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THE GAP BETWEEN AIRLINE REGULATIONS AND ACTUAL PET TRAVEL PRACTICES

Summary. *The study analyzes a systemic gap between formally established international regulations and the actual operational practices applied in the air transport of companion animals. The relevance of the issue is determined by the accelerated growth of the global Pet Travel segment, the volume of which, according to forecast estimates, may reach USD 5.2 billion by 2034 at average annual rates of 8.0–8.66%, combined with structural fragmentation of regulation. This combination creates critical threats both to animal welfare and safety and to the resilience of logistics processes, including the predictability of routing, compliance with deadlines, and reproducibility of procedures at key nodes of the transport chain. The methodological foundation of the work is built on a comparative analysis of key legal-regulatory corpora and industry prescriptions (IATA LAR, WOAH, ICAO, as well as national requirements of the USA, the EU, and the UAE) and on the synthesis of unique empirical material aggregated from more than 1000 practical cases in international logistics. This combination made it possible to identify and describe shadow operational protocols—stable non-formalized practices that arise in response to ambiguity of norms, differences in local interpretation, and infrastructure constraints, yet exert a direct influence on transport outcomes. It was established that the most significant contradictions are concentrated in the interpretation of veterinary requirements, in differences in approaches to calculating the validity periods of governmental certificates,*

and in pronounced variability of procedures among individual air carriers. At the same time, in the overwhelming majority of situations, the mismatch between the regulation and its actual implementation is explained not so much by defects at the normative level as by the human factor and a deficit of applied competencies on the ground; such causes are observed in approximately 80% of cases. The practical significance of the results is determined by the applicability of the conclusions for specialists in international logistics, veterinary supervision, and aviation personnel, as well as for animal owners and developers of regulatory standards interested in reducing decision variability and increasing the predictability of procedures in cross-border transport.

Key words: *air transport of animals, IATA LAR, regulatory gap, veterinary control, Pet Travel logistics, rabies titers, human factor, humane handling, aviation safety, operational risk.*

Introduction. The contemporary sociocultural model, within which companion animals, primarily cats and dogs, have become established as family-significant subjects, has led to a sharp expansion of practices of joint mobility and, consequently, to the accelerated development of commercial services for international animal transport. Against this background, a stable market segment of Pet Travel Services has formed [2]. According to sectoral analytics, the total global volume of this market in 2024 is estimated at USD 2.4 billion, and by 2034 growth to USD 5.2 billion is projected at an average annual rate (CAGR) of about 8.0% [1]. In the United States, 2024 records a high prevalence of travel with animals: 78% of the population take annual trips with pets [2].

The intensity of cross-border animal mobility and the growth of commercial turnover in the Pet Travel sphere are not accompanied by a comparable pace of modernization of the regulatory architecture, which creates systemic pressure on outdated and fragmented protocols. A basic cause is identified as a structural deficit of regulation at the level of the International Civil

Aviation Organization (ICAO): mandatory standards for animal transport are not integrated into the organization's regulatory framework, despite consistent initiatives by certain states, including Colombia and a number of Latin American countries, aimed at developing a regulatory framework in Annex 9 Facilitation. The functional purpose of such integration is associated not only with reducing risks to flight safety, but also with institutional consolidation of an approach that interprets animals as sentient beings [3].

The current state of problem development is predominantly concentrated on sectoral and national regulations. The International Air Transport Association (IATA) has formed an extensive body of requirements within the Live Animals Regulations (LAR), covering parameters of containerization, documentary support, and procedural execution [4]. In parallel, the World Organisation for Animal Health (WOAH) develops standards of humane handling and emphasizes the need to strengthen control and interstate coordination [5]. At the same time, WOAH materials record the central practical problem—a gap between regulation and implementation on the ground [5]. At the level of national regimes, strict sanitary and quarantine requirements operate (for example, the CDC in the USA and MOCCAE in the UAE), which often prove mutually uncoordinated and poorly interfaced with general aviation procedures, increasing variability of interpretations and decisions within the operational circuit.

