FLEET PLANNING
& ANALYSIS FRAMEWORK TOOLS

RELIES ON:

- TRAFFIC FORECAST
- MARKET SHARE ESTIMATES
- REVENUE ESTIMATES
- OPERATING COSTS ESTIMATES (FLEET COMMONALITY BENEFITS)
- YIELD ESTIMATES

IMPACTS ON:

- ASK
- NETWORK EXPANSION POSSIBILITIES
- CASH FLOW & OVERALL FINANCIAL HEALTH

THE AIRCRAFT SELECTION CRITERIA

1. **TECHNICAL CRITERIA:** PAYLOAD RANGE
2. **FINANCIAL CRITERIA:** INVESTMENT FUNDS
3. **ENVIRONMENTAL CRITERIA:** REGULATORY & POLITICAL ENVIRONMENT
4. **DELIVERY TIME ESTIMATE:** SCENARIO PLANNING

HELPFUL ANALYSIS TOOLS:

GLOBAL & MAIN O&D MARKETS RISK ANALYSIS & MONITORING

DEMAND DRIVER DATA MONITORING

SCENARIO PLANNING FOR LONG-TERM UNCERTAINTIES

SOURCE: BELOBABA, 2015

NETWORK PLANNING
& ANALYSIS FRAMEWORK TOOLS

ROUTE PLANNING

CONSIDERATIONS:

- FLEET CONSTRAINTS
- AIRPORT CONSTRAINTS
- REGULATORY CONSTRAINTS
- DEMAND & LATENT DEMAND

ANALYZES:

- ECONOMIC ENVIRONMENT
- GEOPOLITICAL & POLITICAL ENVIRONMENT
- COMPETITIVE LANDSCAPE
- FINANCIAL EVALUATION OF NEW ROUTE

ROUTE EVALUATION

STEPS:

1. **ESTIMATE: DEMAND & MARKET SHARE**
   DETERMINE: STAGE LENGTH , AIRCRAFT (ASK) & BLOCK HOURS
2. **CALCULATE COSTS (FLEET DRIVEN)**
   AOC PER BLOCK HOUR
   IOC PER RPK/DEPARTUE/ASK...
3. **ESTIMATE REVENUE (O&D DRIVEN):**
   AVERAGE FARE, LOCAL REVENUE & NETWORK CONTRIBUTION
4. **ESTIMATE PROFIT & OPERATING MARGINS**

HELPFUL ANALYSIS TOOLS:

DEMAND DRIVERS
MARKET PRIORIZATION
RISK ANALYSIS
MARKET PROFITABILITY

SOURCE: BELOBABA, 2015

SCHEDULE PLANNING
& ANALYSIS FRAMEWORK TOOLS

FREQUENCIES

DEPENDS ON:

- DEMAND SEGMENTATION & EACH'S PREFERENCES
- MARKET SHARE ESTIMATION
- FORECASTED LOAD

TIMETABLE

DEPENDS ON:

- DEMAND SEGMENTATION & EACH'S PREFERENCES FOR PEAK TIME
- AIRPORT & STAFF CONSTRAINTS (CONNECTING BANK TIMES, SLOTS & GATE AVAILABILITY, CREW SCHEDULING
- MAINTENANCE REQUIREMENTS)

FLEET ASSIGNMENT

DEPENDS ON:

- TOTAL DEMAND X CAPACITY ON ROUTE X GENERATED SPILL COST
- SPILL ANALYSIS MAY CALL FOR DIFFERENT CABIN CONFIGURATION; INCREASED FREQUENCY OR BIGGER AIRCRAFT ON SELECTED ROUTES

HELPFUL ANALYSIS TOOLS:

