International Civil Aviation Organization

Twenty Sixth Meeting of the Communications/Navigation and Surveillance Sub-group (CNS SG/26) of APANPIRG

Video Teleconference, 5 – 9 September 2022

Agenda Item 15: Any Other Business

IATA'S AIRCRAFT EQUIPAGE AND CAPABILITY SURVEY

(Presented by IATA)

SUMMARY

This paper presents progress analysis of airline responses to IATA's Aircraft Equipage and Capability Survey for Asia-Pacific and North Asia conducted in Quarters 1 and 2 of 2022 and is ongoing.

1. INTRODUCTION

1.1 In recent years there have been multiple queries about fleet capabilities during ICAO meetings and other workshops dealing with CNS requirements and possible mandates. Unfortunately, the most recent and complete information isn't always available, and we have needed to conduct many smaller ad-hoc surveys to meet action items.

1.2 Understanding that a lot has and is still changing throughout and post-COVID, it was identified as an opportune time to conduct a broad and detailed survey in order to build a detailed baseline database for operators in our region.

1.3 As our industry is still in recovery mode from COVID-19, the IATA Aircraft Equipage and Capability Survey asked member and non-member airlines for responses that projected forward in a window of where fleet capabilities will be by the end of the 2022 calendar year.

2. DISCUSSION

The Survey

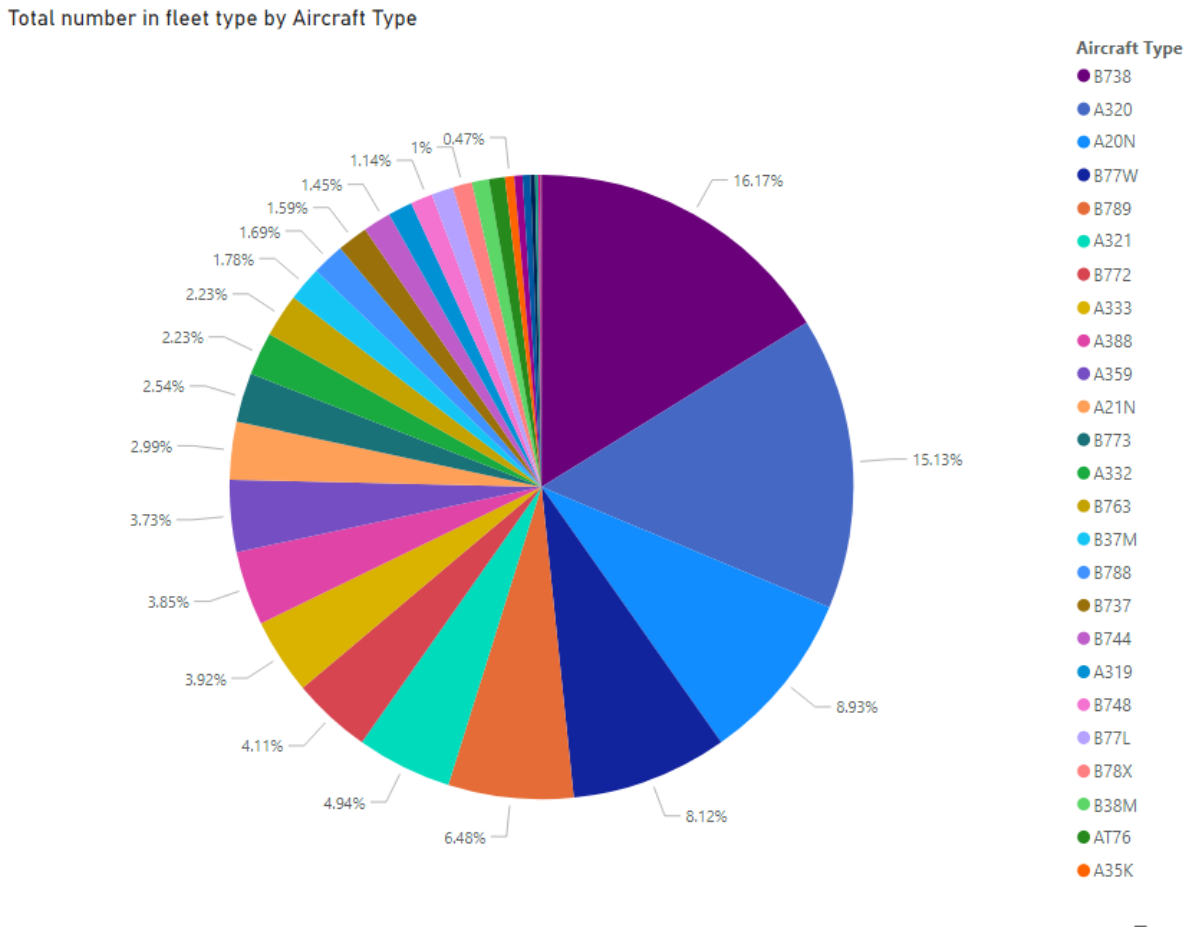
2.1 The survey specifically asked for aircraft fleet capabilities and operating approvals in the domains of PBCS, PBN, GNSS Augmentations, Mode S and SWIM. The airlines were asked to provide indications on future intentions where current capabilities were planned to be enhanced.

2.2 The survey also asked for information on likely regions or sub-regions where the specifically equipped aircraft are expected to operate. These regions were separated into the two primary IATA regions of ASPAC and NASIA which when combined is almost identical to the ICAO Asia & Pacific (APAC) region.

2.3 Sub-regions were listed as India/BoB, ASEAN, SE Asia and South Pacific to permit more accurate responses from operators that have some concentrated fleet operations within those sub-regions only. The objective of this is to permit future analysis to 'drill-down' in those sub-regions when discussions on CNS capabilities are specific to those areas.

