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June 2023
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By: Davey Jose and Henry Ward

SPOTLIGHT

Drone Disruption

Transforming industries

As growing commercial and consumer use of drones disrupts industries as diverse as transport, mining, healthcare and retail…

…we think the total global drone market could be worth more than USD290bn by 2033…

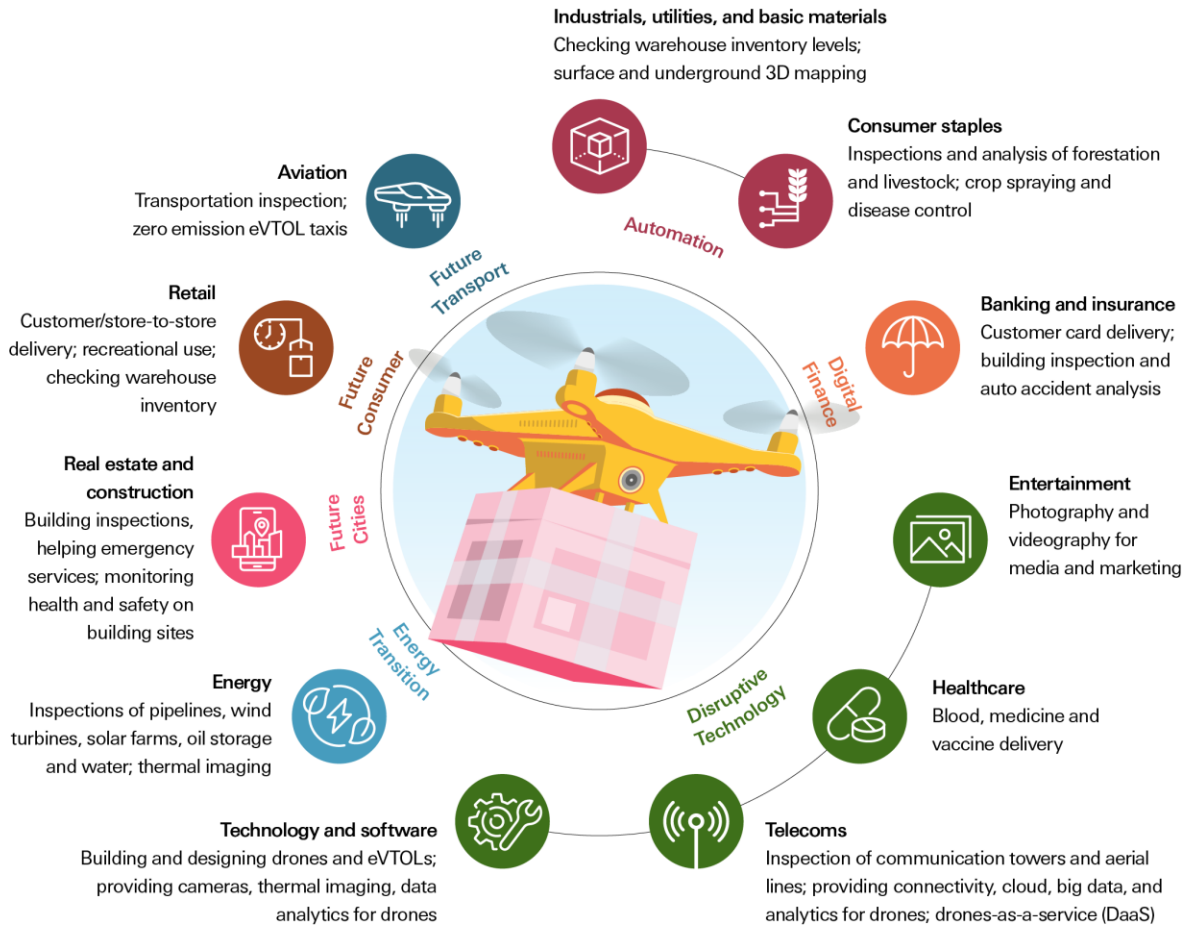
…but consumer attitudes and changing regulatory frameworks could play a key role in shaping the industry's evolution

Play video

Rise of the drones

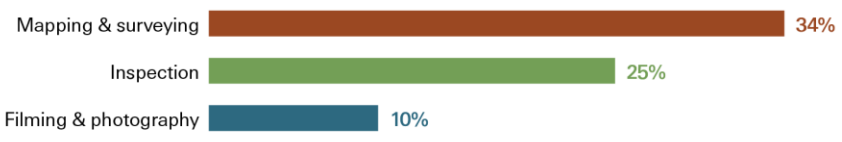
Rise of the drones

How drones impact HSBCs key themes and sectors



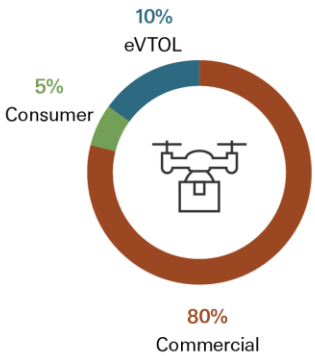
Sizing up the drone market

Top drone application methods, 2022



Top drone industries, 2022

Drone market share, 2033e



Source: IEA, HSBC

Note: This infographic must be read alongside the appropriate disclosures and disclaimers at the bottom of this page

