

Boeing's CBTA Program: Enhancing Pilot and Maintainer Competency



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- Investing in a safer industry – Global Aerospace Safety Initiative
- Why CBTA?
- Our CBTA program and solutions
- The “voice” of the customer: CBTA value and challenges
- Next Steps

Investing in a Safer Industry – Global Aerospace Safety Initiative

- Aligning safety management systems
- Enhanced support for customer aircrews and maintainers
- Using Advanced Analytics
- **Evolving to competency-based training and assessment**
- Strengthening our global safety and regulatory engagement
- Operational Aspects of Design



Why CBTA?

- Boeing is evolving its approach on training customers' pilots and maintainers.
 - Pilots and maintainers will learn the **essential technical knowledge** about how to operate Boeing products safely and develop the **skills, attitudes and values** required to achieve the highest levels of safety.
 - CBTA is an evolution of Crew Resource Management (CRM) and Threat and Error Management (TEM) programs.
 - Like AQP and ATQP, CBTA seeks to use **operational data** to inform training programs.



CBTA

9 Pilot competencies and TEM

Develop competent and resilient pilots

Student-centered

Enhanced measurement of standards

Drives relevant licensing system

Comprehensive metrics

Curriculum

Goal

Instructor – vs –
Student Centered

Assessment

Licensing

Metrics/Data

Traditional Training

Mainly three technical training elements

Training and checking against a task list

Instructor-centered

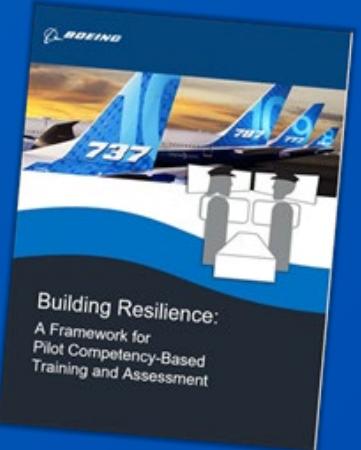
Numeric flight path deviation and tolerances

Requirements based on incidents/accidents

Limited metrics

Learning program

- *Building Resilience*
 - “De-mystify” industry guidance
 - Role of human factors
 - Evolution of CRM and TEM
- Training Needs Analysis (TNA)
 - Competency mapping
 - Malfunction clustering
- Instructor training
 - Instructor skills course (ISC)
 - Facilitation & mentoring
 - Instructor orientation to pilot competencies (IOPC)
 - Competencies & behaviors



Learning environment

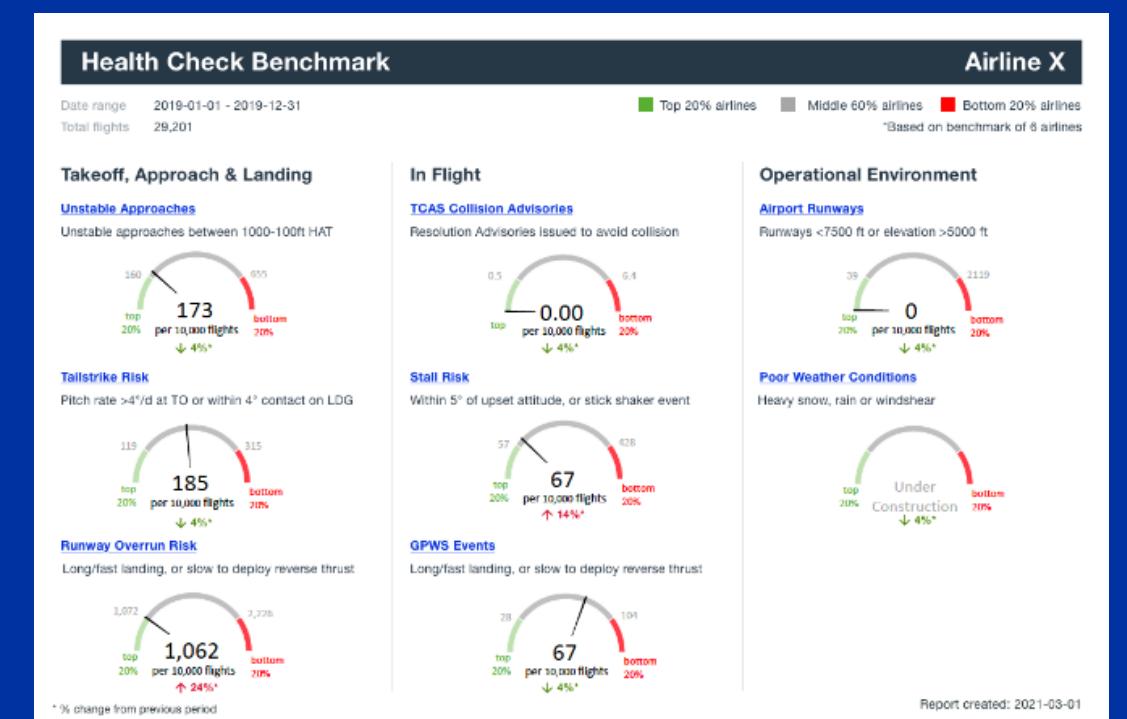
- Engaging and immersive theoretical training
- Systems & procedures
- Deep learning, retention and real-world application
- Learning modality selection



