Building trust in commercial drones

An assessment of how industry attitudes to drones have changed over the past three years and the implications for actions to grow the UK drone economy

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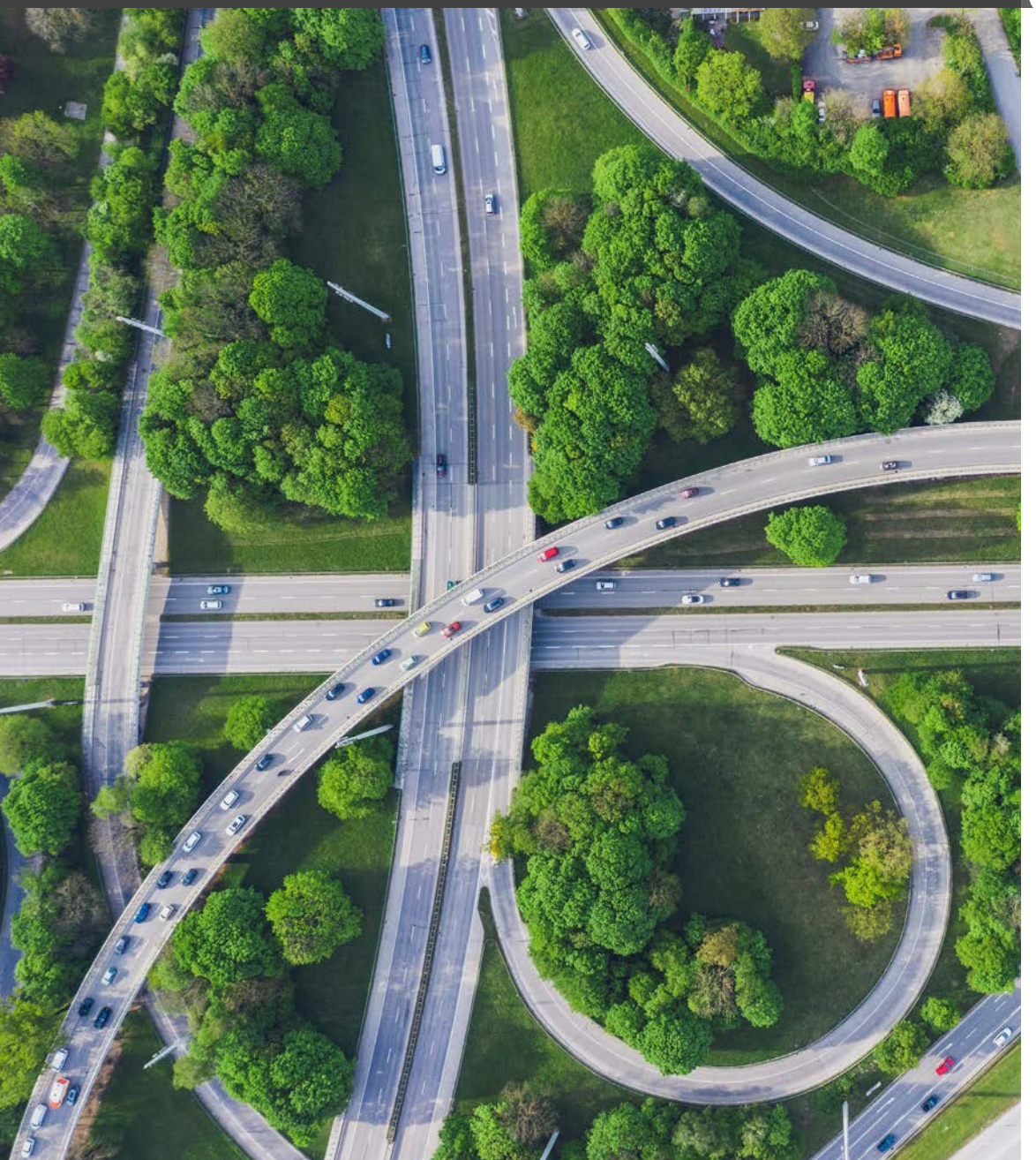


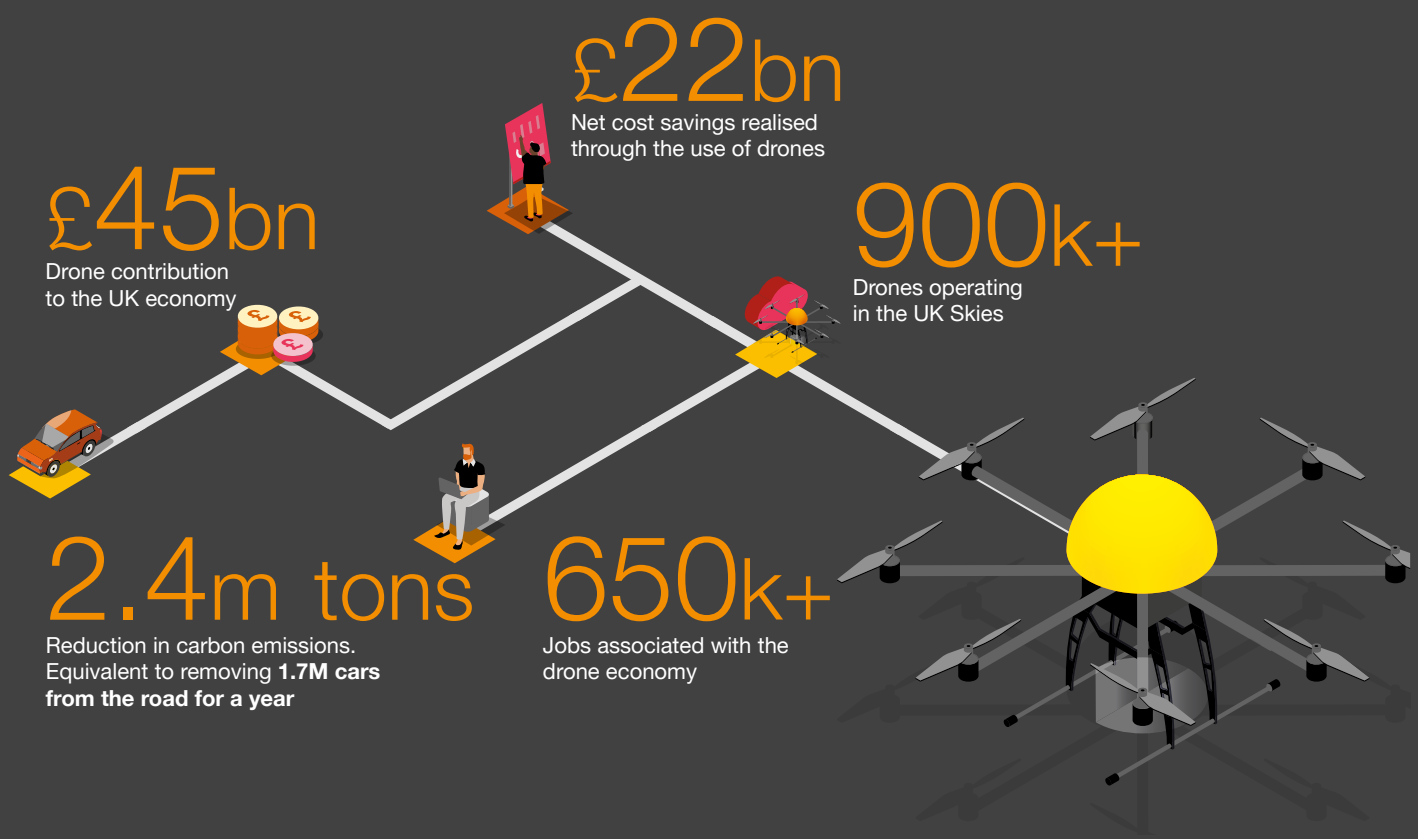
1

Executive summary

Last year, in collaboration with BEIS[1] and DfT, we released Skies Without Limits v2.0 ("SWL2"), a refreshed look at the potential impact of drones on the UK economy. This report showed that there is considerable potential for drones to positively impact the UK economy. The best-case impact on UK GDP (Gross Domestic Product), cost savings, carbon reduction and jobs by 2030 is illustrated below.

