Outline

Economic characteristics of
- FSNCs
- LCCs
- ULCCs
- Charter

Cost structure of the different carrier types

Market impact of LCCs/FSNCs

FSNCs versus LCCs

Future of LCCs/FSNCs
Evolution

Before deregulation

• Full service network carriers
• No low cost models
• No price competition (same price on a given route)
• Full-quality service
• Point-to-point route networks
Evolution – cont.

After deregulation

• Proliferation of LCC models
• Hybrid carriers
• Industry consolidation (mergers and acquisitions)
• Alliances and joint ventures
• Service debundling
• Hub-and-spoke route systems
Hub and spoke route network

Hub and spoke - route network structure by which a carrier utilizes an airport to route a broad range of Origin & Destination markets.

- **Hub** = Central node or airport
- **Spoke** = Nonstop routes radiating out from the hub connecting with various other markets
- **E-D, A-B, C-B etc.** O&D market is routed via hub; market cannot sustain frequent nonstop service
Hub Structures

Hub Wave Pattern at IST and SAW

Hub Wave Pattern at DXB (EK)

Hub Wave Pattern at FRA (LH)

Hub Wave Pattern at CDG (AF)
Hubs and traffic density

Vancouver (YVR), Calgary (YYC), Toronto (YYZ)

**Linear Route**
- Each route supports 1 flight/day
- Average traffic density

![Diagram of Linear Route]

**Hub Route**
- Each route supports 2 flights/day
- Average traffic density
- 2 flights/day per route
- Same total traffic as linear

![Diagram of Hub Route]
Types of hubs

Simple hubs – little or no coordination between in- and outbound flights. Spokes scheduled independently.

• Complex hubs - flights are co-ordinated to arrive in “banks” (allow more and fast connections between flights but poor utilization outside banks and minimal interline traffic).
Typical bank duration lasts between 1.5 hours and four hours

- Bank Duration (BDT) = Inbound Bank (BDI) + MCT + Outbound Bank (BDO)
- Extended banks (> 4 hours) produce many hits, but most are poorer quality (i.e. MCT minimization) QSI factors
- “Fast” connections (utilization-driven)
  - sacrifice breadth of connectivity
- “Many” connections (volume-driven)
- sacrifice efficiency, i.e. minimize MCTs

Bank Structure
Types of hubs

Directional

• all arrivals from east, all departures to west
• E-W or N-S aligned spokes due to market, regulatory conditions
• geographic constraints (i.e. Canada, CX)

Multiple (Omnidirectional)

• Reflective of mature hub development
• Broad domestic geographic network (i.e. U.S.)
• Characteristic of all major U.S. carriers
Examples of Directional and Omni Hubs

- DL’s DTW hub is bi-directional (east-west) and has a 9-wave pattern
- Bi-directional hubs typically have 6+ waves in their daily hub structure
- This type of structure is most commonly found in U.S. hubs

- EK’s DXB hub is omni-directional and has a 3-wave pattern
- Omni-directional hubs are more commonly found in European, Gulf and Asian hub patterns and typically have 3-7 waves per day
Types of hubs – cont.

International

• International & domestic networks co-ordinated
• Carriers primary international gateway for that region
• i.e. YVR (AC), SFO (UA), MIA (AA)
• i.e. HKG (CX), AMS (KL) - though no domestic networks
Hub Wave Pattern at FRA by Region (LH)

Average Daily Departures / Arrivals

- Arrivals
- Departures

0:00 1:00 2:00 3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00

Domestic  Africa  Caribbean/Central/South America  Europe  Far East  Middle East  North America  Oceania  South Asia
Time penalties of hubs

Three additional trip time components compared to nonstop flight:

• 30 minutes for additional ascent/descent (stop) at hub airport
• Extra cruise time (depending on the angle)
• Connection time (30-60 minutes between flights)

Extra trip time offset by better total time for traveler:

• Total time = trip time + waiting time
• Wait time = Time from Desired Departure to Actual Departure
Overview of the hub design principles

Design process schedule is a generator of alternatives, and selection of the best fit. Ideally, this is a combination of different optimization tools.

Selecting the Best Hub Structure Requires Definition
Alternative competing hub structures and selection of the best structure that leads to the optimal outputs

Source: OAG, July 12-18, 2010
Time penalties comparison

Linear:
• 2 flights per day per day nonstop, 8 hours apart.

