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Airline Delay Cost Calculation: Scope and Worksheet

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Executive Summary

An **airline delay cost calculation** for a software purchase should estimate the incremental expenditure the operator can avoid, then subtract the incremental cost of delivering and running the change. It should start with a documented **counterfactual**, meaning what would happen without the project. Public economic references can inform scope and sensitivity; they cannot establish either the operator's eligible cash costs or the effect of an integration. The UK Treasury's **2026 Green Book** distinguishes appraisal before implementation from evaluation afterward. (www.gov.uk) The **Federal Aviation Administration (FAA)** also directs its airport appraisal users toward marginal, rather than average variable, costs when valuing avoided delay. (www.faa.gov)

The public figures illustrate why scope matters. EUROCONTROL's **Standard Inputs release 10.0.2** was published in **August 2026**, while the delay tables use **2022 prices** and historical traffic assumptions. (standard-inputs.netlify.app) (ansperformance.eu) At gate, its tactical table gives **€166 per minute for all delays** and **€45 for short delays**, with network effects included. (standard-inputs.netlify.app) Dividing these published figures produces approximately **3.69**, a scope comparison calculated here, not an operator savings multiplier. The underlying **University of Westminster version 4.1 report**, dated **24 December 2015**, supplies costs for **2014**. (westminsterresearch.westminster.ac.uk) EUROCONTROL's separate **September 2026 Capacity and Weather Based Operations (CWBO)** publication uses **€130 per minute** for air traffic flow management delay, within its own network assessment. (www.eurocontrol.int)

A defensible business case separates **delay minutes**, **addressable minutes**, **attributable improvement**, and **cash realization**. It also separates airline passenger expenditure from modeled commercial effects: the Westminster report includes airline passenger hard and soft costs, but excludes passenger value of time. (www.eurocontrol.int) The benefit ledger must prevent counting a network-inclusive rate together with the same downstream losses. General investment guidance likewise warns against double counting benefits already embedded in another measure. (www.whitehouse.gov) A pilot should test comparable conditions and distinguish an intervention effect from ordinary variation, rather than treating a dashboard improvement as proof of return. (www.gov.uk)

Procurement should compare an existing system's native capability, an established interface, and a narrow custom bridge before approving broader development. The US **Government Accountability Office (GAO)** cost-estimating guidance explicitly includes analysis of alternatives and software estimation. (www.gao.gov) The worksheet below supports that decision with a source registry, a cost-owner ledger, and conservative, base, and upside scenarios. All scenario inputs are **synthetic**. Approval requires operator evidence for eligible expenditure, credible attribution, and the complete lifecycle cost; a useful operational capability can still have an unsupported financial case.

Introduction and Background

The decision is whether an operations integration or automation project has a supported economic benefit for the operator. A director of operations may see late flights, an operations control centre (**OCC**) may see manual reconciliation, and finance may see accommodation invoices or additional payroll. Those observations need a common baseline before they become a software business case. The Green Book defines business as usual as the expected outcome if current arrangements continue. (www.gov.uk)

The proposed intervention should therefore be described as a bounded change: for example, reconciling conflicting turnaround updates or removing repeated entry between existing systems. Its counterfactual should include current staffing, planned upgrades, and processes that would continue without it. The level of investigation should match the proposal's scale, cost, complexity, and risk, consistent with the Green Book's proportionality principle. (www.gov.uk)

This report provides a **planning and procurement worksheet**, not a method for tactical flight prioritization. EUROCONTROL specifically cautions against operational planning use. (ansperformance.eu) The purpose is to decide whether to buy a packaged capability, commission a narrow bridge, run a measurement pilot, or decline the investment.

Custom development is one procurement route. LANDING.AERO describes applications designed around each operator's needs; that description establishes its delivery model, without establishing an economic return. (www.landing.aero) The same discipline applies to every provider considered: documented capability is evidence of what can be offered, while avoided expenditure requires an operator-specific case.

