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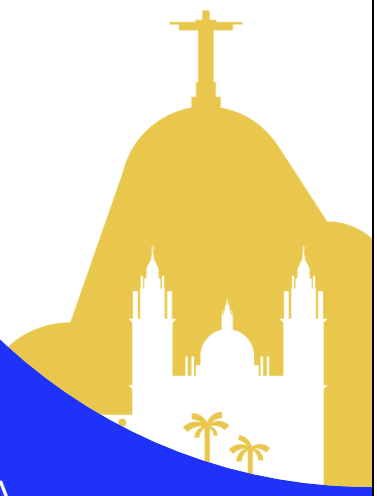

Media Briefing

Safety & Operations

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IATA

The Domino Effect of Conflicts on Aviation

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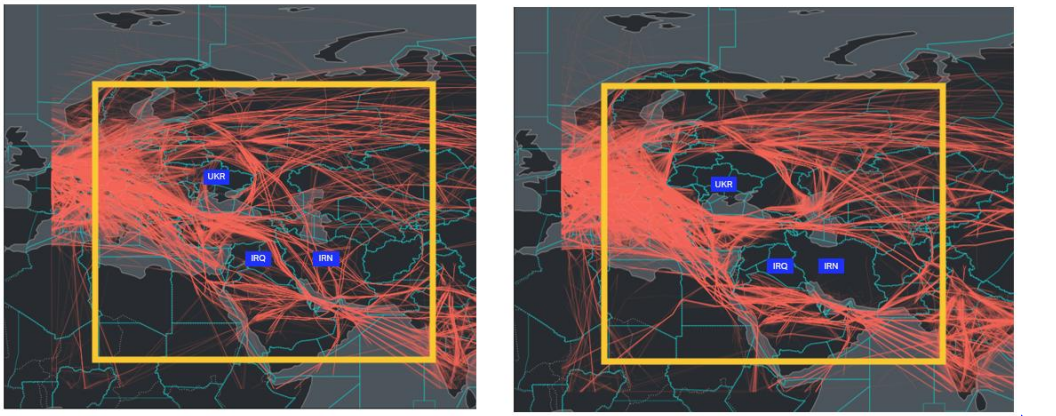
IATA SVP Operations, Safety, Security

Conflict Creates a Domino Effect

- Conflict doesn't affect aviation in one isolated way. It creates a domino effect across the system.
- It often starts with airspace. When airspace is closed, restricted or considered unsafe, airlines must adjust.
- That immediately creates a more complex safety environment. Airlines and states need to reassess risk continuously, especially where there are evolving threats, GNSS interference, drones or missile activity.
- The next pressure point is fuel. Longer routings mean more fuel burn, higher costs and greater dependence on reliable supply
- This then affects capacity. Longer flight times, cancellations, airport restrictions and fuel constraints all reduce the ability of the network to operate normally.
- The impact also reaches the supply chain. Reduced capacity and disrupted routes can delay cargo, aircraft parts, engines, maintenance materials and other critical inputs. Defense demand also adds pressure.
- The effect of conflict compounds quickly.

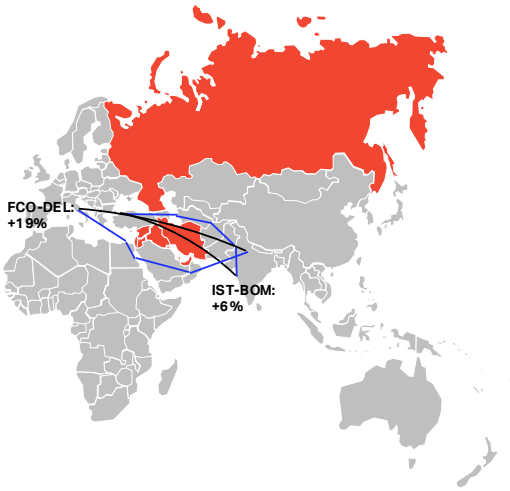
Airspace Disruption: Before and During Conflict



- Here is a traffic visualization before airspace disruptions in Russian and Ukrainian and Middle East airspace (traffic snapshot on 05-11-2021)
- And during (traffic snapshot on 15-05-2026)
- Conflict has removed or severely constrained around 3.5 million km² of airspace — an area slightly larger than India — is closed, restricted or operationally avoided because of conflict.