Source: Drone Industry Insights, HSBC estimates

Drone enablers, systems and infrastructure

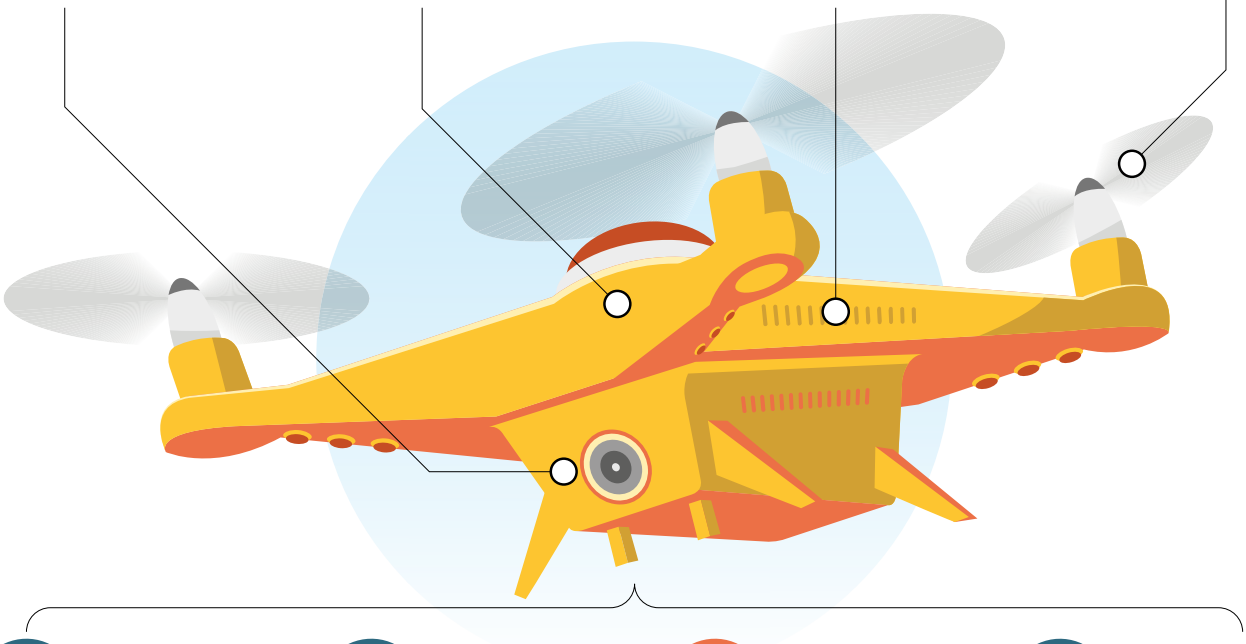
Tech enablers Sub-systems Infrastructure

Drone eyes and brain
Combination of AI, machine learning, LiDAR sensors and semiconductors enable tracking and depth perception. Simultaneous localisation and mapping (SLAM) technology will accurately build images of topography, architecture and site surveying, with thermal imaging helping search and rescue.

5G communication
Will enable safe navigation beyond the line of sight and plan optimal routes between drones and control centres. 5G infrastructure will allow multiple drones to connect and transmit real-time footage such as inventory, inspection of transmission lines, and allow city planners to analyse traffic flows.

Power
Lithium polymer batteries are the most commonly used batteries yet lithium-sulphur batteries may be more suitable for drones given high energy density and low cost. Hydrogen fuel cells could be a part of the drone future with eVTOLs requiring faster recharge times than automotives.

Drone motors
Drone motors, electronic speed controllers (ESC), and propulsion systems are the key to giving drones longer flight times, more stability, and precision flights. Top tier motors will also be quieter, have a better cooling system, and be lighter and more efficient.



Air traffic and parking
Cloud-based superhighways could allow drones to be flown beyond the line of sight, with eVTOLs and drones likely needing centralised traffic management. Vertiports could be placed near airports, offices and shopping malls.

Regulation and legislation
In India, regulations liberalised after backlash but drone import restrictions remain. In China, registration with Civil Aviation Administration of China (CAAC) and a commercial licence is required. Similar regulations apply in the US, UK and Europe.

Cybersecurity
GPS jammers have the potential to make drones fall out of the sky, and mislead drones with GPS-spoofing to change routes. There are also concerns over data privacy as drones fly into commercial and residential areas and can collect sensitive information.

Insurance ecosystem
Flexible hourly policy or a standard reoccurring premium for the drone and for third-party damages.

Source: HSBC

Drone disruption

- As growing commercial and consumer use of drones disrupts industries as diverse as transport, mining, healthcare and retail…
- …we think the total global drone market could be worth more than USD290bn by 2033…
- …but consumer attitudes and changing regulatory frameworks could play a key role in shaping the industry's evolution

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> **Trying to imagine how drones will evolve, and the end uses to which they will be put, is a bit like trying to forecast the evolution of computing in the 1960s or mobile phones in the 1980s.**
>
> **The Economist**

Is it a bird? Is it a plane? No – it's a DRONE!

Understanding commercial and consumer drones…

Disrupting the skies

Drones, sometimes also known as unmanned aerial vehicles (UAVs) are essentially flying robots. Drones can be flown autonomously or be controlled remotely by humans. These flying robots are made up of a number of different technology stacks including cameras, sensors, processors, AI, smart software, connectivity (4G/5G), cybersecurity, batteries, motors and more. We can call these innovation stacks – the drone technological enablers and sub systems.

To enable these flying robots to function, they also need a number of supporting infrastructures. These include both tech and non-tech infrastructure, like regulations, insurance, take-off and landing sites, air traffic management, superhighways, vertiports and more.

The aim of this report is to focus on understanding the growing number of commercial and consumer applications of drones today and into the near future[1]. In the following pages we have summarised our views on the Drone market. The full note, which is accessible to HSBC Global Research readers, contains a further look at the application of drones to sectors and the HSBC 9 Investment Themes, the type of drones and a look at the supported infrastructure required for drones to operate fully.

1 Our focus will be on non-military and non-defence commercial applications of drones.

Drones disruption today…

Commercial drones are already used across a range of sectors

The disruptive implications of drones are significant and are applicable in range of sectors. Broadly speaking, drones enable the boosting of productivity, foster time and cost savings, generate more accuracy in tasks and can be labour saving, as well as improving the safety of operations.

Below we highlight some examples of drone-based solutions that companies have implemented or are developing today. We also indicate which of the themes identified by HSBC Global Research we believe this technology could impact (via hashtags). See page 21 for a detailed table of drones and their thematic and sector applications.

