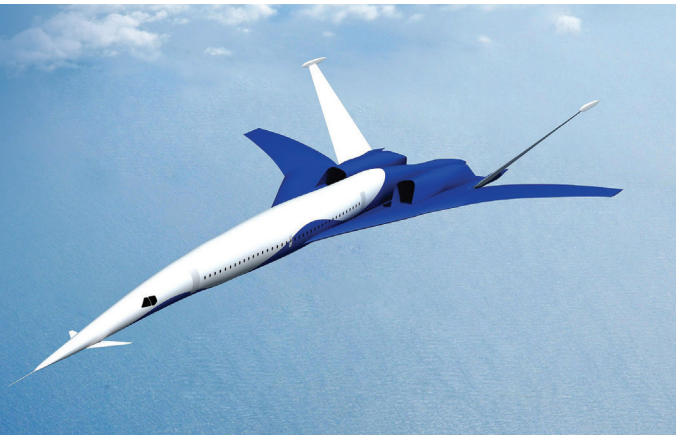
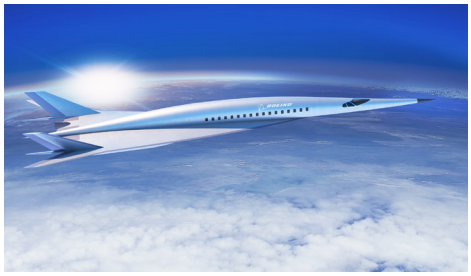
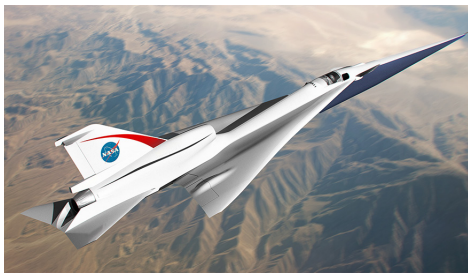
SUPERSONIC FLIGHT OVER LAND

HIGH-SPEED FLIGHT FOR THE 21ST CENTURY



BACKGROUND





While interest and investment in commercial high-speed flight continues to grow, current FAA regulations still prohibit anyone from operating a civil aircraft at supersonic speeds over land in the United States and from a certain distance offshore where a boom could reach U.S. shores. In addition, supersonic aircraft must meet the same airport noise standards as conventional aircraft, which is a strong technical challenge.

With few exceptions, the Aircraft Noise Abatement Act of 1968 requires that commercial aircraft not exceed Mach 1 and also meet current airworthiness and noise certification requirements. While conventional aircraft have been able to reduce airport noise levels through the use of large bypass engines, these are not viable for supersonic flight. Even as aerospace companies and the U.S. government invest in the development of new platforms and technologies, the current sonic boom and airport noise regulations have imposed rigid operating constraints on commercial applications and ventures.

WHY IT MATTERS

Even with the current FAA restrictions in place, large and small companies continue to propose and develop supersonic/hypersonic platforms for commercial applications. In addition to the work being done at the vehicle level for high-speed transit, propulsion and materials research is ongoing and is addressing the unique environment challenges to provide safe and reliable structures and engines that are economical to operate and maintain. As companies develop new technologies that allow supersonic aircraft to meet the FAA's noise regulations, states are also recognizing the potential economic benefits and working to address some of the headwinds faced by these endeavors. A prime example is an effort in Washington State to create a "Supersonic Flight Highway" to support high-speed aircraft testing.

Initially, supersonic/hypersonic flight is focused on business airplanes and travel. However, the companies leading this effort are working closely with, and in some cases funded by, large international airlines whose goal is to transition the technology to the larger flying public. To accomplish that, the regulations must allow for the technology to be deployed in the most economical manner that does not make the application overly prohibitive in cost to the customer or in utilization by the operator.

WHAT'S NEXT

Currently, efforts are underway on a variety of technology, policy, and public opinion fronts focused on addressing the barriers to fully realizing the benefits of high-speed transportation, specifically over land. From a policy standpoint, the FAA Reauthorization Act of 2018 specifies that the FAA administrator exercise leadership in the creation of federal and international policies, regulations, and standards relating to the certification and safe and efficient operation of civil supersonic aircraft. The outcome of several policy and technology reviews focusing on noise standards, planned by the FAA for 2020, should provide an indication on the likelihood of the collaboration and partnership necessary to see the high-speed transportation market move to the next stage of its evolution.