrastructure management/surveillance*. This concern was particularly high in Greece, where 30% of respondents selected it as their primary concern.

Safety issues and spying are also top concerns: Safety issues and spying were the second and third most common concerns across all countries. Safety issues were particularly pronounced in Sweden and Poland, while spying was a particularly high concern in Belgium and Germany.

Legislative uncertainty is a minor concern: Legislative uncertainty was a relatively minor concern across all countries, with only 6% of all respondents selecting this option as their primary concern. This indicates that people's concerns are more focused on practical issues related to the use of drones for transport infrastructure management/surveillance, rather than regulatory issues.

There is some variation in the concerns across countries: While data privacy, safety issues, and spying were the top concerns across all countries, there were some differences in the relative importance of these concerns across countries. For example, **data privacy** was the biggest concern in Germany and Austria, while **spying** was the biggest concern in Spain. Additionally, some countries had unique concerns that were not as important in other countries, such as **crowded skies** in Italy and **noise pollution** in Greece.

1.2.2

Results

Use cases for drone solutions:
Waterborne Transport



Drone applications use on waterways

The average rating for all three drone applications is above 4 on a 7-point scale, indicating that overall, the participants have a **moderately positive perception of drones' usefulness in waterway-related tasks**. However, it is worth noting that the average rating for inspection of areas and facilities is slightly lower than the other two applications.

The proportion of participants who rated the drone applications in the bottom 2 box (extremely negative, negative, or somewhat negative) is relatively low, ranging from 3% to 4%. This suggests that the overall perception of drones in waterway-related tasks is not strongly negative.

The highest proportion of responses is in the somewhat positive and positive categories, indicating that the majority of participants have a favourable perception of the drone applications. However, the proportion of extremely positive ratings is relatively low, ranging from 14% to 20%.



Drone applications use on waterways

There are some differences in perception between countries. For example, respondents from **Greece** seem to be more positive about all three applications than those from other countries, with a higher percentage of answers falling in the "positive" or "extremely positive" categories. On the other hand, respondents from **Austria** seem to be less positive overall, with a higher percentage of answers falling in the "somewhat negative" category.

The average ratings for each application also vary slightly between countries. For example, the average rating for "*Control and measurement of volumes/cargo in ships*" is highest in **Germany** and lowest in **Austria**, while the average rating for "*Maritime traffic control*" is highest in **Italy** and lowest in **Belgium**

- **Maritime traffic control** is rated higher than the other two applications in all countries, and Spain, Italy, and Greece show particularly high approval rates (top 2 box score ranging from 36% to 53%).
- **Inspection of areas and facilities** receives lower scores in Austria and Sweden compared to other countries, with only 15% and 16% of respondents respectively rating it as somewhat or extremely positive.
- **Control and measurement of volumes/cargo in ships** is the least popular application across all countries, with only 17% of respondents giving it a top 2 box score, and 26% giving it a bottom 2 box score. Interestingly, Greece has the highest proportion of respondents (51%) rating this application as somewhat or extremely positive, while Belgium has the lowest proportion (16%)

Possible reasons of current perception of drone applications use on waterways

Cultural differences: It's possible that different countries have different cultural attitudes towards drones and their applications on waterways, which could explain some of the variation in responses. For example, countries with a more cautious or risk-averse culture might be more likely to view drone usage negatively, while countries with a more innovation-friendly culture might be more likely to view them positively.

- Greece and Spain have historically been known for their maritime culture and economies, which may make them more open to new technologies that can enhance safety and efficiency on waterways.
- Germany and Austria, on the other hand, have a reputation for being more cautious and risk-averse, which could lead to a more negative attitude towards drones.

Economic factors: Economic factors such as the importance of the maritime sector to a country's economy or the level of investment in automation technologies could also play a role. For example, countries with a higher reliance on the maritime industry might view drones as a more critical tool for ensuring efficiency and safety, leading to more positive attitudes.

- Belgium and Poland have significant shipping industries, which could make them more likely to see the value in using drones to improve safety and efficiency.
- Romania, on the other hand, has a smaller shipping industry, which could lead to a less urgent need for drones.

Experience with drone technology: It's also possible that differences in experience with drone technology could impact responses. Countries with a more advanced drone technology infrastructure and greater experience using drones on waterways might view them more positively.

- Sweden has a reputation for being at the forefront of innovation and technology, which could make its residents more likely to view drones positively.
- Greece, Italy, and Spain, being Mediterranean countries with extensive coastlines, have more experience with maritime activities, which may translate into more familiarity with the use of drones on waterways.

Perception of safety and security: Finally, differences in perceptions of safety and security could also contribute to differences in responses. Countries with a higher perceived risk of security breaches or safety incidents on waterways might view drones more positively as a means of enhancing security and safety.

- Italy has faced security threats in recent years, including from illegal immigration and drug trafficking, which could make its residents more likely to view drones as a valuable tool for enhancing security.
- Germany, on the other hand, has generally low levels of crime, which could lead to a less urgent need for security measures such as drones.

The top concerns of people regarding the use of drones for different applications are as follows:



Control and measurement of volumes/cargo in ships:

- Safety issues (17%)
- Spying (15%)
- Data privacy (9%)



For Maritime traffic control

- Spying (14%)
- Energy consumption (13%)
- Weather dependence (12%)



Inspection of areas and facilities

- Spying (24%)
- Safety issues (14%)
- Data privacy (13%).

For the results on application of **controlling and measuring volumes/cargo in ships**, may suggest that individuals in these countries are particularly worried about the potential risks and negative consequences of using drones for this purpose, and may need reassurance that measures are being taken to protect their privacy and ensure their safety.

For **maritime traffic control**, the top concerns suggest that individuals in these countries may be concerned about the reliability of drones in various weather conditions and the environmental impact of drone use, as well as the potential for drones to be used for spying purposes.

For **the inspection of areas and facilities**, the top concerns may suggest that individuals in these countries are particularly concerned about the potential for drones to be used for surveillance and the need for strict regulations to protect privacy and ensure safety.