The worksheet keeps these questions separate. It defines the outcome being measured, records what each public reference includes, assigns costs to an owner, and tests whether the claimed benefit survives plausible changes in assumptions. GAO's guidance supports this structure through technical baselines, work breakdown structures, documented assumptions, and sensitivity analysis. (www.gao.gov)

Key Changes

Replace a headline rate with a scoped reference

The useful change in a business case is from a single **€/minute multiplier** to a labeled reference. EUROCONTROL's tactical figures include reactionary network effects; its historical aircraft coverage also omits some newer types. (standard-inputs.netlify.app) (standard-inputs.netlify.app) A contemporary fleet should not inherit an old reference's eligibility simply because both datasets measure time.

Record the reference's geography, aircraft mix, flight phase, duration distribution, cost components, currency, and price basis. Then state its permitted use. This is an analyst's screening rule: a source may be suitable for illustrating the importance of disruption while remaining unsuitable for calculating a particular operator's cash return. Westminster describes its methodology as a platform for developing airline-specific costs. (www.westminster.ac.uk)

Separate tactical disruption from strategic buffers

Tactical cost concerns the day of operations; **strategic cost** is accounted for in advance, commonly in schedule-buffer analysis. (ansperformance.eu) (ansperformance.eu) A reconciliation bridge might affect disruption handling without changing the timetable or the resources committed to it. Any claimed buffer benefit needs a separate decision and evidence.

A worksheet should ask whether the project changes expenditure under the existing schedule or supports a separately approved redesign. If the timetable is unchanged, an asserted reduction in planned buffer cost should remain outside the booked financial benefit. This boundary keeps a planning hypothesis from becoming an assumed operating saving. GAO's emphasis on a defined technical baseline provides a useful discipline for documenting that boundary. (www.gao.gov)

Separate economic cost from avoidable expenditure

Marginal cost is the additional cost affected by the change being evaluated. FAA guidance explains that gate-delay crew costs depend on payment arrangements and reporting time, while substantial maintenance costs are fixed or cycle based. (www.faa.gov) Therefore, fewer measured minutes do not automatically reduce payroll or maintenance expenditure.

Distinguish **direct expenditure**, such as an eligible incremental fuel or passenger-service expense, from **indirect modeled effects**, such as future commercial loss or network propagation. The Westminster framework includes passenger hard costs and soft commercial costs, while excluding passenger value of time. (www.eurocontrol.int) Its categories are an analytical framework, not evidence that a software project removes each item.

Finance should identify the contract, invoice, or resource decision that converts improvement into cash. Benefits that remain nonfinancial can be tracked separately; the **National Institute of Standards and Technology (NIST)** investment guidance explicitly recognizes nonfinancial costs, benefits, and risks. (www.nist.gov) This prevents an operational improvement from being assigned an unsupported monetary value.

Airline Delay Cost Calculation Worksheet

Define the calculation boundary

Write a short **decision record** before estimating benefit. Identify the operator, affected workflow, eligible flights, baseline process, proposed change, observation period, currency, price basis, and financial horizon. Name the operations owner and finance approver. These are recommended worksheet fields, informed by GAO's emphasis on a technical baseline and explicit assumptions. (www.gao.gov)

The core relationship is:

Net incremental benefit = documented incremental avoidable cost minus total incremental project and operating costs.

For a planning model, separate the drivers:

Attributable minutes avoided = eligible baseline minutes × addressable fraction × incremental effect.

Modeled cash benefit = attributable minutes avoided × operator-specific eligible cost per minute × realization fraction.

