

NAV CANADA's ATM Performance Journey

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Corporate Performance and Sustainability
NAV CANADA



Serving a world in motion
navcanada.ca



Facts and figures

We are a private, non-share capital company, managing one of the largest regions of airspace in the world.



ACC Traffic

3.3 million flights

Total IFR Flight Hours: 3.9 million
FY24



Tower, FSS and RAAS Traffic

6.2 million movements

FY24



18 M

square kilometres of
airspace managed by
NAV CANADA



100+

staffed sites



5,500+

employees across the
country



50,000+

customer accounts



Canadian airspace characteristics

- Vast distances
- Climate varies from polar to temperate
- Crossroads of global air traffic flows
- Busiest oceanic airspace in the world
- Unique northern airspace operations

Next-Day Operational Performance

Envirosuite – FUSION and AIRSIT



A Holistic View of Organizational Performance

6 Key Performance Areas (KPAs)



Purpose:

1. Provide actionable measures on how effectively and efficiently an organization is performing
2. Inform future organizational goals and establish baselines for target setting

Organizational Alignment of KPAs

Our shared purpose, what we believe and our strategic direction

What we do



Safety
performance

Safety is our priority



Operational
performance

Every day we provide
an essential service



Financial
performance

Ensuring economic
sustainability



Climate action
performance

Reducing
environmental impacts

How we do it



People and
leadership
performance

Success through
people

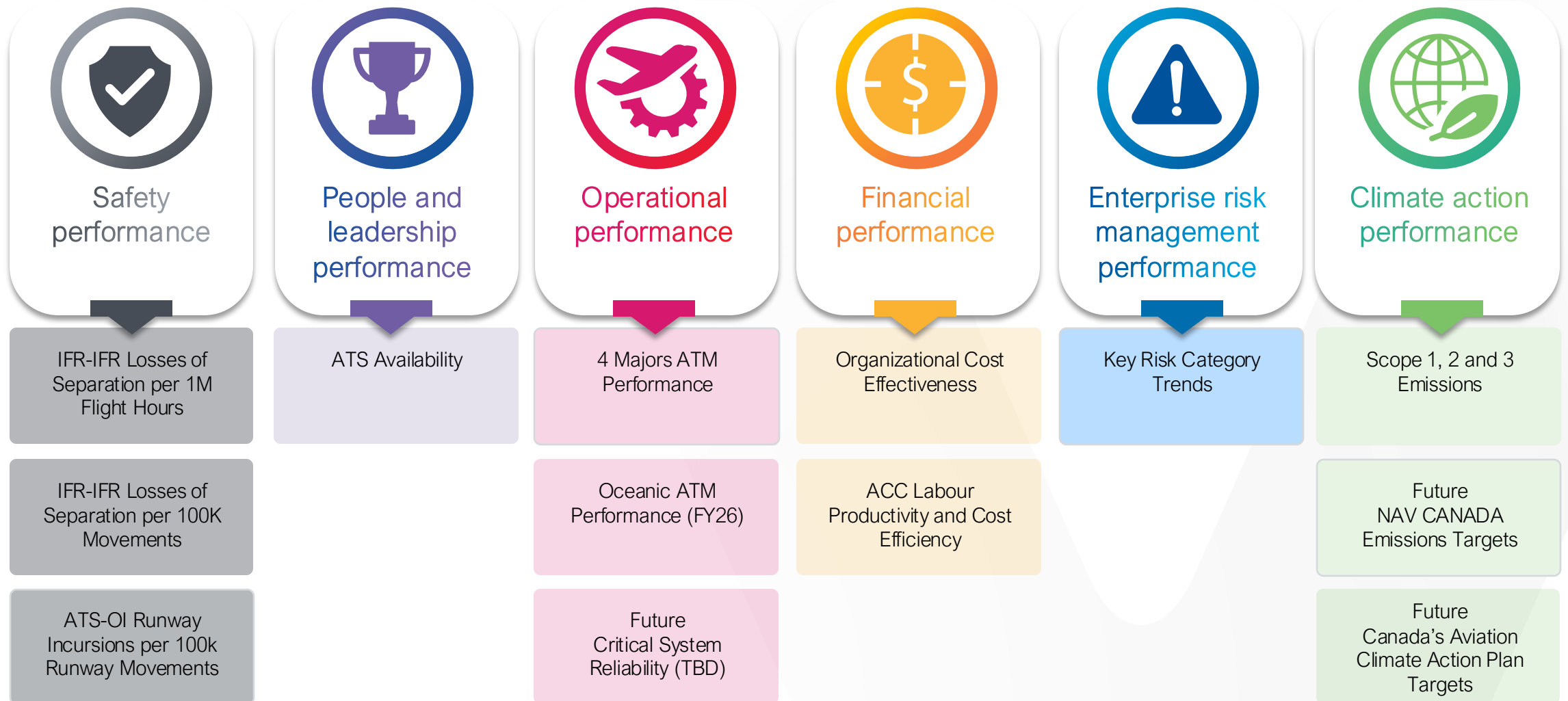


Enterprise risk
management
performance

Proactive risk
mitigation

The Key Performance Indicators (KPIs)

Evolving with data and analytics capabilities



Development and Governance of Organizational Performance KPIs

Process assures quality and mitigates potential risks associated with data & analytics, interpretation, liability and reputation

1

Stakeholder consultation

Determine KPAs and performance metrics

Identify internal and external requirements, benchmarking and alignment opportunities

2

Methodology & governance