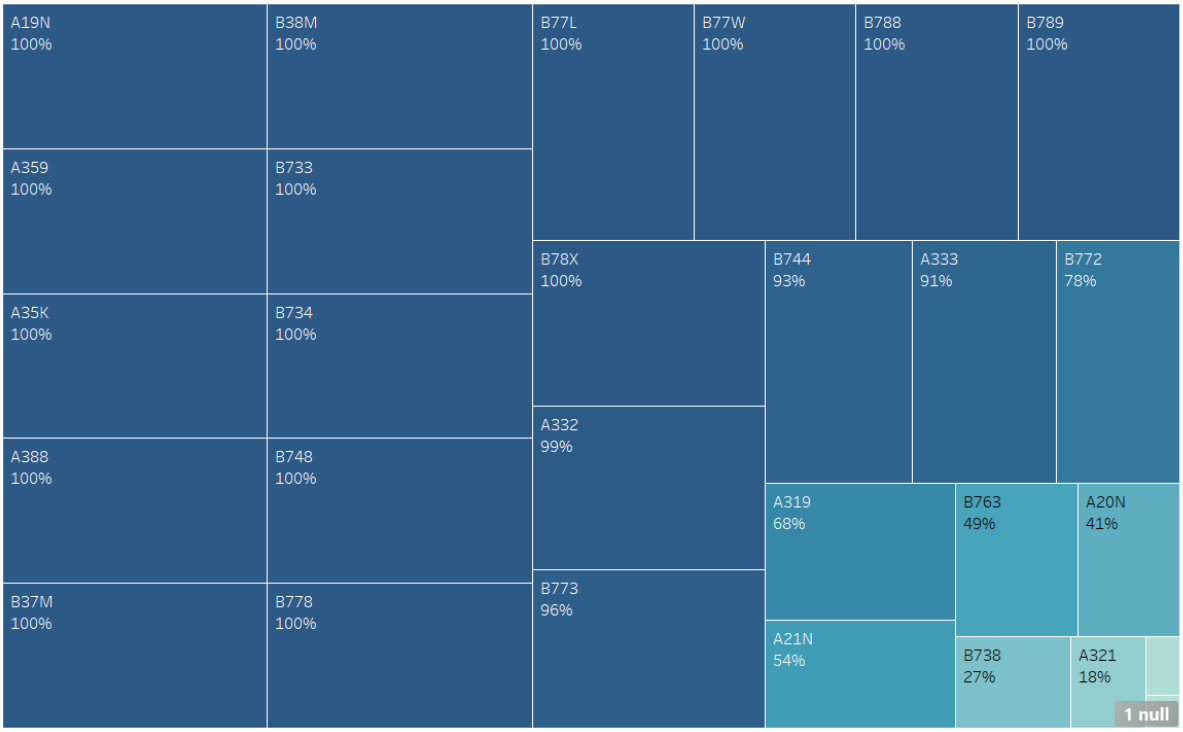
2.4 To date responses have been received from 26 airlines which includes most major airlines based in APAC, several that are based in other regions but operate here, and several other airlines from within the region. Responses are still being sought in order to continue building the database which currently records equipage and capability data for over 4200 aircraft.

2.5 This paper covers preliminary analysis of data the responses received to date for the specified categories across the individual and generic fleet aircraft types.

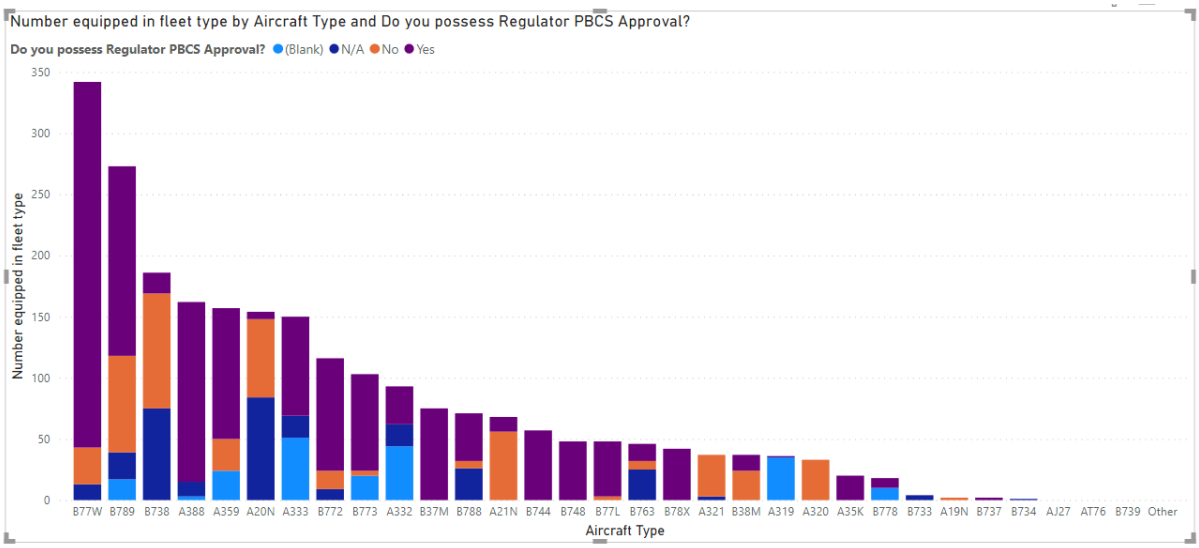


PBCS:

2.6 Percentages of fleets reported that are CPDLC and ADS-C equipped:

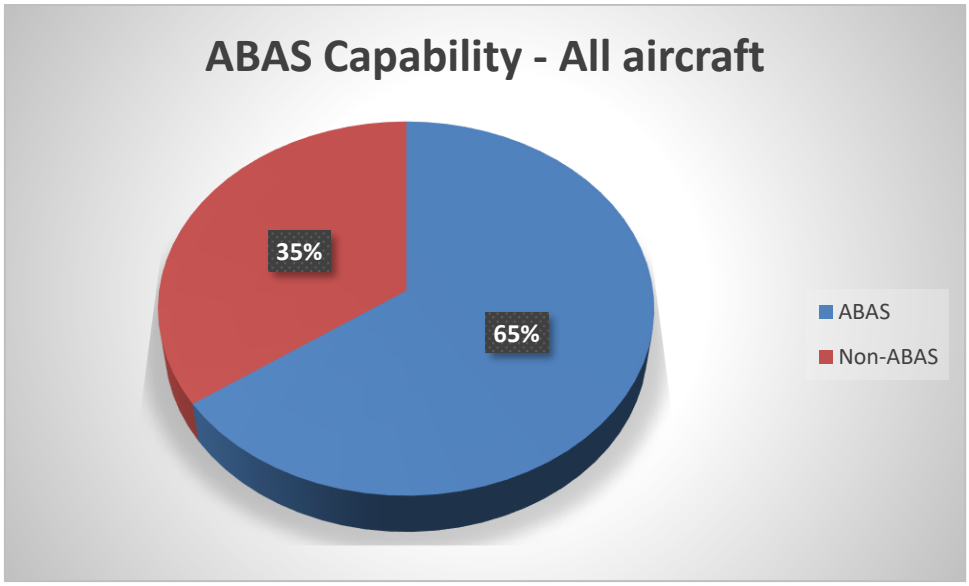


2.7 Aircraft numbers that have PBCS capability and regulatory approval:

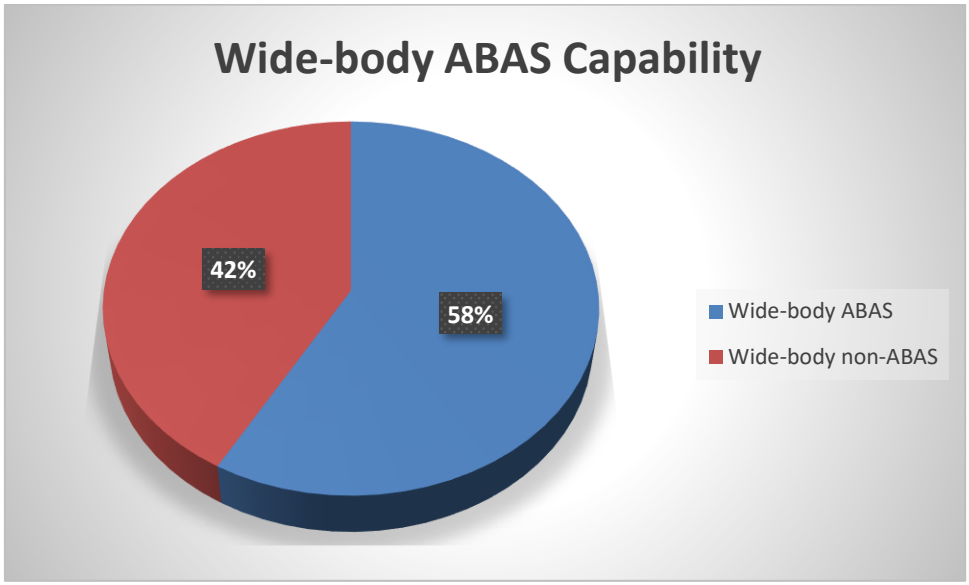


ABAS

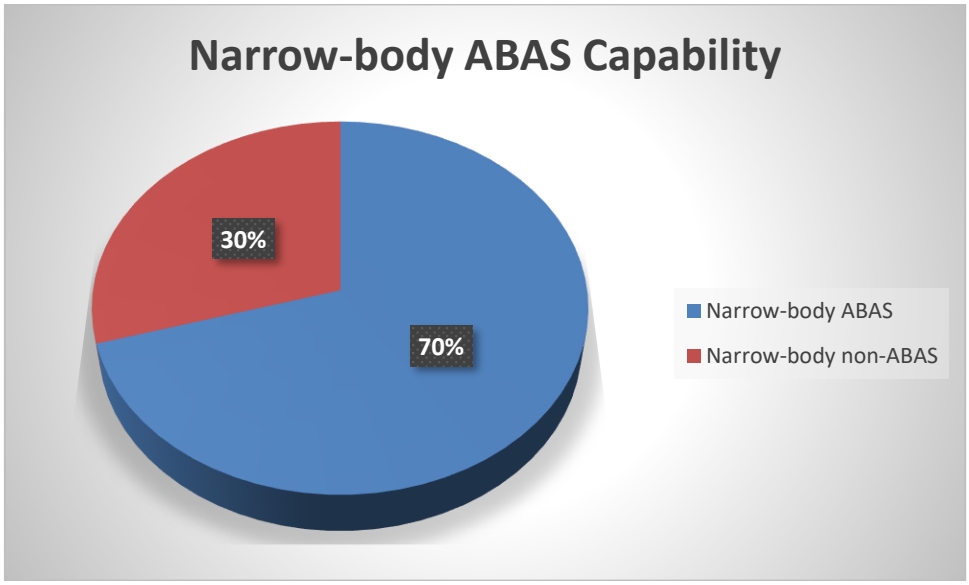
2.8 The data is showing that slightly less than three-quarters of the aircraft in the region are ABAS capable.



2.9 Wide-body ABAS capability is approximately two-thirds with many of the non-capable aircraft older models with limited remaining lifetime.

