Commercial and Operational Planning for Revenue Growth and Cost Reduction

Dr Emre Serpen,
Intervistas Consulting Group
EVP
Intervistas team members have extensive airline strategy and network design assignments worldwide.
InterVISTAS has extensive experience and expertise with improvements in airline commercial operations. Driving in revenue growth and cost reduction for airlines.

<table>
<thead>
<tr>
<th>Revenue Growth</th>
<th>Cost Reduction</th>
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<tbody>
<tr>
<td>Network Optimisation</td>
<td>Benchmarking and diagnostic assessment</td>
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<td>Hub optimisation</td>
<td>Route performance and restructuring</td>
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<td>Fleet utilisation</td>
<td>Crew Productivity Improvement</td>
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<td>Pricing</td>
<td>MRO cost reduction and outsourcing</td>
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<td>Revenue Management</td>
<td>Ground handling cost reduction and outsourcing</td>
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<td>Distribution</td>
<td>Operations Control Centre Improvement</td>
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<td>Cargo optimisation</td>
<td>Distribution cost reduction</td>
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<td>Staffing and administrative costs</td>
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</table>

InterVISTAS offers industry data, optimisation tools, and former airline experts whose approach is analytical with a focus on delivery of benefits.
Strategic Planning for Airlines - Overview

1. Strategic Intent
   - Global
   - Continent/Region
   - Country
   - Specific
   - Segment

2. Strategic Assessment
   - Demand
   - Supply
   - SWOT
   - Market
   - Forecasting

3. Network Design and Fleet Planning
   - Long Term
   - Short Term
   - Hub Design
   - Fleet Planning

4. Business Model Alignment
   - Commercial
   - Operational
   - Subsidiaries
   - Organisational

5. Business and Implementation Planning
   - Business Plan
   - Implementation Plan
Identify markets that drives best prospects for profitable operations

High Potential Markets

1. Evaluation of share gap and identification of opportunities where market growth exceeds market share growth

2. Identification of markets with fast and high yield growth opportunities

3. Identification of Airline market share:
   1. Market share growth in growing markets
   2. Market share loss in growing markets
   3. Market share growth in shrinking markets
   4. Market share loss in shrinking markets

4. Relationships between market, market share and pricing changes

5. Dominate own catchment area/Hub

Source: Intervistas Analysis
Market Forecasting

Forecast and focus on markets with growth and yield

Market forecasting
Top down = GDP/capita X Elasticity
Bottom Up = MIDT/PAXIS/DIIO

Analyse forecast results to identify specific market forecast insights:

1. Sort by market size
2. Sort market growth rate
3. Sort by yield
4. Sort by circuitry
5. Sort by Size x growth rate x yield x circuitry
6. Destinations Airline is not flying

Under represented markets identified in the market forecast will be used in scenario formulation
Network improvement for revenue maximisation

Key Steps

1. Calibration, Scenario Development
2. Unconstrained long term view
3. Maximise commercial opportunity
4. Market Forecast, Average Fares, Costs, Schedules
5. Test different scenarios, network optimisation
6. Network that maximises Route Level Variable contribution – Improve Fleet utilisation
7. Differential revenue from connecting passengers Determine changes in connectivity, passenger numbers and yield for long haul pillar flights, medium haul flights, regional flights, short haul domestic flights.
8. Improve Airline ‘s market share in fast growing, high yield markets with good Hub circuitry
Short term Route Profitability Improvement

Key Steps

1. **Objective** is an optimised short term hub design, including improvements in connecting markets and incremental financial performance compared with the current schedule.

2. A list of potential new destinations and frequencies identified for immediate implementation.

3. Evaluate current near-term operational constraints at Hub (airspace, aircraft movements during peak hours, bilaterals, slots, curfews, gate space restrictions) which may prevent increase of frequency/capacity of flights or the introduction of new flights.

4. Analyse Airline’s capability in consistently delivering aircraft turn times (critical for optimal hub performance).

5. Focus on time of day changes to maximise number of meaningful connections between markets as these could be implemented without much operational impact.

6. Sort flights according to contribution and take action for improvements in system wide variable contribution.
Selection of the right fleet plan, and improvement of fleet utilisation

Key Steps

1. Develop optimal fleet plan supporting the long term network plan
2. Provide recommendations for redeployment of fleet plan
3. Review current Airline fleet including age, maintenance requirements/costs, onboard product, range, fuel burn and fleet commonality.
4. Review current fleet orders and compare it against the optimised long term network requirements maximizing route profitability and fleet utilization.
5. Apply fleet plan to proposed passenger forecast and schedule to assess the optimal types/mix of aircraft that will most efficiently operate the route network.
6. Assess how the fleet plan will evolve over the forecast period taking retirements and new deliveries into consideration.
7. Ensure that fleet utilization is optimised
8. Develop optimal narrow body and wide body fleet ratios in the near term, considering optimal requirements for the Hub
9. Buy versus lease calculations

Example: Fleet Operating Costs Analysis

Example: Fleet Optimisation Analysis

Block Hours by Aircraft Type

Average Utilization

ATK by Aircraft Type

Intervistas Analysis
Intervistas uses Industry Trusted Sources and Professional Network Optimisation Tools. The modelling tool uses discrete choice methodology, an advanced form of the QSI passenger market share forecasting method.
THE NEED

Description: Emre Serpen and Inter VISTAS team worked with Turkish Airlines (TK) to design a hub structure at Istanbul Airport. The scope of the project included:

- **Market Analysis** – analysis of demand and supply, changes in the market place, share gap, opportunities to identify fast growth and high yield markets to take advantage of Istanbul Hub.