The report noted that, to achieve this potential, there were several barriers to overcome. These included perception, (manner of drone) implementation, technology, regulation and skills.

This report is a collaboration with Government[2] which refreshes our 2019 "**Building Trust in Drones**" perception market research to assess how business attitudes towards drones have changed over the last 3 years. We went further than the 2019 work and tested our market research findings with selected industrial players who purchased or delivered drone services. Acknowledging the significant potential for drones in the Public sector, another refinement of our 2019 work is splitting the results into Public and Private sectors[3].



[1] Department for Business, Energy and Industrial Strategy (now Department for Science, Innovation and Technology)
[2] Department for Science, Innovation and Technology
[3] See "About this survey" section on page 20

We found that industry felt significantly more positive about drones in 2022 than 2019. Drones were considered very beneficial in areas such as safety, cost, time, productivity and carbon. There was very strong support for current drone use cases such as emergency services, infrastructure, agriculture, tracking criminals and construction. Drones were, however, still not embraced by industry nor used effectively by the majority.

In the 2022 survey, a higher number of respondents thought that more credible drone service providers, improving the clarity of use case benefits and industry-specific qualifications would increase drone use. The 2022 survey also showed an increase in respondents who thought that drone use would grow if regulations were less restrictive. The volume of data produced by drones was considered a more significant challenge in 2022 than 2019, despite an increased belief that drones would deliver digital transformation in 2022.

When we tested the significant findings of the market research on selected drone industry players using a questionnaire format, we found a high level of correlation between the market research and the opinions of the questionnaire respondents. Respondents were also asked to share the three actions they would recommend to increase drone use in their sector.

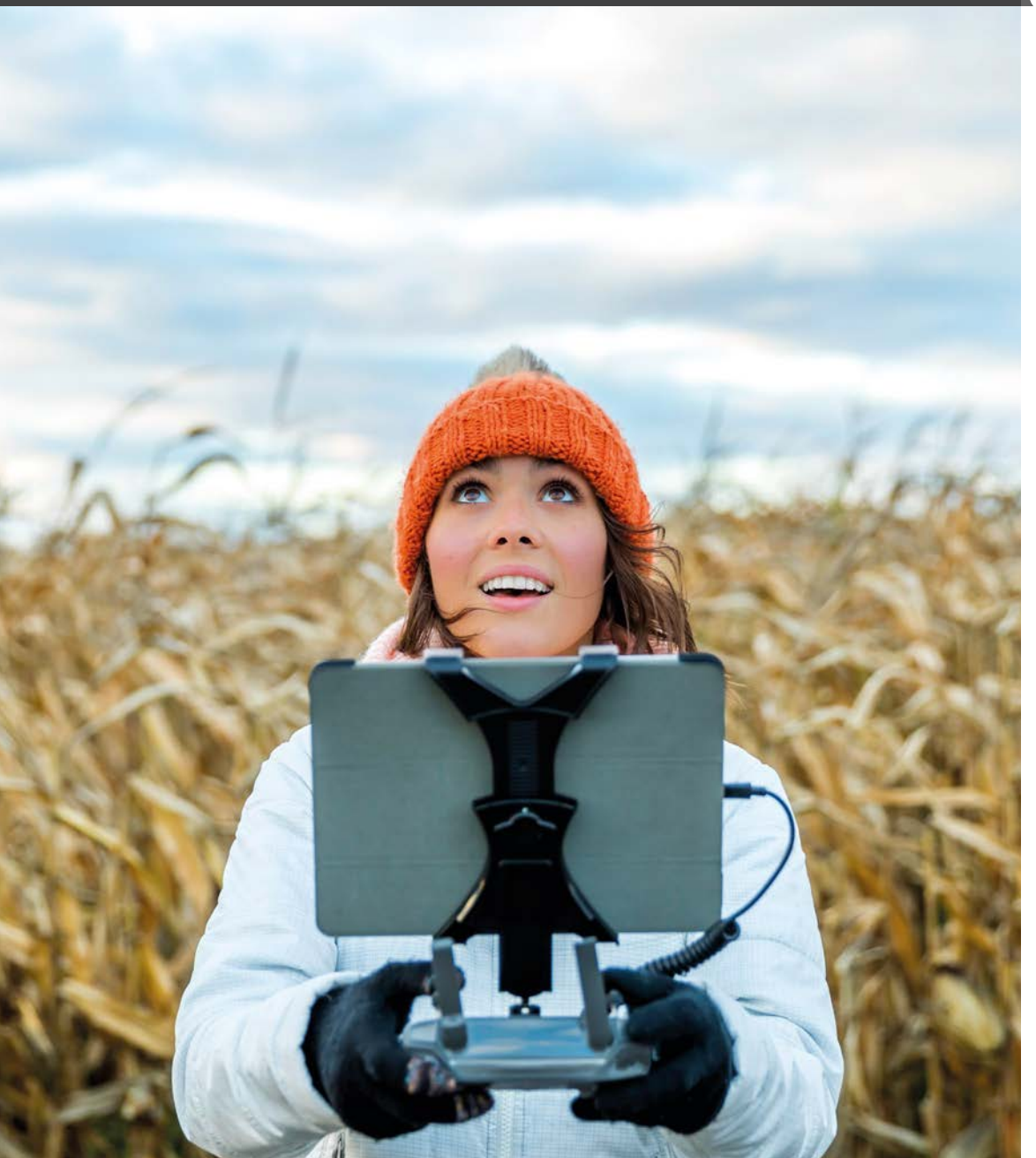
The final part of this paper distils the actions suggested by the questionnaire respondents into regulation, publicity, funding and/or Government intervention, industry-specific qualifications and drone business cases. It then compares these actions to the "Call to Action" in the Government and industry ambition statement (Advancing airborne autonomy: use of commercial drones in the UK) and suggests that, to increase the adoption of commercial drones, the following approach could be taken:

- Identify the market segments that have the most untapped growth potential and a tangible "pull" from the end users;
- Identify the specific use cases which will have the greatest impact in each chosen segment and the barriers to adoption, taking account of any existing initiatives;
- Align Government staff and funding to these segments with clear accountability and KPIs (Key Performance Indicators), involve relevant industry representatives and include end users of drone solutions; and
- Convene these groups frequently and add a governance structure to ensure progress against KPIs.

This market segment and use case driven approach could accelerate the delivery of drone benefits to the UK economy. It may also enable more niche segments and use cases to benefit from the trailblazing delivered by the "big ticket" use cases.

2

Findings from the market research



Drones are beneficial but not fully embraced by industry

A very high proportion of respondents (80%+) think drones would be beneficial to their industry in areas such as safety, cost, time, productivity, digital transformation, carbon reduction and meeting skills shortages (refer to Table 1). However, only 43% think that drones have been embraced by their industry and are being used effectively. This is an increase over the 33% we reported in 2019 but still relatively low, given the strong support of the benefits and use cases (Appendix B). Refer also to Table 2.