In the academic field, a deficit of integrative models persists that would link the structural regulatory gap associated with the absence of mandatory ICAO norms with operational instability arising from non-uniform local interpretation of rules and the dominance of the human factor at control points. The presence of this scientific gap impedes the formation of reproducible mechanisms for ensuring logistics resilience and reducing risks to animal safety, which determines the need for its conceptual and applied compensation.

The aim of the study is reduced to systematizing global practices, legal norms, and empirical cases of international transport of companion animals,

followed by identification and reduction of the regulatory-operational gap.

Scientific novelty is determined by the proposal of a comprehensive methodological model for risk assessment and management in international Pet Travel logistics, built on the synthesis of global regulations and a body of practical cases; within the model, the determining significance of local operational interpretation is demonstrated as a key mechanism for gap formation.

The author's research hypothesis is that the identified inconsistencies are driven by not so much by a lack of normative prescriptions as by their incorrect local interpretation and the absence of a unified contour for document verification, which leads to increased risks to animal welfare and to financial losses for owners.

Materials and Methods. The study was carried out on the basis of a comprehensive methodological framework combining the analysis of legal-regulatory sources, comparative legal juxtaposition of national regimes, and generalization of a substantial body of empirical data. This design ensured a simultaneous assessment of regulatory constructs and their real operationalization in international practice of companion animal transport.

The search-analytical stage was conducted from January to June 2025. To identify scientific publications and industry materials related to logistics, veterinary control, and aviation regulation, the indexed databases Scopus and Web of Science were used, as well as the Springer and IEEE platforms. The literature selection was conducted with priority given to sources published no earlier than 2020, which made it possible to rely on up-to-date empirical data and modern interpretations of regulatory practices. As the key regulatory core, official documents of the International Civil Aviation Organization (ICAO) reflecting calls to reform regulation were considered [3], the IATA Live Animals Regulations (LAR) [4], as well as directives of the World Organisation for Animal Health (WOAH) devoted to humane handling during transport [5]. The national block included requirements of the U.S. Department of Agriculture

(USDA/APHIS) [6], the UAE Ministry of Climate Change and Environment (MOCCAE) [7], as well as materials on carrier practices and oversight statistics published by the U.S. Department of Transportation (DOT) [8].

The methodological basis relied on a systems approach, within which the international transport of a companion animal was considered as a multi-stage logistics chain with distributed responsibility and heterogeneous control points. Each element of the chain—from obtaining a veterinary document in the export country to passing import control at the destination—was conceptualized as a potential point of failure capable of initiating cascading delays, repeated paperwork, or refusal of transport. To identify regulatory mismatches, comparative legal analysis was applied, allowing comparison of requirements for animals arriving from high-risk jurisdictions (including the mandatory determination of rabies antibody titers and completion of ACF in the USA) and low-risk regimes (for example, a simplified entry procedure into the EU with an EU passport). This method ensured identification of critical divergences in document validity periods, certificate forms, and the set of mandatory procedures, including quarantine conditions.

The empirical part of the study was formed on the basis of the author's expert methodology International rules and logistics of passenger transport of companion animals: a step-by-step guide (2025). The methodology is based on verified data collected while supporting successful transports along complex international routes implemented by PetGoTravel in 2023–2025. The use of this body was of fundamental importance, since it made it possible to reconstruct operational shadow protocols—stable practices applied by airline employees and governmental veterinary services, but not established in official regulations. Such manifestations include situations where a titer is not required for entry into Türkiye, however on certain segments of the route it may be erroneously requested, or cases in which in Ukraine it is required to issue a local document (Form F1) even in the presence of an international EU passport. These

observations were used as an evidence base to describe mechanisms of divergence between the norm and execution, as well as to identify vulnerable stages of procedural implementation.