- **Best Practices** – analysis of wide hub design best practices worldwide, comparison of different hub structures, hub design principles and learning's from successful and capacity constrained hubs.

- **Market Forecasting** – execution of a market forecast taking into account long-term/top-down forecast driven by GDP growth and travel propensity of TK’s current and projected markets, as well as bottom up analysis including MIDT pax flown data. Further to market forecast comprehensive analysis of fast growth and high yield markets taking into account circuitry advantages of Istanbul Airport.

- **Hub Design and Analysis and Implementation Plan** – development of hub growth and bank structure development scenarios leveraging results of the previous activities. Scenarios are discussed and analysed using sophisticated network optimization tools working closely with TK network management team. Focusing on scenarios maximising long term contribution.

THE RESULT

Project needed extensive market analysis and scenarios. The team had to convince TK of the scenario’s an approach. More than 70 optimisation runs were executed using specialist tools. The project delivered $500 million and TK was very pleased. Project also contributed to the decision of establishing the Third Istanbul Airport, reported to be largest worldwide.
Pricing and Revenue Management Improvement Approach to Improve Revenues, Load Factor and Yield

- Market and Revenue Share versus Expected
- Market Segmentation: use of Fare Rules and Booking classes
- Effective use of systems, tools and data
- Organisation structure and interaction with Sales, Airports
- Processes and working methods
- “Use of time” analysis

- Development of detailed processes and working methods
- Liaise with systems suppliers
- Hands on and class-room training
- Coaching
- Review and Assessment of results
- KPIs & Performance Management
Realizing the vision together

Revenue Management Improvement

Key Steps

1. Review of fares, competitors, Matrix
2. Strategic pricing
3. Target LF profiles
4. Critical flight management
5. Longer term focus
6. Effective sales interactions
7. Overbooking management
8. Standard processes, KPI’s
9. Commercial plan do review

Analysis of fare usage is important to understand where there are potential opportunities:
- Mismatch between actual yield and published fares: abuse or pro-ration issues?
- Fares in wrong class, Overlap of RBD’s, Over or under use of RBD’s
- Exchange rate impacts? Inconsistent fare conditions?
- Poor inventory control, Revenue Leakage?
### Example: Implementation a New “Revenue Planning & Delivery” Process

#### Market

<table>
<thead>
<tr>
<th>Month</th>
<th>Revenue</th>
<th>Segment</th>
<th>Cost Factor</th>
<th>Rev/ASK</th>
<th>Rev/RPK</th>
<th>Budget</th>
<th>Monitoring</th>
<th>Forecast</th>
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#### Type

<table>
<thead>
<tr>
<th>Type</th>
<th>Name</th>
<th>Purpose</th>
<th>Method of calculation</th>
<th>Target Value</th>
<th>Comment</th>
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<tbody>
<tr>
<td>F1N</td>
<td>Rev per available tonne km</td>
<td>To measure the unit revenue of the cargo unit</td>
<td>Cargo revenue per AKR</td>
<td>To be set according to the annual business plan</td>
<td></td>
</tr>
<tr>
<td>F1N</td>
<td>Meeting the budget</td>
<td>To ensure the unit revenue within the budget</td>
<td>Yes, %</td>
<td>Yes</td>
<td>Ties to the budget within the unit</td>
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<tr>
<td>F1N</td>
<td>Cargo revenue – body</td>
<td>To measure the contribution of this activity to the overall company revenue</td>
<td>Annual revenue of this activity</td>
<td>Should show an increasing trend</td>
<td>Note, that revenue also depends on the available capacity</td>
</tr>
<tr>
<td>F1N</td>
<td>Cargo revenue – freight and charter</td>
<td>To measure the contribution of this activity to the overall company revenue</td>
<td>Annual revenue of this activity</td>
<td>Should show an increasing trend</td>
<td></td>
</tr>
<tr>
<td>F1N</td>
<td>Share of cargo revenue between cargo, freight, charter, etc.</td>
<td>To measure the relative importance of the different traffic segments</td>
<td>Share of each revenue stream to the total</td>
<td></td>
<td>TURD</td>
</tr>
<tr>
<td>F1N</td>
<td>Cargo yield – body</td>
<td>To measure the yield of this stream of cargo</td>
<td>Revenues of this stream per tonne of cargo</td>
<td>TURD</td>
<td>Usually is higher than yield of freight operations</td>
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<tr>
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<td>Cargo yield – freight and charter</td>
<td>To measure the yield of this stream of cargo</td>
<td>Revenues of this stream per tonne of cargo</td>
<td>TURD</td>
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<td>F1N</td>
<td>Cost per AKR of freight and charter operations</td>
<td>To measure the cost of operating freight and charter</td>
<td>Costs of operating freight and charter flights divided by the AKR of this capacity</td>
<td>TURD</td>
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An Example of How a Leading Latin American Carrier Improved its Revenues Through a Commercial Change Management Program

