ORIGENCE

FINAL REPORT

Safety Digital Traceability Infrastructure

Aviation Stakeholder Survey



A part's history is only as strong as its weakest link – every hand-over counts.

Prepared by ORIGENCE™

October 30, 2026

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Letter from the CEO

Dear members of the aviation community,

Between May and August 2026, more than half of the 33 organizations we approached across 18 countries shared their views on the need for a **Safety Digital Traceability Infrastructure** in aviation, including airlines, MROs, OEMs, authorities, CAMOs and DOA holders. On behalf of the ORIGENCE team, thank you for your time and contribution.

This report presents the results in aggregate only, to protect the confidentiality of respondents.

One conclusion stands out: with suspected unapproved parts putting safety under growing pressure, the industry urgently needs a trusted, neutral way to reconstruct the lifecycle of any part from verified events, in support of airworthiness assessments. The industry is ready to engage now, on clear terms.

This conclusion points to two key elements of a response: enabling reconstruction and relieving the pressure.

1. **A shared schema enables reconstruction.** Data exchange alone cannot ensure consistent assessments of part airworthiness status. This requires a shared schema describing part lifecycle events, evidence, configurations and dependencies under common rules.
2. **Acting now, in parallel, addresses the pressure.** Every delay in identifying affected parts, aircraft and organizations prolongs exposure, and waiting for a complete governance framework would only add to it. Governance and technical validation should start now and run in parallel.

ORIGENCE is fully committed to an open, neutral and collaborative approach that respects the sovereignty and responsibilities of every participant. I look forward to working with you.

Sincerely,



Alain Carcasses
Chief Executive Officer, ORIGENCE

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Executive Summary

Survey Objectives

Assessing industry needs for safety digital traceability, led by SUP detection

The survey gathered independent stakeholder perspectives on aviation safety traceability needs, priority use cases and adoption conditions, broadening input to the Safety Digital Traceability Infrastructure initiative and assessing readiness for collective engagement.

Its scope was strictly limited to non-competitive safety matters: part authenticity and suspected unapproved part (SUP) detection, including counterfeits; AD compliance; and incident/accident investigation. Participation implied neither endorsement of a specific solution nor membership of the initiative.

Survey Methodology

Confidential online survey of 33 organizations in 18 countries, May–August 2026

Conducted from May to August 2026, the survey used an online questionnaire sent to 81 senior contacts in 33 organizations across 18 countries, covering airlines, MROs, OEMs, authorities, CAMOs and DOA holders. 17 of 33 organizations responded.

Agreement statements, ratings and prioritization questions assessed industry challenges, infrastructure expectations and adoption conditions, **without presenting a specific solution**. Responses were **confidential** and reported only in aggregate.

Results are expressed as respondent percentages or ratings from 1 (low) to 5 (high). Findings reflect participants' views and are not statistically representative of the industry.

Survey Results

Industry needs, priorities and adoption conditions

Key Topics	Survey Results
Current problems and operational impact	- **76%** agree safety is under structural pressure; **76%** that lifecycle visibility is fragmented by design - **53%** already take part in a data-sharing initiative, yet the problem remains widely recognized - **50%** of organizations experience AOGs, delays or groundings linked to traceability at least occasionally (**60%** of MROs)
Exposure and detection priorities	- Detecting suspected unapproved or counterfeit parts before installation: **4.29/5** (airlines 4.50) - **82%** agree the hyper-connected environment amplifies legal, regulatory and reputational exposure (**100%** of MROs) - Auditable part authenticity: highest-rated use case (**4.29/5**)
Lifecycle reconstruction and continuity	- Lifecycle continuity reconstruction is the **single most relevant use case** (twice as many votes as the next option) - **76%** require deterministic lifecycle reconstruction at any point in time from verified events - Part 21/Part 145 digital thread continuity: **4.24/5**
Technical characteristics and trust	- Data sovereignty, tamper-proof auditability and non-intrusive interoperability: **76%** each (interoperability: **80%** of MROs) - **59%** agree no actor can be judge and party to its own compliance, a view shared by airlines and MROs - **53%** require a neutral external operator; no MRO rejects it

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Governance and adoption conditions	- **82%** open to the validation phase (29% would actively consider it; only 6% decline) - Airlines: **50%** would actively consider joining; none declined - **53%** would need to evaluate the governance terms before accelerating adoption - Clear liability framework: **76%**; strict safety-only perimeter: **65%** - **76%** want a Safety Label issued or endorsed by a regulator; support for the label: **4.12/5**
Expected value	- Safety **4.44/5**, compliance **4.19**, reputation **4.00**

NB: Independent corroboration. *EASA's VIRTUA program (2023–2024) assessed digital traceability with authorities, OEMs, MROs, operators and lessors. It reached the same priorities, back-to-birth traceability and SUP pre-screening, which supports an industry-led Safety Digital Traceability Infrastructure (Appendix D).*

Action Lever #1: **Build a shared schema that enables lifecycle reconstruction including every participant**

Proposed Design Principle

Lifecycle reconstruction ranks first among priority use cases and 76% require deterministic reconstruction from verified events. Connecting histories scattered across organizations is essential to avoid blind spots, delays and duplicated checks.