平均等待时间 = 4 小时

Hub:
• 4 flights per day, but via hub
• 2 hours apart

平均等待时间 = 1 小时
+ 0.5 h ascent/descent
+ 0.5 h extra cruise
+ 0.5 h connection

总等待时间及额外飞行时间 = 2.5 小时
Demand effects

N cities in a hub network $\Rightarrow$ N (N-1) / 2 potential city pairs

<table>
<thead>
<tr>
<th>N</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>20</th>
<th>98</th>
</tr>
</thead>
<tbody>
<tr>
<td>N(N-1)</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>10</td>
<td>190</td>
<td>4,743</td>
</tr>
</tbody>
</table>

Supporting a hub - total traffic needed to support an additional flight can be small

eg Airline has 200 destinations connecting to hub 1 passenger per destination could fill an aircraft
“Hubbing” keeps more traffic on-line (less interline)

Feeder links can be important - hubs led to the rise of extensive “commuter” or “regionals” aligned or subsidiaries of major air carriers (e.g. AC Jazz)
Hub choice factors

Competition

Weather

• especially for cargo hubs

Geographic location

Distance from the airline’s other hubs

Local O&D market

Airport congestion

• groundside & air traffic
• access to gates & facilities
• room for future growth
• community support

No of City Pairs within 40% circuitry
# Criteria for evaluating hubs

## Primary Hubs

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Minimum Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intl O&amp;D demand</td>
<td>&gt;1.5 million annual pax in 2008</td>
</tr>
<tr>
<td>Dom O&amp;D demand</td>
<td>&gt;1.5 million annual pax in 2008</td>
</tr>
<tr>
<td>Good circuity for 6th Freedom markets</td>
<td>&gt;30 of top markets &lt;130% circuity</td>
</tr>
<tr>
<td>Potential for strong presence</td>
<td>achieves ranking in top 2 by seat share</td>
</tr>
<tr>
<td>Apt capacity for hubbing</td>
<td>&gt;40 gates available simultaneously</td>
</tr>
</tbody>
</table>

## Secondary Hubs

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Minimum Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional O&amp;D demand</td>
<td>&gt;1 million annual pax in 2008</td>
</tr>
<tr>
<td>Dom O&amp;D demand</td>
<td>&gt;1 million annual pax in 2008</td>
</tr>
<tr>
<td>Good circuity for regional markets</td>
<td>&gt;20 of top regional markets &lt;130% circuity</td>
</tr>
<tr>
<td>Good circuity for domestic markets</td>
<td>&gt;20 of top domestic markets &lt;130% circuity</td>
</tr>
<tr>
<td>Apt capacity for hubbing</td>
<td>&gt;20 gates available simultaneously</td>
</tr>
</tbody>
</table>
Apply criteria to hubs in India: Example

= Meets criteria

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>BOM</th>
<th>DEL</th>
<th>CCU</th>
<th>MAA</th>
<th>BLR</th>
<th>HYD</th>
<th>AMD</th>
<th>COK</th>
<th>CCJ</th>
<th>TRV</th>
<th>PNQ</th>
<th>NAG</th>
<th>ATQ</th>
<th>GOA</th>
<th>TRZ</th>
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<tr>
<td>Intl O&amp;D demand</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
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<td></td>
</tr>
<tr>
<td>Dom O&amp;D demand</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
</tr>
<tr>
<td>Good circuitry for 6th f'dom mkts</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td></td>
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</tr>
<tr>
<td>Strong presence</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>Apt capacity for hubbing</td>
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<tr>
<td><strong>Conclusion</strong></td>
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</tbody>
</table>

Only BOM and DEL satisfy all of the criteria to be a Primary Hub.
Delhi is geographically positioned to provide direct routings to the greatest number of 6th Freedom markets, when compared to major hubs like Dubai and Singapore.

**DEL** is also better located than other major Indian airports to connect Asia & Oceania with Europe.

---

**Source:** Industry Data

**Notes:**
1/ Analyzed Top 100 6th Freedom O&Ds between East Asia/Oceania and Europe;
2/ 130% circuitry means that the total flown distance between two cities via the hub is 30% greater than the nonstop distance.
A key source of fragility is increased competition from low cost carriers

- Low Cost Carriers have redefined the industry and its economics.
- Air Canada is launching a new low cost model with their leisure focused *Rouge*.
- WestJet is also launching a new regional service, *Encore*.

- Low cost carriers have redefined the airline product
- One-way versus return trips
- Point-to-point versus hub-and-spoke route system
- Less connectivity
- One type of aircraft
- Quicker to adjust capacity
- Focus on what adds value, remove the rest
- Many have achieved high, consistent profitability
Next Generation
Airline Business Model

The Internet effect

• Industries Profoundly Impacted by Internet Companies:
  • Music
  • Video
  • Newspapers
  • Book publishing & retail
  • Traditional Phone Companies
  • Big Box Electronics
  • Income tax preparation
  • Travel Agents
  • Aviation

• Google purchased travel software company ITA Software Inc
  • ITA powers Orbitz, Kayak, Cheap Tickets, AA, UA, Virgin, ANA and others
Internet companies have potential to repackage airline products:

- Kayak “hacker fares” create connections not available from carriers;
- Google invested in airline res system;
- Could develop platform to enter business directly;
- Could offer value added packages for trip fulfillment:
- Would you pay $125 for guarantee that you will get to your destination today?

