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Building a Collaborating Culture; A Need for Partnerships among K-12 and Postsecondary Institutions

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Building a Collaborating Culture; A need for Partnerships among K-12 and Postsecondary Institutions

(Presented at the ACTEAZ Midwinter Conference)



**Dr. Tim Holt, FRAeS, C.M.
Associate Professor
Aeronautics Program Chair
PLTW Affiliate Director**

Bio

I am a twenty-two year Navy veteran (retired as a Chief Petty Officer) and Naval Aircrewman. While on active duty I operated on both fixed wing, (P-3 Orion) and rotary wing, (MH-60S KnightHawk) platforms logging more than 2,000 hours as a Flight Instructor/Evaluator. I served as Operations Chief and Electronics Warfare Operator for Patrol Squadron 67 (VP-67), Patrol Squadron 65 (VP-65) and Patrol Squadron 64 (VP-64), was Operations Chief for Commander Patrol Wing, and served as Training Officer, Rescue Crew Chief and NATOPS Flight Evaluator on the Staff of Commander Helicopter Wing. My last tour was as the Director of the Reserve Helicopter Training School in San Diego, CA. Currently I'm serving as the BSA Program Chair, in the College of Aviation, Dept. of Applied Aviation Sciences.

I have been married for 27 years and we have a Son graduated from Arizona State University (completed grad school with ERAU-Worldwide) and another that graduated from ERAU in Prescott (in grad school with ERAU-Worldwide). I also like to work on my never improving golf game in my spare time.

Education:

- PhD in Education (Educational Leadership), Northcentral University
- M.A.S. (Aviation / Aerospace Safety Systems with a Human Factors emphasis), Embry-Riddle Aeronautical University
- B.S.P.A., Embry-Riddle Aeronautical University

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United States

- **Aerospace Manufacturing Hourly Earnings**

- 2005 \$23.91
- 2006 \$25.43
- 2007 \$28.18
- 2008 \$29.93
- 2009 \$32.25
- 2010 \$33.66



AIRBUS

NORTHROP GRUMMAN



BOEING®

FedEx

LOCKHEED MARTIN



- **Overtime**

United States (Cont.)

- **2009 Aerospace Industry Employment**
 - US 644,200
- **2009 Top 5 States**

– California	112,903
– Washington	84,600
– Texas	55,926
– Kansas	38,698
– Arizona	38,432

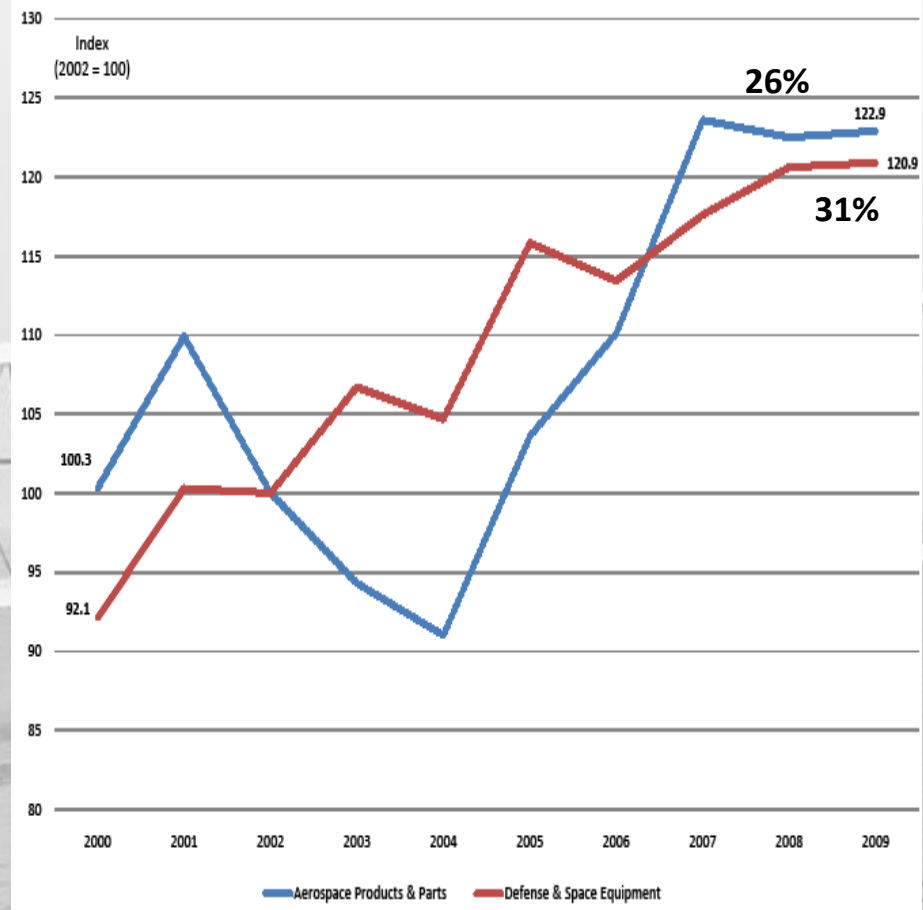


United States (Cont.)

