Unmanned Aerial Vehicles Market - Growth, Trends, Covid-19 Impact, and Forecast (2023 - 2028)

Market Report | 2023-01-23 | 100 pages | Mordor Intelligence

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Report description:

The unmanned aerial vehicles market is expected to register a CAGR of over 7% during the forecast period.

The UAV market experienced a moderate impact due to the COVID-19 outbreak. The relocation in the budget of countries toward developing medical infrastructure has limited the defense budget expenditure toward research, development, and acquisition of deep-tech products.

However, the segments under the civil and commercial divisions may witness stable growth. Countries worldwide are exploring ways to use unmanned aerial vehicles (UAV) to deliver vaccines, supporting business demand. In August 2021, the United States launched the COVID-19 vaccine drone delivery program. The program is managed by UPS and operated by North Carolina-based health systems. Similarly, the Union Minister of India announced integrating a drone delivery system to deliver COVID-19 vaccines and medicines and collect blood samples. Such initiatives ramp up the requirement for unmanned aerial vehicles during the pandemic period.

The growing realization of UAV deployment in military operations has encouraged vendors to offer UAVs that can be used in numerous commercial applications. UAVs are also being adopted in other applications, including internet provision in remote places, aerial photography and video recording, survey and document wildlife, and public service missions. Several companies primarily offer small-UAVs used in agricultural and aerial photography and data collection applications. In the military domain, unmanned combat aerial vehicles (UCAVs) are considered low-cost alternatives to combat aircraft. They also provide less collateral damage than missiles or aerial bombing deployed from manned aircraft. However, the growth of the UAV market can be hindered by technological and legal constraints, such as limited endurance, SWaP and bandwidth challenges, and the presence of non-uniform laws and regulations that can restrict the usage of such systems in the airspace of certain countries.

The supply chain within the OEMs worldwide and their subsidiaries play a vital role in governing the business dynamics of the unmanned aerial vehicles (UAV) market. The COVID-19 outbreak had a notable impact on the supply chain, leading to business disruption. Companies located in Asia-Pacific and Latin America are more vulnerable and envisioned to face operational constraints and high financial risk exposure due to supply chain bottlenecks. The nature of the supply chain and resourcing patterns of the defense technology industry base (DTIB) may also affect production, as production queues with branched-out supply chains are more likely to face supply-side constraints. However, it is a short-term challenge that will be eliminated with new operational infrastructure. Higher demand and lower production costs in this region compared to North America and Europe may allow them to witness a higher CAGR during the forecast period.

Unmanned Aerial Vehicles Market Trends

The Civil and Commercial Segment is Expected to Dominate the Market During the Forecast Period

The commercial drone sector witnessed high growth with numerous technological innovations. Miniaturization and COTS technologies are providing low-cost products for even the smallest UAVs in the market, leading to a procurement spree of mini- and micro UAVs by commercial operators. The vendors primarily offer small UAVs for agricultural, aerial photography, and data collection applications. Full-sized UAVs, such as the Chinese CH-4, are also deployed for geological surveying, ocean monitoring, meteorological observation, and forest fire prevention missions.

Home deliveries via drones have become a reality due to the efforts of logistics and retail companies, such as Amazon and UPS, toward rolling out the technology. As commercial drones can travel at up to 100 mph and deliver goods under 5 lbs (2.3 kg), the delivery mechanism is expected to decrease the delivery time and associated costs. To prepare the ground rules that will allow the flight of delivery drones and other commercial unmanned craft, the FAA has put forward recommendations for the governance of delivery drones, including requirements that all delivery drones need to be equipped with tracking hardware that will allow each delivery copter to be identified. Operators will also be required to furnish details on the technology used to track and relay instructions to the drones. Other recommendations include airspace management rules, such as permissible operational height below 2,500 feet, away from airports, sports events, and landmarks, and a "Trusted Operator System" that will exempt some commercial drone operators that use the craft for security and surveillance.

To enhance the performance parameters of commercial UAVs, manufacturers are adopting alternative power sources for attaining long-duration flights. Technology giants, such as Google and Facebook, have acquired firms, such as Titan Aerospace and Ascenta, respectively, to facilitate the development of UAV technologies and create a worldwide network that can offer internet access in rural areas. Such developments are anticipated to drive the adoption of UAVs by civil and commercial end-users.

Asia-Pacific to Witness the Highest Growth During the Forecast Period

During the forecast period, Asia-Pacific is expected to witness the highest growth rate due to the expansion of defense capabilities in key countries, such as China, India, Japan, and South Korea. The paradigm shift in favor of unmanned systems reflects the military's general tendency to be at par with the most advanced technology available and perceptions of the emergence of asymmetrical warfare.

The development of home-grown UAVs is likely to increase due to the rising initiatives for indigenous aerospace platforms, which may significantly boost the UAV market in Asia-Pacific. The increased number of initiatives undertaken by OEMs toward indigenous development in the field of UAVs is expected to boost the adoption rate of the technology through easier access to low-cost UAVs.

The technology is expected to have significant implications for many industries, ranging from public safety to farming automation, from disaster relief to infrastructure maintenance. Countries such as China, India, and Pakistan have been upgrading their respective inventories of military UAVs. Collaborative efforts by dominant market players are underway in the association of government bodies to capture the high growth potential of the market.

Integration of unmanned vehicles in manned combat operations has allowed players to explore novel business opportunities within the military segment. In November 2021, China's People's Liberation Army announced its plans to execute joint manned and unmanned aerial operations. The government plans to use indigenously manufactured J-20 fighter jet aircraft with four drones in a tandem strategy for the trial basis. These operations will notably improve the country's aerial military and operational capabilities, such as surveillance, search, rescue, and close combat.

Unmanned Aerial Vehicles Market Competitor Analysis

Thales Group, Elbit Systems Ltd, Israel Aerospace Industries Ltd, Northrop Grumman Corporation, and BAE Systems PLC are the largest players in the market studied. The unmanned aerial vehicles market is highly competitive, with many prominent players competing for a larger market share. The stringent safety and regulatory policies in the defense and homeland security segment are expected to restrict the entry of new players. However, the commercial and civil segment is expected to witness rapid growth due to the entry of many players, as the segment is not governed by economies of scale.

Companies with superior technical capabilities are expected to contribute significantly toward technological advances in the propulsion systems and payload characteristics of UAVs, resulting in a shorter development cycle time and significantly augmenting the operational capabilities of mini-UAVs. Since the payload, endurance, and flight range of a UAV platform are the primary concerns of OEMs and operators, the emergence of alternative fuel-powered UAVs is expected to cause significant changes in the competitive scenario. The use of composite-based materials for the construction of critical components and parts of UAVs may increase the capabilities of the UAV platforms and fuel their widespread adoption across different industries.

Additional Benefits:

  The market estimate (ME) sheet in Excel format
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Table of Contents:

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