Internet creates new interline products

Predicting the future of the Internet is easy: anything it hasn't yet dramatically transformed, it will.
Automated kiosks are playing a greater role

Automation & Check-In:

• Mobile check-in and boarding passes have nearly replaced the traditional check-in process.

• Canada was a pioneer in self bag-tag.

Auckland, New Zealand

August 2011, Amsterdam Bag-Drop
Types of airline business models

Legacy or full-service network carriers
Low cost carriers (LCCs)
Ultra low cost carriers (ULCCs)
Charter carriers
Regional carriers
Hybrid carriers
Legacy carriers

Legacy carriers (or FSNCs)

- Wide range of pre-flight and onboard services
- Multiple seat classes
- Hub-and-spoke route systems

**Still account for a large share of passenger traffic**

- Larger market share in international routes
- Smaller in domestic markets (loss to LCCs)

Ownership (private, majority or minority stake owned by the government, multi-country)
# Major airlines by the number of passengers carried

<table>
<thead>
<tr>
<th>International</th>
<th>Domestic</th>
<th>Total (International + Domestic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>Airline</td>
<td>Rank</td>
</tr>
<tr>
<td>1</td>
<td>Ryanair</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Lufthansa</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>easyJet</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Emirates</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Air France</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>British Airways</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Air Berlin</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>KLM</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>Delta Air Lines</td>
<td>9</td>
</tr>
<tr>
<td>10</td>
<td>American Airlines</td>
<td>10</td>
</tr>
</tbody>
</table>

Source: IATA, January 2013
## Major international cargo carriers

### The world’s busiest airlines

<table>
<thead>
<tr>
<th>Airline</th>
<th>FTK (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 FedEx</td>
<td>15,743</td>
</tr>
<tr>
<td>2 UPS Airlines</td>
<td>10,194</td>
</tr>
<tr>
<td>3 Cathay Pacific Airways</td>
<td>9,587</td>
</tr>
<tr>
<td>4 Korean Air Lines</td>
<td>9,542</td>
</tr>
<tr>
<td>5 Emirates</td>
<td>7,913</td>
</tr>
<tr>
<td>6 Lufthansa</td>
<td>7,428</td>
</tr>
<tr>
<td>7 Singapore Airlines</td>
<td>7,001</td>
</tr>
<tr>
<td>8 China Airlines</td>
<td>6,410</td>
</tr>
<tr>
<td>9 EVA Air</td>
<td>5,166</td>
</tr>
<tr>
<td>10 Cargolux</td>
<td>4,901</td>
</tr>
</tbody>
</table>

### International

<table>
<thead>
<tr>
<th>International</th>
<th>FTK (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Cathay Pacific Airways</td>
<td>9,587</td>
</tr>
<tr>
<td>2 Korean Air</td>
<td>9,487</td>
</tr>
<tr>
<td>3 Emirates</td>
<td>7,913</td>
</tr>
<tr>
<td>4 Lufthansa</td>
<td>7,422</td>
</tr>
<tr>
<td>5 FedEx</td>
<td>7,421</td>
</tr>
<tr>
<td>6 Singapore Airlines</td>
<td>7,000</td>
</tr>
<tr>
<td>7 China Airlines</td>
<td>6,410</td>
</tr>
<tr>
<td>8 UPS Airlines</td>
<td>5,215</td>
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<td>9 Eva Air</td>
<td>5,166</td>
</tr>
<tr>
<td>10 Cargolux</td>
<td>4,901</td>
</tr>
</tbody>
</table>

Source: IATA, June 2011
# Profit vs Compensation

<table>
<thead>
<tr>
<th>Name</th>
<th>Airline</th>
<th>2010 Pay</th>
<th>2010 Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Richard H. Anderson</td>
<td>Delta</td>
<td>$8,041,271</td>
<td>$593 million</td>
</tr>
<tr>
<td>Gerard J. Arpey</td>
<td>AMR</td>
<td>$5,952,675</td>
<td>$471 million (loss)</td>
</tr>
<tr>
<td>Jeffery Smisek</td>
<td>United Continental</td>
<td>$4,359,766</td>
<td>$253 million</td>
</tr>
<tr>
<td>Gary C. Kelly</td>
<td>Southwest</td>
<td>$3,357,570</td>
<td>$459 million</td>
</tr>
<tr>
<td>William S. Ayer</td>
<td>Alaska</td>
<td>$3,357,350</td>
<td>$251.1 million</td>
</tr>
<tr>
<td>W. Douglas Parker</td>
<td>US Airways</td>
<td>$2,757,981</td>
<td>$502 million</td>
</tr>
<tr>
<td>David Barger</td>
<td>Jetblue</td>
<td>$1,226,017</td>
<td>$97 million</td>
</tr>
</tbody>
</table>

