Facilitation of the safe and secure transport of radioactive material (Class 7), to mitigate the issue of denial and delay of shipment

Ulric Schwela

Consultant, Transport Safety Unit (RIT/NSRW)

Department of Nuclear Safety and Security

IATA-UPU-ICAO Webinar 2026

17th June 2026

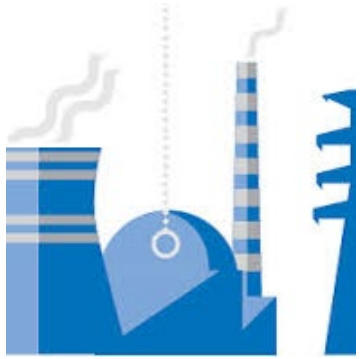
IAEA

- Peaceful Applications of Radioactive Material
- Denial of Shipment and Facilitation
- The Denial of Shipment Working Group
- White Paper on Transport Facilitation
- Mitigating Measures

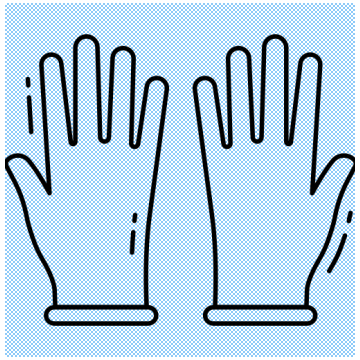
IAEA

Peaceful Applications of Radioactive Material

Peaceful Applications of Radioactive Material



Nuclear power



Sterilising medical equipment

Sterilising blood

Radiotherapy

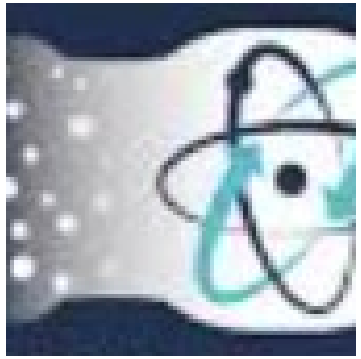
Radio-pharmaceuticals

Sterilising food

Sterile insect technique

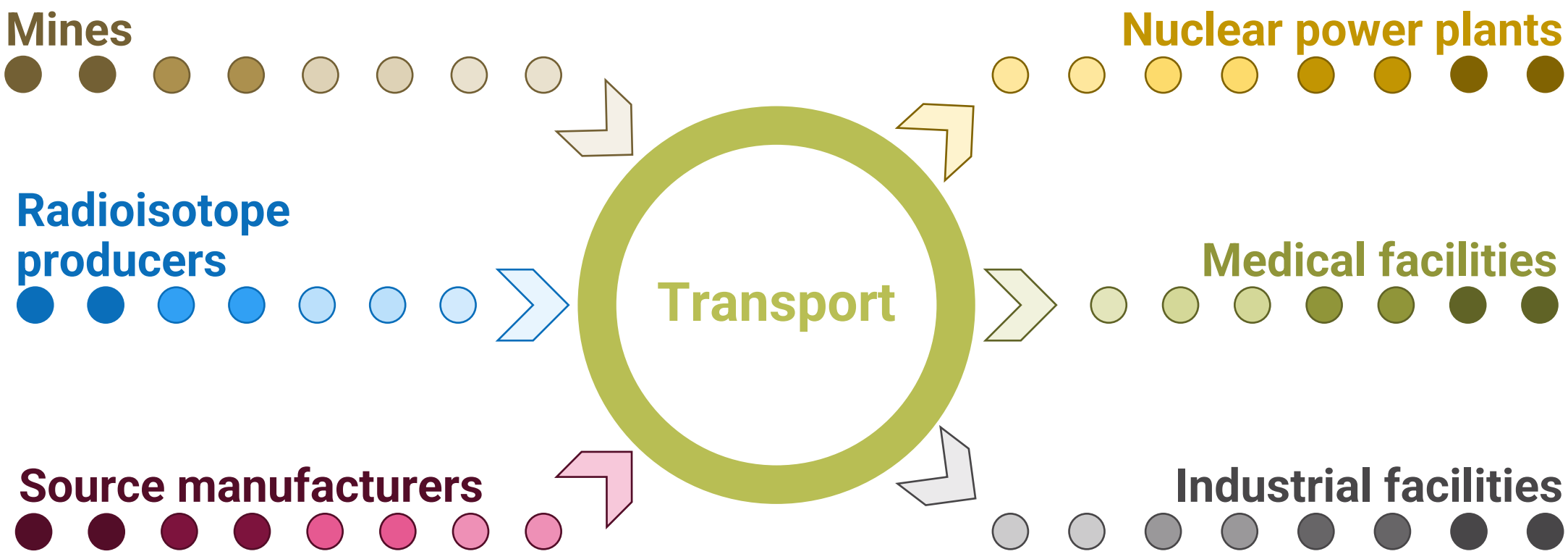
Developing vaccines

Naturally Occurring Radioactive Material



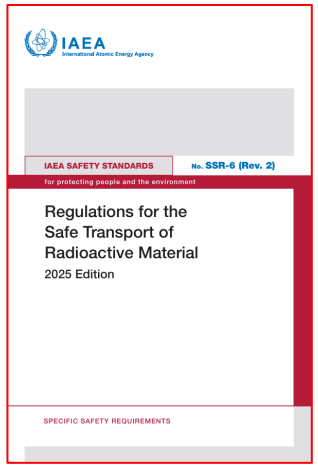
Treating waste water; improving plastics

The need for transport of radioactive material

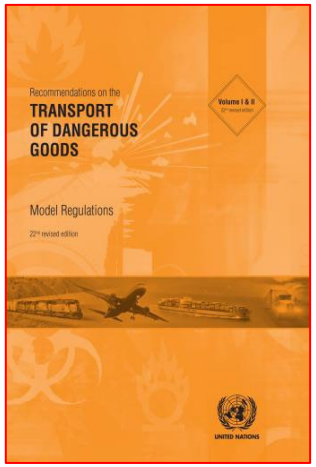


International Regulatory Framework – Transport Safety

SSR-6 sets requirements for Class-7 for all modes of Transport



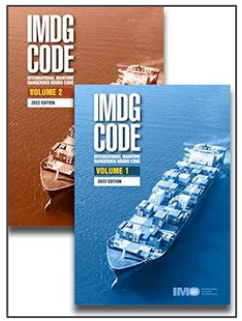
Basis for National Regulatory Framework



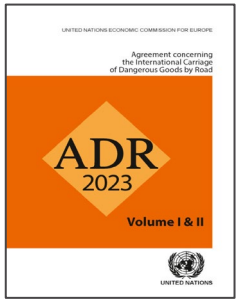
Transport of Dangerous Goods (Classes 1-9) by All Modes of Transport