Geopolitics, flight distance, and costs: Middle East

- Illustration: Europe-Asia Pacific routes.
- Southern Europe and India are most affected.
- Flight restrictions over **Middle East airspace** increase effective flight distances by around 5-20%.
- This could raise operating costs by roughly 2-10%, or around USD 10-45 per PAX.



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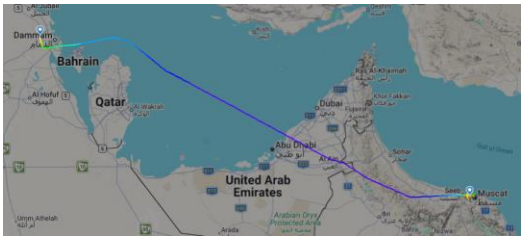
- This slide illustrates how conflict and geopolitical restrictions translate directly into operational and economic impacts for airlines.
- The example here is Europe–Asia Pacific traffic. When Middle East airspace is restricted or avoided, airlines often have to reroute around the affected areas.
- That increases flight distance, flight time and fuel burn. The impact is not evenly distributed.
- Southern Europe and India are among the most affected because of their geography and the way routes are structured between Europe, the Middle East and Asia.
- In the examples shown, the impact varies by route. For example, Delhi–Frankfurt sees an estimated increase of around 19%, while Istanbul–Mumbai is around 6%.
- More broadly, flight restrictions over Middle East airspace can increase effective flight distances by around 5–20%.That has a direct cost impact.
- Longer routings mean more fuel, more crew time, potential payload restrictions, and knock-on effects for aircraft utilization and scheduling.
- The estimated operating cost increase is roughly 2–10%, or around USD 10–45 per passenger, depending on the route and the scale of the rerouting.
- Airspace restrictions are not just a safety or geopolitical issue. They have real consequences for connectivity, costs, capacity and ultimately passengers.

Example: Dammam–Muscat Rerouting



14 JAN 26 flight time 1hr37

12 APR 26 flight time 2hr38

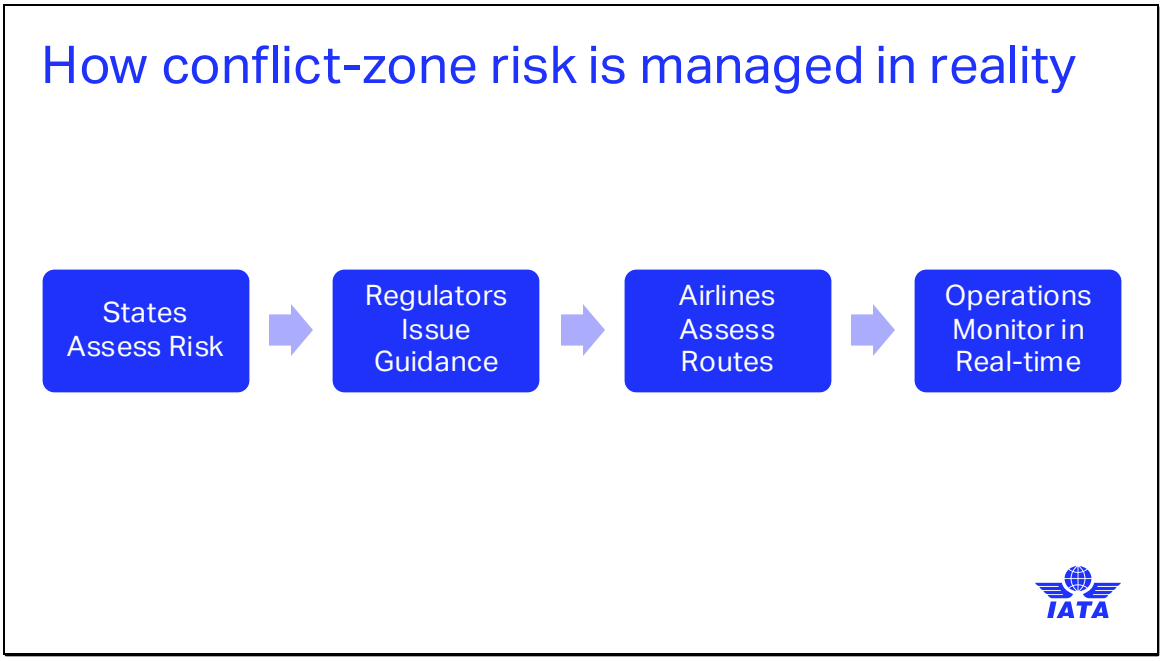
A short regional flight can become significantly longer when direct airspace is unavailable.

