Proposing lower safety standards is unethical

I am beyond disappointed that AIAA and Aerospace America platformed Mislav Tolusic's article, "Safety versus innovation: It's time for a rebalancing," advocating that the aviation industry should sacrifice safety in the name of innovation. In his article, Tolusic argues that we would be better served to align our risk tolerance for air travel to that of automobile travel. Based on the 2022 statistics reported by the U.S. National Highway Traffic Safety Administration, this would correspond to approximately 117 passenger deaths per day. In terms of our industry, this statistic suggests we should be complacent if a widebody jetliner crashed every 2-3 days.

At a minimum, Tolusic's article stands in direct contrast to AIAA's own code of ethics (and the fundamental ethics canons of every other engineering professional society), which states that members "Hold paramount the safety, health, and welfare of the public in the performance of their duties." In the end, Tolusic places the value of a human life at $1.7 million to justify those deaths in the pursuit of corporate profit.

In his foreword to this issue of Aerospace America, Editor-in-Chief Ben Iannotta claims Tolusic's argument is presented respectfully. Advocating for more innocent lives to be lost is not and should never be deemed respectful.

Jim Coder
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The author's thesis is that the subsonic speeds we have today, and the lack of blended-wing-body airliners are the fault of the FAA.

The specious cost examples are nearly meaningless. The DC-6 was a simple piston-powered aircraft that had a military derivation, lowering costs. Comparing it with a B787 is like [comparing] a model T to a Tesla. The B707 also had military derivation and variants. It was a brilliant aircraft, arguably one of Boeing's best, and its first jet. Yes, it was capable of higher cruise speed, as is the 787. Both can bump up near the transonic range where drag and fuel burn spike uneconomically higher. The 787 was the most innovation-packed airliner in decades with remarkable advances in materials and systems.

The biggest issues in the industry are emissions and airport noise. A blended wing body might aid both if challenges related to gate and ramp constraints, emergency egress, line maintenance access, airline and passenger acceptance, and entirely new manufacturing processes logistics, etc. are resolved.

Today's world needs noisy, low capacity, expensive, energy-hogging, high emitting supersonic airliners for a few very rich people like it needs another pandemic. "Mach 2, society 0."

Regarding Zipline's reported ongoing FAA-induced certification delay, over a year ago Zipline was granted Part 135 approval by the FAA to operate U.S. drone deliveries. Today five companies have 135 approval.

We tried shifting FAA oversight to the original equipment manufacturers. Look how that went with the 737 MAX. Safety is a moral imperative, not an economic bargaining chip.

Steven O'Flarity
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Mislav Tolusic makes a case for changing the way commercial aviation is constrained by safety regulations, suggesting that it be aligned with automotive standards instead. He cites some strong statistics about the cost of developing a new aircraft, and criticizes the length of time it takes. He would like to see development times and service lives of aircraft to be shortened so that more innovative designs would be in use faster.

All of those things are great ideas, but they have consequences that should be considered.

First, aviation safety became what it is today precisely because it was once not as successful as it is. Today's success is a very good thing. The early age of jet transports and through the '80s and '90s was replete with spectacular accidents that seized the attention of the public, the courts and the Congress. The loss of an aircraft creates massive amounts of press and public interest, as it did nine years ago with the disappearance of Malaysia Airlines Flight 370 and the loss of TWA Flight 800 decades ago, among many others. That also translates into a decline in demand for travel as well as massive costs for insurance by the manufacturers and operators. The automotive sector has those issues as well, but drivers have a thriving market of different models to choose from to avoid risk, whereas airline passengers have far fewer choices.

Second, the infrastructure for commercial aviation is a global network which depends on coordinated changes to be successful. Mundane things like wingspans that change the spacing between gates or taxiway clearances sometimes result in expensive alterations, which must be funded, planned and constructed using a combination of public and private funds which takes time. Creating a shorter time cycle for change of the infrastructure could result in fewer city pairs to fly the aircraft, which in turn affects the economics of purchasing the new aircraft, no matter how cool the new technology is. If the new aircraft is only expected to operate for, say, 15 years instead of 30, the cost recovery of the purchase cost over the shorter timespan inevitably drives up costs for the operators, resulting in higher costs to the consumers.

Third, training for manufacturing personnel, pilots and cabin personnel, maintenance technicians and ground operations personnel needs to be factored into the transition cycles. All of this takes time, and as the Boeing 737 MAX example shows us, trying to reduce training can have a dramatic impact on safety, airline operations and the original manufacturer.

