


A person with long, light-colored hair is shown from the back, wearing large, dark-colored headphones. The background is a soft, out-of-focus scene with a prominent bright circular light source, possibly a sun or a lamp, creating a warm, golden glow. The overall image has a semi-transparent dark overlay.

# Noise mitigation in the supersonic era

Eli Dourado—Boom Supersonic

A Concorde is shown in flight, viewed from a low angle looking up. The aircraft is white with dark markings on the nose and tail. The background is a dark, overcast sky. The text "Concorde was beautiful. But not quiet." is overlaid in white, centered on the image.

Concorde was beautiful.  
But not quiet.

A sleek, white supersonic jet is shown on a runway at night. The aircraft is illuminated by a series of bright lights along the runway, creating a strong perspective. The background is dark, with a grid of lights on the ceiling of the hangar or runway structure. The text is overlaid in the center of the image.

Noise reduction is job #1  
for the new generation of  
supersonic aeroplanes

A large crowd of people is gathered in a hangar, looking at a massive jet engine on display. The engine is the central focus, with its complex internal fan blades visible. The hangar's structure, including the ceiling and beams, is visible in the background. The scene is dimly lit, with the engine and the crowd being the primary sources of light.

We can't just use a bigger fan

# Three keys to reducing supersonic LTO noise

- **Engines:** sufficient thrust while constrained on fan size and takeoff jet velocity
- **Aerodynamics:** adequate cruise performance while constrained by low-speed characteristics
- **Operations:** Take advantage of additional capabilities while constrained by legacy operations



# Engine Improvements

- More efficient cores
- Medium bypass
- No afterburners needed

# Aerodynamics



- Computational design tools
- Materials that can be shaped more appropriately
- High-lift devices

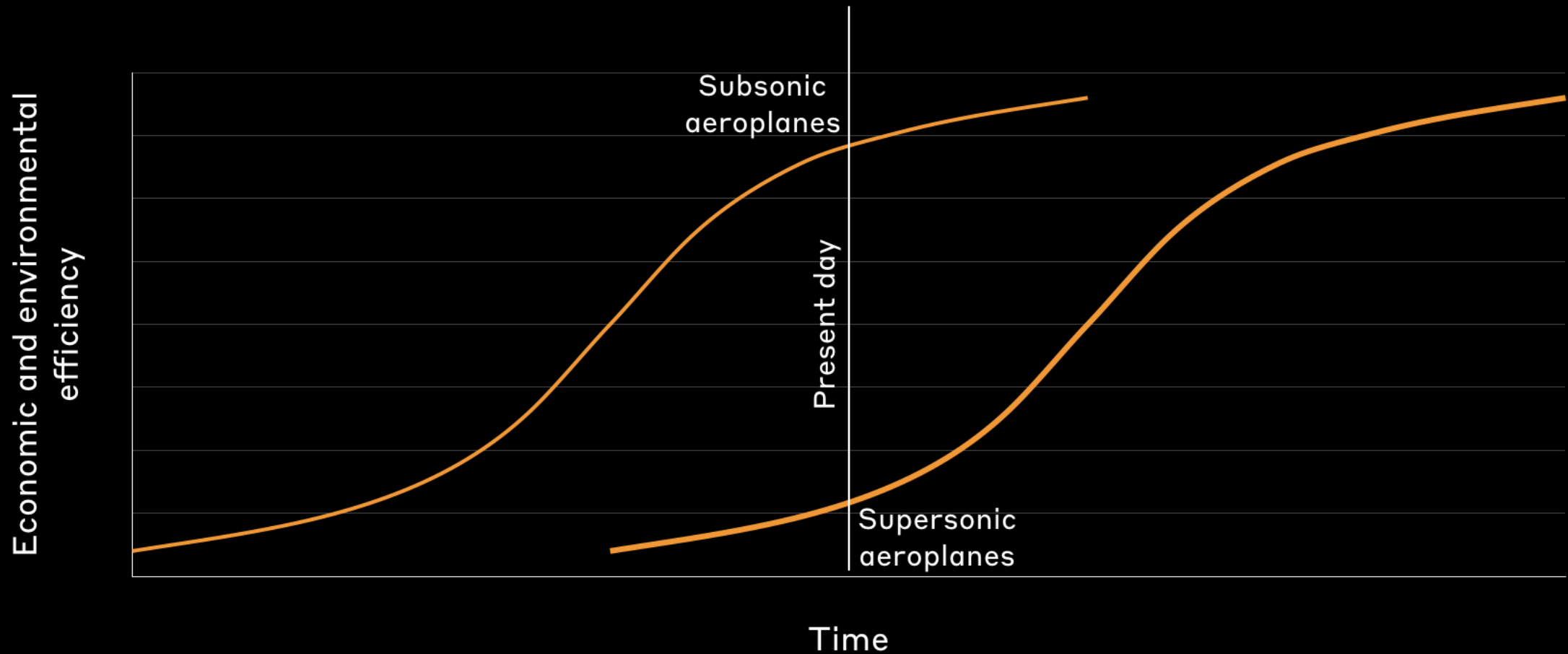
A photograph of an air traffic control tower, viewed from a low angle looking up. The tower is a multi-tiered cylindrical structure with a glass-enclosed observation deck at the top. The background is a dark blue sky with some light clouds. The word "Operations" is overlaid in white text at the top of the tower.

# Operations

- Steep approach
- Advanced, **airport-specific** programmed thrust and flap profiles



# Supersonic technology is still maturing



# Looking toward the future

A dark blue silhouette of a modern fighter jet, possibly a stealth bomber or a high-speed fighter, is shown in flight. The aircraft is positioned diagonally across the frame, pointing towards the upper right. The background is a dark, atmospheric sky with faint, glowing clouds and several bright, jagged lightning bolts striking downwards. The overall mood is futuristic and technological.

- Variable cycle engines
- More and better variable geometry and high-lift devices
- Advanced technologies to improve operations