FLT: SMARTER FUEL UPLIFT FORECASTING

DataTactics GmbH

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THE PROBLEM

F+ forecasts fuel uplift by averaging the **last 3 months** of actual uplift per route.

- Ignores schedule changes (cancellations, added flights)
- Can’t predict new or seasonal routes
- Gets worse the further into the future it forecasts

Can we do better?

VALIDATION SETUP

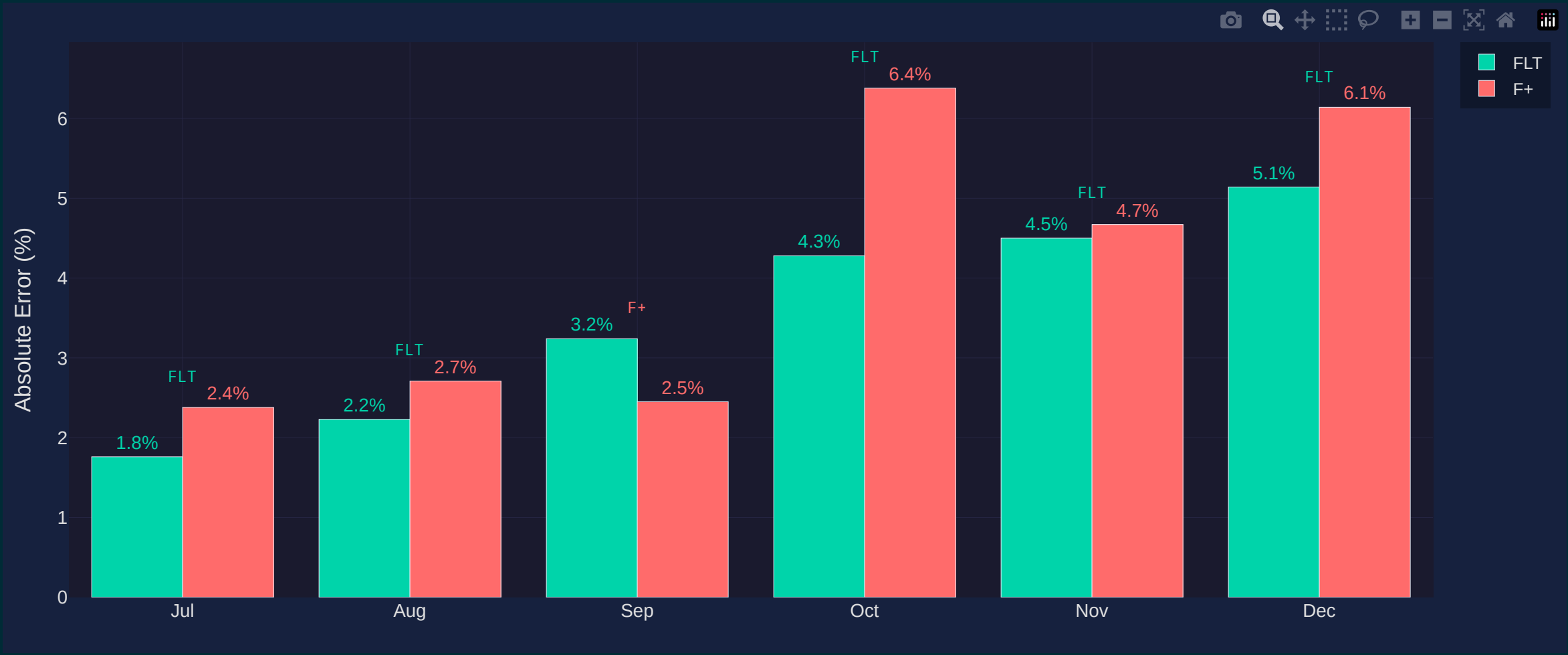
Departure Airports	BLL, FRA, VIE, PMI, ORD, HRG, KEF, HAM, HKG, WAW
Airlines	LH, OS, LX, SN, EW, EN, WK, 4Y, YF, XQ, 3S
Routes	~64 active
Forecast Horizon	6 months (Jul–Dec 2025)
Total Volume	1,610M kg fuel

