Airport Strategic Planning

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Outline

• The Vision
• The Context
• The Problem
  → Fixed Master Plan
  → Management Commitment to Plan
  → Inflexibility; Losses
• The Solution: Dynamic Strategic Planning
  → Recognition of Risk as Reality of Planning
  → Analysis of Situation
  → Flexible, Dynamic Planning
The Vision

A significantly improved approach to Airport Systems Planning that realistically accounts for rapid changes

- in the economy
- airline routes and alliances
- airport competitors (regional and local)
- and technology

The Context

- The Traditional Approach is a Master Plan
  - e.g.: US Federal Aviation Advisory Circular 150/5070-6A
  - Or: ICAO Airport Planning Manual, Part 1, Master Planning

- The development of a Master Plan involves
  - Defining the Forecast (pick one)
  - Examining Alternatives ways of development for THAT FORECAST
  - Selecting a SINGLE SEQUENCE OF DEVELOPMENT with no examination of alternative scenarios
The Problem

• The Master Plan
  → does not anticipate RISK of possible changes in market conditions, that is, of “trend-breakers”
  → thus does not provide insurance against those real risks,
  → is inflexible, and inherently unresponsive to the risks.

• Management furthermore may commit to plan concept (if not timing…)
  → leading to resistance to change when it is needed

• The consequences are
  → losses or extra costs ; losses of opportunities

Examples of the Problem

• New Denver
  → Management could not reduce initial size... Even when airlines not committed => unnecessary passenger building
  → No back-up for failure of new technology (Bag System)

• Dallas / Fort Worth
  → Gate Arrival Master Plan: No Provision for Transfer passengers, and huge unnecessary costs
  → No provision for failure of technological leap (AirTrans)
### Forecast versus Actual Operations after 5 years

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### Forecast versus Actual Operations after 10 years

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## Forecast versus Actual Projects after 5 years

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## Forecast Unreliability Increases for Longer Planning Horizon

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Outline of Solution

- Dynamic Strategic Planning
- 3 Phases
  - Recognition of Risk as Reality of Planning
  - Analysis of Situation
  - Flexible, Dynamic Planning -- designed to track real developments in air transport industry
- Compatible with Master Planning but
  - Examine plans under various forecasts
  - Analyze variety of development patterns, sequences
  - Reallocate analytic effort
    - from in depth examination of an unlikely future
    - to many quick reviews likely to include actuality
Process of Dynamic Strategic Planning

- Recognizes Risk
  - looks ahead at opportunities and threats of many scenarios
  - accepts that future levels and types of traffic cannot be known

- Examines Complex Possible Developments
  - “Pure” plans PLUS
  - combinations of these: “HYBRID” solutions

- Chooses Flexibility
  - Plans responsive to market, industry conditions
  - These are necessarily “HYBRID”

- Commits only one period at a time

Chess Analogy

DYNAMIC STRATEGIC PLANNING IS LIKE PLAYING CHESS AS A GRAND MASTER
-- YOU LOOK AHEAD MANY MOVES BUT ONLY DECIDE ONE MOVE AT A TIME.

DYNAMIC STRATEGIC PLANNING COMPARES TO MASTER PLANNING AS GRAND MASTER CHESS COMPARES TO BEGINNER PLAY.
Phase 1: Recognition of Risk and Complexity

- Risk: Wide Range of Futures
  - The Forecast is “always wrong”
  - Extrapolations of past cannot anticipate the surprises that always occur somewhere
  - Many extrapolations are possible for any historical record

- Complexity: Wide Range of Choices
  - Number of Choices is Enormous
    - “Pure” solutions only 1 or 2% of possibilities
    - Most possibilities are “hybrid”, that combine elements of “pure” solutions
    - “Hybrid” choices provide most flexibility

Hybrid Designs

- Combine “Pure” Concepts
  - New York/LaGuardia: “Finger Piers” and “Gate Arrival”
  - Paris/de Gaulle: Gate Arrivals, Transporters, Finger, and soon satellite buildings
  - Chicago/O'Hare (United): “Gate Arrival” and “Midfield”

- Are Inevitable -- The “Pure” concepts become inadequate for actual conditions
  - Dallas/Fort Worth:
    - “Gate Arrival” => “Midfield” (Delta) + Central (American)
  - Washington/Dulles:
    - “Transporters” => + “Gate Arrival” => “Midfield”
**Phase 2: Analysis**

- Strengths, Weaknesses, Opportunities, Threats (SWOT)
- Identifying Risks
- Decision Analysis of Possibilities
- Identification of Initial Phase and Potential Different Responses to Actual Events

**Phase 3: Dynamic Strategic Planning**

- **The Choice**
  - Any Choice is a PORTFOLIO OF RISK
  - Choices differ in their
    - Likely benefits
    - Performance over a range of futures

- **The Plan**
  - Buys Insurance -- by building in flexibility
  - Balances Level of Insurance to Nature of Risk
  - Commits only to immediate first stage decisions
  - Maintains Understanding of Need for Flexibility
The Best Choices

- Permit good Performance for range of futures
- Achieve Overall Best Performance by
  - Building in Flexibility to adjust plan to actual situation is later periods -- this costs money
  - Sacrificing Maximum Performance under some circumstances
- “Buy Insurance” in the form of flexibility; capacity to adjust easily to future situations
- Commit only to Immediate Period
  - Decisions later in should depend on then actual situation

Example of Flexible Plans:
Paris/de Gaulle (Air France)

- Hybrid Design:
  - Gate Arrival that permits Transporters as Needed
- Anticipation of Future
  - Room for Expansion
  - Provisions for Rail Access
- Investment according to need
  - Easy to Change Design (as done)
Example of Flexible Plans: Sydney Second Airport

- **Hybrid Strategy:**
  - Maintain and Enhance Principal Airport
  - Acquire Major Site

- **Anticipation of Future**
  - New Site is Insurance against Need
  - Cost small compared to Major Construction

- **Investment According to Need**
  - Future Plans Easily Tailored to Industry Structure, Traffic Levels

Example of Inflexible Plans: New Denver

- **Pure Design: Multi-Airline Super-Hub**
  - But United Dominates
  - Phase-out of Continental

- **Massive Immediate Commitment**
  - Could not adjust to actual traffic
  - Disadvantages of High Costs per Passenger

- **Reliance on Untested Technology**
  - Failure of High-tech baggage system
  - No effective fall-back position
Example of Inflexible Plans: New York / Newark

- **Pure Design: Unit Terminals, Satellites**
  - Uns suited for actual Transfer, International Traffic
  - Use of 1950's Terminal

- **Premature Investments**
  - Terminal C Boarded up, unopened for decade
  - Major changes required

Recommendation

- **Evaluate Situation**
  - Strengths, Weaknesses, Opportunities, Threats
  - Risks

- **Analyze Possibilities**
  - Major Attention to “Hybrid” Options
  - Match Physical Facilities to Industry Structure
    - Current Major Clients
    - Possible Future Clients

- **Dynamic Strategic Plan**
  - Define Initial Commitment
  - How Plan Can Develop to Meet Range of Possible Future Market Conditions