DEMAND DRIVERS
CONSUMER ANALYSIS
COMPETITIVE LANDSCAPE

SOURCE: BELOBABA, 2015

AIRLINE COST STRUCTURE

& COST ESCAPABILITY CONCEPT

CAPACITY & CASK OUTPUT

DEMAND & REVENUE STIMULATION

FLEET | **NETWORK** | **SCHEDULE** | **PRICING** | **REVENUE MANAGEMENT**

- FREQUENCY
- TIMETABLE
- FLEET ASSIGNMENT
- AIRCRAFT ROTATION

LONG-TERM ⟷ **SHORT-TERM**

= LEADS TO CASK, RASK & LOAD FACTOR

CASK & COST ESCAPABILITY

FLIGHT/ SCHEDULE RELATED & SHORT TO MEDIUM-TERM ESCABABLE

FLEET RELATED & MEDIUM-TERM ESCABABLE

NETWORK SIZE & SERVICE RELATED & MEDIUM TO LONG- TERM ESCABABLE

DIRECT OPERATING COSTS	
VARIABLE DOC	**FIXED/STANDING DOC**
FUEL	AIRCRAFT STANDING CHARGES
VARIABLE FLIGHT CREW COSTS	ANNUAL FLIGHT CREW COSTS
VARIABLE CABIN CREW COSTS	ANNUAL CABING CREW COSTS
DIRECT ENGINEERING COSTS	ENGINEERING OVERHEADS
AIRPORT & EN-ROUTE CHARGES	
PAX SERVICE COSTS	
INDIRECT OPERATING COSTS	
STATION & GROUND EXPENSES	
PAX SERVICES STAFF & PAX INSURANCE	
TICKETING, SALES & COMMUNICATION	
GENERAL & ADMINISTRATIVE COSTS	

SOURCE: DOGANIS, 2019

DEMAND DRIVERS

& FLEET, ROUTE AND SCHEDULE PLANNING

TIES BETWEEN TWO O&D + GDP & LEVEL OF AIR FARES

LEISURE DEMAND

- HOUSEHOLD DISPOSABLE INCOME
- LOCAL TOURISM INVESTMENTS
- HOTEL INFRASTRUCTURE
- HOTEL CAPACITY
- LOCAL EVENTS

VFR DEMAND

- # OF EXPATS
- # OF IMMIGRANTS
- IMMIGRATION POLICY
- HISTORICAL & CULTURAL TIES

BUSINESS DEMAND

- INTERNATIONAL TRADE
- FDI INVESTMENTS
- # OF MULTINATIONAL COMPANIES
- FINANCIAL, POLITICAL & CORPORATE CENTERS

PRICE-SENSITIVITY — **SUB-SEGMENTS ESTIMATIONS** — TIME-SENSITIVITY

EFFECTIVELY MANAGE SPILL ESTIMATIONS & ASSIGN ADEQUATE FLEET TO AVOID OVER-CAPACITY ON ROUTE

MARKET PRIORITIZATION & NEW ROUTE PLANNING

1. **LIST OF ALL RELEVANT INDICATORS & DATA COLLECTION:** IMPORTANT DATA THAT CAN INDICATE ATTRACTIVENESS OF A MARKET CAN BE GROUPED (SUCH AS DEMAND DRIVERS FOR LEISURE TRAVEL)

2. **AGGREGATE REGION AND/OR CITY-PAIR PERFORMANCE INDEX GENERATION:** A PERFORMANCE KEY IS CALCULATED BY AVERAGING AN INDICATOR'S DATA AMONG DESTINATIONS (SANS OUTLIERS).

3. **DATA ANALYSIS:** ONCE PERFORMANCE KEYS ARE SET, ONE SHOULD ANALYZE EACH INDICATOR TO SPOT WHERE THE BIGGEST OPPORTUNITIES & CONSTRAINTS LIE WITHIN EACH MARKET

4. **PROFITABILITY GOAL:** IF A TOP-DOWN APPROACH IS USED AND THERE IS A SET PROFITABILITY GOAL FOR THE NETWORK OR A REGION, A COST ESTIMATION CAN BE ADDED TO EVALUATE THE PROFIT POTENTIAL OF EACH MARKET

WEIGHT	3	2	2	1	3	1	3	3	3	3	2	-
DESTINATIONS	LEISURE DEMAND	BUSINESS DEMAND	VFR DEMAND	CARGO DEMAND	TOTAL RPK	OTHER TRANSPORT MODES	ASK	LF	AVG FARES	REGULATIONS	AIRPORT CONSTRAINTS	FINAL INDEX
SOUTH AFRICA												
SEYCHELLES												
ETHIOPIA												
MORROCOS												
EGYPT												
NIGERIA												