1.2.3

Results

Use cases for drone solutions:
Air Transport

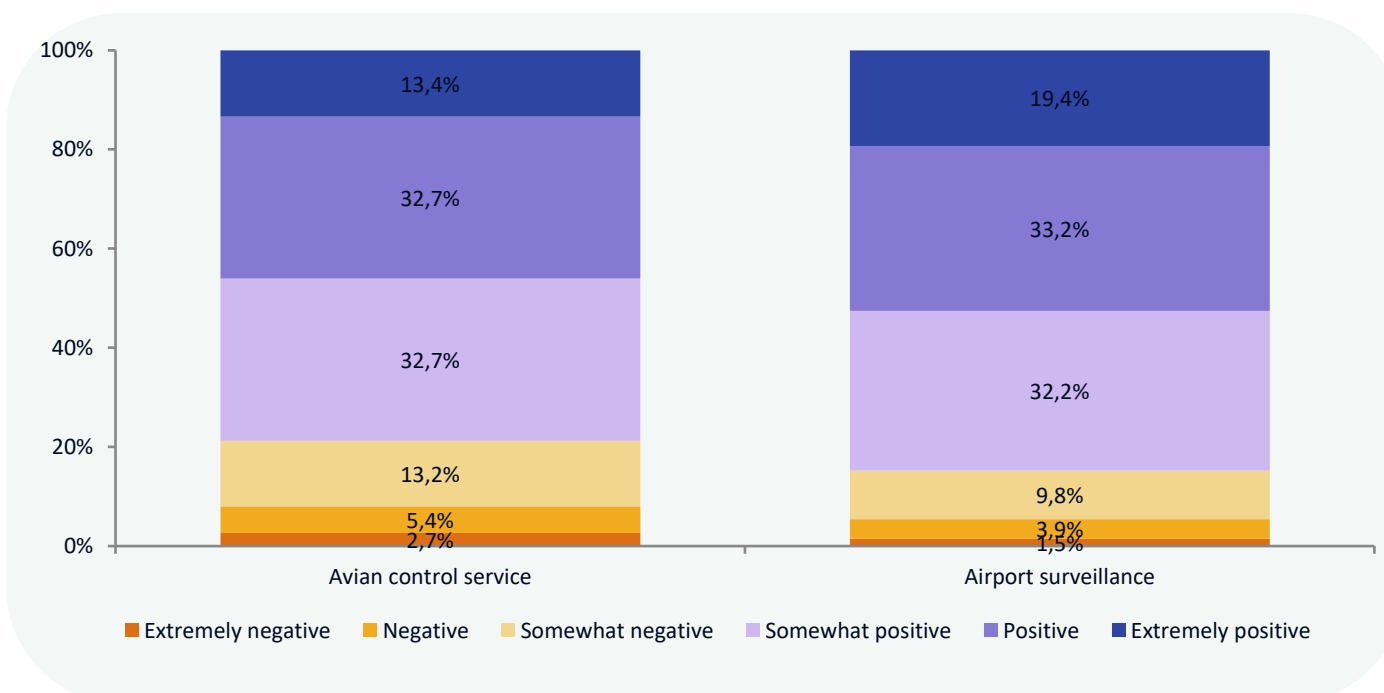


Drone applications use on airways and airports

Based on the results, the majority of respondents rated both drone applications positively. For the avian control service application, 33% of respondents rated it as positive, and 13% rated it as extremely positive. For the airport surveillance application, 33% of respondents rated it as positive, and 19% rated it as extremely positive.

However, there were also some negative ratings for both applications. For the avian control service application, 39 respondents (3%) rated it as extremely negative, and 79 (5%) rated it as negative. For the airport surveillance application, 22 respondents (1%) rated it as extremely negative, and 58 (4%) rated it as negative.

Overall, the top 2 box score (the percentage of respondents who rated the application as either extremely positive or positive) for the avian control service application was 46%, and for the airport surveillance application, it was 53%. The average rating for the avian control service application was 4.27, and for the airport surveillance application, it was 4.50.



The percentage of respondents who rated the applications as somewhat negative was higher than the percentage who rated them as somewhat positive. This suggests that there may be some reservations or concerns among the respondents about the use of drones in airways and airports.

The top 2 box score for the airport surveillance application was higher than that for the avian control service application. This may indicate that respondents view the airport surveillance application as more valuable or important than the avian control service application.

Drone applications use on airways

Overall we saw that the Top-2-Box for airport surveillance was 8% greater than that for avian control services.

There are some differences in perception between countries. For example, respondents seem to be divided in two groups. Those from **Germany, Spain, Italy, Romania** and **Greece** are more positive about drone applications on airways, for both use cases (avian control service, airport surveillance). Those from **Austria, Belgium, Sweden, and Poland** have a less positive response towards these uses, with more representation in the “somewhat negative” and “Extremely negative” options.

- **Avian control service** is rated lower than the other application in all countries, and Belgium, Poland and Austria show particularly low approval rates (top-2-box score ranging from 29% to 39%).
- **Airport surveillance** receives the highest scores in Spain, Greece and Romania compared to other countries, with top-2-boxes ranging from 60% to 69%.

The top concerns of people regarding the use of drones for different applications are as follows:



Avian control services:

- Vulnerable to wild animals (25%)
- Safety issues (11%)
- Crowded skies (10%)



Airport surveillance:

- Safety issues (23%)
- Spying (15%)
- Crowded skies (15%)

For the results on application of **avian control services**, there is a high worry with regards to wild animals, therefore people would need reassurance that this type of application is actually in benefit to wild animals as well, keeping them safe from runways or airport areas.

For **airport surveillance**, the top concerns suggest that individuals in these countries may be concerned about drones affecting traveller safety in airports, which is related to the concern of flight safety due to crowded skies. A third concern is that of drones affecting private spaces through spying or irregular camera use.

1.3

Results

Drone regulation



Awareness of regulation on drone use

Germany, Austria and Italy are the most aware on drone regulation.