These are definitions for this worksheet, not published industry equations or benchmarks. Where costs arise per event, use a distinct event ledger instead of forcing them into a minute rate. Net present value (**NPV**) then compares cash inflows and outflows over the chosen investment period. (www.nist.gov)

Complete the benefit ledger

Each benefit line should contain the following fields. They make a broad savings claim reviewable and connect it to GAO's baseline and assumptions approach. (www.gao.gov)

- **Intervention:** The exact interface, alert, reconciliation, or automated workflow being changed.
- **Counterfactual:** The process and resources expected without the project.
- **Eligible population:** The flights, stations, shifts, or messages covered by the intervention.
- **Measured outcome:** The delay, error, handling time, or expenditure being observed.
- **Attribution:** The method used to estimate the incremental effect.
- **Cost owner:** The department or budget carrying the affected expenditure.
- **Cash mechanism:** The invoice, payment, purchase, or resource commitment that changes.
- **Overlap key:** The event or cost identifier used to prevent duplicate claims.
- **Evidence status:** Observed, contract-supported, estimated, or unresolved.
- **Price basis:** The currency and cost year used for the line.
- **Dependencies:** Changes elsewhere required before the benefit can occur.
- **Realization condition:** The action required for the financial benefit to occur.

A counterfactual field must describe a comparable alternative, rather than a convenient historical average. The Magenta Book makes comparability a condition of credible evaluation. (www.gov.uk) A realization condition might remain unresolved even when the workflow measurement is persuasive.

Run the double-counting check

Use a benefit line only once across the project portfolio. For any network-inclusive estimate, identify embedded downstream effects before considering separate reactionary benefits. Apply the same test to passenger costs, handling time, and budget transfers.

For example, if an event-based passenger expenditure ledger captures a cost already represented in the minute-rate calculation, choose one treatment or explicitly remove that component from the other. This worksheet rule applies the broader OMB warning against counting an embedded benefit twice. (www.whitehouse.gov)

Distinguish **cash savings** from **capacity released**. Time returned to salaried staff is a measurable resource outcome, but a financial saving requires a supported change in expenditure or another separately valued use. Keep nonfinancial outcomes visible without adding them to the cash total. (www.nist.gov)

Measuring Addressable Minutes and Attribution

Define the delay denominator

The baseline must specify what “delay” means. The historical US **Bureau of Transportation Statistics (BTS) Technical Directive 14** defines arrival delay using actual and scheduled arrival times, and requires reported cause minutes to equal arrival delay. (www.bts.gov) (www.bts.gov) That is a measurement convention, not a complete inventory of every workflow problem before departure.

The UK **Civil Aviation Authority (CAA)** methodology measures actual against planned gate time; its notes permit planned times to incorporate changes made shortly before operation. (www.caa.co.uk) A proposed pilot should therefore preserve its own schedule snapshot and timestamp provenance. Otherwise, a revised plan can change the measured denominator even when the operation has not improved.

Coverage also matters. The cited CAA analysis excludes all-cargo, oil-rig, and air-taxi services. (www.caa.co.uk) An airline punctuality series cannot automatically become a charter or flight-department financial baseline. Use the operator's eligible records and explain any public dataset used for context.

Trace the addressable mechanism

Addressable minutes are the subset that the proposed change could plausibly affect. The worksheet should connect an observed problem to a specific mechanism: a late update, inconsistent identifier, duplicated entry, or missing acknowledgment. Merely observing delay alongside manual work does not establish that removing the work removes the delay.

BTS describes late-arriving-aircraft delay as a preceding flight with the same aircraft arriving late. (www.transtats.bts.gov) Its public display apportions original causes using other reported categories, rather than reconstructing each individual rotation's initiating event. (www.transtats.bts.gov) A project business case needs the operator's event chain when claiming a particular downstream effect.

Document the first affected event, each relevant propagation link, and the expenditure exposed. Mark links that are inferred rather than observed. The distinction is especially important when a narrative explains how the software could help but does not quantify its effect: the Magenta Book's methods annex says theory-based approaches do not provide precise effect-size estimates. (www.gov.uk)

Measure the incremental effect

A before-and-after comparison should account for plausible alternative explanations: weather, traffic mix, staffing, schedules, airport constraints, and parallel system changes. Prefer a prospectively defined comparison group where feasible, with comparable exposure and complete records. The Magenta Book emphasizes a genuinely comparable counterfactual and an effect distinguishable from data noise. (www.gov.uk) (www.gov.uk)

Avoid selecting only well-performing stations or excluding difficult periods after viewing the results. Write inclusion rules before measurement and retain excluded records with reasons. Report uncertainty alongside the estimate rather than assigning the same confidence to a clean counterfactual and an anecdotal workflow account.