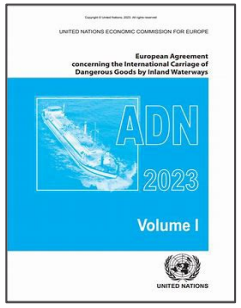
International Conventions & Treaties

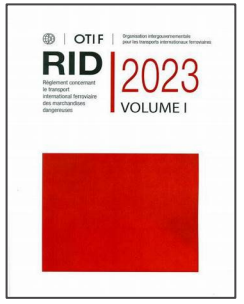
Air Transport



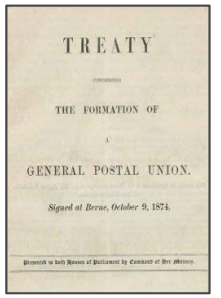
Sea Transport







Land: Regional Agreements for Road, Rail and Inland Waterways



Transport by Post

Mandatory - contracting parties

+ national regulations

not mandatory

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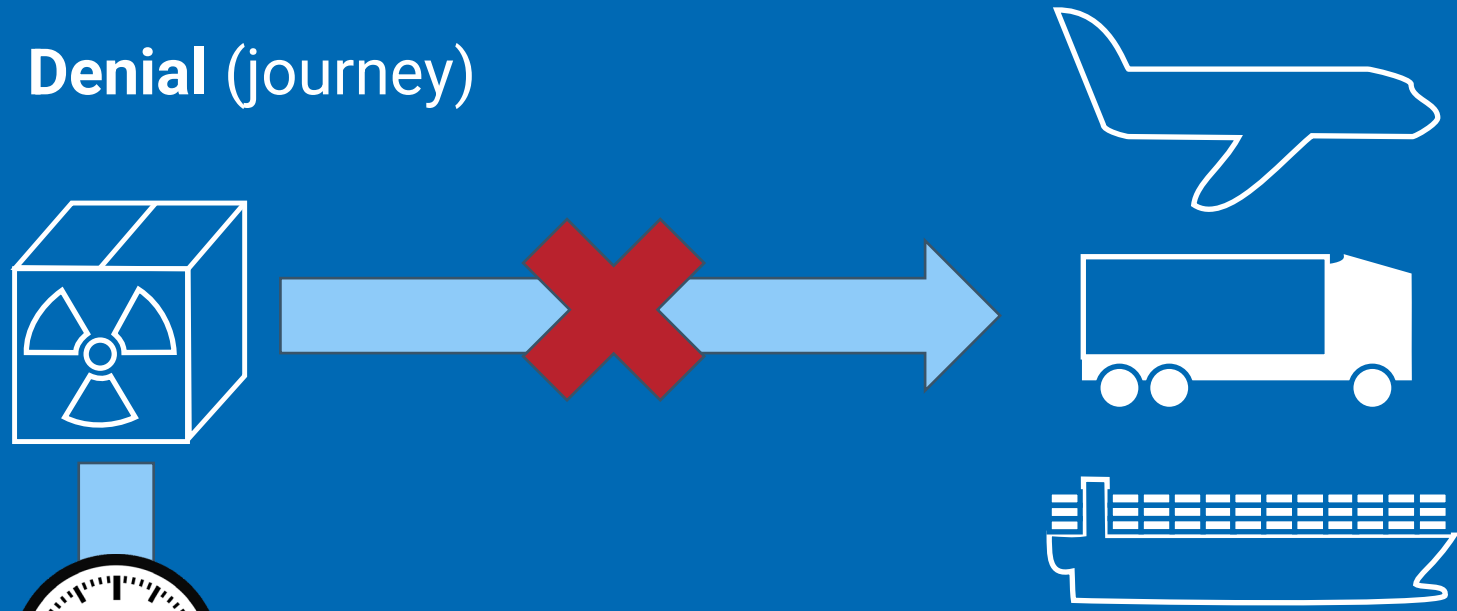
Denial of Shipment and its consequences

Denial of Shipment: a different perspective

Despite the international regulatory framework for safe and secure transport of radioactive material…

- **Denial** (policy)

- **Denial** (journey)



- **Delay** (journey)

Transport Facilitation efforts by IMO and ICAO

Convention on Facilitation of International Maritime Traffic (FAL)

The main objectives are to *prevent unnecessary delays* in maritime traffic, to aid co-operation between Governments, and to secure the highest practicable degree of uniformity in formalities and other procedures.

2006: Resolution A.984(24)

2007: FAL Committee (34)

Annex 9 – Facilitation in the Convention on International Civil Aviation

“to facilitate and expedite the release and clearance of goods”

“States shall adopt regulations and procedures appropriate to flight operations and shall apply them in such a manner as to prevent unnecessary delays”

2004: Facilitation Division (12) amending Chapter 4

Collaboration with other UN Organizations

IAEA continues seeking strengthened collaboration with relevant United Nations organizations on transport facilitation

- **2023-2026: DoS WG** participation by ICAO, IMO, UNECE, UPU, WHO
- **2023: IAEA and ICAO** issue **joint statement** **to enhance cooperation on transport of vital radioactive materials**

  https://www.iaea.org/newscenter/pressreleases/iaea-and-icao-to-enhance-cooperation-on-transport-of-vital-radioactive-materials
- **2024**: IAEA and IMO **e-learning module** **on Safe Transport of Class 7 by Sea**
- **2025, ICAO Assembly 42: IAEA Working Paper** noting **hospitals and clinics worldwide depend on fast and reliable transport** of radioactive material (often short-lived radiopharmaceuticals), and calling on enhanced coordination between civil aviation authorities and their national competent authorities

International Conference on the Safe and Secure Transport of Nuclear and Radioactive Material

23-27 March 2026, Vienna

Central goal included:

"enhance facilitation of safe and secure transport of nuclear and radioactive material through harmonised implementation of international legal and regulatory framework and proactively develop the strategies to address the challenges for safe and secure transport of new nuclear and transport technologies"

