TRAINING & FLIGHT SERVICES

Next Generation of Aviation Professionals

LIFECYCLE SOLUTIONS

Day 3 – Panel 8 OEM's and Training
04 March 2010

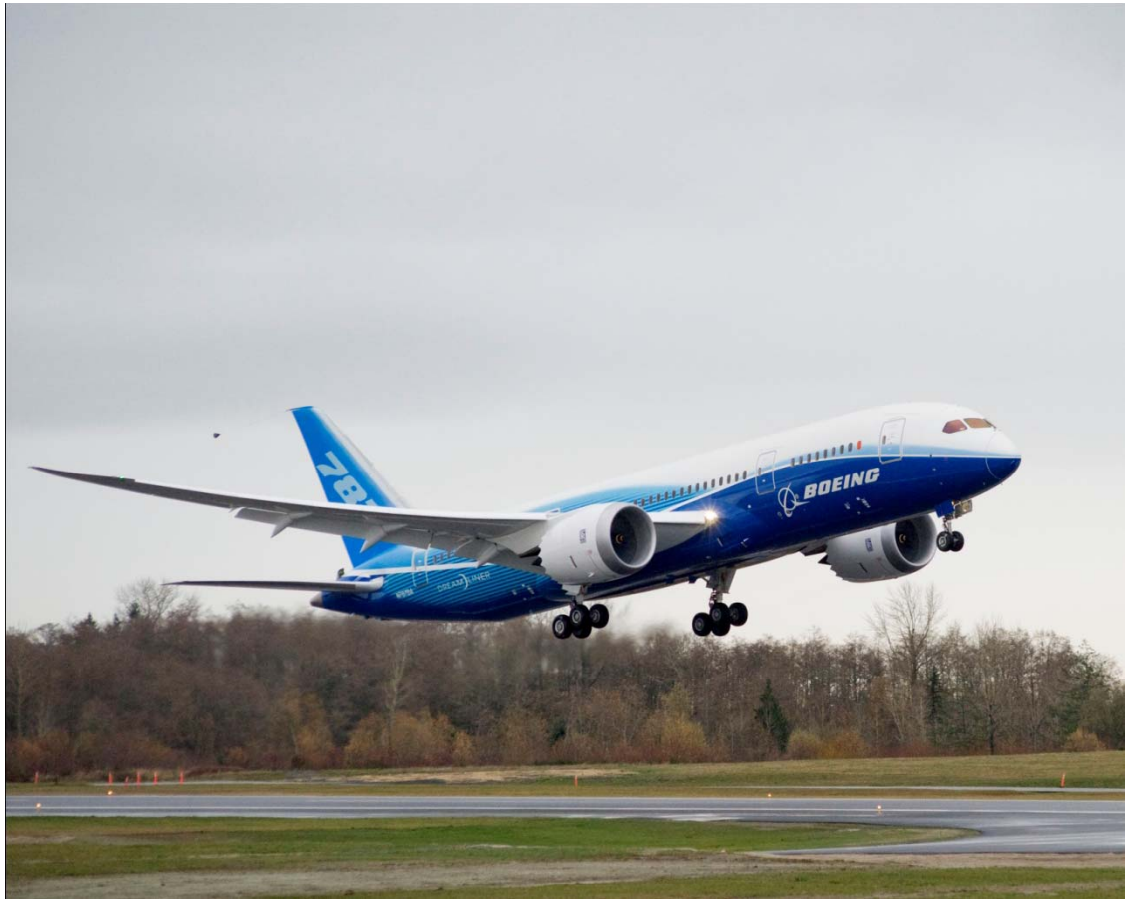
Paul Niles
Manager, MT Programs
The Boeing Company
Training and Flight Services

Magnitude of the Shortages

- Airlines will need 25,000 new aircraft in the next 20 years in addition to the 17,000 existing commercial aircraft (AET&M, 2008)
- Studies show that we will need 480,000 new aviation technicians by 2026. (Boeing Training and Flight Services)
- Average age of aircraft maintenance engineer/ technician/engineer in Europe is 40, and in the US, its 53 years of age. (Aviation Week, 2008)
- In 2017 the aviation personnel shortage in Canada will be equal to the 2008 Canadian aviation workforce. (NGAP Roundtable, 2009)
- Currently 1400+ 787 and A350XWB on order