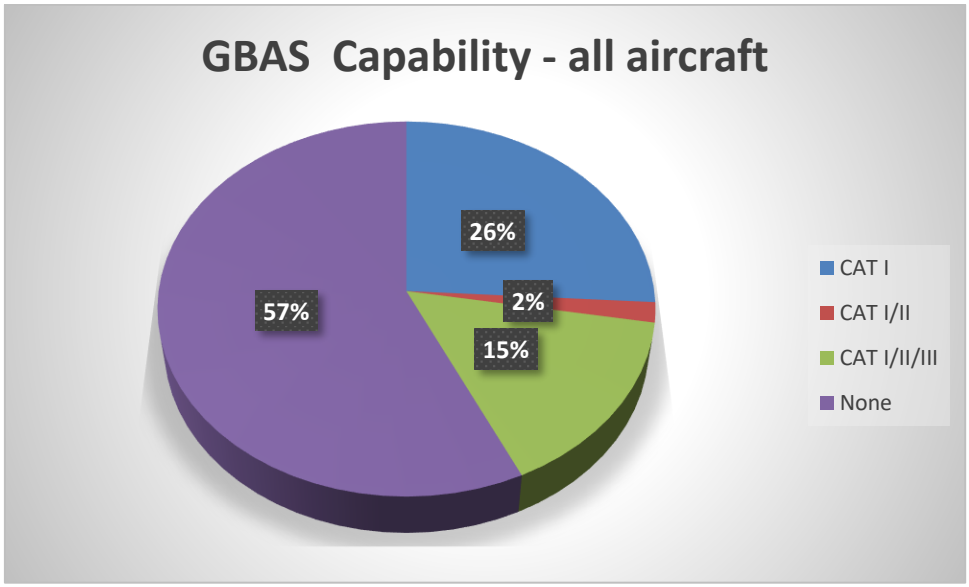


2.10 Narrow-body ABAS capability is 70% however more of the non-capable aircraft are either older models or those that operate within a smaller sub-region.

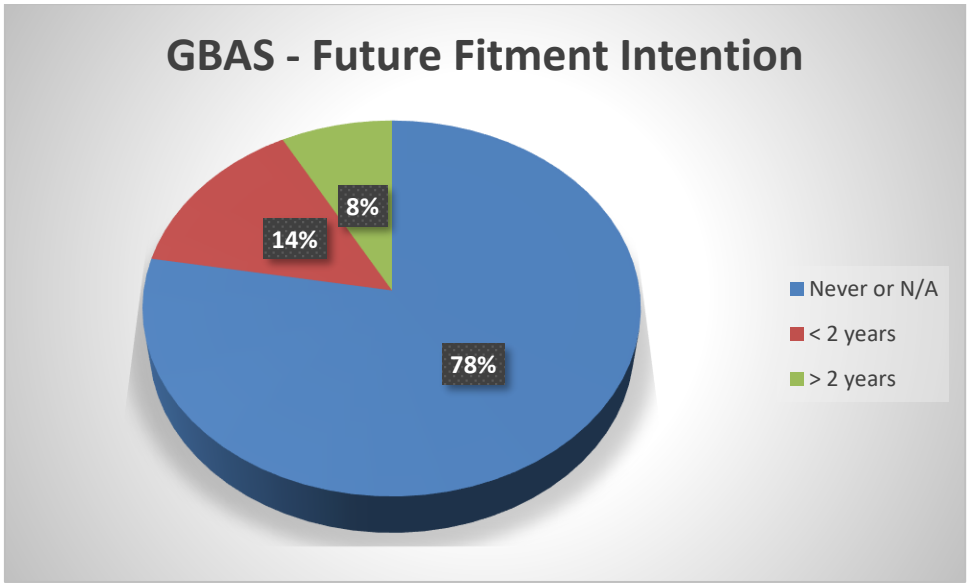


GBAS

2.11 Responses are showing that over half of the surveyed fleets are not GBAS capable which in part is a reflection on number of locations with the infrastructure or alternative navigation infrastructure. Equipped aircraft are primarily equally divided between CAT I capability and CAT I/II/III with only a few just CAT I/II.

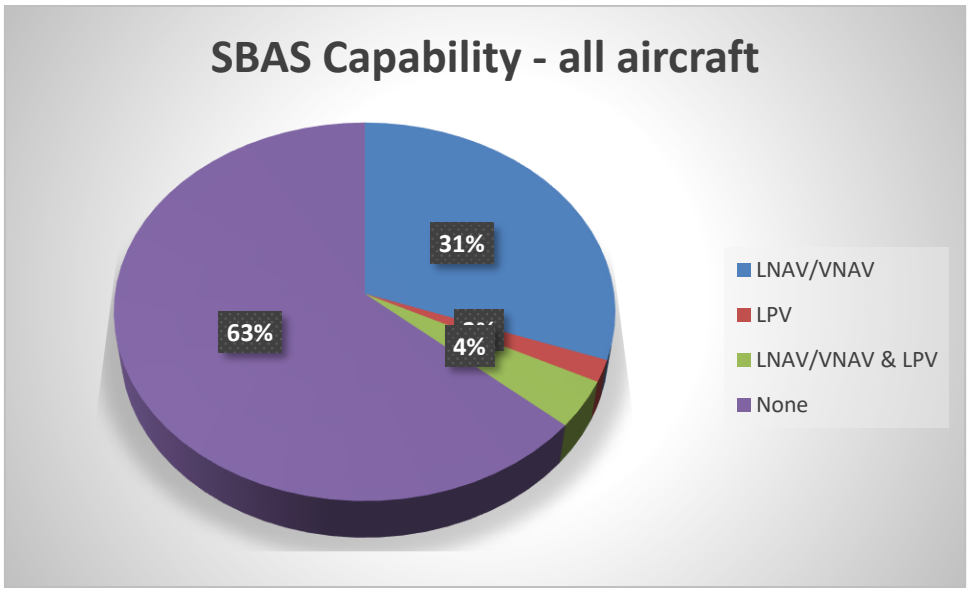


2.12 Of those not GBAS capable, over three-quarters of responses indicated no intention of future fitment or deemed it N/A which is treated as the same. Of those that do intend to fit in the future, more intend to adopt the capability in the shorter term rather than the medium-long term.