IAEA

#SafeSecureTransport

PS13: Sustainable Supply Chain for Radiopharmaceuticals

❤️ Core Reality

- Radiopharmaceuticals are **time-critical, life-saving**
- Radiopharmaceutical Delay (= **Denial = Missed treatment)**

⚠️ Key Barriers

- Air transport disruptions & limited acceptance (airlines/airports)
- Deviating national regulations & lack of harmonisation
- Low awareness → risk perception overrides patient benefit

📉 System Gap

- Compliance exists, but **implementation fails**
- Operational inefficiencies & inconsistent interpretation
- Growing demand → increasing pressure on supply chain

💡 What Must Change

- Treat radiopharmaceuticals as **priority medical cargo**
- Strengthen **coordination (states, aviation, industry)**
- Improve **awareness using simple, non-technical messaging**

➡️ Bottom Line: **Reliable transport = patient care**

Without action, DoS becomes a healthcare crisis

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The Denial of Shipment Working Group

Denial of Shipment Working Group

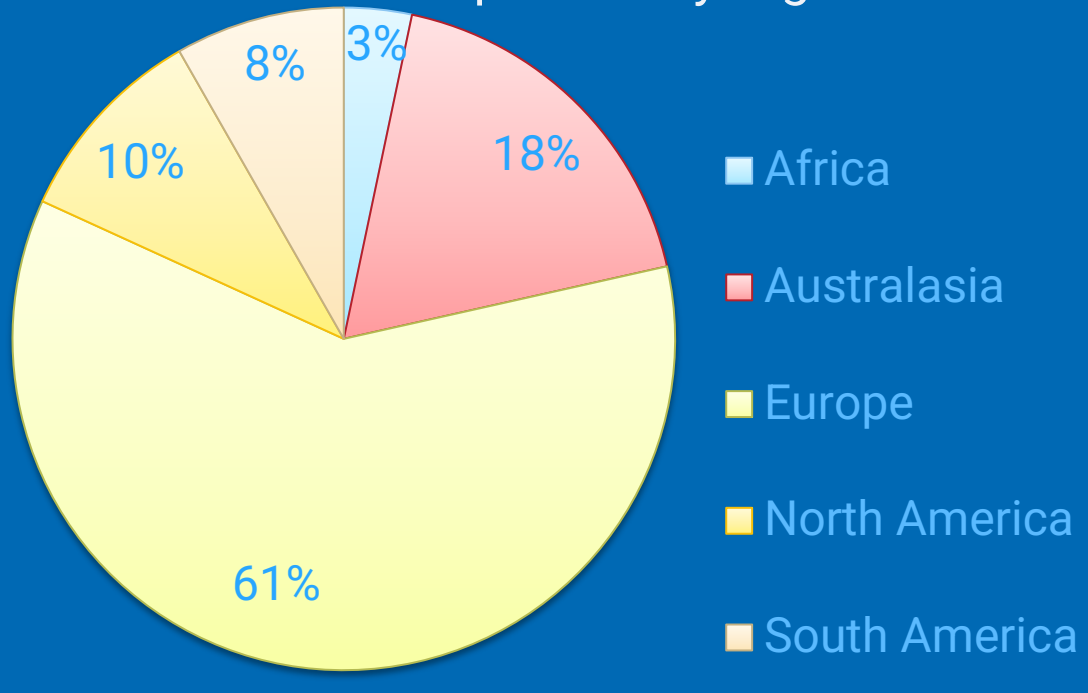
- Established 2022 for the four-year period **2023-2026**
- **Membership**: 75 representatives from 30 Member States, 3 Int'l Organisations, and 5 Non-Govt'l Organisations
- **Three Sub-Working Groups**: 1) Data Collection and Analysis; 2) Identifying Potential Solutions; 3) Awareness and Communication
- Six meetings held **2023-2026**, 6th meeting held 20-22 April 2026, approved **White Paper on Facilitation**
  - 7th meeting scheduled for 7-11 December 2026

DoS WG: data collection and analysis

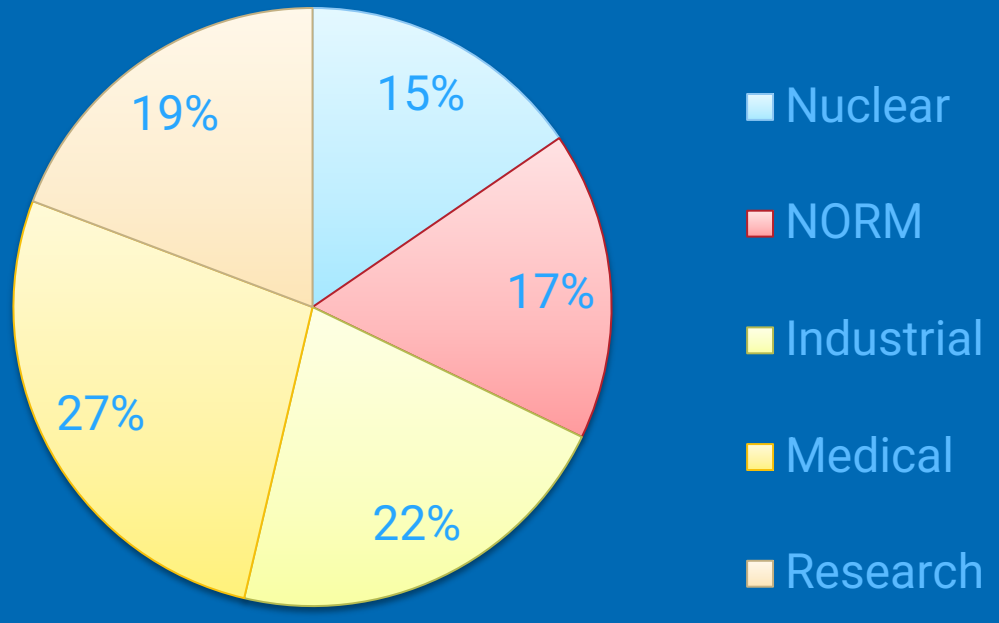
- Surveys to gauge awareness and difficulties experienced, and better inform the efforts of the DoS WG

- Five surveys conducted of:
  1) **Member States**
  2) **Industry** (consignors, consignees)
  3) **Carriers** (all modes: air/sea/land)