By country

		All	Germany	Spain	Austria	Italy	Belgium	Sweden	Poland	Romania	Greece
Drones for commercial use	Top 2 Box	19%	28%	15%	23%	20%	14%	20%	19%	19%	13%
	Bottom 2 Box	81%	72%	85%	77%	80%	86%	80%	81%	81%	87%
Drones for operational use	Top 2 Box	19%	31%	16%	21%	22%	14%	18%	21%	19%	14%
	Bottom 2 Box	81%	69%	84%	79%	78%	86%	82%	79%	81%	86%

By age group

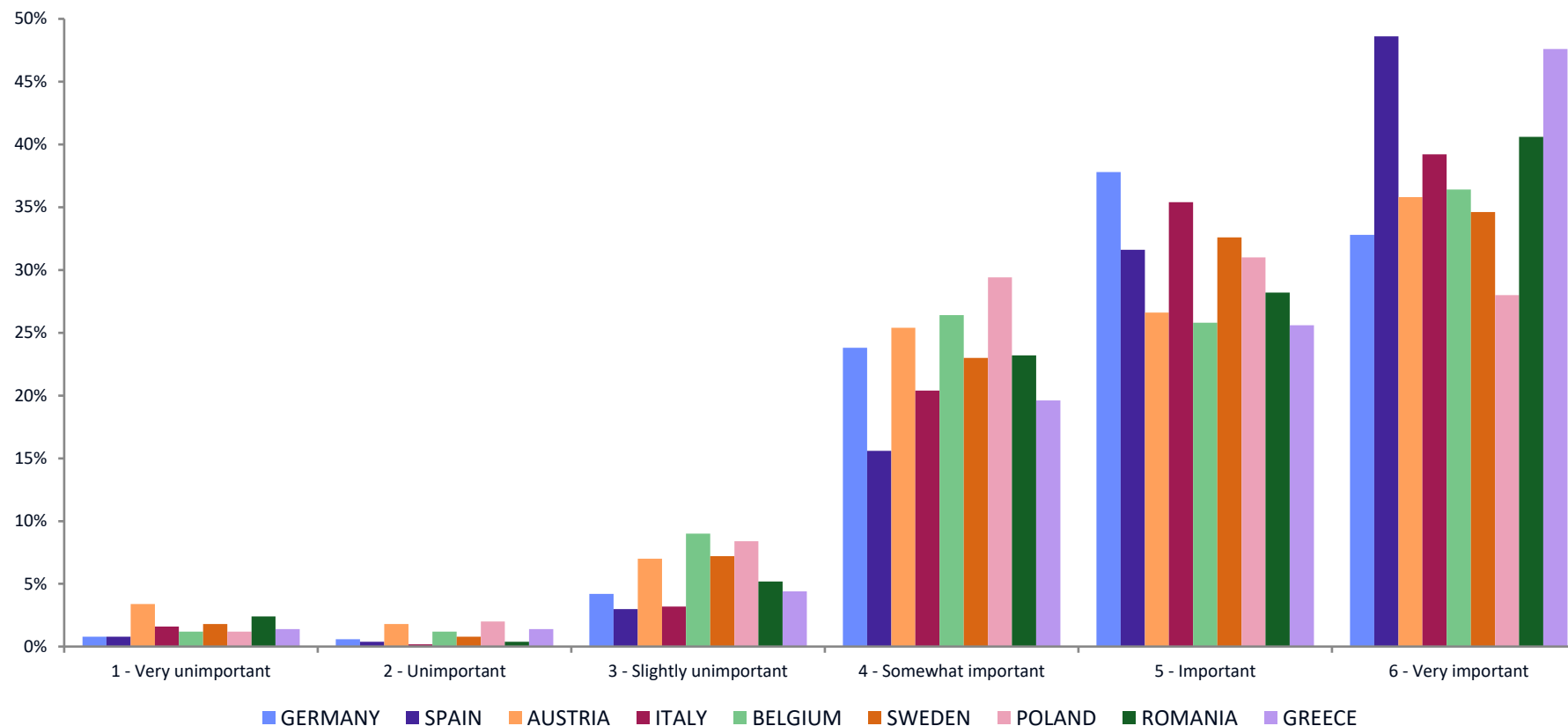
		All	18-24 years old	25-34 years old	35-44 years old	45-54 years old	55-65 years old
Drones for commercial use	Top 2 Box	19%	23%	23%	21%	15%	13%
	Bottom 2 Box	81%	77%	77%	79%	85%	87%
Drones for operational use	Top 2 Box	19%	24%	25%	20%	17%	13%
	Bottom 2 Box	81%	76%	75%	80%	83%	87%

Germany has the highest knowledge (top-2-box) on drone regulation, but it is still low, at around 30%. Greece, Belgium and Spain have the lowest levels of awareness.

Younger generations show to be more aware, with 1 out of every 4 people from 18-34 are aware of the regulations.

The need for regulation on drone use

Germany, Austria and Italy are the most aware on drone regulation.



Overall, 68% of the respondents believe that it's either important or very important to have regulation for drone activity.

Spain, Italy, Greece and Germany have the highest top-2-box responses (+70%). Poland, Belgium and Austria have the lowest top-2-box responses.

The oldest groups, as well as the more educated give higher levels of importance to the need for regulation.*

Total N = 500 per country

Q17. How important do you believe it is to have regulation in place for drone activity at a commercial/operational level?

*Graph available in the Appendix

Based on the results, it appears that the majority of respondents across all countries believe that having regulation in place for drone activity at a commercial/operational level is important. The top 2 box scores, which indicate the percentage of respondents who rated the importance of regulation as either very important or important, range from 62% to 80% across the different countries. The average score for all respondents is 4.94 out of 6, indicating that, on average, respondents believe regulation for drone activity at a commercial/operational level is important.

When examining the results by country, we can see that there are some differences in how respondents in different countries rate the importance of regulation for drone activity. **Germany** has the lowest top 2 box score at 71%, while **Spain** has the highest at 80%. The average score for **Spain** is also the highest at 5.23, while **Austria** has the lowest average score at 4.77.

It could be explained by respondents in Spain being more aware of the potential risks and benefits of drone activity and therefore view regulation as more important. Alternatively, it could be that the regulatory environment for drone activity in Spain is less developed than in other countries, leading respondents to believe that more regulation is needed.

On the other hand, respondents in Germany, which has a well-established regulatory framework for drone activity, may feel that current regulations are sufficient and therefore do not rate the importance of regulation as highly. It is also possible that respondents in Germany have a more negative perception of drones and therefore view regulation as less important.

