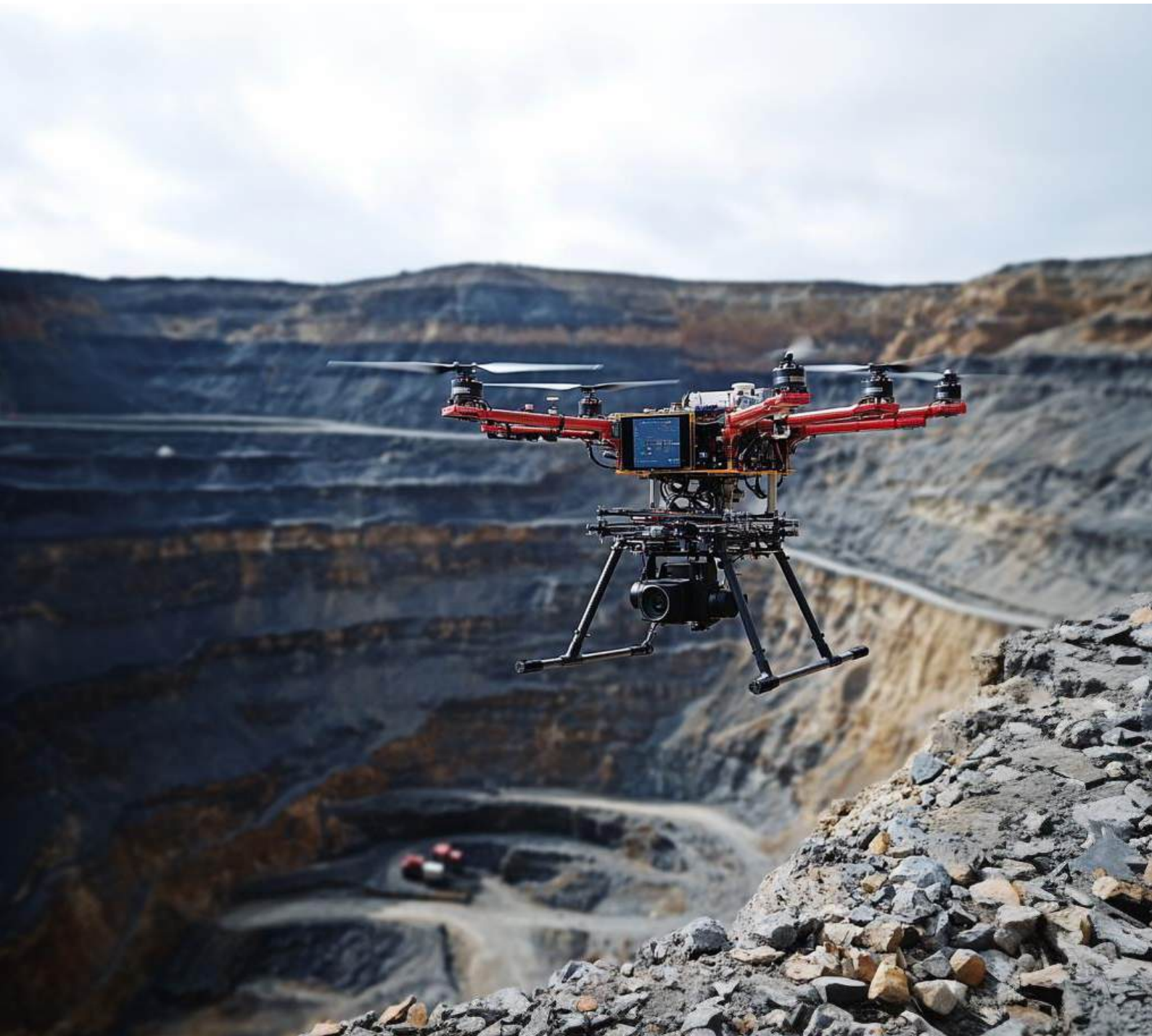

Global State of Drones 2024

DRONE
INDUSTRY INSIGHTS

New Trends and Perspectives of the Commercial Drone Industry Based on a Direct Surveying of Global Drone Companies

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EXECUTIVE SUMMARY

Welcome to the seventh annual Global Drone Industry Survey results. This year, the survey collected 964 responses from 94 countries.

Who participated in 2024

One exciting trend is the decreasing concentration of responses from the top 10 countries, which now account for 56% of all responses. To put it differently, the data represents an increasing number of companies from various countries outside the well-known markets.

The service sector remains the largest, though slightly smaller than in 2023. Hardware manufacturers increased their share in participation, possibly influenced by strong participation from countries like India, which is ramping up work to build its domestic drone economy.

Company size distribution reveals again that 55% of respondents represent small companies with fewer than ten employees. However, the survey also captured insights from several larger entities with over 5,000 employees, reflecting the industry's diverse scale.

How and why companies use drones

Mapping & Surveying continues to be the most common drone application. Notably, Inspection has risen to second place while Photography & Filming has dropped to third place. Spraying & Dispensing are more prevalent in-house than sold as a service, while drone-based delivery is perceived as an external service.

Regarding the top reasons to adopt drone technology, this year, improving work safety is the definite winner.