This capability is central to respondents' needs. Reconstructing a lifecycle does not require unrestricted disclosure of its history: access rights and data minimization can limit disclosure while preserving the evidence needed for safety assessments.

Data exchange alone cannot ensure consistent assessments. A **shared schema** is needed describing part lifecycle events, evidence, configurations and dependencies under common rules, so that part **airworthiness status** can be assessed. This shared schema supports **interoperability** without requiring a central database or replacing existing systems. Decisions remain with the responsible organizations (e.g., CAMOs) and the authorities.

A part's history is only as strong as its **weakest link**. Limiting access to machine-to-machine links between OEM and airline systems would leave out the smaller operators, MRO shops and distributors where gaps arise. APIs should therefore be complemented by flat-file submission and a graphical interface for **less digitalized participants.**

Action Lever #2: **Reduce safety risk now, building governance and validating in parallel**

Proposed Way Forward

The industrial **value is to shorten the time** from anomaly discovery to identification of the affected parts, aircraft and organizations, enabling faster action. Safety ranks first (4.44/5), and 82% recognize amplified legal, regulatory and reputational exposure. Every delay in identifying the affected scope prolongs that exposure, and waiting for a complete governance framework before testing anything would only **add to that delay**.

Governance and technical validation should therefore **start now and run in parallel**. With 82% open to validation, and half of airlines ready to consider it actively, a bounded safety use case can be tested across organizations, through APIs as well as simpler channels. The validation should measure identification time, reconstruction completeness, gaps detected and duplicated checks avoided, against a baseline established beforehand.

At the **same time**, participants should define the shared schema and the governance rules, drawing on the validation's results to accelerate delivery and to settle questions that theoretical discussion alone cannot.

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1 About This Survey

1.1 Purpose

ORIGENCE ran an industry-wide survey to validate stakeholder positioning on a Safety Digital Traceability Infrastructure for aviation: a neutral, non-competitive digital platform addressing part authenticity and suspected unapproved part (SUP) detection, including counterfeits; AD compliance; and incident/accident investigation.

The questionnaire was kept deliberately independent of ORIGENCE's own development work, so that the results reflect the industry's requirements rather than reactions to a particular design. They will be used to test and refine the governance and technical assumptions of that work.

1.2 Survey Structure

The survey is structured in six sections (A–F), moving from respondent profile through belief alignment, required characteristics, use-case relevance, value-driver prioritization and willingness to participate:

- **Section A - Respondent Profile:** organization type, area of responsibility, fleet size and geographic footprint.
- **Section B - Structural Belief Alignment:** five statements testing whether the industry shares ORIGENCE's underlying thesis before any solution is presented: structural safety pressure, fragmentation by design, amplified exposure, the judge-and-party conflict and the need for a strict non-competitive scope.
- **Section C - Required Platform Characteristics:** seven conditions testing what respondents would require before adopting such an infrastructure (Yes/No/Not sure): neutral operator, data sovereignty, tamper-proof auditability, non-intrusive interoperability, a strict safety-only perimeter, deterministic lifecycle reconstruction and a clear liability framework.
- **Section D - Use-Case Relevance:** seven use cases rated for business relevance (1–5), then narrowed to the single most relevant, plus a dedicated question isolating automatic detection of suspected unapproved parts (SUPs) and counterfeit components as a standalone priority.
- **Section E - Value Driver Prioritization:** mirrors the five-driver framework used in ORIGENCE's internal SafeTrace value model (Safety, Compliance, Reputational, Liability and Insurance value), tested directly with the market rather than assumed, alongside a frequency baseline for AOG, delay or grounding events already attributable to traceability or authenticity issues.
- **Section F - Willingness to Participate:** tests actual commitment rather than sentiment: near-term participation in the validation phase, sensitivity to endorsement by a leading industry player and support for a regulator-issued Safety Label modeled on carbon-labeling schemes.