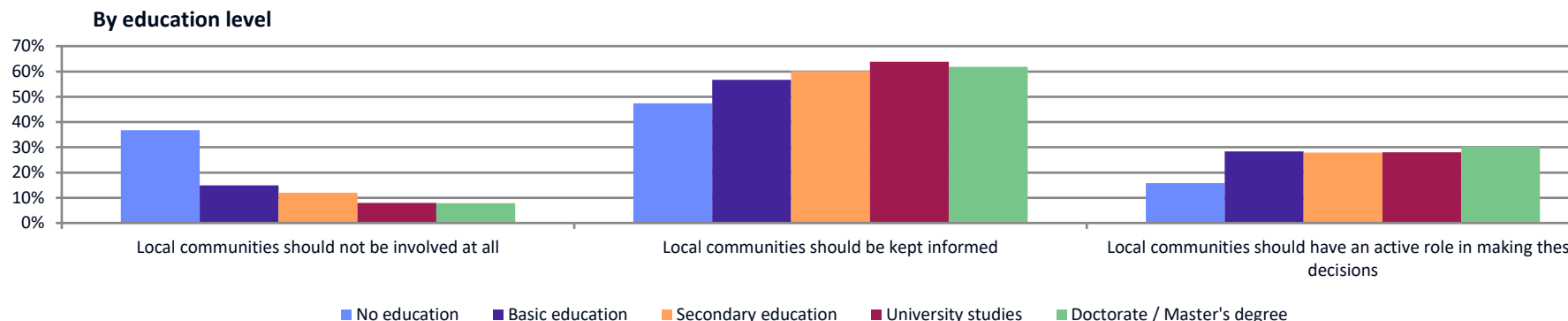
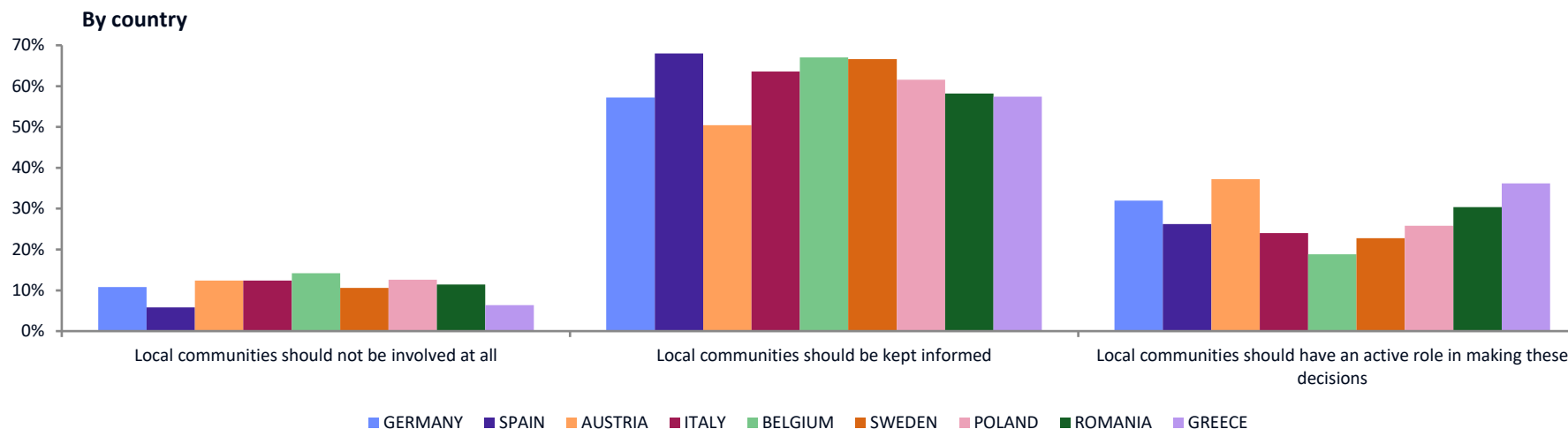
Importance of Regulation: The survey results showed that the majority of respondents across all countries consider it important to have regulation in place for drone activity at a commercial/operational level. This aligns with the findings in the EASA document, which highlights the need for regulation in order to ensure safety, security, and privacy in the rapidly growing field of drone operations.

Level of Regulation: The survey results also indicate that respondents in some countries (such as Germany and Sweden) are more likely to view regulation as "very important" or "important" compared to others (such as Italy and Greece). The EASA document notes that different countries have different levels of regulation in place for drone operations, which can impact the growth and development of the industry.

Public Perception: The survey results suggest that there is a generally positive public perception of drone technology, with respondents expressing interest in the potential benefits of drone operations such as delivery and emergency services. The EASA document also notes the potential benefits of drones, but also highlights the need to address concerns around safety, security, and privacy in order to gain wider public acceptance.

Local representation for regulation on drone use

More than 50% of respondents in all countries say that local communities should be kept informed.



More than half of the respondents in each country agree that local communities should be kept informed.

28% of respondents believe that local communities should have an active role, with Austria, Greece, Germany and Romania leading in this respect.

If broken down by education level, we can see how the higher the education, the stronger the belief that local communities should be kept informed, or actively involved.

Total N = 500 per country

1.3

Results

Other findings



Drone usage for city-related purposes

People in Greece and Spain are more likely to accept drone usage for the different uses mentioned.

Top-2-Box	General	Germany	Spain	Austria	Italy	Belgium	Sweden	Poland	Romania	Greece
Delivery of packages	42%	45%	40%	30%	44%	38%	38%	40%	48%	53%
Monitoring traffic	66%	72%	77%	47%	65%	57%	59%	66%	68%	80%
Environmental research	62%	67%	72%	42%	68%	53%	54%	60%	68%	75%
Surveillance and security	68%	72%	80%	46%	71%	64%	65%	63%	71%	76%
Photography and videography	72%	70%	80%	51%	77%	66%	67%	72%	73%	89%
Search and rescue operations	72%	78%	80%	59%	73%	64%	73%	70%	74%	80%
Personal transportation (e.g. taxi)	18%	22%	18%	13%	19%	16%	16%	18%	22%	18%

Bottom-2-Box	General	Germany	Spain	Austria	Italy	Belgium	Sweden	Poland	Romania	Greece
Delivery of packages	15%	11%	15%	25%	13%	20%	16%	17%	15%	8%
Monitoring traffic	8%	5%	8%	17%	6%	9%	6%	9%	8%	3%
Environmental research	8%	4%	8%	20%	4%	9%	8%	8%	5%	3%
Surveillance and security	7%	4%	7%	21%	4%	8%	4%	8%	7%	4%
Photography and videography	6%	6%	7%	13%	4%	8%	6%	6%	5%	2%
Search and rescue operations	7%	4%	10%	13%	6%	9%	4%	9%	6%	3%
Personal transportation (e.g. taxi)	38%	35%	38%	47%	33%	52%	35%	36%	33%	33%

Greece and Spain had both the higher top-2-box results and lower bottom-2-box results, showing greater acceptance of the different uses.