Current Challenges

- New aircraft require new skills and knowledge
- Lack of harmonization in global regulations
- Global initiatives to update regulation/ guidelines
- Any solution must involve an integrated solution involving industry members. (OEMs, Operators and the Regulators)



The New Aircraft technology challenge:

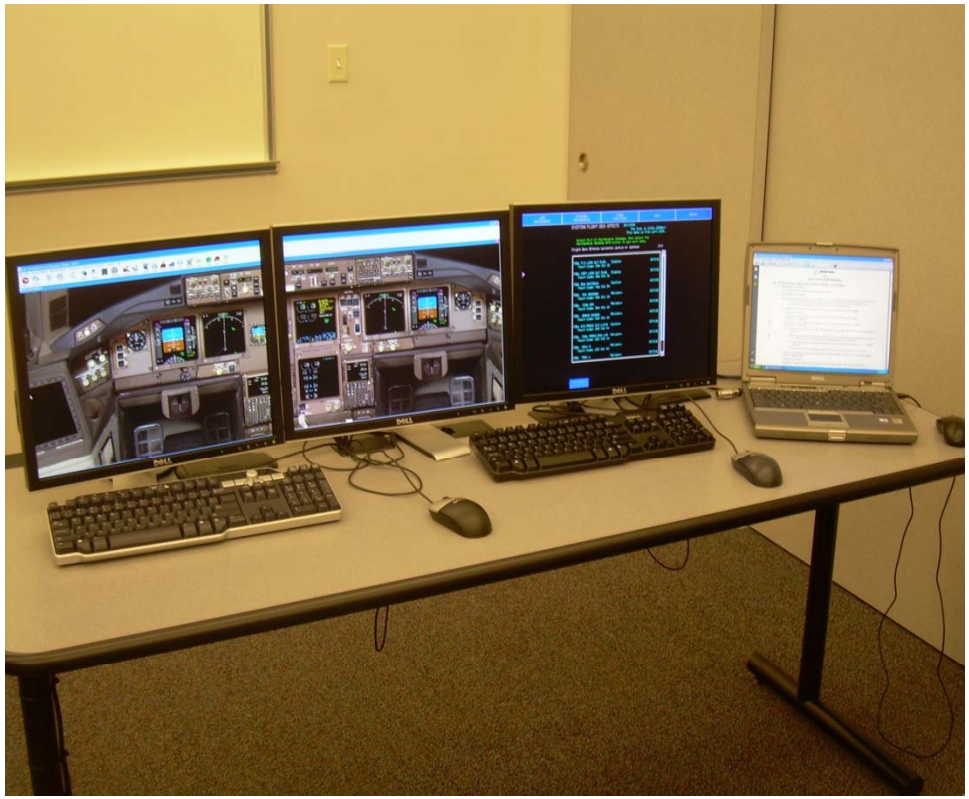
- **New Skills Mix**
- **New Training methodologies**
- **Regulatory requirements for new technology**
- **New Assessment techniques using Simulation**
- **Create embedded solutions**

Challenge: New Skills Mix

- **New Skills Mix**
  - **Avionics / Airframe combination**
  - **System integration has blurred the line to define each discipline**