Source: Dallas News (04/2011)
"No, we shouldn’t give you a bloody cup of coffee. We only charge 19 euros for the ticket”

Michael O’Leary, President of Ryanair

“When someone comes to me with a cost saving idea, I don’t immediately jump up and say yes. I ask: what’s the effect on the customer?”

Herb Kelleher, former CEO Southwest Airlines
LCCs

Low cost carriers have contributed to profit erosion of majors

LCC differ from legacy carriers:
- Do not offer ‘frills’
- Have point-to-point route systems as opposed to ‘hubs’
- Use simple fleet composition, typically one type of aircraft
- Non-unionized labour

US-based Southwest Airlines is a notable example of success with over 40 consecutive years of profitability

Ryanair is the most profitable passenger airline in Europe

Canada’s LCC WestJet was modeled on Southwest
LCC business model

Major expansion of LCCs in the US, Canada, Europe, Australia, Asia and Latin America.

Traditional LCC business model:

- one type of aircraft
- ‘no frills’ product
- charge for ‘ancillaries’
- price sensitive travellers
- high density routes
- high aircraft utilization
- secondary airports
- point-to-point route systems
LCC design

- **Product design**
  - Single class
  - Higher density seating
  - No assigned seating (e.g., Southwest)
  - ‘cheap and cheerful’

- **Process design**
  - Use of secondary airports
  - Minimum turn-around time
  - High aircraft utilization
  - No connections, interlining
  - Short to medium haul routes (up to 750 miles)
With a banked schedule, minimum connect times drive turnaround times – not ground operations.

Ground Operations – Required Time for a Turnaround

(Carriers – 737-300)

**Inside**
- Extend jetway and open door (1 min)
- Deplane (10 min)
- Cater (15 min)
- Boarding (13 min)
- Close door and jetway (1 min)

**Ramp (Outside)**
- Arrival (2 min)
- Equipment Set Up (2 min)
- Ground power A/C bin door (3 min)
- Fuel (10-15 min)
- Unload/load bags and cargo (20-30 min)

Opportunities To Compress Ground Operations’ Turnaround Times
But, with a continuous schedule, ground operations drives turnaround time, and thus airplane/crew utilization.

The LCCs Have Engineered Rapid Turnaround Processes emulated on short haul routes by network carriers.
# Differences between legacy and low cost models

<table>
<thead>
<tr>
<th></th>
<th>HUB &amp; SPOKE CARRIER</th>
<th>LOW-COST CARRIER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>Convenient <em>connecting</em> travel via hub</td>
<td>Efficient <em>point-to-point</em> (P2P) travel</td>
</tr>
</tbody>
</table>
| **Scheduling**            | *Synchronized banks:*  
– enable rapid connections  
– lower utilization of flight equipment/crews  
– uneven workload for ground crews | *Continuous flow* uses flight and ground resources efficiently (minimal down time and level-loading) |
| **Turnarounds**           | Lengthy (65 min), due to the minimum connect times for passengers and bags            | Minimized (25 – 30 min) – key to high utilization of flight resources            |
| **Baggage Handling**      | – Schedule creates uneven work load  
– Two parallel baggage-handling systems                                               | – Schedule creates level work load  
– Simpler baggage-handling system                                                    |
| **Passenger Handling**    | – Schedule creates uneven work load  
– Intense re-work to maximize service to preferred pax (e.g., re-seating)           | – Schedule creates level work load  
– Simpler process provides adequate customer service                                 |
| **Fuel**                  | Banked schedule creates hub congestion that consumes extra fuel                      | Continuous schedule minimizes congestion, reducing fuel consumption              |
| **Objective**             | Heavy use of high-cost channels (GDS)                                                | Heavy use of low-cost channels (direct)                                          |
LCC cost advantage

Source: CAPA Centre for Aviation (2010)
Mid 2000s US LCCs had still a cost advantage of up to 37% over US network carriers.

Operating Cost per ASK

1/ CY 2005.
2/ American, Delta, United.