Combined responses by region



Combined responses by radioactive material sector



DoS WG Outputs

Communication Strategy

- Guidance for transport stakeholders, including National Focal Points

Handbook

- Guidance for National Focal Points

Webpage on facilitation of transport of radioactive material

- at https://gnssn.iaea.org/main/fastram/Pages/default.aspx

White Paper on the Facilitation of the Safe and Secure Transport of Radioactive Material: development

- including Conclusions and Recommendations of the DoS WG

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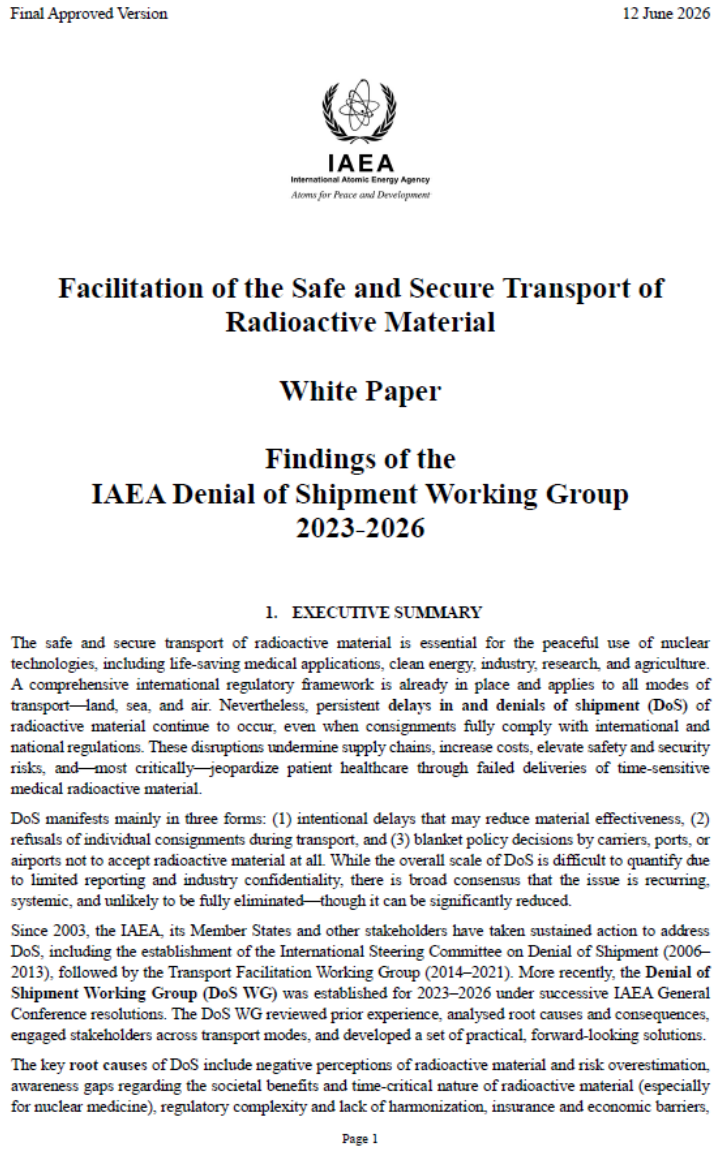
White Paper on the Facilitation of Safe and Secure Transport of Radioactive Material

White Paper on the Facilitation of the Safe and Secure Transport of Radioactive Material

- December 2025: first draft
- Multiple reviews, **total of 465 comments addressed** (excluding editorial and formatting)
- April 2026: DoS WG **approved White Paper**
- June 2026: final review and dissemination by IAEA Secretariat to Member States

White Paper:

- Defines denial of shipment (DoS), root causes and consequences
- Recognises efforts by International Organizations including **ICAO**
- Recommends mitigation measures
- Conclusions



Final Approved Version 12 June 2026

IAEA
International Atomic Energy Agency
Atoms for Peace and Development

Facilitation of the Safe and Secure Transport of Radioactive Material

White Paper

Findings of the IAEA Denial of Shipment Working Group 2023-2026

1. EXECUTIVE SUMMARY

The safe and secure transport of radioactive material is essential for the peaceful use of nuclear technologies, including life-saving medical applications, clean energy, industry, research, and agriculture. A comprehensive international regulatory framework is already in place and applies to all modes of transport—land, sea, and air. Nevertheless, persistent **delays in and denials of shipment (DoS)** of radioactive material continue to occur, even when consignments fully comply with international and national regulations. These disruptions undermine supply chains, increase costs, elevate safety and security risks, and—most critically—jeopardize patient healthcare through failed deliveries of time-sensitive medical radioactive material.

DoS manifests mainly in three forms: (1) intentional delays that may reduce material effectiveness, (2) refusals of individual consignments during transport, and (3) blanket policy decisions by carriers, ports, or airports not to accept radioactive material at all. While the overall scale of DoS is difficult to quantify due to limited reporting and industry confidentiality, there is broad consensus that the issue is recurring, systemic, and unlikely to be fully eliminated—though it can be significantly reduced.

Since 2003, the IAEA, its Member States and other stakeholders have taken sustained action to address DoS, including the establishment of the International Steering Committee on Denial of Shipment (2006–2013), followed by the Transport Facilitation Working Group (2014–2021). More recently, the **Denial of Shipment Working Group (DoS WG)** was established for 2023–2026 under successive IAEA General Conference resolutions. The DoS WG reviewed prior experience, analysed root causes and consequences, engaged stakeholders across transport modes, and developed a set of practical, forward-looking solutions.