On the other side of the spectrum, we can find Austria, with the highest resistance.

Purposes like traffic monitoring, environmental research, surveillance and rescue operations grow in likelihood (top-2-box) with the age of the respondent, meaning that older groups have higher acceptance of them.*

Total N = 500 per country

Q9. In your opinion, please indicate how likely it is that drones will be used for the following city-related purposes - either now or in the future.

*Graph available in the Appendix

Delivery of packages: Overall, the majority of participants believe that drones will be used for delivering packages in the future.

- Participants from **Greece** and **Romania** were the most likely to believe in the potential for drone package delivery, while those from **Germany** and **Austria** were the least likely. This may be due to a variety of factors, including differences in infrastructure, regulations, and cultural attitudes towards technology and innovation.
- For example, some countries may have more challenging geographic terrain or greater population density, which could make traditional delivery methods more difficult or costly. On the other hand, some countries may be more cautious or skeptical about new technologies, particularly those that could potentially replace human jobs or pose safety risks.

Monitoring traffic: Participants were generally more optimistic about the potential for drones to monitor traffic than for other use cases.

- Participants from **Spain** and **Greece** were particularly enthusiastic about this application, while those from **Italy** and **Austria** were the least likely to think it was likely. This could reflect differences in traffic patterns and congestion in different countries, as well as varying levels of investment in transportation infrastructure and technology.

Environmental research: Participants were generally positive about the potential for drones to support environmental research and monitoring.

- Participants from **Belgium** and **Greece** were the most likely to think this was a likely use case, while those from **Italy** and **Austria** were the least likely. This may reflect differences in environmental concerns and priorities, as well as variation in research funding and institutional support for environmental science.

Surveillance and security: Participants were the least likely to think that drones would be used for surveillance and security purposes.

- Participants from **Greece** and **Poland** were somewhat more likely to think this was a likely use case than those from other countries. This may reflect concerns about privacy and civil liberties, as well as uncertainty about the effectiveness of drones in these roles compared to other methods like human surveillance or stationary cameras. It could also reflect differences in national security priorities and the perceived threats faced by different countries.

Photography and Videography: This is one of the most known cases of drone usage today.

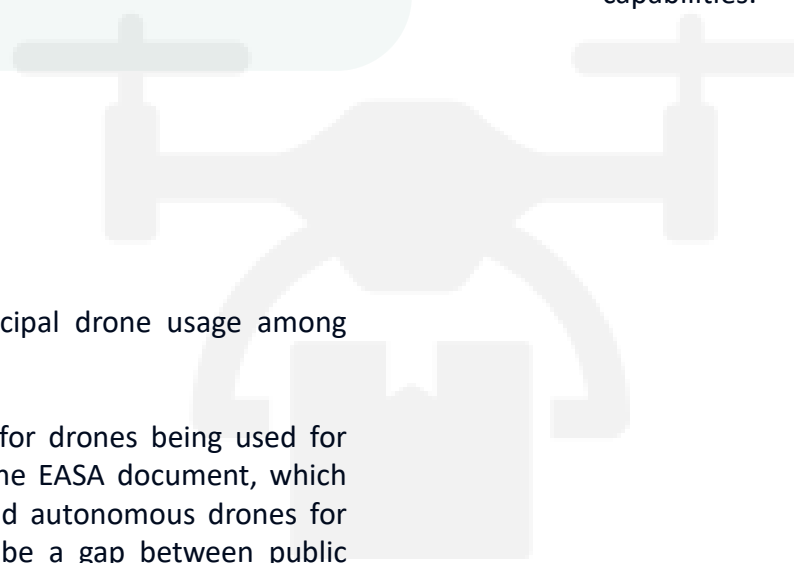
- The survey results indicate a strong belief in the likelihood of drones being used for photography and videography purposes in cities. This is consistent with the EASA document, which recognizes the increasing use of drones for aerial photography and cinematography, particularly in urban environments.

Search and rescue operations: There is an overall confidence in this type of use for drones.

- The survey results demonstrate a high level of acceptance for drones being used in search and rescue operations in cities. This is supported by the EASA document, which emphasizes the potential of drones in assisting emergency response teams and improving search and rescue capabilities.

Personal transportation: This is not regarded as a principal drone usage among respondents.

- The survey results show a lower level of acceptance for drones being used for personal transportation in cities. This contrasts with the EASA document, which explores the potential of urban air mobility (UAM) and autonomous drones for passenger transportation, suggesting that there may be a gap between public perception and the industry's vision for this application.



2 Study Design



Study Design

Method, target group, and content

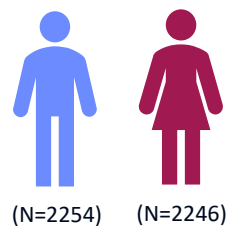
Study Design

Method	Target group	Content								
<ul style="list-style-type: none"> – Quantitative online and mobile consumer research, distributed through the Appinio application. – Tiempo activo: 24/03/2023 – 30/03/2023 – Data can be found at research.appinio.com 	<table border="0"> <tr> <td style="vertical-align: top; padding-right: 20px;">Country</td> <td>Germany, Spain, Austria, Italy, Belgium, Sweden, Poland, Romania, Greece</td> </tr> <tr> <td style="vertical-align: top; padding-right: 20px;">Age</td> <td>18-65</td> </tr> <tr> <td style="vertical-align: top; padding-right: 20px;">Attributes</td> <td>NatRep distribution per country</td> </tr> <tr> <td style="vertical-align: top; padding-right: 20px;">Sample Size</td> <td>Total N = 4500 500 per country</td> </tr> </table>	Country	Germany, Spain, Austria, Italy, Belgium, Sweden, Poland, Romania, Greece	Age	18-65	Attributes	NatRep distribution per country	Sample Size	Total N = 4500 500 per country	<ul style="list-style-type: none"> – Understand the extent to which people are aware of the different types, uses and regulations around drones. – Evaluate the acceptance of drones in different uses across roads, waterways and airways. – Find the main concerns and problems accepting drone usage for each of the above mentioned options.
Country	Germany, Spain, Austria, Italy, Belgium, Sweden, Poland, Romania, Greece									
Age	18-65									
Attributes	NatRep distribution per country									
Sample Size	Total N = 4500 500 per country									