A logical contribution argument can still justify a pilot, but it should be labeled accordingly. The methods annex explicitly distinguishes contribution analysis from definitive causal proof. (www.gov.uk) Procurement should ask whether the evidence supports learning, deployment, or a quantified return; these are different decisions.

Implementation Considerations and Process Changes

Cost the complete delivery boundary

The cost ledger should follow the implementation rather than a vendor's headline fee. GAO's guide includes software estimation and analysis of alternatives, alongside baseline and uncertainty work. (www.gao.gov) For this worksheet, collect the incremental costs of:

- **Discovery:** Workflow mapping, source inspection, and specification.
- **Data access:** Licenses, interfaces, permissions, and contractual access.
- **Build or configuration:** The bounded capability being delivered.
- **Migration:** Mapping, historical reconciliation, and parallel running.
- **Validation:** Testing the data and workflow against acceptance criteria.
- **Deployment:** Infrastructure, identity management, and release work.
- **Adoption:** Training, documentation, and internal staff effort.
- **Operation:** Hosting, monitoring, support, and incident handling.
- **Change:** Upstream schema updates, regression testing, and maintenance.
- **Exit:** Export, handover, replacement, or decommissioning.

These are recommended ledger categories, not a claim that every project incurs every item. Count internal effort at the agreed economic basis and identify its cash treatment separately. A resource estimate should not silently become an invoice saving. NIST's financial guidance distinguishes cash-flow appraisal from broader nonfinancial considerations. (www.nist.gov)

Verify the interface, not just the connection

Aviation Information Data Exchange (AIDX) is the **International Air Transport Association (IATA)** global **Extensible Markup Language (XML)** messaging standard for operational flight data between airlines, airports, and third parties. (www.iata.org) The existence of a standard does not establish that the operator's systems expose every required field on the required terms.

The worksheet should specify flight identifiers, timestamp meanings, event ordering, duplicate handling, missing messages, correction rules, and access rights. Confirm the deployed schema and implementation guide separately: IATA notes that the guide may not change with every schema release. (www.iata.org)

Likewise, a vendor's documented interface is a starting point for investigation. SITA lists several messaging channels, including application programming interfaces (**APIs**) and established aviation messaging formats. (www.sita.aero) The procurement evidence should establish the exact service, data entitlement, and operational boundary needed for the proposed bridge.

Assign ownership and acceptance

Name owners for the operational baseline, finance ledger, data contracts, software operation, and benefit review. Define acceptance around data completeness, reconciliation, authorized access, recoverability, and user workflow. These are recommended project controls, rather than a certification claim.

NIST's **Secure Software Development Framework (SSDF)** provides a common language for producers and acquirers. (csrc.nist.gov) It also addresses the preparation of people, processes, and technology, making delivery capacity part of the implementation boundary. (csrc.nist.gov) Use that language to specify responsibilities and evidence without treating a framework reference as proof that the delivered system meets them.

Revisit costs when the integration boundary changes. An added source or workflow can alter implementation, support, and validation effort. NIST advises considering cost, feasibility, and applicability when choosing development practices; GAO likewise emphasizes keeping estimates tied to their baseline. (csrc.nist.gov) (www.gao.gov)

Procurement Options and Evidence Gates

Check native capability before custom work

The comparison begins with the operator's installed system and its available configuration or interfaces. Lufthansa Systems' published **NetLine/Ops ++** brochure documents a **Representational State Transfer (REST) API**, although the fetched brochure's present commercial applicability requires procurement verification. (cdn.lhsystems.com) Airbus's published description of **N-Ops & Crew** includes configurable operating rules and combined crew-management capabilities. (www.aircraft.airbus.com)

Current supplier identity and packaging also need verification: the Skywise website describes the combination of NAVBLUE and Skywise Digital solutions. (www.skywise.com) Treat historical product documents as evidence of documented functionality, rather than an assurance about today's licensing or support.