1. Kept fare differential with competitors
2. Fine tuned pax mix

1. Worked with promotions
2. Opened economic classes
3. Unsold group blocks released

THE RESULTS
- Improvement of revenue during project
- Significant knowledge development
- Adopt PRM policies and procedures
- Adopt performance measures
- Excellent teamwork with sales
- Effective use of RM tool

Table: System

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<th>Market</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
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<td>RASK</td>
<td>236</td>
<td>217</td>
<td>214</td>
<td>210</td>
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<tr>
<td>Average Fare</td>
<td>14.2</td>
<td>13.8</td>
<td>13.5</td>
<td>13.0</td>
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</table>

Managed Flights’ LF should be approx. 90%

Posted Flights’ LF should be approx. 95%

Lead Consultant:
Dr. Emre Serpen
THE NEED
In 2005 Copa Airlines had grown to a size and network complexity where they needed a sophisticated revenue management system to manage the diverse markets and mix of local and connecting traffic. The airline was unfamiliar with the science behind the various systems and needed guidance in selecting a solution that would address their needs.

THE SOLUTION
Inter V/STAS performed a requirements analysis study to define the airline’s critical RM needs from which an RFI and RFP where developed and distributed to the prospective vendors. Inter V/STAS coordinated evaluation of the vendor responses leading to a sound system recommendation. Inter V/STAS applied its revenue management simulation model to demonstrate the value of increased forecast accuracy and provide the justification for the system investment. Additionally, Inter V/STAS identified a number of opportunities for process and policy improvements necessary to maximize system benefits and provided a comprehensive revenue management concept training program to better focus the efforts of the RM controllers.

THE RESULT
As a result of the study, Copa Airlines selected and implemented a sophisticated revenue management system that recovered its costs within the first three months of implementation and contributed substantially to the airline’s ability to maintain a yield premium versus their competitors.
Cost savings thru improving distribution Mix

Key Steps

1. Determine the current channel mix, identify distribution processes, revenue and cost by channel, and find improvement opportunity

2. Develop future distribution channel mix including specific processes, costs, and margins

3. Reduce distribution costs

4. Review channel mix
   1. current distribution channel mix, segments,
   2. unit revenues, unit costs per channel,
   3. including benchmarking GDS fares,
   4. particular high yield segments, first and business class sales

5. Channels to include Travel Agency/GDS, ATO/CTO, online corporate, call centre, website
Distribution cost reduction

Realizing the vision together

Source: Intervistas Analysis
Oman Air: Distribution Strategy

THE NEED

Description: Oman Air wanted to improve its distribution cost structure and take advantage of direct distribution as well as achieving better reach to high yield business passengers. Team led by Dr. Emre Serpen developed a distribution strategy executing following project activities:

- Interviews and information capture on channels, segments per channel, unit revenues and costs per channel
- Develop ‘as is’ distribution mix where segments per channel, and channel costs are identified
- Review distribution industry best practices
- Develop ‘to be’ distribution mix expanding share of direct distribution and other measures
- Develop financial model identifying the benefits of the new distribution mix where the distribution costs are reduced and access to high yield customers is improved
- Benchmark ancillary revenues and develop ancillary revenue improvement strategy
- Define specific projects and implementation plan for execution of the proposed distribution strategy

THE RESULT

Distribution strategy was approved and currently being implemented by Oman Air. Project identified significant opportunities for reduction of distribution costs.

Lead Consultant:
Dr. Emre Serpen
Crew Optimisation Approach to Improve Cockpit and Cabin Crew Productivity and Cost Reduction

Crew Planning and Scheduling

- **Schedule Development**
- **Annual Training / Manpower Plan**
  - Optimization
  - New bases
  - Split Pairings
- **Pairings (Navitaire)**
- **Pre-plot Training & Vacations**
  - Proactive reserve coverage
- **PrefBid (Awards)**
- **Manage Reserve Days**
- **Crew Bidding**
- **Receive Awards**
- **Operate Flights**
- **Daily Trip Coverage**
- **Crew Tracking (Manage Operation)**

Legend:
- = Crew Mgmt Process
- = External Process
- = Savings Opportunity

Days to Departure:
- 365
- 90
- 30
- 20
- 15
- 10
- 1
- 0
- +1
Cost reduction thru operations planning – reduce crew costs

