
The Drone Industry Barometer 2019

Consolidating New Trends and Perspectives of the Commercial Drone Industry

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Created together with:

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GLOSSARY

BIS	Business-Internal Services
DSP	Drone (as a) Service Provider
E2E	End to End solution - a bundle of hardware and software
UTM	Unmanned Traffic Management
eVTOL	Electric Vertical Take Off and Landing platform - also know as air taxi, flying car, etc.

EXECUTIVE SUMMARY

This survey highlights a variety of challenges that the drone industry continues to face, as well as the changes in perspectives compared to 2018. These range from complicated and constantly changing drone regulations, to market growing pains. The key difference between this year's Drone Industry Barometer, and last year's is that instead of focusing purely on Europe, this year's barometer addressed the global drone industry.

Having gathered data from over 500 respondents from 74 countries, we now have broader and more thorough barometer results than ever before. Besides a changing geographical nature of the respondents, their focus within the industry is also different. Whilst almost 40% of last year's respondents were hardware manufacturers in 2018, this year less than 15% are hardware companies. This does not reflect drone market shares, but should be kept in mind when assessing the survey results.

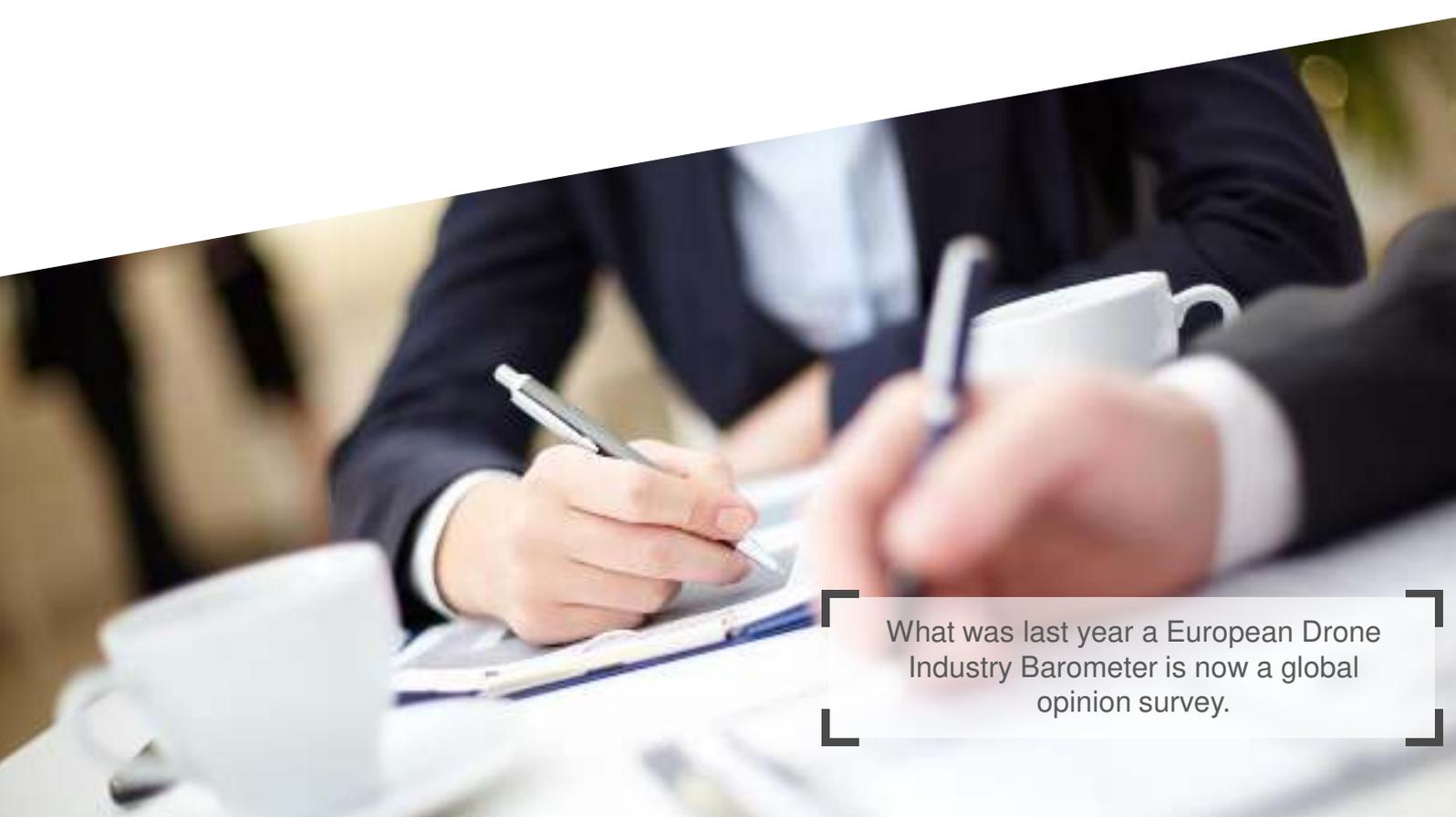
Participants from the service segment which provide services using drones (Drone as a Service Providers and Business Internal Services) were asked about what purpose they use their drones for. The results revealed that while inspections and

mapping tend to be tasks that are commonly outsourced to service providers, surveying and monitoring are more likely to be done in house.

Meanwhile, when asked to reflect on the past year, respondents were more negative in 2019 than last year. This partly reflects a relatively rough year for the drone market as it consolidated, leaving some companies behind. When it comes to the next year, respondents were also (possibly as a result of a poor year) more pessimistic this year than in 2018. It remains to be seen whether these adjusted expectations will provide for a more satisfied drone industry in 2020.

When it comes to resource allocation, product development appears to have suffered funding cuts as more and more money is now being spent on marketing and sales by drone companies. This reflects a market maturity, as the market is now inhabited by many products and services which have to be sold.

Finally, when asked about market driving actors in the drone industry, respondents revealed that E2E solution providers and drone regulators will play a pivotal role in the industry in the coming years.



What was last year a European Drone Industry Barometer is now a global opinion survey.