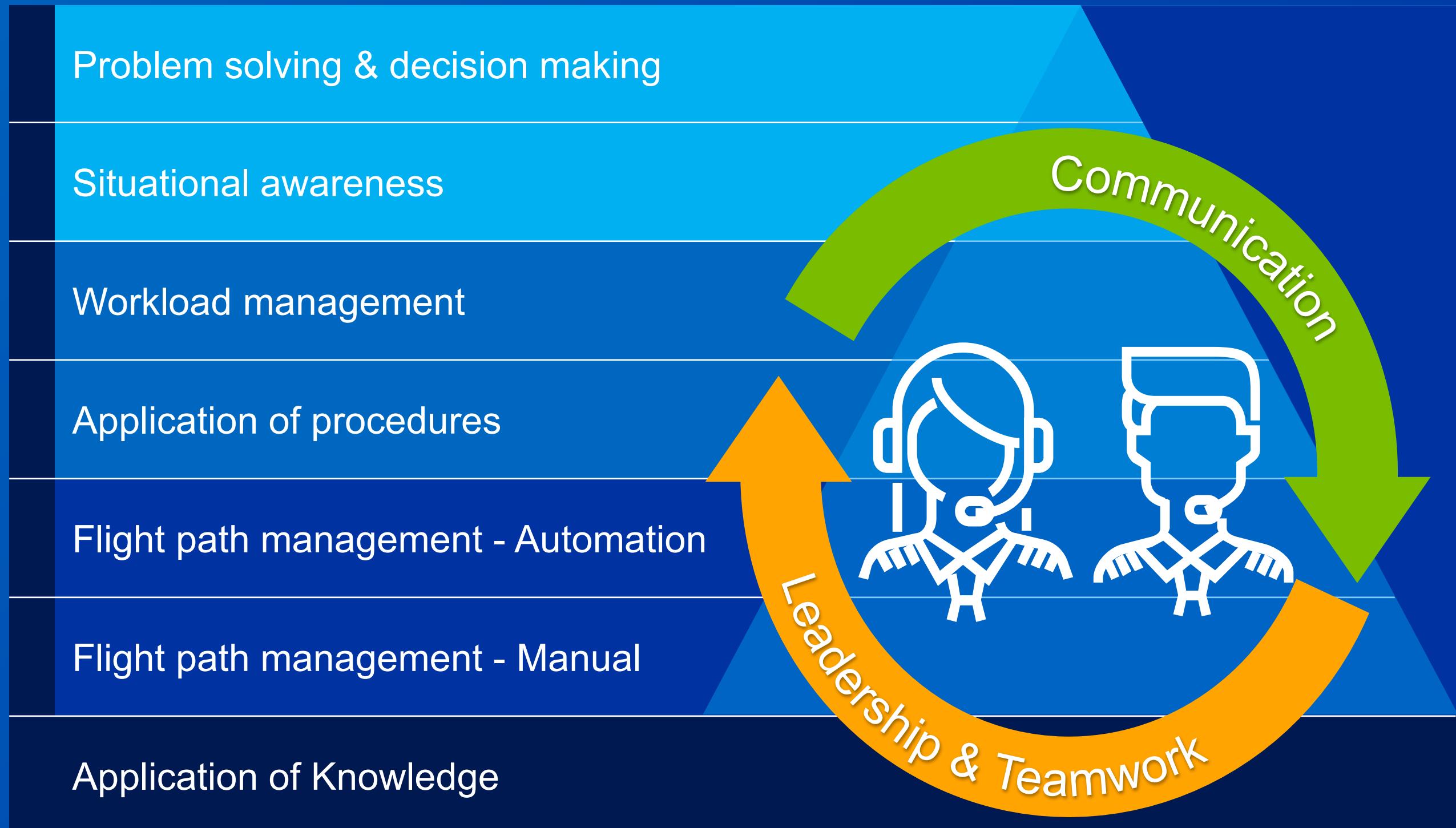
- Student-centric practical training environment
- Importance of brief and debrief
- Optimizing FSTD time

Closed-loop learning system

- Collecting assessment data
- Synthesize with operational data
- Analyze and interpret the data
- Establishing benchmarks & trends
- Learning Science research
- Training effectiveness studies
- Drive standardization
- Elevate performance



Pilot Competency Framework



The Value of the Pilot Competency Framework

- Pyramid focuses on a flow that begins with knowledge foundation
- Establishes a common language
- Provides a “guide” for observations – enabling root cause analysis
- Competencies serve as countermeasures to threats & errors

CBTA Learner Solutions:

Digital tools enhancing knowledge, application of procedures, problem solving, decision making and other pilot and maintainer competencies.