Key Steps

1. Alignment of the operational activities support business model changes – Review cost structure, assess changes to the operational costs, productivity improvements
2. Determine improvements in performance targets to support the business model changes
3. Determine target CASK to support business model
4. Review current cost structure, direct and indirect
5. Direct costs include
   1. Fuel, MRO, Ground Handling, Catering,
6. Determine initiatives for productivity improvement and unit cost reduction to meet target CASK
7. Alignment of the operational activities support business model changes- Crew and integrated operations control improvements
8. Alignment of organisation and performance measures
9. Projects and initiatives for reduction of operational costs and improvements in productivity This will include major cost items such as Fleet (Utilisation), maintenance, crew, ground handling costs, overheads and other areas
## Example: Crew Manpower Plan

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<th>Crew Demand</th>
<th>Dec-10</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
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<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<td>5205</td>
<td>5225</td>
<td>5924</td>
<td>6278</td>
<td>6121</td>
<td>6368</td>
<td>6234</td>
<td>6302</td>
<td>6279</td>
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<td>Pay &amp; Credit Percentage</td>
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<tr>
<td>Crew Utilization (per line)</td>
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</tr>
<tr>
<td>Crew Required: Scheduled Flying</td>
<td>64.6</td>
<td></td>
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<tr>
<td>Crew Required: Reserves for IrOps</td>
<td>6.3</td>
<td></td>
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<tr>
<td>Sick Leave</td>
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<td>4.4</td>
</tr>
<tr>
<td>Extended sick</td>
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<td>1.0</td>
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<tr>
<td>Vacation--Committed</td>
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<td>5.4</td>
</tr>
<tr>
<td>Vacation for new captains</td>
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<td>0.0</td>
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<tr>
<td>Recurrent Training</td>
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<td></td>
<td>4.4</td>
</tr>
<tr>
<td>Miscellaneous Absence</td>
<td></td>
<td></td>
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<td></td>
<td>1.0</td>
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<tr>
<td>Crew Required: Total</td>
<td></td>
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<td></td>
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<td></td>
<td>87.1</td>
</tr>
</tbody>
</table>

| Crew Availability | | | | | | | | | | | | | |
| Initial Headcount | 110.0 | | | | | | | | | | | | |
| New Hire Captains (qualified) | 0.0 | | | | | | | | | | | | |
| New Upgrade Captains (qualified) | 5.0 | | | | | | | | | | | | |
| Attrition | 0.6 | | | | | | | | | | | | |
| Revised Headcount | 110.0 | 114.5 | | | | | | | | | | | |

| Training Captains | | | | | | | | | | | | | |
| Trainer (simulator, line check) | 1.8 | | | | | | | | | | | | |
| Line Captain covered by FO IOE | 0.0 | 0.0 | | | | | | | | | | | |
| Displaced Captains from FO IOE | 0.0 | 0.0 | | | | | | | | | | | |
| Line FO covered by Captain IOE | 2.5 | 5.0 | | | | | | | | | | | |
| Management Pilots | 3.0 | | | | | | | | | | | | |
| Total Training Captain FTE's | 2.5 | 9.8 | | | | | | | | | | | |
| Adjustment: Training Capt. As Capt | 0.0 | 0.0 | | | | | | | | | | | |
| Headcount Available (for line duty) | 107.5 | 104.6 | | | | | | | | | | | |

| Surplus / Shortfall | 17.5 | | | | | | | | | | | | |

| Hard Hours per Line Crewmember | 43.6 | | | | | | | | | | | | |
| Crews / Aircraft | | | | | | | | | | | | | 5.8 |
| Number of Aircraft | 20 | | | | | | | | | | | | |
40 million USD benefits through better operational planning

THE NEED
Client saw an opportunity gain efficiencies through restructuring its airline operations management, including production planning. Emre Serpen and team of consultants (in a previous role) were engaged to lead the project.

THE SOLUTION
Emre Serpen’s team examined the prevailing crew resource, maintenance and engineering management. A new process and procedural model was developed which the team then helped to implement. Job specifications were devised and assistance given with staff selection and appointments. Human resource capability was expanded. Training and coaching was given to support the model.

THE RESULT
Following implementation of the recommendations, client achieved an average of a 10% increase in productivity across key resources.
## Typical IOC Program Overview to Reduce Costs, Protect Revenue and Customer Service

### Diagnostic and new IOC vision
- Review of the Business Strategy
- Collect and review existing information
- Diagnostic review of the current Hub/Operations Control and Systems
- Industry best practices and OCC benchmarking

### Future Blueprint Including
- Proposed concepts, analysis and recommendation
- Functional representation and key processes, Organisation, layout
- Information requirements
- Benefits Case
- Implementation Plan

### Process and organization change implementation
- Develop and implement processes complementing selected system solution
- Co-location of new functions in OCC
- Develop and implement organisation and job specifications
- Develop and implement key performance measures
- Staff selection, development centre appointments and implementation of the organization
- Change management and communications program
- Training and support
- Program Management