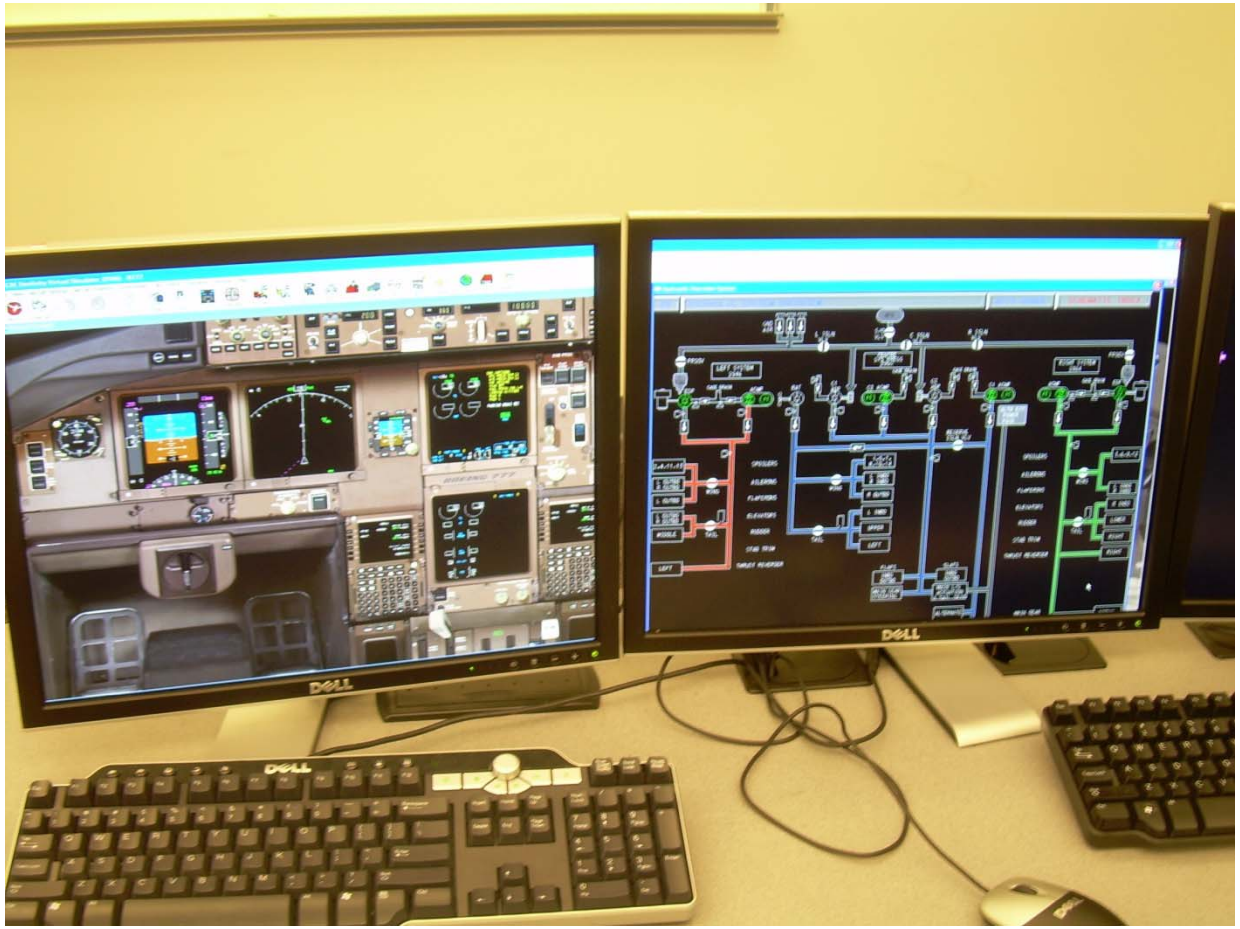
Challenge: New Training Methodology

- **New high fidelity synthetic training devices are required.**
- **Training time on the real airplane is becoming more difficult and more expensive**
- **No one is going to take apart an operational aircraft in the name of training.**
- **Need to have regulatory acknowledgement that the airplane is not the best device on which to conduct a greater amount of training.**



Challenge: New Assessment Techniques

- **The shift in emphasis is away from systems knowledge and much more toward system operation, integration and troubleshooting.**
- **Synthetic Based Training (SBT) exams hold great promise as regulations allow**