- **Mining:** BHP said using drones cut its inspection times by 75% and also saves it USD5m per year. It was able to use drones for inspections, surveying, and mapping instead of manned aircraft and workers. This allowed BHP to continue operations without having to shut down during inspections. The added benefit included improving workplace safety[2]. **#Automation**
- **Insurance:** Allstate, the American insurance company, cut the time it took to process claims after a storm from 11 days to 4.5 days, using drones after a customer reported damage[3]. **#DigitalFinance**
- **Healthcare:** A pilot scheme delivering chemotherapy drugs from Portsmouth to the Isle of Wight in the UK cut the time it took to deliver the medicine from 4 hours (two car journeys and a hovercraft/ferry) to 30 minutes by drone[4]. **#FutureTransport**
- **Industrials:** ABB released a gas-detection system using drones, which is used to monitor 3 million miles of pipelines in the US[5]. **#Automation**
- **Infrastructure:** Balfour Beatty partnered with West Sussex County Council in the UK, using drones to conduct inspections of bridges. Initial trials resulted in c.GBP8,000 worth of savings for the council[6]. **#FutureCities**
- **Telecoms:** Drones are an efficient way to monitor the communications lines for repairs and predictive maintenance but also the equipment on top of the telecoms masts. Telecoms are also enablers of network solutions that will provide secure mobile connectivity to drones for safe usage, thanks to 5G slicing. **#FutureCities**
- **Aviation:** Drones will enable inspections to be carried out with less noise pollution than helicopters, lowering CO2 emissions (0.7kg per km for a drone versus 18.7kg per km for a helicopter) and reducing inspection time significantly and in a more targeted manner[7]. **#FutureCities**
- **Agriculture:** AI drones could reduce herbicide use by as much as 90% versus traditional methods[8] **#Automation**
- **Retail:** Google claims deliveries made using its delivery drones in testing have taken delivery times to as short as 10-15 minutes from an order being placed, and are 50x more efficient than using a petrol powered vehicle, c.10x more efficient than using an electric car and thus much more environmentally friendly[9]. **#FutureTransport #EnergyTransition**

The HSBC Disruption Framework

Consumer drones are the furthest along our disruptive framework

In this report, we divide the drones market into three broad categories, namely: *commercial, consumer and eVTOLs (electric vertical take-off and landing vehicles)*.

2 Mining giant BHP saves an estimated $5 million per year using drones, Drone DJ, 1 August 2019
3 Meet your new insurance claims inspector: A drone, USA Today, 11 April 2018
4 NHS trials using drones to deliver chemotherapy drugs, BBC News, 5 July 2022
5 ABB Launches New Drone-Based Gas-Detection System, JPT, 2 April 2021
6 Flying into the future of bridge inspections, Balfour Beatty, 12 May 2017
7 From a bird's-eye view: multi-sensor system and artificial intelligence ensure secure power supply, Siemens Energy, 30 May 2022
8 AI Weed-Killing Drones Are Coming for the Mega Farms, Bloomberg, 19 April 2023
9 Google's Wing Kicks Off Mall-To-Home Drone Delivery Service, Forbes, 6 October 2021

Commercial and consumer drones have been widely available and in use for many years (eg. with some companies being founded as far back as 2006). However, similar to how the pandemic accelerated the wider use of pre-existing remote technologies (eg. video conferencing for work, telemedicine for healthcare or online shopping), we believe that drone utilisation within society could also accelerate in our era. We call this the 'normalisation of remote technologies'.

Pandemic may have accelerated adoption of remote technologies

The acceleration in drone adoption could happen for a variety of reasons, including companies wanting to automate more tasks to reduce human involvement in dangerous roles – heightened by pandemic-related labour and safety issues, cost savings and efficiency gains from replacing non-drone solutions, and also other ESG factors. During the height of the pandemic, we discussed how we observed transport-related autonomous technologies were being fast-tracked globally

Commercial drones have real applications but also more innovation to come

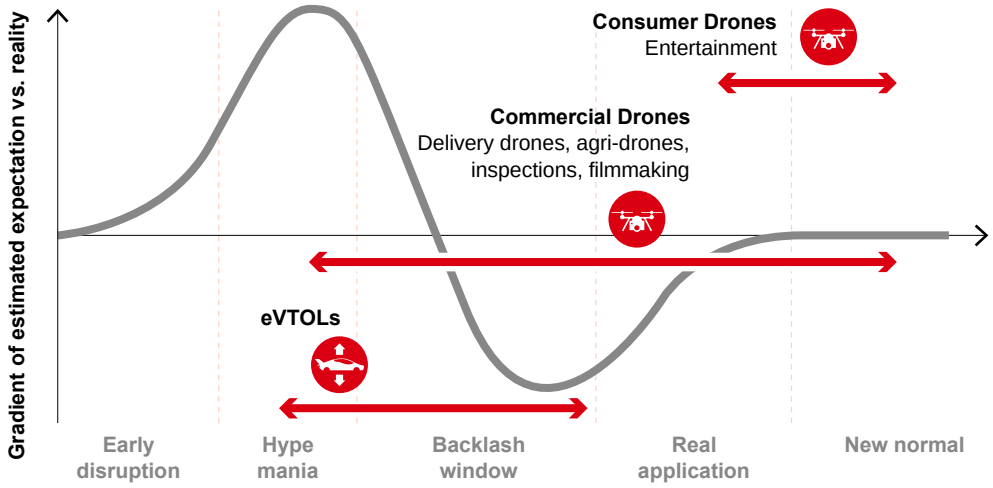
Commercial drone applications range across a wide spectrum. For example, drones have been used for building inspections for many years and would be classed as being in the 'real applications' and 'new normal' phases of our HSBC Disruption Framework.