- Here is another visual example reinforcing how conflict affects airline operations.
- It shows the same route — Dammam to Muscat — operated by the same airline and aircraft type, but under very different routing conditions.
- On 14 January 2026, the flight time was 1 hour 37 minutes. The routing was relatively direct across the Gulf.
- By 12 April 2026, the flight time had increased to 2 hours 38 minutes — around one hour longer — because the aircraft had to take a much less direct route.
- That additional flying time matters. It means more fuel burn, higher operating costs, greater emissions, more pressure on aircraft and crew utilization, and potentially more disruption for passengers.
- The point is not only about one flight. It is a simple example of a wider regional challenge: when airspace becomes constrained or routes become less efficient, the impact is felt across the whole aviation system.

Conflict Creates a More Complex Safety Environment

- **Increased Risk Assessment**
  Airlines must reassess routes continuously as threats, restrictions and intelligence change.
- **Navigation interference**
  GNSS jamming and spoofing add complexity beyond the conflict zone itself.
- **New threat environment**
  Drones increase uncertainty for civil aviation.

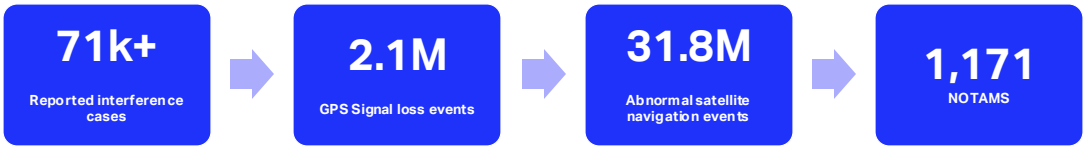
- Moving to the effect of conflict on aviation safety – it creates a more complex operating environment.
- First, risk assessment becomes more complex and more dynamic. Airlines cannot rely on a static assessment of a route or region. Threat levels can change quickly as intelligence changes, as airspace restrictions are introduced or removed, or as military activity shifts. This means operators need to reassess routes continuously, using the latest information from states, regulators, air navigation service providers and their own security teams.
- Second, conflict creates increased levels of GNSS jamming and spoofing. These events can affect aircraft well outside the area of active conflict, creating uncertainty for crews. The issue is not that aircraft cannot fly safely, but that pilots and operators need to be alert to degraded or misleading navigation signals.
- Third, the threat environment itself has changed. Drones can create risks for civil aviation, particularly where conflict is active, escalating, or poorly contained.
- So, if conflict creates a more complex safety environment, the next question is: how is that risk managed in practice?
- It is not managed by one actor alone. It is a chain of responsibility from states, to regulators, to airlines, to real-time operational monitoring.



- This slide shows how conflict-zone risk management works in reality.
- It starts with states. States have the primary responsibility to assess the risks in their own airspace and to communicate those risks clearly. That includes assessing military activity, missile and drone threats, air defence activity, and the reliability of information available to civil aviation.
- Regulators then translate that risk picture into guidance. Depending on the level of risk, this can range from safety information and advisories to restrictions or prohibitions. The important point is that guidance needs to be timely, clear and operationally useful. Ambiguity makes decision-making harder for airlines.
- Airlines then assess their routes. They take state and regulator guidance, intelligence, NOTAMs, air traffic information and their own security assessments, and decide whether a route can be operated safely. This is not just about whether airspace is formally open or closed. It is about whether the route is safe, insurable, operationally viable and acceptable under the airline's own risk thresholds.
- And finally, operations are monitored in real time. Even after a flight plan is filed, the situation can change. Airlines monitor developments continuously — including new restrictions, airport closures, GNSS interference, missile activity, drones, diversions and fuel availability. If the risk picture changes, the

- Conflict-zone risk management is dynamic. It is a continuous loop, not a one-time decision.

IATA GNSS Interference Report 2024 – 2025: Sharp rise in 2023, peak in mid-2024, new significant aviation risk



Where it is concentrated:
Russia and nearby regions; Eastern Europe; the Middle East and Eastern Mediterranean; mainland China; Southeast Asia; and the India–Pakistan border.

What is needed:
Stronger global coordination, standardized reporting, and improved mitigation are needed.