Industry expectations vs reality over time

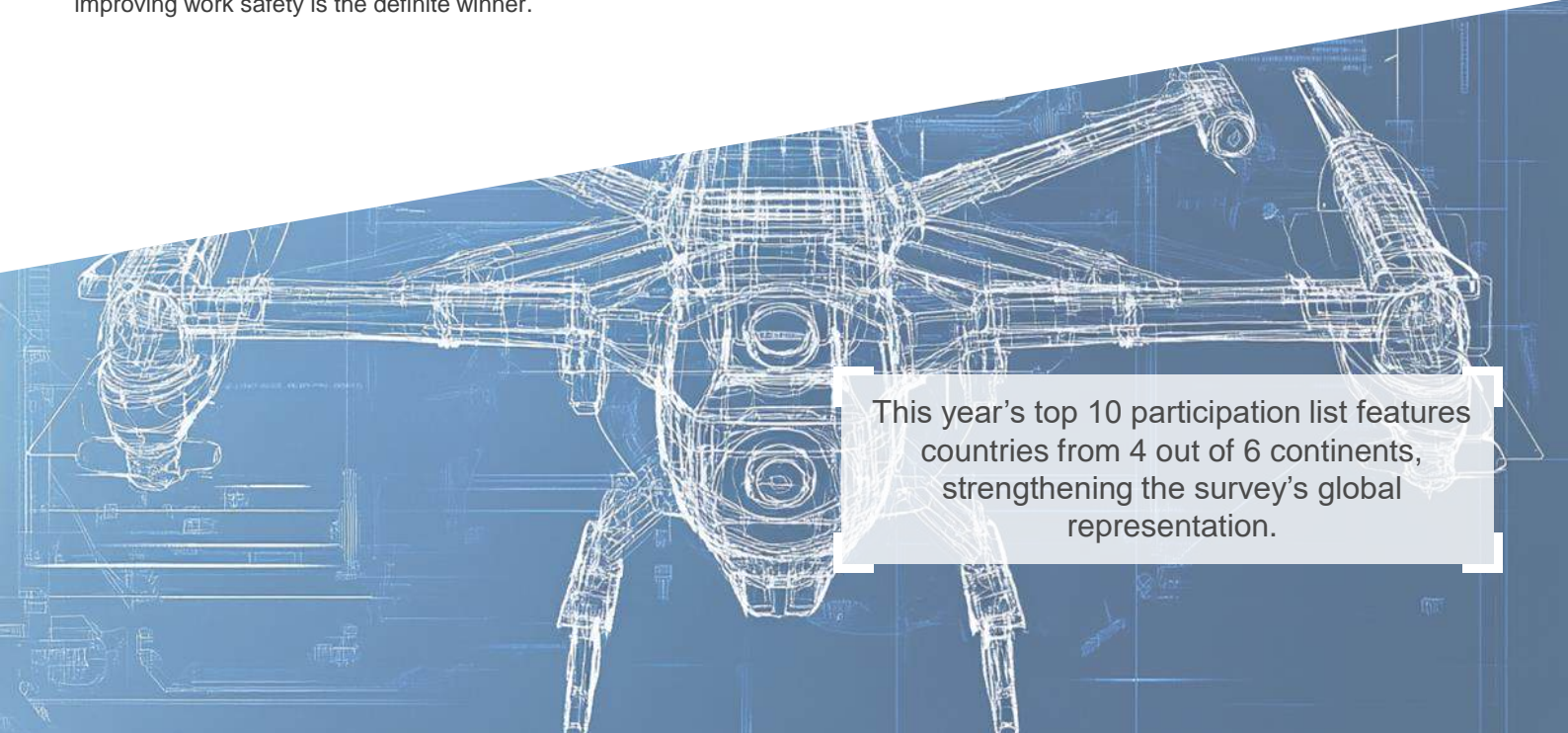
Before the pandemic, expectations and market performance converged, but COVID-19 caused a significant disruption. The pandemic sparked interest in drone applications (especially AAM and delivery), which led to a surge in expectations. The reality fell short of these inflated hopes, resulting in a record gap between expectations and reality in 2021. But since then, the industry has shown more steady and cautious optimism, with expectations and perceived reality steadily improving.

Global challenges and priorities

Regulatory obstacles remain the top challenge for the drone industry 2024, as they have been since the survey's inception. Notable shifts in industry concerns include client acquisition rising to second place, while previously prominent issues like public acceptance and inflation have significantly decreased in importance. The survey also reveals an increased concern about acquiring funding for scaling up and a growing focus on domestic politics over geopolitical issues.

As for the top priorities for drone companies, most of them continue to prioritize marketing & sales, followed by software development. Nevertheless, rule-making authorities continue to be considered the #1 market-driving factor.

We want to explicitly thank our global partners for their support in distributing the survey.



This year's top 10 participation list features countries from 4 out of 6 continents, strengthening the survey's global representation.

INTRODUCTORY FACTS OF THE GLOBAL STATE OF DRONES

The 7th annual Drone Industry Survey took place from May to July of 2024. Over the course of eleven weeks, it collected a total of **964 responses** (2023: 1,113) from a **record 94 countries** (2023: 85). The three leading countries in terms of representation were all from three separate continents. Those countries are: United States (198 responses), India (54), and Spain (44).

Overall, the top 10 most-represented countries account for 56%

of responses (2023: 65%; 2022: 71%). This steady decrease in representation from the top 10 countries is an encouraging sign that the survey is penetrating more corners of the globe. Furthermore, the top 10 list features countries from 4 out of 6 continents (none from Oceania and South America).

The survey was distributed via the Drone Industry Insights newsletter and social media accounts as well as by supporting partners and their distribution channels. A comprehensive list of these partners can be found at the end of the report.

Top 10 Most-Represented Countries

- 1  United States
- 2  India
- 3  Spain
- 4  Italy
- 5  Germany
- 6  South Korea
- 7  United Kingdom
- 8  South Africa
- 9  Malaysia
- 10  Japan

Countries Represented in the Survey

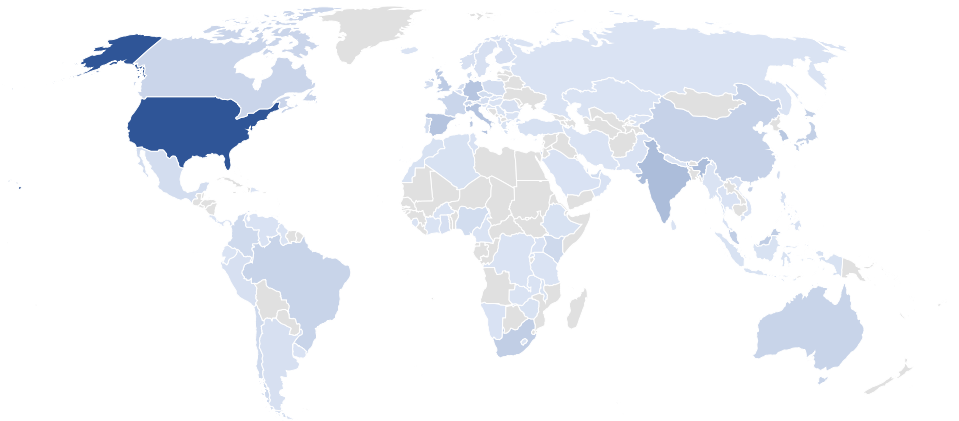


Fig 1: Most Represented Countries in Global State of Drones 2024

Survey Respondents By Market Segment

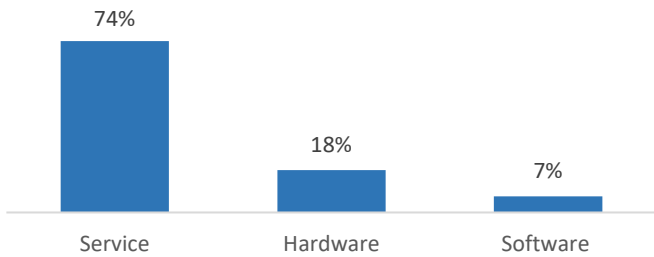


Fig 2: Survey Respondents by Market Segment (n=964)

The **service sector** includes services like training, testing, engineering, maintenance, and drone service providers, among others. The number of Drone service providers (DSPs) increased to 49% of the service sector (not pictured in the graph).