Table 1 compares procurement routes. It is a scope comparison, with no inferred prices or performance rankings. GAO's analysis-of-alternatives guidance supports making the options explicit. (www.gao.gov)

Route	Documented starting point	Evidence needed before approval
Existing or packaged airline operations capability	NetLine/Ops ++ documents an interface; N-Ops & Crew has published integrated operations and crew functionality. (cdn.lhsystems.com) (www.aircraft.airbus.com)	Confirm the installed release, entitlement, required workflow, integration boundary, and full incremental cost.

Route	Documented starting point	Evidence needed before approval
Established integration	TrustFlight documents links between its Tech Log and **MEL Manager** (minimum equipment list management) and NAVBLUE operations products. (www.trustflight.com)	Verify the exact supported products, data fields, contracts, and availability for this operator.
Airport-facing capability	Amadeus describes modular airport operations solutions. (amadeus.com)	Establish airport ownership and airline access; assess the precise handoff rather than assuming an airline OCC replacement.
LANDING.AERO, custom integration or application	The provider describes tailored flight operations software; no off-the-shelf price or savings estimate is inferred. (www.landing.aero)	Define a narrow residual gap, obtain a scoped proposal, and test operator-specific costs and attributable benefit.
Continue the current process	Business as usual is an explicit appraisal counterfactual. (www.gov.uk)	Record the remaining exposure, existing controls, and conditions that would justify reconsideration.

The table compares delivery boundaries rather than equivalent products. A native module can eliminate the need for a bridge; a documented integration can narrow the bridge; an unsupported economic claim can justify declining either purchase. Amadeus also documents connections complementing its airport solutions, which is a reason to inspect existing interfaces before designing another. (amadeus.com)

Choose the evidence gate

Use distinct approval criteria:

- **Approve measurement:** The mechanism is plausible, but baseline or attribution is unresolved.
- **Buy native capability:** The required workflow is supported and its total incremental cost is acceptable.
- **Commission a narrow bridge:** A verified residual gap remains after the native and integration review.
- **Decline the project:** Eligible costs, effect, access, or total cost cannot support the case.

These are proposed decision gates, not vendor recommendations. A documented integration example establishes technical precedent, not return: TrustFlight describes transferring maintenance information between its products and N-Ops & Crew, without supplying this operator's economic evidence. (www.trustflight.com) The approval record should state which uncertainties must be closed before committing to a larger scope.

Data Analysis and Evidence

Register each public number before using it

Table 2 is the **source-rate registry** for this report. All sources were retrieved on **13 October 2026**. The Standard Inputs chapter warns that its figures are indicative averages. (ansperformance.eu)

Source and edition	Published figure	Scope and basis	Eligible use and exclusion
Standard Inputs 10.0.2, at gate	**€166/minute all delays; €45/minute short delays**. (standard-inputs.netlify.app)	Tactical, network-inclusive; short delays under 30 minutes.	Context and sensitivity, not an operator cash rate.
Same table, taxiing	**€182/minute all; €62/minute short**. (standard-inputs.netlify.app)	Same modeled framework, different phase.	Keep phase separate.
Same table, en-route extension	**€212/minute all; €89/minute short**. (standard-inputs.netlify.app)	Cruise extension within the reference scope.	Do not transfer to gate events.
Same table, arrival management	**€206/minute all; €84/minute short**. (standard-inputs.netlify.app)	Arrival-management delay within the reference scope.	Confirm correspondence to the measured outcome.
Standard Inputs basis	**2022 prices; 2014 departure-delay weights**. (ansperformance.eu) (ansperformance.eu)	Historical model and traffic distribution.	Edition date does not establish a newly observed cost model.
Westminster version 4.1	**2015 report; 2014 reference year; 15 aircraft types**. (westminsterresearch.westminster.ac.uk) (westminsterresearch.westminster.ac.uk)	Underlying modeled airline costs.	Develop operator-specific values rather than inherit fleet eligibility.
EUROCONTROL CWBO assessment	**€130/minute assumption**. (www.eurocontrol.int)	Air traffic flow management, network assessment; Publication page does not specify price year.	Retain the publisher's scope; no transferable software saving.