- GPS interference increased sharply from 2023, peaked around mid-2024, and remains an important aviation risk through 2025.
- The scale is large: more than 71,000 reported interference cases; 2.1 million GPS signal-loss events; 31.8 million abnormal satellite navigation events; and 1,171 official aviation alerts.
- By "abnormal satellite navigation events," we mean cases where aircraft tracking data showed unusual Global Navigation Satellite System behavior, such as loss, disruption, or unreliable positioning.
- By "official aviation alerts," we mean Notices to Airmen, which are formal warnings issued to pilots and operators about hazards or operating constraints.
- The hotspots align with geopolitically sensitive or high-traffic regions, including Russia and nearby regions, Eastern Europe, the Middle East and Eastern Mediterranean, mainland China, Southeast Asia, and the India–Pakistan border.
- The key concern is not only the interference itself but also inconsistent reporting.
- Different countries and regions use different terminology and warning formats, which makes it harder to compare risks and coordinate mitigations globally.

New Threat Environment – Drones are becoming a more Complex Aviation Risk

- Drones are now central to modern conflict
- Spillover risks are affecting civil aviation near borders and conflict zones
- Drone activity has disrupted airports in Poland, including Lublin, Modlin, Rzeszow and Warsaw
- Impacts include temporary airport closures, high delays and unavailable airspace
- The risk is hard to manage: fast-moving, low-cost and difficult to attribute
- Stronger state coordination, information sharing and response plans are needed.

- **The Ukraine–Russia war has shown how central drones have become to modern conflict.**
- **They are being used for surveillance, targeting, disruption and attacks on infrastructure.**
- **For civil aviation, the key concern is spillover risk. Drone activity does not need to directly target aviation to affect aviation. It can still close airports, restrict airspace and create significant delays.**
- **We have already seen this in Poland. In September 2025, drone activity led to temporary disruption at Lublin, Modlin, Rzeszow and Warsaw, with airports temporarily unavailable and high delays. Lublin was also affected again a few days later due to a drone threat**
- **Drone incidents can be fast-moving, difficult to predict and difficult to attribute. The operational response must be quick, but also carefully coordinated.**
- **The priority is stronger state coordination, timely information sharing, clear guidance to operators, and response plans that protect civil aviation while allowing security authorities to manage the threat.**

The Three Ways Conflict Affects Fuel

1. **Price shock**
   Jet fuel is a major airline cost — so geopolitical disruption can quickly affect operating costs.

2. **Supply uncertainty**
   Energy chokepoints such as the Strait of Hormuz matter because disruption can tighten supply or change sourcing patterns.

3. **Operational flexibility**
   When fuel markets are volatile, airlines have less room to absorb longer routings, diversions, tankering decisions and schedule disruption.

- **So far, we have looked at how conflict affects airspace, routing and safety risk. But the impact does not stop there.**
- **Conflict also affects one of the most important operational inputs for aviation: fuel.**
- **Conflict can affect fuel in three main ways.**
  - First, through price volatility. Jet fuel can represent around 25–30% of airline operating costs, so any sharp movement in fuel prices has an immediate impact on airline economics. When conflict creates uncertainty in energy markets, that volatility quickly feeds into operating costs, network planning and commercial decisions.
  - Second, through supply uncertainty. Conflict can affect major production areas, refineries, shipping lanes and energy chokepoints. The Strait of Hormuz is a clear example. Around 20% of global petroleum liquids consumption passes through Hormuz, so any disruption or perceived risk in that area can have global consequences for fuel markets.
  - Third, through operational flexibility. When conflict closes airspace, airlines often have to fly longer routes. That means more fuel burn. If this happens at the same time as fuel prices are rising or supply is less predictable, the pressure compounds. Airlines have less flexibility to absorb disruption, manage diversions, or maintain schedules. **One practical example of fuel**

- flexibility is the potential use of Jet A in markets that normally use Jet A-1.

Fuel Flexibility: Jet A and Jet A-1

- One practical example of fuel flexibility is the potential use of Jet A in markets that normally use Jet A-1.Both are approved aviation turbine fuels.
- The key operational difference is the freezing point. Jet A-1 has a lower maximum freezing point than Jet A, which is why it is the standard in many international and long-haul markets.
- That difference matters because aircraft can be exposed to very low temperatures during cruise, particularly on long sectors, high-latitude routes or polar routings.
- This is why both IATA and EASA have issued guidance on how Jet A could be safely introduced into markets traditionally using Jet A-1.
- The guidance sets out the practical controls needed: flight planning, route and temperature assessment, operating within aircraft limits, infrastructure checks, procedures and crew awareness.