EXAMPLE OF FINAL CITY-PAIR PRIORIZATION ANALYSIS

PERFORMANCE INDEX KEY

HIGH PERFORMERS

= OR ABOVE AVG

= OR BELOW AVG

LOW PERFORMERS

MARKET PRIORITIZATION INDICATORS

LEISURE DEMAND

- HOUSEHOLD DISPOSABLE INCOME
- LOCAL TOURISM INVESTMENTS
- HOTEL INFRASTRUCTURE
- HOTEL CAPACITY
- LOCAL EVENTS

BUSINESS DEMAND

- INTERNATIONAL TRADE
- FDI INVESTMENTS
- # OF MULTINATIONAL COMPANIES
- FINANCIAL, POLITICAL & CORPORATE CENTERS

VFR DEMAND

- # OF EXPATS
- # OF IMMIGRANTS
- IMMIGRATION POLICY
- HISTORICAL & CULTURAL TIES

CARGO DEMAND

- INTERNATIONAL TRADE DATA;
- % OF TRADE THAT ARE TIME-SENSITIVE PRODUCTS

ECONOMY

- GDP
- DISPOSABLE INCOME
- INFLATION
- UNEMPLOYMENT RATE
- EXCHANGE RATE

REGULATION

- LEVEL OF BILATERAL OPENNESS
- ENVIRONMENTAL CONSTRAINTS

ALT. TRANSPORT

- ALTERNATIVE TRANSPORT MODES INFRASTRUCTURE LEVEL
- ALTERNATIVE TRANSPORT MODE TRAFFIC
- ALTERNATIVE TRANSPORT MODE SERVICE PROVIDERS

COMPETITION

- AVERAGE FARE FOR SAME SERVICE TYPE (NON-STOP; ONE STOP)
- TOTAL FLIGHT TIME
- # OF AIRLINES OPERATING ROUTE BY SERVICE TYPE
- CABINS OFFERED

CAPACITY

- TOTAL ASK ON ROUTE
- FLIGHT FREQUENCIES

COST ESTIMATION

- DIRECT VARIABLE OPERATING COSTS ESTIMATION

AIRPORT INFR.

- CONNECTIVITY LEVEL
- SLOT AVAILABILITY
- AIRPORT FEES
- RWY RESTRICTIONS (MTOW)

RISK ANALYSIS
& FLEET AND NETWORK PLANNING

IDENTIFICATION & ESTIMATION OF PROBABILITY AND IMPACT EXTERNAL EVENTS COULD HAVE ON DEMAND ON A GLOBAL & LOCAL LEVEL.

GLOBAL

- USUALLY KNOWN LIST OF EVENTS THAT HIGHLY IMPACT TOTAL AIR TRAVEL DEMAND - SUCH AS GLOBAL RECESSION

LOCAL

- EVALUATION OF LOCAL EVENTS THAT COULD IMPACT DEMAND - SUCH AS POLITICAL UNREST AND WARS

MONITORING OF PARAMETERS FOR EACH RELEVANT RISK TO GUIDE THE DECISION-MAKING PROCESS DURING NETWORK AND FLEET PLANNING.