- **2010 Aerospace Manufacturing Employment by Age Group**
 - 45 to 54 **33.7%**
 - 55 to 64 **20.2%**
 - 65+ **3.8%**
 - **Workforce Replacement a National Issue**
 - By 2030, 460,000 Additional Aircrew
 - By 2030, 650,000 Additional Maintainers
- 
- A biplane is shown on a runway, viewed from a low angle. The plane is white with a dark fuselage and is positioned in the middle ground. The background is a hazy, overcast sky and a flat, light-colored ground surface.

U.S. Aerospace Industrial Production Index 2000-2009

- Defense spending allowed production to increase.
- Increasing demand for civil aircraft is keeping production going – driven by emerging markets.



Source: U.S. Department of Commerce, Bureau of the Census and ITA; U.S. Department of Labor, Bureau of Labor Statistics; Federal Reserve Board.

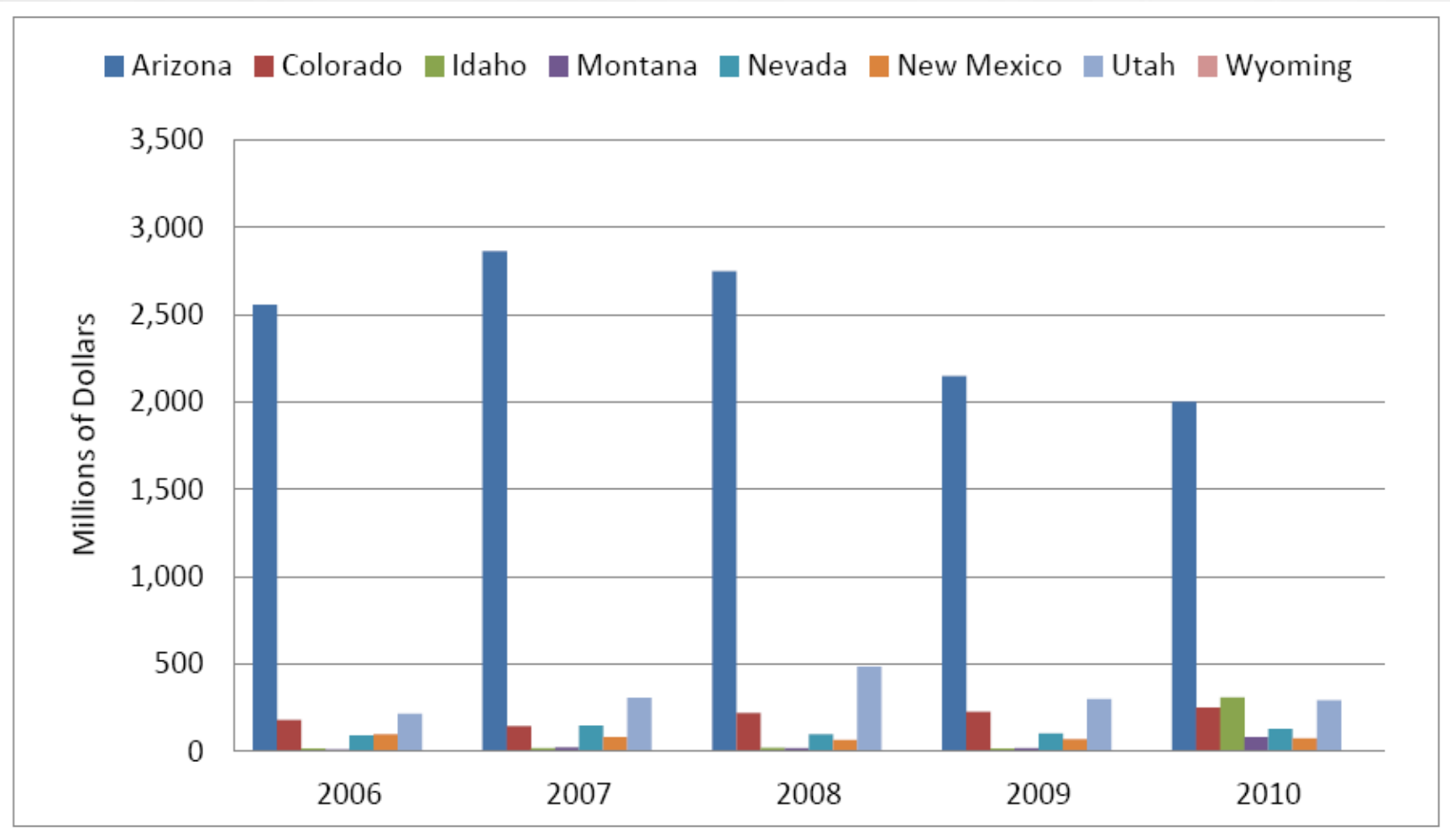


Arizona

- **2011 Phoenix/Mesa**
 - Mean Labor Rate of \$23.06 per Hour
- **2011 Arizona Federal Contracts for R & D**
 - \$286 Million
- **2010 MRO Employment & Economic Impact**

– Arizona	13,445	\$2.700 Billion
– Washington	13,898	\$2.586 Billion
– California	37,566	\$5.005 Billion

Mountain Region Exports by State



Source: TradeStatsExpress, International Trade Administration



Arizona (Cont.)

- Mountain Region Exports approximately 10% of Pacific Region
 - 2010 Mountain Region Exports 21% Lower than 2006
 - 2010 Aviation Week Recommendations
 - Focus on STEM and STEM Related Skills
 - Develop Collaborative Partnerships
 - Recruit Students
- 
- A black and white photograph of a biplane on a runway. The biplane is a classic open-cockpit aircraft with two sets of wings. It is positioned on a flat, light-colored surface, likely a runway or taxiway. The background is a clear, light sky. The image is slightly faded and serves as a background for the text.



We have to retain the capability to manufacture what we invented.

***Jim McNerney
CEO, Boeing***

Source: Wall, R. & Flottau, J. (2010, August 9) Stress Test. Aviation Week & Space Technology

Photo Credit: The Boeing Company



Workforce Development

- **STEM & STEAM Secondary Education**
 - More than Chemistry and Calculus
 - Parent and Student Education



Workforce Development (Cont.)

- **Montgomery, Alabama, Airbus A-320 Family**



- **Collaborative Partnership**

Workforce Development (Cont.)

- **Barriers to Innovation**
 - **Fixated on the Past & Present – “We’ve Always Done it this Way”**
