
The Drone Industry Barometer 2020

Consolidating New Trends and Perspectives of the Commercial Drone Industry

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Created together with:

HNT
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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 and 2019. These range from complicated and constantly changing drone regulations, to market growing pains and most recently the coronavirus crisis. The key difference between this year's Drone Industry Barometer, and in 2018 is that instead of focusing purely on Europe, this year's barometer, like in 2019, addressed the global drone industry.

Having gathered data from 697 respondents from 75 countries, we now have broader and more thorough barometer results than ever before.

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 2020 than in the past two years. 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 2019 or 2018. It remains to be seen whether these adjusted expectations will provide for a more satisfied drone industry in 2021.

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 as well as staff development. This reflects a market maturity, as the market is now inhabited by many products and services which have to be sold.

When asked about the impact of the coronavirus on their business, most respondents cited a negative effect such as drop in demand or staff layoffs. However, when asked about the long-term impact of the COVID-19 crisis on the drone industry, 54% of respondents were optimistic, expecting a positive overall impact.

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.



The Global Drone Industry Barometer gathered a record of 697 responses in 2020.

INTRODUCTORY FACTS OF THE DRONE INDUSTRY BAROMETER

Our 3rd annual drone industry survey took place in May 2020 to measure changes in the opinions and perceptions of drone companies towards the commercial drone market. Over the course of one month we collected 697 completed survey responses which represents a 37% increase compared to 2019 (507 completed surveys). The survey was distributed via our newsletter, as well as from our partner, INTERAERIAL SOLUTIONS and other supporting partners.

We received responses from 75 countries, with the USA leading having provided 110 responses alone. Most of the companies that responded, are small sized companies with less than 10 employees (53%), followed (22%) by companies with a size below 50 employees. The top 10 of the most represented countries (see table below) account for 60% of all answers.

Top 10 Most Represented Countries in the Survey

	United States
	Germany
	Spain
	United Kingdom
	Japan
	Denmark
	France
	India
	Switzerland
	Czech Republic

Fig 1: Most Represented Countries on Drone Industry Barometer Survey

Survey Respondents by Company Size

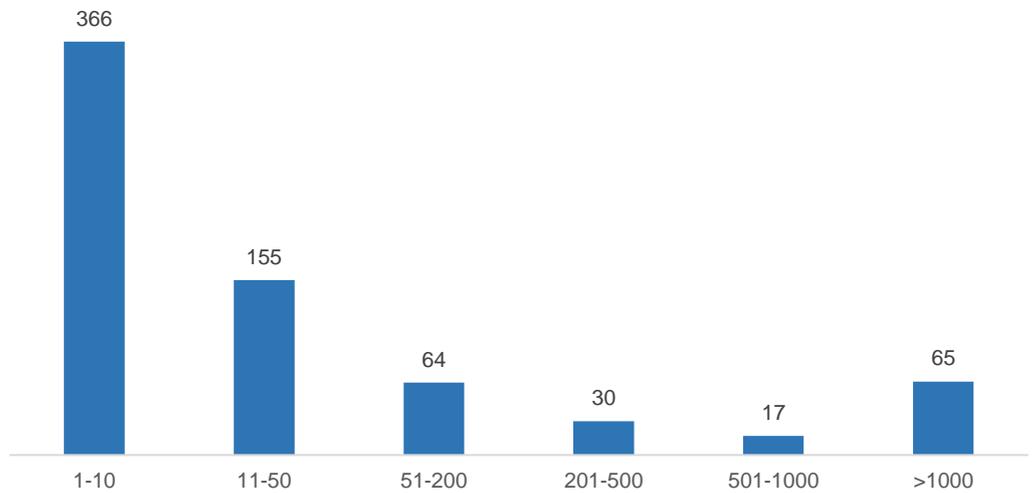


Fig 2: Company Size of Respondents

Survey Respondents by Segment

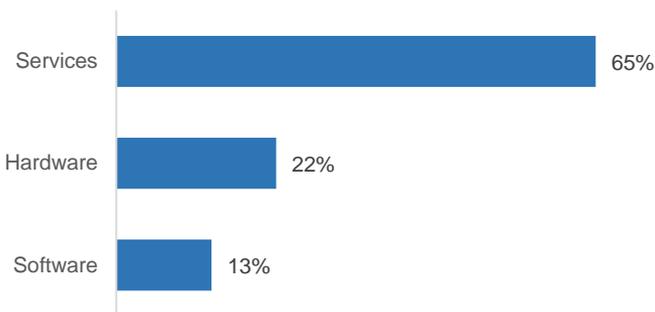


Fig 3: Survey Respondents by Segment

Several trends emerged among the pool of respondents. Firstly, the service portion of the market largely decreased: from 79% in 2019 to > 65% in 2020. Within it, the strongest sub-segment are drone service providers with an overall share of 41% followed by drone operators for business-internal services (15,7%) and software manufacturer (13%)

Meanwhile, the portion of hardware manufacturers has increased (from 14% in 2019 to 22% in 2020)

Finally, the software segment share nearly doubled from 8% in 2019 to 13% in 2020

The smallest of responses came from passenger drone manufacturers and the service sub-segments insurance and maintenance.

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 DSPs most commonly operate drones for inspection and mapping, business internal services use them for surveying and photography.

DRONE OPERATION METHODS

We asked companies from the two operational segments about their applied drone methods. A drone operation method describes the applied use case which is mainly defined by the combination of a specific sensor and data analytics software (mapping = optical sensor + photogrammetry software). The first segment is Drone Service Providers (DSP) (third party service companies, which only offer drone services to clients from all kinds of industries, e.g. energy, construction). The second segment is Business-Internal Services (BIS), which are mainly enterprises operating drones in-house and do not offer services to third parties. The most relevant findings are:

- Compared to last year's data, inspection/maintenance

replaced mapping as leading DSP method.

- Inspection/maintenance and mapping are the core business of DSPs, while surveying is by far the most used method of the BIS segment. An explanation could be that precise surveying requires stronger specific industry knowledge for better accuracy and is more difficult to outsource to DSPs.
- Spraying/seeding increased compared to last year due to regulatory changes and higher adoption by the agriculture industry.
- Other methods' shares remains equivalent to last year with only minor deviation.