The share of **hardware** manufacturers increased to 18% from 14% in 2023. In previous years, more hardware responses were likely caused by high participation from China and this year; it

Survey Respondents By Company Size

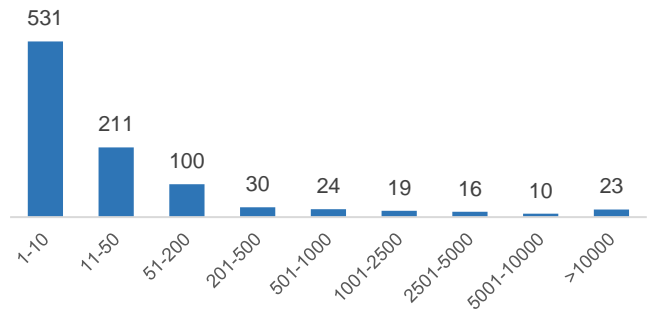
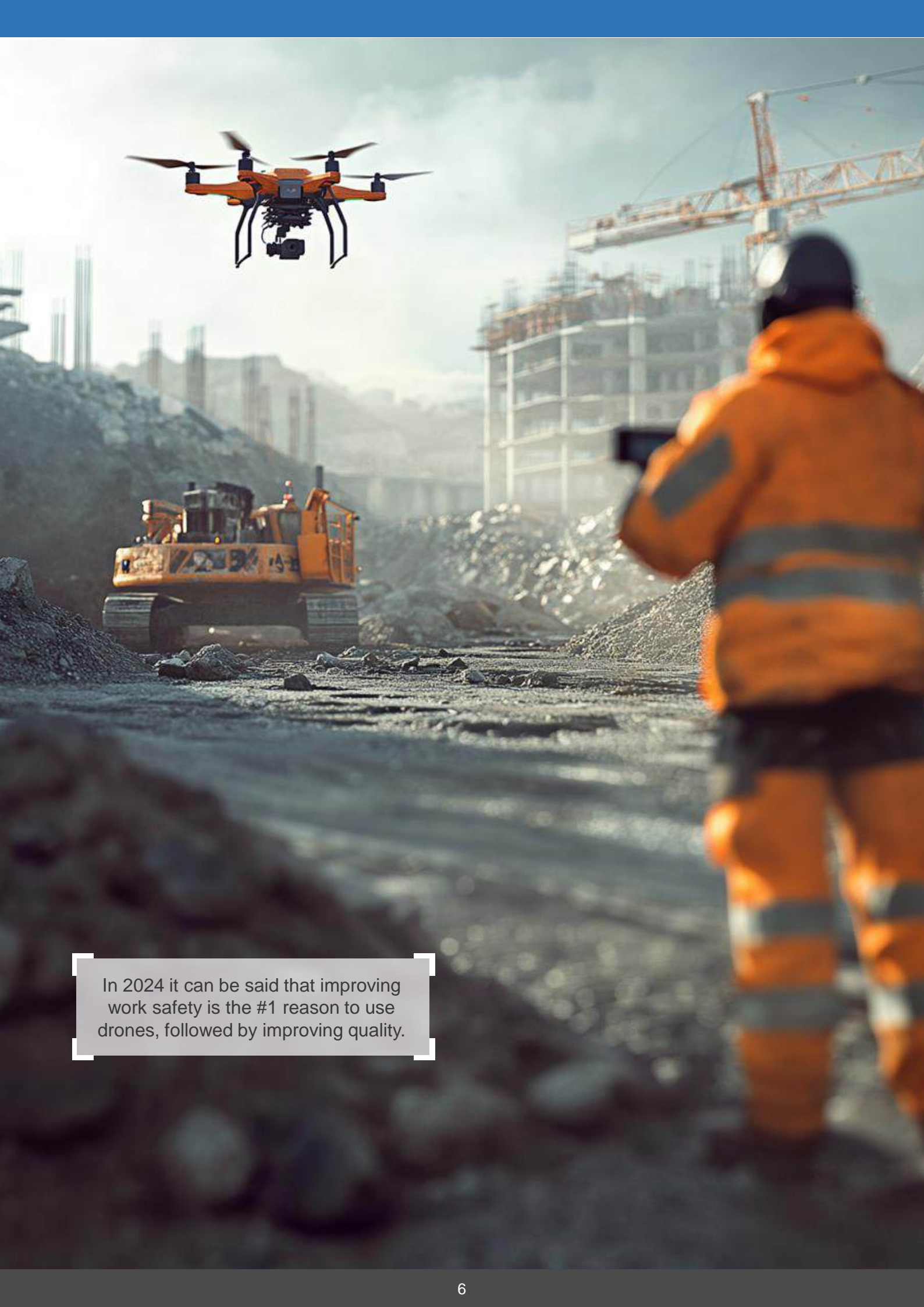


Fig 3: Company Size of Respondents (n=964)

was likely due to India's high level of involvement.

Software's share decreased compared to last year (2023: 8%).

Most respondents (55%) were small companies with less than ten employees, followed by those with 11 to 50 employees (22%), which fits with the data that most of the drone industry comprises small companies. Yet, there were also 33 responses from companies with **over 5,000 employees**.



In 2024 it can be said that improving work safety is the #1 reason to use drones, followed by improving quality.

DRONE OPERATION

All the featured operators below are either Drone Service Providers (DSPs) or Business-Internal Services (BIS). DSPs provide drone services to other companies in diverse industries (e.g., energy, construction, agriculture). Conversely, BIS companies utilize drones for internal operations and do not provide services to external clients.

The most significant findings from the survey include:

- **Mapping & Surveying** continues to be the dominant method for [drone applications](#), used by 34% of DSP companies and 31% of BIS. This share increased slightly for both since 2023 (DSP: 33%; BIS: 37%).
- This year, the **Inspection** method climbed to second place, claiming a 31% share among DSPs and a 26% share

among BIS firms (2023: DSP: 25%; BIS: 16%).

- **Photography & Filming** fell to third place for both types of companies, representing 22% of DSP activities and 25% of BIS application methods (2023: DSP: 27%; BIS: 31%).
- The **remaining methods** - Spraying & Dispensing, Delivery, and Localization & Tracking – represent shares between 1% and 9% for DSPs and BIS entities. Perhaps most interesting is the contrast in Spraying and Dispensing, where almost 1 in 10 BIS companies use drones for this task, but only 5% of DSPs perform this as a service. This suggests that in industries like Agriculture (where Spraying & Dispensing is most common), companies would rather buy and use a drone themselves than hire it as an external service.

What is the main applied method within the industry?