Quantitative methods were used to substantiate the relevance of the issue and to assess the effectiveness of the proposed approach to reducing operational risks. Data from consulting agencies were used to demonstrate market dynamics and CAGR values [1]. Additionally, an analysis of the distribution of operational failures was conducted on the basis of generalization of practical cases, which made it possible to identify the proportional contribution of the human factor, errors of veterinary specialists, and errors of owners in the structure of failures during documentation and registration. To assess event load and the severity of consequences, U.S. DOT statistical data on the frequency of incidents in animal transport were studied, including cases of death and injury [8].

Results and Discussion. The results obtained demonstrate the presence of a pronounced and critically significant discrepancy between the declared international standards and their actual operational implementation at points of execution. This discrepancy is of a mixed nature and is formed simultaneously by structural legal-regulatory constraints and operational determinants associated with the human factor and the heterogeneity of practices at infrastructure nodes. A basic source of systemic instability is the absence of mandatory regulation of companion animal transport at the level of the International Civil Aviation Organization (ICAO): although the regulatory discourse закрепляется the necessity of ensuring humane handling of animals, mandatory standards are still not integrated into the ICAO Annexes [3], as a result of which the regulatory burden is effectively shifted to the industry and national levels. Under these conditions, the most developed industry document, the IATA Live Animals Regulations (LAR), which details requirements for containers (CR) and parameters of the logistics process [4], retains a recommendatory status, which opens space for a wide range of carriers' operational variations. Such variations

can both strengthen and soften prescriptions, and the criteria for such decisions are often determined by commercial rationality rather than by uniformity of risk management and reproducibility of procedures.

An illustrative example of a tightening scenario is airline policy regarding brachycephalic breeds. Thus, ITA Airways announced a complete ban on their transport in the baggage hold (AVIH) from October 2025, justifying the decision by increased respiratory risks, which formally correlates with the principles of humane handling transmitted in industry approaches [11]. However, the practical consequence is a functional neutralization of part of the detailed technical provisions of IATA LAR, including methods for calculating carrier parameters (for example, the +10% rule to the length of the muzzle) [12], since the risk is interpreted by the carrier as insufficiently controllable even if the prescribed requirements are met. The opposite, vector-wise case is associated with a commercially motivated relaxation of rules: airlines have introduced the practice of transporting large animals in the cabin when an additional seat is purchased, allowing a weight of approximately 15–25 kg together with the carrier. Such a practice radically diverges from widespread international limits, which usually fall within the 8–10 kg range [13], and thereby increases the probability of refusal during transit through international hubs, where stricter weight restrictions for PETC (Pet in Cabin) are applied and, consequently, tolerance for local exceptions is lower [18; 23].

Fragmentation of the regulatory field is further amplified by the asymmetry of veterinary requirements determined by the zoosanitary status of countries and their attribution to High-Risk/Low-Risk zones in the logic of CDC/WOAH classifications. For jurisdictions classified as a red zone, entry into the USA implies not only confirmation of rabies antibody титер, but also mandatory booking at an Animal Care Facility (ACF) at one of six approved airports (for example, JFK, LAX, MIA) for revaccination and veterinary examination. Such a framework complicates routing, reduces the flexibility of logistics planning, and

increases total costs by hundreds of dollars. Substantial differences are also recorded in the validity periods of governmental veterinary certificates, which forms a separate class of typical failures: in cases of misaligned calendar windows, mismatched approaches to validity counting, and variability of requirements at the carrier level, even a formally correct document package may lapse into invalid status at the stage of check-in, transit, or border control (see Table 1).

Table 1

Comparative requirements for the validity periods of veterinary certificates in different countries

Destination country	Official validity period of the state certificate (days)	Operational nuance / Note
UAE (MOCCAE)	Strictly 5 days	Counted from the signing date; a delay of even 1 day is not permitted; critical for cargo logistics.
European Union (EU)	10 days	Validity period for entry into the Schengen Area; after entry it is valid for up to 4 months.
USA (APHIS)	Up to 90 days	Validity period of the Vaccination Certificate, but departure from the exporting country is 5–10 days (Form 5A/1).
China (GAC)	Up to 14 days	Two vaccinations and a titer are required; the certificate must be valid at the time of entry.