MARKET PROFITABILITY

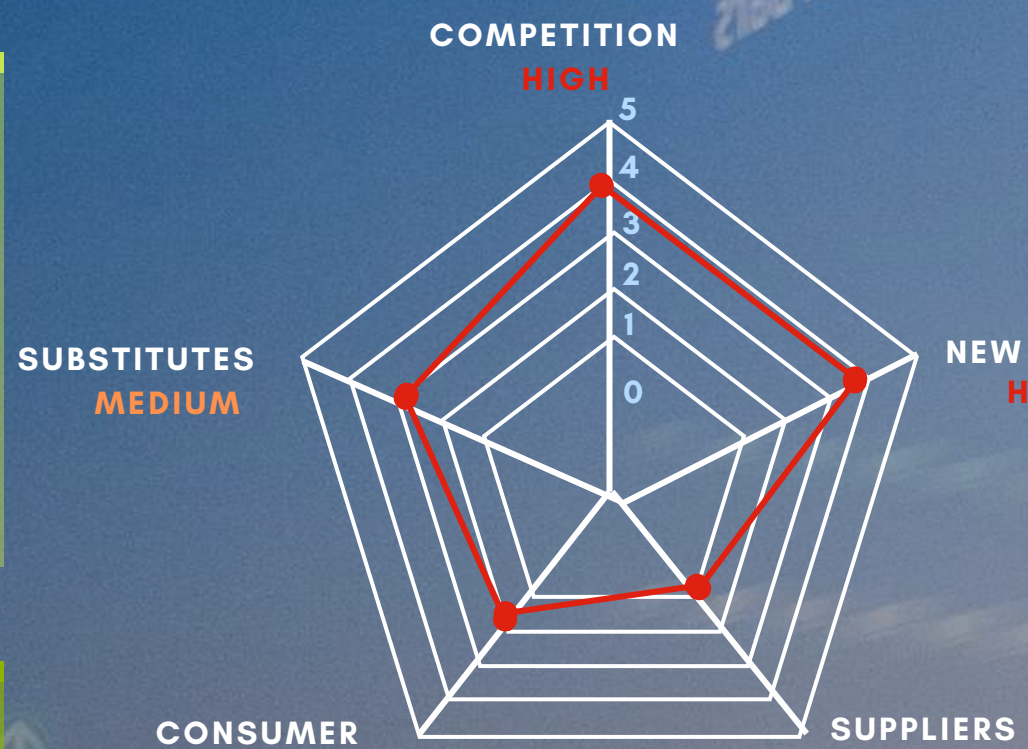
& COMPETITIVE LANDSCAPE ANALYSIS

COMPETITION

- SERVICE TYPES OFFERED (NON-STOP; ONE-STOP; MULTI-STOP)
- PRICE RANGES
- CABIN SERVICE LEVELS
- FREQUENCIES & TIMETABLES

NEW ENTRANTS

- NUMBER OF START-UPS IN THE LAST 5 YEARS
- RETALIATION LEVEL
- BUSINESS MODEL GAPS
- AIRPORT CONGESTION LEVEL



SUPPLIERS

- NUMBER OF SUPPLIERS
- PRODUCT PORTFOLIO & QUALITY

CONSUMER

- NUMBER OF EXISTING SEGMENTS
- PRICE & TIME-SENSIVITY
- PRODUCT DEMAND:
  - PRICE
  - COMFORT
  - CONVENIENCE
  - REPUTATION