Industry positive feeling towards commercial drones[4]

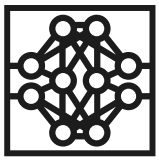
2019	2022
56%	72%

Steps can be taken to increase drone use

Most respondents think that more credible service providers[5] (63%) and clear, compelling evidence of benefits[6] (59%) would drive drone use. An industry-specific qualification which ensured the quality of drone services would also increase adoption[7] (56%) and we can speculate that this would also assist in addressing the service provider credibility point. The 2022 figures are all higher than 2019, see Drone Adoption. In 2022, more respondents thought that fewer regulatory restrictions would increase drone adoption (right). Refer also to Table 2.

Drone use would increase if the regulations were less restrictive[8]

2019	2022
37%	44%



The amount of data produced by drones is challenging

Although 10% more respondents agree that drones will deliver benefits in terms of digital transformation (2022 – 86%, Table 1), there is also an 8% increase in those who consider that drones produce a lot of data which is a challenge to store and takes their team hours to review so they prefer the "traditional" approach[9] (2022 – 48%, Table 2). See Data Integration.

Perception, cost and jobs are not the main concerns

A lower proportion of respondents (36-37%, Table 2) consider that negative perception of drones[10], prohibitive cost[11] and concerns over replacing current jobs[12] have prevented drone adoption. This is comparable to 2019 (35%, 34% and 32% respectively). Although relatively low compared to, say, drone service provider credibility (63%), at more than a third of respondents, these are still relevant points to consider in drone adoption.

[4] "Thinking about drones for commercial use, would you say you feel positive, negative or neutral about them?"
[5] "More drone services would be used if there were more service providers with a credible offering"
[6] "Adoption has been slow due to a lack of clear, compelling evidence of specific drone benefits in my industry"
[7] "If there were an industry specific drone qualification which ensured the quality of drone services purchased, there would be more adoption in my industry"
[8] "There would be more drone use in my industry if the regulations were less restrictive"
[9] "Drones produce a lot of data which is a challenge to store and takes/would take my team hours to review, the traditional approach is better"
[10] "My industry has not implemented drones due to their negative perception"
[11] "The view in my industry is that drone services are too expensive"
[12] "In my industry, there is a significant concern that jobs will be lost if we adopt drones"

Industry is slightly more confident about getting the most out of drones

45% (+5% vs 2019) of respondents are planning to buy drone services in the future[13]. Of these, a similar number of respondents expect to implement an in-house drone team as plan to purchase from external providers with the balance of 12% planning a hybrid approach. There is a slight increase in confidence that industry is positioned to make the most of drones (right).

Confidence that my sector has the talent, data and technology to make the most of drones[14]

2019	2022
56%	61%

Current use cases are strongly supported

There are high levels of support[15] for all current drone use cases with emergency services, infrastructure, agriculture, tracking criminals, construction and photography use cases all more than 80% supported (see Appendix B).

The three least supported use cases are consistent between the 2019 and 2022 surveys, but there has been an increase in the level of support. The least supported use case remains AAM (Advanced Air Mobility, i.e. drones as flying taxis) but support has increased 9% to 45% in 2022. Similarly, drones as patient transport (AAM air-ambulance) is second bottom of the support table but has increased by 6% to 59%. There is a step increase in support for drone package delivery from 54% to 69%. We can speculate that this latter figure is due to an increase in delivery drone publicity, particularly around medical use cases during Covid and note that support for drones delivering medical aid has increased by 5% to 79%.

Trust in authorities has increased

71% of respondents are concerned about the use of drones for criminal purposes[16] and this figure is consistent between the surveys. Significantly more 2022 respondents, however, trust the regulatory authorities to keep them safe from drones[17] (61%, +13%). If things go awry and there is a serious national drone incident there remains substantial support for empowering the relevant authorities to take decisive action, up to and including forcibly removing the drone from the sky[18] (85%). Refer to Appendix D.

The majority of survey respondents (61%) think that commercial drone use should be more strictly regulated in the future[19]. Despite being quite high in an absolute sense, this figure has fallen substantially (-13%) since the last survey, perhaps reflecting an increased confidence in commercial drone flights.

[13] "Is your company planning to buy drone services in the future?"
[14] "How confident are you that your sector has the talent, data and technology that will be needed to make the most of the drone opportunity?"
[15] "To what extent do you support or oppose drones being used in this situation"
[16] "I am concerned about the use of drones for criminal purposes"
[17] "I trust the regulatory authorities to keep me safe from drones"
[18] "In the event of a serious national drone incident, I think the relevant authorities should be able to take decisive action, up to and including forcibly removing the drone from the sky"
[19] "Do you think drone use should be more or less strictly regulated in the future?" (scale)

> Fear of change, entrenched supplier relationships, reluctance to break traditional ways of doing things, and significantly, a lack of ‘above the line’ promotion are barriers to drone adoption. The construction sector is notoriously slow to adopt new technologies, despite the well-documented reality that companies who embrace new ways of doing things benefit significantly.
>
> **Managing Director, Sky Revolutions**

3

Analysis of drone adoption and data integration

This section drills into the drone adoption and data integration topics. It uses quotations from the questionnaire respondents to illustrate the findings from the market research.

Drone Adoption

A higher number of respondents believed that potential drone benefits could apply to their industry. This typically went from mid-70% in 2019 to mid-80% in this study (Table 1). We also noted that the benefit "meeting skills shortages" had the largest increase between the studies, perhaps reflecting an increased awareness of the issue of skills shortages and a better understanding of drone applications.

The percentage of respondents who consider that drones have been **embraced by their industry and are used effectively**[20] has increased from 33% in 2019 to 43% in 2022 (Table 2) but this figure is still low in an absolute sense, particularly when one considers the strong belief that drone benefits would apply to respondent industries (Table 1) and high levels of current use case support (Appendix B). We also note a difference between Public and Private sector with 39% and 44% agreement in 2022 respectively.

34% of 2022 respondents disagree that drones have been embraced by their industry, with the balance of 23% neutral (Table 2). The 34% selected the following top three reasons for disagreement with the statement:

- Drones are not yet fit for purpose for what my industry needs them to do
- Lack of awareness of the potential benefits
- Risk of incidents/ safety issues

> "Many parts of industry and government are cautious in their uptake of new technologies, until they are well proven. Especially if they need to meet established standards, accuracies and quality assurance.
>
> **Respondent requested to remain anonymous**

Table 1: **Drone Benefits**

List of possible benefits, whether or not beneficial to respondent industry	2019	2022
Safety	77%	86%
Cost reduction	75%	86%
Time saving	78%	88%
Increase productivity	76%	84%
Digital transformation	76%	86%
Carbon reduction	75%	87%
Meeting skills shortages	67%	81%

[20] "Drones have been embraced by my industry and are used effectively"

When we look at responses to statements about implementing and procuring drone services, there are some surprising figures. These include an increase of around 10% between 2019 and 2022 in those who consider that:

- More drone services would be used if there were **more service providers with a credible offering**[21] (63%)
- Adoption has been slow due to a **lack of clear, compelling evidence**[22] of specific drone benefits in my industry (59%)

Building on the "service providers with a credible offering" point, 56% agree that "if there were an industry specific drone qualification which ensured the quality of drone services purchased, there would be more adoption in my industry" (Table 2), which is a moderate uptick from 2019. In our questionnaire responses, there was also a clear majority (83%) who believed that industry specific drone qualifications would increase adoption.