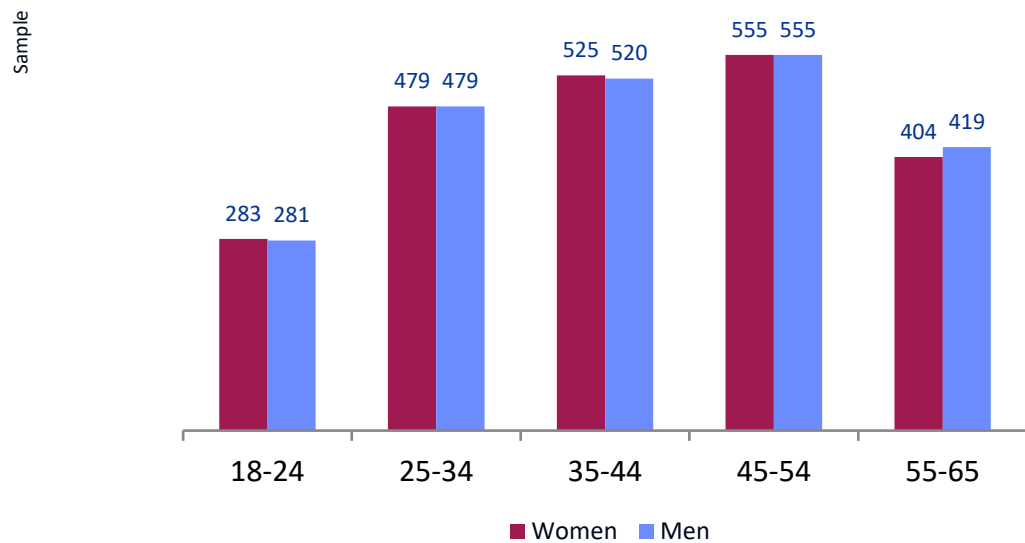
Sample structure

Demographic details

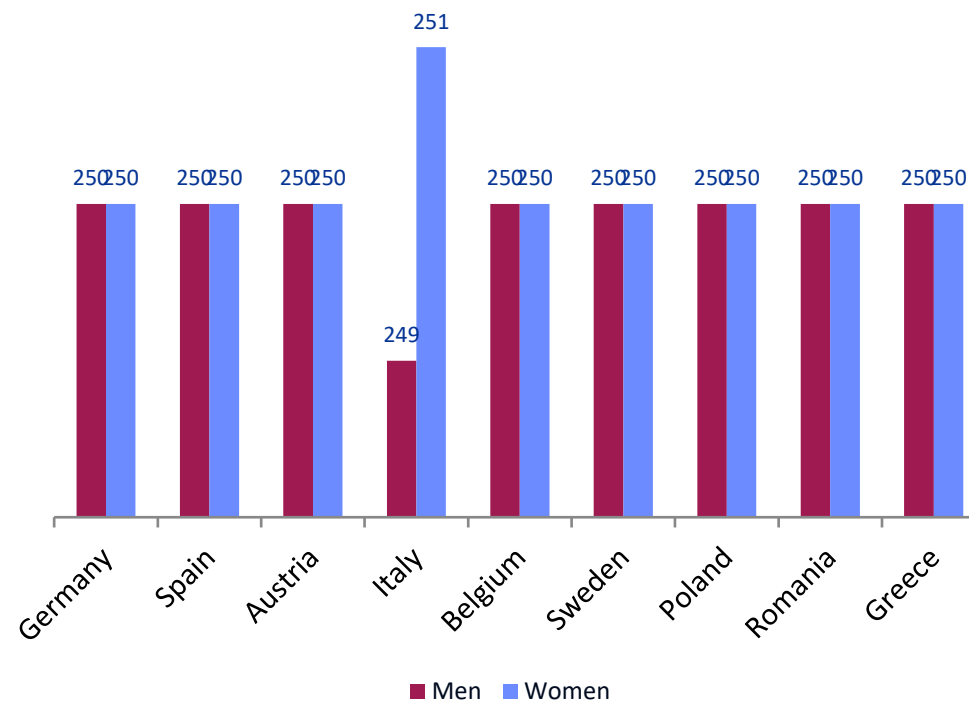
Overview



Ø Age
41,1 years old



Distribution by Country



3 Appendix



Drone usage for city-related purposes

By age group

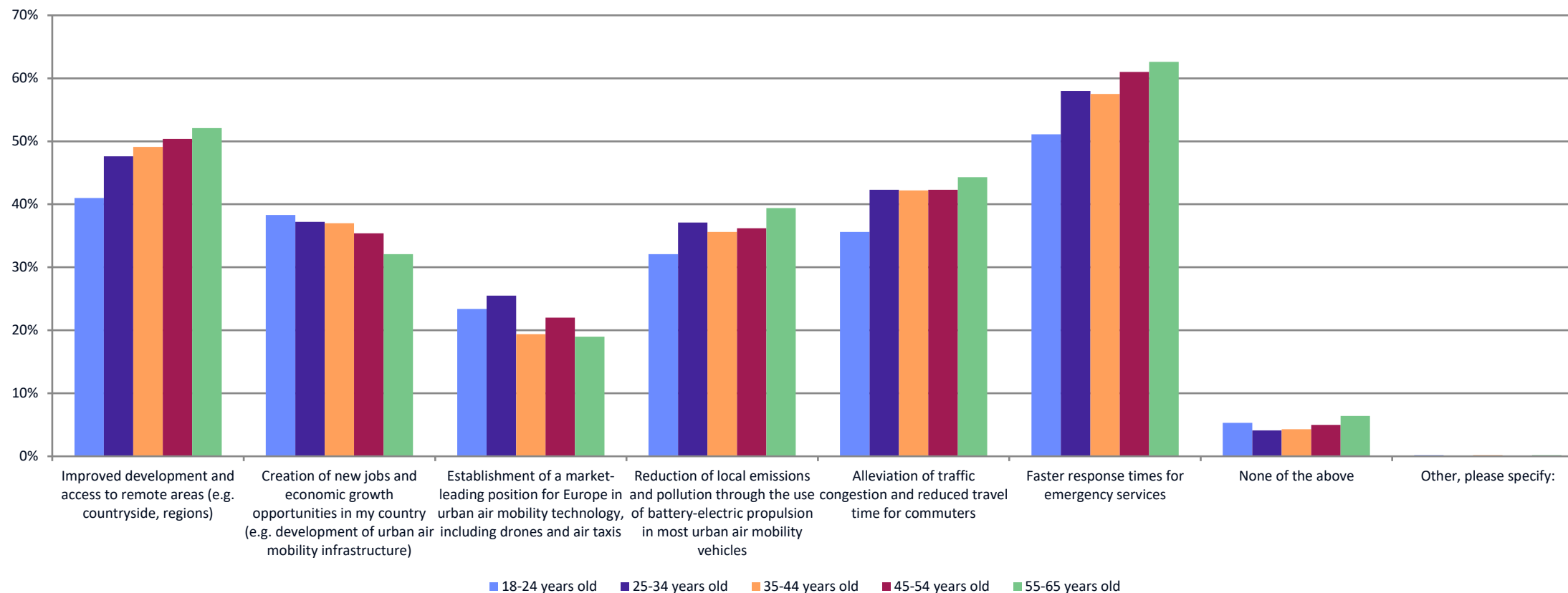
	All (Average)	18-24 years old (Average)	25-34 years old (Average)	35-44 years old (Average)	45-54 years old (Average)	55-65 years old (Average)
Delivery of packages	4,07	4,07	4,16	4,04	4,03	4,06
Monitoring traffic	4,79	4,46	4,73	4,85	4,86	4,93
Environmental research	4,69	4,46	4,59	4,75	4,73	4,82
Surveillance and security	4,85	4,59	4,81	4,91	4,86	4,99
