



Global Services

# 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.

## FLY

- Control flight path
- Do not hurry

## FOCUS

- Control emotions
- Check fellow crew member(s)
- Observe, identify and confirm

## ACT

- Event management
  - PIC designate PF
  - PM Communication and coordination
  - Crew execute final plan

## 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

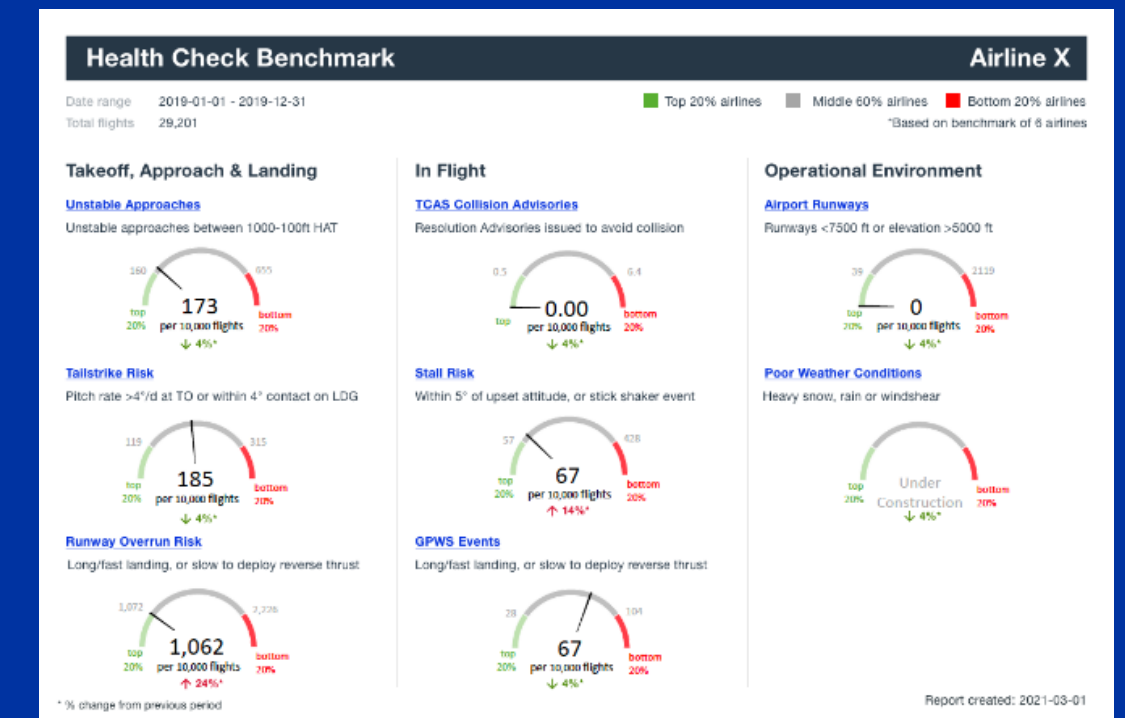
- Engaging and immersive theoretical training
- Systems & procedures
- Deep learning, retention and real-world application
- Learning modality selection