### IOC Systems implementation
- Systems integration plan and interfaces
- Preparation of RFI
- Development of the technical specification and RFP
- Evaluation of bids and recommendation
- Negotiation Support
- Process mapping and description of systems configuration
- Map interfaces and define information flow
- Coordinate support for the development of facility, and infrastructure
- Program Monitoring
Calculation of Costs and Lost Revenue Driven by Sub-optimal Operations Control Decisions

- Overlap in roles and responsibilities
- Communications
- Lack of early, relevant data
- Limited collective understanding

11 identified incidents in 8 months resulting in:

- 6500 Delay minutes
- 4300 affected passengers
- over $1.5 million cash outlay
- over 150 written complaints

<table>
<thead>
<tr>
<th>Incident</th>
<th>Total length of delay (mins)</th>
<th>% recoverable from IOC</th>
<th>Delay minutes recoverable (IOC)</th>
<th>No. of pax affected</th>
<th>Disruption costs Cash outlay</th>
<th>% recoverable from IOC</th>
<th>Disruption costs recoverable (IOC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>880 / 10</td>
<td>6</td>
<td>152</td>
<td>100%</td>
<td>152</td>
<td>693</td>
<td>100%</td>
<td>56,550</td>
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<tr>
<td>888 / 10</td>
<td>6</td>
<td>99</td>
<td>100%</td>
<td>99</td>
<td>716</td>
<td>100%</td>
<td>38,688</td>
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<td>251 / 06</td>
<td>6</td>
<td>925</td>
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<td>0</td>
<td>480</td>
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<td>264,000</td>
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<tr>
<td>289 / 15</td>
<td>6</td>
<td>171</td>
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<td>0</td>
<td>248</td>
<td>0%</td>
<td>144,742</td>
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<tr>
<td>400 / 23</td>
<td>7</td>
<td>461</td>
<td>30%</td>
<td>138</td>
<td>1,044</td>
<td>100%</td>
<td>120,744</td>
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<tr>
<td>767 / 27</td>
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<td>851</td>
<td>30%</td>
<td>255</td>
<td>395</td>
<td>100%</td>
<td>6,600</td>
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<tr>
<td>103 / 01</td>
<td>7</td>
<td>1,640</td>
<td>100%</td>
<td>1640</td>
<td>469</td>
<td>100%</td>
<td>610,000</td>
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<tr>
<td>719 / 04</td>
<td>7</td>
<td>315</td>
<td>30%</td>
<td>95</td>
<td>457</td>
<td>0%</td>
<td>7,780</td>
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<tr>
<td>508 / 04 /</td>
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<td></td>
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<td>0%</td>
<td>0</td>
</tr>
<tr>
<td>2468 / 0</td>
<td>97</td>
<td>575</td>
<td>100%</td>
<td>575</td>
<td>248</td>
<td>100%</td>
<td>2,360</td>
</tr>
<tr>
<td>007 / 29</td>
<td>6</td>
<td>1,259</td>
<td>100%</td>
<td>1259</td>
<td>-</td>
<td>100%</td>
<td>298,900</td>
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<tr>
<td>Total</td>
<td>6,448</td>
<td></td>
<td>4,213</td>
<td>4,750</td>
<td>1,550,364</td>
<td></td>
<td>1,391,242</td>
</tr>
</tbody>
</table>
Realizing the vision together

OCC has good functionality and an operationally sound design. The physical structure of the building presents many limitations, however. This emphasizes the importance of ensuring that an appropriately sized facility is secured, with the proper dimension to facilitate a proper layout from conceptualisation.

**Strengths**
- Cost-effective
- Good cross-functional coordination
- Focus on passengers and service

**Weaknesses**
- Long, thin room limits communications
- Operational responsibility spread across multiple buildings

---

**The Core IOC Team**

<table>
<thead>
<tr>
<th>Station Control</th>
<th>IOC Duty Manager</th>
<th>IOC Controller A</th>
<th>Maintenance Control A</th>
<th>Maintenance Control B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spare</td>
<td>IOC Controller B</td>
<td>Crew Controller</td>
<td>Maintenance Planning A</td>
<td>Maintenance Planning B</td>
</tr>
</tbody>
</table>

---

**Strengths**
- Good cross-functional coordination
- Focus on passengers and service

**Weaknesses**
- Long, thin room limits communications
- Operational responsibility spread across multiple buildings
Effective integration of the commercial and maintenance plan processes drive the greatest downstream improvement value

- M&E considerations in the design of the schedule, selection of fleet, heavy and line maintenance centres

- Determine heavy check strategy and location
- Determine line maintenance strategy
- Determination of maintenance costs
- Schedule design to be optimised for maintenance costs

- Value lost in commercial and Maintenance Activity coordination

- Cross-functional Production planning
- Team to have both Network and maintenance Representation
- Regular meetings and forward management of the plan and changes