The key **root causes** of DoS include negative perceptions of radioactive material and risk overestimation, awareness gaps regarding the societal benefits and time-critical nature of radioactive material (especially for nuclear medicine), regulatory complexity and lack of harmonization, insurance and economic barriers,

Page 1

White Paper on the Facilitation of Safe and Secure Transport of Radioactive Material: causes and consequences

- Identifies key **root causes…**:
  - Perception and Cultural Factors
  - Awareness Gaps
  - Regulatory Complexity, Lack of Harmonization and Administrative Gaps
  - Insurance and Economic Barriers
  - Carrier and Logistics Issues
- …and **main consequences**:
  - Negative Impact on Patient Healthcare
  - Increased Costs and Resource Use
  - Operational Delays lead to Safety or Security Risks
  - Regulatory Non-Compliance Risks

White Paper on the Facilitation of Safe and Secure Transport of Radioactive Material: mitigation measures

- Development of **Joint Statement on the Facilitation of Safe and Secure Transport of Radioactive Material** by interested Member States
- **Sustainable network of National Focal Points on Denial of Shipment** (NFP)
  List available at https://gnssn.iaea.org/main/fastram/Pages/default.aspx
- **Member States to establish and maintain a publicly accessible list of national regulatory deviations and variations** (as referred to in points (a) to (c) in Annex-I of SSR-6, and in para 2.5 of Annex 18 to the Convention on International Civil Aviation), to assist involved parties; as per https://www.icao.int/Dangerous-Goods/State-Variations
- **International organizations to increase cooperation on the facilitation of safe and secure transport of radioactive material**
- **Member States, Operators and International Organizations to maintain outreach at all levels including development of Communication Strategies,** noting Communication Strategy of the DoS WG; take actions to improve perception of radioactive material, including **importance of timely transport of critical medical radiopharmaceuticals**
- **IAEA to continue enhancing the capacity of Member States** that have no or limited regulatory infrastructure for safe and secure transport of radioactive material

White Paper on the Facilitation of Safe and Secure Transport of Radioactive Material: mitigation measures

- Facilitating transport of medical radioactive material by **Member States submitting proposals for change** to the UN classification for materials/packages to TRANSSC along with justification.
- Facilitating transport of medical radioactive material by **Operators submitting proposals for change** to specific IATA Special Handling Codes to IATA along with justification
- **Member States to maintain within their jurisdiction, the availability of ports and airports capable of allowing the import, export, transhipment and transit of radioactive material** that are consistent with international and national regulations for safe and secure transport of radioactive material, including provision of trained staff.
- Member States to provide port authorities and carriers with information that **transport of radioactive material in compliance with international regulations is safe**, so that stakeholders can make informed decisions

White Paper on the Facilitation of Safe and Secure Transport of Radioactive Material: conclusions

- Safe and secure **transport of radioactive material remains essential**
- Short-lived **medical radioisotopes and related radiopharmaceuticals for life-saving applications are of particular importance**
- **Member States should recognise the benefits of these measures and support their implementation**
- Member States encouraged to develop and strengthen a sustainable and structured mechanism — such as National Focal Points — to **systematically collect, consolidate, and evaluate cases of delays and denials**
- **Responsibility increasingly rests with States themselves** — key actors driving the call for solutions — to take decisive, harmonised, and sustained action
- **Issue cannot be entirely eliminated, but its impacts can be significantly reduced**

White Paper on the Facilitation of Safe and Secure Transport of Radioactive Material: next steps

- **IAEA in process of disseminating** White Paper to all Member States
- IAEA **General Conference to be notified** of the White Paper as findings of the DoS WG
- **Member States strongly encouraged to raise awareness of the White Paper**, its findings and its recommendations
    - **Member States urged to update the nuclear and radiation safety resolution for GC(70) where it refers to the DoS WG, to recognise the White Paper and to endorse its recommendations**

Upcoming events

- **September 2026**: IAEA GC(70) side event on White Paper on the Facilitation of the Safe and Secure Transport of Radioactive Material, Vienna
- **7-11 December 2026:** 7th DoS WG meeting, Vienna
- **Q2 2027:** inter-regional training workshop for National Focal Points on denial of shipment, Abuja

#TransportMovesTheWorld

Thank you!

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ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

A UN SPECIALIZED AGENCY

Lithium Batteries in Airmail: Challenges

Lynn McGuigan

Technical Officer, Cargo Safety

International Civil Aviation Organization (ICAO)

17 June 2026

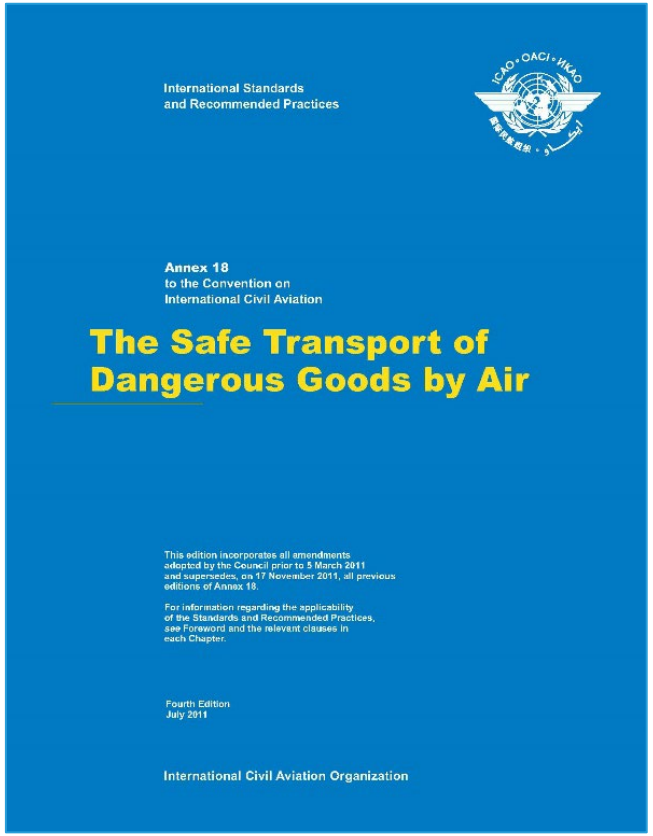
ICAO

ICAO

The **International Civil Aviation Organization (ICAO)** is a United Nations specialized agency created in 1944 upon the signing of the *Convention on International Civil Aviation* (Chicago Convention).