A GLOBAL DRONE INDUSTRY BAROMETER

The second edition of the DRONEII Drone Barometer intends to show changes in the opinions and perceptions of drone companies towards the drone market. To do so reliably, a wide-ranging set of participants was crucial. To ensure the quality of responses together with our partners, INTERAERIAL SOLUTIONS, we only elected first-hand

contacts (subscribers and exhibitors) as opposed to mass audiences on social media.

As a result, we were able to increase the number of survey participants by 44% to 507. Not only do the responses reflect the growing global drone community, but they also reflect the demand for greater transparency and highlighting of challenges in the drone market.

Survey Responses by Country

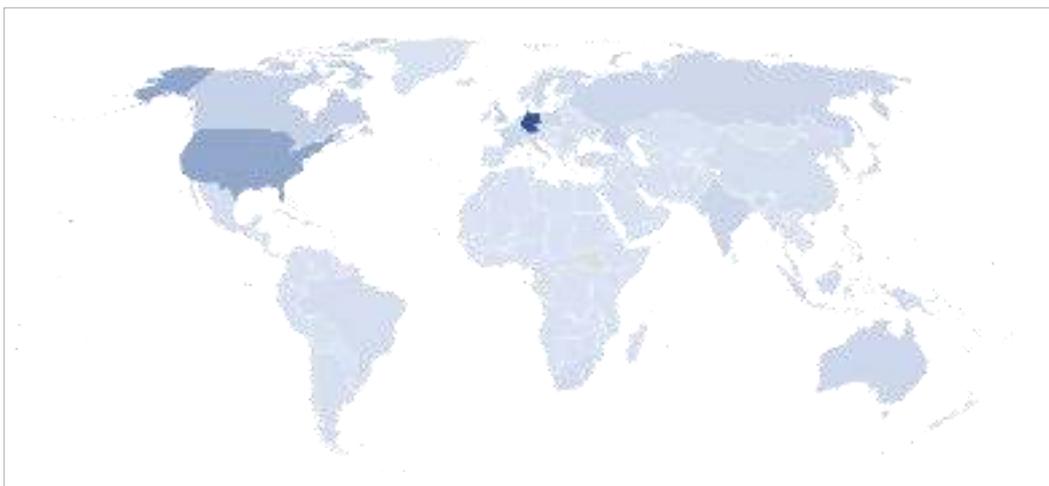


Fig. 1: Map of Drone Industry Barometer Survey Respondents

Top 10 Most Represented Countries in the Survey

	Germany
	United States
	Switzerland
	United Kingdom
	Canada
	India
	Israel
	Australia
	Netherlands
	Italy

Fig 2: Most Represented Countries on Drone Industry Barometer Survey

The Drone Industry Barometer Survey was carried out throughout April 2019, using distribution lists of both DRONEII and INTERAERIAL SOLUTIONS. Unlike last year's survey which focused on Europe, this year we surveyed a global audience.

The population of the survey changed not only in absolute terms, but also in terms of proportions of segments within the population. The service portion of the market largely increased: from 55% in 2018 to >70% in 2019. Meanwhile, the portion of hardware manufacturers has significantly decreased (from 38% of 2018 to 14% in 2019).

The largest share of answers (~70%) came from Europe – it is important to remember that this bears no relationship to market shares (see the [Drone Market Report](#) for those figures).

Survey Respondents by Segment

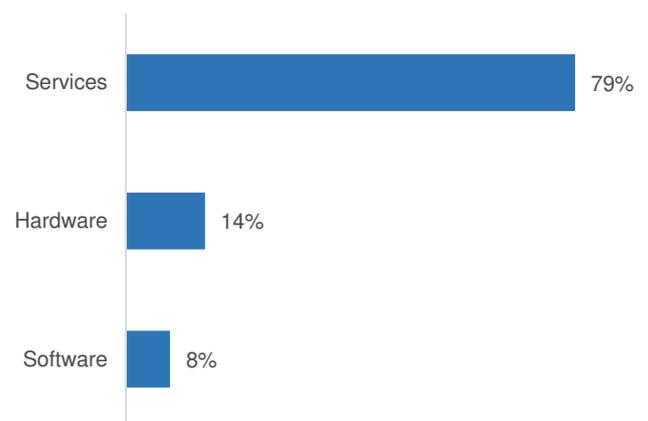


Fig. 3: Survey Respondents by Drone Industry Segment

Definitions

Hardware: Platform and components, counter-drone system and eVTOL manufacturers, etc.

Software: Manufacturers of software for flight planning, UTM, fleet & operation management, data analysis, etc.

Services: Drone-as-a-Service providers, drone operators for business-internal services, training, education, insurance, research, engineering, resellers, maintenance, etc.

While mapping and inspections are usually outsourced to DSPs, surveying and monitoring jobs are mainly kept in-house.



DRONE APPLICATION METHODS

In the [first edition](#) of the drone barometer all survey participants were asked for what applications they deploy drones, with the possibility of multiple answers. This year we only asked business-internal services or service providers for what purposes they deploy drones.

We asked questions to two categories within the services segment: the first category is Drone Service Providers (DSPs) (third party service companies, which only offer drone services to clients from all kinds of industries, e.g. energy, construction). The second category is Business-Internal Services (BIS), which are mainly enterprises who only operate drones in-house and do not offer services to third parties.