- Value lost in ineffective Representation of Maintenance Control Activity in day-to-day operations control locations

- Colocate MCC in OCC
- Design of KPIs avoid
- 'Delay code' problem
- Savings in delay minutes due increased
- Stability of aircraft allocations
- Improvement action (e.g., colocate MCC with OCC)
- Benefit is gained efficiency due to better coordination

Expected Savings (e.g., one A-check per aircraft per year)

Expected savings in man hour cost: 450 man hours per A-check * 50 USD per hour = $22,500 saving per A-check

Expected savings in material cost 3000 USD per material costs per A-check

Total savings, 25,500 per A-check

Prorate to total fleet for 100 fleet airline, 2.5 million saving impact on the bottom line
Reduce Line Maintenance Costs and Improve Productivity

1. **Selection of Line Maintenance Bases:**
   Line maintenance base should considered against the schedule to minimise costs

2. **Maintenance Program:**
   Ensure the transit checks and overnight checks are performed in compliance with program

3. **Planning:**
   Carefully manage maintenance yield of Line checks –

4. **Shift Optimization:**
   Staff according to aircraft maintenance demand –

5. **Material Kitting:**
   Prepare Line Check kits consisting of all material (rotables and consumables) required to perform their jobs efficiently

6. **Outstation Contracts:**
   Pro-actively negotiate and establish on-call contracts for low traffic cities

7. **Insource Contracts:**
   Become the dominant supplier of Line Maintenance services in your hub cities

<table>
<thead>
<tr>
<th>Airline Staffing Comparison</th>
<th>OA1</th>
<th>OA2</th>
<th>OA3</th>
<th>OA4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Staffing in Technical Dept</td>
<td>160</td>
<td>123</td>
<td>93</td>
<td>126</td>
</tr>
<tr>
<td>Direct Staffing (Technicians)</td>
<td>88</td>
<td>84</td>
<td>70</td>
<td>74</td>
</tr>
<tr>
<td>% Of Direct Staff</td>
<td>55%</td>
<td>68%</td>
<td>75%</td>
<td>59%</td>
</tr>
<tr>
<td>% of Indirect Staff (Overhead)</td>
<td>45%</td>
<td>32%</td>
<td>25%</td>
<td>41%</td>
</tr>
<tr>
<td>Number of Aircraft</td>
<td>12</td>
<td>22</td>
<td>17</td>
<td>36</td>
</tr>
<tr>
<td>Ratio Technicians/Aircraft</td>
<td>7.3</td>
<td>3.8</td>
<td>4.1</td>
<td>2.1</td>
</tr>
<tr>
<td>Ratio Total Staffing/Aircraft</td>
<td>13.3</td>
<td>5.6</td>
<td>5.5</td>
<td>3.5</td>
</tr>
</tbody>
</table>

Source: InterVISTAS Knowledge Base
Extensive MRO specific data, processes
Realizing the vision together

**THE NEED**

- Extensive participation including 120+ management and mobilization days including 3500+ Turkish Technic staff
- Diagnostic Assessment, Benchmarking, Design of Processes, Organization, Job Specifications, Performance Measures recommendations implemented with successful results
- Customer Service processes and organisation
- Development of Long term maintenance plan
- Supply Chain is driven by material forecasts as defined in long term maintenance plan rather than previous years usage
- Acceptance of accountability by Body, Engine Shop, Component Shops to develop their own short term production plans with delivery accountability
- Engineering spending more time at the shop floor, with engineers gaining practical experience and contributing their engineering knowledge
- Increased productivity Turkish Technic is supporting 100 aircraft with the same workforce (20+ Aircraft) and with significantly increased third party revenues
- Implementation of performance measures

**THE RESULT**

- Improved engine TAT
- Widebody improved utilisation
- Narrowbody improved utilisation
- Volume discounts
- Labour productivity

**Lead Consultant:**

Dr. Emre Serpen

**labour productivity**

**volume discounts**

**narrowbody improved utilisation**

**widebody improved utilisation**

**Improved engine TAT**
Cargo Revenue Growth, Belly and Freighter Revenue Improvement and Cost Reduction

- Benchmark Diagnostic
- Market/Competitive Analysis
- Improvement Targets/Actions
- Business Plan: select profitable and achievable strategy
- Market Growth
  - Competitor Activity
  - Fleet Growth / LF improvement
- Market share (G/S) Supporting growth strategy (LF/WBN/FN)
- Freighter Scenarios (N/R/F)
- Belly & Freighter Revenues
- Belly & Freighter Costs
- Transformation Plan