Define methodology, data elements, required tools, reporting frequency and publication standards

Formalize governance, including accountabilities, responsibilities and assurance

3

Data & analytics gap analysis

Complete data source and analytics tool gap analysis

Develop acquisition plans as required

4

Complete metric development

Calculate metric

Analyst peer assurance review

Amend methodology and governance documentation if required

5

Data & analytics assurance

Management assurance review prior to initial publication or changes to performance metric

6

Publish performance metrics

Publish performance metrics based on scheduled cycle and defined standards for internal and external use

7

Life cycle

Adhere to defined methodology, governance and assurance

Potential Internal Audit review, continuous improvement with updates based on stakeholder feedback, lessons learned, or updated benchmarking information



Emphasis on alignment, collaboration and partnerships

Data sharing via collaborative data analytics agreements

Industry collaboration:

- Canada's Sustainable Aviation Task Force
- ICAO Global Air Navigation Plan Performance Expert Working Group
- ICAO Committee on Aviation Environmental Protection
- CANSO GBWG and Recommended KPIs for Measuring ANSP Operational Performance
- CANSO Environmental Working Group and Green ATM trial participant



A System Perspective on Performance



Safety



Capacity



Efficiency



Predictability



Sustainability

Interdependencies and correlations

Outliers and exceptions

Variation attribution and analysis

A System Perspective on Performance

EMISSIONS



EMISSIONS



Capacity

1. Declared Capacity
2. Capacity Demand Balance
3. Capacity Utilization Efficiency



Efficiency

1. Gate Departure On-Time Performance
2. Taxi Out Time
3. Take-off Time Compliance
4. Runway Occupancy Time
5. Terminal Departure Flight Distance/Time
6. Terminal Departure Level Flight
7. Enroute Horizontal Flight
8. Enroute Vertical Flight
9. Arrival Flight Distance/Time
10. Arrival Flight Level
11. Runway Occupancy Time
12. Taxi In Time
13. Gate Arrival On-Time Performance