> "It's far from simple to build an accurate business case for using drones – to build a desk-study, let alone an accurate final answer. It takes a detailed understanding of both the problem and the solution and these rarely exist in one place.
>
> **CEO, SEES.Ai**

Qualifications should cover not just flying but also the conversion of data into information that meets the specific requirements of each industry (see Data Integration). It is also important that other industry or application-specific factors such as chemical handling (spraying crops in agriculture) and clinical sample management (medical delivery) are covered in industry qualifications.

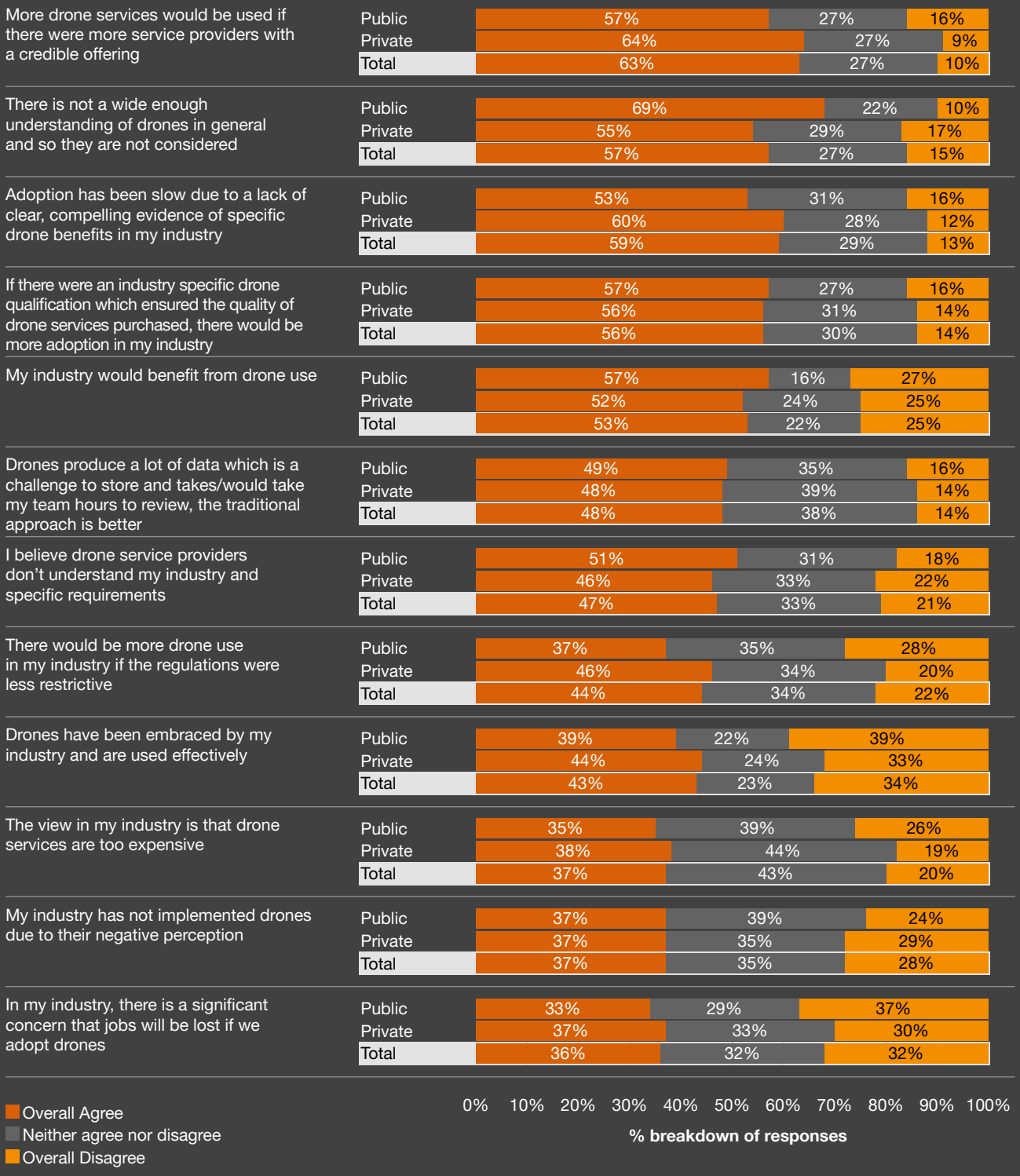
Between 2019 and 2022, there was a small increase in respondents who:

- consider that **drones are not widely understood**[23] enough in general, so that they are not considered (57% overall), noting a gap between Public and Private responses (69% to 55%) which implies there is more work to be done in Public sector drone education (Table 2)
- believe drone service providers **don't understand their industry and specific requirements**[24] (47%)(Table 2)

> "If we want a three dimensional survey we will go to a surveying company with drone experience and not a drone company claiming to know how to do a three dimensional survey.
>
> **Respondent requested to remain anonymous**

[21] "More drone services would be used if there were more service providers with a credible offering"
[22] "Adoption has been slow due to a lack of clear, compelling evidence of specific drone benefits in my industry"
[23] "There is not a wide enough understanding of drones in general and so they are not considered"
[24] "I believe drone service providers don't understand my industry and specific requirements")