Slots: Flexibility During Crisis

- **The situation:** Airlines normally need to operate 80% of a slot series to retain those slots for the next equivalent season.
- **The challenge:** Airspace closures, airport restrictions, fuel shortages and military conflict can make this impossible, even where airlines are ready and willing to operate.
- **What has been agreed:** JNUS relief has been broadly granted where non-operation is caused by airport or airspace closures, severe operational restrictions, or fuel unavailability.
- **What needs to continue:** Relief must evolve with the situation, including local review where disruption continues or where additional flexibility is needed to prevent or manage fuel shortages.

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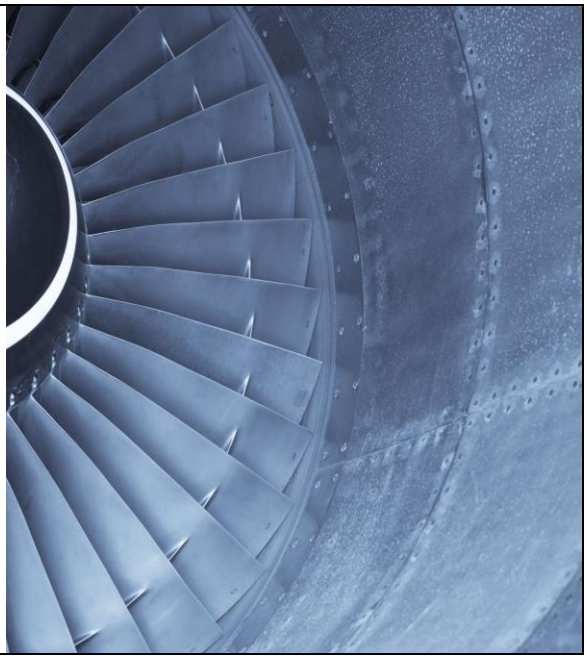
- Airport slots are based on a simple principle: airlines normally need to operate around 80% of a slot series to retain those slots for the next equivalent season.
- That works in normal conditions. It encourages efficient use of scarce airport capacity and prevents airlines from holding slots they do not intend to use.
- But in a crisis, the situation changes.
- Airspace closures, airport restrictions, conflict, fuel shortages or fuel unavailability can make it impossible for airlines to operate even when they are ready and willing to do so.
- That is where **Justified Non-Use of Slots**, or JNUS, becomes important. It recognises that airlines should not be penalized for disruption that is outside their control.
- Relief has been broadly granted where non-operation is caused by airport or airspace closures, severe operational restrictions.
- But the key point is that this flexibility needs to keep evolving with the situation.
- Where disruption continues, or where fuel shortages require additional operational flexibility, local review may be needed. The objective should be to preserve connectivity, avoid unnecessary flights, and prevent slot rules from

- system: the supply chain. And this matters because aviation is already operating with very little slack.

Supply Chain Resilience: Another Layer of Pressure

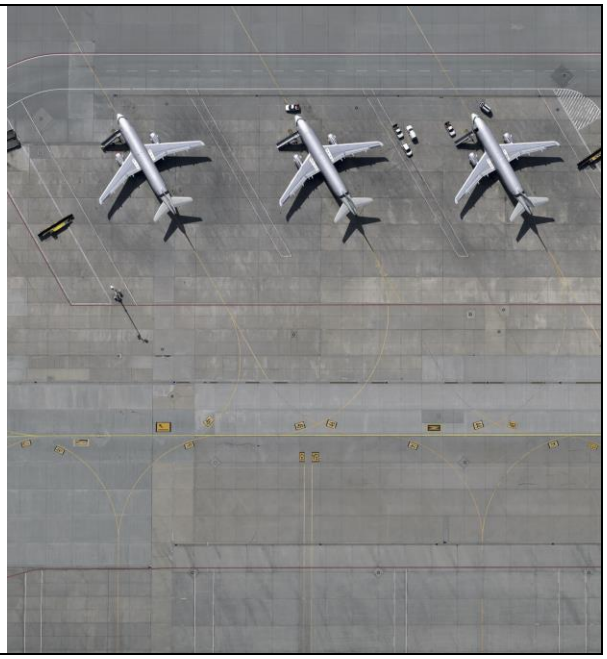
- **15%** of the global fleet is in storage
- **75%** of young fleet in storage linked to PW1000G engine problems.
- Utilization **hit an all-time high in H2 2025**
- Average aircraft age exceeded **15 years in 2025** — the highest level in aviation history.