For What Purpose Do You Operate Drones?

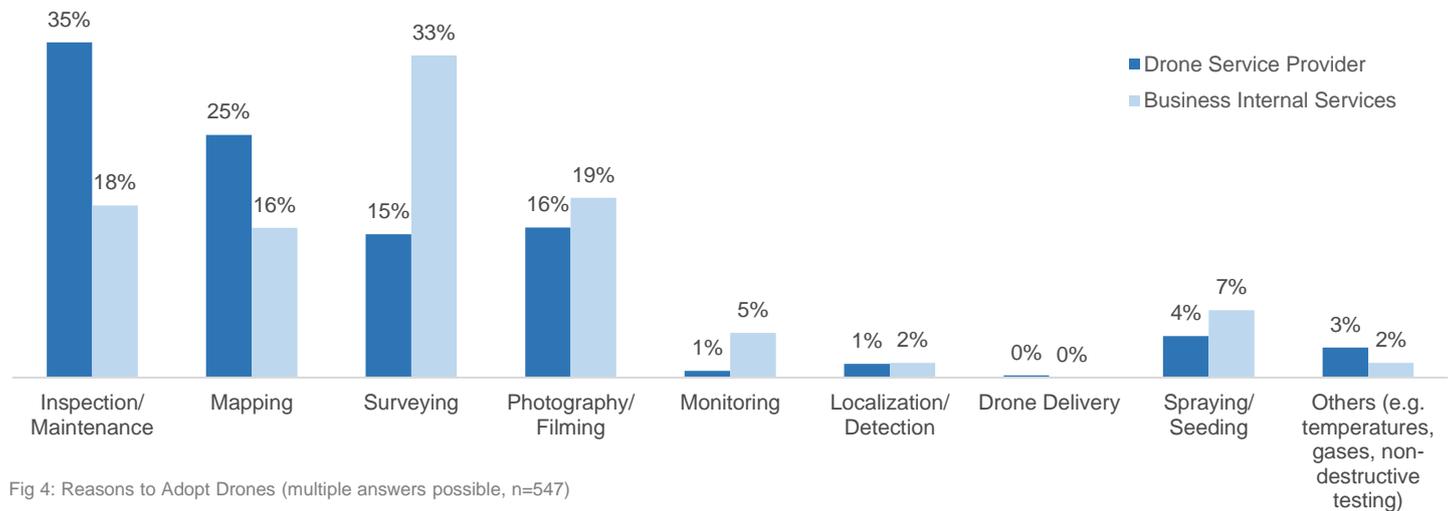


Fig 4: Reasons to Adopt Drones (multiple answers possible, n=547)

Reasons for Adopting Drones

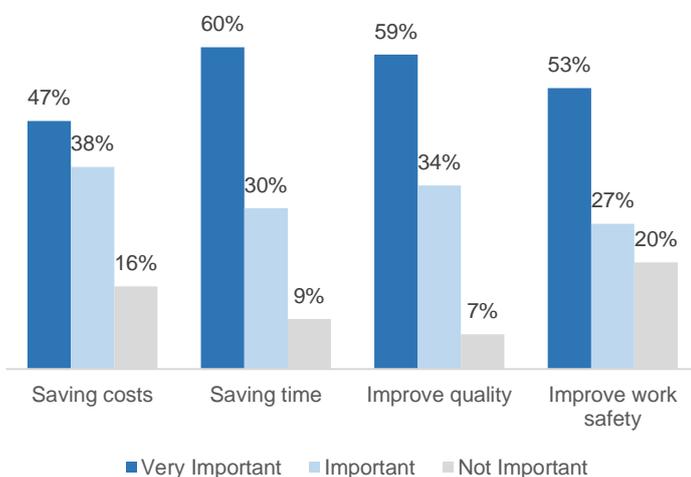


Fig 5: Reasons for Adopting Drones (n=227)

In this year's survey we asked the Business Internal Services segment about the main reasons for adopting drones.

Saving time (and therewith increase overall productivity) was mentioned as the most important aspect (60%), followed by increasing the quality of the result (59%).

Using drones to improve overall safety by bringing workers out of harms way (53%) is even more important than directly saving costs (47%)

Of course, all businesses are different (insurance, energy, agriculture, etc.), and the questioned aspects might apply more or less strong to the day-to-day use of drones. In many cases (20%), the drone seems not to have any direct influence on improving work safety.



As the drone industry matures, expectations and reality among companies are converging.

EXPECTATIONS VS. REALITY

Another aspect that the Barometer seeks to measure is companies' expectations of the drone market. Therefore, Figure 9 below shows the comparison of how the respondents' expectations match with the reality from different perspectives (ex ante vs. ex post of the respective year). The past three years of surveying show that each year, drone industry expectations somewhat decrease.

For example, respondents from 2018 were much more optimistic when it came to expectations for the next 12 months (7.3), than respondents in 2019 (6.6) and those in 2018 (6.3). Looking at the grey bubbles, which show how the respondents rated their past 12 months, suggests that expectations have been lowered due to poorer experiences.