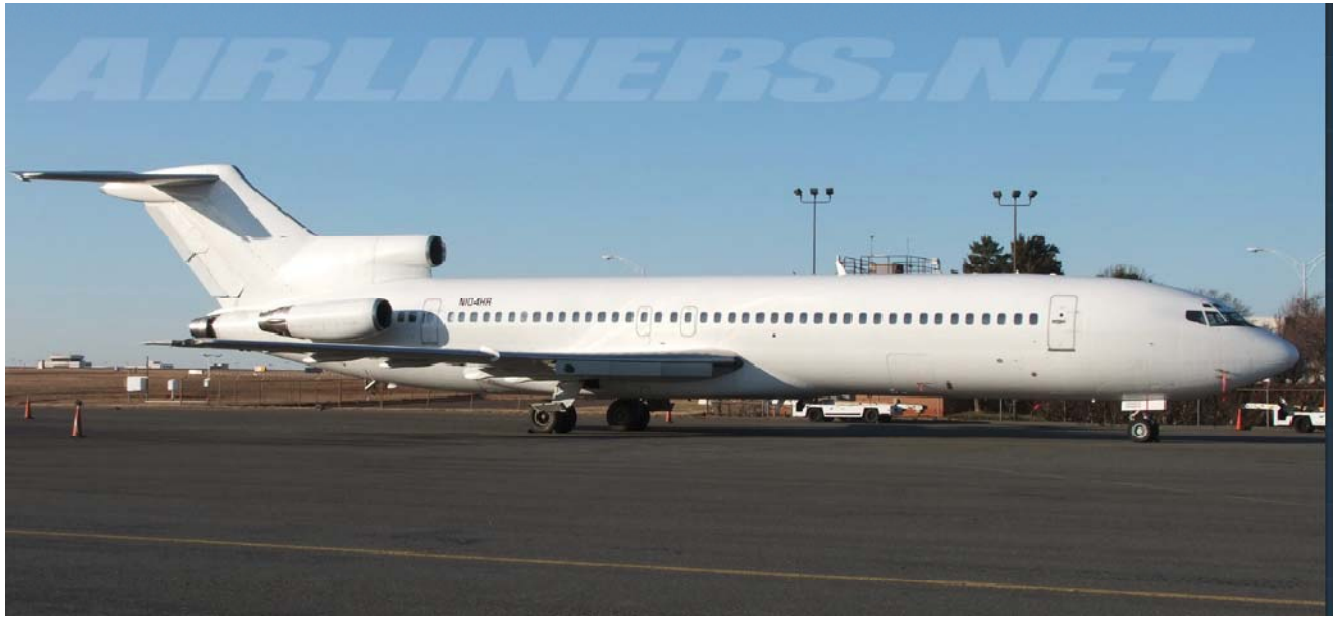


Challenge: Regulatory requirements

- **Harmonized globally for new technology**
  - **New fundamentals must be taught and tested**
  - **Establish the basis for follow-on training**
  - **Acceptance that simulation devices are becoming a necessity.**
    - **Simulating modern system troubleshooting in aircraft**
    - **Acceptance that portions of OJT may be on a desktop simulator**
- **Update knowledge and practical assessment criteria to include modern technologies**
- **Balance next generation and mature technologies in regulatory oversight**