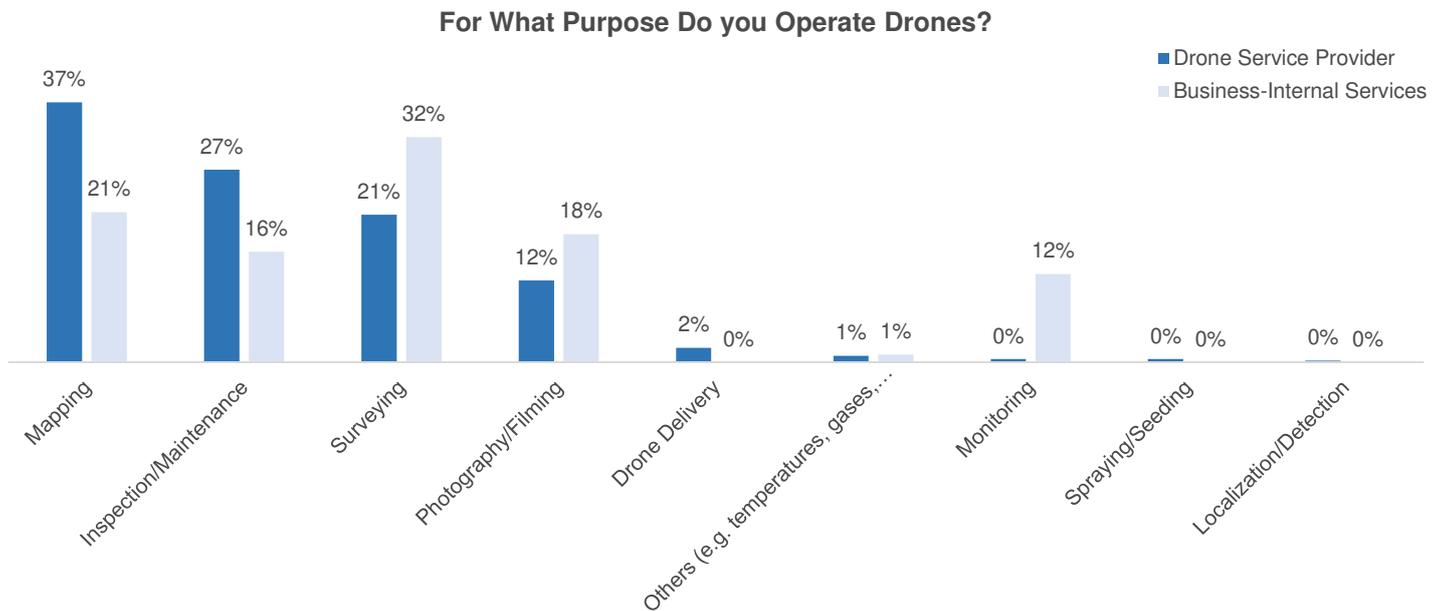


Fig. 4: Application Methods Used by Drone Service Providers vs. Business-Internal Services

Together, surveying and mapping make up over 50% of drone application methods employed by both DSPs and internal services.

As the graph above shows, surveying is common in business internal services than amongst DSPs. This is because surveying results are often critical and companies want to keep control over this data.

Meanwhile, mapping is more popular amongst DSPs than business internal services. This is because as drone application methods go, mapping is amongst the simplest tasks used for acquiring no critical data. As such it has become a common outsourced service in the drone industry.

Maintenance tasks in general tend to be outsourced. Drone-based inspections require expert knowledge and experienced pilots.

Drone delivery is still an application method in its infancy, largely due to regulatory constraints. However, as this component of the drone industry is expected to grow, it is very likely that drone delivery service providers will increase in number.

According to the responses, monitoring missions are exclusively carried out by business internal services, and not at all by drone service providers. This is because monitoring as a very operational application of drones is done in-house to acquire data on an ad-hoc basis.

Monitoring

Close observation of a given objects on a regular basis to check its progress or quality over a given period of time.

An aerial photograph of a cable-stayed bridge. The bridge has a central pylon and two side pylons, all supported by a central concrete structure. The bridge spans a river and a multi-lane highway. The cables are a light green color. The text is overlaid on a semi-transparent white box in the upper left quadrant of the image.

Following peak hype reached in 2017, the drone industry is currently in Gartner's Trough of Disillusionment.

BEYOND THE HYPE

Recent activities on the drone market show that competition has increased. During the peak hype phase (2 to 3 years ago) many hardware, software and service companies entered the drone market, especially on the hardware and service segment. Following the Gartner Hype Cycle, a peak of inflated

expectations is followed by a trough, which is exactly what occurred with the drone market the last years. Today the drone market is making its way up out towards the Plateau of Productivity.

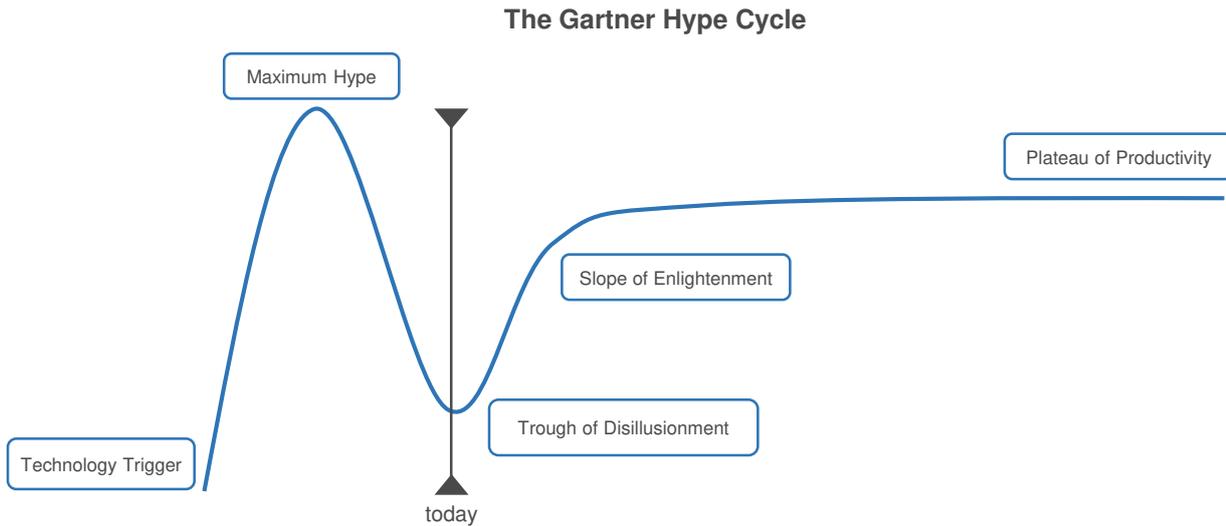


Fig. 5: The Gartner 'Hype' Cycle

The Trough of Disillusionment is also the proof of concept phase for both manufacturers and service providers. Here, they are under significant pressure to offer viable products and services. Uncompetitive hardware landed in the warehouses and not with the customers (3D Robotics, Lily Robotics, etc.), business models were not focused enough (Airware) or did not meet the customers expectations.