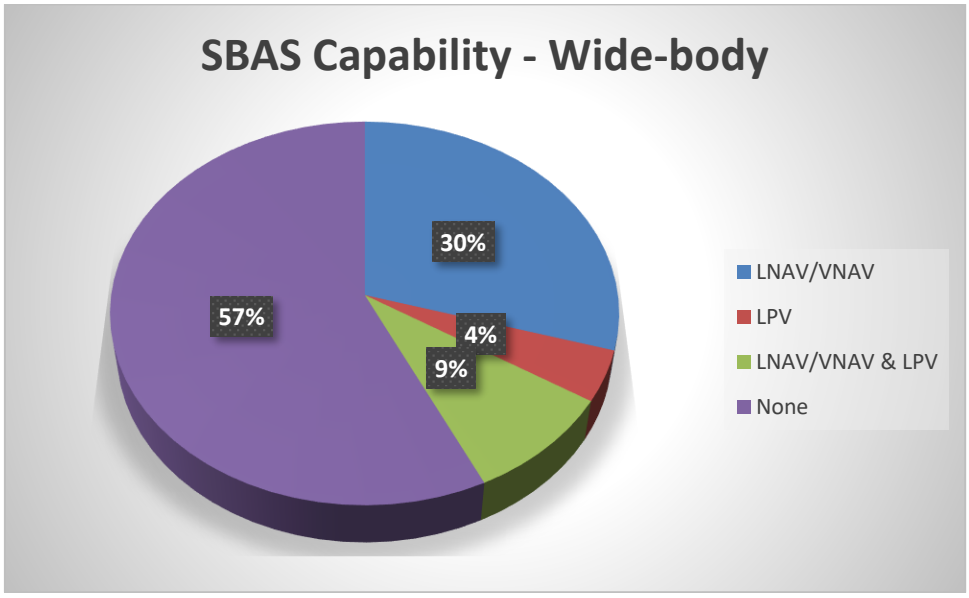


SBAS

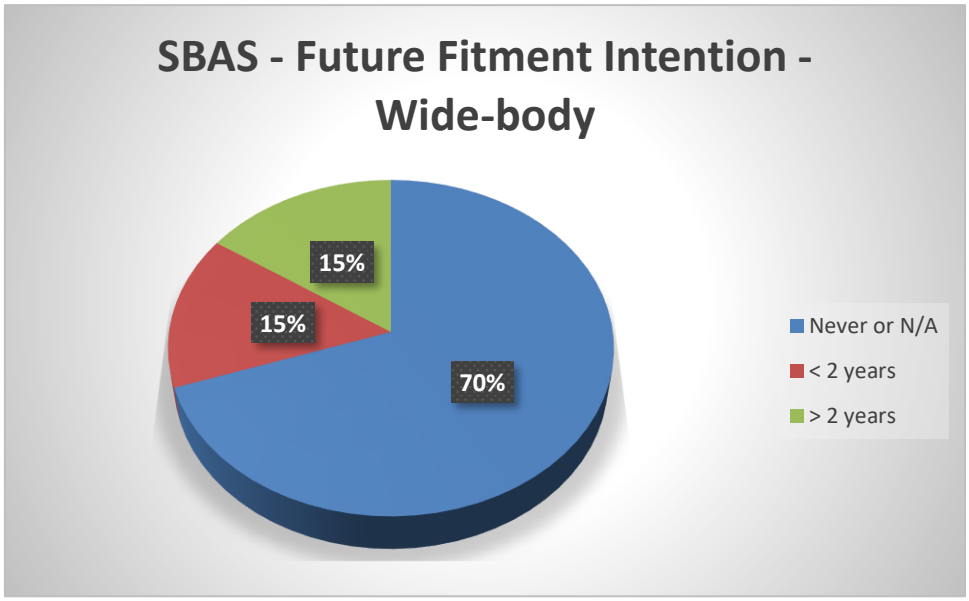
2.13 Like GBAS, the majority of aircraft in the responses are not SBAS equipped which is likely a reflection of its current areas of application or alternative navigation infrastructure meaning further cost of investment is not justified. The majority that are equipped are LNAV/VNAV capable.



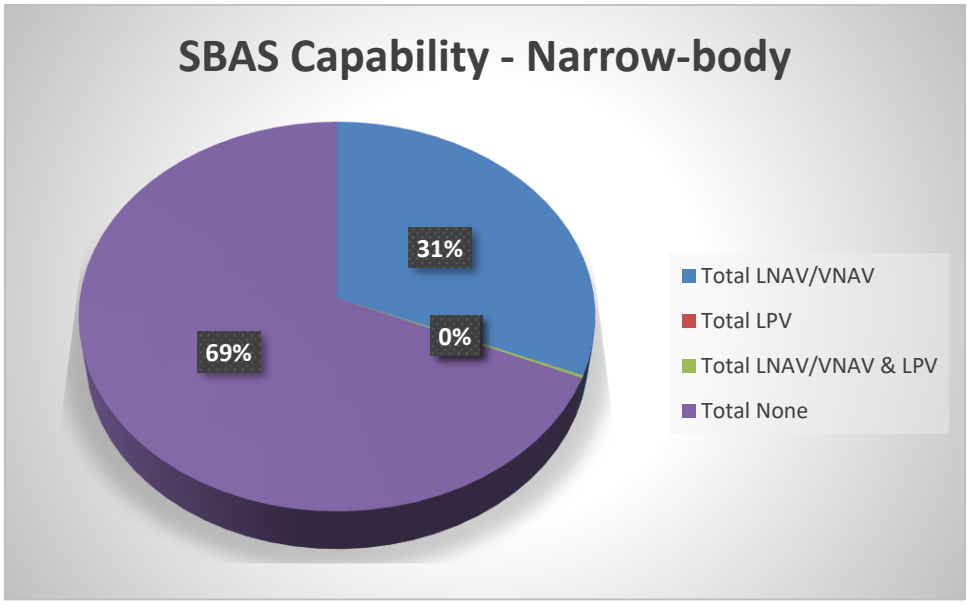
2.14 For the wide-body fleets, SBAS capability is slightly lower than the ratio of total numbers with most having LNAV/VNAV but more having both LNAV/VNAV and LPV than the total ratios.