Comparison of Retrospective Analyses of the Drone Market with Prospective Ones

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

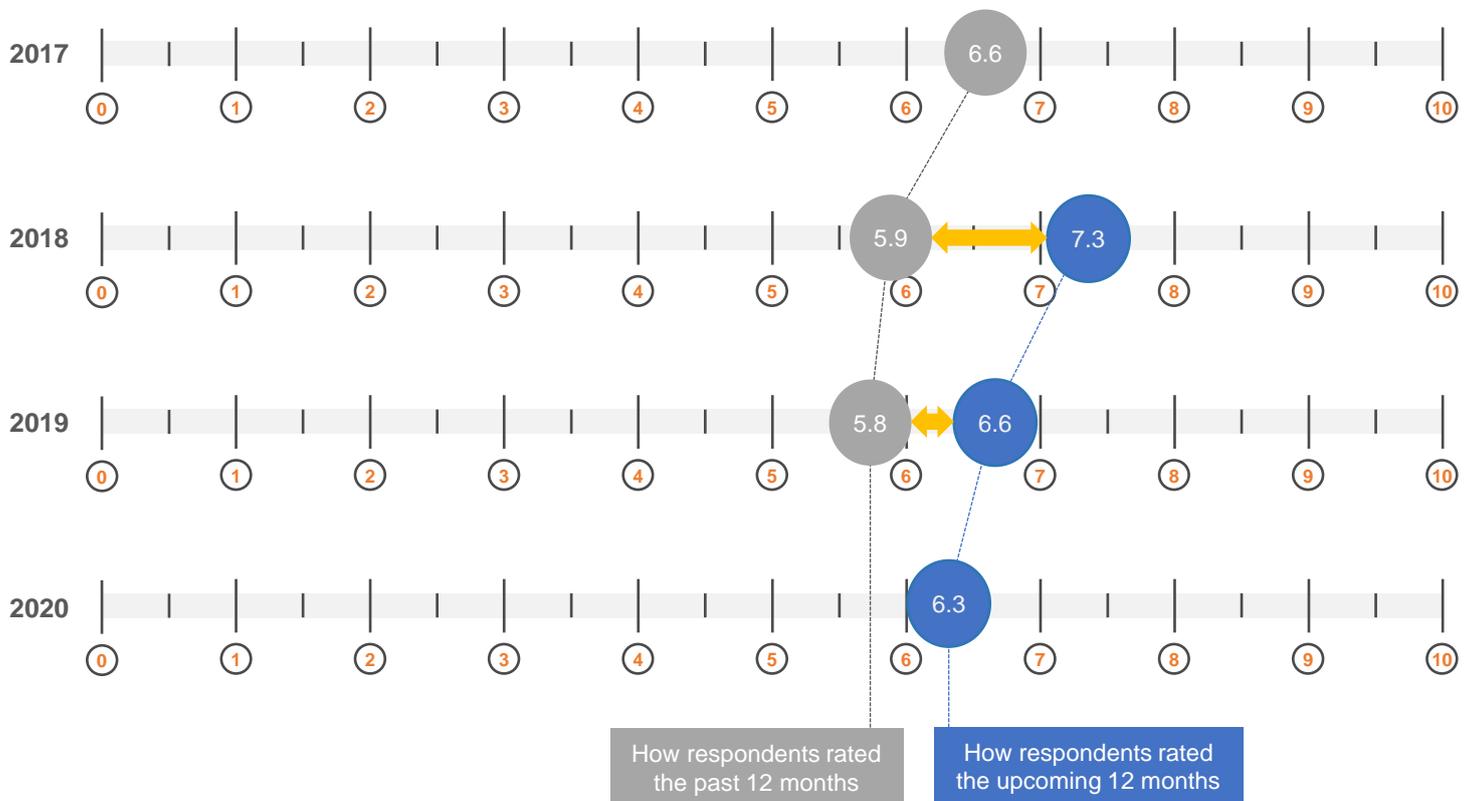


Fig. 6: Market Development in the Next 12 Months and Their Reflections on the Past 12 Months (n=705)

Another trend that Figure 9 showcases is that hard times, in some respects at least, are over – more specifically that expectations and reality are beginning to converge so that the gap between what companies think the next 12 months will look like and what actually ends up being their experience is lowering.

The more these numbers converge the more the drone market seems to be maturing and stabilizing. Of course, the desired

outcome in a future Barometer would be a scenario where the reality surpasses the expectations.

Overall, the Drone Industry Barometer 2020 shows that 2019 was still a challenging year, which did not match the expectations from last year.

Finally, the coronavirus crisis might also have an impact on the difference between expectations and reality so that it seems that in 2021 expectations and reality may converge.

MARKET DEVELOPMENTS BREAKDOWN

As mentioned, the last year was not easy – however, it was also not devastating. In the recap, most companies were not happy with the 2019 market development. The biggest drop can be seen in the counter-drone space. This market segment profited throughout 2019 from the hype to secure airports and other critical infrastructure (after a series of prominent drone incidents at airports in late 2018). In 2020, this hype has been replaced with a more rational conversation about how to handle airspace violations or similar situations.

Also lower than last year is the mood within business-internal drone operation. Reasons for this (amongst others) are the

difficulty of turning to digital business models as well as the inflexibility and limitations on the scale of operations imposed by the regulators.

On the upside, passenger drone manufacturers see the last year much more positively, since a lot of more attention and funding went into their projects.

Software manufacturers also benefited from drone technology adoption around the globe and the insight that a lot can be automated in the drone ecosystem and optimized in the workflow downstream (after data acquisition by the drone).

How has the market developed in the last 12 months?

(0: dramatically falling - 10: strong sales growth)
- Sorted from strongest to lowest expected growth -