Task 1

Task 2

Task 3

Task 4
## Improving Cargo Profitability

### Route Revenue and Cost Airbus A330 Freighter

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Operating Revenues</th>
<th>Scheduled Full Freighter Revenue</th>
<th>Cargo Charter Revenue</th>
<th>Other Revenue</th>
<th>Passenger (belly) Revenue</th>
<th>Total Revenue CGK-HKG (V.V.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>-</td>
<td>6,879,467</td>
<td>-</td>
<td>-</td>
<td>4,009,805</td>
<td>10,889,272</td>
</tr>
<tr>
<td>2013</td>
<td>-</td>
<td>6,879,467</td>
<td>-</td>
<td>-</td>
<td>4,121,705</td>
<td>11,001,173</td>
</tr>
<tr>
<td>2014</td>
<td>-</td>
<td>10,319,201</td>
<td>-</td>
<td>-</td>
<td>4,233,606</td>
<td>14,552,807</td>
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<tr>
<td>2015</td>
<td>-</td>
<td>10,319,201</td>
<td>-</td>
<td>-</td>
<td>4,345,506</td>
<td>14,664,707</td>
</tr>
<tr>
<td>2016</td>
<td>-</td>
<td>10,319,201</td>
<td>-</td>
<td>-</td>
<td>4,469,619</td>
<td>14,788,820</td>
</tr>
</tbody>
</table>

### Direct Operating Cost (Including Ownership)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cockpit Crew</td>
<td>-</td>
<td>4,872,671</td>
<td>4,872,671</td>
<td>7,309,006</td>
<td>7,309,006</td>
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<tr>
<td>Maintenance</td>
<td>-</td>
<td>584,721</td>
<td>584,721</td>
<td>877,081</td>
<td>877,081</td>
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<tr>
<td>Depreciation</td>
<td>-</td>
<td>1,533,989</td>
<td>1,533,989</td>
<td>2,300,983</td>
<td>2,300,983</td>
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<tr>
<td>Insurance</td>
<td>-</td>
<td>63,916</td>
<td>63,916</td>
<td>95,874</td>
<td>95,874</td>
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<td>ATC/LDG charges</td>
<td>-</td>
<td>608,920</td>
<td>608,920</td>
<td>913,379</td>
<td>913,379</td>
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<tr>
<td>Sales Commission</td>
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<td>93,054</td>
<td>93,054</td>
<td>139,581</td>
<td>139,581</td>
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<tr>
<td>Total Direct Operating Cost</td>
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<td>6,553,578</td>
<td>6,553,578</td>
<td>9,830,367</td>
<td>9,830,367</td>
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<tr>
<td>Total Indirect Operating Cost</td>
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<td>1,690,959</td>
<td>1,690,959</td>
<td>2,536,438</td>
<td>2,536,438</td>
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<tr>
<td>Total Full Freighter Operating Cost</td>
<td>-</td>
<td>8,244,537</td>
<td>8,244,537</td>
<td>12,366,805</td>
<td>12,366,805</td>
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</table>

### Profit (Loss US$)

<table>
<thead>
<tr>
<th>Year</th>
<th>Profit Margin</th>
</tr>
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<tbody>
<tr>
<td>2012</td>
<td>-34%</td>
</tr>
<tr>
<td>2013</td>
<td>-25%</td>
</tr>
<tr>
<td>2014</td>
<td>-25%</td>
</tr>
<tr>
<td>2015</td>
<td>-24%</td>
</tr>
<tr>
<td>2016</td>
<td>-24%</td>
</tr>
</tbody>
</table>

### Profit Margin Freighter

<table>
<thead>
<tr>
<th>Year</th>
<th>Profit Margin</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>-19.8%</td>
</tr>
<tr>
<td>2013</td>
<td>-19.8%</td>
</tr>
<tr>
<td>2014</td>
<td>-19.8%</td>
</tr>
<tr>
<td>2015</td>
<td>-19.8%</td>
</tr>
<tr>
<td>2016</td>
<td>-19.8%</td>
</tr>
</tbody>
</table>
Proprietary analysis tools

### Example: Project Approach
- **Diagnostic**
- **Commercial Operational Improvements**
- **Market Analysis & Forecasting**
- **Route/Fleet Selection**
- **Business & Implementation Plan**
- **Diagnostic Benchmarking**
- **Improvement opportunities**
- **Quick hits**

### Example: Route Analysis
- **SAR (Millions)**
- **Baseline**
- **Year 1**
- **Year 2**
- **Year 3**
- **Year 4**
- **Year 5**
- **Year 6**
- **Year 7**

### Example: Freighter and Belly Business Plan

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Operating Revenues (Net)</th>
<th>Total Cargo Scheduled Revenue</th>
<th>Cargo Charter Revenue</th>
<th>Other Revenue</th>
<th>Total Revenue</th>
<th>Aircraft &amp; Other Lease Costs (incl. Ownership)</th>
<th>Flight Crew Employment Cost</th>
<th>Fuel</th>
<th>Direct Maintenance</th>
<th>Landing Fees</th>
<th>Overflight</th>
<th>Aircraft, Engines &amp; Components Depreciation</th>
<th>Insurance</th>
<th>Passenger Operating Costs</th>
<th>Charter Operating Costs</th>
<th>Total Aircraft &amp; Other Lease Costs</th>
<th>Total Indirect Operating Costs</th>
<th>Total Operating Costs</th>
<th>Operating Metrics</th>
<th>Comparative Metrics</th>
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</thead>
<tbody>
<tr>
<td>2006</td>
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<td>2009</td>
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<td>2010</td>
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### Example: Diagnostic Analysis
- **Belly/main deck revenue analysis to aid forecast:**
  - Variable load capacity of aircraft types
  - Drill down analysis, e.g. network strength, directionality...