Embedded solutions: existing fleets

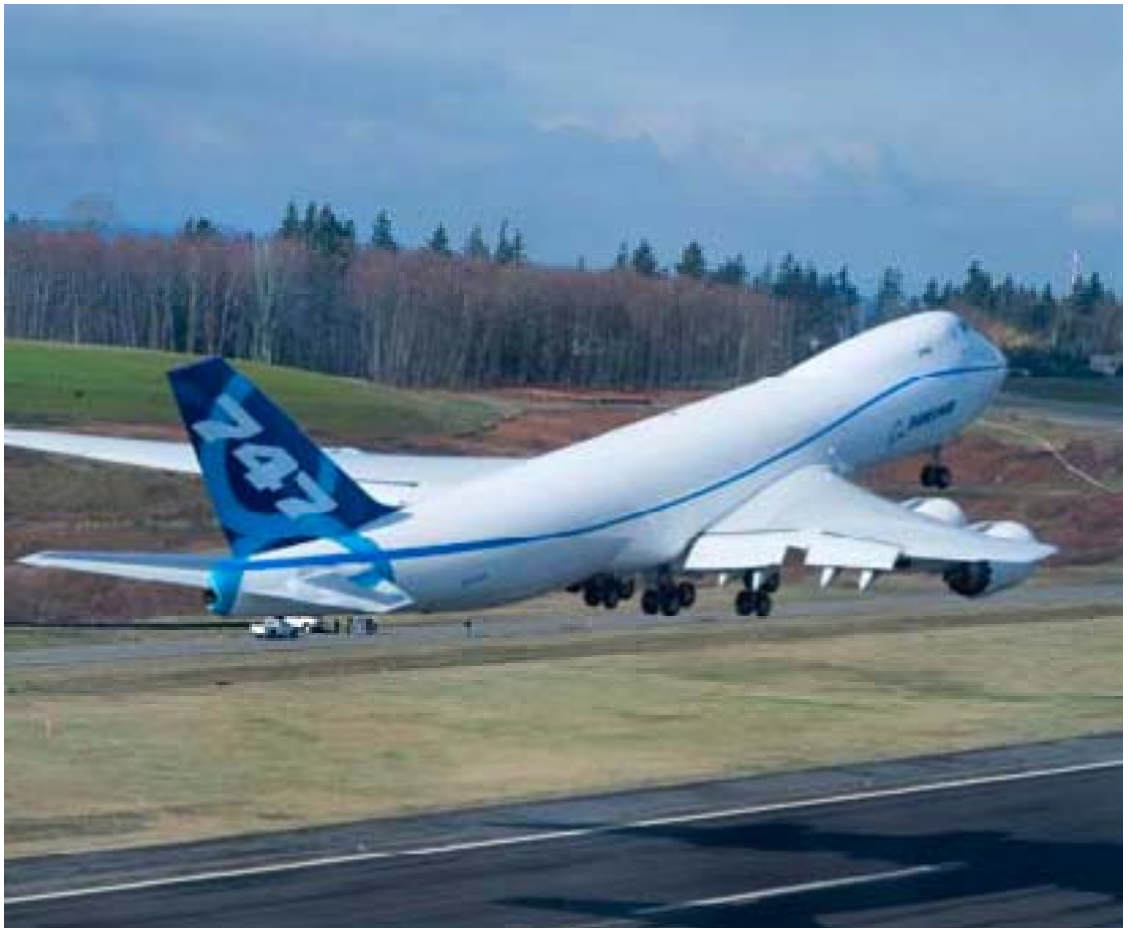
- **Do more maintenance with less personnel**
- **Operate and maintain mixed (old and new) fleets**
  - **Existing fleets of “non computer, non-glass, non-high-bypass fan” aircraft are still flying in commercial aviation**
- **Aging aircraft issues**



Jay Selman/www.AirlinersGallery.com

Embedded solutions: previous learning

- **“Recognition of Previous Learning (RPL)”**
- **Acknowledge similar training to meet certification standards**
- **Recognition for experience/competency**
- **Most regulators have some form of this for military technicians**
- **Offshore technicians may get credit toward certification**
- **Entry criteria for technicians from other technology trades**