- 15% of the global fleet is in storage — above the long-term average of 12%.
- PW1000G problems account for 75% of stored young aircraft — those up to seven years old.
- Utilization hit an all-time high in H2 2025 — airlines are flying everything that can fly.
- Retirements are near a 20-year low — delivery constraints are forcing airlines to keep older aircraft in service.
- Average aircraft age exceeded 15 years in 2025 — the highest level in aviation history.

Defense Demand Is Adding Pressure

- Aircraft, engines and parts are already constrained
- Conflict can slow logistics
- Defence demand adds pressure
- Operational impact



- **Airlines continue to face aircraft delivery delays, engine maintenance bottlenecks, shortages of critical parts, and longer lead times for components. So the supply chain is already constrained before conflict adds any further pressure.**
- **Conflict can make this worse in several ways.**
  - First, it can slow logistics. Airspace closures, rerouting, airport restrictions and reduced cargo capacity can delay the movement of aircraft parts, engines, tools and specialist equipment. In aviation, a missing part is not a minor inconvenience — it can keep an aircraft on the ground.
  - Second, defense demand is rising. According to SIPRI, global military expenditure reached $2.887 trillion in 2025, the 11th consecutive year of growth, and is now 41% higher than a decade ago. Europe alone saw a 14% increase in military spending in 2025.That matters because civil aviation and defense do not sit in completely separate supply chains. They often rely on the same industrial base: metals, castings, forgings, electronics, skilled labour, engineering capacity and MRO capability.
  - Third, the impact becomes operational. When engines, spare parts or maintenance inputs are delayed, aircraft can remain grounded for longer. That reduces available capacity, weakens schedule resilience and makes it harder for airlines to restore connectivity after disruption.

Keeping Aviation Moving Through Crisis

- **Safety must remain the anchor:** Decisions need timely risk assessment, clear guidance and real-time operational information.
- **Flexibility is essential:** Airlines need routing, fuel and slot flexibility when normal operations are impossible.
- **Supply chains are part of resilience:** Aircraft parts, engines, fuel, cargo capacity and MRO access all affect the ability to keep flying.
- **Coordination reduces disruption:** States, regulators, airports, ANSPs, fuel suppliers and airlines need to act together as the situation evolves.