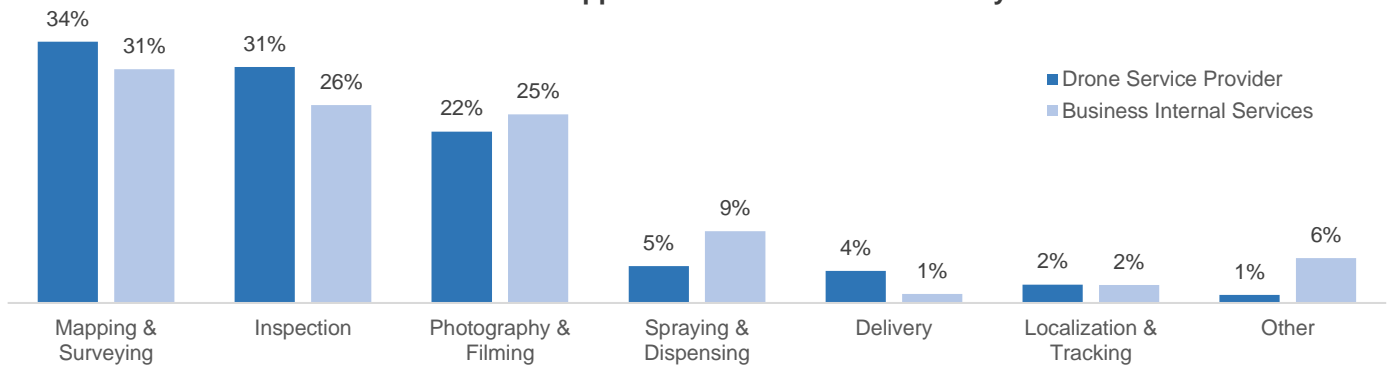


Fig 4: Main Applied methods (multiple answers possible, DSP:263; BIS:85)

What were your main reasons for adopting drones?

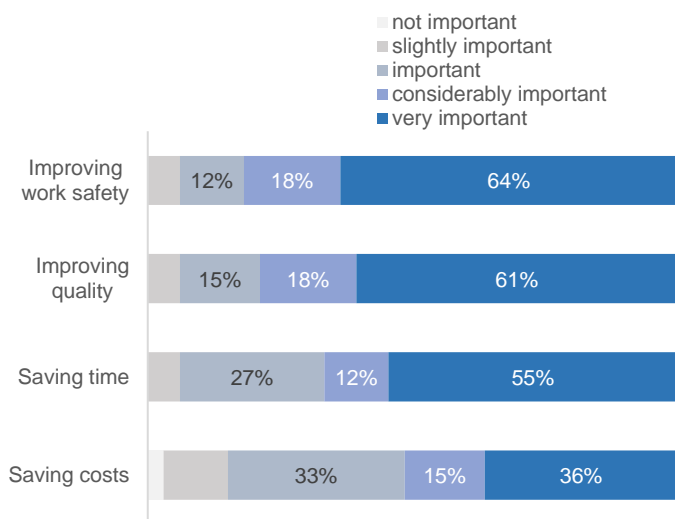


Fig 5: Reasons for Adopting Drones (n=33)

Why use drones? On a 1-5 scale, from not important to very important, the survey asked BIS operators about the four core reasons for adopting drone technology, and the results are always intriguing to analyze.

When looking at what the industry considers “very important”, the top reasons to adopt drones are [in order]: improving work safety (64%), improving quality (61%), and saving time (55%). However, adding a bit more nuance and taking “considerably important” and “important” into consideration provides a three-way draw between these top reasons (combined 94% each).

Perhaps the best solution is to simply focus on “very important” and “considerably important”, in which case the original ranking remains the same. Therefore, in 2024, it can be said that improving work safety is the #1 reason to use drones, followed by improving quality.

Finally, “saving costs” is decisively last place, considering the high initial cost for companies to buy drones and train personnel. However, it is worth mentioning that the number of BIS who participated in 2024 was roughly half that of 2023, suggesting a more limited sample size.



Since 2021, drone company expectations have risen more cautiously, and perceived reality has also improved at a steady and realistic pace.

EXPECTATIONS VS. REALITY

The Global Drone Industry Survey tracks companies' annual projections for the ever-shifting drone market. The graph below shows the **interplay between foresight and hindsight** (ex-ante versus ex-post) over the past years. In other words, the blue line shows foresight/expectation reported before the year in question, while the grey represents hindsight/ experience of the last year.

Up until the pandemic years of 2020 and 2021, expectations (represented in blue) and reality (shown in grey) converged from a gap of 1.4 in 2018 to 0.8 in 2019 and 0.3 in 2020. However, the pandemic brought increased [positive] attention to various segments in the drone industry, including drone delivery and AAM. Once the general public became more aware of the benefits that these can bring, the expectations within the

industry climbed dramatically to 7.2. However, the subsequent survey revealed extreme disappointment with reality (5.6), bringing the gap between expectations and reality to a record 1.6.

Nevertheless, once the global economies overcame the effects of the pandemic, the global drone industry again showed a rising level of both expectations and reality. Since 2021, expectations have risen more cautiously, and perceived reality has also improved at a steady and realistic pace.

With expectations reaching a score of 6.8 for 2024, it would seem that perceived reality might land roughly at a score of 6.2 or 6.3, but that is a question that next year's survey will answer.