Photography and videography	4,98	4,92	5,01	5,01	4,98	4,94
Search and rescue operations	4,98	4,73	4,99	5,01	4,99	5,07
Personal transportation (e.g. taxi)	3,06	2,88	3,08	3,12	3,12	3,02

Total N = 500 per country

Q9. In your opinion, please indicate how likely it is that drones will be used for the following city-related purposes - either now or in the future.

Advantages of urban air mobility for the EU

By age group

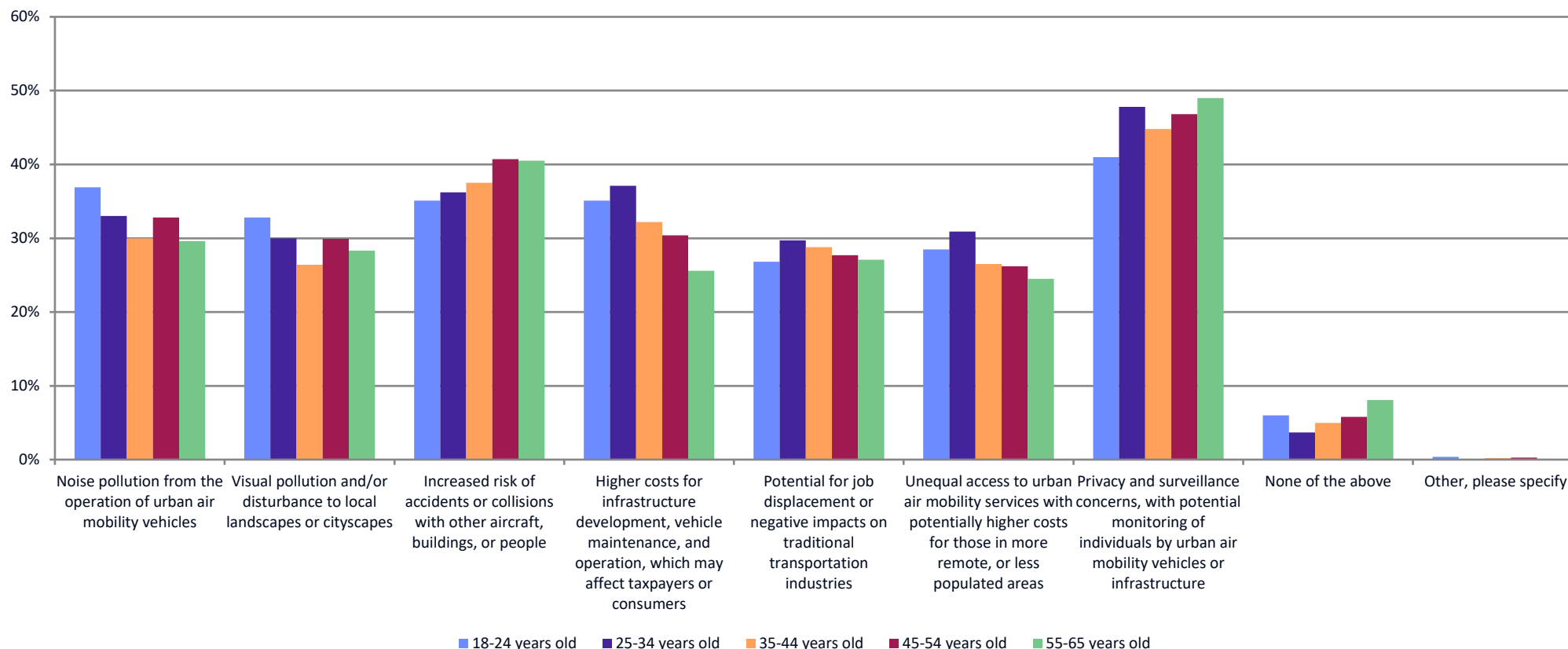


Total N = 500 per country

Q10. What benefits and opportunities do you think the development of urban air mobility could bring for the EU and its citizens?