SUBSTITUTES

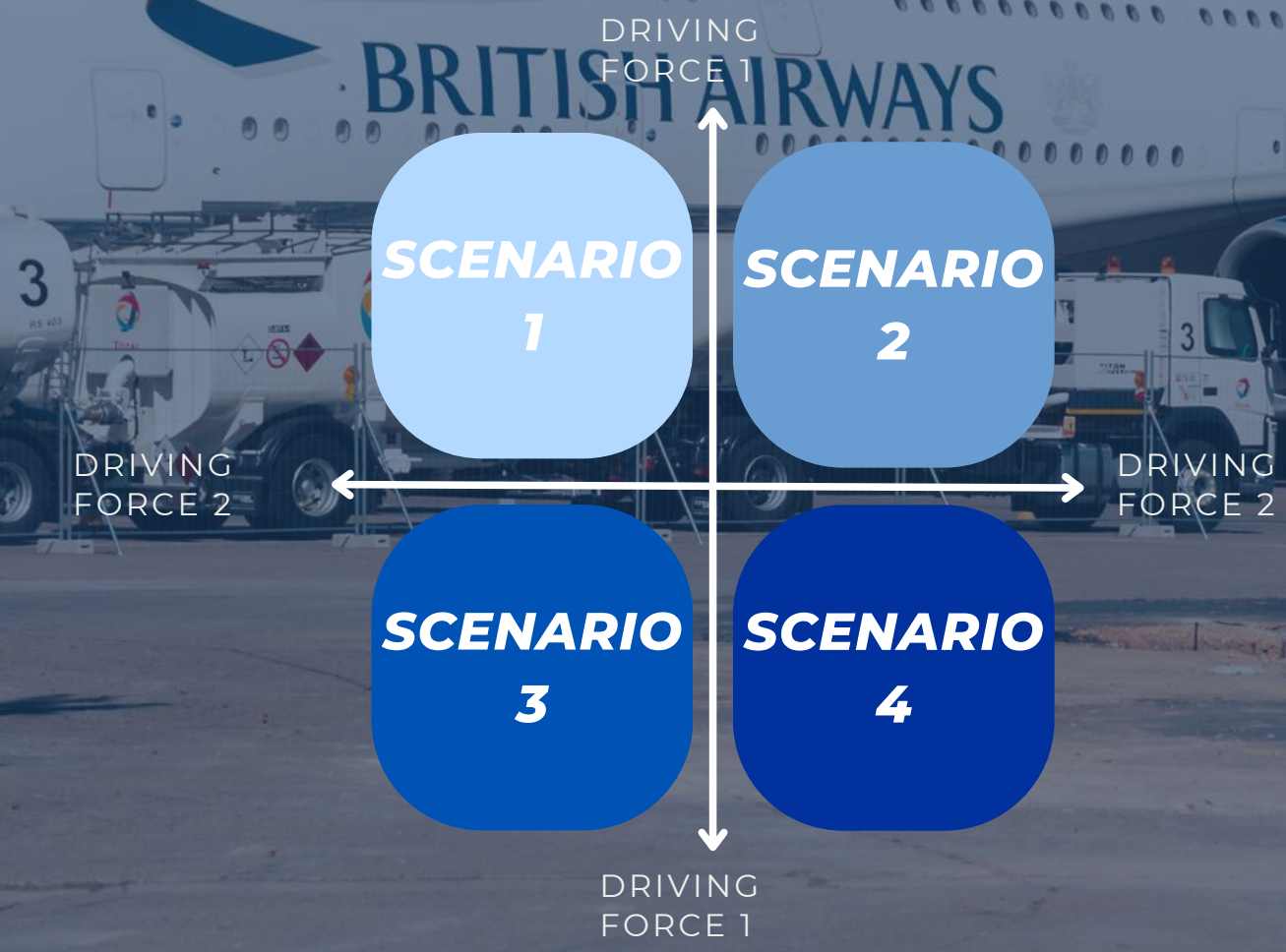
- ALTERNATIVE TRANSPORT MODES INFRASTRUCTURE & SERVICE LEVELS

SCENARIO PLANNING & FLEET ACQUISITION

A LONG-TERM CONSIDERATION OF HIGHLY UNCERTAIN EVENTS THAT COULD HAVE PROFOUND IMPACTS ON THE INDUSTRY

1. **LIST OF DRIVING FORCES** - VARIABLES THAT COULD CHANGE THE INDUSTRY - **BY DEGREE OF UNCERTAINTY & IMPACT**
2. THE **2 MOST UNCERTAIN AND IMPACTFUL** ARE PUT ON A SCALE AND **FORM THE SCENARIO CROSS**
3. **4 SCENARIOS STEM FROM THE CROSS** THAT COULD HAPPEN IN THE LONG-TERM. **MITIGATION PLAN** FOR EACH SHOULD BE MADE