Table 2: **Agreement with statements on industry drone use**

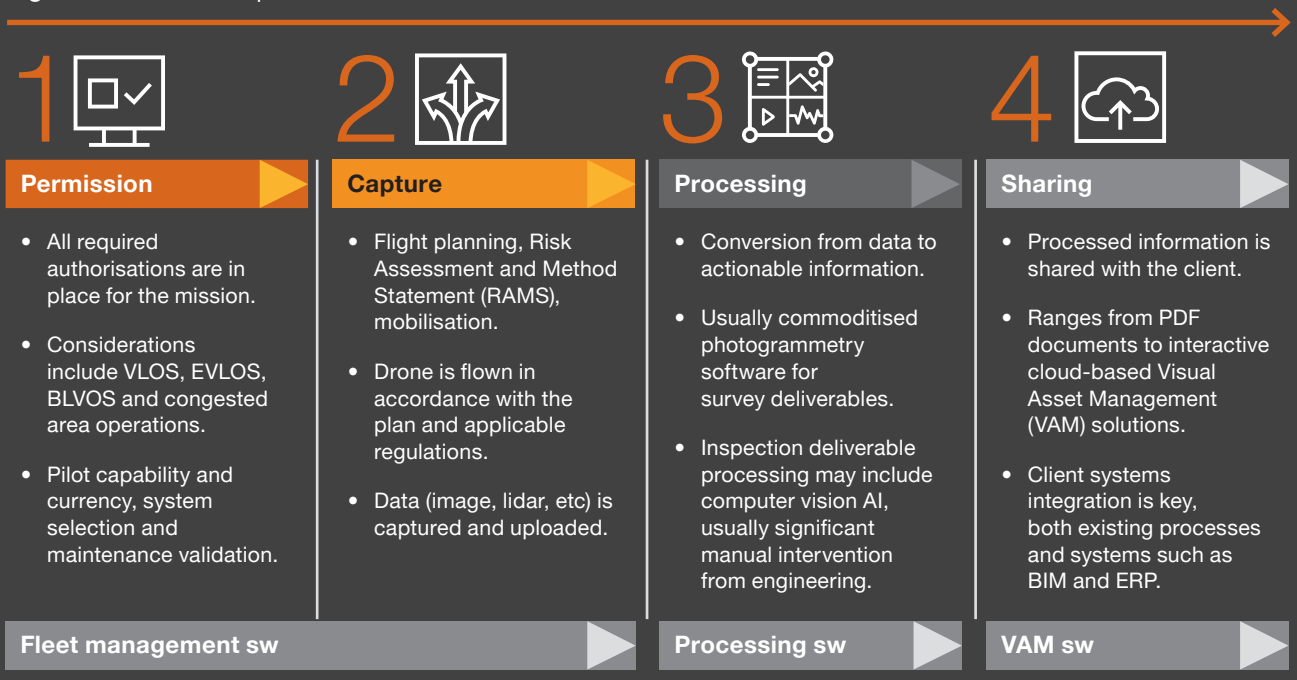


Data Integration

Between 2019 and 2022, there was an 8% increase in respondents who agree that "Drones produce a lot of data which is a challenge to store and takes/would take my team hours to review, the traditional approach is better" (48%, Table 2). This number is being driven by both speculation from those not yet using drones and the experience of those who are. In fact, when looking only at those respondents who work for a company already using or providing drone services, the number agreeing with the statement increases to 67%. We can hypothesise that this is a result of implementation challenges and, perhaps, organisations being surprised by the volume of data that drones produce.

The "Drone Implementation" challenge (refer to page 7 of SWL2) describes the challenges organisations face if they do not start their drone program with a clear understanding of what drone information will be used for and which "business as usual" systems it will integrate with. In our 4 step model (Figure 1 below from SWL2), we recommend starting with a detailed understanding of step 4 before designing the rest of the drone program. These responses suggest that the latter part of our 4 step drone workflow model may not be as heavily considered when organisations implement drones, and therefore there may be a need for more industry focus in this area to ensure that drone benefits are fully realised.

Figure 1 – PwC's 4 step drone workflow model



VLOS – Visual Line of Sight; **EVLOS** – Extended Visual Line of Sight; **BVLOS** – Beyond Visual Line of Sight; **BIM** – Building Information Modelling; **ERP** – Enterprise Resource Planning; **sw** – software

> As an organisation and as individual teams operating drones, we face the same problem. Managing and sharing the outputs are key ongoing challenges for us.
>
> **Respondent requested to remain anonymous**

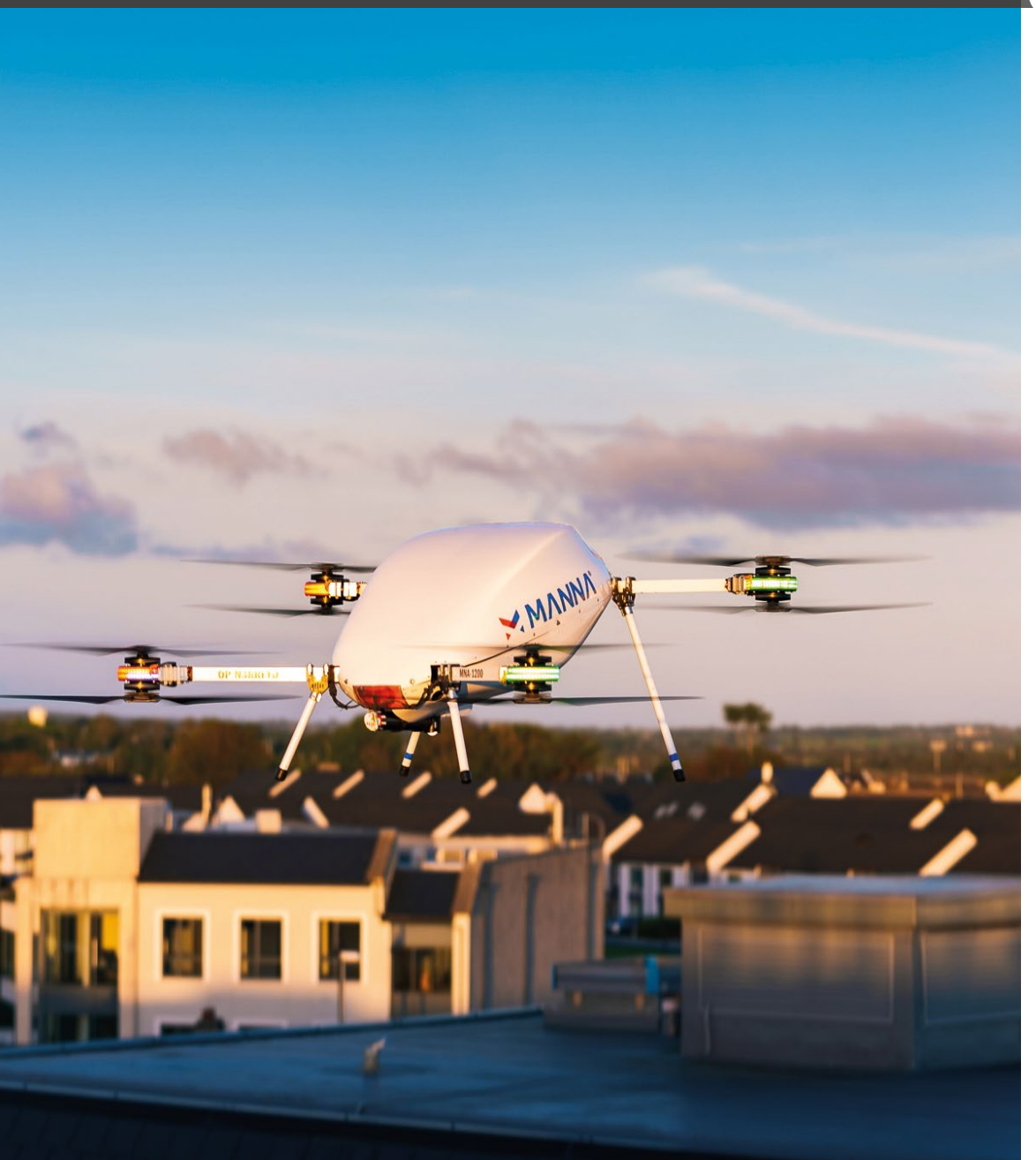
> You do need your main supplier to have an e2e [end to end] service, which provides quality of capture content and simple ways to upload and view.
>
> **Respondent requested to remain anonymous**

> Large amounts of data are a problem which needs to be addressed. Otherwise the benefits of using drones will drown in unused data.
>
> **Head Of Air Operations, Network Rail**

> The volume of data created by drones is a challenge for anyone using them commercially. But it is not the raw data that the end user is interested in, it is the actions that the data leads to that are required.
>
> **MD, Autospray Systems Ltd**

4

Insights from the questionnaire



This update goes further than the 2019 study and adds reactions to the market research from selected drone industry participants who either purchase drone services or provide drone services and who had not participated in the market research.

These reactions were captured using a questionnaire format which highlighted findings from the market research and posed open questions. We thank the questionnaire respondents for their detailed and considered responses.

The topics covered were whether industry was using drones effectively, service provider credibility, drone use case understanding, benefit case, industry specific qualifications and data overload (see Table 2). The questionnaire closed by asking which three actions the respondents would like to see to increase the use of drones in their area.

The market research statements with which most questionnaire respondents **agreed** were:

More drones should be used in my industry/target industry. (89% agree)

An industry specific qualification would lead to further adoption in my industry. (83% agree)

There is not a wide enough understanding of drones in general, so they are not considered. (78% agree)

The statement with which most respondents **disagreed** was:

Adoption has been slow due to a lack of clear compelling evidence of specific drone benefits in my industry. (61% disagree)

Are regulations putting the brakes on growth?