Source: compiled by the author based on [9-13]

Insufficient alignment of ICAO approaches with national regulatory regimes, combined with the absence of a unified digital infrastructure enabling end-to-end verification of veterinary and transport documents, forms an institutional environment in which the decisive parameters of the process are determined not by regulatory logic, but by the conjuncture of commercial decisions and local bureaucratic practices. As a result, operational unpredictability arises: conformity confirmation procedures, requirements for the completeness of the document package, and admission criteria for transport vary

across jurisdictions, airports, and carriers, and also depend on the subjective interpretation of executors at control points. Under these conditions, compliance with the basic provisions of IATA LAR in itself does not ensure a reproducible outcome, since the recommendatory nature of the industry standard does not compensate for the absence of a mandatory inter-level mechanism of alignment and enforcement control, and also does not eliminate the gaps arising at the interface between the aviation and veterinary-sanitary circuits.

At the same time, the observed dynamics of the global Pet Travel Services market confirm that growth rates of demand for animal transport outpace the development of standardization mechanisms and the institutional ordering of practices. The expansion of transport volumes while a fragmented regulatory architecture persists acts as a key catalyst for deepening the gap: an increased flow of requests and routes intensifies the load on personnel and infrastructure, increases the probability of errors and divergences in the interpretation of requirements, and also makes the consequences of inconsistency among national regimes more visible. Thus, market acceleration functions as a factor that amplifies systemic vulnerability: in the absence of unified instruments of verification and coordination, demand growth leads not to increased maturity of practices, but to the scaling of operational variability and to the reproduction of logistics chaos.

The dominant source of refusals, delays, and critical incidents in the international logistics of companion animal transport is not so much violations of basic requirements on the owners' side as the human factor and a deficit of applied competencies among operational executors at the stages of documentation processing, acceptance for carriage, transit handling, and control at points of arrival. It is precisely at these decision-making points that the main mass of operational errors is formed, capable of transforming into incidents with severe consequences, including injuries and animal mortality [10, 22].

WOAH materials consistently document a persistent gap between formally

закреплёнными standards and their actual implementation on the ground, which indicates an institutionally reproducible nature of the problem [5]. One of the system-forming factors is the low intensity of coordination between veterinary authorities of different countries: at a level of interagency interaction which in the European region is characterized by an indicator of less than 40% of WOAH members supporting cooperation with importing states, procedures of verification, traceability, and confirmation of the animal's status in transit are substantially complicated [5]. Under conditions of limited traceability, the probability of repeated inspections, contradictory requirements, and delays increases, and the stress load on the animal is amplified, which can lead to injuries, disease development, and fatal outcomes [5].

The mechanism sustaining operational instability is additionally fueled by economic incentives. With a low level of sanctions for violations of animal welfare norms and simultaneously high costs of implementing quality standards (staff training, specialized infrastructure, equipment), operators' rationality shifts toward cost minimization. Illustrative is the example in which the fine for transporting an animal with a fracture is EUR 250 with the cost of a bull of EUR 1500 [15], which forms an asymmetric relationship between the potential costs of a violation and the economic value of the transported object. Such asymmetry reduces motivation to invest in risk prevention and reinforces practices in which humane handling requirements are fulfilled formally or situationally.

The generalization of more than 1000 practical cases made it possible to quantitatively describe the structure of key operational risks leading to disruptions in the logistics chain and to identify that the primary contribution to their reproduction is associated with execution errors and heterogeneity of competencies at points of operational control.

Figure 1 contains a description of the distribution of key operational risk factors in international animal transport.