On the other hand, delivery drones would be classed as being in the 'hype mania' and 'backlash window' phases. For instance, Amazon announced as long as a decade ago in 2013 that it intended to use drones for deliveries, but only in the last few months has it started testing delivery drones in two locations in the US (Lockeford, California and College Station, Texas) [10].

Consumer drones and public space warnings

Consumer drones (used for recreation) are largely in the 'new normal' and 'real applications' phase of the framework, meaning they are now widely available and, although they are constantly improving, are largely becoming accepted as the norm. They are so commonly used that large public spaces like parks often have signs warning against the use of drones in the air space due to privacy and safety concerns[11].

HSBC Disruptive Framework: The age of drones



Source: HSBC

eVTOLs are about to break through into seeing real applications into 2024/25

We have previously written in detail about the emerging eVTOL landscape. We believe that eVTOLs – essentially, electric aircraft capable of carrying human passengers – are about to enter the early phase of the 'real applications' stage, with some companies expecting to launch eVTOL commercial services in 2024/25. For instance, a US-based company has announced it

10 Amazon begins drone deliveries in 2 U.S. cities, The Hill, 26 December 2022
11 Amazon drones are coming to town. Some locals want to shoot them, The Washington Post, 20 June 2022

will launch its first route between Downtown Manhattan and Newark Liberty International Airport (in partnership with United Airlines) with commercial operations for starting in 2025. The trip would take less than 10 minutes each way, whereas a car or train can take more than an hour[12].

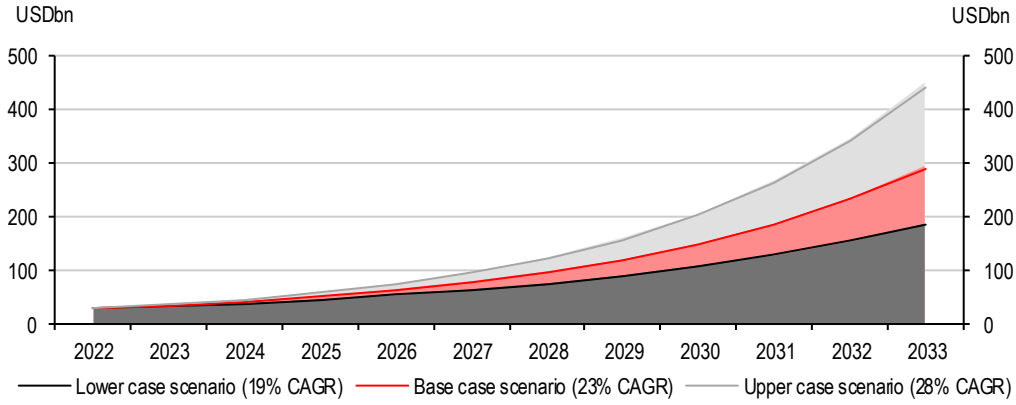
Sizing up the drone market

Global drone market could be over US290bn by 2033

Global Drone market: commercial, consumer and eVTOLs

We expect the total market size for drones (eg. dollar value of revenue in commercial, consumer, and eVTOL drone hardware and software sales) to grow from USD28.6bn in 2022 to USD290.5bn in 2033, in our base case scenario. This implies a 2022-33e CAGR of 23% for the total global drone market. Our lower case scenario (19% CAGR) sees the drone market growing to USD187.5bn by 2033. And in our upper case scenario (28% CAGR), we see the drone market growing to USD443bn by 2033.

Total drones market size projection (Commercial, consumer and eVTOL drones)



Source: HSBC

Is society ready for the dronescape?

If you build it… will they consume?

In terms of any new, radically different consumer technology led product or service, typically the first rule of business is that there must be a demand for it and if you build it – will they consume it? This might factor in whether enterprises deploy drones for public-facing drone services.

For example, eVTOLs (or the 'air-taxi') is a big shift away from what consumers or enterprise users are used to, and there will undoubtedly be questions around safety. For delivery drones, this will also be the case – consumers will want to know that having drones deliver their products will lead to safe, secure, fast, and cheap deliveries without damaging the product.

below, we take a look at a range of surveys to see whether the demand for these services exists today, and what factors may be holding people back from wanting to use them.

European attitudes to drone delivery versus eVTOLs[13]

European consumers welcome the drone tech…

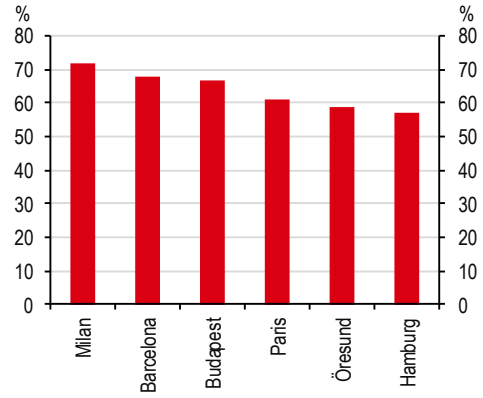
In 2022 the European Union Aviation Safety Agency is (EASA) released its Urban Air Mobility Survey. The survey showed a positive response to the Urban Air Mobility (UAM) sector, with 83% of respondents either 'rather positive' or 'very positive' in their attitudes.

12 Archer and United Reveal Plans for First eVTOL Route in the U.S., Aviation Today, 10 November 2022
13 EASA (an agency of the European Union with responsibility for civil aviation safety)

Southern cities are more open to the services than Northern regions

There seemed to be a geographic divide in Europe in terms of the likelihood that consumers try out UAM services. Southern cities like Milan and Barcelona were more enthusiastic about trying both delivery drones and eVTOLs. Whilst Northern regions such as Öresund and Hamburg were more reluctant, though still >50% willing to try delivery drones and >40% to try eVTOLs.