The registry explains the scope difference behind **166 ÷ 45 = 3.6889**, rounded here to **3.69**. This calculation compares cells from the same table. It demonstrates the sensitivity of a headline to the chosen distribution, without estimating any intervention effect. A reference becomes financially useful only after the operator identifies the affected cost mechanism.

Reference reuse also needs that distinction. Porsche Consulting's **December 2024** article cites the legacy table behind its **€45 to €182** headline. (www.porsche-consulting.com) (standard-inputs.netlify.app) A Council-hosted aviation working document dated **11 March 2026** cites the table's gate and taxi figures. (data.consilium.europa.eu) Those examples demonstrate use of the reference, without validating a software investment.

Calculate the sensitivity grid (Hypothetical Example)

Table 3 uses **synthetic assumptions only**: annual eligible baseline **10,000 minutes**, an assumed **€20 cost exposure per avoided minute**, **€8,000 upfront cost**, and **€4,000 annual operating cost**, all expressed at one constant euro price basis. No input is an industry benchmark or an observed operator result. The separate realization factor represents the modeled share of cost exposure captured as cash.

Synthetic input or result	Conservative	Base	Upside
Addressable fraction	20%	40%	60%

Synthetic input or result	Conservative	Base	Upside
Incremental effect on addressable minutes	5%	10%	15%
Cash realization fraction	50%	70%	90%
Attributable minutes avoided	100	400	900
Annual modeled cash benefit	€1,000	€5,600	€16,200
First-year project and operating cost	€12,000	€12,000	€12,000
First-year net incremental benefit	Negative €11,000	Negative €6,400	Positive €4,200
First-year return on investment (ROI), net benefit divided by total cost	Negative 91.7%	Negative 53.3%	Positive 35.0%

These are author calculations using the worksheet equations. For example, the base case is **10,000 × 40% × 10% × €20 × 70% = €5,600**. The illustrative investment changes sign across scenarios. That is a reason to resolve sensitive assumptions, rather than present the upside as a promised return.

The addressable fraction and effect represent different uncertainties. Realization should not discount expenditure already measured as avoided cash; set it to full realization in that treatment. Sensitivity analysis belongs alongside a documented cost baseline, as GAO's guide specifies. (www.gao.gov)

For a longer horizon, calculate NPV using the operator's approved discount rate and time profile; NIST defines discounting as converting future values to present-value terms. (www.nist.gov) Do not import a public-sector rate merely because an official guide contains it. Keep nominal and constant-price treatments consistent, and distinguish recurrent benefit from the first-year cost shown here.

Implications and Future Directions

A useful business case is a maintained **evidence asset**. It records what the intervention can affect, which financial items are eligible, and how uncertainty changes the decision. Public cost references remain valuable as structured context, particularly when the underlying methodology supports development of airline-specific estimates. (www.westminster.ac.uk) Their role is to challenge and organize assumptions.

Reference freshness should be explicit. EUROCONTROL's **March 2026 Performance Review Report** says the Westminster study is being updated; that statement does not establish a completed replacement. (www.eurocontrol.int) The fetched source set therefore supports the historical reference with current caveats, rather than a claim that every modeled assumption is contemporary.

Newer data can also remain modeled. A **2024 Westminster dataset** describes costs computed inside the Mercury simulation framework using the reference methodology. (zenodo.org) It should not be treated as observed software savings. Likewise, IATA's **June 2026** industry statistics cover commercial airlines collectively and warn that historical data may be revised; aggregate expenditure does not identify an operator's marginal delay cost. (www.iata.org)

The recommended review cycle has a few concrete triggers:

- **Scope change:** Revisit the eligible population and affected workflow.
- **Contract change:** Reconfirm crew, data-access, and supplier cost treatment.
- **Reference change:** Update edition, price basis, and included components.
- **Evidence change:** Replace assumed effects with measured attributable outcomes.