Fourth, while it would seem that reducing cost and time to develop a new aircraft would lower costs, having shorter production runs would seem to compress the time available to recover production training and facility costs, which again would be passed on to the operators, driving

up their costs. Higher ticket prices are correlated negatively with growth in aviation and would have a measurable effect on other sectors of the economy.

I am absolutely in favor of innovation and creating new and better ways to transport people and goods by air, and lowering the costs to do so. However, focusing on just one aspect of the aircraft's lifecycle can lead to "unexpected" problems elsewhere if you aren't careful.

Gary O'Neill
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Here's the middle ground on the firefighting debate

Regarding "Tomorrow's firefighting fleet" by Keith Button in the July/August 2023 issue, he states a very interesting question about clean-sheet designs vs. refurbishing/repurposing existing designs. I would propose this is NOT a binary decision, and the right answer is likely half way between these two extremes. Take an existing design and apply external modifications to the design under a supplemental type certification process (or similar process depending on the relevant regulatory authority) to adapt the existing design to be better suited to the water bombing mission.

I'll give an example. The DHC-515 is perfectly suited to the mission, but its only drawback is that it needs to be larger to fight the larger fires of today. There is a larger amphibious airplane available that could be adapted, the ShinMaywa US-2. This aircraft has a max takeoff weight of about 105,000 pounds. Since this aircraft is designed for short takeoff and landing in high sea state, a feature not needed for the firefighting mission, the turboshaft powered boundary layer control system can be removed, along with the search and rescue equipment, which will reduce the empty weight of the aircraft.

Additionally, the wing should be modified to better suit the needs of heavy, low, and slow operations required of water bombing. A wing strut should be added from the outboard engine nacelles to the main landing gear attachment points, and the wing incorporate wingtip extensions to increase the span by about 20% and the wing area by about 10%. This will enable the aircraft to increase its max takeoff weight by about 20%. Note, the ailerons would need to move outboard and the flap span increased to the new aileron position to maintain acceptable low speed handling and performance.

With the rest of the aircraft's systems remaining unchanged, the resulting aircraft would have a useful load capability of around 70,000 pounds. With 20,000 pounds for fuel, that leaves 50,000 pounds or 6,000 gallons (22,700 kilograms or 22,700 liters) of water drop capability. The cost of the NRE [U.S. Natural Resources and Environment agency] to perform these modifications to the US-2 would be about one-tenth the NRE cost of developing a clean-sheet design of similar water drop capability. This is a capability nearly as large as the Martin Mars water bombers that were retired in 2016, but with a modern aircraft that is currently in production. Thus, external modifications and adaptations to existing designs should be the primary course of action for the

U.S. Forest Service and other water bombing organizations for “Tomorrow’s firefighting fleet.”

Bill Fredericks
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I was delighted to see Keith Button’s excellent article on wildland firefighting aircraft in the July/August issue.

There are a couple of points not mentioned in the article that might be of interest: The thing that makes an airtanker is the tank. Just about any airframe can be adapted to do the firefighting job. The pattern and consistency of the retardant when it reaches the ground, which are dependent on the tank design, dictate how effective the retardant will be. And while the “Super Scoopers” from Canada are attractive in that they can load from just about any body of water large enough, they are limited to dropping plain water or foam suppressant, not the long-term retardant that is most effective in building fire-line. The scoopers are most useful for initial attack, whereas the large tankers can build effective long fire-lines; this capability is essential when it is too difficult or too dangerous to send in ground-based firefighters. Further, the retardant line reduces the intensity and burn rate of the fire, which makes the job of the ground personnel easier and safer when they can be sent in.

And, I would have liked to have seen some mention of helicopters used in wildland firefighting. It is my opinion that in terms of response time and effectiveness, the heavy snorkel-equipped helicopter is the best initial attack vehicle.

Robin Harrison
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An idea for better lunar comms

I just finished reading your article “Live from the moon in HD.” I found it to be most enjoyable and interesting. And it occurs to me that the problem could be solved by simply thinking of the Earth and moon as a two node communication system with a trunk line connecting them. By setting up several lasers connecting Earth and the Moon in a laser trunk line and routing all Lunar space RF [radio frequency] through the Lunar Node to be digitized, then sent to the Earth Node from the Lunar Node. Thus off-loading a large chunk of communication requirements from the Deep Space Network and the Near Space Network.

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