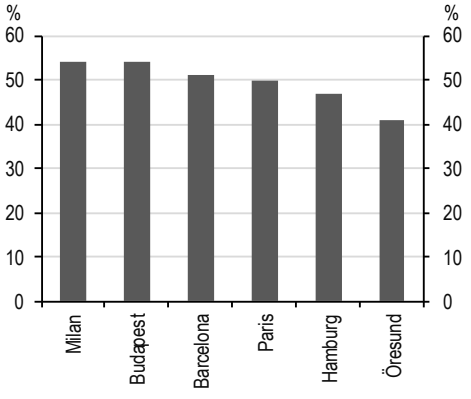
A strong majority of Europeans say they would try out delivery drones…



Source: EASA (2022)

Note: Assuming the delivery would cost about double today's standard shipping fees and is guaranteed within 2 hours

…but are generally more hesitant about trying out air taxis



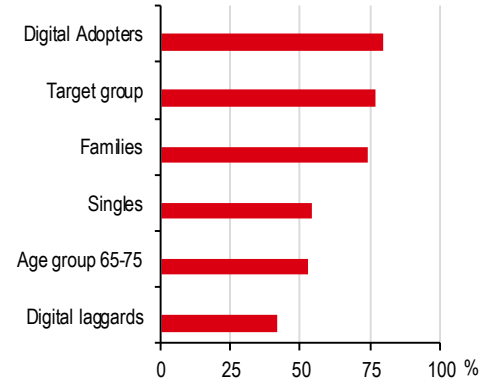
Source: EASA (2022)

Note: assuming a 25-50% higher price than current road passenger transport options and that the journey can be made in half the time

Younger people and digitally savvy consumers find drone services more appealing

Unsurprisingly, younger people, more digitally savvy people, and the target groups for both services are much more likely to try UAM services than the older demographic and digital laggards. Families were more positive than single people in wanting to try out delivery drones, perhaps out of the increased convenience of not having to leave the house with young children.

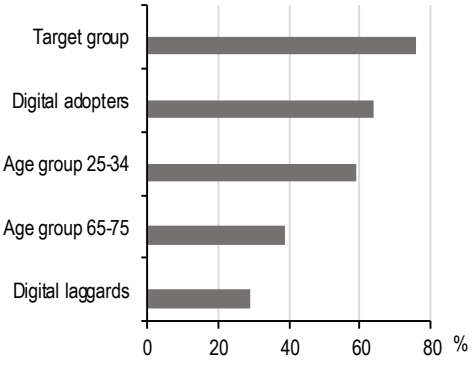
The digitally savvy and those already using express delivery are likely users of drone delivery…



Source: EASA (2022)

Note: Assuming the delivery would cost about double today's standard shipping fees and is guaranteed within 2 hours. Digital adopters – people accustomed to using other innovative services. Digital laggards – people not using them at all. Target group – people using drones already or are accustomed to express delivery options.

…the same goes for eVTOLs, with younger people the more likely users



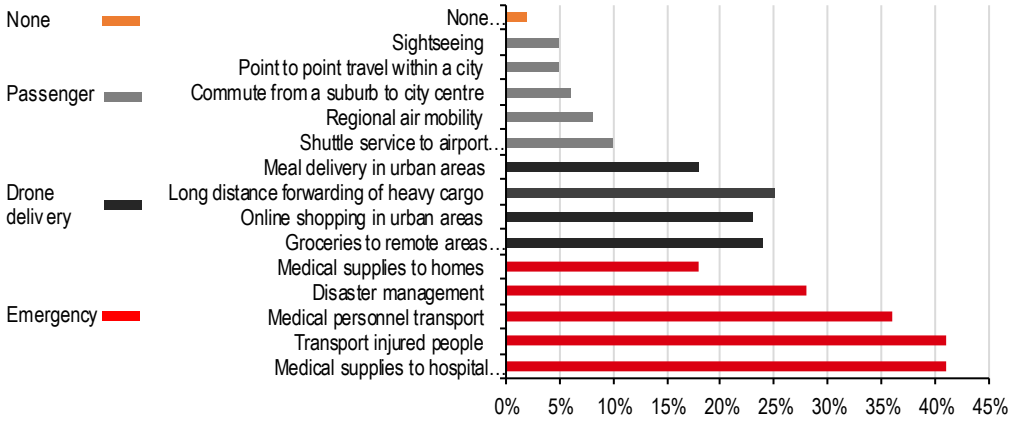
Source: EASA (2022)

Note: Assuming a 25-50% higher price than current road passenger transport options and that the journey can be made in half the time Digital adopters – people accustomed to using other innovative services. Digital laggards – people not using them at all. Target group – frequent travellers that get to the airport with air taxi substitute.

Europeans think UAMs are particularly useful for emergency applications

Emergency use cases (eg. medical transportation) were deemed the most useful application for UAMs, in particular, delivering medicines (41%) and medical personal to hospitals (41%). Among the most useful drone delivery applications were long distance forwarding of heavy cargo (25%) and delivering groceries (24%). Consumers were less convinced of the usefulness of UAMs as a means of passenger transport, perhaps because this is more of a convenience rather than essential use case.