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Save a Life, Not a Bag

A passenger safety campaign

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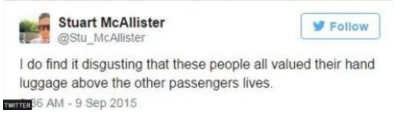
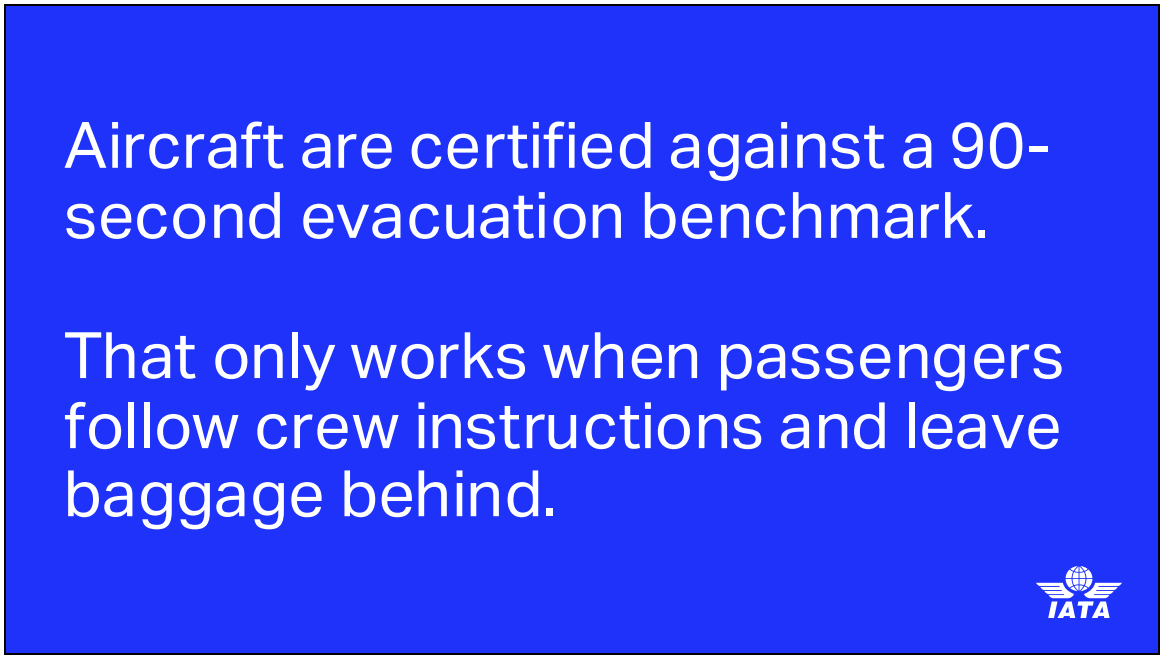
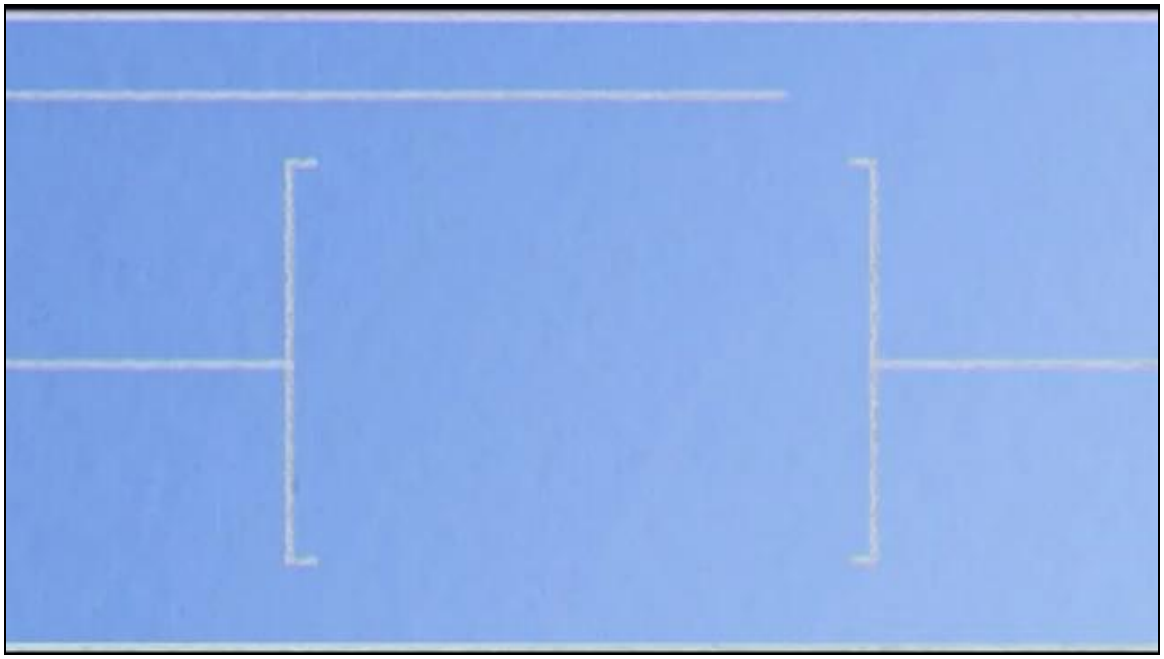


- There are a growing number of cases where travelers have stopped to take their baggage, or a photo, during aircraft evacuations.
- Evidence of this is seen in many videos posted online.
- Valuable seconds can be lost when retrieving baggage from overhead bins.
- Carrying bags can cause people to fall or damage the slides that all passengers need to use.
- Most concerningly, some passengers have been seen attempting to evacuate while carrying both infants and bags or other personal items, compromising safety at a critical moment.



- Aircraft are certified against a 90-second evacuation benchmark because, in an emergency, conditions can deteriorate rapidly.
- The benchmark helps ensure the aircraft, exits, slides and procedures can support a fast evacuation — but it depends on passengers listening to crew, moving quickly and leaving baggage behind.