Due to a major hype around the drone market and low entry costs there was a huge increase in the number of companies offering drone services. This meant that in some cases the quality was compromised and in other cases the expectations were inflated (thanks to peak hype). The combination of these two meant created a disillusioned environment. The industry's views about the short-term development retrospectively and prospectively show the following trends.

How has the market developed in the last 12 months?

(1: dramatically falling - 10: strong sales growth)



Fig. 6: Survey Respondents' Assessment of the Market Development in the Last 12 Months

To assess last year's development, we asked participants about their sales, whether products or services, and reflected the results on a scale of 1 to 10 (1 being the worst, and 10 the best outcome). On average, most respondents noted that the market had improved in the past year (5.9).

However, they were notably less positive than in 2018 (6.6). One reason for this is that competition further increased and methods became more advanced. Companies had to specialize and often struggled with the competitive environment and more demanding customers.

BEYOND THE HYPE

Granted, there are some exceptions. Counter-drone companies were particularly positive about drone market development in the past year (7.1).

This is partly due to the hype created by major airport incidents caused by drones. It also shows that the drone market has matured enough to create a significant demand for counter-drone solutions.

eVTOLs, another new addition, were particularly pessimistic about drone market development in the past year (4.0). This is totally organic, because these companies won't enter the market for a few years. If anything, their prominence and popularity is pushed on the political level as plans for 'smart cities' are forged and begin being implemented. This means that as of now, there is a hype around eVTOLs, but not pressure to deliver.

How has the market developed in the last 12 months?

(1: dramatically falling - 10: strong sales growth)

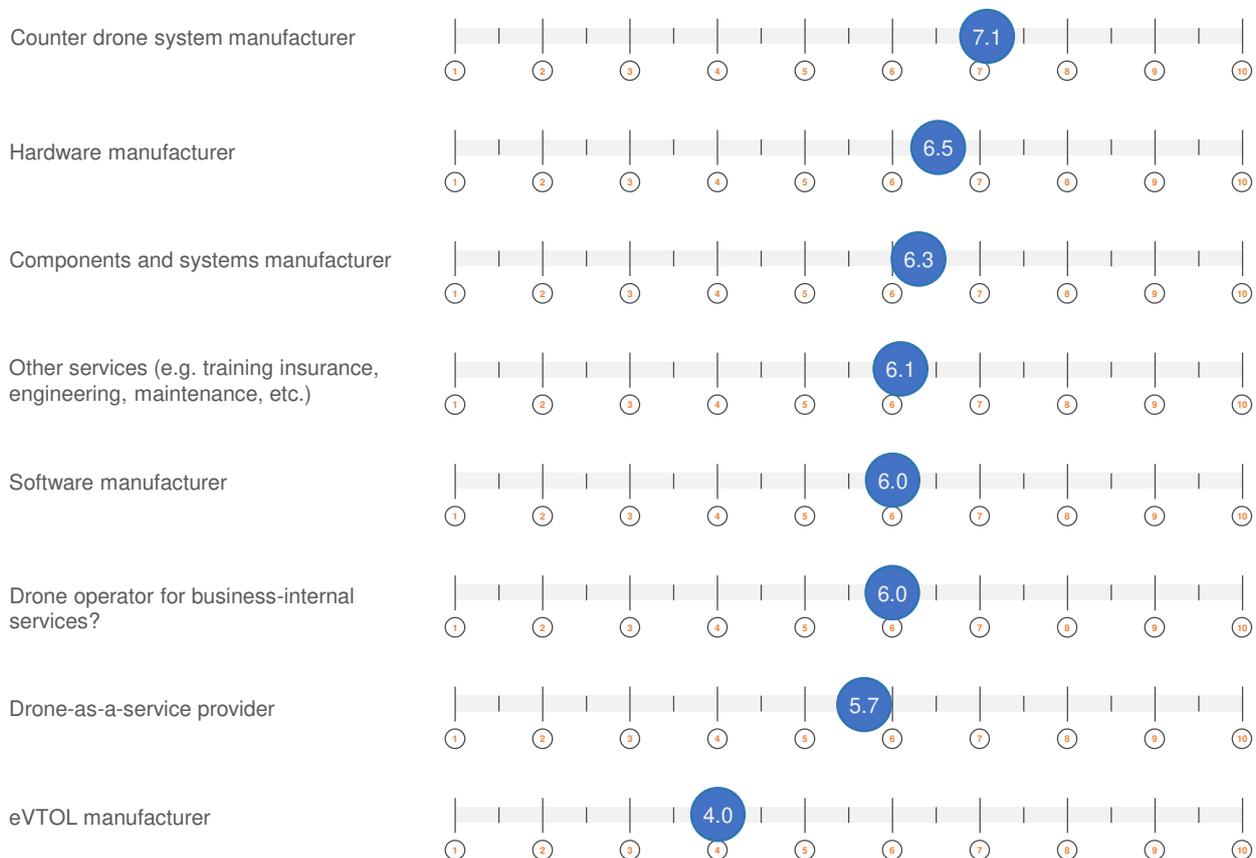


Fig. 7: Survey Respondents' Assessment of the Market Development in the Last 12 Months by Drone Industry Sub-Segment

In addition to asking drone companies to reflect on the past 12 months, we also asked them about what their obstacles are on the drone market. The particularly pessimistic eVTOL manufacturers listed public acceptance, regulatory barriers and lack of funding to develop their products as the biggest obstacles to their work. All of these obstacles exist in the broader drone industry, but eVTOLs face them the most as not only are their products particularly expensive to develop and manufacture, but society is more vary of them because they

intend to carry humans.

Our survey shows that apart from eVTOL manufacturers, companies offering products as opposed to solutions have had a better year. Once again when asked about what their main obstacles were, service companies listed regulatory issues. These obstacles are more likely to affect service as opposed to product-oriented companies as they have to deal with them more directly.



Counter-drone companies are the most optimistic about the next year, partly as their business is booming in the wake of airport security breaches.