One of the interesting themes in the questionnaires was the number of references to regulations causing challenges for drone adoption. This is despite the fact that the questionnaire did not specifically ask about regulation, focussing instead on whether industry was using drones effectively, service provider credibility, drone use case understanding, benefit case, industry specific qualifications and data overload (see Table 2). A common response from those who disagreed that adoption was slow due to a lack of clear, compelling evidence of drone benefits (above) was that regulations were the issue, rather than benefit evidence.

We note that the profile and quantity of questionnaire respondents may skew matters with several respondents focussed on drone applications that are either not easy or prohibited under current regulations, e.g. BVLOS (Beyond Visual Line of Sight) surveillance, drone delivery and chemical spraying which account for 28% of responses.

In the questionnaire we speculated that, with "only" 43% of market research respondents agreeing that "drones have been embraced by my industry and used effectively", a significant proportion of industry is not using drones effectively. When asked why this might be, 65% of questionnaire respondents mentioned regulations and many referred to BVLOS and drone delivery. Consider these quotes:

> CAA regulatory environment not supporting use of logistic transport using BVLOS drones. Limited provision of drone operators which are capable, professionally and regulatory competent, reliable and resilient private drone operators in the area of logistics.

> The only market where I would see a slow uptake of drone use is in the courier and delivery industry, and this is simply due to regulatory constraints.

> Regulation is not articulated to support the use of drones in all but benign roles.

> Lack of a regulatory-friendly flying environment in the UK for new technologies.

> It has taken a long time for people to trust drones as a viable data collection tool – especially in traditional survey areas like construction. Regulations, also put a hard stop on what you get use a drone for.

> The route to provision of services through BVLOS flight operations is currently both difficult to navigate and time consuming to complete.

On the flipside, one respondent considered that sensible regulation had played a part in avoiding catastrophic losses:

> It is worth noting that from an insurance point of view, we have not seen the catastrophic loses that many expected when the industry started out. This is due to sensible regulation, incredible drone technology and safety features available on drones and also pilot responsibility.

> Flight regulation, barriers to engagement with all those involved in medical supply chain and delivery. A lack of regular BVLOS flights ... this needs expanding quickly. Barrier to uptake, lack of tools for development of economic use case, airworthiness certification acceptance also needs addressing.

Call to action

As mentioned above, the final part of the questionnaire asks for the top 3 actions that respondents would take to increase drone adoption in their area.

There were five recurring themes:

81% mentioned regulation or the **regulator** in one of their 3 actions.

"Progress needs to be an industry and regulator wide cooperative effort, as 'a rising tide lifts all boats'. This will take some effort as there are multiple moving parts with different objectives and agendas at play."

"Clarify the legislation and simplify the multiple regulatory bodies involved in drone activities. The potential economic benefits of the drone economy could fund a single entity that other UK infrastructure assets enjoy."

"Drone Spraying. Regulation and Insurance approval are big blockers in this area."

38% thought that **publicity** that highlights successful drone adoption was key.

"DfT / CAA should continue to promote and educate the general public and business sectors about the societal benefits of drone technology through various multi-media channels. They have to be forward leaning evangelists and they should keep up consistent messaging to ensure delivery."

"Documenting uses cases and benefits, to share and inform both senior managers and field teams."

"Engage with healthcare stakeholders, patients and community – create roadshow type events promoting drone services at sites where the services will be deployed. One day we demonstration flights, presentations and surveys to capture needs and perceptions"

31% believed that **funding** and/ or other **Government intervention** was key.

"Create an Airspace strategy that will benefit ALL sub 400ft users and create an economic model that has the same gravitas/funding as other UK infrastructure such as Road, Rail, 5G etc."

"Open Government contracts for UK drone service providers – push local councils to adopt drone use and explore benefits of drones with local drone service providers, offer Government incentives for using drones."

"Continue the NHS Scotland Drone Innovation "Future Flight Caelus Initiative" but accelerate CAA approval process to establish drone clinical logistic operations in test area of Grampian, Ayrshire and Arran and Argyll and Bute establishing a once for Scotland/UK solution."

25% referred to industry-specific **qualifications**.

"Create credible industry standards that enhance economic activity rather than restrict it."

"The introduction of industry specific qualifications that demonstrate a level of both drone system technology and pilot capability that proves safe and effective flight in close proximity to buildings and structures."

"The introduction of a Drone Spray Qualification for Agriculture. Training from recognised/respected bodies will be necessary to ensure best practice in each market sector. These courses will need to run nationally and should be easy to access."

19% noted the importance of clear and compelling **business cases**.

"True costs benefit analysis against other techniques. In order to understand where drone technology sits within a suite of appropriate techniques."

"Bring together logistics NHS to strategically plan drone adoption across network in next 3 years supported by economic evaluation cases."

"Development of use case frameworks for the development of the economic evaluation of drone services. E.g. Surveys of business as usual, modelling of impact of drone within this economic framework but also incorporating risks, e.g. weather conditions, supply, dangerous good, good distribution practice, etc. digital sharing of evidence including flight data."

Figure 2 – Call to action

To maximise the impact of drones on the UK economy and society, we will build on our existing capabilities, to smooth the regulatory path and to support the UK's innovators to thrive. This Ambition Statement outlines core components for delivery, including:

01

Government's Future of Flight Action Plan and Future of Flight Industry Group in developing a pathway to new uses and users of aviation and airspace.

02

Funding to ensure the UK supports and builds on the best of British drone technology, including through the Future Flight challenge, investing in and demonstrating new operating models and developing new frameworks to enable drone capabilities to thrive.

03

Implementation of sector-specific skills and CPD programmes to support effective end-user drone adoption and integration.

04

Supporting drone innovators in their ambitions to start-up and grow their businesses in the UK, and convening the Drone Industry Action Group to support collaboration between government and the drone community.

05

Wider regulatory support to enable routine drone operations, including a well-resourced CAA and refreshed Airspace Modernisation Strategy, and an Ofcom consultation to deliver robust drone communications and connectivity aiming to enable 4G and, in time, 5G for commercial use.

06

Active public outreach and communications underlining the positive potential uses for and benefits of commercial drones.

If we look at the 5 point[25] "Call to Action" (Figure 2) in the Government's Advancing airborne autonomy: use of commercial drones in the UK policy paper, we can see a high degree of commonality.

Bullets 2 and 4 align with the "funding and/or Government intervention" category above. Bullet 3 broadly aligns with "industry-specific qualifications". Bullet 5 is equivalent to the "regulation or the regulator" top response. Bullet 6 is similar to "publicity that highlights successful drone adoption".

The "compelling business cases" for drone adoption point does not feature specifically in the Call to Action but does feature throughout the questionnaire responses.

For example, in the benefits case section:

> There is no benchmark work showing the economic case re cost effectiveness / value for money using a drone which would replace current transport. At present this seems to be only value added/increased cost.
>
> **Head of Strategic Planning, Performance and Technology, Argyll and Bute Health and Socia Care Partnership**

When a strong benefits case exists, however, it accelerates adoption.