LCCs cost advantage

The competitive advantage of the low cost carrier (2005 data)

- Lower compensation costs
- Higher crew productivity & commonality
- Reduced cabin crew
- High aircraft utilisation
- New generation aircraft and commonality
- Fuel hedging, winglets
- Direct sales only
- No GDS Fees
- No commission on ticket sales
- Use of secondary airports
- Low ground handling charges
- Allows for quick aircraft turnarounds
- 20% more seats/aircraft
- Seat Density

Average unit cost of British Airways, Air France and Lufthansa

Ryanair’s cost advantage

Unit cost of Ryanair

Source: O’Connell (2008)
Southwest achieves 75% of its cost advantage through fuel hedging and product, distribution, and overhead cost savings.

- **Network Airline**: 7.3 US$ cents per ASK
- **Labor**: 1.1 US$ cents per ASK
- **Aircraft and Fuel**: 0.4 US$ cents per ASK
- **Infrastructure**: 1.1 US$ cents per ASK
- **Product, Distribution, Overhead**: 0.4 US$ cents per ASK
- **Seat Density Adjustment**: 4.3 US$ cents per ASK


1/ CY 2005.
2/ American, Delta, United.
JetBlue’s cost savings are more evenly spread across all cost centers

1/ CY 2005.
2/ American, Delta, United.

EasyJet has far less of a gap in infrastructure costs as it operates at more major airports than Ryanair.

1/ CY 2005.
2/ Air France, British Airways, Lufthansa.
LCCs profit margin

Sky high
Operating-profit margins, Q1 2012, %

AirAsia
JAL
Ryanair
Delta
ANA
United Continental
Singapore Airlines
Cathay Pacific
Lufthansa

Source: Macquarie Research

Source: The Economist (2012)
Economic Impact of LCCs

Large airfare reduction
[Hof, Dresner & Windle (2004), Morrison & Winston (2003), Kim & Singal (1993), Borenstein (1990, 1992)]

• Network carriers reduced average airfares by 35-40%

Huge expansion of stimulated demand as well as passengers attracted from adjacent airports thus dramatic increase in travelers at LCC airports

Network carriers’ hub premiums decreased significantly when one or more LCCs are present at the hub
LCC expansion globally is a continued driving source of growth

LCC routes in end 90’s

North America
Flights per week: 26,151
Miles/Flight: 710
2005-06 capacity = +8%

Europe
Flights per week: 4,040
Miles/Flight: 609
2005-06 capacity = +26%

LCC routes mid 2000’s

North America
Flights per week: 35,027
Miles/Flight: 688
2005-06 capacity = +8%

Europe
Flights per week: 23,767
Miles/Flight: 650
2005-06 capacity = +26%

Far East
Flights per week: 6,941
Miles/Flight: 469
2005-06 capacity = +45%

Latin America
Flights per week: 3,238
Miles/Flight: 601
2005-06 capacity = +45%

Middle East & Africa
Flights per week: 988
Miles/Flight: 1,063
2005-06 capacity = +37%

Oceania
Flights per week: 5,727
Miles/Flight: 675

Sources: OAG,
Current status of LCCs
LCCs in North America
Southwest Airlines

1971

1983

2013

Source: Southwest Airlines
Impact on fares before and after Southwest entry

In top 10 Philadelphia markets

Graph 1: Average Market Fare in Southwest’s Top 10 Philadelphia Markets By Volume Pre-Southwest Entry (3Q03) vs. With Southwest (3Q04)
Impact on traffic before and after Southwest entry

In top 10 Philadelphia markets
LCCs in Europe

Trends:

• Increased LCC penetration
• LCC subsidies (lower airport landing fees)
• Ryanair allegedly benefited from 660 million EURO in subsidies
LCCs in Asia
LCCs quickly gain domestic market share in Asia

Source: CAPA as quoted by Airline Leader (2012)
Ultra Low Cost Carriers (ULCCs)

The difference between LCCs and ULCCs is relative

- tend to incorporate the majority of LCC features
- rely on traffic stimulation more than market steal
- max number of a la carte services
- do not offer ‘frills’ if they add to costs

Marketing tool of self-promotion

- (“Ryan Air – Europe’s only ULCC”)

József Váradi distinguishes between ULCCs, a category in which he places Wizz Air, and LLCCs, lazy-low-cost carriers, that have lost their original focus and are "diverting from the basic fundamentals of being really low-cost".
ULCCs differ from LCCs:
Rely on traffic stimulation more than market steal
High proportions of ancillary revenues
Do not offer ‘frills’, even if they enhance revenues, if the frill adds to costs.
ULCCs have power to shift passenger travel and airport usage patterns to much greater degree than traditional LCCs.
The ULCC business model is based strictly around low fares, which requires low costs.
Ancillary services are an important source of revenue for ULCCs

Ancillary revenue = revenue from non-ticket sources

Charging for everything: blankets, entertainment, beverages, food, priority boarding, credit card handling fee (!) etc.