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1.3 Audience

The outreach spans 33 organizations in 18 countries across six stakeholder/role types: airlines, MROs, OEMs, regulatory authorities, CAMOs and Design Organisation Approval (DOA) holders. It is weighted toward senior decision-makers, with 81 individual contacts invited.

33	81	18	6
ORGANIZATIONS	CONTACTS	COUNTRIES	STAKEHOLDER TYPES

The outreach is deliberately weighted toward strategic and executive decision-makers rather than operational or technical staff: 72% of contacts with a known title sit at Manager level or above, and over a quarter are C-suite or EVP, consistent with a survey designed to test organizational positioning and willingness-to-commit rather than purely technical feasibility.

Geographically, the audience concentrates in Western Europe (France, Netherlands, Germany, UK, Denmark, Belgium, Switzerland, Sweden, reflecting OEM and MRO headquarters locations) with a deliberate secondary cluster across Asia-Pacific and the Middle East (Singapore, Philippines, Thailand, Malaysia, Indonesia, Vietnam, India, Qatar), capturing airline operators with the highest fleet growth rates globally.

1.4 Status at Time of Reporting

The survey closed on August 10, 2026, with a response rate of 52% (17 of 33 organizations). The results presented in Section 2 of this document reflect all responses received.

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2 Results

What best describes your organization?

Answer	%
Airline / Operator	47%
MRO	29%
Other (OEM, lessor, regulator, supplier / distributor)	24%

What is your primary area of responsibility?

Answer	%
Safety & Airworthiness	12%
Technical Operations	29%
Compliance & Regulatory Affairs	0%
Quality	0%
IT / Digital	12%
Finance / Risk	6%
Executive / Strategy	41%

How many aircraft does your organization manage?

Answer	%
Fewer than 10	6%
10–50	6%
50–150	29%
150–400	29%
More than 400	18%
Not applicable	12%

In how many countries does your organization operate?

Answer	%
1	0%
2–5	18%
6–20	29%
More than 20	53%

Does your organization currently participate in any industry-wide traceability, safety, or data-sharing initiative?

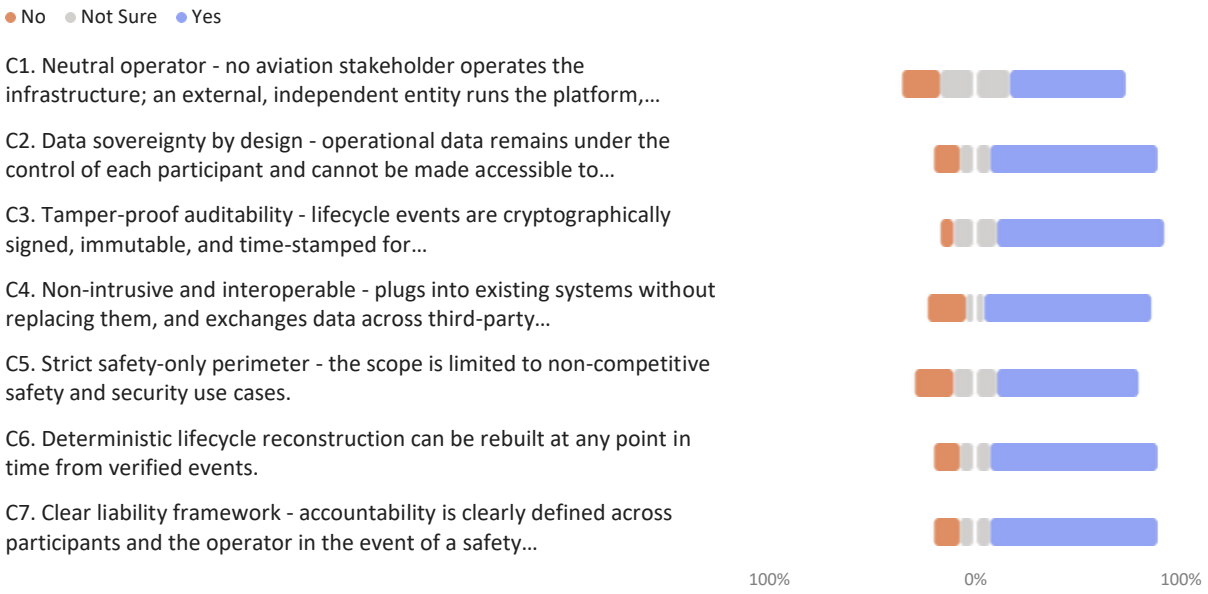
Answer	%
Yes	53%
No	24%
Prefer not to say	24%

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2.1 Industry context & challenges



