

Section 2: Framework Overview

This Framework is structured around seven key dimensions. Each dimension contains specific variables, SLA targets, measurement methods, and practical evaluation guidance. This section defines the architecture and monitoring cadence of the framework.

2.1 Framework Architecture

#	Dimension	Focus Area	Key Stakeholders
1	System Performance & Reliability	Technical infrastructure stability	IT, Operations
2	Functional Performance	Core scheduling capabilities	Operations, Planning
3	Vendor Service Delivery	Support quality and SLA compliance	IT, Management
4	Business Value Realization	ROI and benefit achievement	Finance, Management
5	User Experience & Adoption	User satisfaction and utilization	All Users, Training
6	Integration & Data Quality	System connectivity and data accuracy	IT, Data Teams
7	Financial Performance	Cost management and value	Finance, Procurement

2.2 Review Frequency

Different variables require different monitoring frequencies. Real-time monitoring is non-negotiable for system availability and response time for these are the metrics that directly affect operational continuity. Business value and financial metrics require quarterly analysis with sufficient data to produce statistically meaningful trend readings.

Review Frequency	Variables Covered
Real-time / Daily	System availability, response times, error rates, integration health alerts.
Weekly	Support ticket resolution, user issues, data sync status, open defects.
Monthly	Functional accuracy, integration health summary, user satisfaction pulse, invoice audit.
Quarterly	Business value metrics, ROI tracking, strategic alignment, documentation audit, contract compliance.

 How to Use This Framework

Section 3 defines each performance dimension and its variables. For each variable, a metric card provides the definition, SLA target, formula, and a practical evaluation tip. Use these cards directly in monthly and quarterly review meetings. Appendix A provides a consolidated variable matrix for quick reference. Appendix B provides the monthly SLA compliance checklist for use in vendor review meetings.

Section 3: Performance Review Dimensions

Each dimension contains specific variables that are measured, tracked, and reported against established baselines and SLA targets. For each variable, the framework provides a definition, measurement formula, SLA target, and a practical evaluation tip drawn from airline implementation experience.

Dimension owners are responsible for data collection, monthly reporting, and escalation when SLA thresholds are breached. All dimension scorecards are consolidated into the quarterly vendor scorecard reviewed at the Quarterly Business Review.

1 System Performance & Reliability	Focus: Technical infrastructure stability	Stakeholders: IT, Operations
---	---	------------------------------

This dimension tracks the technical health and stability of the scheduling system infrastructure. These metrics are the operational foundation of the framework, without system availability and acceptable response times, no other dimension can deliver value. System performance metrics must be monitored continuously, not reviewed retrospectively.

SLA Targets & Measurement

Metric	SLA Target	Calculation	Monitoring Tool
System Availability (Uptime)	≥ 99.5% (24/7 for global carriers)	$(\text{Total Hours} - \text{Downtime}) / \text{Total Hours} \times 100$	Datadog, New Relic, Nagios
Response Time — Schedule Search	< 2 seconds average	95th percentile tracked via APM tools	Application Performance Monitoring
Response Time — Flight Creation	< 5 seconds	Server-side timestamp logging	APM + server logs
Response Time — Optimization Run	< 30 seconds (100 flights)	Elapsed time from trigger to results	System event log
Response Time — Report Generation	< 10 seconds	User-facing timer	APM tools
Error Rate	< 0.5%; zero critical crashes/month	$(\text{Failed Transactions} / \text{Total}) \times 100$	Error tracking + help desk log
Backup Success Rate	100% of scheduled backups	$(\text{Successful} / \text{Scheduled Backups}) \times 100$	Backup management console
RTO (Recovery Time Objective)	< 4 hours	Quarterly DR test — elapsed recovery time	DR test log
RPO (Recovery Point Objective)	< 15 minutes data loss	Quarterly DR test — data gap at recovery	DR test log

Additional Metrics

Metric	Description	Target	Owner
API Success Rate	Percentage of successful data exchanges with MRO, HR, and Finance systems.	99.95%	IT Operations
Data Latency	Time delay for schedule updates to reflect in downstream systems (e.g., GDS).	< 5 seconds	IT Integration
Security Compliance	Adherence to data protection standards (GDPR, PCI-DSS).	100%	IT Security

 Worked Example: System Availability — January 2026

Total service hours: 744 (31 days × 24 hours). Planned maintenance: 4 hours (excluded from SLA calculation per contract). Unplanned downtime: 2.5 hours.

Calculation: $(744 - 4 - 2.5) / (744 - 4) \times 100 = 99.66\%$ → **SLA MET (target: 99.5%)**

Action: Continue monitoring. Root-cause analysis for the 2.5-hour outage must be completed and documented within 5 business days, regardless of SLA compliance status.

 Worked Example: Response Time Breach — Week of 15 January 2026

Schedule Query Response Times: Average 1.8s | 95th percentile 3.2s | Peak-time average 2.4s.

Assessment: 95th percentile exceeds the 2-second target by 60% - **SLA MISSED.**

Root cause: database query optimization needed; peak load 08:00-10:00 UTC causing delays.