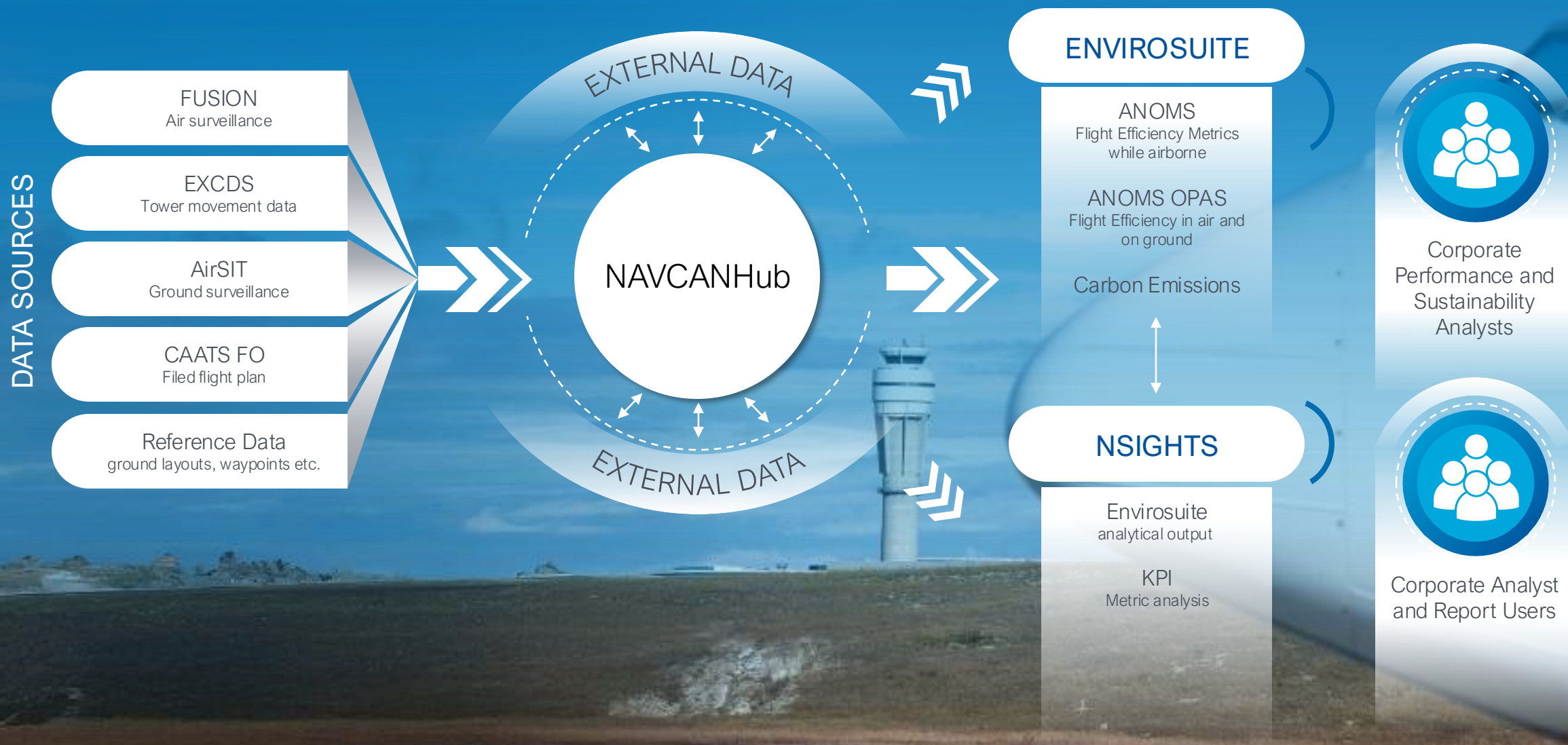
Predictability

1. OTP, Cancellation and Diversion Variation
2. Capacity Variation
3. Route Variation
4. Altitude Variation
5. Time Variation
6. Critical System Reliability