Passengers Underestimate how Fast an Evacuation Must Be

18%

knew aircraft evacuation procedures are designed around a 90-second safety benchmark

38%

think an evacuation could take 3 minutes or more

- **As part of the campaign development, IATA commissioned a survey of recent air travelers.**
- **The research found some critical gaps:**

Passengers think they know what to do - many get it wrong

80%

say they know what to do in an emergency evacuation

61%

correctly say they should leave all personal items behind & exit the aircraft

Nearly 4 in 10 passengers did not choose the safest answer

Unsafe Behavior Can Be Contagious

33%

have seen reports of passengers taking baggage during an evacuation

22%

of them say they would be likely to do the same

A simple habit could reduce the risk

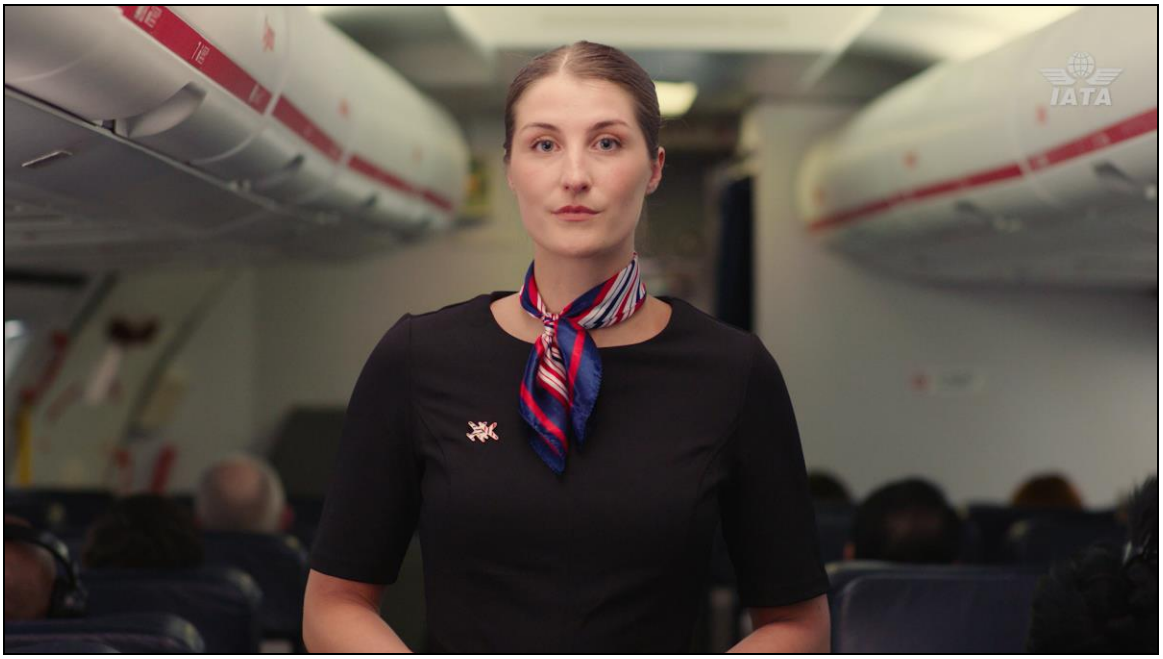
60%

say they would be less likely to take baggage if essential small items were already on their person

Save a Life, Not a Bag: Every Second Counts in an Evacuation

The campaign encourages passengers to think ahead by keeping essential items such as passport, money and medication secure on their person before take-off and landing. The core messages for passengers are:

1. Pay attention to crew instructions
2. Leave all baggage behind
3. Don't film or take photos
4. Keep aisles and exits clear
5. Do not take bags onto evacuation slides
6. Be Prepared



- The campaign uses surreal imagery to make one simple safety message stick.

- Developed with input from human behavior specialists, the assets are designed for airlines, media and aviation partners to share with passengers across digital and social channels.

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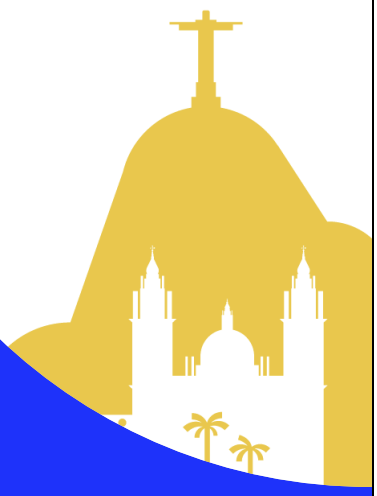

Thank you.

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