2.2 Required platform characteristics

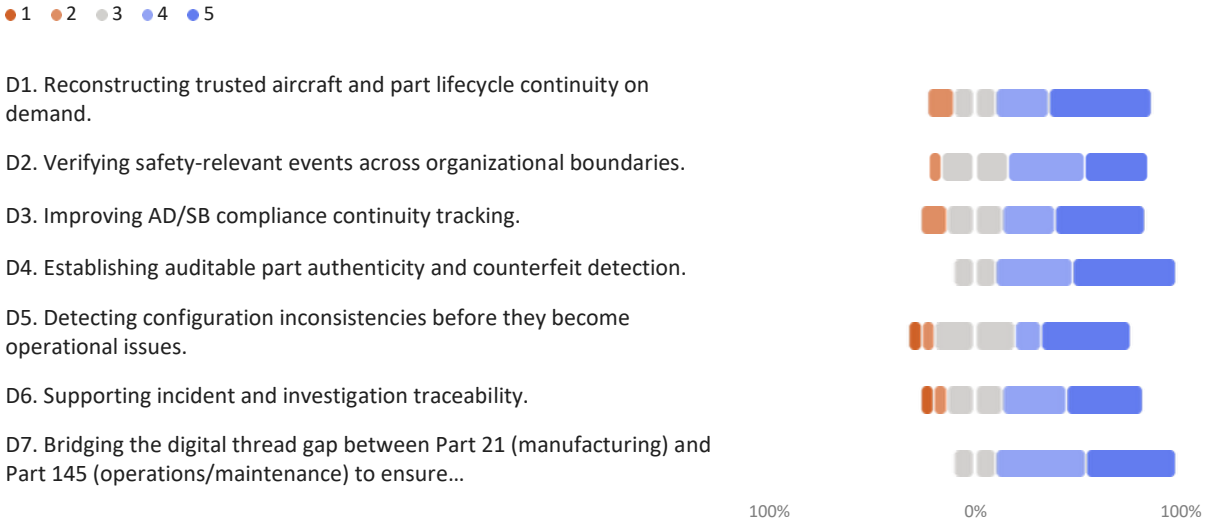


2.3 If the Safety Digital Traceability Infrastructure were already operational and adopted by a major industry player, would your organization accelerate its decision to adopt it?

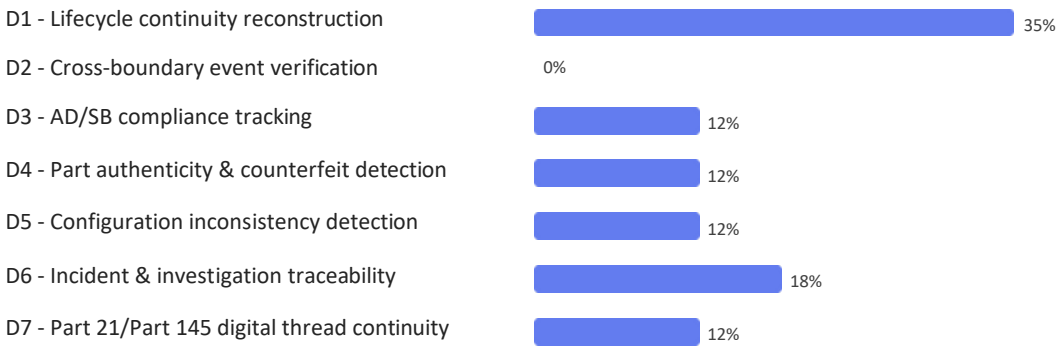
Answer	%
Yes, significantly	24%
Somewhat, it would help justify the investment internally	12%
No, our timeline is independent of others	12%
We would need to evaluate the specific player and governance terms	53%

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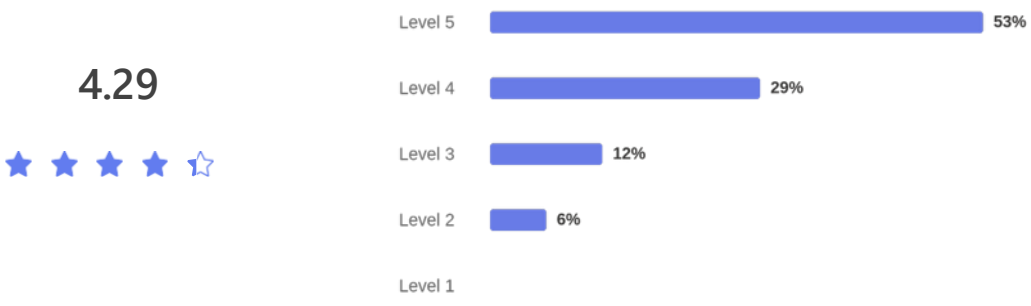
2.4 Rate Business Relevance *(1 = low, 5 = high)*



2.5 Among the above, which use case is the single most relevant to your organization today?



2.6 How relevant would it be for your organization to automatically detect suspected unapproved parts (SUPs) or counterfeit components before installation, through cross-stakeholder data verification?