CAUTIOUS OPTIMISM

Whereas on the previous page we gathered insights on the last 12 months to show the actual development, fig. 8 provides an insight into the coming year. Compared to expectations in 2018, the drone industry is now more pessimistic about the future of the drone market. How come? These expectations are commonly influenced by various factors and events in the market, especially on the customer side.

Thus, compared to 2018, for better or for worse the positive developments did not heavily outweigh the negative factors.

As the comparison of our surveys shows, last year's expectations were not met. As a result the expectations for the next year have decreased from 7.3 (2018) to 6.6 (2019). The change reflects more realistic expectations, which could also mean a much more satisfied drone industry in 2020.

How do you expect the market to develop in the next 12 months?

(1: dramatically falling - 10: strong sales growth)

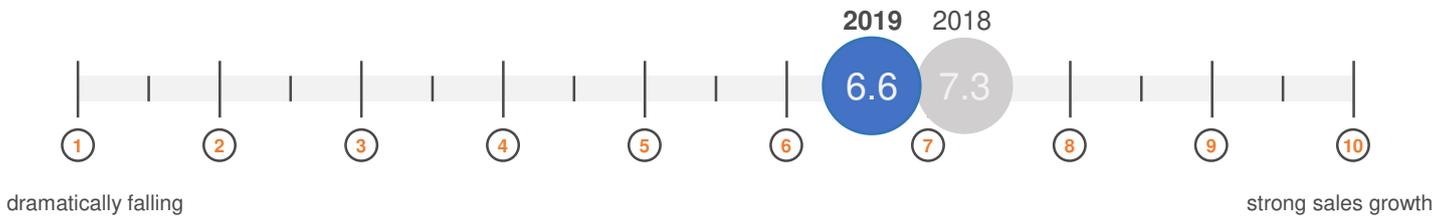


Fig. 8: Survey Respondents' Expected Market Development Over the Next 12 Months

💡 DID YOU KNOW?

The most sought after role on the drone job market is that of a software engineer.

India has the fastest growing drone market in the world. It only legalized drones in December 2018, but the world is already taking notice.

Drone delivery companies have had a notoriously difficult time in getting permissions to operate. This year the drone delivery company Wing got the first FAA approval to use drones for deliveries in Virginia, USA.

Inspections and mapping are the most popular uses of drones.

There have been 60+ mergers and acquisitions in the drone industry in the last three years.

Artificial intelligence is already being used to create data analytics software which will efficiently analyze the mounds of data points collected by drones.

CAUTIOUS OPTIMISM

Much like being the most satisfied with the past year, the counter-drone market is also most optimistic about the upcoming year (7.8). Interestingly, hardware manufacturers are not as pessimistic as the current market consolidation shows (shutdowns like Aria Insights).

Overall manufacturers, be it of software, hardware, or components, appear to be more optimistic about the future than drone service companies. Not taking into account the young

eVTOL market, manufacturers averaged at 7.3 in terms of expectations. Service companies, on the other hand, averaged at just 6.6.

Overall, manufacturers are more optimistic about the future as their products are becoming more and more competitive, especially with the introduction of end-to-end solutions. Meanwhile, as the market consolidates it is the service segment of the drone industry that still have a lot of heavy-lifting to do.

How do you expect the market to develop in the next 12 months?

(1: dramatically falling - 10: strong sales growth)

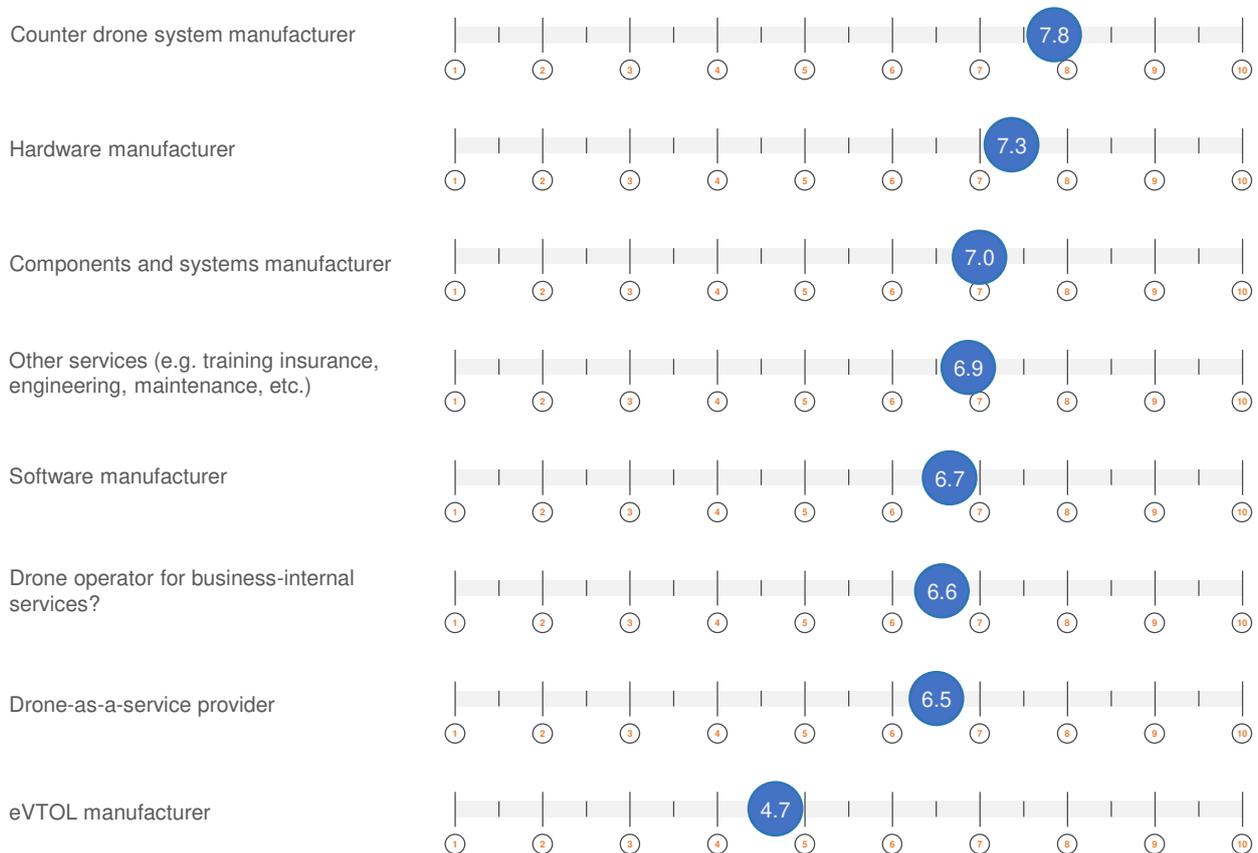


Fig. 9: Survey Respondents' Expectations of Market Development in the Next 12 Months by Drone Industry Sub-Segment

💡 DID YOU KNOW?