CONTEXTUAL MEASURES

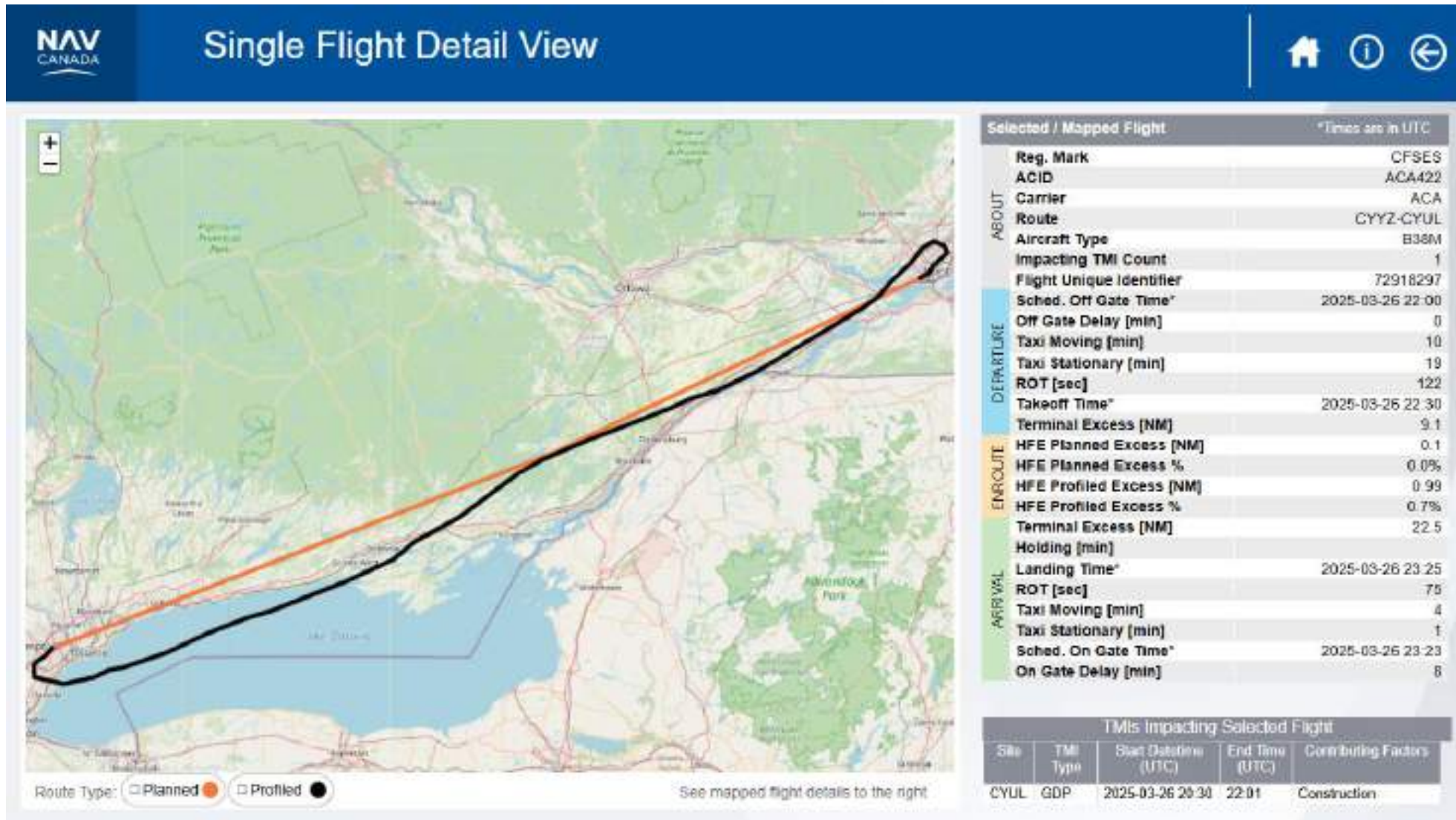
ATM Performance Analytics

High-level architecture enabling automation of ATM Performance Analytics in 4 Majors TMA and beyond



Per-Flight Performance Metrics

Routes from FDW, metrics from Envirosuite using Ground and Enroute Surveillance



Capacity KPIs by Phase of Flight



Contextual measures for capacity and demand variation

1. Capacity Variation Contributing Factors

- Volume
- NAV CANADA Staffing
- NAV CANADA Equipment
- NAV CANADA Flight Check
- Weather
- Operational Availability (Airport or Airspace)
- Non-NAV CANADA Equipment

2. Capacity Constraint Prediction Accuracy

Enroute Capacity KPIs

- Specialty and sectors



Terminal Capacity KPIs

- Departure bedposts



Airport Capacity KPIs

- Departure Runways



Terminal Capacity KPIs

- Arrival bedposts



Airport Capacity KPIs

- Arrival Runways





Thank you! Obrigada!

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