**How has the market developed in the last 12 months?
How do you expect the market to develop in the next 12 months?**

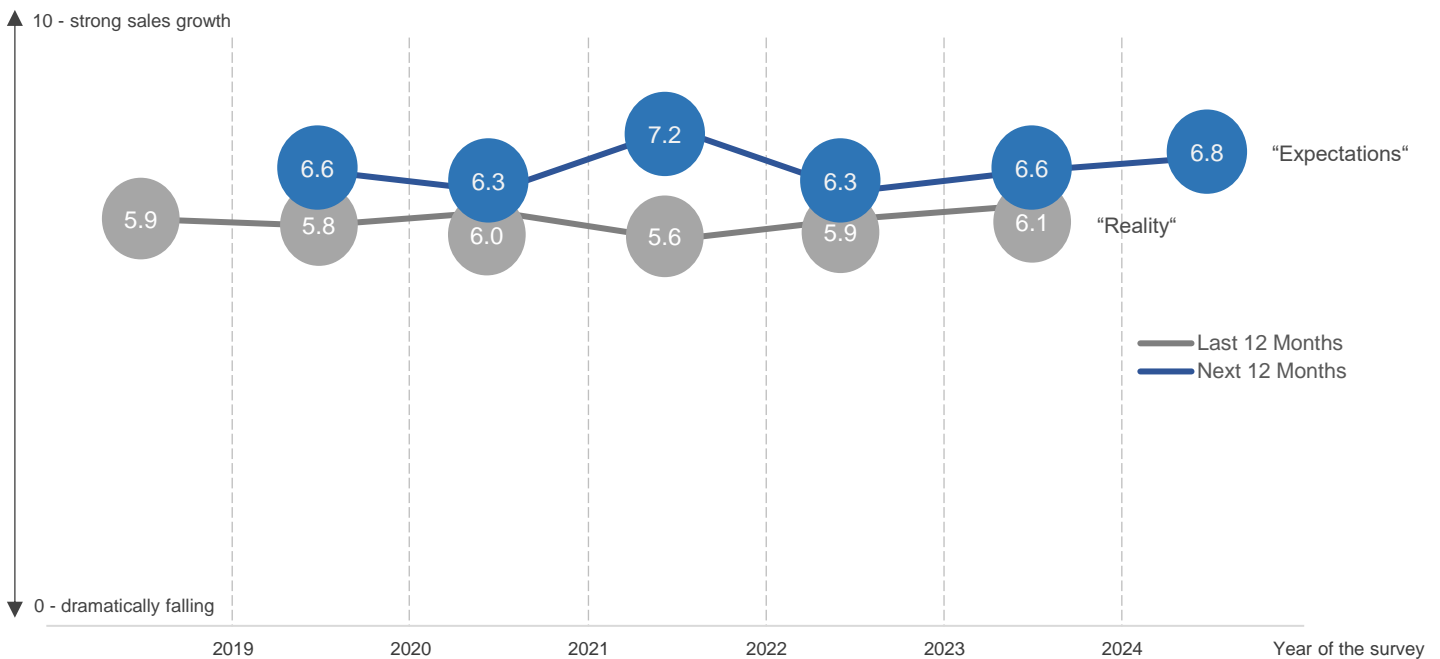


Fig. 6: Market Development in the next 12 Months and Their Reflections on the Past 12 Months (n=845)

MARKET DEVELOPMENTS BREAKDOWN

Breaking down expectations and reality into various subsegments provides a more accurate analysis of how drone companies in various industries may be performing. As before, expectation is indicated by a **dark blue line**, while **light blue** indicates actual market development for the past 12 months.

Within **hardware**, perhaps the most striking observation is that **counter-drone systems manufacturers** are quite volatile. Expectations and reality converged until 2021, but since then, there has been a mismatch of expectations and reality. **Drone components and systems manufacturers** have experienced a gradual decline in market development since 2020 despite some rising expectations, and expectations for 2024 are at an all-time high (7.4). **Hardware [platform] manufacturers** have experienced steadily rising expectations while also gradually increasing market development since 2020. Finally, **Passenger drone manufacturers** faced a less favorable year in 2023 (5.6) but carry a high expectation of 6.9 for 2024.

In the **service sector**, all subsegments experienced peak expectations in 2021, followed by a substantial decrease in 2022 and a minor resurgence in 2023 and 2024. **Drone integration and engineering** companies are the only ones with diminished expectations for 2024 (6.8), yet market development has steadily risen. Despite somewhat fluctuating expectations, **drone training and education** companies have reported gradually improved experience ever since 2020. **Drone operators for business-internal services (BIS)** have a slight increase in expectations in 2024 (5.8) after experiencing a positive 2023 (5.2) while **Drone Service Providers (DSPs)** reported the same expectations as 2023 (6.7) after an improved year (6.1).

Software manufacturers as usual find themselves in a relatively steady position. Their expectations and reality generally show a slow and steady increase over four years.

**How has the market developed in the last 12 months?
How do you expect the market to develop in the next 12 months?**
(0: dramatically falling - 10: strong sales growth)

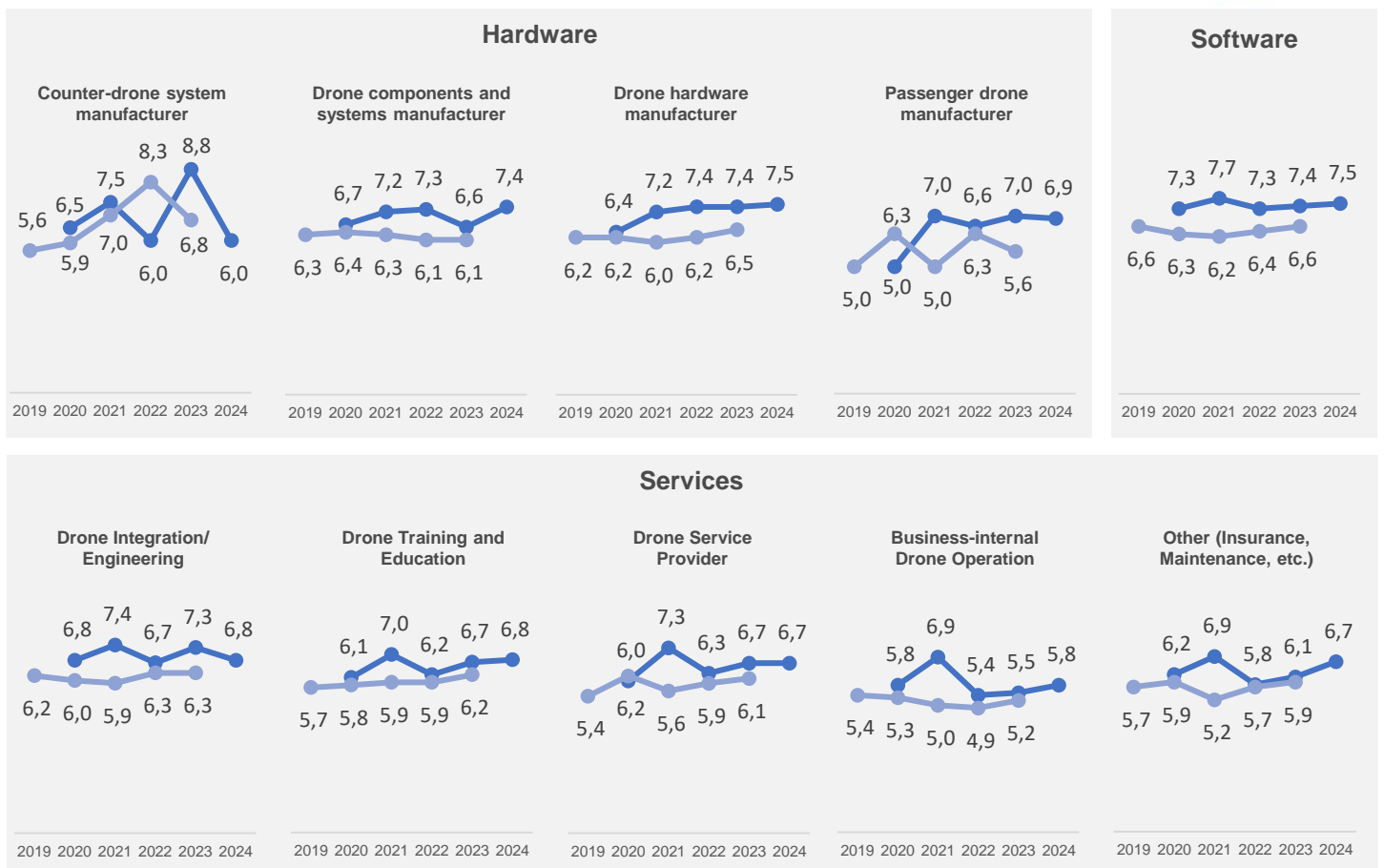


Fig. 7: Market Development in the Last and Next 12 Months by Market Segment (n=845)



Year over year, roughly one-third of participants consider marketing & sales among their top priorities.