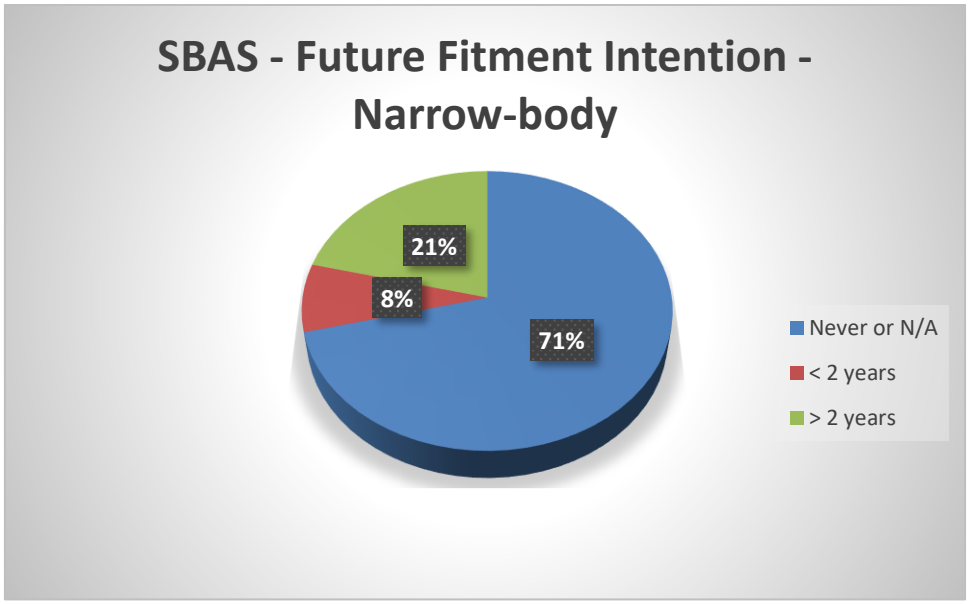
2.15 Of those they aren't SBAS equipped, the majority of responses indicated no plans to fit for SBAS capability on wide-body aircraft. Again, this is likely a reflection of current areas of application or alternative navigation infrastructure meaning further cost of investment is not justified. Airlines who are equipping with SBAS are doing so based upon their individual operational requirements and business case.



2.16 The non-capable ratio for SBAS is much higher in narrow-body aircraft than wide-body aircraft. Again, this is likely a reflection of its current areas of application or alternative navigation infrastructure, and in some cases potentially due to the limited geographical area of operations for the fleet.

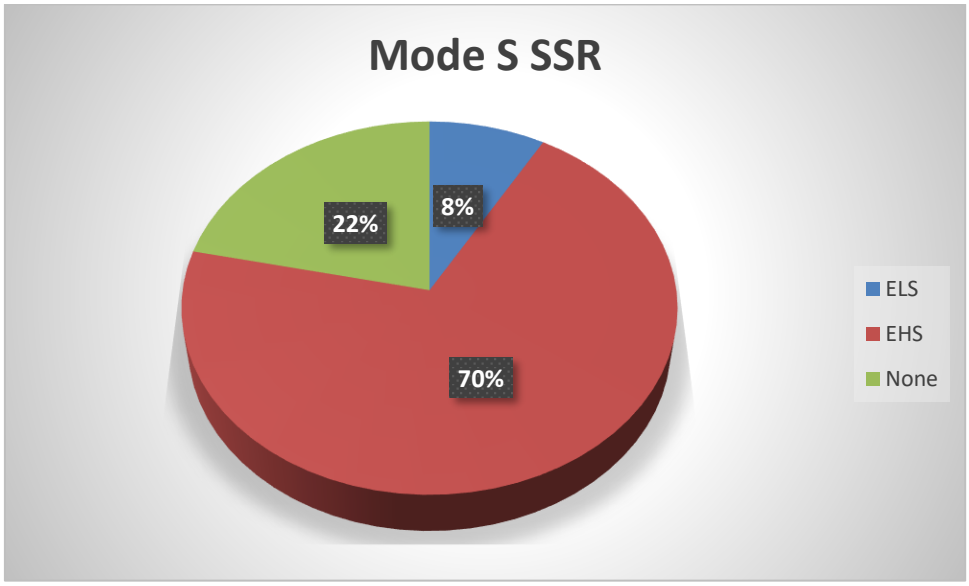


2.17 Similar to the wide-body fleet, a large majority of responses for narrow-bodies indicated no plans to fit for SBAS capability. Airlines who are equipping with SBAS are doing so based upon their individual operational requirements and business case. Of those that do intend to fit in the future, only about a quarter intend to do so in the next two years.