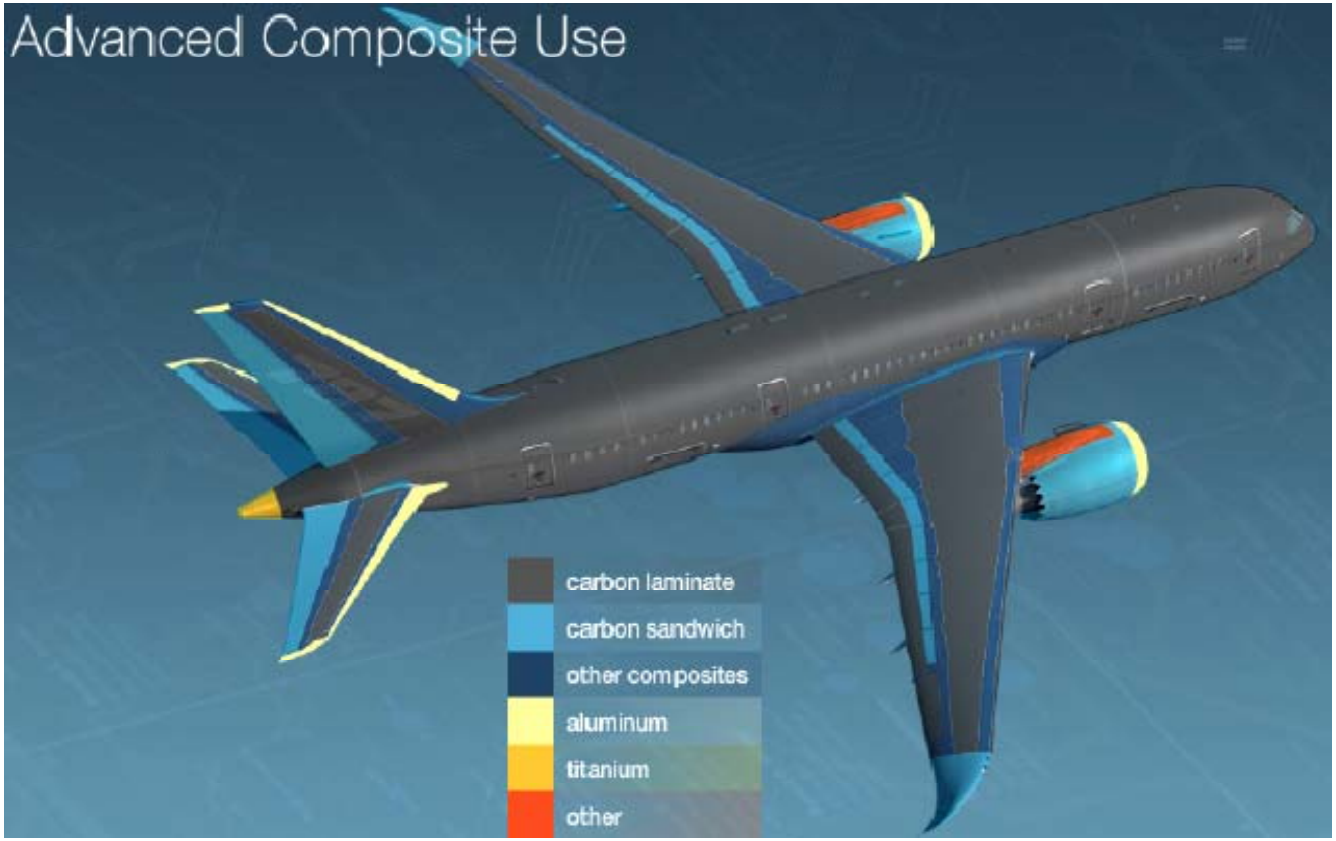


Next Steps: Fundamental Questions

- What will we need from our future employees?
- What do they want from us?
- How can regulatory bodies help this situation in a global environment?
- Should there be separate specialized training or included as part of the basic license?
- Do we need to re-examine the privileges for each license?
- How will we regulate training and qualifications for the wide range of aircraft ages and technologies?
- How do we incorporate the new technologies with mature technologies in the license training?

Next Steps: Specialty Training

- Advanced Composite repair
- Fiber Optic Training
- Aviation IT/Database Infrastructure



www.boeing.com

Next steps: Suggested Actions

- **Future Maintenance License**
- **Highly integrated training programs**
- **New assessment techniques using simulation**
- **Collaborative involvement in program development (OEM, Customer, Regulatory Agencies)**
- **Fleet maintenance and integrated training programs across all generations of aircraft**

Global Initiatives

- ITQI – IATA Training and Qualification Initiative
- ICAO – NGAP – Next Generation of Aviation Professionals
- ATA 104 Update
- EASA NPA 2009/01 (21.039) – Operational Suitability Data

Thank You!

Paul W. Niles

Manager – Maintenance Training Programs

paul.w.niles@boeing.com

+1.206.653.4576