The drone market is expected to triple in the next five years.

The service segment makes up the largest part of the global drone market.

EXPECTATIONS VS. REALITY

Comparing the expectations from last year and the reflections on the same year now, there is a clear gap. Business was not as good as expected for many in the drone industry.

What we learn from the below comparison is that while the industry was very optimistic about the coming year last time (7.3) when they reflect on it now they are not as positive (5.9).

Comparison of Retrospective Analyses of the Drone Market with Prospective Ones

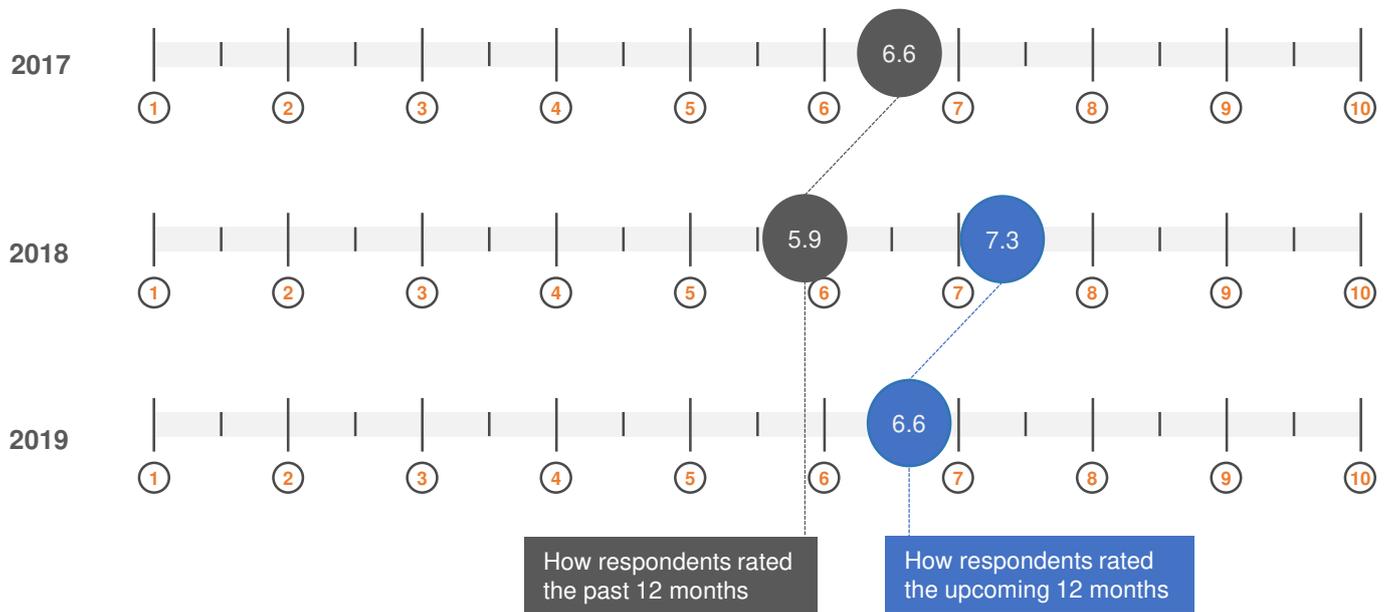


Fig. 10: Survey Respondents' Expectations of Market Development in the Next 12 Months and Their Reflections on the Past 12 Months

Regardless of the year there appears to be a pattern between high expectations and more somber evaluations of reality. Each year the expectations were on average whole 0.7 points higher than the retrospective reflections.

Last year respondents reflected rated their past year 6.6 on average, but they expected their next year to be 7.3. This year

when respondents reflected they rated the past 12 months at 5.9 yet they rated their prospects 6.6. Such a pattern is common in an optimistic new market.

This indicates that the past 12 months were more difficult for the drone industry than the preceding year.

DID YOU KNOW?

Over \$3 billion have been invested in the drone industry since 2012.

The United States has the biggest drone market in the world.

Drone companies are increasingly spending their funds on marketing and sales as opposed to product development.



RESOURCES

Resources of any kind are there to create a company or product. Unfortunately, resources are limited. In order to achieve the most efficient and economically optimized use of

resources, they must be meaningfully distributed. The resource distribution plans of drone companies are shown on the chart below.

What will you prioritise in your resource spending in the next 12 months?