Disadvantages of urban air mobility for the EU

By age group

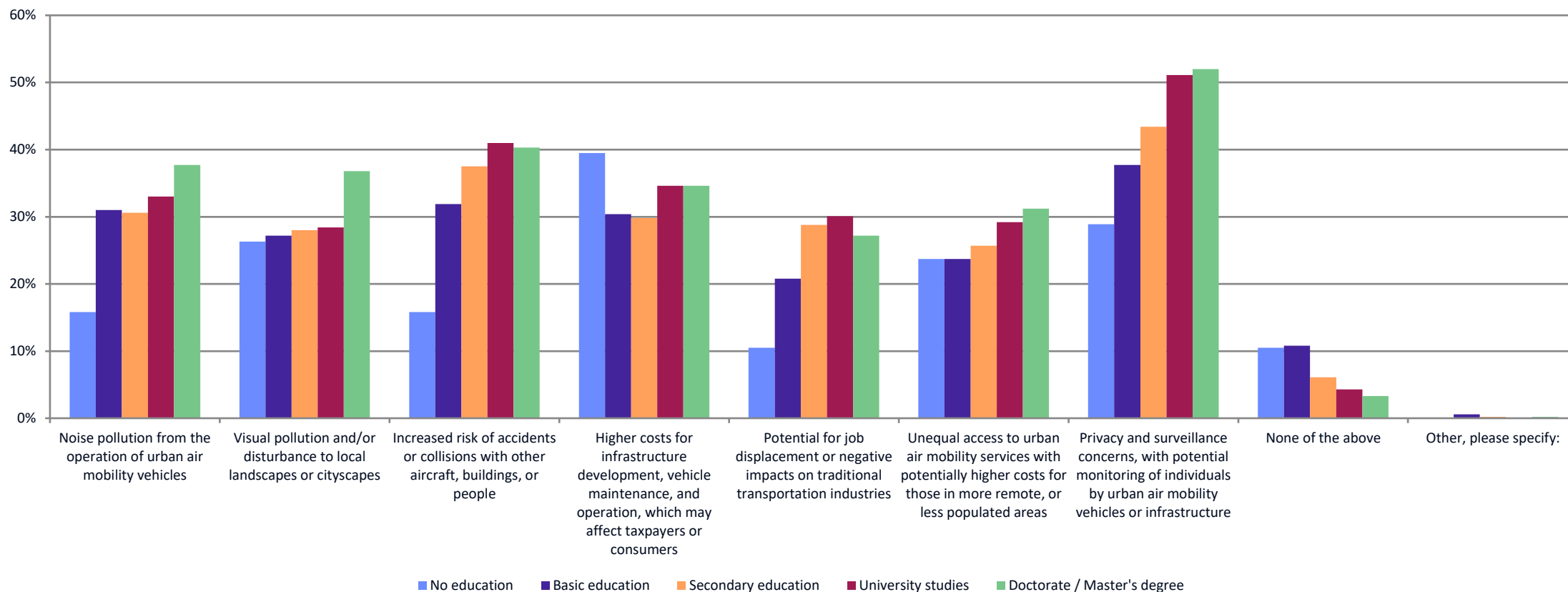


Total N = 500 per country

Q11. What disadvantages or challenges do you think the development of urban air mobility could bring for the EU and its citizens?

Disadvantages of urban air mobility for the EU

By level of education

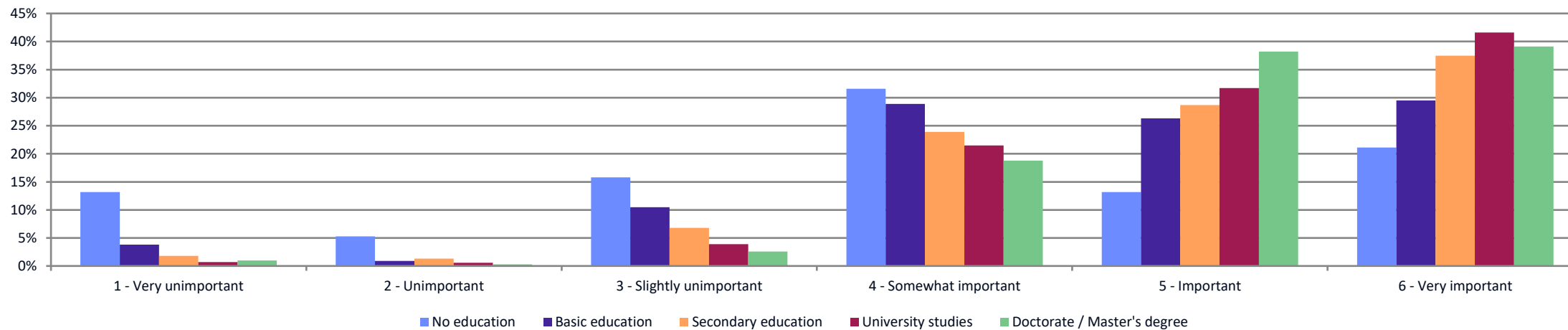
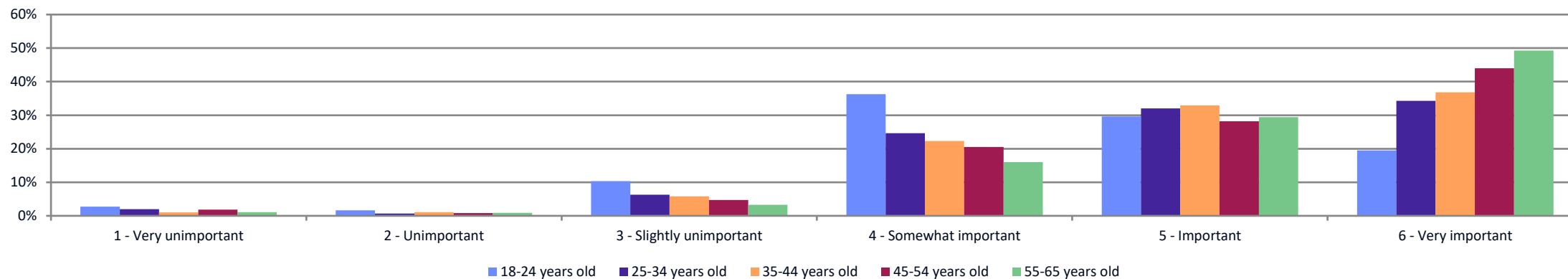


Total N = 500 per country

Q11. What disadvantages or challenges do you think the development of urban air mobility could bring for the EU and its citizens?

The need for regulation on drone use

By age group & by education level



Total N = 500 per country

Q17. How important do you believe it is to have regulation in place for drone activity at a commercial/operational level?



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