● 2019
● 2020

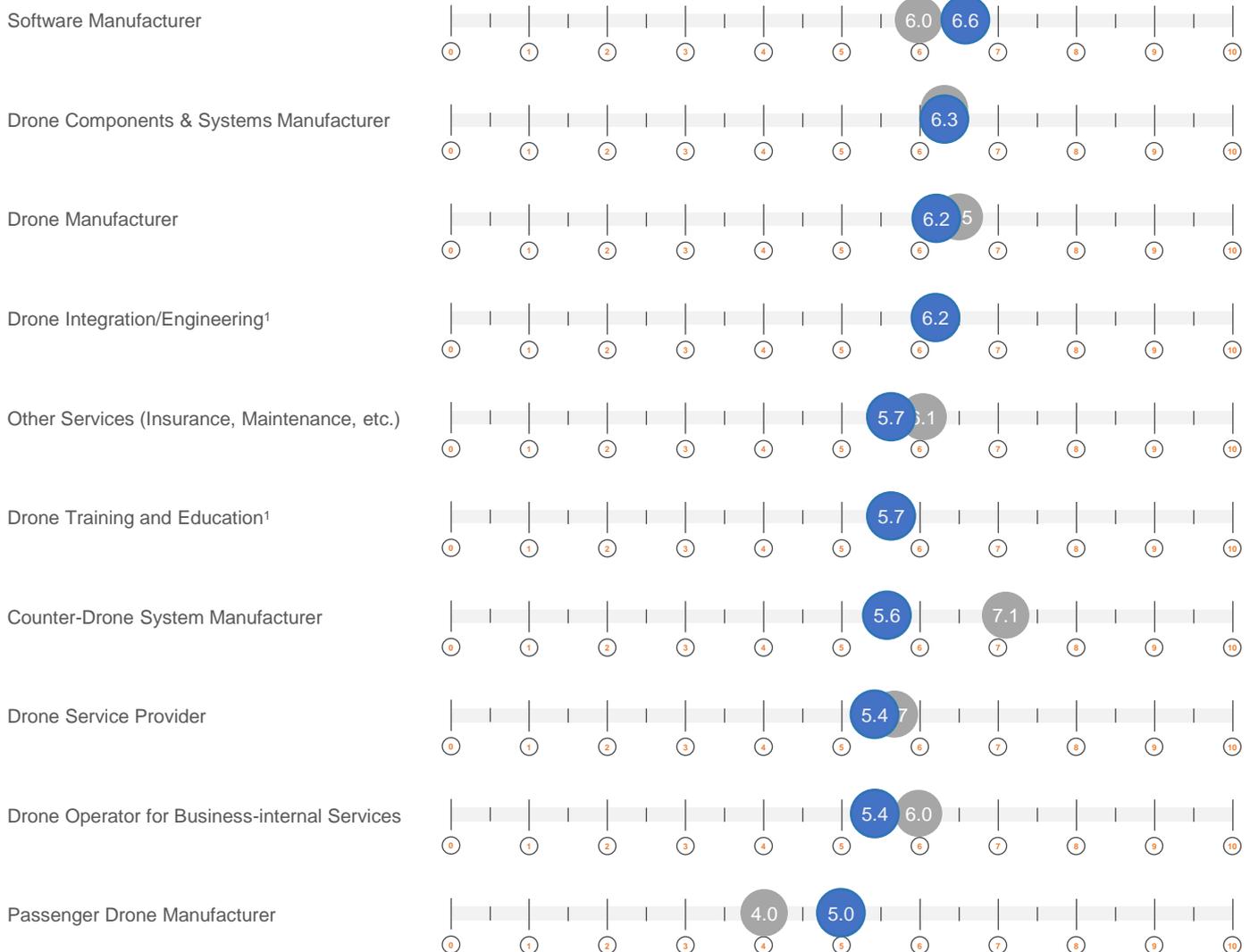


Fig. 7: Market Development in the Last 12 Months by Drone Industry Sub-Segment (n=705)