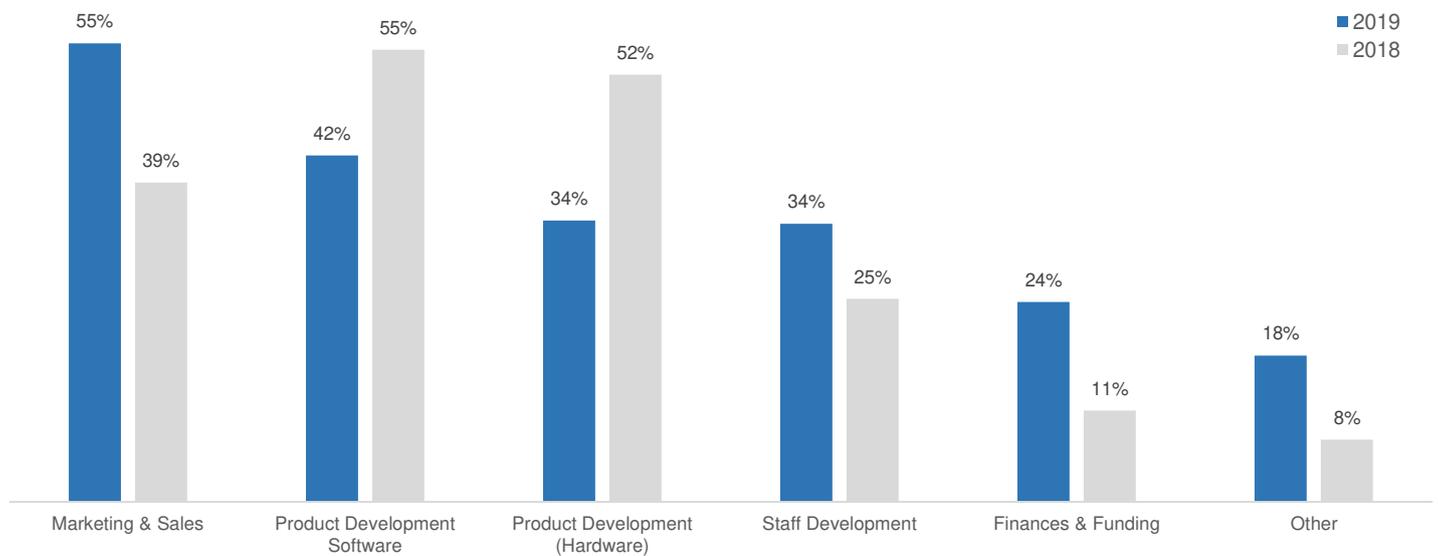


Fig. 11: Survey Respondents' Answers to What They Allocate Their Resources To

The most notable change in resource allocation is the increase in efforts put towards marketing and sales. This is a sign that the drone market has matured enough so that the competition between companies is no longer on delivering the best product, but on actually marketing and selling it to the customer. By the large, the result fits in with the DRONEII study of the drone job market, which has an increasing number of marketing & sales positions opening up in the past two years. Product development funding has decreased, signaling that many established companies have now consolidated their products and are focused on increasing sales.

Spending plans are clearly becoming more and more people oriented. The main increases in resources spending from 2018 to 2019 appear to be in marketing & sales and in staff development.

This largely reflects the fact that the product development legwork has been done already. While this in no way suggests that product development spending will stop, the drone industry is certainly at a point where it needs to invest more in public relations, sales and advertising of its products. This also matches DRONEII's conversations with industry members over the past years. Executives are increasingly reporting that they're looking to hire new marketing and sales associates.

Drone companies' apparent struggle to sell their products can also be put down not only to lack of stuff, but also price pressures and the remaining time to adoption (i.e. companies offering pre-emptive solutions). deploying drones, not mature drone solutions yet)

PRIORITIES FOR THE NEXT 12 MONTHS

Breaking down the answers by sub-segment reveals patterns of budget planning and spending and how they differ by company type.

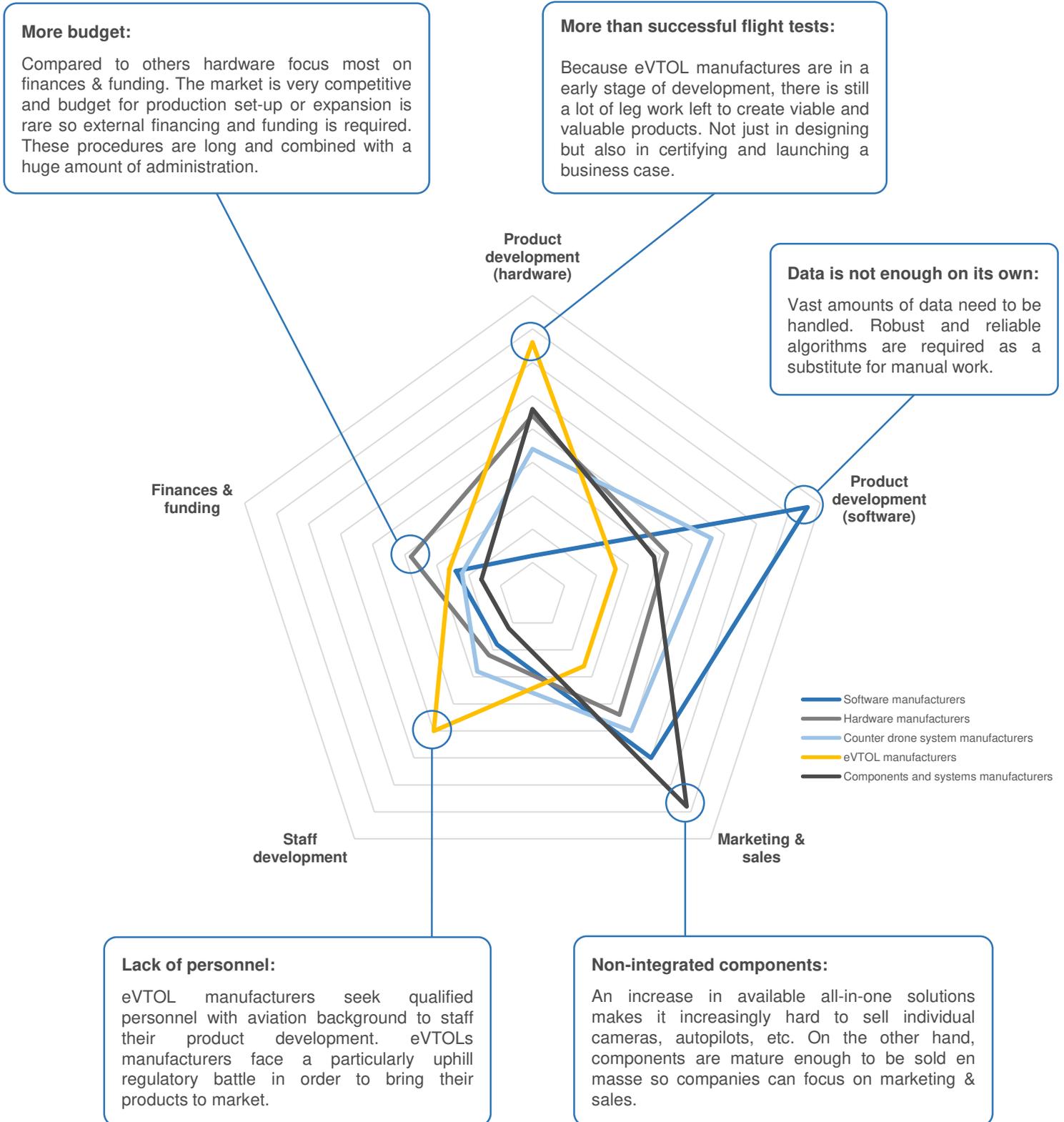


Fig. 12: Survey Respondents' Resource Allocation According to Industry Sub-Segment 2019



Rule-making authorities are seen as one of the most important market-driving actors in the drone industry.