- **Fuel cost apportionments:**
  - payload
  - flight profile
  - taxiing

- **Cost attribution, e.g. trucking costs to be recovered against (AMS) European routes**

- **Station performance can be masked by currency P$x changes**

### Example: Freighter and Belly for illustration

- Illustrates various metrics and financials for the years 2006 to 2013.
### Strategy and Finance

**Strategy** – Develop strategy, feasibility studies and business planning
- Market Forecasting (Airline, Airport, MRO, Cargo)
- Start up Airline and MRO feasibility and business plan
- Mergers and acquisitions planning
- Product strategy

**Network and Fleet Planning** – Develop and optimise airline network and route plans
- Route Planning and Schedule Development, Alliances
- Hub design and optimization, slot remarketing
- Fleet planning, Aircraft leasing and remarketing

**Financial Services** – Evaluate airline investment opportunities
- Due diligence (Airline, Airport, MRO, Cargo, GH)
- Privatization and spin-off and financing of Airline, MRO, Pilot School, GH, Cargo

**IT Strategy** – Assess IT strategy and infrastructure
- Information systems and corporate data warehouse
- Passenger service systems and distribution

### Performance Improvement

**Commercial Improvement** – Airline Revenue Improvement
- Pricing and Revenue Management
- Marketing, Sales and Distribution
- Technology solutions supporting revenue growth
- Product, Customer Service, CRM

**Operations Improvement** – Airline Productivity Improvement and Cost Reduction
- Diagnostic and Cost reduction
- MRO productivity improvement
- Crew Resource Management
- Integrated Operations Control

**Restructuring & Change Management** – Airline Transformation and Turnaround
- Restructuring (Airline, MRO, Cargo, Aerospace)
- Start up Implementation
- Performance management
- Organisation improvement and change management.

**IT Implementation** – Project Management
- IT project management, Systems Integration
- Supplier negotiation and implementation management
Delivering financial improvements through revenue growth and cost reduction for 70+ airlines

<table>
<thead>
<tr>
<th>Company</th>
<th>Achievements</th>
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<tr>
<td><strong>Turkish Airlines</strong></td>
<td>✓ Market evaluation, capacity assessment, SWOT analysis</td>
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<td>✓ 2016 and 2012 network design, hub design, and schedule</td>
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<td>✓ Business plan associated with the strategy</td>
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<td>Lead Consultant: Dr. Emre Serpen</td>
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<td><strong>South African Airways</strong></td>
<td>✓ Marker assessment</td>
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<td>✓ Strategy for maximizing share in Africa</td>
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<td>✓ Selection of hub locations in west and central Africa</td>
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<td>✓ Network design and fleet plan</td>
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<td>✓ Business plan</td>
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<td>Lead Consultant: Dr. Emre Serpen</td>
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<td><strong>Temasek (SQ)</strong></td>
<td>✓ SWOT analysis of Singapore Airlines</td>
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<td>✓ Market forecasting</td>
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<td>✓ Identify growth opportunities</td>
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<td>✓ Develop strategy for medium and long haul network and fleet</td>
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<td><strong>Malaysian Airlines</strong></td>
<td>✓ Evaluated the feasibility of a premium service in conjunction with another airline</td>
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<td>✓ Market Forecasting</td>
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<td>✓ Route Design</td>
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<td>✓ Commercial Workshops</td>
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<td>✓ Joint Venture/Codeshare Benefits</td>
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<td>Lead Consultant: Dr. Emre Serpen</td>
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<td><strong>EgyptAir</strong></td>
<td>✓ Company-wide strategy and turnaround</td>
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<td>✓ Development of network, Cairo hub, and schedules</td>
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<td>✓ Improvements in sales, marketing, organization, IT</td>
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<td>✓ Fleet &amp; Business Plan</td>
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<td>Lead Consultant: Dr. Emre Serpen</td>
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<td><strong>LOT Polish Airlines</strong></td>
<td>✓ Multiple network optimisation projects</td>
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<td>✓ Alliance strategy analysis and decision for LOT to joined Star Alliance</td>
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<td>✓ Develop Asian strategy and network for LOT</td>
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<td>✓ Evaluate joint venture with Indian partner</td>
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<td>Lead Consultant: Dr. Emre Serpen</td>
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Executive Vice President, Head of Airline Practice
• 20+ years, 70+ airlines in 50+ countries
Our delivery team include experts from leading airlines and aviation consultancies worldwide.
Thank You

Please contact Emre Serpen for queries

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