¹ these categories have no 2019 comparison data

MARKET DEVELOPMENTS BREAKDOWN

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

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

- Sorted from strongest to lowest expected growth -

● 2019
● 2020

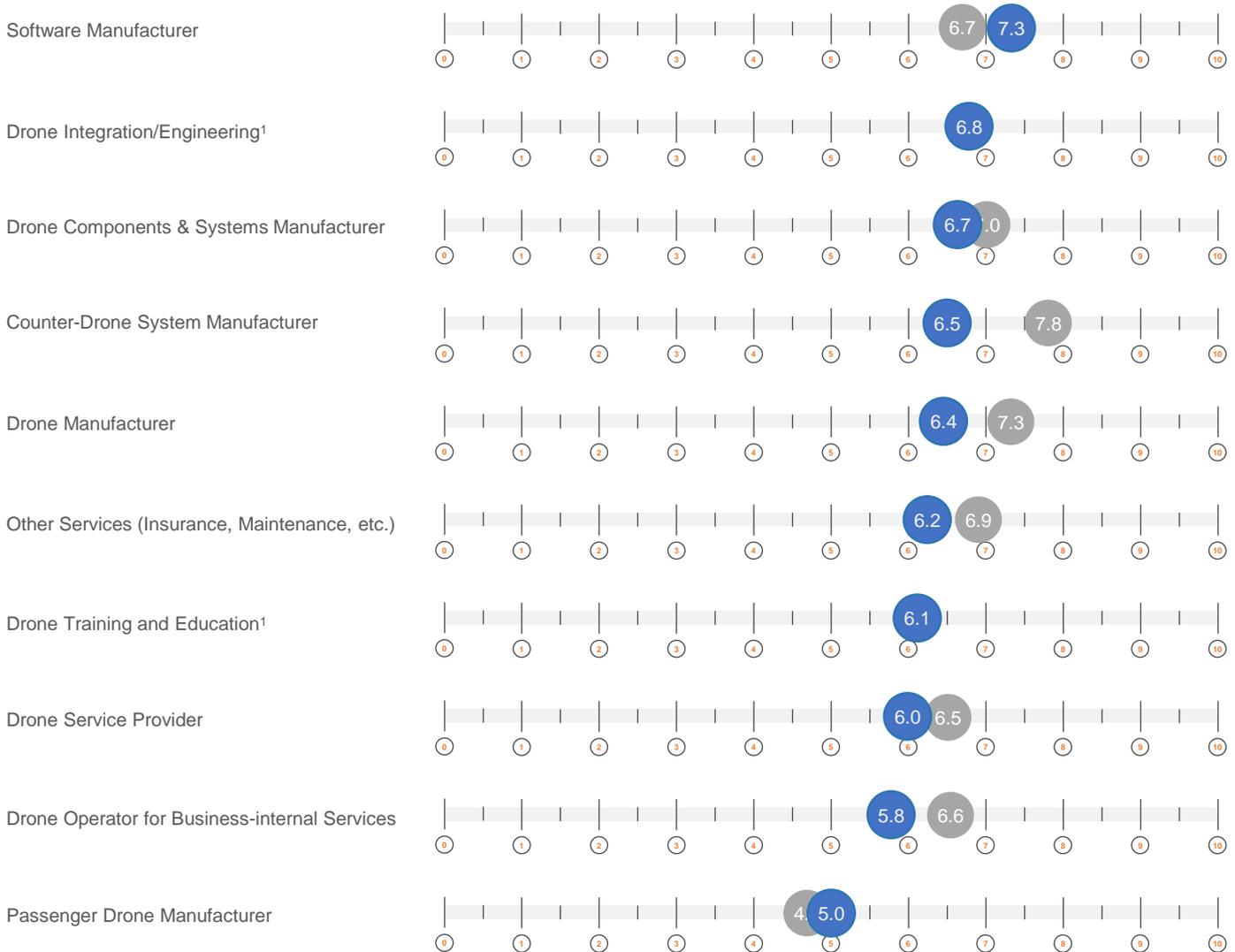


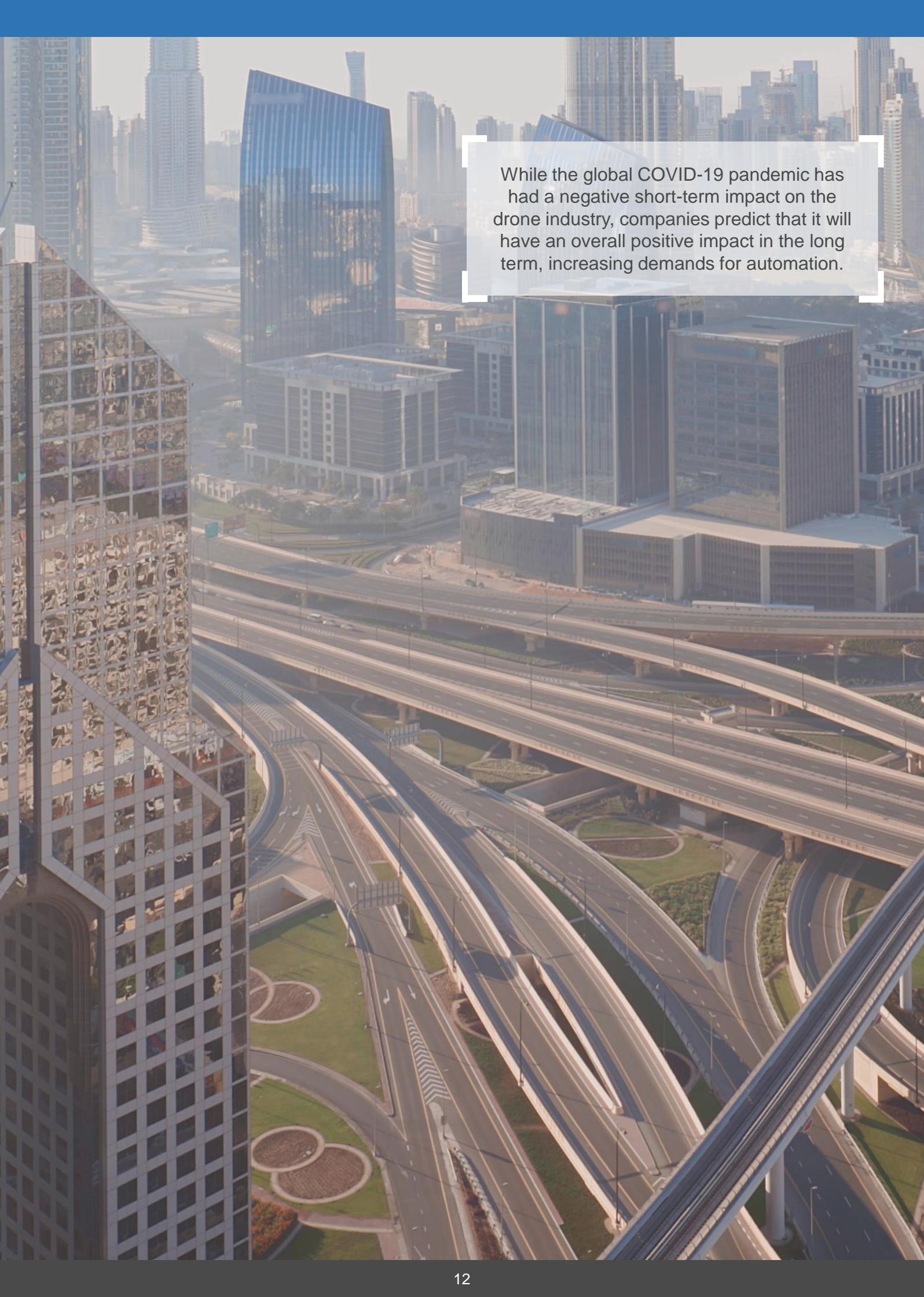
Fig. 8: Market Development in the Next 12 Months by Drone Industry Sub-Segment (n=705)

A slight pessimism hovers over the survey participating drone companies. While the 12 months outlook in 2019 was an average of 6.7, this average value has now decreased to 6.2. Part of this is due to aforementioned reasoning, as reality simply did not meet past expectations – but another part of the pessimism reflects the uncertainty brought on by the coronavirus pandemic.

Especially when it comes to counter-drone companies, the more positive expectation from last year decreased by 1.3 due to the very cautious retrospective, shown on the previous page. The drone manufacturers have also lowered their expectations a little (-0.9). In general, the lower expectations are an adjustment reaction to the lower retrospective.

In contrary, the software manufacturers are more positive about the market development (+0.6). They see themselves well positioned in the market and expect their product portfolio to be scaled up. Also passenger drone companies are more optimistic (+0.3) which can be explained by huge funding inflows (e.g. Joby Aviation raised \$590 million USD Venture Capital in 2020) and more public attention and news coverage.

New, but very optimistic is the Drone Integration/Engineering segment. They might benefit from the increasing demand of special and more complex missions, where special equipment like sensors and further safety tools need to be integrated.

An aerial photograph of a modern cityscape, likely Dubai, featuring a complex multi-level highway interchange in the foreground and several prominent skyscrapers in the background. The buildings have various architectural styles, including glass facades and perforated metal screens. The sky is clear and bright, suggesting a sunny day.

While the global COVID-19 pandemic has had a negative short-term impact on the drone industry, companies predict that it will have an overall positive impact in the long term, increasing demands for automation.

THE IMPACT OF THE CORONAVIRUS

A drop in demand (43%) was notably more common than the increase in demand (15%).