Nineteen Annexes to Chicago Convention

- Annex 1 — *Personnel Licensing*
- Annex 2 — *Rules of the Air*
- Annex 3 — *Meteorological Service for International Air Navigation*
- Annex 4 — *Aeronautical Charts*
- Annex 5 — *Units of Measurement to be Used in Air and Ground Operations*
- Annex 6 — Operation of Aircraft
- Annex 7 — *Aircraft Nationality and Registration Marks*
- Annex 8 — Airworthiness of Aircraft
- Annex 9 — Facilitation
- Annex 10 — *Aeronautical Telecommunications*
- Annex 11 — *Air Traffic Services*
- Annex 12 — *Search and Rescue*
- Annex 13 — *Aircraft Accident and Incident Investigation*
- Annex 14 — *Aerodromes*
- Annex 15 — *Aeronautical Information Services*
- Annex 16 — *Environmental Protection*
- *Annex 17 — Security — Safeguarding International Civil Aviation against Acts of Unlawful Interference*
- Annex 18 — *The Safe Transport of Dangerous Goods by Air*
- Annex 19 — Safety Management



Annex 18

The Safe Transport of Dangerous Goods by Air

“Each Contracting State shall take the necessary measures to achieve compliance with the detailed provisions contained in the Technical Instructions”
(Standard 2.2.1)

Applicable to all international operations of civil aircraft

Scope of Technical Instructions

Cargo

Carried by passengers and crew

Mail

Dangerous goods in air mail prior to 2013

Technical Instructions

Not permitted in mail, in accordance with UPU Convention, except for:

- Patient specimens
- Category B Infectious substances and dry ice
- Radioactive material in excepted packages

Appropriate national authorities should ensure provisions are complied with

Annex 18

Each Contracting State should establish procedures with a view to controlling the introduction of dangerous goods into air transport through its postal services.

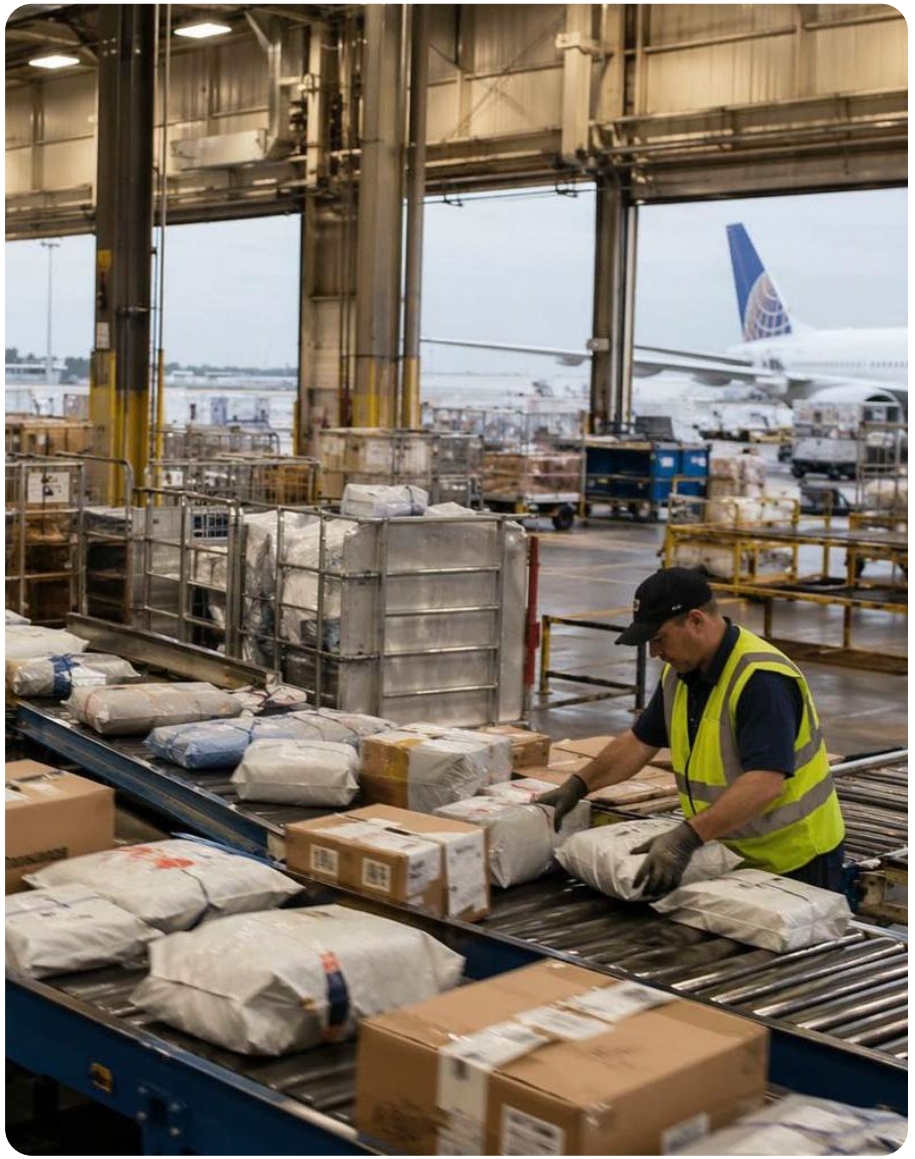
International procedures for controlling the introduction of dangerous goods into air transport through the postal services have been established by the Universal Postal Union.