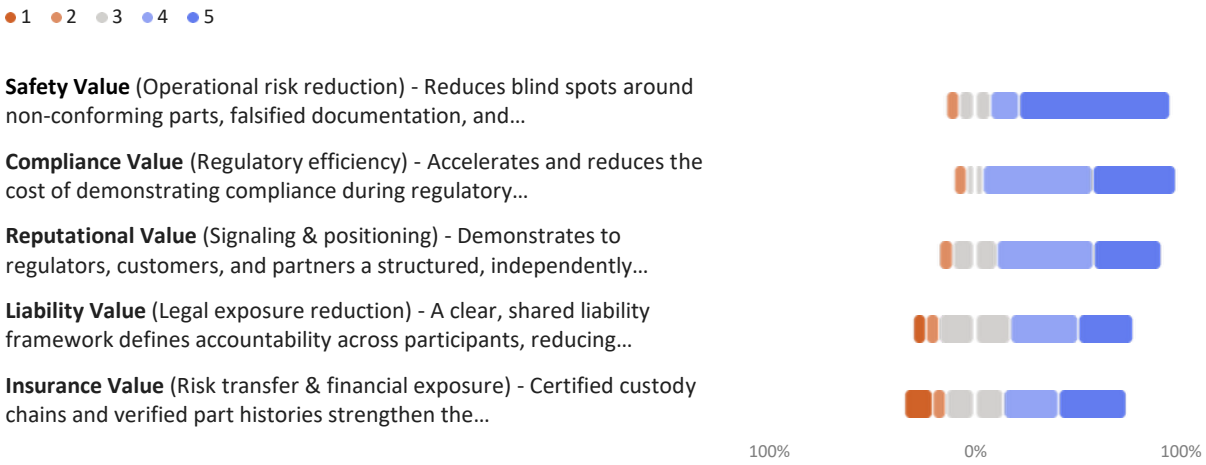


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2.7 How often does your organization experience operational disruptions (AOG, delays, groundings) directly attributable to part traceability or authenticity issues such as SUPs, falsified documentation, or unverifiable part history?

Answer	%
Never or rarely (less than once a year)	44%
Occasionally (1–5 times per year)	19%
Regularly (6–20 times per year)	19%
Frequently (more than 20 times per year)	6%
Not applicable to my organization	13%

2.8 Rate the relevance of each value dimension to your organization.



2.9 Within the coming months, would your organization consider participating in the validation of the Safety Digital Traceability Infrastructure?

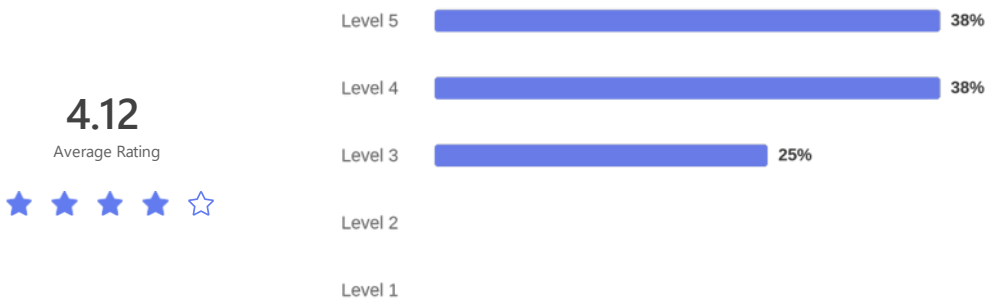
Answer	%
Yes, we would actively consider it (conditions to be defined)	29%
I would like to be kept informed of progress	53%
Contact us when you are more advanced	12%
No	6%

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2.10 Would your organization be more likely to participate if such an initiative were already endorsed by a leading industry player (Aircraft Manufacturer, OEM, major airline, or regulatory body)?

Answer	%
Yes, industry endorsement would be a strong adoption signal	24%
Somewhat, it would reduce perceived risk and accelerate our internal approval	18%
No, our decision is independent of who else participates	18%
It would depend on which organization and under what terms	41%

2.11 Would your organization support the creation of a regulatory-led Aviation Safety Label, comparable in design to carbon labeling schemes, certifying that an organization meets verified traceability and safety data-sharing standards?