Emergency use cases are considered most useful by Europeans…



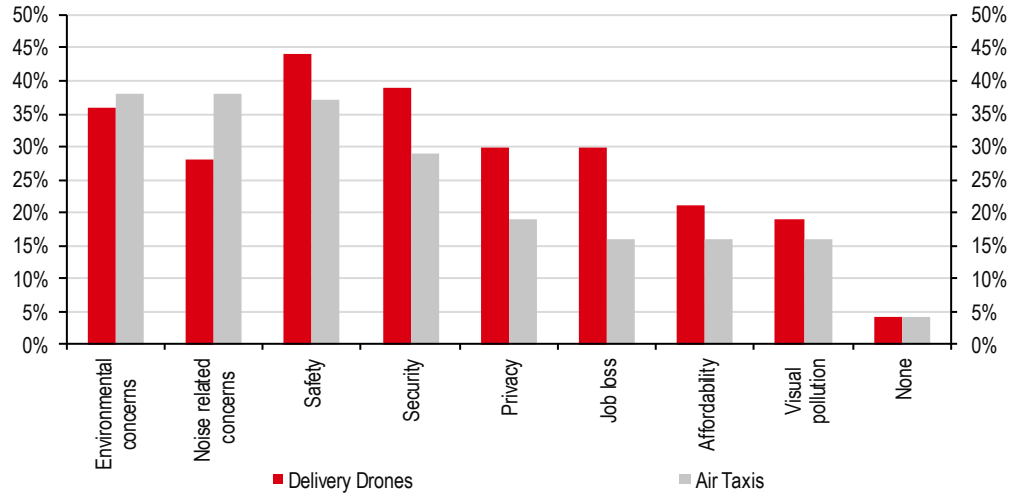
Source: EASA (2022)

Note: Q: Which of the following use cases are the most useful overall?

The environment, noise, and security concerns were the top consumer concerns

Environmental concerns, both locally and globally, ranked highly among consumer concerns about using delivery drones and eVTOLs, with noise-related issues a particular concern for eVTOL use (38% versus 28% for delivery drones). Security concerns were more pronounced for delivery drones (39%) than for eVTOLs (29%).

For eVTOLs and delivery drone, Europeans are most concerned about safety, environment, and noise



Source: EASA (2022)

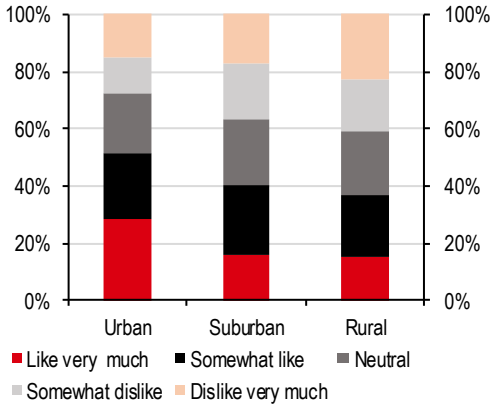
US attitudes to delivery drones

Some surveys indicate Americans are not very enthused by delivery drones…

In 2016, the United States Postal Service conducted a survey of how Americans felt about drone delivery services. The findings showed that urban residents had the most favourable outlook with 51% of them saying they either 'very much liked' or 'somewhat liked' the concept. Compared with 41% for suburban residents and 37% for rural residents. In fact, in rural areas 23% of residents said they 'very much disliked' the concept.

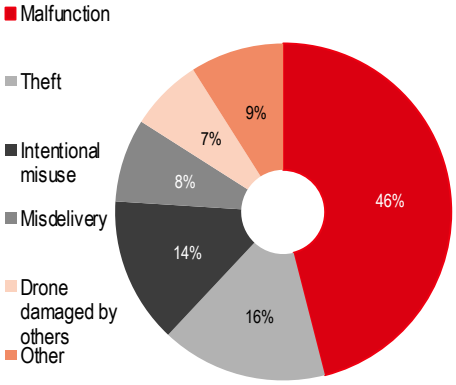
The United States Postal Service survey revealed that 37% of Americans felt the that drone delivery would be unsafe versus 32% believing it would be safe. Americans cited drone malfunction (46%), theft (16%), and intentional misuse (14%) as their top concerns[14].

Urban residents liked the drone delivery concept the most …



Source: United States Postal Service Inspector General (2016)

…Americans were most concerned about the drone malfunctioning

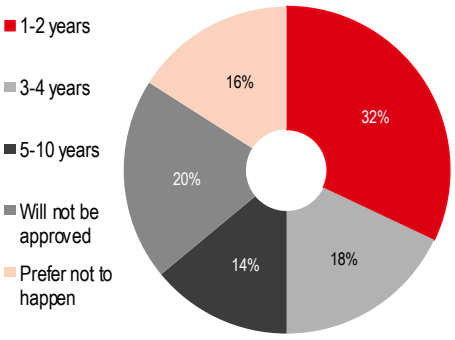


Source: United States Postal Service Inspector General (2016)

…though other reports provide more hope for drone delivery providers

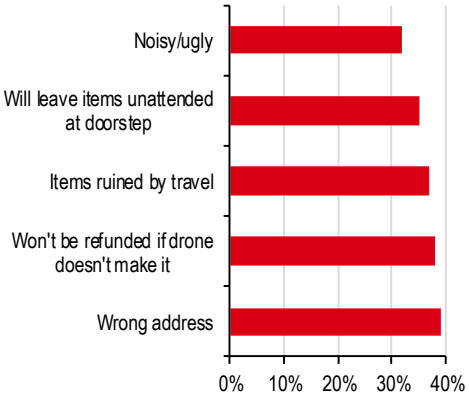
Not all the survey data from US consumers are as negative. A report by Auterion (an open-source software company) in August 2022 found that 64% of US consumers saw drones as becoming an option for home delivery. Interestingly, only 32% expected this to become an option in the next 1-2 years, with 18% saying 3-4 years, and 14% saying 5-10 years. Of the 36% with doubts about the technology, 20% think the public or governments will not approve, with 16% saying they would prefer it not to happen[15].

Most Americans see drone delivery as an option for them in the next few years…



Source: Auterion Drone Delivery in the United States (2022)

…concerns included drones getting lost, damaging items, and noise/visual pollution



Source: Auterion Drone Delivery in the United States (2022)

Most Americans say they will try drone delivery at least once or a few times

The report found 80% of consumers have packages delivered to their homes and 58% say they would actively prefer drone delivery. Of the 58%, 29% want to try it at least once, 11% would try it multiple times, and 18% believe it is the future. 41% of US consumers indicated that the highest add-on fee they would pay for a drone delivery service would be in the USD1-10 range.