Non-compliance

Dangerous goods that are not permitted in mail often discovered

Aerosols
perfume,
Cigarette lighters

Lithium batteries

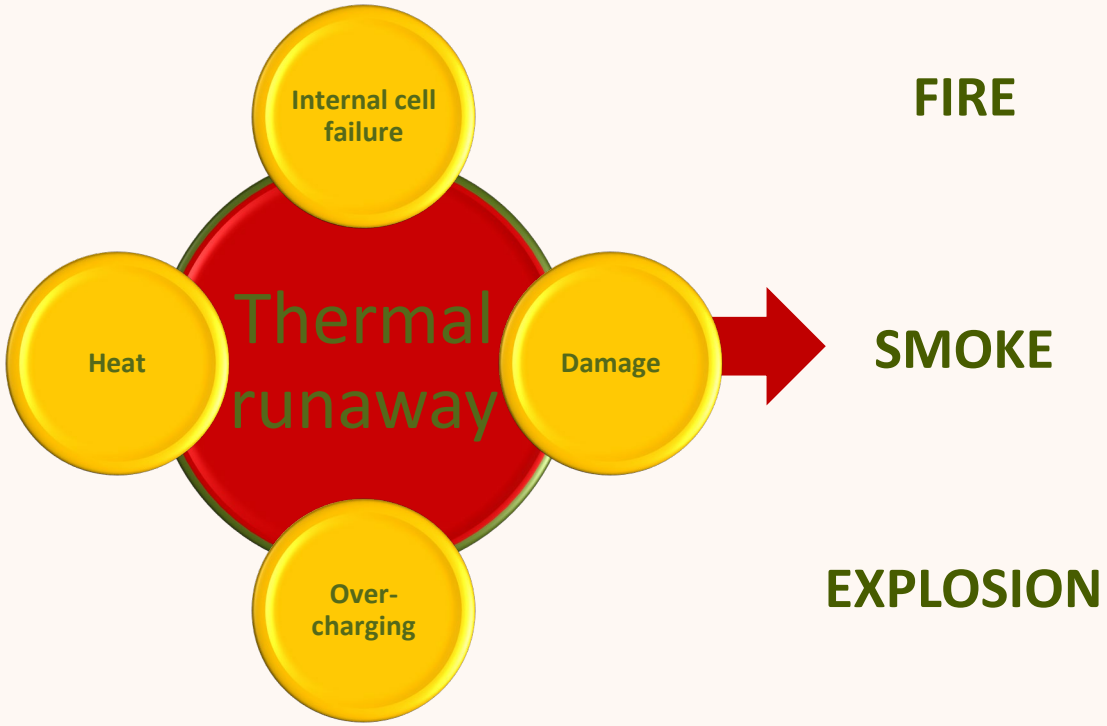


UPU convention amended

Equipment containing no more than four lithium cells or two lithium batteries permitted in the international post

UPU requested ICAO to harmonize mail provisions in 2013-2014 Edition of Technical Instructions with UPU Convention

Lithium Batteries — Hazards



Is there a way to allow lithium batteries contained in equipment in air mail in a way that will help manage the risk?

Lithium batteries in air mail post 2013

Technical Instructions (2013-2014 Edition)

- Procedures of DPOs for controlling the introduction of dangerous goods in mail into air transport subject to review and approval by CAA of the State where the mail is accepted
- Specific approval from CAA before DPO can introduce acceptance
- Lithium batteries contained in equipment meeting Section II Packing Instruction 967 (lithium ion) or 970 (lithium metal) permitted
- No more than four cells or two batteries in any single package

Annex 18 (applicable 12 November 2015)

- Procedures of DPOs for controlling introduction of dangerous goods in mail into air transport shall be approved by the CAA of the State where the mail is accepted.
- Guidance for approving the procedures added to the Supplement to the Technical Instructions (Part S-1, Chapter 3)

Where are we now?

Approximately 40 **DPOs** have approval **to accept lithium batteries**

Dangerous goods that are not permitted in mail, including lithium batteries, are still being discovered today

What measures are being taken to address this risk?

Is there anything more that needs to be done?

Eric Gillett

Dangerous Goods Inspector at Qatar Civil Aviation Authority

Keith Ranck

Hazardous Materials Aviation Safety Analyst within the FAA's Cargo Safety and International Affairs Division

Pascal Lai

Cargo Customer Solutions Manager at Cathay Pacific

Gerald Gales

HAZMAT Aviation Mail Security Specialist at the United States Postal Inspection Service (USPIS)

Thank You!

ICAO

Impacts of the end of the EU de minimis on postal operators

ICAO – IATA – UPU online webinar

17 June 2026

Christophe Pereira

Head of customs affairs

LA POSTE GROUPE

A Major shift: End of the de minimis regime

End of low-value exemption

From July 2026, all imports to the EU will face customs duties, regardless of their value.

New customs duty charges

A temporary flat-rate duty of EUR 3 per e-commerce item will be applied, plus a future handling fee.

Impact on postal operators

Postal services must adapt to fully customs-controlled transactions, affecting processes and customer relations.

The EU policy objectives

Leveling the playing field

The reform removes customs duty advantages to ensure fair competition between EU and non-EU sellers in e-commerce.

Strengthening customs risk management

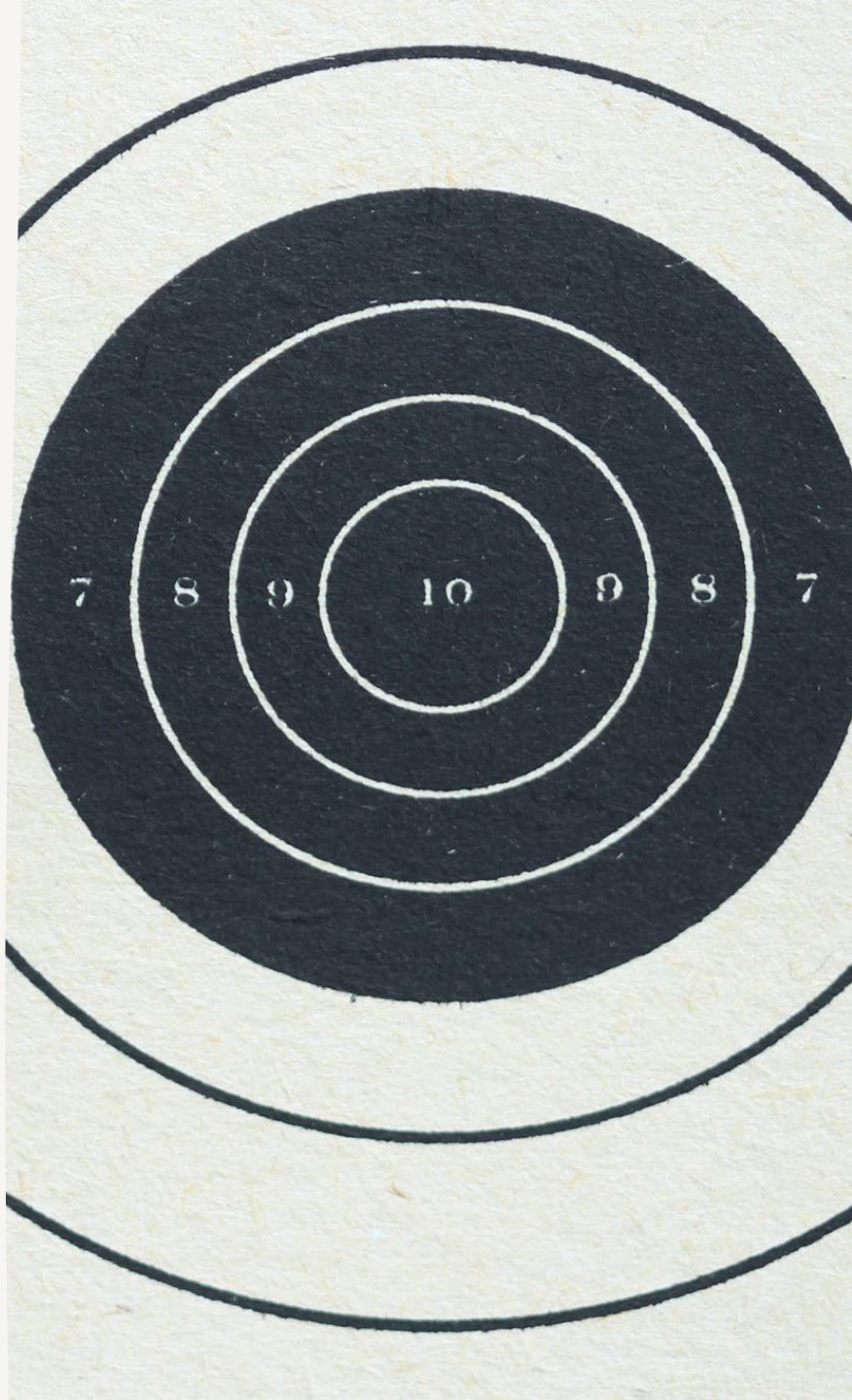
The reform addresses rising parcel volumes and complex border regulations including safety and environmental compliance.