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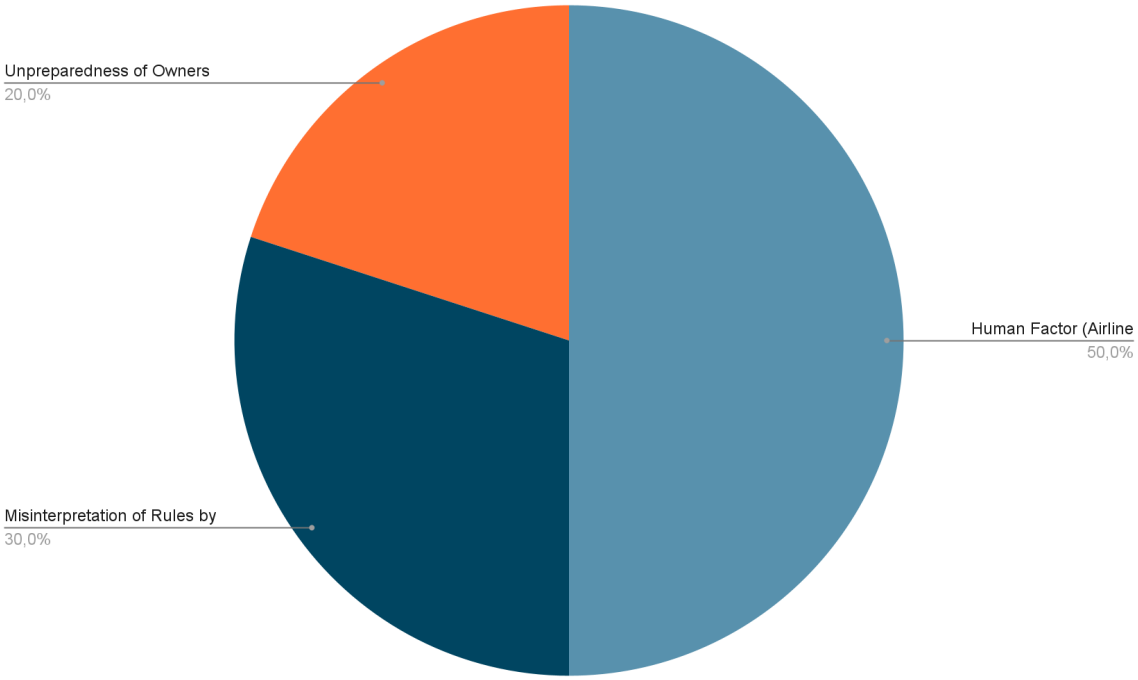


Fig. 1. Distribution of key operational risk factors during international transportation of animals (according to expert assessment)

The largest share of operational risk (50%) is обусловлена insufficient competence of airline personnel: in the absence of up-to-date knowledge of the importing country's requirements and in cases of erroneous interpretation of IATA limits and procedural provisions, refusals are often generated directly at the check-in counter, already at the final stage of preparation for departure. A substantial share of disruptions (30%) is associated with the actions of governmental veterinary services, which may request documents not required for a specific destination (for example, titration for Türkiye or Serbia) or deem vaccination invalid due to an incorrectly assessed sequence of microchipping and vaccination. Only 20% of violations correlate with actual owner errors, including expired vaccinations and incorrect carrier parameters. Such a distribution confirms the institutional nature of the problem: dominant sources of risk are localized within systems of execution and control rather than in consumer

behavior.

The discrepancy between the normative construct and actual implementation is most distinctly manifested when analyzing routes to jurisdictions with highly stringent veterinary control (in particular, the UAE and China) or to spaces with a high degree of operational instability (for example, Ukraine under martial law). In such contexts, a stable layer of local operational protocols is formed, which functions as de facto law in application and is capable of overriding both industry standards and general international reference points [24, 25].

In the United Arab Emirates, national MOCCAE regulations represent an example of a regime in which standard passenger aviation scenarios are constrained or practically unavailable. The import of animals is, as a rule, implemented in a cargo format even in cases where the animal, by weight and dimensions, could have met the criteria for transport as Excess Baggage. In practice, this is linked, among other things, to the infrastructural architecture of airports: in Dubai (DXB), transport in PETC or AVIH modes is not applied, since a stationary veterinary post serving the passenger terminal is absent. In Abu Dhabi (AUH), transport in the cabin (Pet in Cabin) is permitted with a limit of up to 8 kg, but exclusively through two approved airlines, which forms a de facto monopolistic configuration on certain routes and reduces the variability of logistics planning.