2.12 If you support such a label, which conditions would be essential?

Answer	%
Label issued or formally endorsed by a recognized regulatory body (EASA, FAA, ICAO)	76%
Defined and auditable certification criteria, independent of commercial interests	35%
Mutual recognition across jurisdictions (e.g. EASA ↔ FAA equivalence)	29%
Voluntary participation at launch, with a regulatory pathway toward mandatory compliance	12%

Share of respondents; multiple answers possible.

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3 Key Findings

This survey gathers industry perception on the concept of a Safety Digital Traceability Infrastructure for aviation part and lifecycle traceability. It evaluates the need, expected characteristics, and value of such an infrastructure at industry level, not a specific product or vendor solution.

1. **Core target well represented, with senior decision-makers**: 47% Airline/Operator + 29% MRO = 76% of respondents (the remaining 24% spanning OEM, lessor, supplier and regulator respondents), with 41% Executive/Strategy and 29% Technical Operations.
2. **Large fleets and highly international operations**: 76% manage 50 aircraft or more, and 82% operate in 6 countries or more (including 53% in more than 20 countries).
3. **Strong agreement on the problem**: Across all five problem statements, respondents agree at ~72% on average (Agree/Strongly Agree) that safety is under structural pressure; lifecycle visibility is fragmented, and independent cross-company traceability has become necessary.
4. **Strong convergence on the target architecture**: The expected infrastructure characteristics (neutral operator, data sovereignty, tamper-proof auditability, interoperability, safety-only scope, deterministic reconstruction, clear liability) are validated at ~71% "Yes" on average. The neutral operator characteristic was rated with a "Yes" by ~53% of the participants while ~18% (3 of 17) rejected it.
5. **Adoption is conditional on governance:** Half of respondents (**53%**) would need to evaluate the specific player and governance terms before accelerating adoption, even though a similar share (**53%**) already participates in an industry-wide traceability initiative.
6. **One use case clearly dominates**: Lifecycle continuity reconstruction (D1) is cited as the single most relevant use case (35%), twice the next option (D6, 18%).
7. **Value extends beyond safety and compliance**: Cross-stakeholder verification of suspected unapproved/counterfeit parts scores 4.29/5; after safety (4.44) and compliance (4.19), reputational value rates 4.00. Airlines rate all five drivers 3.86 or above; the lessor perspective emphasizes insurance and compliance.
8. **The pain point is operational, not just theoretical**: 50% of operating organizations (excluding "not applicable") experience disruptions (AOG, delays and groundings) linked to part traceability or authenticity at least occasionally.
9. **Strong appetite to get involved in validation**: 82% (29% actively + 53% wanting to stay informed) are open to participating; only 6% decline.
10. **A regulatory label is popular, but under strict conditions**: 76% of respondents require issuance or endorsement by a recognized regulator (EASA/FAA/ICAO), well ahead of defined and auditable certification criteria (35%) and mutual recognition across jurisdictions (29%).

***NB: Independent corroboration**. These findings are independently corroborated by **EASA's VIRTUA research program (2023–2024**), which evaluated digital traceability solutions through a separate multi-stakeholder assessment involving authorities, OEMs, MROs, operators and lessors. Notably, VIRTUA's priority use cases, back-to-birth traceability and SUP pre-screening, closely align with the priorities identified in the ORIGENCE study, providing independent validation of both the industry's needs and the relevance of an industry-led initiative to establish a Safety Digital Traceability Infrastructure (see Appendix D).*

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Appendix A – Key Findings: Airlines / Operators

Airline respondents are more operational and more international than the overall panel. This page highlights where they converge with the industry as a whole and where they differ; the supporting figures are in the table below.

Where airlines converge with the industry

1. **Independent validation is needed**: Airlines share the industry view that no actor can credibly be judge and party to its own compliance – the case for a neutral, notary-like role.
2. **Lifecycle continuity is the lead use case**: Reconstructing trusted part history on demand ranks first for airlines, exactly as for the industry overall.
3. **Safety leads the value case**: Safety is the primary value, followed by compliance and reputation – the same order as across the industry.
4. **The target design is shared**: Data sovereignty, tamper-proof auditability and a clear liability framework are required by three in four airlines, in line with the overall view.
5. **A Safety Label is welcome**: Airlines support a regulatory Safety Label as strongly as the industry as a whole.