FLT BEATS F+ IN 5 OUT OF 6 MONTHS

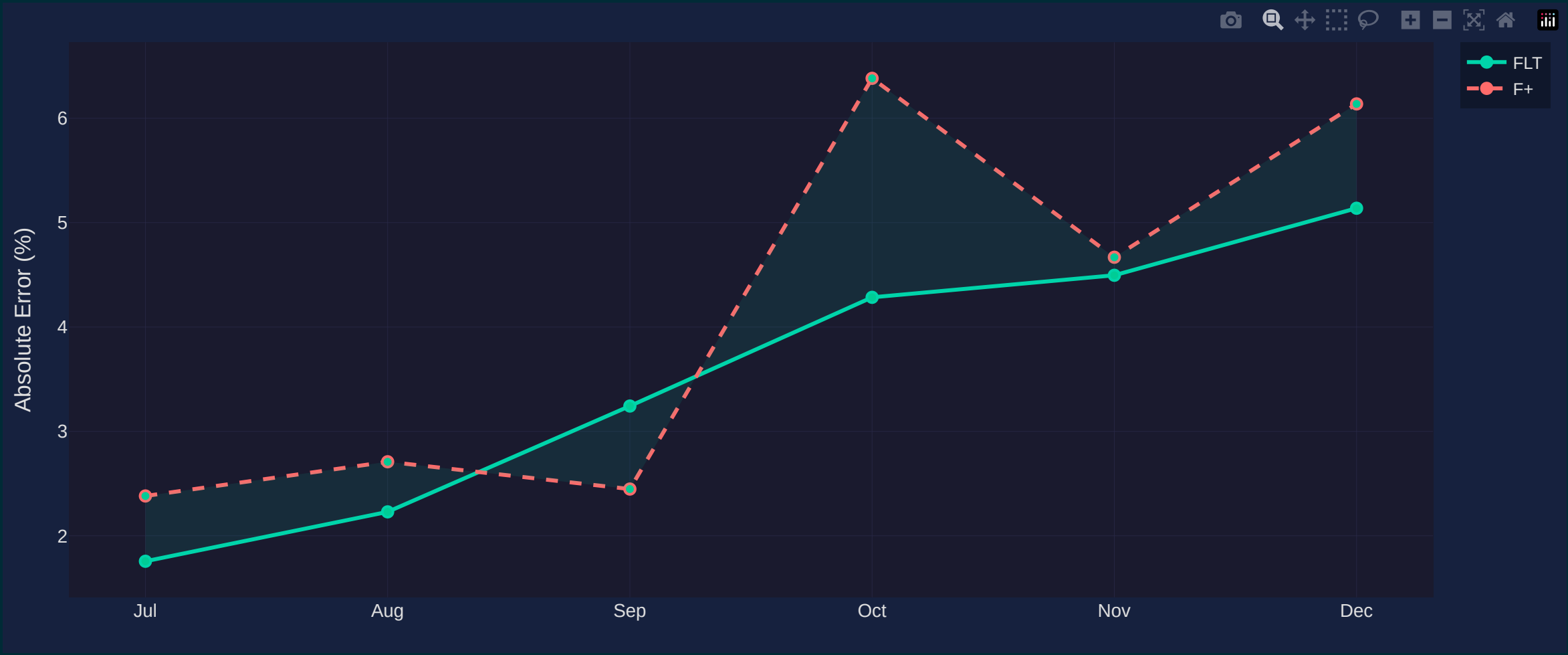
5 — 1

	FLT	F+
Overall Error	3.3%	3.9%
6-Month Misorder	53,800t	63,500t

MONTH-BY-MONTH HEAD-TO-HEAD



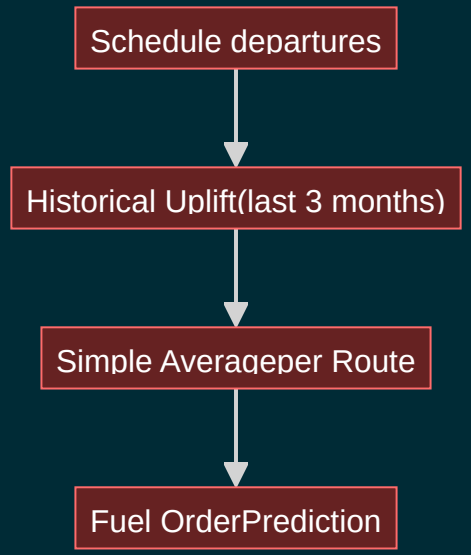
THE FURTHER OUT WE FORECAST, THE BIGGER OUR EDGE