The regulatory complexity of the UAE is strengthened by the multi-component nature of the documentation circuit. For import, a bundle of four interdependent documents is required with extremely narrow validity periods—approximately five days: Import Permit, Release Permit, an Arabic health certificate, and a customs declaration (Bill of Lading / BoE). Such a configuration makes critical not only the completeness of the package, but also compliance with a strictly prescribed sequence of actions within the five-day window. In practical terms, this leads to the need to engage a specialized broker and coordination with

customs structures (for example, MICCO Logistics), which substantially goes beyond the basic requirements of IATA LAR and shifts risk management into the domain of precise procedural timing and interagency coordination [17, 20].

Under conditions of operational instability, the phenomenon of the predominance of local control over formally applicable supranational regimes intensifies. Illustrative is a case related to Ukraine and enforcement practice on the Ukraine—EU route. According to EU rules, if an EU passport, a valid rabies antibody titer, and continuous vaccination are present, entry from a red zone is permitted without additional documents. However, under martial law, border and veterinary services may require issuance of an internal veterinary certificate (Form F1) and its subsequent exchange for an international EU certificate (the so-called white form). Failure to comply with this shadow protocol, based on the dominance of local administrative power over normative logic, can lead to a refusal to exit even with formal compliance of documents with EU legal requirements (see Table 2).

Table 2

Comparative analysis of official requirements and operational realities

Critical point	Official regulation requirement (Theory)	Operational reality (PetGoTravel practice)	Required algorithm / Corrective action
Rabies titer test (Rabies Titer Test)	Mandatory only for entry from the red zone into the EU/USA/Asia.	Required by state veterinarians of Ukraine even for countries that do not require it (Turkey, Serbia, Georgia) due to internal guidelines.	Signing an official refusal/waiver where the owner assumes responsibility, using the fact of the absence of a requirement in the importing country.
Certification for the UAE	Only the Import Permit and the Health Certificate (MOCCAE).	A package of 4 documents is required (Import/Release Permit, MOCCAE Cert, BoE), issued strictly within a 5-day period through specialized agents.	A four-stage processing algorithm with coordination between the broker and the veterinarian at the Cargo Terminal.

Departure from Ukraine (EU passport)	An EU passport with titers is valid; additional certificates are not required for the EU.	Ukrainian border officers require issuance of Form 1 and its exchange for an EU certificate (White form) due to operational instability.	Issuance of Form 1 and the White certificate in advance in the city (for example, at the State Food and Consumer Service), in order to avoid refusal at the border.

Source: compiled by the author based on [7; 16; 21]

The identified regulatory–operational gap determines the need for methodological instruments based on a predictive logic of risk management and on verified knowledge of local implementation protocols. As such an instrument, the author's PetGoTravel methodology has been developed on the basis of synthesizing a corpus of more than 1000 practical cases and is oriented toward transforming a fragmented regulatory field into a manageable sequence of operational decisions. The methodology is positioned as an applied mechanism for overcoming discrepancies between formal documentary compliance and the actual admission criteria applied at control points.

The key principle of the methodology is the priority of operational applicability over formal regulatory sufficiency. Documentation auditing is structured not only along the line of legal compliance with international and national requirements, but also taking into account how these requirements will be interpreted by a specific executor—an airline check-in agent, a handling agent, a governmental veterinary officer, or a border control representative. This approach ensures identification of vulnerabilities arising at the junction of regulatory regimes and during transfers of responsibility between organizations, where erroneous refusals and delays are most likely.

The second principle is associated with a flexible architecture of documentary support. Instead of relying on a single document (for example, an international or regional passport), the formation of a complete logistics kit is предусмотрена, including a national passport, an EU passport where possible,

original U.S. vaccination certificates for routes associated with the USA, as well as titration results correctly entered into the passport. Such a composition is intended to maximize adaptability during control in different jurisdictions and when the regulatory contour changes at transit nodes. Situations are separately taken into account in which a parallel set of documents from different legal regimes is required for a single movement; for example, when departing from the UAE, two certificates are in fact necessary—Export Permit MOCCAE. Systemic inclusion of such double contours reduces the probability of refusal due to non-presentation of a document which, although not universally mandatory, is regarded as critical at a specific control point.