Maintenance Synthetic Trainer



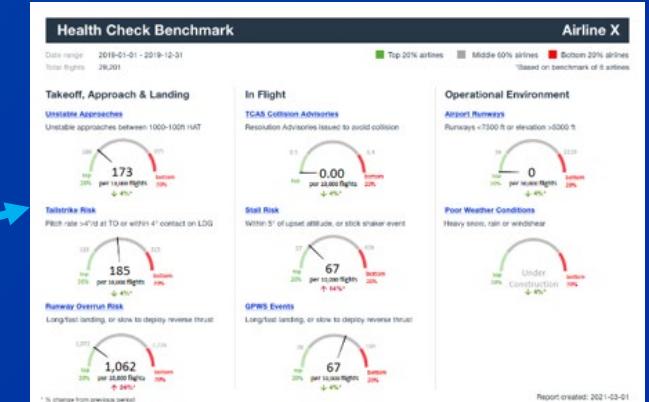
Virtual Procedures Trainer

Informing Training through Safety Data Analytics (SDA)

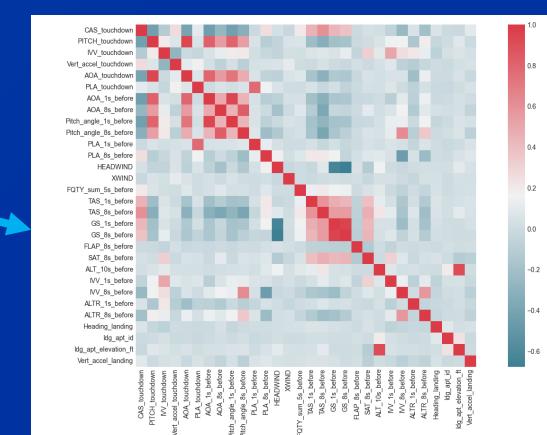
Quick
Access
Recorder
Data



Tailored Recurrent
Training Programs



Safety Performance
Benchmarks



Correlation Analytics



Monitoring and Training
Effectiveness Assessment

CBTA Courses



- Instructor training
 - Instructor Skills Course (ISC)
 - Instructor Orientation to Pilot Competencies (IOPC)
 - Recurrent Instructor Training – focus on calibration
- Type Rating
 - PEC (EASA) and STAR (FAA) Courses
- Differences Training
- Recurrent Training
 - FAA program
 - EASA Aligned program
 - Jet Bridge
 - Command Upgrade
 - Specialty Course Training
 - Upset Prevention and Recovery Training (UPRT)

Customer-Centric Journey

Small Group Tryouts (SGTO)

- Instructor training (IOPC)
- 737NG and MAX Type Rating & PEC
- 737NG/MAX Recurrent training
- 787 Type Rating and PEC
- Jet Bridge
- 8 customers participated in SGTOs

Heads of Training (HoT) Engagements

- 14 HoT engagements at Istanbul, London-Gatwick, Singapore, Miami, Shanghai and Addis Ababa
- 79 customers and 26 regulators
- Instructor training
- 737NG/MAX Recurrent program + UPRT
- Program and learner solutions overview

Collaboration with Airlines

- Several airline partners have been deeply involved in the development and implementation
- Validate deployment patterns
- Includes regulators and unions in collaboration

For Credit Training

- 737MAX Type Rating
 - 60+ pilots trained
 - Developed *Type Rating Preparation Guide* so that students and Training Managers know what to expect out of the program.
 - Support of new entry into service customers

Common Customer CBTA Challenges

- Where do I start?
- How do I engage and work with my regulator?
- How do I engage and work with my pilot's union?
- Grading!
- How do I train and standardize my instructors?
- What if instructors don't "buy in" to the concept?
- How do I balance this change with other challenges?
- How do I manage all the data?
- How will I know it's having an impact on safety?



Next Steps for CBTA

- Instructor Training course updates:
 - New videos, Instructor Recurrent Training
- Support to customer 121 operations:
 - 12 customer engagements in 2023
- Early Career Training:
 - Core FAA & EASA programs
 - Supplemental Content Library
- Maintenance training:
 - Digital Solutions and Enhanced Practical Training
- Regulatory Engagement on CBTA
- Aircraft Manufacturers Flight Training Association (AMFTA) Coordination



