Program Management and The Boeing 787 Dreamliner Family

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Who Am I? Why Am I Qualified to Speak to You?

Hometown: Birmingham
University: Michigan Tech
Certificate – International Business
BS – Business Administration
BS – Mechanical Engineering
MS – Mechanical Engineering
“The Only Thing Constant is Change…”

…so how do you deal with all of this amidst complex, all-encompassing, multi-year programs to ensure success?

Take a couple minutes…write down answers to the following:

- Program Complexities – What are they?
- Outside Cultural/Diversity Factors – What are they?
- How many ‘degrees of freedom’ does this create?
Program Management

Leadership Best Practices to Ensure Successful Programs

1. **Business Offer** – Understand All Aspects

2. **Create & Review Business Plan** – Schedule, Resources, Budget, Deliverables, Defined Artifacts to Meet Deliverables

3. **Organization** – Defined Responsibilities, Authority, and Accountability of Each Team

4. **Supplier Integration** – Working Together Relationship

5. **Program Execution & Control** – Issues, Scope Change, Risk Management, Quality, Communication, Scope/Change Management

6. **Risk, Issue, Opportunity Management** – Constant Visibility/Monitoring of All Impacts

7. **Help Needed / Independent Review** – Open Communication and Continuous Improvement

8. **Program Communication** – Develop and Maintain Internal/External Stakeholder Relationships and Communication
The 787 Dreamliner family
The most innovative and efficient airplane family flying today

- Comfort and convenience for passengers
- Profitability and flexibility for airlines
- Exceptional environmental performance for everyone
The 787-8: A new generation begins

Range  
7,350 nmi (13,620 km)

Passengers  
242 (2-class configuration)

Cargo  
4,397 ft³ (124.5 m³)

Length  
186 feet (56.72 m)
The 787-9: expanding the family
More capacity, capability take 787 technology to the next level

More range
+ 285 nmi (528 km)

More passengers
19 percent more than 787-8

More cargo
23 percent more than 787-8

 Longer fuselage
20 feet (6 m) more than 787-8
The 787-10: unprecedented efficiency
Maximizing fuel efficiency and family commonality

Robust range
More than 90% of today’s twin-aisle routes

More passengers
14 percent more than 787-9
330 (2-class configuration)

More cargo
13 percent more than 787-9

Longer fuselage
18 feet (5.5 m) more than 787-9
Improvements passengers can see
A more comfortable travel experience

- A place for everyone’s bags
- Dynamic LED lighting
- Inviting, spacious cabin
- More headroom
- Large windows that dim at the touch of a button
- Every seat is a window seat
Open spaces and more headroom

A more comfortable travel experience
Dynamic cabin and LED lighting
It’s easy on the eyes
Less-stressful stowage
A place for everyone’s bags
Dimmable windows

15 seconds
Simulated time
Dimmable windows

30 seconds Simulated time
Dimmable windows

45 seconds Simulated time
Dimmable windows
Everyone arrives feeling better

- Lower cabin altitude
- Better humidity
- Cleaner air
- Smoother Ride Technology
- Improved temperature control
- Excellent sound quality
787 value statement

Lower operating costs
- Exceptional fuel efficiency
- Low fees
- Low maintenance costs
- Mixed-fleet flying
- Standard airplane

Higher revenue potential
- Faster cruise speed
- More revenue cargo
- More flying days
- New nonstop routes
- Flexible seating
- Passenger preference
Careful choices, clever design

• **Lower emissions**
  – 20-25% fewer CO2 emissions
  – Below limits on hydrocarbons, smoke, NOX, CO

• **Quieter**
  – Community noise contained within airport boundaries
  – Ramp noise below ICAO regulations; cabin noise optimized

• **Lifecycle improvements**
  – ISO 14001 factory; reducing environmental footprint
  – Composite recycling
Visionary 787 design

- More-Electric System Architecture
- Composite Primary Structure
- Passenger-Pleasing Features
- Advanced Aerodynamics
- Optimized Flight Deck
- Modern Engines
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Production system
Focused on stability, quality and flow

Final Assembly sites
- Everett, WA
- North Charleston, SC

Production rate
- 10 airplanes per month, the highest twin-aisle rate in history
- To 12 per month in 2016
- To 14 per month by end of the decade
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787 Dreamliner Partners

**Wing Tips**
KAL-ASD  
Busan, South Korea

**Tail Fin**
Boeing  
Frederickson, WA

**Horizontal Stabilizer**
Alenia: Foggia, Italy  
Boeing: Salt Lake City, UT

**Rudder**
Chengdu Aircraft Industrial  
Chengdu, China

**Tail Cone**
Boeing  
Auburn, WA

**Aft Fuselage**
KAL-ASD  
Busan, South Korea

**Aft Fuselage**
Boeing  
Charleston, SC

**Flap Support Fairings**
KAL-ASD  
Busan, South Korea

**Fixed Trailing Edge**
Kawasaki Heavy Industries  
Nagoya, Japan

**Wing**
Mitsubishi  
Nagoya, Japan

**Nacelles**
Goodrich  
Chula Vista, CA

**Center Fuselage**
Alenia  
Grottaglie, Italy

**Mid-Forward Fuselage**
Kawasaki Heavy Industries  
Nagoya, Japan

**Forward Fuselage**
Spirit  
Wichita, KS

**Center Wing Box**
Fuji  
Nagoya, Japan

**Cargo Access Doors**
Saab  
Linköping, Sweden

**Wing/Body Fairing**
Boeing  
Winnipeg, Canada

**Engines**
GE: Evendale, Ohio  
Rolls-Royce: Derby, UK

**Main Landing Gear Wheel Well**
Kawasaki  
Nagoya, Japan

**Passenger Entry Doors**
Latécoère  
Toulouse, France

**Moveable Trailing Edge**
Boeing  
Melbourne, Australia

**Fixed and Moveable Leading Edge**
Spirit  
Tulsa, OK

**Landing Gear**
Messier-Bugatti-Dowty  
Gloucester, UK

**Fixed and Moveable Trailing Edge**
Boeing  
Melbourne, Australia

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Dreamlifter route structure

Everett Final Assembly

Section 41
Wichita, KS to Everett, WA

From Nagoya

Joined Section 43-46
North Charleston, SC to Everett, WA

Wing Box
Nagoya, Japan to Everett, WA

Section 11/45
Nagoya, Japan to North Charleston, SC

Horizontal Stabilizer
Foggia, Italy or Salt Lake City, UT to Everett, WA

Joined section 47-48
North Charleston, SC to Everett, WA

Section 44
Grottaglie, Italy to North Charleston, SC

Section 43
Nagoya, Japan to North Charleston, SC
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Use In Your Student “Career”

What can you take from the Best Practices and Implement today?