Where airlines differ

1. **Most ready to act**: Airlines are the most willing to join the validation phase: half would actively consider it and none declined, although a quarter prefer to wait.
2. **Stronger demand for SUP detection**: Detecting suspected unapproved or counterfeit parts before installation, and safety value overall, are rated higher than by MROs or the industry overall.
3. **Fewer, but more severe, disruptions**: Traceability issues affect fewer airlines than average, but those affected face them regularly.
4. **Neutral operator and integration still to be won**: Support for a neutral operator is slightly below the industry, with one in four airlines opposed; interoperability and individual use cases are also rated more cautiously.
5. **A wider view of value and recognition**: Airlines put more weight on insurance and liability value, and on cross-border recognition of the label rather than regulator issuance alone.

Airlines vs all respondents

Metric	Airlines	All respondents
Agree with the five problem statements (average)	**75%**	72%
Require the seven platform characteristics (average Yes)	**68%**	71%
Neutral operator required (C1)	**50%**	53%
Relevance of SUP / counterfeit detection before installation (1–5)	**4.50**	4.29
Safety value (1–5)	**4.71**	4.44
Disruptions linked to traceability at least occasionally	**29%**	50%
Would actively consider joining the validation phase	**50%**	29%
Safety Label must be issued or endorsed by a regulator	**63%**	76%
Support for a regulatory Safety Label (1–5)	**4.14**	4.12

Disruptions: excluding "not applicable". Ratings on a 1–5 scale; all other figures are shares of respondents.

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Appendix B – Key Findings: MROs

MRO respondents are the most senior group in the survey, mostly at executive level. This page highlights where they converge with the industry as a whole and where they differ; the supporting figures are in the table below.

Where MROs converge with the industry

1. **Independent validation is needed**: MROs share the industry view that no actor can credibly be judge and party to its own compliance – the case for a neutral, notary-like role.
2. **Safety leads the value case**: Safety is the primary value, with compliance and reputation rated in line with the industry.
3. **SUP detection and part authenticity are priorities**: Both are rated even higher by MROs than by the industry overall.
4. **Open to validation**: MROs are as open to the validation phase as the industry as a whole.
5. **The regulator should anchor the label**: MROs call even more firmly than the industry for a Safety Label issued or endorsed by a recognized regulator, with auditable certification criteria.

Where MROs differ

1. **Exposure risk is the defining concern**: MROs agree unanimously that a hyper-connected environment amplifies legal, regulatory and reputational exposure, but are less convinced than the industry about structural safety pressure and fragmented visibility.
2. **No opposition to a neutral operator**: Unlike the wider industry, no MRO rejects a neutral operator; integration with existing systems is their first requirement, while other design requirements are less firmly set.
3. **A broad portfolio rather than one lead use case**: No single use case dominates; continuity across Part 21 and Part 145 and incident traceability rate highly, and use cases overall are valued more than across the industry.
4. **A more widespread pain point**: More MROs than average already face disruptions linked to part traceability or authenticity.
5. **Cautious on commitment**: MROs are more reserved about disclosing current initiatives and more often set their own timeline; fewer would actively join the validation and more decline.

MROs vs all respondents

Metric	MROs	All respondents
Agree with the five problem statements (average)	**68%**	72%
Require the seven platform characteristics (average Yes)	**63%**	71%
Neutral operator required (C1)	**60%**	53%
Relevance of SUP / counterfeit detection before installation (1–5)	**4.40**	4.29
Safety value (1–5)	**4.60**	4.44
Disruptions linked to traceability at least occasionally	**60%**	50%
Would actively consider joining the validation phase	**20%**	29%
Safety Label must be issued or endorsed by a regulator	**80%**	76%
Support for a regulatory Safety Label (1–5)	**4.00**	4.12

Disruptions: excluding "not applicable". Ratings on a 1–5 scale; all other figures are shares of respondents.

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Appendix C – Key Findings: Airlines vs MROs

This page compares the two largest respondent groups, airlines and MROs: where their views converge and where they differ. The supporting figures are in the table below.

Where airlines and MROs converge

1. **Independent validation is needed**: Both groups agree that no actor can credibly be judge and party to its own compliance – the case for a neutral, notary-like role.
2. **Safety leads the value case**: For both, safety is the primary value, with compliance and reputation rated almost identically.
3. **SUP detection is a top priority**: Both rate detecting suspected unapproved or counterfeit parts before installation above the industry average.
4. **A neutral operator has majority support**: At least half of each group requires a neutral external operator.
5. **Open to validation and a Safety Label**: Most airlines and MROs are open to the validation phase, and both support a regulatory Safety Label.