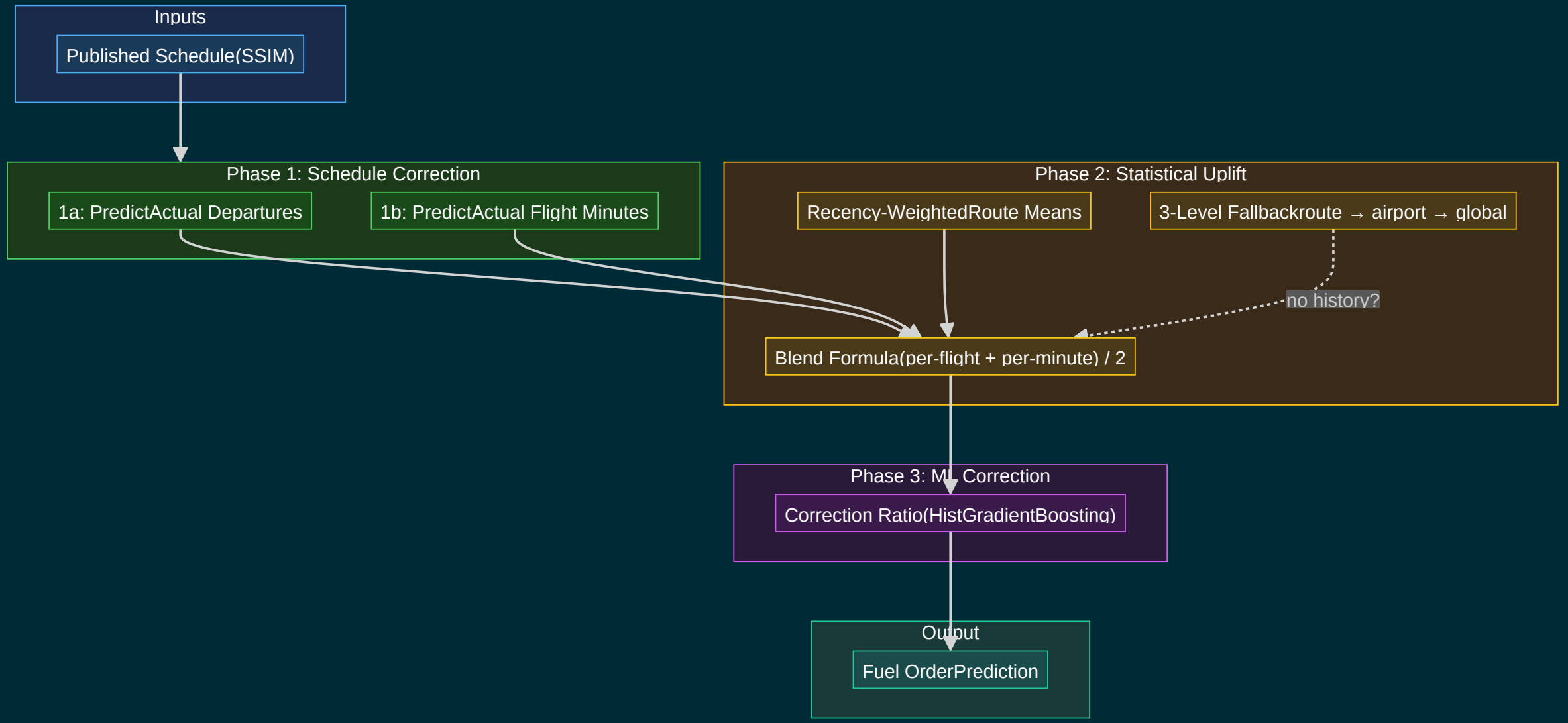
WHY F+ STRUGGLES AT LONG HORIZONS

- F+ depends on the schedule and the previous 3 months uplift average
- When the schedule changes, F+ doesn’t know
- FLT **corrects the schedule first**, then predicts fuel using ML
- Seasonal shifts, cancellations, and new routes are captured