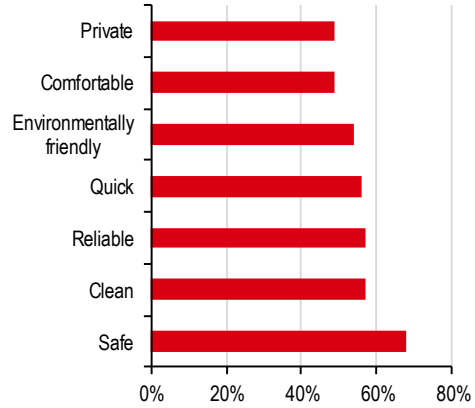
14 Public Perception of Drone Delivery in the United States, Office of Inspector General United States Postal Service, 11 October 2016
15 Drone Deliveries Are Happening Now, Auterion, 30 August 2022

Reasons cited for using drone deliveries include 56% of Americans believing it would help the environment, 44% believing it would be faster, and 35% believing it would be cost effective.

Doubts over the technology include damage to items and visual/noise pollution

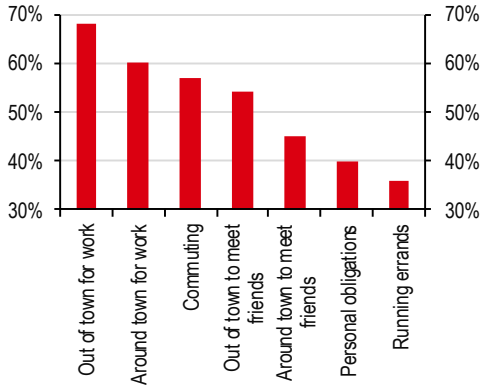
However, there remain doubts. 39% of consumers believe drones would deliver to the wrong address and 38% believe they would not be refunded if the drone got lost or damaged. Other concerns included damage in transit, leaving items in open areas, and cluttering the skyline.

Potential passengers would require eVTOLs to safe, clean, and reliable…



Source: Wisk Aero. Autonomous UAM: Taking Mobility to New Heights (2021)

…and would primarily use them for travelling to work engagements



Source: Wisk Aero. Autonomous UAM: Taking Mobility to New Heights (2021)

United States attitudes to eVTOLs

Wisk Aero produced a report of prospective users for commuting purposes

A report produced by a eVTOL company on US consumer's attitudes to eVTOLs (March 2021) based on a survey conducted among 21-65 year olds in 30 top US market DMAs (designated market areas). The respondents earned at least USD>75k a year and commuted 30+ minutes to work at least once per week. Respondents had positive attitudes to new technology and autonomous travel.

64% said they were extremely likely to use the service

Despite the targeted approach of the survey, the data are still useful, showing that of these middle-class commuters, 64% said they would be extremely likely to use an air taxi, with a further 31% saying they would be somewhat likely – see the charts above. Potential eVTOL users prioritise safety (68%), cleanliness (57%), and reliability (57%) as their top three requirements/perceived benefits from using an eVTOL, and would use them primarily for getting to work engagements, with personal obligations or running errands less of a priority.

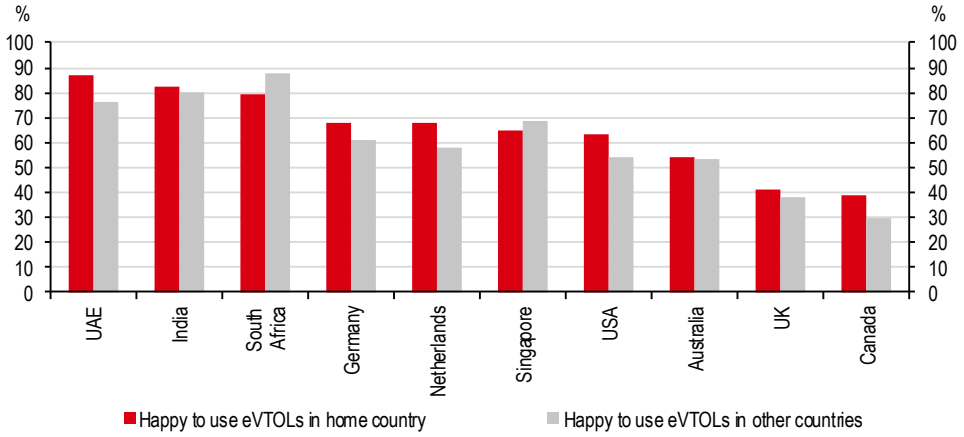
Other countries' attitudes to eVTOLs

A study found that UAE, India, and South Africa are the countries most eager to use eVTOLs

A study (of 10 countries from around the world) by another eVTOL maker (2021) found that the UAE and India have >80% of people wanting to use eVTOLs in their own country, whilst >80% of South Africans and Indians wanted to use eVTOLs abroad. Unsurprisingly, safety issues were the most commonly cited concern (76%), whilst 69% wanted assurances about the training of the pilots. Other concerns included the cost of flights (47%), comfort (38%), and environmental impact (43%). Nevertheless, 77% of those surveyed said they believed the sector's development is a positive thing[16] [17].

16 Majority of consumers willing to use air taxis, study finds, City Transport & Traffic Innovation, 2 June 2021
17 Horizon Aircraft research report: Safety key issue with public for future air taxi success, Urban Air Mobility News, 7 June 2021

A study of 10 countries showed overall that 65% of adults would use an eVTOL when approved in their own country and 61% of people would use an eVTOL abroad …



Source: Horizon Aircraft (2021), Urban Air Mobility News, City Transport & Traffic Innovation

eVTOL features such as safety, low noise, and no emissions could help assuage consumer's concerns

Consumers (generally) ready for drones?

