



Urban Air Mobility (UAM) INDUSTRY STUDY



EXECUTIVE SUMMARY

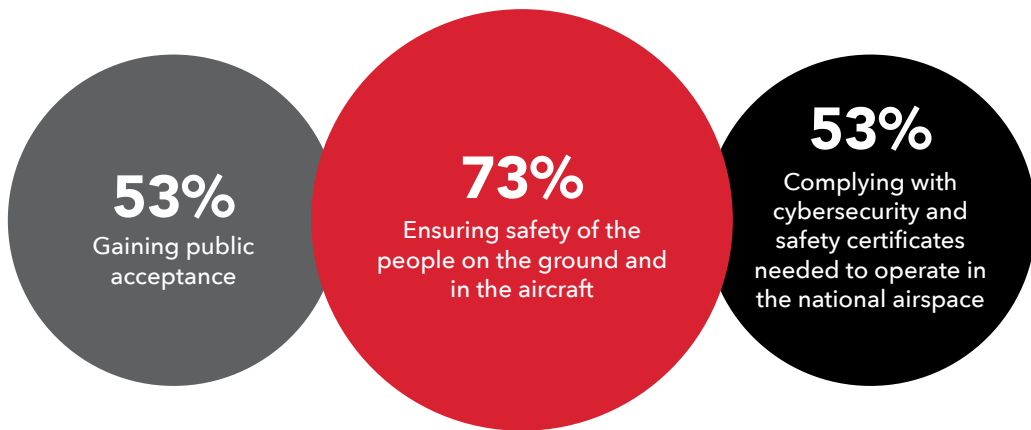
Key findings from this 2019 Urban Air Mobility Study included:

- 1** Governmental/institutional based use cases are expected to lead in the UAM market, with transportation and data collection services likely to be the initial private sector-based applications.
- ‘Surveillance, ground traffic, and law enforcement operations’ and ‘Emergency medical evacuations, rescue operations, and humanitarian missions’ are currently the most mentioned UAM use cases.
 - Respondents anticipate ‘monetizing transportation services’ and ‘monetizing data collection services’ to be the most successful business models, indicating these are most likely use cases when the private sector enters the UAM market.

- 2** UAM is currently still in the early stages of development, although significant UAM programs are expected to be part of many responding organizations’ business strategies in the next 1 to 3 years.
- Only 11% of respondents’ organizations are currently at either the “Prototype/Fielding” or “Deployment” stages of the development cycle for their most strategically important UAM programs.
 - However, this situation is changing: almost half of the survey respondents (46%) said that UAM will be ‘a significant part of (their) organizations’ business strategy in the next 1 to 3 years’.

- 3** ‘Ensuring safety’, ‘Gaining public acceptance’, and ‘Cybersecurity/safety certification compliance’ are the key challenges facing UAM, according to survey respondents.

- The key challenges identified by respondents are



- Additional UAM challenges and/or opportunities identified via open-ended question include: (i) sub-system development (e.g. AI; multi-use platforms; system reliability); (ii) regulations and standards for the UAM industry (e.g. operating agreements; command and control structure; integration with conventional air traffic); and (iii) addressing key business issues in the UAM market (e.g. competition with existing services; closing the profitability loop; liability of casualty events).

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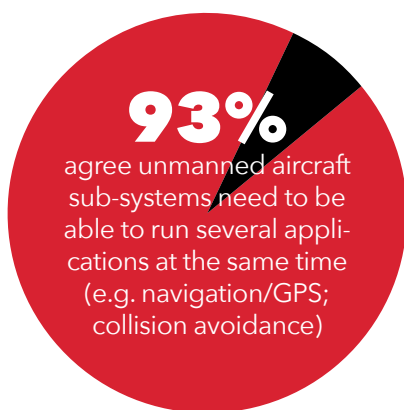
4 Cybersecurity and safety standard compliance are considered key, although stronger consensus around specific standards within the UAM industry is still needed.

- While the most-mentioned cybersecurity standard is 'ISO 27000 series', only 47% mentioned it; in addition, respondents still consider 'certification/approval requirements' to be the most significant obstacle to organizational compliance (43% indicated).
- Survey respondents feel that manned and unmanned urban aircraft should follow similar/same safety procedures and certifications (69% agreed), although some feel the standards applicable toward unmanned aircraft should be more stringent. There is still limited consensus on what specific safety standards are applicable, with 40% or fewer respondents mentioning each of the primary two standards: 'FAA Part 107' (40% mentioned) and 'FAA Part 23/EASA CS-23' (37%).
- However, there is relatively strong consensus regarding COTS components, with 80% of respondents saying they are likely to use these. There is also a relatively strong preference (66% favored) that safety and security technology be 'built into the software and/or hardware platforms.'

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AGREED
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80%
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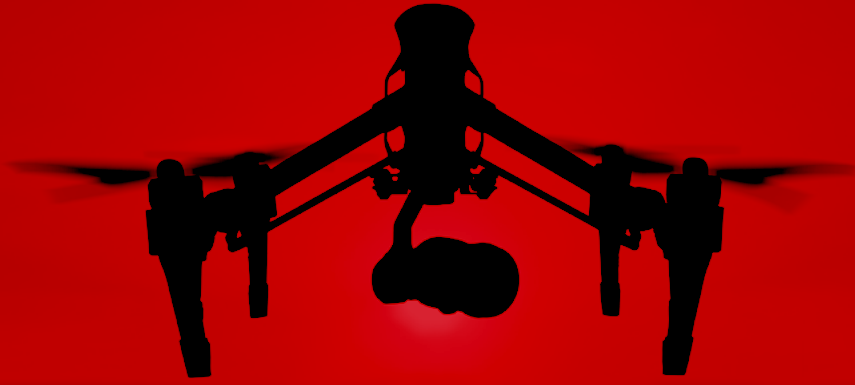
5 UAS sub-systems play a key role in making the UAM market viable, with respondent preferences for systems' ability to run several applications at once and the ability to migrate existing applications to their current and/or next designs.



Key applications to consolidate or add include



- Most respondents (83%) considered the ability to 'migrate existing applications to (their) current/next design' as at least 'somewhat important.'
- The most preferred operating system (OS) is 'some form of Linux' (61% mentioned one of 7+ choices), followed by Google® Android® (36%) and Microsoft® Windows® (33%). Hardware/processor preferences include Intel Xeon, Core i5/i7 and Atom (62% mentioned) and Arm Cortex A5x, A7x, and R5x (40%).



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