Becoming a major source of revenue for LC, LCC and ULCC – 43.8% increase worldwide to $32.5b in 2011

United $1,527m, Qantas $783m, Ryanair $663m, Air Canada $534m (2009)
# ULCCs and ancillary revenue

## Top 10 Airlines – ancillary revenue as % of total revenue:

<table>
<thead>
<tr>
<th>Rank</th>
<th>Percentage of total</th>
<th>Airline</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>29.2%</td>
<td>Allegiant</td>
</tr>
<tr>
<td>2</td>
<td>23.9%</td>
<td>Spirit Airlines</td>
</tr>
<tr>
<td>3</td>
<td>22.2%</td>
<td>Ryanair</td>
</tr>
<tr>
<td>4</td>
<td>19.4%</td>
<td>EasyJet</td>
</tr>
<tr>
<td>5</td>
<td>19.4%</td>
<td>Tiger Airways</td>
</tr>
<tr>
<td>6</td>
<td>18.1%</td>
<td>Jet2.com</td>
</tr>
<tr>
<td>7</td>
<td>14.4%</td>
<td>Aer Lingus</td>
</tr>
<tr>
<td>8</td>
<td>13.3%</td>
<td>Alaska Airlines</td>
</tr>
<tr>
<td>9</td>
<td>13.2%</td>
<td>FlyBe</td>
</tr>
<tr>
<td>10</td>
<td>13.1%</td>
<td>AirAsia</td>
</tr>
</tbody>
</table>

Source: tnooz (2010)
Realizing the vision together

ULCC at a glance: Allegiant Air

• Founded in 1997
• Based in Las Vegas (focus cities in Florida and Phoenix)
• A travel company (hotels, car rentals, show tickets distribution)
• Route network has minimal overlap with LCCs
• Profitable (EBITDA 16.4% in 2011)
• Low debt ratio
Allegiant’s focus is on leisure markets
Allegiant’s business model

Fleet

• 51 MD-80
• 1 B757-200 (5 more on order)

Costs

• Low aircraft ownership costs
• Simple IT systems (no connecting flights)
• Uses low cost airports
• No dedicated counters at airports

Product

• No frills service at a low price
• Canadian traffic at US airports (e.g. Bellingham and Plattsburgh)
• $133 BLI-LAS versus $274 YVR-LAS with Air Canada
ULCCs

Europe

- Ryanair, Wizz Air, Aer Lingus
- (Michael O’Leary “Ryanair is the only ULCC”)

North America

- Spirit Airlines, Allegiant Air

Canada

- no ULCCs presently
- Rouge will not be ULCC according to AC’s CEO.
- “Is it ultra-low cost à la other low-cost carriers elsewhere in the world? You know, that was not necessarily achievable within the context of our unionized environment.”
A newer fleet explains part of Ryanair’s cost gap, but the largest gap still exists for product and distribution costs.


1/ CY 2005.
2/ Air France, British Airways, Lufthansa.
Ryanair – pursuit to reduce its operational costs

Cut down distribution costs
Cut down landing and handling
Cut down personnel costs
Cut down maintenance costs

Source: Ryanair
Ancillary revenues significantly contributes to revenues and profitability of low cost carriers

- Ancillary services can bring substantial revenues
- But to generate them requires complex marketing and sales effort
- Passengers want to save with LCCs, instead of spending
Regional carriers

**Beech**
- 19 seats  1.5-2 hours

**Dash 8**
- 37-74 seats  2+ hours

**CRJ/ERJ**
- 50-90 seats  3 hours

**Embraer**
- 70-180 seats  4 hours
Charter carriers

Canada & Europe: important industry players

U.S. & Asia: not common

Seasonal niche opportunities (35% of summer Europe are Charters)

Commonly 1-4 freq/wk. Maximize aircraft utilization

Varies significantly from year to year

Often affiliated with tour operators (i.e. Canadian Affairs)

Canada: Zoom, Air Transat, Skywings

Europe: Thomas Cook, LTU, MyTravel
Charter carriers in Europe

Number of charter passengers from the UK to top destinations, 1996-2006

For each country every bar from left to right represents one year, 1996 to 2006

Figures in red indicate typical sector length in kilometers

Passengers (000s)

Spain: 1,862
Canary Islands: 3,046
Greece: 2,267
Turkey: 2,956
Cyprus: 3,468
Egypt: 4,110
Portugal (Excl Madeira): 1,868
Italy: 1,859
France: 998
Tunisia: 2,203
Bulgaria: 2,593
The growth in individual (seat only) travel has had a significant impact on the traditional charter market.