Corrective action: Vendor to optimize database indexes within 2 weeks. Load balancing enhancement to be assessed. Response times re-tested post-fix. If not resolved within 2 weeks, escalate to PMB.

 Worked Example: Error Rate & Backup Compliance — January 2026

Error rate: 180 failed / 45,000 total transactions = 0.4% — within 0.5% target. However: 2 critical system crashes recorded (target: 0) → **SLA BREACHED.**

Root cause: memory leak in optimization module.

Patch deployed Jan 28.

Vendor credit applied: 5% of monthly fee.

Backup audit (Q4 2025): 91/92 successful backups (98.9%).

DR test result: RTO 2hr 45min ✓ (target < 4hr). RPO: 8 minutes data loss ✓ (target < 15min).

The single failed backup was a monitoring alert error - backup actually succeeded.

Monitoring process improved.

2 Functional Performance

Focus: Core scheduling capabilities

Stakeholders: Operations, Planning

This dimension evaluates how well the system performs its core scheduling functions and delivers the operational capabilities promised during vendor selection. Functional performance failures are the most operationally consequential - a system that cannot optimize schedules or handle disruption in time is not fit for IOCC use, regardless of its availability metrics.

Functional Performance Metrics

Variable	SLA Target	Measurement Formula	Practical Evaluation Tip
Schedule Optimization Accuracy	Achieve optimization KPIs within 5% variance of targets across aircraft utilization, turnaround time, crew overnight stays, and connectivity.	$(\text{Achieved KPI} / \text{Target KPI}) \times 100$ per metric; average across all metrics.	Compare optimized outputs against a baseline built manually by your best planner. If the system cannot outperform a senior planner, the optimization engine needs tuning.
Constraint Compliance Rate	98% first-pass compliance - schedules generated without manual intervention to resolve regulatory, operational, or business constraint violations.	$(\text{Compliant Schedules} / \text{Total Schedules}) \times 100$	Run compliance reports for every schedule build cycle. A consistent miss below 95% indicates the rule engine needs a regulatory update - escalate to vendor immediately.
What-If Scenario: Single Change	< 30 seconds from scenario initiation to results display.	Elapsed time measurement, average over 10 tests.	Test this at the start of every major schedule build cycle, not just during UAT. Performance can degrade as database size grows.
What-If Scenario: Aircraft Swap (≤50 flights)	< 3 minutes.	Elapsed time measurement.	Always test with your actual fleet data, not vendor demo data. Larger mixed-fleet environments expose edge cases that clean demo data conceals.
What-If Scenario: Major Disruption (200+ flights)	< 15 minutes.	Elapsed time measurement under realistic concurrent user load.	Run this test with your actual network size and with multiple users logged in simultaneously. Degradation under concurrent load is the most common failure mode.
Full Optimization Run Time	< 4 hours for a full seasonal schedule or crew roster.	Elapsed time from run initiation to final results output.	Benchmark this at start of each season build. A system that met this target at go-live may degrade as historical data volume grows - monitor trend over time.
IROPS Recovery Speed	< 30 minutes to re-optimize schedule after a major disruption event.	Elapsed time from disruption trigger to optimized recovery plan output.	Simulate a realistic IROPS scenario quarterly in a non-production environment. This is when the system's true operational value is tested.

📋 Worked Example: Schedule Optimization — Summer 2026

Aircraft utilization: target 11.5h/day | achieved 11.2h/day | variance -2.6% ✓.
Average turnaround: target 45min | achieved 47min | variance +4.4% ✓.
Crew overnights: target -15% vs prior season | achieved -18% ✓.
Viable connections: target +200 | achieved +185 | variance -7.5% ✗.
3 of 4 targets met. Connection opportunities missed tolerance by 2.5%.
Action: request algorithm refinement from vendor for network connectivity optimization.
Escalate to PMB if not resolved before winter schedule build.

📋 Worked Example: Constraint Compliance — February 2026

50 schedule scenarios generated. 47 compliant first-pass. 3 required manual fixes. Compliance rate: 94% - SLA MISSED (target: 98%).
Violations: 2 crew rest violations (system not recognizing updated regulation for short-haul crews) | 1 airport slot conflict (manual data entry error).
Corrective actions: vendor updating regulatory rule engine (delivery March 5) | enhanced slot data validation implemented | additional planner training on data entry protocols.

📋 Worked Example: What-If Scenario Performance — Week of 22 January 2026

Single flight cancellation (AC-123, 18 affected connections): 22 seconds ✓.
Aircraft type swap A320→A321 (6 flights, crew requalification): 2min 15sec ✓.
Chicago O'Hare 6-hour closure (185 affected flights): 18 minutes ✗ - SLA MISSED (target < 15min).
Action: Vendor investigating performance degradation on large-scale disruptions. Scaling issue identified in database queries.
Escalation to vendor's technical architect. Re-test within 30 days.
If not resolved, raise as a Class 2 gap - this directly impacts IROPS decision speed.