The reason that the industry saw any increase in demand at all amid an economic downturn is that the coronavirus crisis largely triggered a shift in attitudes towards disruptive technologies of clients. Legally mandated social distancing caused an increase in demand and applicability of all sorts of automated services, including for example, drone deliveries of medical goods, food and e-commerce. Moreover, companies sought to employ machines to do work that humans would previously be tasked with, striving to keep their employees out of harm's way.

Medical delivery, disinfection of large areas, or social distance monitoring are just a small selection of use cases which helped directly tackle issues caused by the COVID-19 pandemic.

Our Drone Industry Barometer gave us a chance to ask companies about this crisis and to take a look at how it has been affecting the commercial drone industry. When asked about how their business has been impacted by the coronavirus crisis, a relatively high amount (19%) had temporary production shutdown. Fortunately, staff layoffs were only reported by 10% of companies.

How has or will your business be impacted by the coronavirus?
(Multiple selection possible)

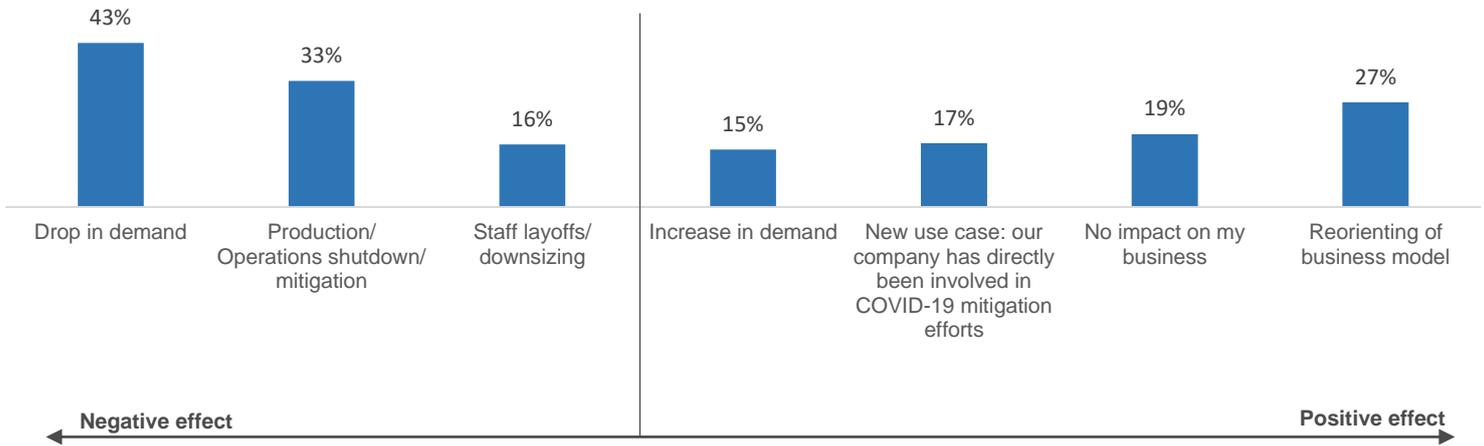


Fig 9 : Business Impact of the Coronavirus Crisis (n=689)

In addition to asking companies of how they've been affected by COVID-19, we also asked them about what long-term effects they thought the crisis would have on the drone industry. The majority (54%) stated that they thought that ultimately COVID-19 would positively impact the industry, while just 17% thought the effects would be negative and 29% had no opinion.

Undoubtedly, the global health pandemic will likely to continue to impact the drone industry, as demand for automation increases and consequently special permissions for various drone operations increase in number. Therefore, the true impact of COVID-19 remains to be seen in the long term as the industry awaits further integration of drones into airspace, especially urban and suburban areas that are currently heavily restricted.

The delivery and logistics industry is especially likely to grow due to increased regulatory action in this space (especially special permissions and exemptions being issued to drone delivery operators). Moreover, governmental investments into

unmanned research projects and initiatives are increasing, as authorities are witnessing automation emerge as a tool for them to tackle 21st century challenges like the COVID-19 pandemic.

Will the coronavirus crisis have a positive or negative impact on the drone industry as a whole in the long-term?

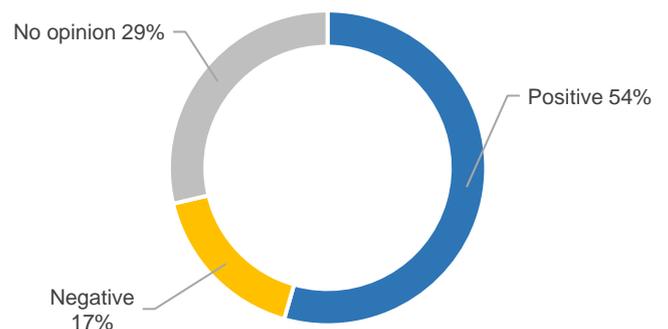


Fig 10: Long-term effect of the Coronavirus Crisis (n=691)



Increased spending on marketing and sales across the board in the drone industry suggests that it is maturing.

RESOURCES

Resources of any kind are there to help 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. Therefore, to

see what drone companies are investing their funds in, we asked them what they prioritize when it comes to resource spending. The resource distribution plans of drone companies are shown in Figure 21 below.

What will you prioritise in your resource spending in the next 12 months?
(Multiple selection possible)

