



SOLVING FLEET MANAGEMENT CHALLENGES

FOR ENGINEERING,
PLANNING &
COMMERCIAL TEAMS

What's Inside?



Some of the complexities of fleet management

1



The key challenges

2



How can our digital solutions be deployed to effectively simplify fleet management ?

3



Key areas of interest to help YOU efficiently support your fleet needs

4



Here's a use case to illustrate how Acumen can deliver for YOU!

5



If there are any topics or points, covered within, you wish to discuss in more detail, or you are interested in more information, please contact us at either, connect@acumen.aero or support@sparta.aero

WHAT MAKES FLEET MAINTENANCE SO COMPLEX?



Some of the complexities of fleet management



DIVERSE FLEETS

The existence of diverse aircraft and engines in the fleet amplify the complex correlation of parameters affecting maintenance and increase probability of inaccurate risk assessments.



MAINTENANCE RESERVES SHORTFALLS

MR's are funds collected during the lease term to cover costs of major maintenance events. They are dependent on a wide range of factors such as utilisation, sector length, and regional environmental parameters. Accurate and up-to-date costs, as well as maintenance interval information, is essential to protect against MR shortfalls.



INACCURATE FORECASTS

Forecasts are heavily driven by complex multi-parameter algorithms and data models. Inaccurate predictions can erode the competitive edge necessary in fleet management.



ON-WING LIFE MISCALCULATIONS

Calculating on-wing life of jet engines is a challenging and ever-evolving area. It is affected by a multitude of technological, operational and environmental parameters. Lack of industry wide data points for predicting on-wing life of your own fleet can lead to costly miscalculations and increase financial risk.

THE KEY CHALLENGES

Let's look at a range of the multiple dynamic parameters that need to be known, tracked and managed throughout an aircraft's lease term.

These parameters can be categorised under 3 distinct headings:

1.



TECHNICAL

- Type and Model;
- Thrust Rating
- De-rate
- Sector Length (FH:FC)
- Monthly Utilisation
- Operating Environment Severity (Harsh / Benign)
- LLP Stack
- LLP Life Limits
- Limiting ADs / Safety Requirements
- Exhaust Gas Temperature (EGT) Margins
- Vibration

2.



LEASE

- Lease Term Remaining
- Lease Return Conditions
- Lease End Maintenance
- Reserves Arrangements
- Lease Stipulations on Performance Restoration
- Lease Stipulations on LLP Build Goals and Stub Life

3.



COST

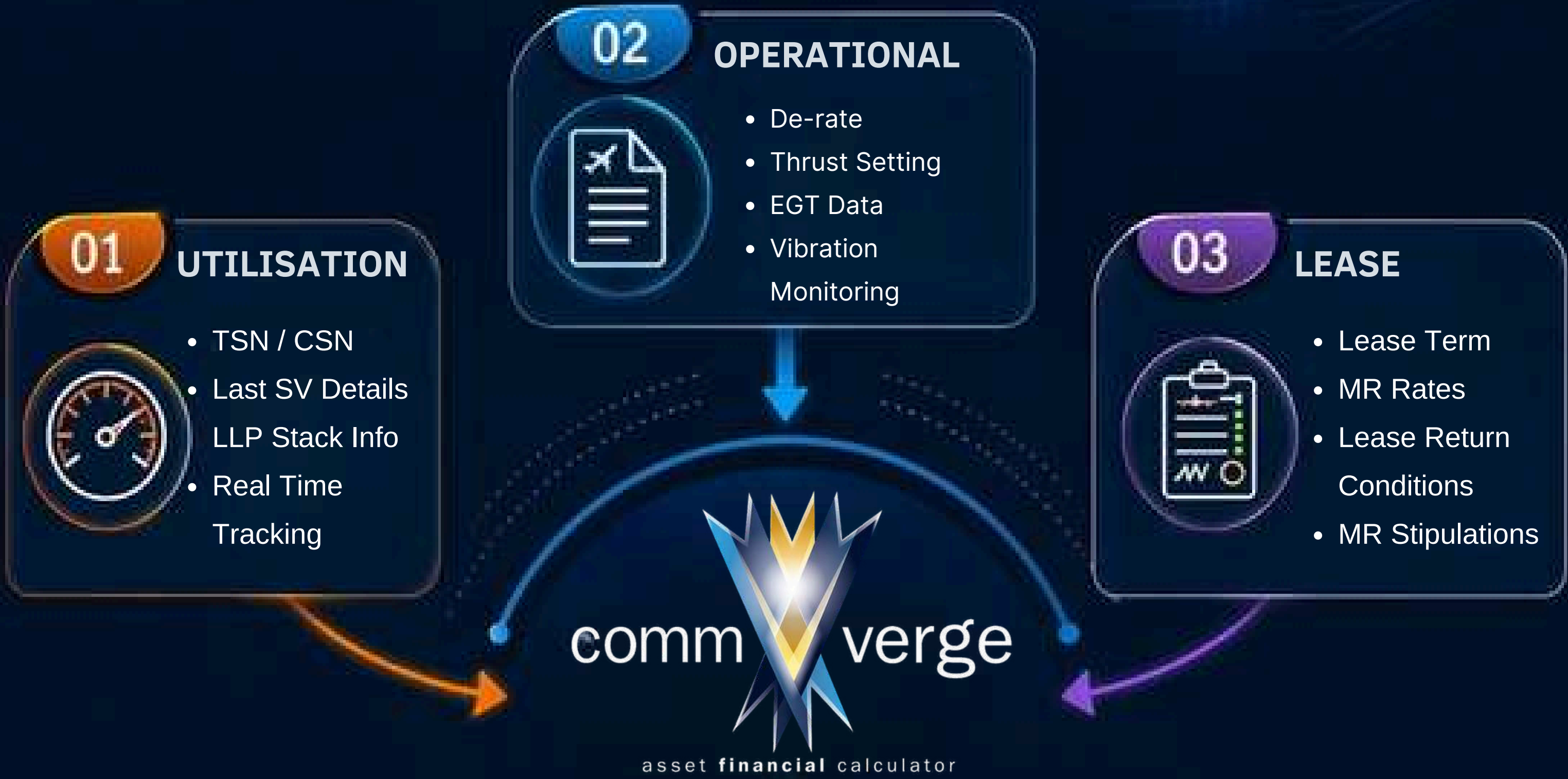
- Performance Restoration Shop Visit Costs
- LLP Replacement Costs
- Inflation Computations
- QEC and LRU Costs
- Shipping and Logistics