The distinction between appraisal and evaluation should survive deployment. A forecast can support a bounded decision, while evaluation tests what subsequently happened. (www.gov.uk) Track operational outcomes and financial realization separately, retaining the cost-owner evidence behind each booked benefit.

For teams considering an integration, a standard interface can reduce the scope of bespoke work. IATA lists increased flexibility and lower integration cost among AIDX's stated benefits, but that is a standard's proposition, not a measured return for this project. (www.iata.org) The operator must still validate data coverage, delivery costs, and the causal mechanism.

Frequently Asked Questions (FAQs)

What is airline delay cost per minute?

It is a scoped estimate, not a universal price. Flight phase, duration distribution, aircraft mix, included effects, and price basis determine what a reference represents. An operator should construct its eligible cost treatment rather than substitute a public average for its own records. Westminster explicitly positions its methodology as a platform for airline-specific costs. (www.westminster.ac.uk)

Are reactionary delay costs separate from direct costs?

They describe downstream propagation, whereas direct expenditure describes a cost category. The categories can overlap. Check whether a proposed network benefit already embeds the downstream cost before adding a separate entry. This follows the broader rule against counting embedded benefits twice. (www.whitehouse.gov)

How should airline software ROI be calculated?

State the horizon and denominator, then compare attributable avoidable expenditure with the full incremental cost. The synthetic table uses first-year net benefit divided by first-year total cost. For a multi-period decision, NPV evaluates cash inflows and outflows over the investment period. (www.nist.gov)

Conclusion

The defensible answer to **airline delay cost calculation** is a chain of evidence: define the counterfactual, measure the eligible outcome, establish what the intervention can affect, identify incremental avoidable expenditure, and subtract the total incremental delivery and operating cost. Each link needs an owner and an explicit assumption. A public reference can organize that work, but it cannot complete it.

The worksheet makes three boundaries visible. Measured delay is broader than addressable delay. A modeled economic effect is broader than expenditure that the operator can avoid. A forecast benefit is different from an effect attributable to the project. Preserving these boundaries makes the business case reviewable by operations, finance, and procurement together.

The procurement decision should follow the residual gap. Check native configuration and existing interfaces first. Commission a narrow custom bridge when the required boundary is established and the evidence supports its cost. Approve a measurement pilot when the mechanism is credible but its effect remains uncertain. Decline a project when the proposed return depends on unresolved cost eligibility, duplicated benefits, or an unsupported effect.

After deployment, keep the same ledger and compare the forecast with measured outcomes and realized expenditure. Update scope, contracts, price basis, and assumptions when they change. The result is a financial claim that can be traced to operator evidence, with nonfinancial outcomes retained separately and uncertainty visible to the people making the investment decision.

Source links

Links cited in this article, in order of first appearance. Full addresses are provided for readers using extracted text.

1. https://www.gov.uk/government/publications/the-green-book--2/the-green-book-2026
2. https://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/FAA-Airport-Benefit-Cost-Guidance.pdf
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About LANDING.AERO

LANDING.AERO builds custom software for aviation operations teams at airlines, charter operators and flight departments. It is based in Montreal.

What it builds

Operations tools that reduce manual steps in day-to-day flight operations; integration of existing systems and data sources into one operational picture; workflow automation; real-time operational dashboards; bridges between legacy systems and modern applications; and mobile apps for staff in the field. Each application is designed around the operator's own workflows rather than sold as an off-the-shelf platform.

How it works

Work starts with discovery of the operator's workflows, continues with iterative development alongside the operator's team, and includes integration with the tools already in use and ongoing support.

Its own tools

LANDING.AERO also publishes small tools for aviation professionals, including UTC Alarm, which sets alarms in Zulu time, and NOTAM Notifier, announced for NOTAM change alerts on chosen airports.

Visit

See LANDING.AERO and its projects.

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Website: https://www.landing.aero

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