RESOURCES

Which resources do drone companies prioritize? To see what they are mostly investing their time and energy in, the survey asked drone companies for their priorities regarding resource allocation. Figure 9 shows those resource distribution

priorities. Not surprisingly, this year's results, once again, show that **marketing & sales** are the leading priority for the next 12 months. This has been the strongest trend over the years since the Global Drone Industry Survey began.

Which of these are your company's top priorities for the next 12 months?
(Multiple selection possible)

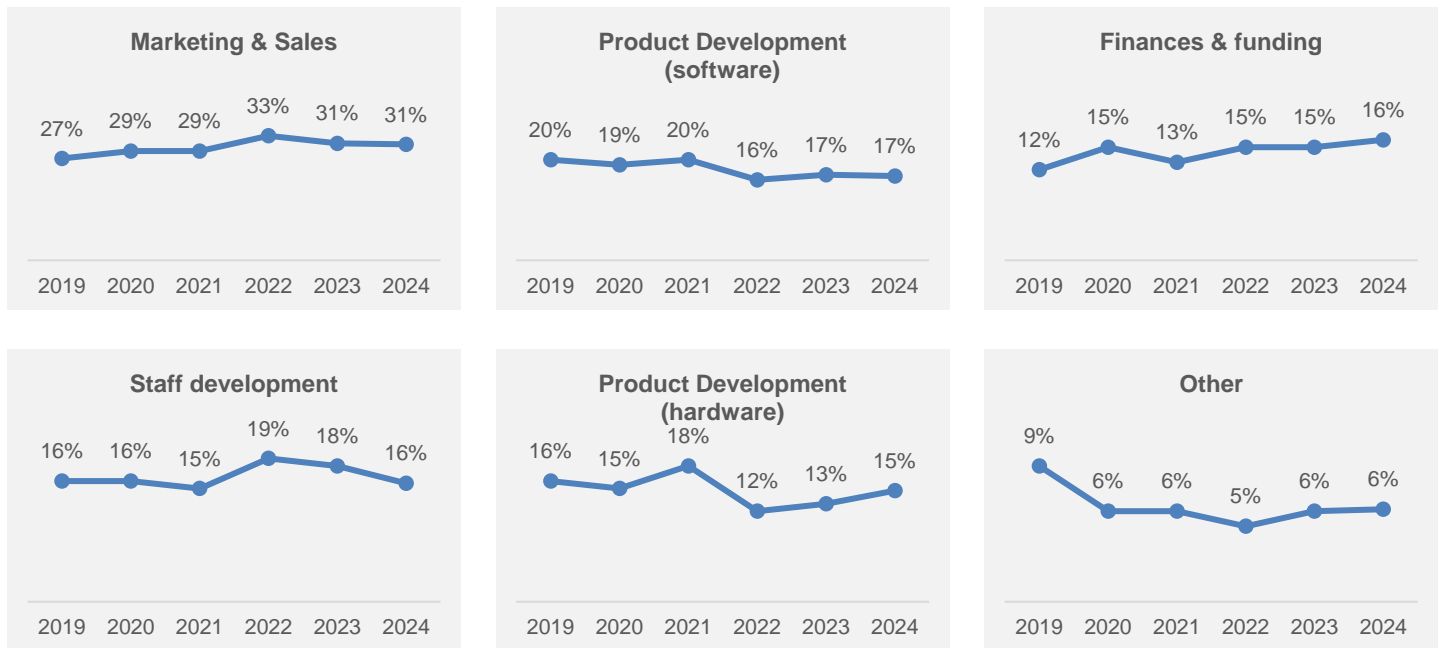


Fig. 8: Survey Respondents' Answers to What They Allocate Their Resources To (multiple answers possible, n=845)

Year over year, roughly one-third of participants consider marketing and sales among their top priorities. This has grown from around 27-29% until 2021 to around 31-33% since then. Though this figure may vary slightly and perhaps increase, it is unlikely to experience major changes and is less likely to decrease.

The number two priority reported in 2024 was **software development**, with a more humble score of 17%, which is unchanged from 2023. This has also remained stable at 19-20% until 2021 and a lower 16-17% since then.

Conversely, **finances & funding** have seen importance gradually rise from 12% in 2019 to 16% in 2024 and only a slight dip in 2021. Though this increase could also be seen as a safe average of 15-16% which were the scores in 4 of 6 years.

Interestingly, the importance of staff development has gradually decreased since 2022. Is it becoming less important to develop

staff because new staff are already prepared? Or are companies simply investing less in their people and more in their products? More research would be necessary to reach a conclusive answer to these questions.

Meanwhile, **hardware development** has seen a slight uptick from 12% in 2022 to 15% in 2024, though this is barely reaching the levels of 16-18% from 2019-2021.

Lastly, the **"Other"** category encompasses various areas such as international expansion, enhancing drone operations, fostering business development, acquiring new drones, and staff training.



Inflation was the dominant topic last year (rank 3), yet it fell dramatically to 8th place in 2024.

BIGGEST CHALLENGE OF THE INDUSTRY

Which of these do you consider to be the biggest challenge for the industry as a whole?

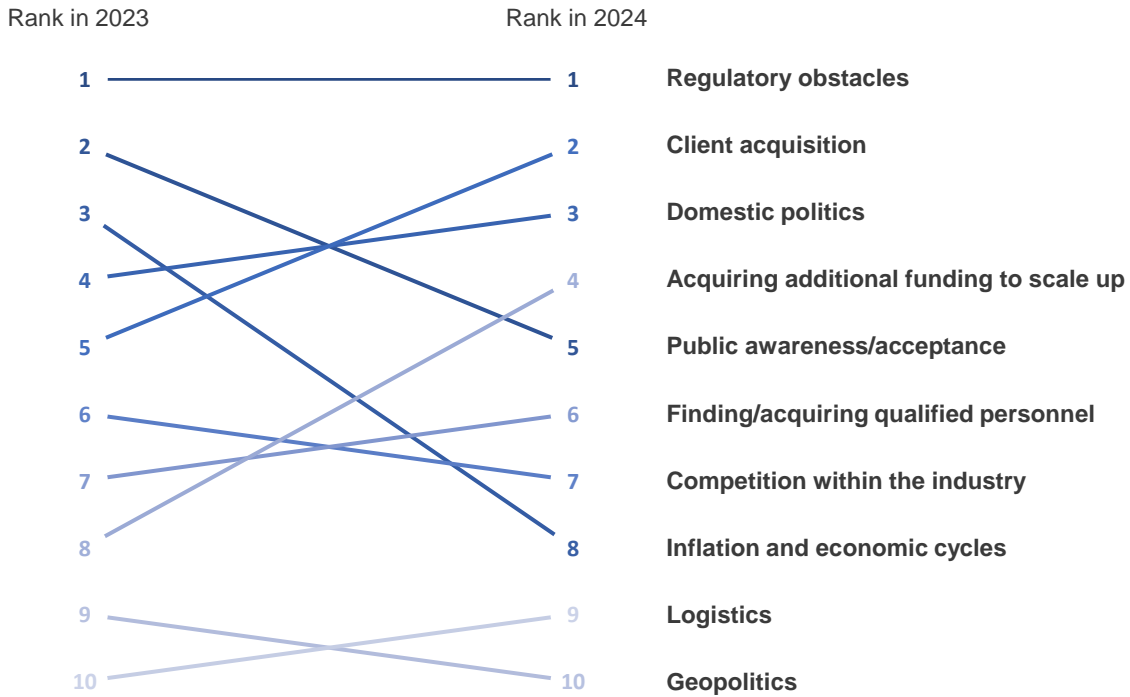


Fig. 9: Biggest Challenge for the Industry 2024 (n=839)

