Winner 2016

AVIATIONWEEK & SPACE TECHNOLOGY

Tap this icon in articles in the digital edition of AW&ST for exclusive features.

- 7 Feedback
- 8 Who's Where
- 9-10 First Take
 - **11** Up Front
 - 12 Going Concerns
 - 13 Inside Business Aviation
 - 14 Airline Intel
 - 16 Leading Edge
 - 17 In Orbit
 - 18 Washington Outlook
 - 63 Classified
 - 64 Contact Us
 - **65** Aerospace Calendar

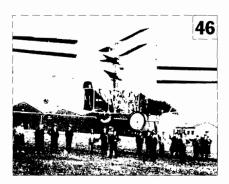
COMMERCIAL AVIATION

- 20 Irkut's MS-21 single-aisle rolls out with promise and a steep path to challenge Airbus-Boeing duopoly
- **26** Some investors have lost confidence in United Airlines as its margins stagnate
- 28 Dutch Safety Board cites mode confusion in report on 2014 KLM Cityhopper E190 hard landing
- **54** Analysts see room for a fifth large carrier through a merger in wellconsolidated U.S. airline industry
- **54** Avianca's opening to foreign investors could be big opportunity for Delta and risk for United
- **56** HNA Group eagerly seizes political opportunities to manage businesses at home, invest abroad

The Airbus A320neo and Boeing 737 MAX will appear together for the first time at this year's Farnborough International Airshow, possibly along with Bombardier's C Series, but interest in defense platforms is expected to eclipse commercial aircraft orders at the show.



58 Korean Air counters competition with strategic strengthening in passenger and cargo markets



- **60 Aerostructure** manufacturing for Airbus, Boeing helps Korean Air diversify its business activities
- **62** Iran aircraft deals are delayed by money transfer problems, but Iran airline access to Europe is eased

PROPULSION

25 Integrated engine system features from UTAS could be part of midlife upgrades as soon as 2019

ROTORCRAFT

30 Offshore helicopter community works to improve safety with datasharing, capability enhancements

DEFENSE

- **31** Upgrade plan for Pratt & Whitney F-35 engine in U.S. Navy demo offers fuel-burn reduction
- **32 Boeing boosts** precision-weapon production for U.S. military efforts countering Islamic State group
- 33 Participants in Anatolian Eagle exercise focus on dynamic targeting and defeating missiles
- 34 New South Korean tactical ballistic missile appears as a target in a test for a surface-to-air system
- **35** Panavia preps rolling upgrades for Tornado, to cope with widely varying retirement time frames

AVIATIONWEEK

ON THE COVERS

Russia's United Aircraft Corp. has rolled out an aircraft designed to compete with the Airbus A320, Boeing 737 and Comac's C919. The MS-21 has Pratt & Whitney engines and other Western components, but will it be enough to make a significant dent in a market long dominated by Boeing and Airbus? (see page 20) Cover photo by Leonid Faerberg. Elsewhere in this edition are reports on the evolution and future of vertical flight (page 46) and United Airlines (page 26) and an interview with Boeing's new defense and 136 U.S. Navy-funded research program space chief (page 42). Aviation Week publishes a digital edition. 3. 547 wadyances safe, autonomous flight every week. Read it at

and on our app. #\$4.154. for rotorcraft in adverse conditions

38 Shaped boom demonstrator design work aims to show supersonic commercial flight tech is ready

FARNBOROUGH AIRSHOW PREVIEW

40 Interest in defense aircraft is likely to eclipse civil activity, despite newgeneration airliner show displays



42 New CEO of Boeing Defense, Space and Security prioritizes six markets, fighters not among them

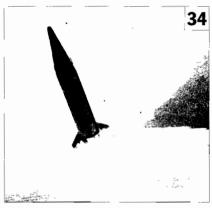
SPACE

- **44** Merged space units of Airbus and Safran face regulatory hurdles but keep Ariane 6 development going
- **44 Europe's Galileo** satellite constellation is on track to deliver initial public services by year-end
- **51 SpaceX will** launch a classified satellite as a subcontractor on a competitively awarded contract

52 Progress in reusable suborbital spaceflight hastens research at top of atmosphere

100 YEARS OF AVIATION WEEK

- **46** The helicopter's limitations have been hard to overcome, but manufacturers are making headway
- **48 Rotorcraft industry** leaders make safety the top priority as they face market disruption from UAVs



EDITORIALS

- **66** It is ludicrous to think U.K. aerospace would fare better without a seat at the table in EU negotiations
- **66** The pendulum is swinging toward increasing corporate R&D investment. That's a good thing.