DRIVING FACTORS IN A DYNAMIC MARKET

Of course, all participants have the goal to establish themselves on the drone market or at least to enter it. Much like a year ago, there is still major room for progress both in technological and regulatory conditions. So what do the participants see their hopes for an improvement in the current (admittedly not so poor) situation? Which factors are decisive for their further success?

When asked who the most important market-driving actors are in the drone industry, most respondents selected E2E manufacturers and rule-making authorities.

The fact that E2E solutions providers are seen as the most important market-driving actors reflects that the industry sees E2E solutions as the future of drones. The ability to provide all-in-one solutions is increasingly proving to be the tipping point for drone adoption and the industry is aware of that. This has led to an increase in the number of partnerships over the years, as specialists (e.g. platform manufacturers and software manufacturers) have begun collaborating in order to offer the most comprehensive and competitive solutions on the market.

Meanwhile, the drone industry clearly recognised regulators as the second most important market-driving actor. This reflects the industry's growing frustrations with strict and/or unclear rules and guidelines. In fact, when asked about the greatest hurdles to their business many responded with complaints about regulations either not reflecting the current direction of the drone industry, or the regulatory environment being too opaque. The relationship between good drone regulation and good business is clear and future regulations and standards will most definitely play a major role in the development of the industry.

Compared to 2018, most options decreased in their share of responses as 'rule-making authorities' were only made an option this year. The two actors that still got slightly higher portions of votes this year were drone service providers (from 20% to 32%) and providers of safety concepts for drones (from 17% to 19%). Providers of safety concepts for drones increased as a portion specifically as the demand for innovative counter-drone solutions and drone security systems increased following highly publicised airport security breaches earlier this year.

Who are the most important market-driving actors?

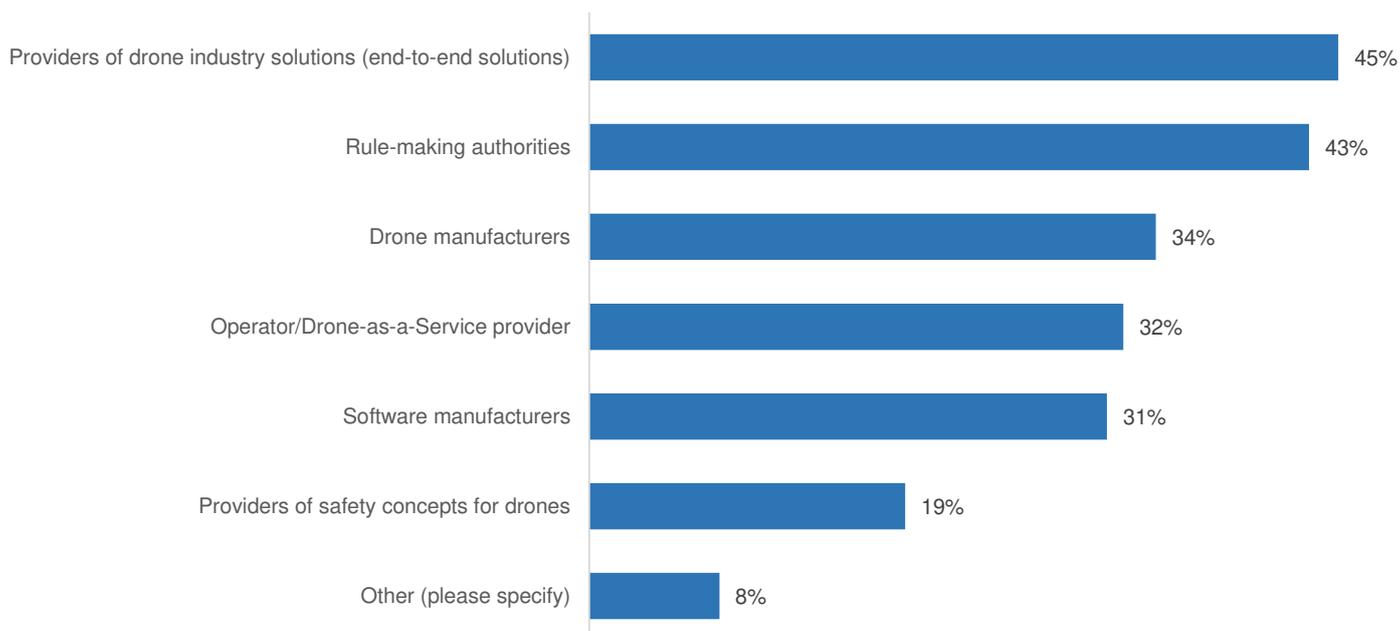


Fig. 13: Survey Respondents' Assessment of the Most Important Market-Driving Actors in the Drone Industry

ABOUT

DRONEII.COM
DRONE INDUSTRY INSIGHTS

Drone Industry Insights is a market research and analytics company based in Hamburg, Germany. We provide insights, competitive intelligence and market data for the commercial drone industry. Our consulting services range from operational issues up to corporate strategy solutions.



INTERAERIAL SOLUTIONS, consisting of an exhibition, forum & Flight Zone, is Europe's leading platform for unmanned aerial systems. It is held in a different location in Germany every year, as part of INTERGEO. The forum deals with current issues from politics, administration, science and industry. The outdoor Flight Zone offers live demonstrations of the various flight systems and thus delivers an all-round experience of products and the market. Next event: Stuttgart, September 17th-19th 2019

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