> ...we have a UAV in nuclear case study, which sets out savings for UAV usage. We need more, but also need to acknowledge and drive the adoption based on reduction of risk, i.e ALARP and BAT principles ... Our use case has accelerated drone adoption throughout the ... estate.
>
> **Respondent requested to remain anonymous**

[25] Although there are 6 bullets, the first is a statement rather than an action

Conclusions

Following this study and the SWL2 paper, the following approach may maximise the growth of the UK drone economy and the unlock significant benefits for the UK economy:

- Identify the market segments that have the most untapped growth potential and a tangible "pull" from the end users, taking into account how transformational a drone solution could be if all barriers were removed e.g. medical (drone delivery), agriculture (crop health, spraying), construction & infrastructure (BVLOS construction progress, BIM integration).
- Identify the specific use cases which will have the greatest impact in each chosen segment and the barriers to adoption, taking account of any existing initiatives. This will range from (arguably) simple publicity/ education (e.g. agriculture, VLOS crop health) to multi-faceted and covering regulation, publicity, funding/Government support, qualifications and business case (e.g. medical, drone delivery).
- Align Government staff and funding to these segments with clear accountability and establish KPIs, e.g. dedicated and empowered CAA resource by market segment. Involve relevant industry representatives, including end users.
- Convene these groups frequently and add a governance structure to ensure progress against goals.

This market segment and specific use case approach could accelerate the benefits of drones to the UK economy. It may also enable more niche use cases to benefit from the trailblazing delivered by the "big ticket" use cases.

We will close this section with a quote which relates to the Construction and Infrastructure section and ties together a number of the call to action themes.

> "Construction and Infrastructure makes a substantial contribution to UK GDP. The commercial and safety benefits of drones in this sector warrants specific resources being allocated at the CAA. The CAA needs correct levels of funding for a dedicated account manager to facilitate and expedite infrastructure and construction activities.
>
> **Chair, COMIT2Drones**

About this survey

This study is an update of the industry part of our 2019 report "Building Trust in Drones". It was conducted to see how perceptions about drone technology have changed over the past 3 years and allow us to understand whether the barriers to drone adoption have evolved. This survey used very similar questions and number/ profile of respondents to the 2019 work to enable comparison. We made minor additions to the scope of the 2019 survey, adding open questions to gain more insight into certain responses and splitting respondents into Public and Private sector.

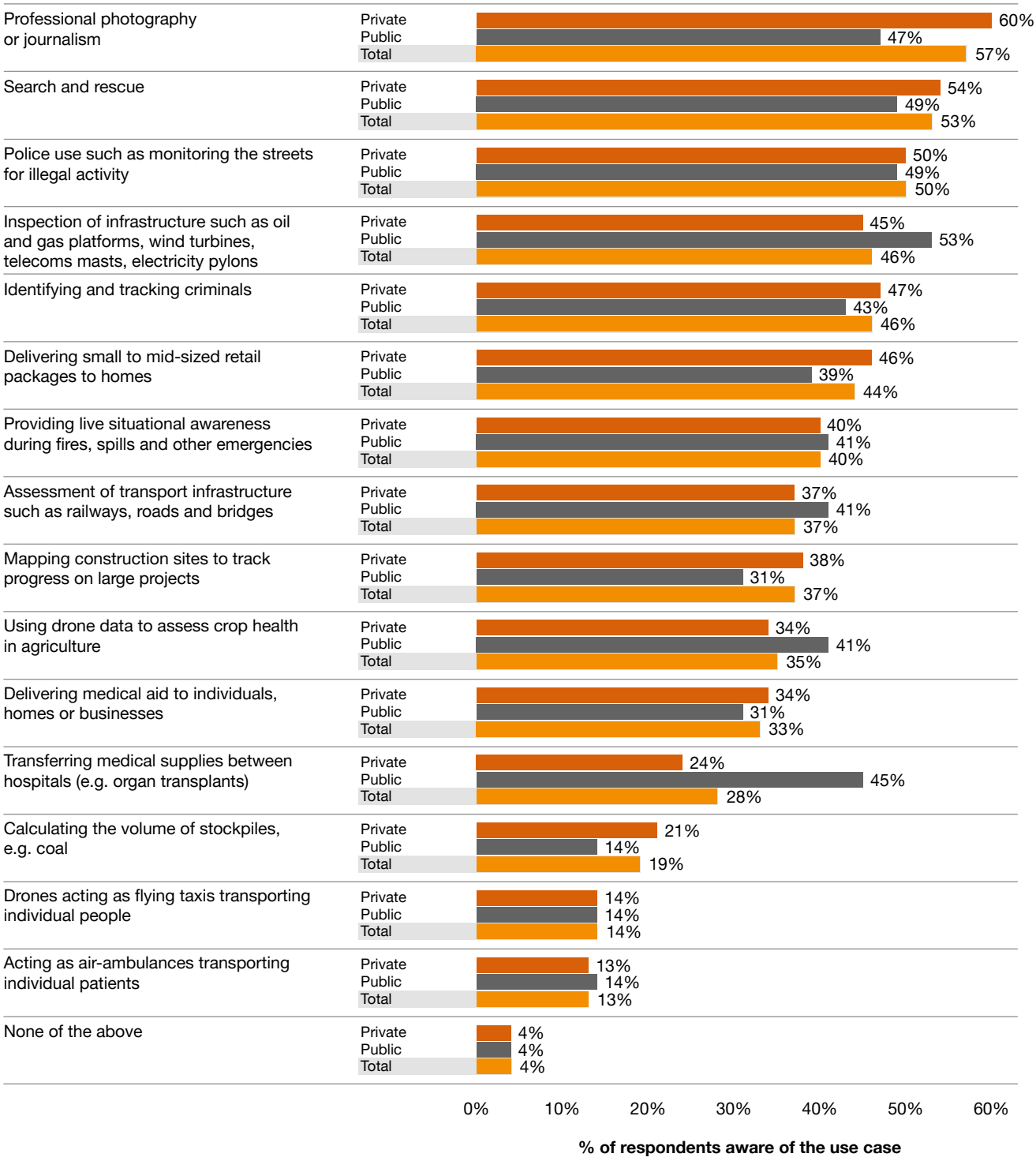
We surveyed 251 people in the Public and Private sector from across the UK, all of whom work in industries where drone services may be provided or purchased. This included 51 people from the Public sector working in healthcare or Government and public services. The gender split of respondents was 80 females to 171 males. Of those that we questioned, 63 had worked with drones commercially or purchased drone services. The survey was carried out in 2022 by Opinium.

The second part of the work took elements of the market research findings and used a questionnaire format to ask selected drone industry participants to share their views on significant market research findings. We received 18 responses. 10 were from end users of drone services (including drone industry groups and those with internal drone teams) and 8 were from drone service providers. Responses were received in late 2022 and early 2023.