The third principle is the optimization of routing as an element of regulatory risk management. Route selection is determined not only by geography and cost, but also by the reliability of the transit hub, the predictability of procedures, and the stability of enforcement. The use of transit nodes with a high degree of operational reproducibility (for example, Istanbul or Warsaw) makes it possible to reduce the probability of disruptions associated with departure from red zones or territories with pronounced administrative instability. Such a routing logic can also minimize the impact of certain restrictive regimes, including long quarantine requirements, in cases where they are activated for direct departure along specific directions, for example when moving to the United Kingdom.

Taken together, the methodology transfers transport from a mode of heightened uncertainty, characteristic of a fragmented regulatory field and divergent enforcement, into a manageable logistics operation with predictable control points, beforehand assessed refusal scenarios, and a minimized probability of critical incidents [18; 23].

Quantitative indicators demonstrate that the methodology, based on expert operational knowledge and predictive verification of risks, performs a dual function: it reduces manifestations of the regulatory–operational gap and simultaneously generates measurable commercial returns. The recorded

dynamics of revenue of an organization that implemented this approach—from the level of the first months of activity to approximately USD 300,000 per year, corresponding to an increase of more than 5000% over the period of operation—indicate the presence of structural demand for such services under conditions of a fragmented and effectively unregulated market. Such a growth trajectory reflects not only an expansion of client flow, but also the economic monetization of the deficit of institutional standardization: in the absence of unified digital mechanisms of verification and harmonized inter-level procedures, competence-based intermediation capable of ensuring a predictable transport outcome acquires high value both for participants in the logistics chain and for animal owners.

Conclusion. The analysis conducted shows that the international air transport of companion animals operates under conditions of a critical systemic gap between outdated and fragmented international regulations (IATA LAR, WOAH) and real local implementation practice, which is often formed on the basis of incorrect interpretations and procedural variability. The deepening of this gap is accelerated by the exponential growth of the Pet Travel Services market, the pace of which outstrips the institutional capacity of regulators to update and harmonize standards in a timely manner. In the structure of operational risks, the human factor predominates: about 80% of disruptions are caused by airline personnel errors and interpretive distortions by governmental veterinary specialists during document checks and admission to carriage.

Empirical data confirm the author's hypothesis that local operational interpretation in a number of cases effectively prevails over the international regulation and formally applicable legal constructs. This is manifested in persistent situations in which issuance of internal documents in Ukraine is required even in the presence of an EU passport, as well as in the necessity of complying with complex four-stage cargo protocols for importing animals into the UAE. The evidentiary robustness of the proposed approach is additionally

supported by the effectiveness of the methodology of preemptive auditing: 100% successful passage of control procedures in more than 1000 complex cases demonstrates that ensuring safety and humane handling of animals in practice depends not only on formal compliance with regulations, but also on precise knowledge of unofficial, yet de facto mandatory protocols operating in specific jurisdictions, airports, and among individual operators.

Further development of the research agenda and sectoral reform logically concentrate around several directions. Of primary importance is the introduction of a mandatory, sanctions-supported regulatory standard at the ICAO level, including within Annex 9 Facilitation, with consolidation of a unified approach to the transport of animals as sentient beings. In parallel, broad implementation of systems of digital document verification comparable in logic to IATA Law Verify and integrated with national veterinary databases is required, since end-to-end verifiability and traceability are precisely what can substantially reduce the share of subjective decisions and execution errors. Finally, a critically important measure is mandatory international certification of airline personnel and governmental veterinary services personnel under the IATA LAR and WOAH protocols, aimed at eliminating interpretive errors which in the current configuration constitute a substantial share of operational risks. Practice-oriented methodologies based on the analysis of real cases, within such a logic, may be considered an empirical foundation for the design and testing of new international protocols.

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