Addressing the counter-dependencies between these parameters leads to **effective and efficient asset management**. However, doing so at scale for fleets exceeding 100's of assets necessitates a **combination of new-age digital solutions** and subject matter expertise.

HOW CAN OUR DIGITAL SOLUTIONS BE DEPLOYED TO EFFECTIVELY SIMPLIFY FLEET MANAGEMENT?

Data analysis is a key aspect of fleet management, and reliable software enables detailed aircraft information to be reviewed and appropriately managed. This enables all items within set parameters to be monitored and kept within limits. It also provides opportunity for improvements to be made, where needed.



- Fleet Wide On-Wing Life Predictions
- Expected Shop Visit Dates
- Expected Shop Visit Costs
- Scenario Specific Decision Options
- Cashflow Projections

- Advanced Analytics Including SawTooth Forecasts
- Forecasting Reports Across Diverse Formats
- Integration with Airline Maintenance Planning and Execution Platforms
- Recommender System

KEY AREAS OF INTEREST TO HELP YOU EFFICIENTLY SUPPORT YOUR FLEET NEEDS?

Utilising our 13+ years of market leading aviation expertise as well as indigenous product development skill base, Acumen is best positioned to deliver your desired fleet management outcomes.



200+ Aircraft / Engine Combinations



Advanced Predictive Algorithms



On-Wing Life Predictions



Event Costs and Maintenance Reserves Computations



Cashflow Projections



End of Lease Scenario Modelling



API Integrations with 3rd Party Applications



Automated Decision Recommendations



In-House Aviation Experts



Product Developers / Designers



Outcome Based Consultation and Implementation Support



Diverse Technology Expertise



Software Maintenance and Support



Digital Systems Audit and Optimisation



Data Analysis and Troubleshooting

Here's a use case to illustrate how Acumen can deliver for YOU!

Recently, Acumen was approached by a start-up airline to address their fleet management requirements by providing a digital solution that would predict future engine shop visits, the expected event costs, and the appropriate maintenance reserves rates. The purpose was to augment **the airline's in-house powerplant expertise; the airline was seeking** independent opinion and digital solutions to aid the decision making process.



KEY HIGHLIGHTS OF THE AIRLINE'S PROBLEM STATEMENT



New airline with decades of personnel expertise in the management team but needed **independent solutions to validate and triangulate the information**



Production delivery **B737-Max fleet - 1st run engines** resulting in lack of industry data points



Rapidly growing fleet - Forward-looking view on **maintenance planning and risk mitigation**



Early adoption of **digital solutions and prediction models** to be deployed at scale



ACUMEN



...the Acumen Team solution relied on **three specific pillars of expertise** to support this requirement...



01

INDUSTRY SUBJECT MATTER EXPERTS

- Gather Requirements
- Research In-Depth, Design Solutions and,
- Deliver Results



02

DIGITAL SOLUTIONS

- SPARTA Platform
- CommVerge
- Custom Functions Capabilities



03




DEVELOPMENT CAPABILITIES

- In-House Developers
- Product Experts and Managers
- Mature development processes and infrastructure

LET'S TALK

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