Where airlines and MROs differ

1. **Different voices**: Airline respondents are mostly operational, MRO respondents mostly executive.
2. **Different view of the problem**: Airlines stress structural safety pressure; MROs unanimously stress amplified legal, regulatory and reputational exposure.
3. **One lead use case versus a broad portfolio**: Airlines clearly prioritize lifecycle continuity and rate use cases cautiously; MROs spread their priorities and rate use cases higher.
4. **Pain and readiness are inverted**: MROs feel the traceability pain more often, but airlines are far more ready to act – half would actively join the validation, against a minority of MROs.
5. **Different design and governance emphasis**: Airlines put data sovereignty, auditability and liability first and look for cross-border recognition of the label; MROs put integration with existing systems first, do not oppose a neutral operator and want a regulator-issued label.

Airlines vs MROs

Metric	Airlines	MROs
Structural safety pressure (B1, agree)	**88%**	**60%**
Amplified exposure (B3, agree)	**75%**	**100%**
Neutral operator required (C1)	**50%**	**60%**
Neutral operator rejected (C1, “No”)	**25%**	**0%**
Integration with existing systems (C4)	**63%**	**80%**
Relevance of SUP / counterfeit detection before installation (1–5)	**4.50**	**4.40**
Use-case relevance, average of D1–D7 (1–5)	**3.64**	**4.29**
Disruptions linked to traceability at least occasionally	**29%**	**60%**
Would actively consider joining the validation phase	**50%**	**20%**
Safety Label must be issued or endorsed by a regulator	**63%**	**80%**
Mutual recognition across jurisdictions required	**38%**	**20%**

Disruptions: excluding “not applicable”. Ratings on a 1–5 scale; all other figures are shares of respondents.

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Appendix D – Independent Corroboration: EASA VIRTUA

This page summarizes EASA's VIRTUA research project for readers not yet familiar with its outcome, and sets it against the ORIGENCE survey results. The two studies were conducted **independently**, with different methods, respondents and scope.

About VIRTUA

1. **What**: EASA research case study "Blockchain for Airworthiness in Aviation", part of the Horizon Europe-funded VIRTUA program (Digital Transformation – Case Studies for Aviation Safety Standards), carried out for EASA by FPT Software, 2023–2024.
2. **How**: Interviews and desk research (June 2023–February 2024; 34 in-depth interviews) and two industry workshops (December 2023, January 2024; ~450 participants) covering OEMs, lessors, operators, MROs and authorities.
3. **Scope**: Nine use cases, from back-to-birth parts traceability (UC1), Form 1 pre-screening (UC2), life-limit history (UC3) and SUP pre-screening (UC6) to configuration control (UC7) and parts scrapping (UC8).

Where VIRTUA and the ORIGENCE survey converge

Theme	EASA VIRTUA (2023–2024)	ORIGENCE survey (2026)
Lead use case	UC1 Back-to-birth parts traceability – first of the nine use cases assessed	D1 Lifecycle continuity reconstruction – most relevant use case (35%, twice the next option)
Counterfeit / SUP prevention	UC6 SUP pre-screening and UC2 Form 1 pre-screening; "approved vs fake parts" named as a key industry challenge	SUP/counterfeit detection before installation rated 4.29/5; part authenticity (D4) is the highest-rated use case (4.29/5)
Lifecycle & configuration	UC3 Life-limit maintenance history; UC7 Enhanced configuration control	D7 Part 21/Part 145 digital thread 4.24/5; D5 Configuration inconsistency detection 3.76/5
Required characteristics	Stakeholder requirement grades: security 4.8, traceability 4.6, trust 4.6, interoperability 4.1[1]	Tamper-proof auditability (C3), data sovereignty (C2) and interoperability (C4) each required by 76%
Role of the regulator & collaboration	EASA to provide regulatory guidance and promote harmonization; industry to join a data-sharing platform and commit data	76% want a Safety Label issued or endorsed by a regulator; 82% open to taking part in validation

Where the ORIGENCE survey goes further

VIRTUA assessed a **technology** (blockchain) and its regulatory fit. The ORIGENCE survey is **technology-neutral** and tests the **governance conditions** VIRTUA left open: a neutral external operator (C1, 53% Yes), a clear liability framework (C7, 76%), a strict safety-only perimeter (C5, 65%) and a regulatory Safety Label (4.12/5). Both studies point the same way – shared, verifiable lifecycle data, with the regulator setting the frame.

[1] Average grades from the VIRTUA workshop poll on stakeholder requirements (December 2023); scale as published by EASA.

Sources: EASA, VIRTUA – Blockchain for Airworthiness in Aviation: introductory webinar (Dec 2023), final dissemination webinar and D-3.3 training material (Jul 2024); FPT Software / Business Wire contract announcement (Aug 2023); ORIGENCE Industry Survey, Final Report.

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