For the second year in a row, the survey asked drone professionals to rank the biggest challenge for the entire drone industry. The results are shown in Figure 9, and they definitively show that regulatory obstacles remain the biggest challenge for the industry. This topic has remained the number one concern globally for as long as the drone industry survey has been around.

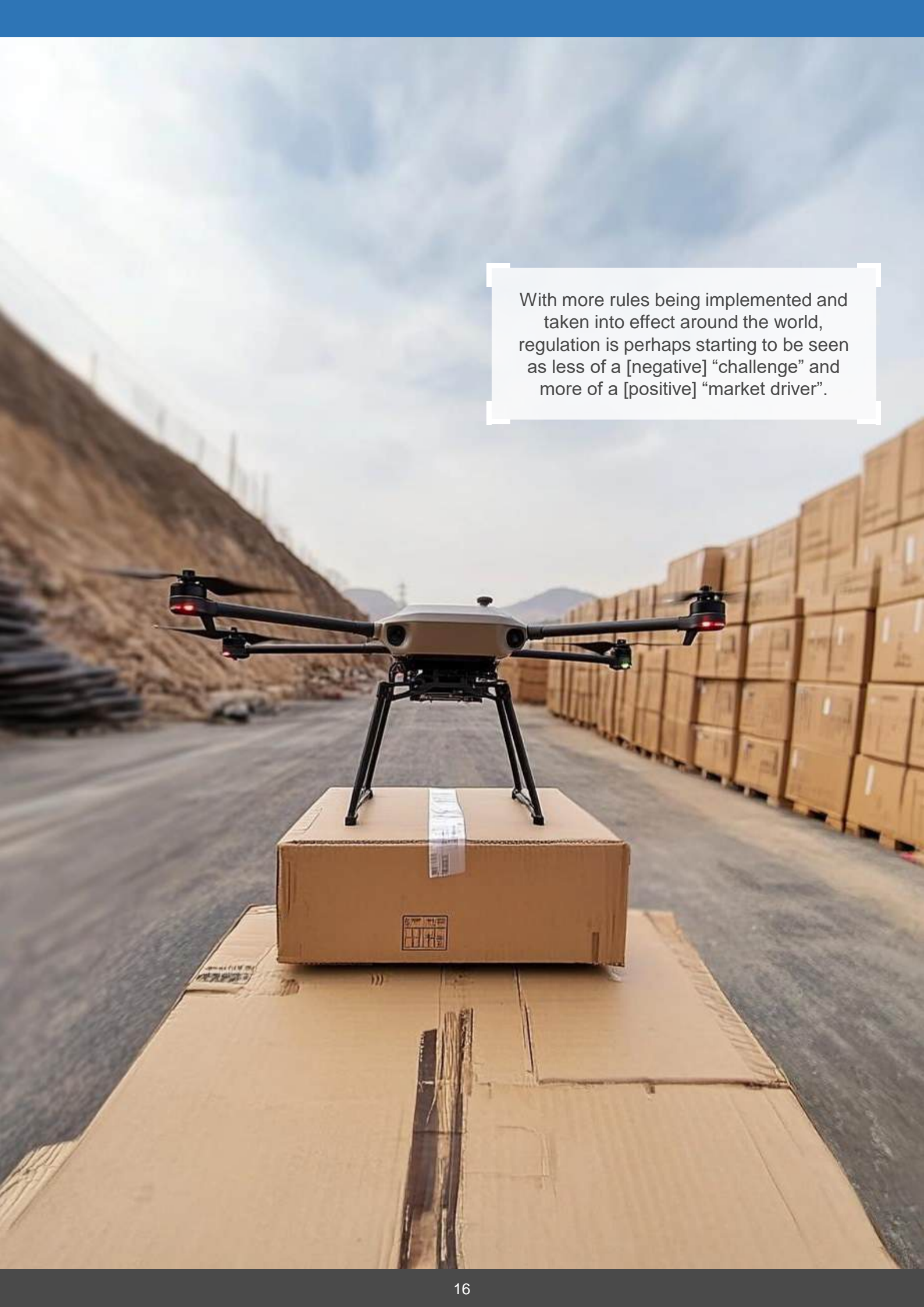
Interestingly, **public awareness/acceptance** was considered the second most important factor in 2023 but fell to 5th priority in 2024. Similarly, the topic of **inflation** was dominant in 2023 (reaching the third spot), yet it dropped dramatically to 8th place in 2024. Economic cycles are only temporary, and the fall from third to eighth place proves that the omnipresent conversation about inflation in 2023 is no longer a primary concern in 2024.

Client acquisition climbed from 5th place in 2023 to 2nd in 2024, essentially swapping places with public acceptance. However, it is interesting to note that **competition within the industry** fell from 6th to 7th. This would suggest that drone companies consider finding clients a challenge, *but* they likely see this as not caused by increased competition.

Another important change was the increased number of respondents considering **acquiring additional funding to scale up** as a major challenge. This issue climbed in rank from 8th in 2023 to 4th in 2024 and one potential explanation is that it's getting harder for drone companies to get later-stage funding to scale their business.

When it comes to politics, the issue of **domestic politics** climbed in importance from 5th to 3rd place, while **geopolitics** fell from 9th to 10th. In other words, drone companies perceive local politics as more of a challenge than international dynamics.

Finally, **finding qualified personnel** climbed slightly from 7th to 6th place. Meanwhile, **logistics** was ranked as the least important challenge of 2023 but grew slightly in importance in 2024.

A black and white drone with four propellers is positioned on top of a cardboard box. The box is placed on a larger, flat cardboard surface. The background shows a long, narrow aisle in a warehouse or storage facility, with stacks of cardboard boxes on the right and a dirt or gravel path on the left. The sky is overcast and grey. A white text box is overlaid on the right side of the image.

With more rules being implemented and taken into effect around the world, regulation is perhaps starting to be seen as less of a [negative] “challenge” and more of a [positive] “market driver”.

