

EDITORIAL PREFACE

Kevin M. Smith, US Navy (Retired), USA & United Airlines (Retired), Mesquite, NV, USA

WELCOME

Welcome to the inaugural edition of the *International Journal of Aviation Systems, Operations and Training (IJASOT)*. On behalf of all of us on the editorial team, let me say that we are honored to have this opportunity to communicate with you, and address important aspects of systems design, effective operations, and Training advancements for the aviation community.

We will be pulling together experts and practitioners from many fields to provide our readers a rich source of useful information on areas of high interest. While some of these categories will evolve over time, currently the aviation community is being propelled forward by rapid and exciting progress in three key areas. These are 1). Digital Avionic system leading to convergent technology applications; 2). Worldwide autonomous navigation capabilities; 3). Autonomous precision approach operations; 4). System wide safety assurance; 5). The “Smart Cockpit Initiative” including an on-board risk management decision aid; and 6)

High speed sonic and supersonic commercial flight operations.

MISSION STATEMENT

The purpose of this Journal is to bring to the aviation community the latest innovations in aeronautical systems, aviation operations, and aircrew training with the goal to promote *excellence in Flight Operations*. The aviation community is on the verge of yet another set of significant advancements, where economically viable commercial high speed flight, convergent and *smart* technology applications, advanced aircrew training programs, and system wide safety assurance methodologies are now able to support critical mission activities and thus improve flight safety and efficiency in ways that heretofore were not possible.

Indeed, recent advancements in the disciplines of Convergent Systems Engineering coupled with Mission Performance Modeling, related technological advancements such as

Satellite Navigation, along with corresponding and important advancements in Propulsion Systems and Aerodynamics are ushering in new and exciting concepts in airborne systems and their expanded operational capabilities. Among other things, these advancements are manifesting themselves in the form of mission adaptive flight deck features that possess *built-in* automatic capabilities designed to adapt to changing operational conditions. The other compelling areas being pursued are high-subsonic and supersonic flight. This is yet two of many advancements that we in the Journal will be reporting on.

Many will enjoy the Journal. We will focus our attention, however, on the mid-career aviation professional who is looking for somewhat more actionable information so as to promote excellence in flight operations for himself and his organization.

IJASOT is always on the lookout for emerging, cutting-edge technologies, advanced engineering methods, human performance optimization strategies, machine knowledge-based components, and flight safety management programs; such that continuous improvements in Air Operations can be realized. Aviation professionals are therefore encouraged to submit articles for possible publication in this important Journal.

Our motto:

Working together to achieve excellence in flight operations.

AREAS OF INQUIRY

Approach and Landing Accidents

Serious concerns are being expressed throughout the industry on a subject that has taken on the title as a “Hot-Button” item. And this is the approach and landing safety problem. Approach and landing accidents and incidents

have recently risen to be the number one cause of airline accidents worldwide. Moreover, the number of runway excursion incidents has risen to an alarming rate to about one every two weeks. While a precise and accurate problem definition has not been agreed upon by the industry as a whole, this safety problem has most professionals deeply concerned.

The Journal will address this significant safety issue from a number of perspectives. In this issue we begin this process by reporting on the major findings of the Go-Around Safety Forum, held at EUROCONTROL Brussels, in June of 2013. Mr. Blajev Tzvetomir Principal Investigator. This is an important report that should be of concern to us all. The key assertion that the forum makes is that improving the flight crews decision making process with respect to the “continue the approach or go-around” will have the greatest single positive impact on flight safety. Consequently, the Journal will be investigating on board systems to aid this process, such as an “on-board approach and landing decision aid”. A number of these flight deck features are being considered at this time. Also targeted training and improved procedural specifications are important as well. Finally, we believe more work needs to be accomplished in the area of improving the clarification of the operational parameters that constitute an actual or pending dynamic instability event during the approach and landing phase of flight.

Convergent Technology Applications

This field of endeavor represents significant advancements in digital avionic systems capabilities that include leading edge concepts that provide for a mission adaptive display environment for modern flight deck systems. Mission adaptive displays are defined as flight deck display features and representations that automatically adapt themselves to changing operational conditions. Using this functional-

ity, the ability to provide the flight crew with the “right information at the right time” is now within our grasp. We will be reporting on developments in this especially promising aspect of the aviation system over the months and years ahead. Interestingly, this is where an on-board risk management decision aid receives its knowledge base.

Advanced Qualification Program

The Advanced Airline Pilot Training Program is of significant interest to us at the Journal. This is known as AQP (Advanced Qualification Program). AQP is an approved alternative training program for Pilots and Dispatchers of Part 121 and Part 135 commercial flight operations. It also covers in certain aspects flight attendant training. Mission realistic training and evaluation is the central theme of an AQP, and as such pilots, dispatchers and other operational personnel are expected to learn and demonstrate effective problem solving capabilities. The Journal will be reporting on a number of initiatives and innovative programs surrounding AQP in the months and years to come.

High Speed Commercial Flight Operations

Recent initiatives by NASA as well as some commercial firms have stimulated renewed thinking about sonic and supersonic flight. While sonic flight is likely feasible in the near term, supersonic flight will require additional research and development. Nevertheless, we at the journal are very interested in the idea of expanding the operational envelope to include high speed flight operations.

Military Airborne Weapon Systems

A relatively large number of recently employed or emerging military Tactical, Strategic and Support aircraft will provide us at the journal the opportunity to report on these systems to our readership. For example the new Airforce Tanker, the KC-46, the new Joint Strife Fighter, the F-35, and new strategic bomber concepts are but a few of the many programs that would be of interest to the readers of the Journal. We will cover many of the defense systems from an operational perspective, with added focus on the flight deck environment as well as operational training.

Interviews

Periodically we will conduct and report on interviews of key members of the aviation community. These will be informative and hopefully inspirational for many of our readers. They will include members of the commercial and military aviation as well as the manufacturing and support industry.

Finally

As always, our readers are important to us. We encourage you to submit ideas for articles, suggestions for improvements to the journal; and most importantly, full-length articles for publication.

Kevin M. Smith
Editor-in-Chief
IJASOT