5
Appendices

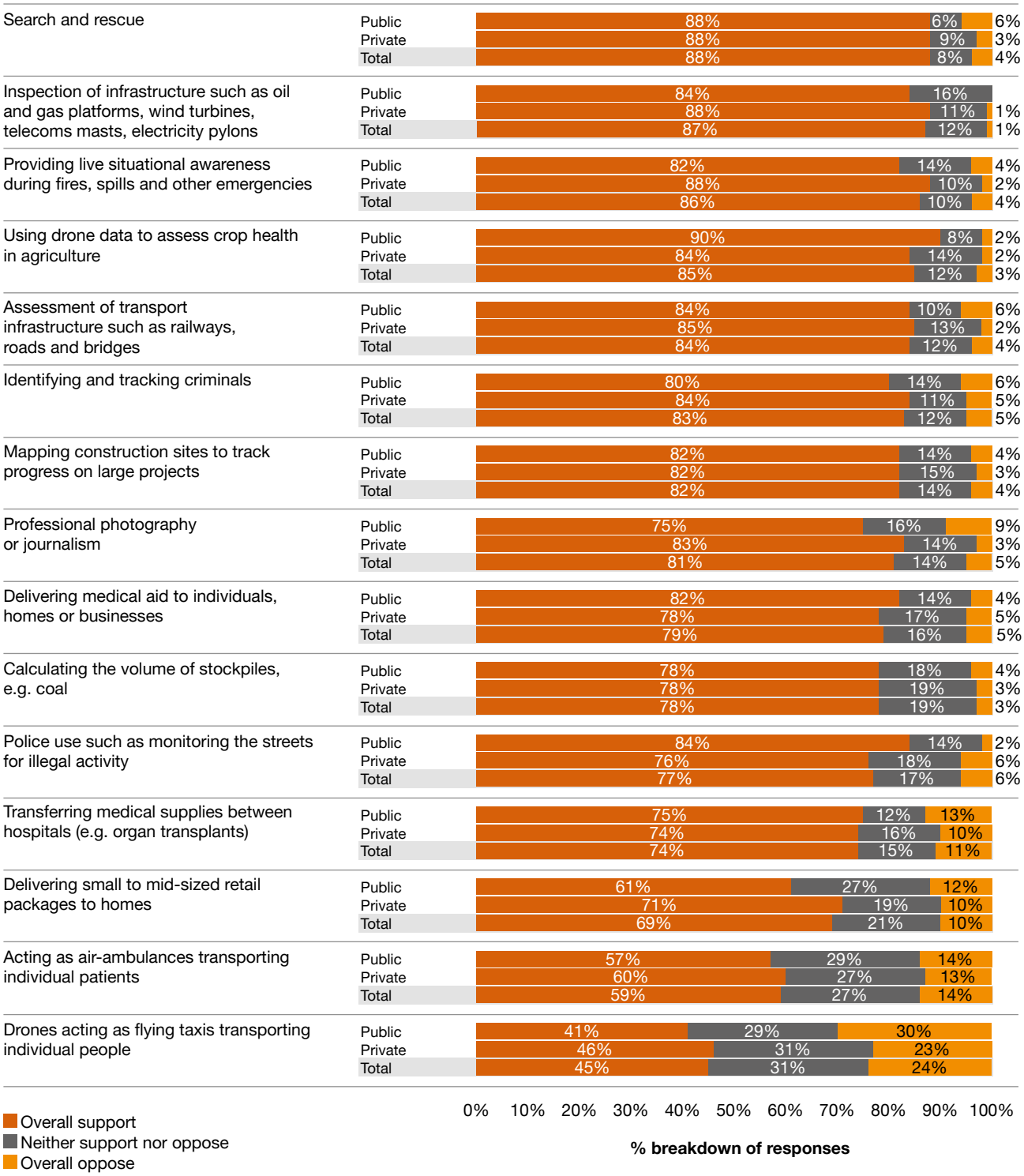
Appendix A – **Awareness**

Below is a list of possible uses of drones by companies and government bodies. Which of these uses of drones were you aware of before reading this survey?



Appendix B – **Use Case Support**

To what extent do you support or oppose drones being used in this situation?

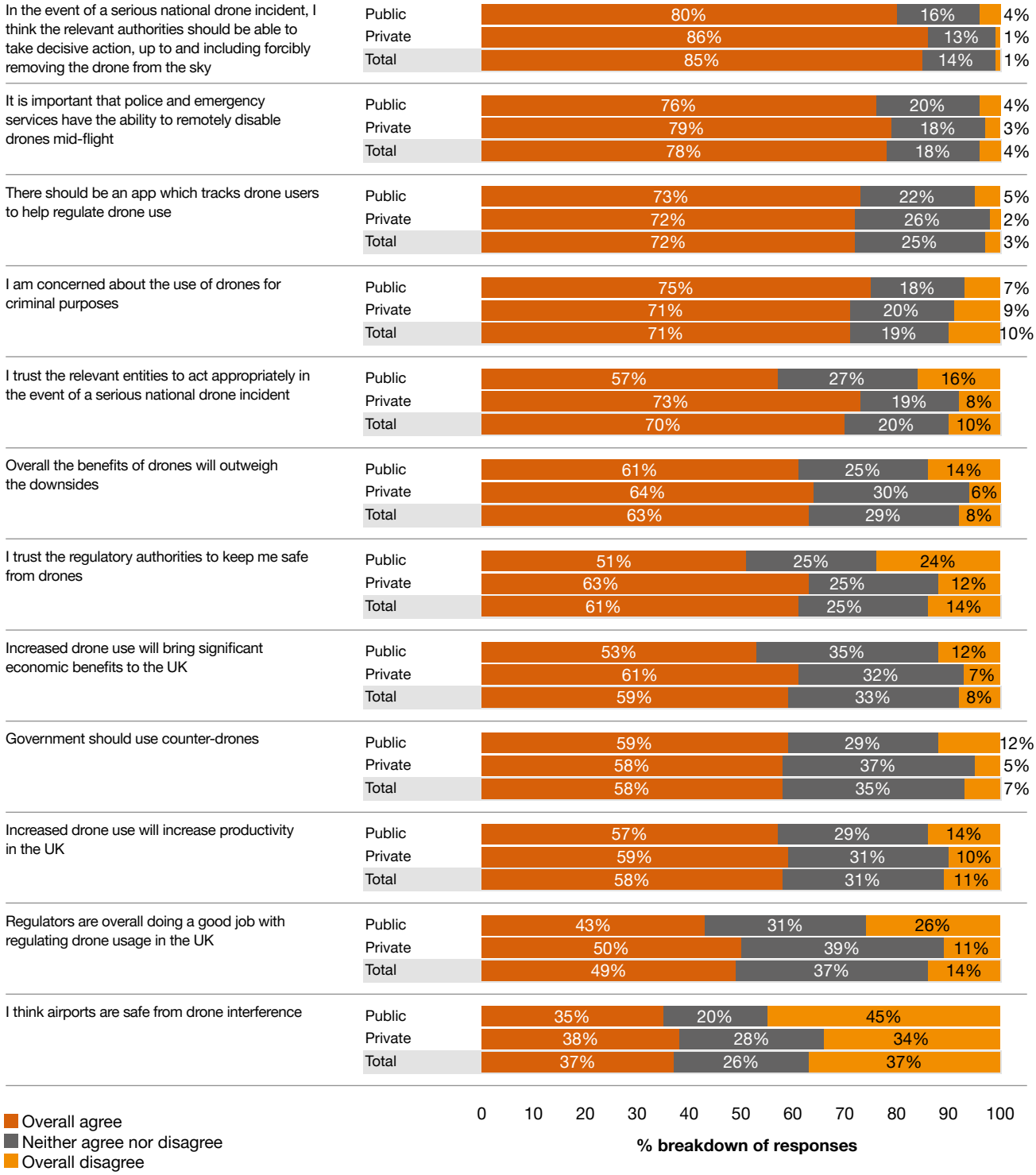


Appendix C – **Drone Benefits**

Here is a list of possible benefits to industries from drone use. For each one, please tell us whether or not you think it would be beneficial to your industry.

Appendix D – **Drone Risks and Rewards**

To what extent do you agree or disagree with the following statements?



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In the scoping and production of this document, we worked with members of the Technology Security & Strategy team in the Department for Business, Energy & Industrial Strategy (which moved in March 2023 to the Department of Science, Innovation & Technology). This team supports open exchange between government and the drone sector to better understand the commercial opportunities of drones and barriers to growth, and convenes the Drone Industry Action Group.

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SPS Design RITM11600690 (05/23).