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Transforming the Professional Flight Program Curriculum: Justification, Process, and Future Development

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**TRANSFORMING THE PROFESSIONAL
FLIGHT PROGRAM CURRICULUM:
JUSTIFICATION, PROCESS, AND FUTURE
DEVELOPMENT**

POLYTECHNIC SUMMIT 2019

PRESENTERS



- **Julius Keller, Purdue University**
- **Flavio Mendonca, Purdue University**
- **Brian Dillman, Purdue University**
- **Michael Suckow, Purdue University**

WHAT TO EXPECT

- Purpose of the Transformation
- Challenges
- Benefits
- Process of Competency Development
- Next Steps

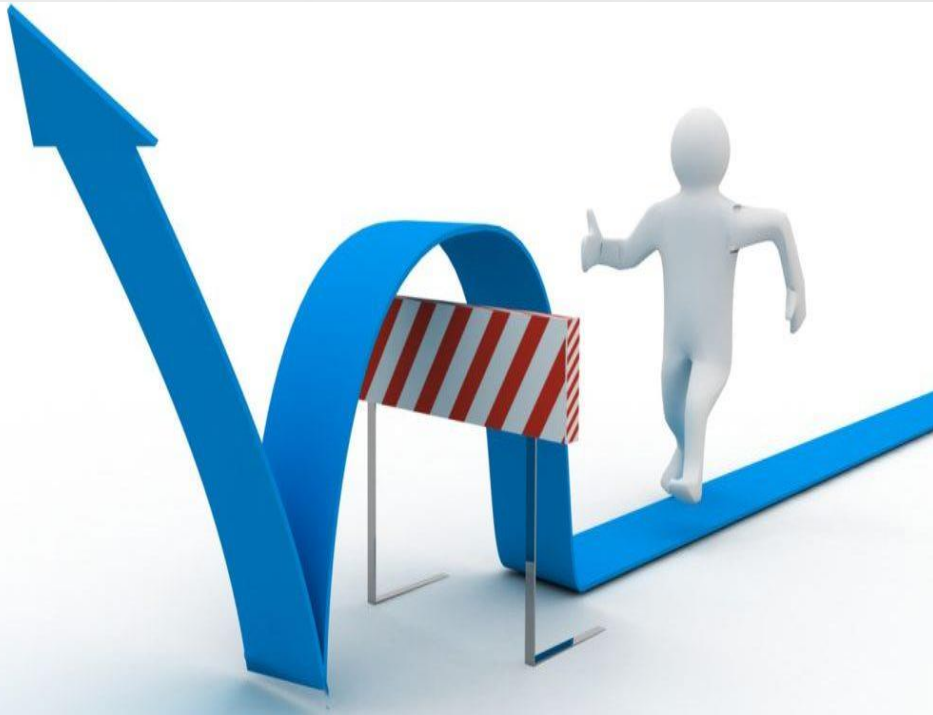


PURPOSE OF THE TRANSFORMATION



- According to the International Civil Aviation Organization (ICAO), by 2036 the aviation sector will need **620,000 new pilots**, 125,000 new air traffic controllers, and 1.3 million aircraft maintenance personnel (ICAO, 2018);
- Pilots seeking a first officer position (a common entry-level position at Part 121 air carriers) are required to possess an Airline Transport Pilot (ATP) Certificate and 1,500 hours of total flight time;
 - There are some exceptions!
- Support from administration
- Quantity vs Quality;
- *How can flight faculty improve student learning and job readiness?*

CHALLENGES



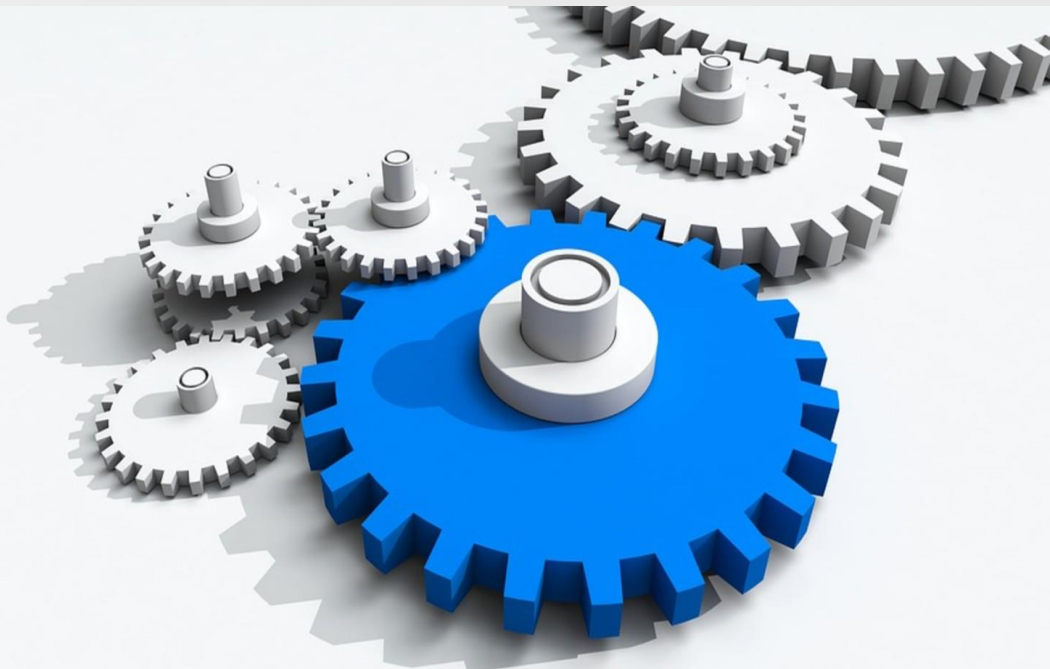
- Due to the current regulatory requirements of the Federal Aviation Administration (FAA), the hours-based approach and aeronautical experiences ultimately guide the curriculum and the flight certification process (FAA, 2007);
- Additionally, learning outcomes are guided by the Aviation Accreditation Board International (AABI) (AABI, 2017);
- Our competencies need to work within the flight deck, simulator, and classroom;
- Assessment
- The flight training environment is highly regulated and guided which decreases flexibility;
- However.....