Shifting responsibility to EU operators

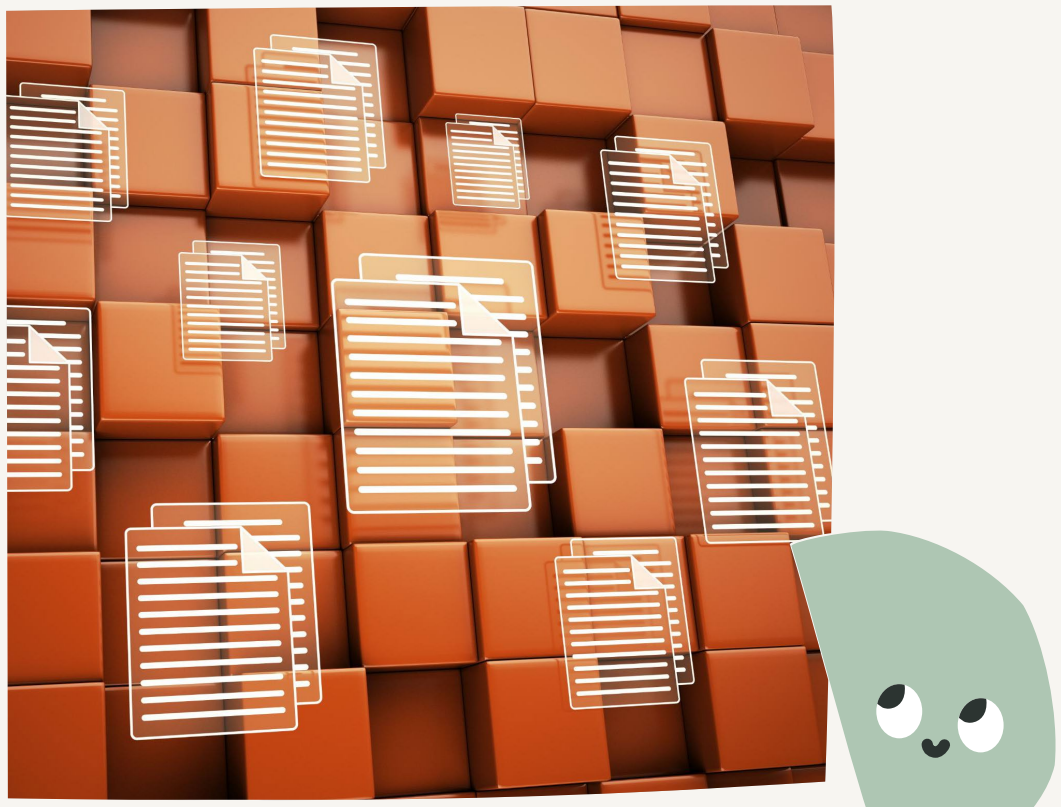
Liability shifts to traceable EU-based economic operators to ensure enforcement of financial and regulatory obligations.

Tension between policy and postal reality

The reform's model fits large platforms but clashes with the postal sector's universal service and high volume nature.



Operational shock: From parcels to customs cases



Increased customs workload

Every inbound postal parcel now requires full customs processing, greatly increasing operational workload and complexity.

Mandatory advance data

Accurate electronic data including product descriptions and classifications is now mandatory for all shipments.

Dependence on upstream data

Postal operators rely on origin posts and merchants for quality data but have limited control over errors.

Risks and challenges

Insufficient preparation risks customs congestion, delivery delays, and service degradation under tight postal margins.

Financial & structural exposure

Financial liability and cash flow

Postal operators face upfront customs duties and financial guarantees, causing significant cash flow pressure with millions of parcels.

Losses from non-recoverable duties

Reforms remove facilitation for invalidating declarations on undeliverable items, leading to unrecoverable duty payments and financial losses.

Structural business model mismatch

The reform assumes trader-based models with pricing power, conflicting with postal models based on scale and limited commercial control.

Asymmetric risk exposure

Postal operators bear legal and financial risks without corresponding commercial authority, resulting in asymmetric liability.

Fragmentation: diverging models across the EU

Diverging customs models

EU postal operators use differing customs models including PDDP-only, hybrid PDDP-DAP, and national DAP arrangements.

Drivers of fragmentation

Legal frameworks, customs interpretations, IT capabilities, and operator strategies drive model divergence across EU countries.

Operational challenges

Fragmentation complicates cross-border coordination, reduces customer experience consistency, and limits standardization efforts.

Need for flexibility

Diverse models highlight the importance of flexible, tailored solutions over a one-size-fits-all EU postal approach.

The way forward: mitigation & success factors

Mitigation strategies

The postal sector has developed Delivered Duty Paid models to shift tax collection and reduce destination liability.

Strategic approaches

Avoiding declarant roles, prioritizing DDP over DAP, and strengthening bilateral agreements clarify financial responsibilities.

Critical success factors

Reliable data flows and strong risk management, partnerships