THE F+ PIPELINE



THE FLT PIPELINE

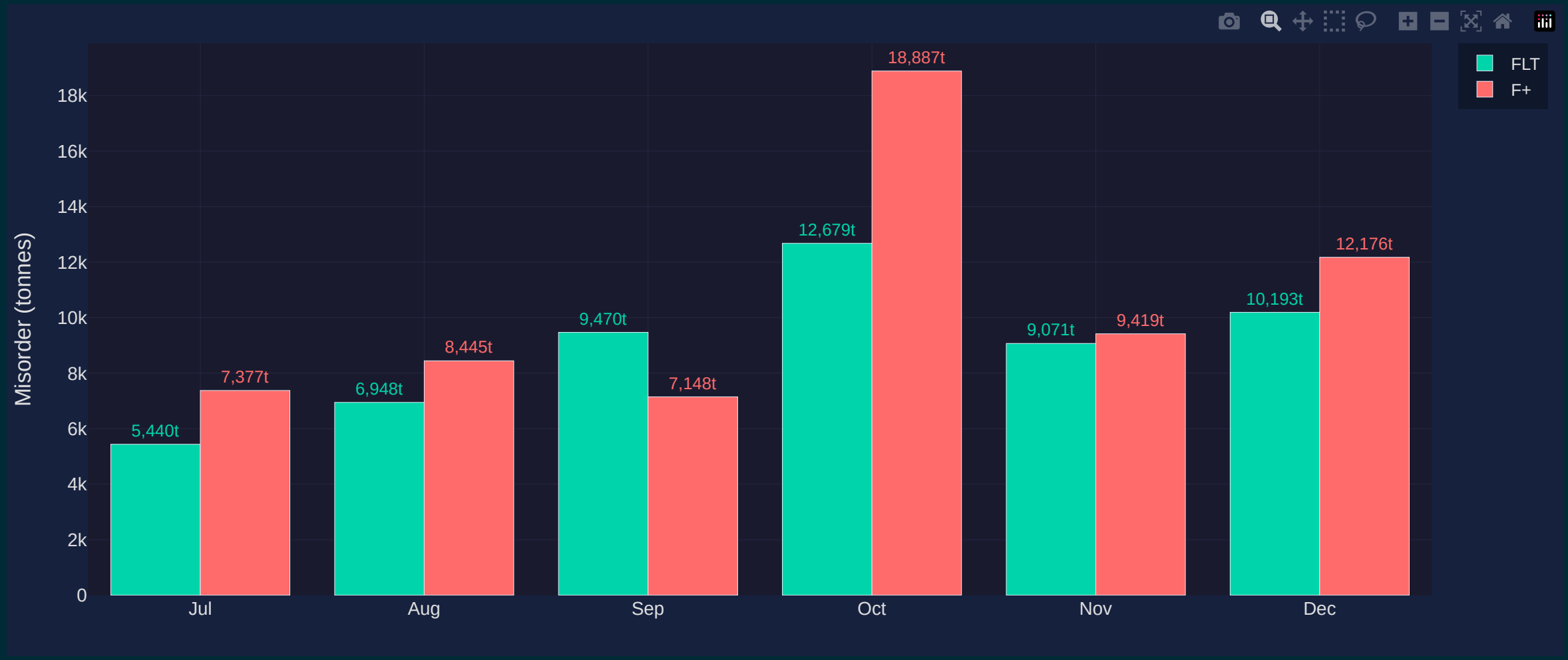


HOW FLT WORKS

Step	What	Why
1a	Predict actual departures	Schedule is never perfectly right
1b	Predict actual flight minutes	Captures aircraft swaps & frequency changes
2	Statistical uplift formula	Recency-weighted route means x predicted volume
3	ML correction	Fine-tunes the formula at far horizons

Key insight: We don’t trust the schedule. We predict what will actually fly.

FUEL ORDERING IMPACT



~9,700 tonnes less misorder than F+ over 6 months across 10 airports

WHERE WE WIN BIG — LH-FRA

Even small % improvements on high-volume routes = large kg savings

WHERE WE WIN BIG — UNSCHEDULED FLIGHTS

XQ-KEF, July 2025

	Scheduled	Actual	Predicted
Flights	0	2	2
Uplift (kg)	—	15,854	18,915

F+ has **no prediction** — it can't see what wasn't scheduled.

FLT caught the unscheduled flights using historical patterns.

CURRENT SCOPE

Airports	BLL, FRA, VIE, PMI, ORD, HRG, KEF, HAM, HKG, WAW
Airlines	11 across Lufthansa Group
Horizon	6 months (Jul-Dec 2025 validated)
Routes	~64 active
Total Volume	1,610M kg fuel over validation period

This is our proof of concept. **The model is ready to scale.**

ROADMAP

Next Steps	What	Deliverable
1	Multi-scenario validation	Models validated across diverse periods
2	Full airport expansion + ML pipeline	Complete coverage, automated training
3	Short-term production deployment	4-6 month predictions live, parallel with F+
4	Long-term model development	15-18 month predictions validated
5	Full system launch	All airports, all horizons, user interface

BUILT TO IMPROVE

- Trained on just **17 months** of schedule data (Jan 2024 – Jun 2025)
- The model has only seen **one** summer, **one** winter season
- With each additional month, patterns become stronger
- More airports = stronger shared patterns, without affecting existing route accuracy
- More data = better seasonal correction = fewer misorders

These results are our floor, not our ceiling.

THE ASK

- **5 out of 6 months, 15% less fuel misorder**
- 10 airports, 11 airlines, 64 routes — 6 months validated
- Airline-agnostic: adding airlines = adding data
- Continue the project and expand coverage