Overall, the survey results are promising for eVTOL providers, with a substantial proportion of consumers in every country surveyed saying they would try an air taxi or drone delivery service. Concerns could also be assuaged by eVTOL companies: most people cite noise, environmental concerns, and safety as their primary doubts, while eVTOL companies claim they are much quieter than other air travel such as helicopters, and much safer. They are also electric, with zero emission. Therefore, it is a case of educating the public about the benefits before launch.

The big risk to either service remains an accident resulting in a fatality

The major risk for both eVTOL and delivery services is a fatal accident involving delivery drones or eVTOLs. Should this happen early on in the launch of a delivery or air taxi service, it could severely damage public perceptions of the safety of the service.

This is a Free to View version of a report with the same title published on 15-Jun-23.

The full note delves deeper into the Drone Disruption theme. In the full thematic report, we: 1) Explore how drone applications can impact HSBC's nine big research themes, from Automation to Future Cities. 2) Look at the different types of drones and drone technological enablers and sub-systems, including cameras, sensors, processors, AI, smart software, connectivity (4G/5G), batteries and motors, and how drones raise cybersecurity and privacy issues. 3) Understand supporting infrastructure for drones, eg regulation, insurance, take-off and landing sites, air traffic management, superhighways, vertiports and more…

Please contact your HSBC representative or email AskResearch@hsbc.com for more information.

Impact of drone technology on the big HSBC themes and sectors

HSBC theme	Sector(s)	Drone applications	Examples
Automation	***Industrials, utilities, and basic materials***	◆ Inspections in warehouses to flag missing items and check inventory levels ◆ 3D mapping mines and unmapped underground areas	◆ BHP said it saves USD5m per year using drones instead of equivalent plane costs for inspections. ◆ Rio Tinto has highlighted its use of drones for safety, surveying and security. ◆ Vestas Wind said it uses drones for wind turbine rotor blade inspections.
	Consumer staples	◆ Inspections and analysis of forestation, livestock, crops, etc ◆ Spraying fertilisers onto crops	◆ Drones can survey 50 acres in an hour while manual scouting takes 11 hours to cover an acre. Drones are also 25% more accurate.
Digital Finance	***Banking and insurance***	◆ Roof, home, building inspections for insurance companies ◆ Inspecting auto accidents	◆ Drones are being used for automated residential roof inspection, with data being available for insurance companies. ◆ A British bank has previously tested drones to delivery customers their cards.
Disruptive Technology	***Entertainment***	◆ Drones for filming television series, films, or documentary's i.e. photography and videography	◆ Drones have been used to create drone shows e.g. London NYE display. ◆ Drones have been used to film The Amazing Race, American Ninja Warrior, and Game of Thrones.
	Healthcare	◆ Delivering medicine, blood, vaccines, etc, to remote areas	◆ Drones have been used to transport blood, vaccines, and medicine across Rwanda, Ghana, US, India, the Philippines, Nigeria, Cote d'Ivoire, Kenya, and Tanzania.
	Telecoms	◆ Inspections of communication towers and aerial lines ◆ Providing connectivity, cloud, big data, and analytics for drones, supported by 5G slicing and low latency ◆ Drones-as-a-service (DaaS)	◆ AT&T said it has used drones to inspect cell towers and offer smartphone connections via drones to remote unconnected areas. ◆ Verizon said it has used drones to inspect tower sites damaged by severe storm flooding. ◆ Iliad in France has invested in a drone company which helps in maintenance but also in identifying sites for future implantation of mobile towers. ◆ With 5G slicing, operators can dedicate specific spectrum capacity for drones to fly securely ◆ AT&T has tested Cell on Wings (COW) drones to offer 5G connectivity where no service is available (e.g. site recovery)
	Technology and software	◆ Building and designing drones, eVTOLs, etc ◆ Providing cameras, thermal imaging, data analytics for drones	◆ Google and Amazon have their own companies for eVTOLs and delivery drones. ◆ Software companies have worked together with hardware companies on software development kits and the use of AI, ML, and the cloud to improve drone analytics and tech.
Energy Transition	***Energy***	◆ Inspections of pipelines, wind turbines, solar farms, and oil storage tanks ◆ Thermal imaging inspections, water inspections	◆ Shell has used UAVs to increase operational efficiency and boost safety standards at its facilities, allowing inspections without having to shut down sites. ◆ Iberdrola uses drones to inspect wind turbines without having to use humans or shut down the turbine. Data is more accurate, allowing for predictive maintenance.
Future Cities	***Real estate and construction***	◆ Drone based water sampling of water quality, building inspections, emergency services use i.e. firefighters or police ◆ Mapping coastal/inner city areas to find plastic waste ◆ Monitoring building sites i.e. surveying, health and safety threats	◆ Bechtel Corporation uses drones to conduct real time analysis of environmental conditions e.g. temperature, air quality etc at building sites. ◆ Balfour Beatty and West Sussex County Council partnered in routine inspections of two bridges, saving the council USD10,000 and causing less traffic disruption in the area.
Future Consumer	***Retail***	◆ Delivering parcels/packages to consumers ◆ Consumer drones for entertainment/fun ◆ Inspections in warehouses to flag missing items and check inventory	◆ A partnership between a shipping company and a US drone company delivers medical supplies and samples in North Carolina using drones. ◆ Amazon has a drone programme with the intention of delivering parcels from warehouses to customers within minutes of ordering. ◆ Walmart uses drones in warehouses to manage inventories.
Future Transport and energy transition	***Aviation***	◆ Public transportation, air taxis to and from airports ◆ Autonomous zero emission transport options that are 1000x quieter than helicopters	◆ EasyJet, AF-KLM, IAG and many other European carriers use drones to inspect the fuselage for lightning strike damage as well as other areas of the planes. Drones can do in two hours what takes a team of humans six hours. ◆ A US airline and a US eVTOL manufacturer have partnered to transport people to Newark Airport from Downtown Manhattan using eVTOLs. They recently announced the next point to point route in Chicago (between O'Hare international airport and Vertiport Chicago).

Source: HSBC, companies

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