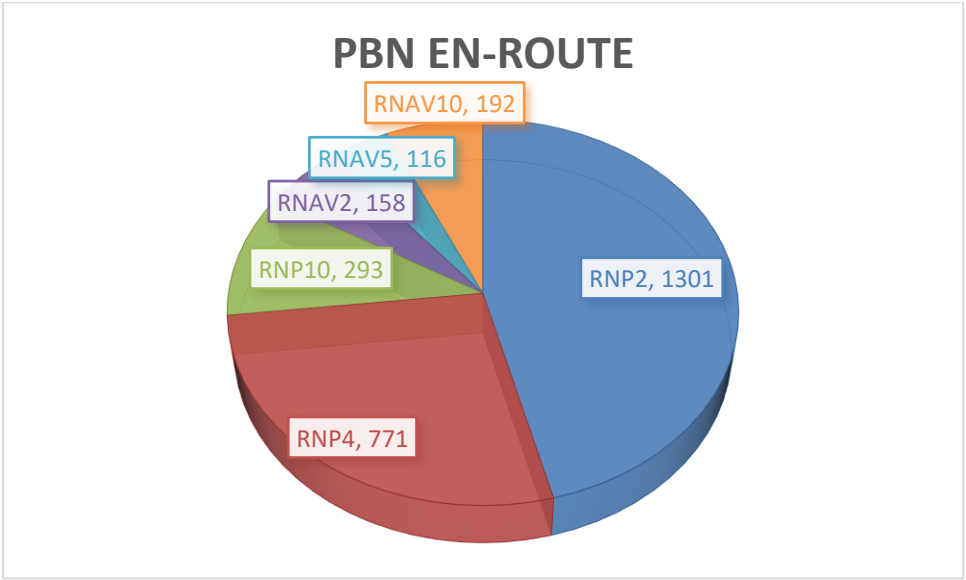
Mode S SSR

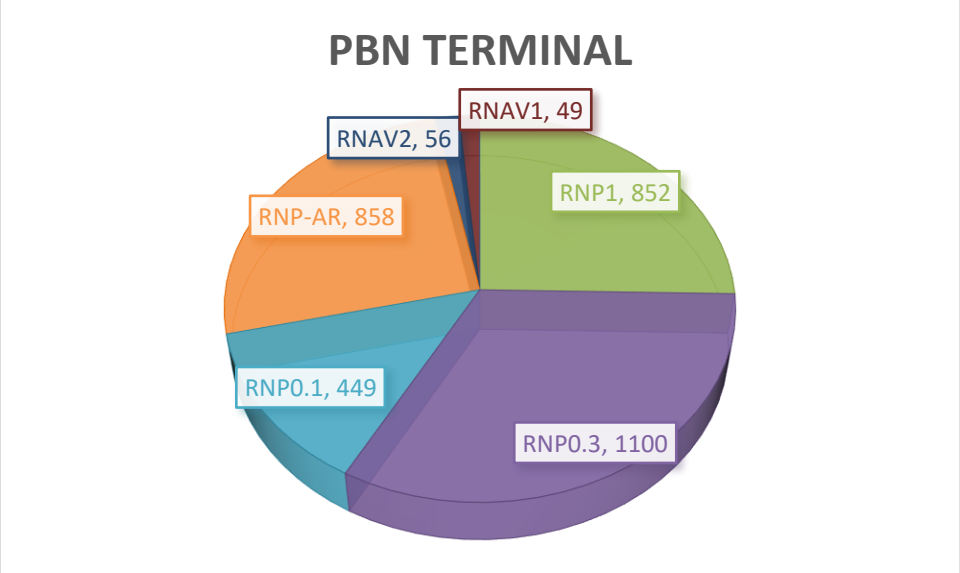
2.18 Enhanced Mode S capability was the majority response.



PBN

2.19 All but a small minority of responses indicated some type of PBN capability with the significant majority of those noting they had secured regulator approval and were currently flight planning and using the capability. RNP2 was reported as the most common for en-route and a wide spread of PBN capability for terminal navigation.



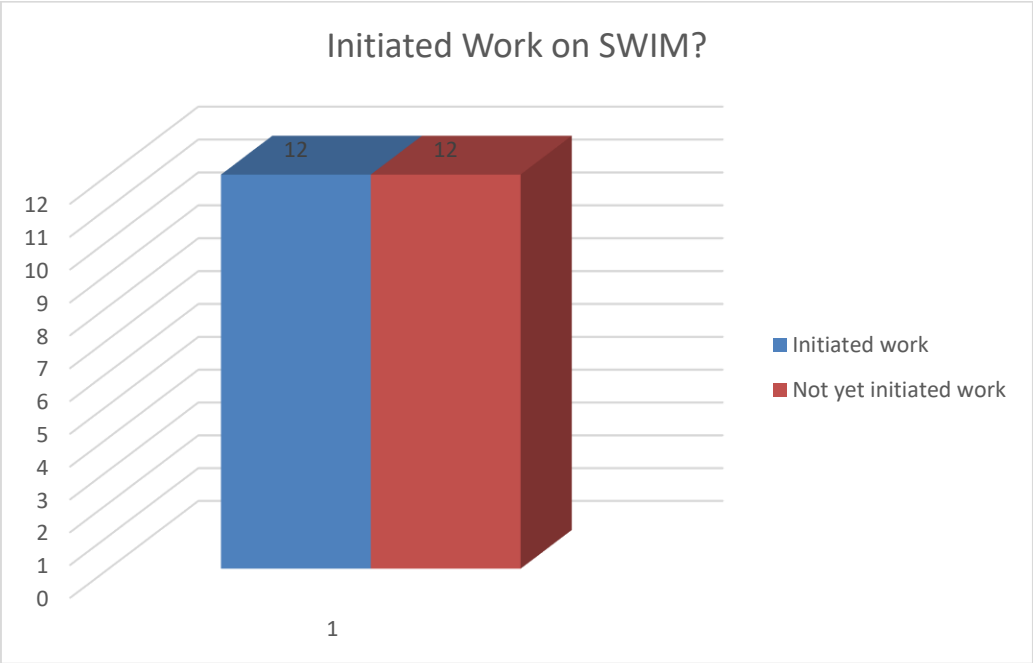


System-Wide Information Management:

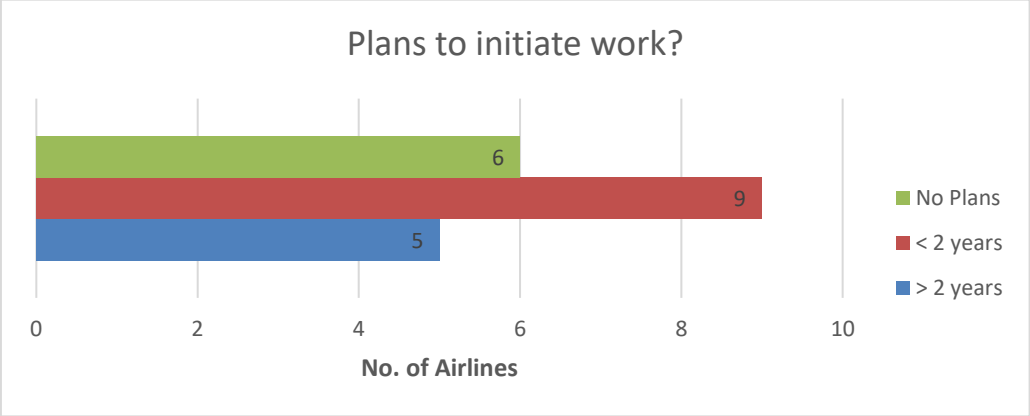
2.20 Overall, the progress of airlines to become SWIM enabled is broadly spread but moreso on the lower scale of awareness. A small number of respondents reported significant awareness of SWIM concepts and related components and are currently dedicating resources to growing their capabilities. Many more however, have little or no work progressing although the positive sign is that many are interested in joining trials in the short term to increase their awareness of the potential costs and benefits of SWIM.