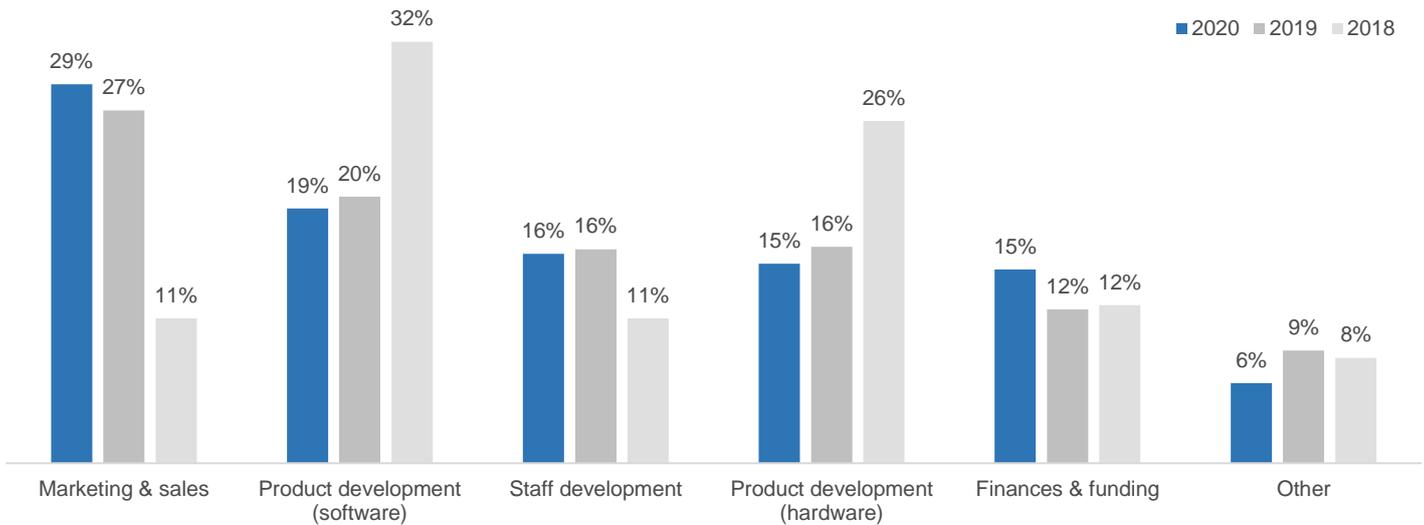


Fig. 11: Survey Respondents' Answers to What They Allocate Their Resources To (multiple answers possible, n=643)

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. Moreover, it is a reflection of the so called “drought of disillusionment” and its toll on the industry, leading companies to become more active in selling their products and services.

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.

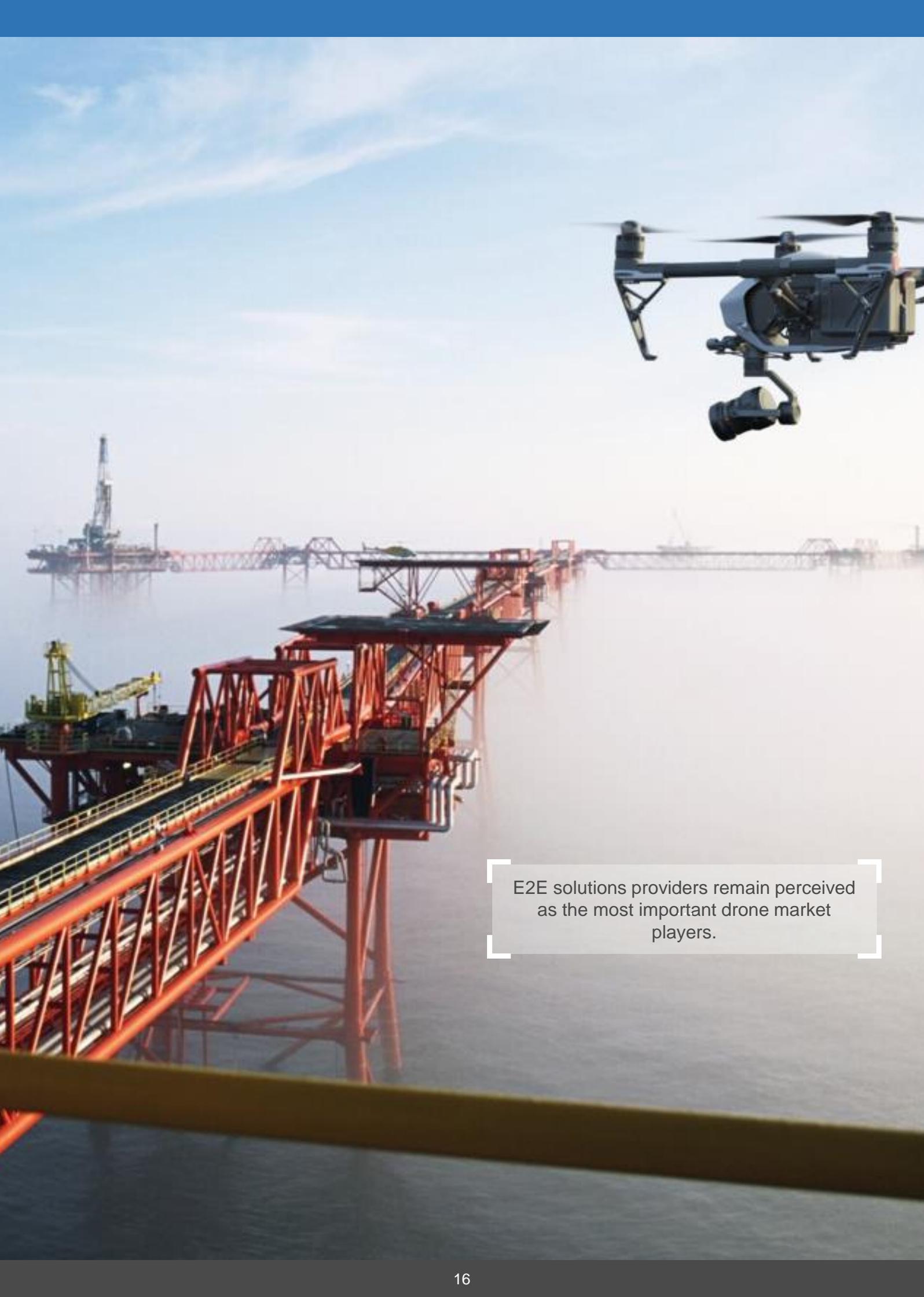
Spending plans are clearly becoming more and more people oriented. The main increases in resources spending from 2018 to 2020 appear to be in marketing & sales and in staff development. It reflects the professionalization of the drone industry.

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 to price pressures and the remaining time to adoption (i.e. companies offering pre-emptive solutions), deploying drones, not mature drone solutions yet).

Finally, the marginal increases in allocating resources to finances and funding shows that from start-up to enterprise stage, more money is required for companies to scale their businesses and remain competitive.



E2E solutions providers remain perceived as the most important drone market players.