Passengers at Spanish airports (1990-2006)

- In Spain the charter market peaked in 1994 and has declined by 25% in 12 years.
- In the same period the total market has trebled, with scheduled carriers growing four fold.
- Much of the scheduled growth since 2002 has been with Low Cost Carriers.

Source: DGAC Spain
## Example Decline of UK charter airlines

### Non-scheduled passengers carried by key UK airlines

<table>
<thead>
<tr>
<th>Year</th>
<th>XL Airways</th>
<th>First Choice</th>
<th>Thomsonfly</th>
<th>Thomas Cook</th>
<th>My Travel</th>
<th>Monarch</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>715</td>
<td>5,552</td>
<td>8,053</td>
<td>5,746</td>
<td>4,416</td>
<td>252</td>
</tr>
<tr>
<td>2001</td>
<td>1,076</td>
<td>5,235</td>
<td>7,905</td>
<td>6,037</td>
<td>4,092</td>
<td>1,076</td>
</tr>
<tr>
<td>2002</td>
<td>1,455</td>
<td>5,693</td>
<td>8,017</td>
<td>5,261</td>
<td>3,791</td>
<td>715</td>
</tr>
<tr>
<td>2003</td>
<td>1,871</td>
<td>6,041</td>
<td>7,971</td>
<td>4,926</td>
<td>3,303</td>
<td>1,455</td>
</tr>
<tr>
<td>2004</td>
<td>2,339</td>
<td>5,797</td>
<td>8,199</td>
<td>4,853</td>
<td>3,137</td>
<td>1,871</td>
</tr>
<tr>
<td>2005</td>
<td>2,590</td>
<td>5,730</td>
<td>8,070</td>
<td>4,686</td>
<td>2,794</td>
<td>2,339</td>
</tr>
<tr>
<td>2006</td>
<td>3,194</td>
<td>5,284</td>
<td>8,069</td>
<td>4,656</td>
<td>2,654</td>
<td>2,590</td>
</tr>
</tbody>
</table>

Source: UK CAA

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Drop of around 3000 pax

- XL Airways
- First Choice
- Thomsonfly
- Thomas Cook
- My Travel
- Monarch
Circa 100 charter airlines in Europe, with over half of all charter aircraft operated by carriers from the UK, Germany or Turkey (2008)

Number of aircraft over 50 seats operated by charter carriers

Note: Europe includes EU27, plus Croatia, Iceland Norway, Switzerland and Turkey

Note this data includes vertically integrated fleets as well as independent charter carriers.
Growth of seat-only market to try to compensate decline of the traditional package tour market

Scheduled passengers carried by key UK airlines

Growth of around 4000 pax

Source: UK CAA
Unit costs of charter carriers

Adjusted unit cost (@ 800 km, eurocent)

Handling Charge Per Passenger €, 2006/07

Average Cost Per Pilot in € 2006/07

Realizing the vision together
Realizing the vision together

Profitability of Charter Carriers

Charter operators must extract higher prices in the market to survive.
Future trends in airline business models

Hybrid models develop as airlines move away from ‘pure’ legacy or low cost models.

Airline business models are converging towards one another as:

• Legacy carriers face increased pressure to lower costs, cut on ‘frills’, charge for ‘ancillaries’, renegotiate labour contracts, etc.

• Low cost carriers look for new markets and expansion opportunities
A newer fleet explains part of Ryanair’s cost gap, but the largest gap still exists for product and distribution costs.


1/ CY 2005.
2/ Air France, British Airways, Lufthansa.
Ryanair – pursuit to reduce its operational costs

Cut down distribution costs
Cut down landing and handling
Cut down personnel costs
Cut down maintenance costs

Source: Ryanair
Are we seeing the evolutionary business model in action and changing the industry?

**Business Cycle**

- All Players Are Similar: Competitors' business models are similar ... compete on tactics
- "New" Models Enter the Market: Lower costs, Lower prices
- "New" Models Are Copied and Expand: More new entrants, Expansion due to success, "Old" model businesses fail
- "New" Model Becomes the "Norm": "Old" model players disappear or re-invent themselves, "New" model players compete on non-price basis
In US legacy carriers started closing the gap from mid 2000’s

Not adjusted for Stage Length

Source: U.S. DOT, Form 41 Domestic Only
US carriers have been successful in reducing their distribution costs taking advantage of lower cost distribution channels.

Continental increased internet sales from 5% of total to nearly 50% of total between 2000 and 2005.

- Hawaiian went from around 3% to 50% as well.