DRIVING FACTORS IN A DYNAMIC MARKET

The survey determined that the top market-driving factor, according to participants, is once again **rule-making authorities**. The share of participants who considered rule-making authorities as the *top market drivers* increased from 52% last year to 57% this year. In other words, regulation remained the *top challenge* (previous page), but with [more regulations being implemented](#) and taking effect around the world, regulation is perhaps starting to be seen as less of a [negative] “challenge” and more of a [positive] “market driver”.

This year, the slightly higher representation of **hardware manufacturers** also translated into higher perceived importance (51%). As noted last year, hardware manufacturers have seen increased importance in the two years when China was a major participant in the survey (2021 and 2023), and this year, perhaps due to higher participation from India, among other factors.

Ever since the first survey in 2018, the perceived importance of **Drone operators/DSPs** has steadily increased. They remain in

third place this year, though the gap between them and manufacturers is slightly higher than last year.

Software manufacturers are again in fourth place but received the lowest score they have ever had (26%). Curiously, there is a very clear pattern of yearly zigzagging (i.e., decrease, increase, decrease, etc.) in their reported importance.

Organizations of safety concepts (e.g., JARUS, ASTM) remain rather low (19%). However, it is essential to reiterate that these organizations focus on *safety concepts and design* rather than *safety oversight and enforcement*, meaning they have little enforcement authority.

The importance of **drone associations** reached its lowest point since being added as an option in 2022. Market-driving factors in the “other” category (6%) include customers/end-users, workforce training, adoption of BVLOS, media, technology applicators, etc.

What are the most important market-driving factors?
(Multiple selection possible)

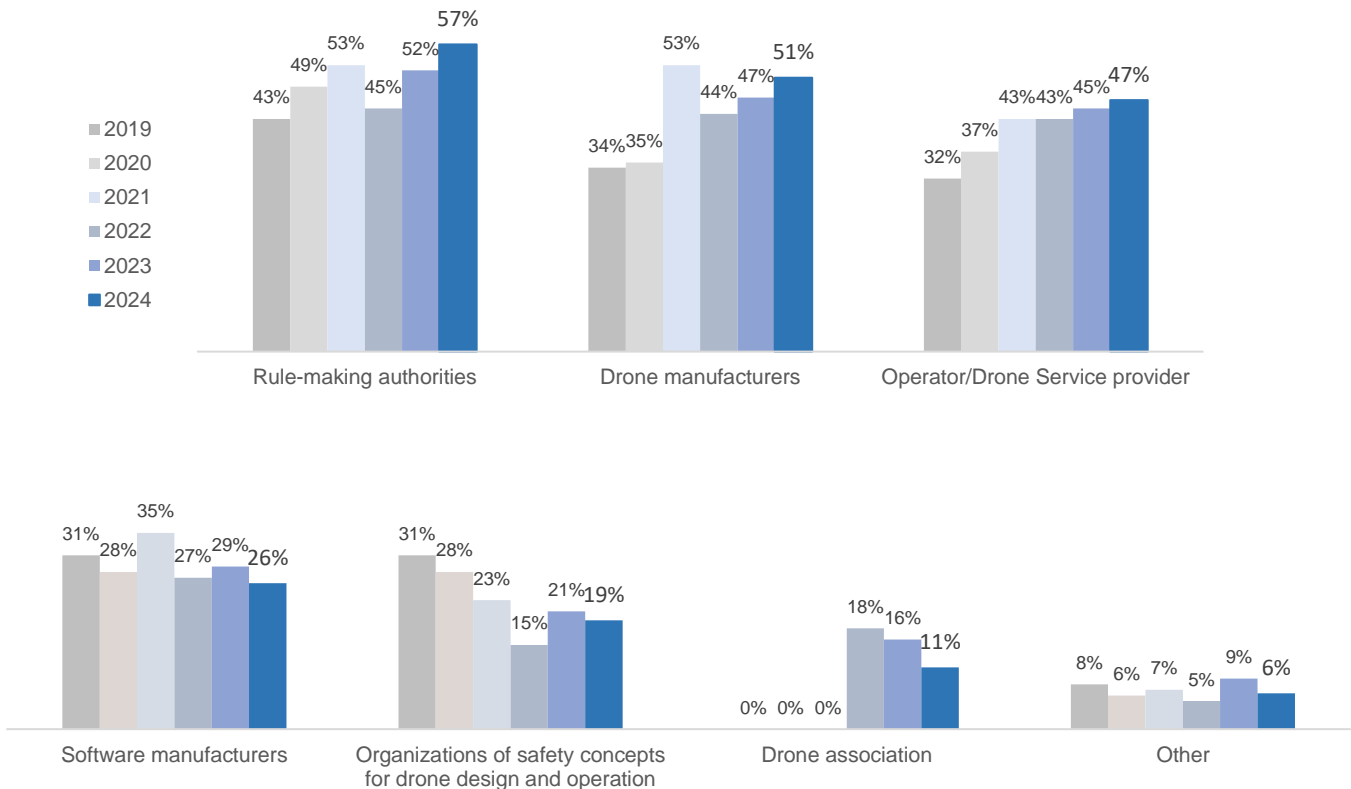


Fig. 10: Survey Respondents’ Assessment of the Most Important Market-Driving Actors in the Drone Industry (multiple answers possible; n=845)

¹Drone Association was included as an option in industry barometer survey since 2022.

PARTNER DRONE EVENTS AND DISTRIBUTION PARTNERS

Finally, the team at Drone Industry Insights would like to sincerely thank all of our partner drone events and distribution partners. The steady supports from these leading drone organizations has allowed the survey to reach more than 1,000 drone companies from over 90 countries. This survey provides

a yearly opportunity to bring global drone companies together to measure a state of the industry, and we are proud to collaborate on this with these renowned organizations. If you are a drone event or drone media interested in establishing a partnership for 2025, please reach out to us at info@droneii.com.



Supporting Partners for Survey Distribution in 2024



ABOUT DRONE INDUSTRY INSIGHTS

Drone Industry Insights is the leading market research and consulting company for commercial drones, advanced air mobility, and electric aviation. Our core business is monitoring and analyzing drone companies' activity and creating new knowledge in the field of unmanned systems. Our comprehensive understanding of the commercial drone market combined with a global view enables us to create a wide range of industry reports and bespoke market studies.

The DII team combines over 40 years of experience in manned and unmanned aviation and other relevant industries.

This report is based on a survey conducted from the beginning of May 2024 until mid-July 2024 and distributed by industry partners, drone coalitions, alliances, conferences/events, and initiatives around the world. We are deeply grateful for the support from all of our partners for this year's survey, who help ensure that this unique report reaches all corners of the globe.

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DRONE MARKET REPORT 2023-2030



- Extensive 227-page drone report with in-depth analysis, industry definitions, & seven-year forecast
- Market size by region, country, industry, and method, unit sales
- Insights into regulation, trends, and emerging technologies
- Exclusive deep-dive into the top drone markets: Australia, Brazil, Canada, China, France, Germany, India, Japan, the UK, and the USA

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