 - **Fear of Failure – “Too Risky”**
 - **Surviving the “Valley of Death” – “How can we Bridge the Gaps?”**
- ***“Even if you are on the right track, you'll get run over if you just sit there.” - Will Rogers***



Career and Technical Education

- **Project Lead the Way**
 - Excellent pathway to integrate university STEM & STEAM courses into high school curriculum
- **Real World Design Challenge**
 - *FREE* annual competition that provides students with the opportunity to apply lessons of the classroom to technical problems currently faced in the engineering field



Career Ready Students

- **Arizona Career and Technical Education Prepares High School Graduates for**
 - Entering the Workforce
 - US Armed Forces
 - Technical School
 - State Licensure
 - College
- **Next Steps?**



Possible Curriculum Tracts

- **Aviation & Aerospace Customizable Curriculum Tracts**
 - **Arts & Sciences**
 - **Engineering**
 - **Aeronautics**
 - **Air Science**
 - **Aviation Maintenance and FAR Part 65**
 - **UAS**
 - **Business**



JROTC

- **All US Armed Services**
 - Value Added Skills
 - **USAF JROTC Enlisted Benefits**
 - **College Preparation**
 - **Academies**
 - **ROTC**



THE BUILDING BLOCKS OF COLLABORATION

Components:

WHO is involved in collaboration and WHERE it occurs

Barriers:

WHAT stands in the way of effective collaboration

Strategies:

HOW collaboration occurs

Outcomes:

WHY we collaborate



- Partnerships involve educators working together as equal partners who share responsibility for the learning success of all students.

- This is seen when you “Establish intentional coordination, consistency and continuity through joint problem solving two-way communication and shared decision making.”

WHAT IS COLLABORATION?

- Best Practices says collaboration is a process by which two professionals engage in a nonhierarchical relationship to develop interventions.
- Simply stated, collaboration is...



COLLABORATION STRATEGIES

A biplane is shown in flight, flying over a field. The plane is white with a dark propeller and landing gear. The background is a hazy, overcast sky and a flat, open field.

- Be Involved
 - Attend advisory committees and other school based meetings involving a mutual exchange of information.
- Get smarter together.
 - Formal and informal training sessions, study groups, and conversations facilitate opportunities to learn together.



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