Airlines have brought their costs down by:

- Redirecting customers to direct channels
  - On to websites and away from agents
  - B2B
  - On line agencies
- Renegotiating contracts with GDS providers
- Increasing e-ticket use
- Significant reduction in ATO

Source: US DOT Form 41 Q2 2006. Includes NW and WN
Emulate learnings from the success of Low Cost Carriers

- Divestiture of business units airline MRO etc nd provide focus on that with holding company
- Privatisation, formation of new labour contracts in business friendly environment with hire and fire and performance based compensation
- Delayer and rationalise the business: most airlines can achieve that by leveraging growth
- Intelligent use of front office back office strategies to maintain focus and synergies across back office
- Creation of focused airlines with front office specialisation and back office synergies Network focus on variable contribution and restructuring
  - Focus assets on few destinations (concentrate fewer destinations and dominate the city pair
  - Eliminate tag flights, two stop one stop routes
  - Day of week, time of day and convenience of the schedule
  - Hub Optimisation - improve flight connection either side of the banks
  - Use of professional modelling tools and develop scheduling skills
Depeaking is reducing costs through squeezing out the embedded unproductive time within a ‘bank’, while crews wait for baggage to travel.

Baggage Handling: Workload vs. Staffing Requirement

(Within A Turnaround)

Continuous scheduling eliminates a lot of the underlying complexity.
Rising revenues also helped US network carriers improve operating profitability

Adjusted Revenue per ASK

1/ American, Delta, United.
Full service carriers have implemented some of LCC’s practices into their business model to improve efficiency.

<table>
<thead>
<tr>
<th>Traditional Flight Plan Structures</th>
<th>Adjusted Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aircraft – Crew assignment changes frequently</td>
<td>Dedicated flight crews</td>
</tr>
<tr>
<td>Aircraft and crew rotate independently</td>
<td>Aircraft and crew rotate together</td>
</tr>
<tr>
<td>Aircrafts rotate via multiple airports in rotation</td>
<td>Point-to-point operation of aircraft</td>
</tr>
<tr>
<td>Maintenance is conducted at multiple locations</td>
<td>Maintenance is only conducted at home base</td>
</tr>
<tr>
<td>Night-stops at different airports</td>
<td>100% night-stop rate at home base</td>
</tr>
</tbody>
</table>

Source: lufthansa systems
## Dedicated Hamburg Operations profits from using LCC Structures

### Aspects of Lufthansa Hamburg
- Dedicated 737 Fleet
- Autonomous MRO Teams with fix Members
- Point to point Operation of Aircrafts
- Nightstop Rate 100% in Hamburg
- Dedicated Flight Crews

### Measurable Benefits
- **Ground Time at Airports:** 30 min avg.
- **Aircraft Rotation:** 5 per day
- **Air - Ground Ratio:** 7:1
- **Fleet Utilization improved:** ***

*Source lufthansa systems*
European network airlines are able to achieve a much higher revenue premium over LCC competitors on short-haul markets than their counterparts in the US.

Adjusted Revenue per ASK

Network Airlines\(^1\), EasyJet, Ryanair


\(^1\) Air France, British Airways, Lufthansa.
LCCs have targeted longer haul markets for expansion: they operate 65% of their domestic capacity in markets over 500 mi.

LCC Distribution of Traffic By Trip Stage Length
*U.S. Domestic Markets >75 Passengers Per Day Each Way*
*CY 2000 vs. CY 2004*

<table>
<thead>
<tr>
<th>Trip Stage Length</th>
<th>CY 2000</th>
<th>CY 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 1,500 Miles</td>
<td>14.5%</td>
<td>20.0%</td>
</tr>
<tr>
<td>500-1,500 Miles</td>
<td>39.9%</td>
<td>45.1%</td>
</tr>
<tr>
<td>0-500 Miles</td>
<td>46%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Sources: US DOT O&D Database, via Database Products Hub Supplement Database
Low-cost carriers increasingly resemble hub & spoke systems, in addition to expanding their previously limited international offerings.

Sources: US DOT O&D Database
As legacies increasingly erode LCC advantages, LCCs will increasingly hybridize to meet the growing challenge.

<table>
<thead>
<tr>
<th>Southwest Airlines in 2000</th>
<th>Southwest Airlines in 2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Aircraft in Fleet</strong></td>
<td>326</td>
</tr>
<tr>
<td><strong>Percent of Markets Under 2 Hrs</strong></td>
<td>83.9%</td>
</tr>
<tr>
<td><strong>Avg No. of Daily Flights per Market</strong></td>
<td>4.4</td>
</tr>
<tr>
<td><strong>Average Stage Length</strong></td>
<td>470</td>
</tr>
<tr>
<td><strong>Code-Share Agreements</strong></td>
<td>None</td>
</tr>
</tbody>
</table>
Legacy carriers introduce low cost subsidiaries

- Air Canada – Rouge
- Qantas – Jetstar
- Lufthansa – Germanwings
Thank You!

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