BENEFITS OF TRANSFORMING



- Potential to significantly enhance aviation safety;
- Establish advanced training processes that will enhance the acquisition of knowledge, skills, and abilities;
- Meet or exceed regulatory standards;
- More robust assessments;
- Data for continuous improvement efforts;
- Differentiation between other flight programs;
- Research opportunities;
- Emphasize quality of education and flight training over flight hours.

DEVELOPMENT OF COMPETENCIES



- Started in Summer of 2018
- Faculty across department participated in discussions
- Involved Full-Time Flight Instructors
- Sought guidance and feedback from the Industry Advisory Board (IAB)
- Extensive review of literature
- Consensus Decision-Making
- Guidance from CBEN and USDOE
- Hybrid Competency Model

IDENTIFIED COMPETENCIES



ASSESSMENT RUBRIC

| | Technical Excellence | Level 1 | Level 2 | Level 3 |
|----------|--|---|--|--|
| A | Airmanship | Demonstrates Airmen Certification Standards for the appropriate certificates and ratings. | Reflects upon strengths and weaknesses pertaining to the ACS. Identifies appropriate resources to address weakness and improve strengths. Creates goals towards the progression to transport category aircraft and or CFI and provides evidence towards achieving goals. | Exhibits orientation toward teams and transitions from SRM to CRM. Demonstrates appropriate knowledge, skills and abilities for operating transport category aircraft. |
| B | Integrates certification standards with academic standards and competencies | With coaching, recalls and practices basic skills to self-evaluate performance, set goals, and monitors their own progress towards advancement in all competencies. | With minimal coaching reflect upon one's professionalism, knowledge, skills, and abilities. Creates a critical self-evaluation and provides objective evidence towards improvement. | Exhibits life-long learning habits such as creating goals, utilizing resources and demonstrating the ability to conduct themselves in accordance to discipline professional standards. |

COURSE MAPPING

| Competencies | | | | | | | |
|--------------|------------|---------------|------------|-----------------|----------|------------|----------------------|
| Courses | Instructor | Communication | Leadership | Decision-Making | Teamwork | Resilience | Technical Excellence |
| AT144 | Dillman | A1 | | | | | B1 |
| AT223 | Mendonca | B1 | | A1 | A1 | | B1 |
| AT254 | Dillman | C1 | A1 | A2 | | | B2 |
| AT325 | Fronnixx | A2 | | | A1 | | A2 |
| AT327 | Keller | B2 | B1 | | | B1 | B3 |
| AT354 | TFO | C2 | | | | | A2 |
| AT388 | Keller | A3 | | | A2 | B2 | A3 |
| AT416 | Cutter | B3 | A2 | A3 | | | A3 |
| AT498 | Keller | C3 | A3 | | A3 | | B3 |
| | | | | | | | |
| AT145 | | A1 | | | | | A1 |
| AT210 | | A1 | | | | | B1 |
| AT211 | | A2 | | | | | B2 |
| AT243 | | B1 | | B1 | | A1 | A2 |
| AT248 | | B2 | | | | | B2 |
| AT253 | | B2 | | B2 | | A2 | A1 |
| AT353 | | A3 | | | | | A1 |
| AT395 | | A3 | B2 | | | B3 | A3 |
| AT396 | | B3 | | B3 | | | B3 |
| AT487 | | B3 | B3 | B3 | | A3 | B3 |

QUESTIONS AND DISCUSSION

- What effective practices do you suggest for collegiate aviation competency development?
- What are the best practices for assessment development?