2.21 The following paragraphs summarise the current responses to the survey questions provided by airlines.

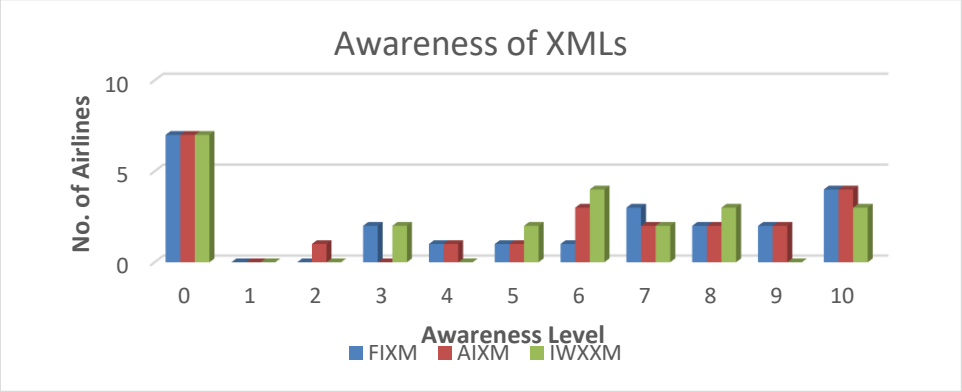
2.22 Has your airline initiated any work to become SWIM-enabled?



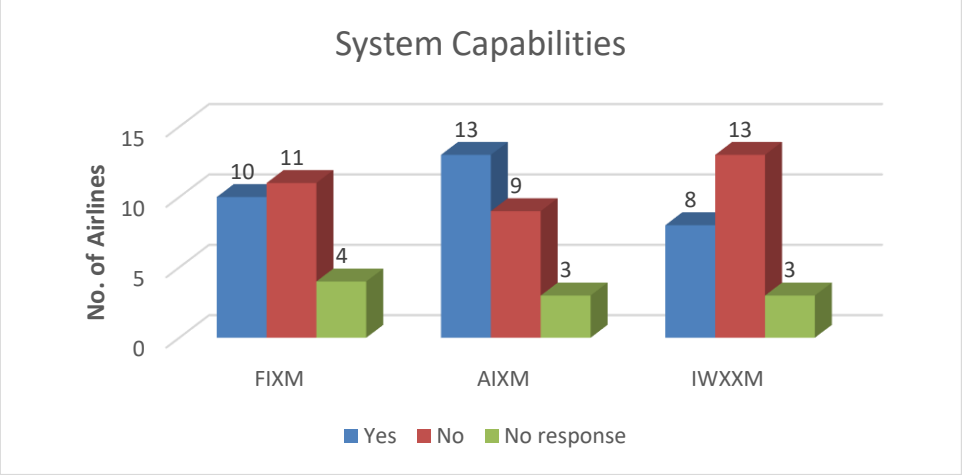
2.23 When does your airline intend initiating work to become SWIM-enabled?



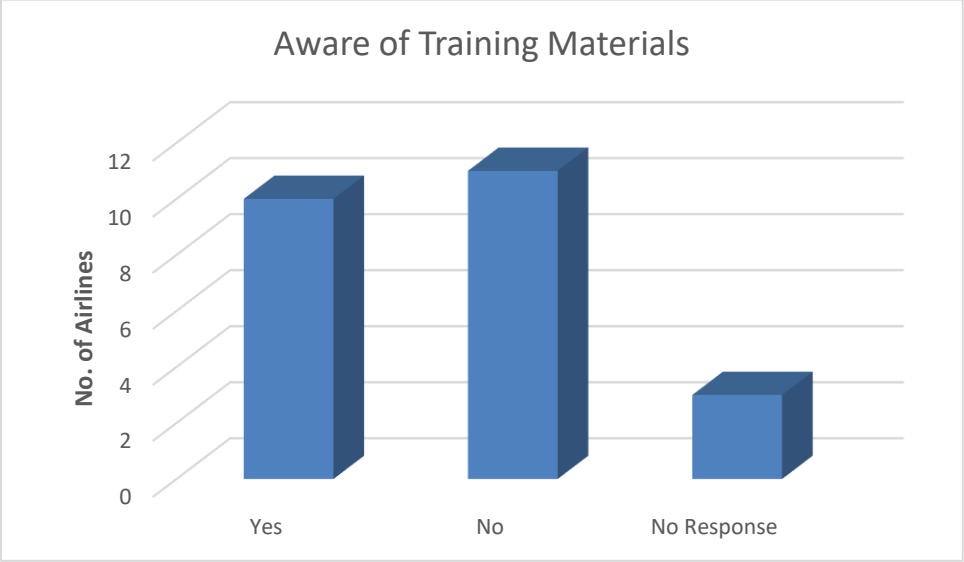
2.24 Indicate your airline's level of awareness of the following SWIM data exchange models (10 being highest):



2.25 Indicate if your Flight Planning systems are capable of receiving and/or sharing information in any of the above formats?



2.26 Are you aware of IATA and ICAO SWIM education videos and training courses?



2.27 Would your airline be willing to join SWIM trials with ANSPs and MET Service Providers, and if yes, when?

2.28 IATA will continue to collect data from the survey and produce summaries that can support and inform future discussions within ICAO and other forums. More specific analyses will be conducted once all data is fully filtered and collated and will be based on specific discussions that will benefit from the outputs from the database.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matters as appropriate.