EITHER/OR SCENARIO CROSS



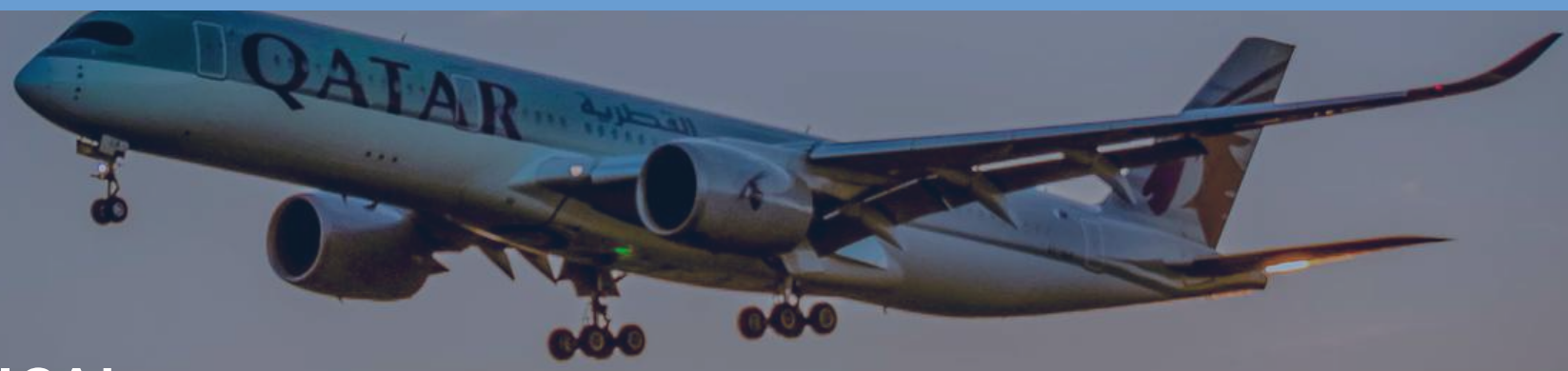
"WHAT COULD TELL US THIS SCENARIO IS EMERGING?"

A LIST OF INDICATORS AND PARAMETERS SHOULD BE MADE & MONITORED TO INDICATE WHICH SCENARIO THE INDUSTRY IS LEANING TO

SOURCE: WADE, 2012

SCENARIO PLANNING

DRIVING FORCES



(GEO)POLITICAL

- CONFLICT ESCALATIONS LEADING TO AIRSPACE CLOSURE & TRAVEL BANS
- PROTECTIONISM RESTRICTING INTERNATIONAL TRADE & BUSINESSES

TECHNOLOGY

- INTRODUCTION OF NEW AIRCRAFTS WITH EXTENDED REACH FOR EXAMPLE
- REINTRODUCTION OF SUPERSONIC TRAVEL

ECONOMY

- RISE OR FALL OF ECONOMIC PROSPERITY AFFECTING DEMAND

SOCIO-DEMO.

- MIGRATION FLOWS
- MORE PREDICTABLE EXAMPLES INCLUDE THE AGING OF A POPULATION

REGULATIONS

- LEVEL OF BILATERAL OPENNESS
- POLICIES CONSTRAINTS TO LIMIT OPERATIONS DUE TO ENVIRONMENTAL CHANGES

ENVIRONMENTAL

- CLIMATE CHANGES TURNING ATTRACTIVE TOURISM DESTINATIONS INTO UNFEASIBLE SPOTS

DRIVING FORCES ARE VARIABLES THAT EITHER SHAPE THE DEMAND FOR AIR TRAVEL OR COULD IMPACT THE INDUSTRY'S OPERATIONS.

SOURCE: WADE, 2012

STRATEGIC PLANNING

AIRLINE MANAGEMENT PLANNING TIMELINE

- FINANCIAL PLANNING
- P&L
- COST STRUCTURE
- MARKET ANALYSIS
- COMPETITION ANALYSIS
- DEMAND FORECAST
- ECONOMIC & DEMOGRAPHIC ANALYSIS
- POLITICAL & REGULATORY ANALYSIS

LONG-TERM

STRATEGICAL

FLEET ⟷ **NETWORK**

SCHEDULE

- FREQUENCY
- TIMETABLE
- FLEET ASSIGNMENT
- AIRCRAFT ROTATION

PRICING → **REVENUE MANAGEMENT** → **SALES & DISTRIBUTION**

CREW SCHEDULING → **GROUND STAFF MANAGEMENT** → **OPS CONTROL**

SHORT-TERM

TACTICAL

SOURCE: BELOBABA, 2015