DRIVING FACTORS IN A DYNAMIC MARKET

As a basis for the further development of the drone industry, we asked the participants about the roles that they considered to be the most important and significant.

As in recent years, the most important role is played by the providers of end-to-end (E2E) solutions. In the opinion of the participants, these have the greatest added value for customers, namely the solution from a single source in order to obtain the desired results with the least amount of communication effort.

The rule-making authorities are still well represented and even growing in importance. This can be explained by the fact that, on the one hand, they have gained in presence and dynamism, but on the other hand, they became much more essential to promote rules and standards for the implementation of complex applications outside of the standard limitations.

Manufacturers of hardware and software lost more and more importance. This cannot be explained by the fact that these segments have become less important, but rather that they have already reached a high maturity level. Now it is important to gain efficiency in order to become part of an E2E solution.

The regulation of the airspace is becoming more and more important, the need for complex and high-risk applications is increasing and the risk mitigation equipment within the SORA methodology is becoming more and more important. This explains why the importance of provider of safety concepts has increased the most since 2018.

Further important roles listed by the respondents which should be recognized are setting up an UTM framework, customer education about clear added-value transparency and industry associations/bodies.

What are the most important market driving roles?

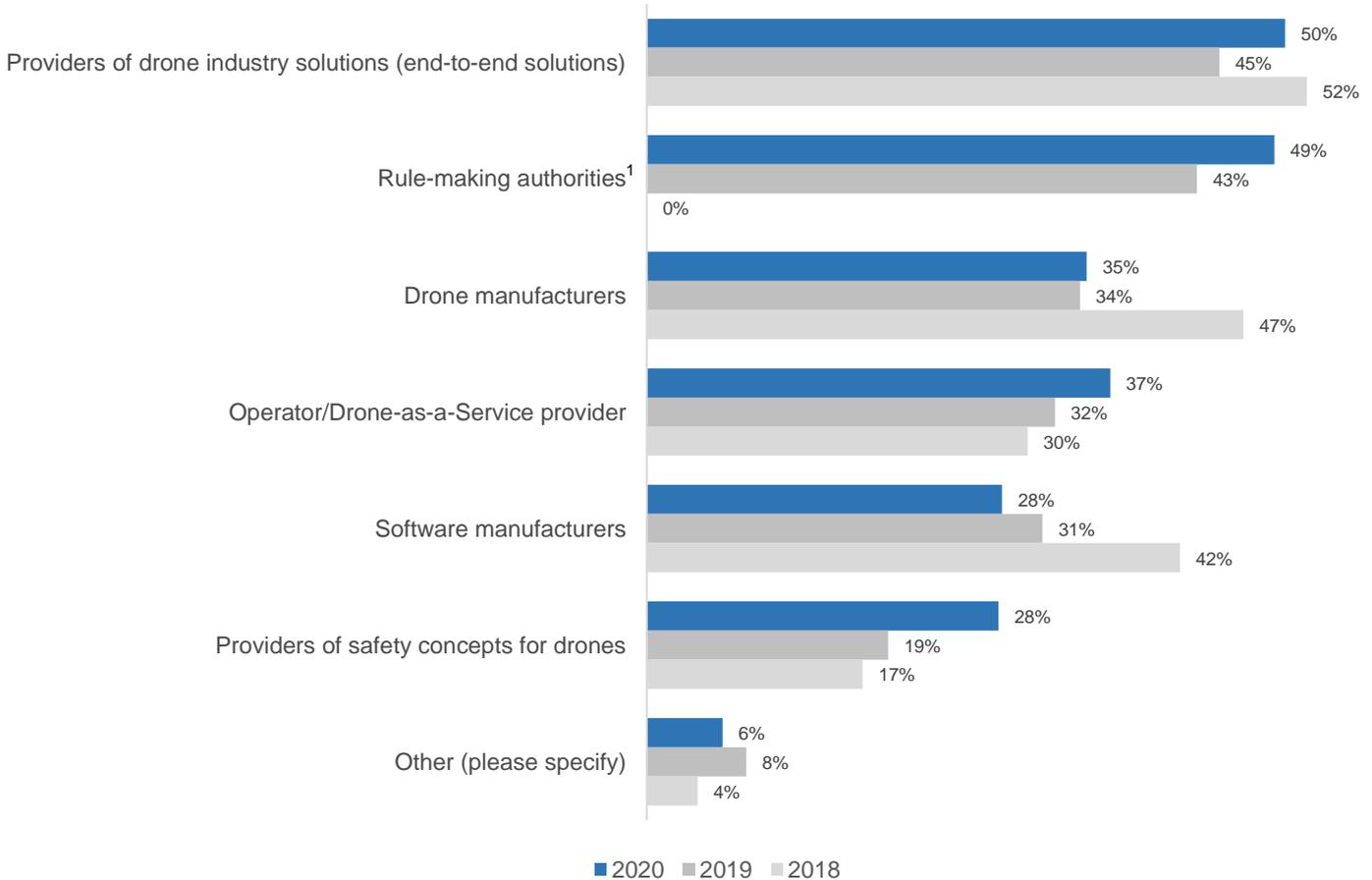


Fig. 12: Survey Respondents' Assessment of the Most Important Market-Driving Actors in the Drone Industry (n=704)

¹Rule-making authorities were not included as an option in our first Survey in 2018

ABOUT

This document is a joint publication of Drone Industry Insights and INTERAERIAL SOLUTIONS. This study was conducted

April until the end of May 2020 and supported/distributed by drone coalitions, alliances and initiatives around the world.

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DRONEII.com is the leading market research and analytics company for commercial drones. Their core business is to create new knowledge in the field of unmanned systems. Their comprehensive understanding of the commercial drone market combined with a global view enables them to create industry reports and bespoke market studies. Combined they have more than 40 years of experience in manned and unmanned aviation and other relevant industries.

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 INTERAERIAL SOLUTIONS STAGE deals with current issues from politics, administration, science and industry. Due to COVID-19 the next event will be a digital only one: INTERGEO Digital with INTERAERIAL SOLUTIONS, October 13th-15th 2020.

Next live event in Hannover / Germany, November 21-23, 2021.

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