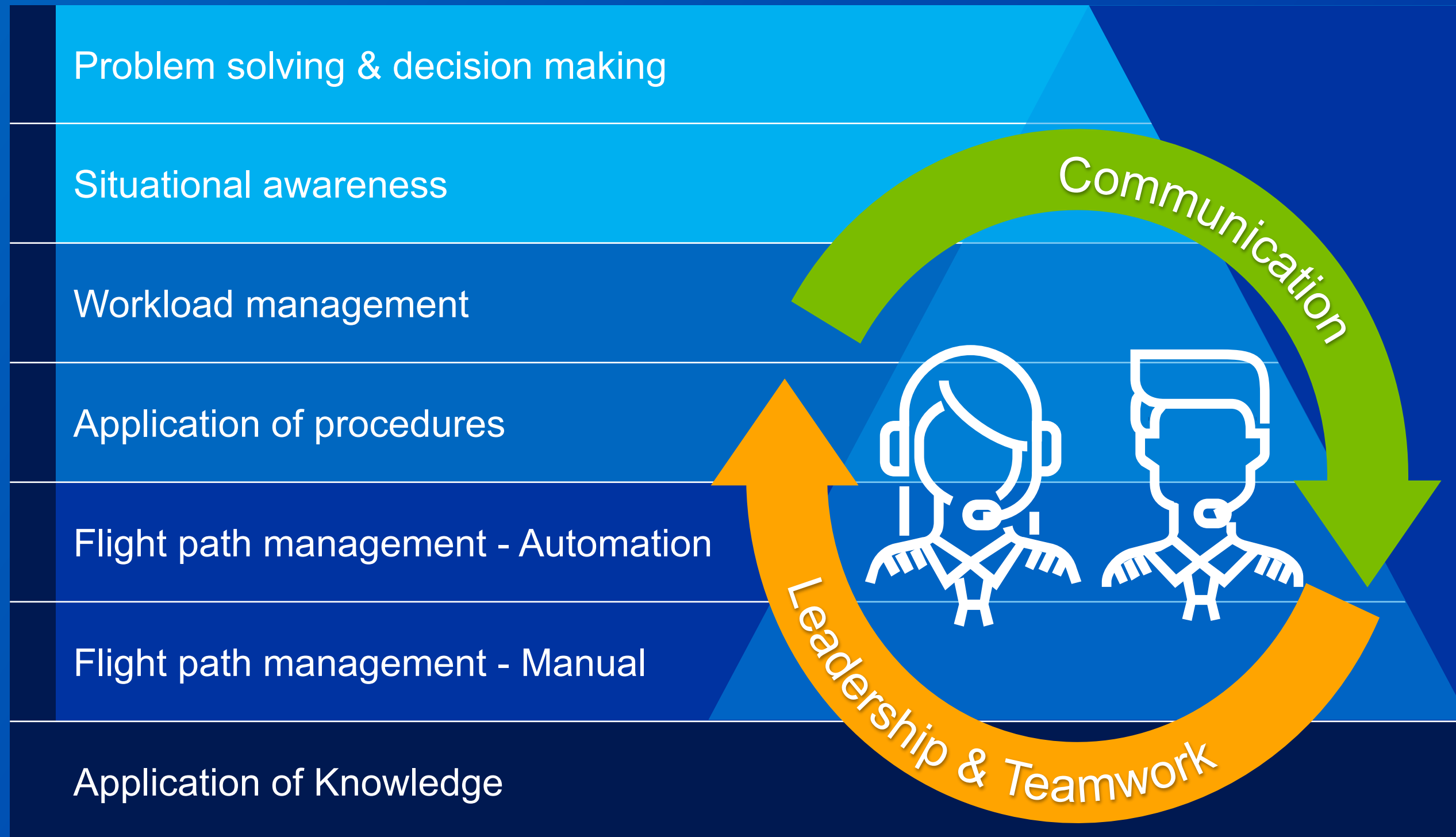
- Student-centric practical training environment
- Importance of brief and debrief
- Optimizing FSTD time

## 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

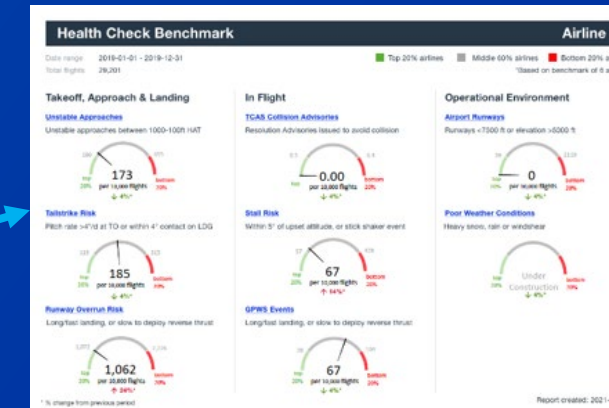


# Informing Training through Safety Data Analytics (SDA)

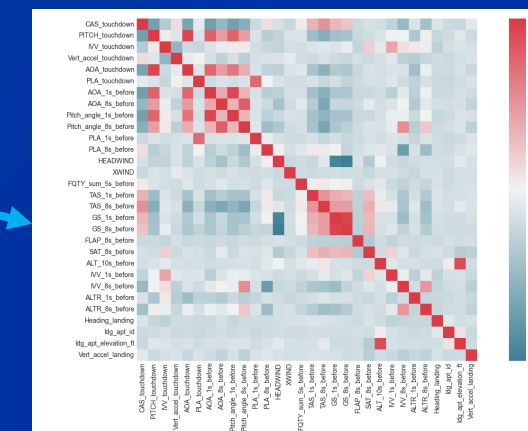
# Quick Access Recorder Data



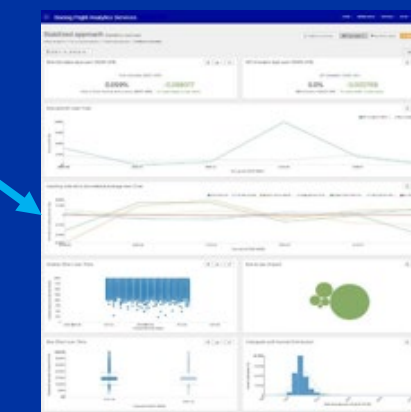
## Tailored Recurrent Training Programs



# 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



