



E.U-South East Asia Aviation Partnership Project

Joint Seminar on Higher Education for Aviation Profession

Towards Innovative university degrees for aviation

Jakarta – 25-26 April 2019

Industry Needs in Civil Aviation

World annual traffic (trillion RPKs)



World Fleet Forecast

2018



21 500

Source: Airbus

2037



48 000

=> Huge demands on qualified Human Resources:

quantitative

- numerous different jobs
- eg: by 2026,
- 480 000 maintenance technicians;
350 000 pilots source ICAO

disruptive

- **Breaking technologies challenges ahead (AI, UAV, SPO...)**
- need of high added value jobs



ENAC's strategic positioning

Close Relationship with Industry

International Cooperation

- Global worldwide vision
- Diversity of training solutions
- Partnership strategic approach
- Flexibility and agility

A holistic approach : Air Transport System

- Safety driven approach
- Avoid bottleneck



ENAC's strategic positioning

Comprehensive Aeronautical Training Programs

- **Academic programs: bachelor, master, PhD**
- **Professional Initial training programs**
 - for selection and rise of Talents to meet industry needs
- **Advanced masters and Continuous Training courses**
 - throughout one's career for updating skills

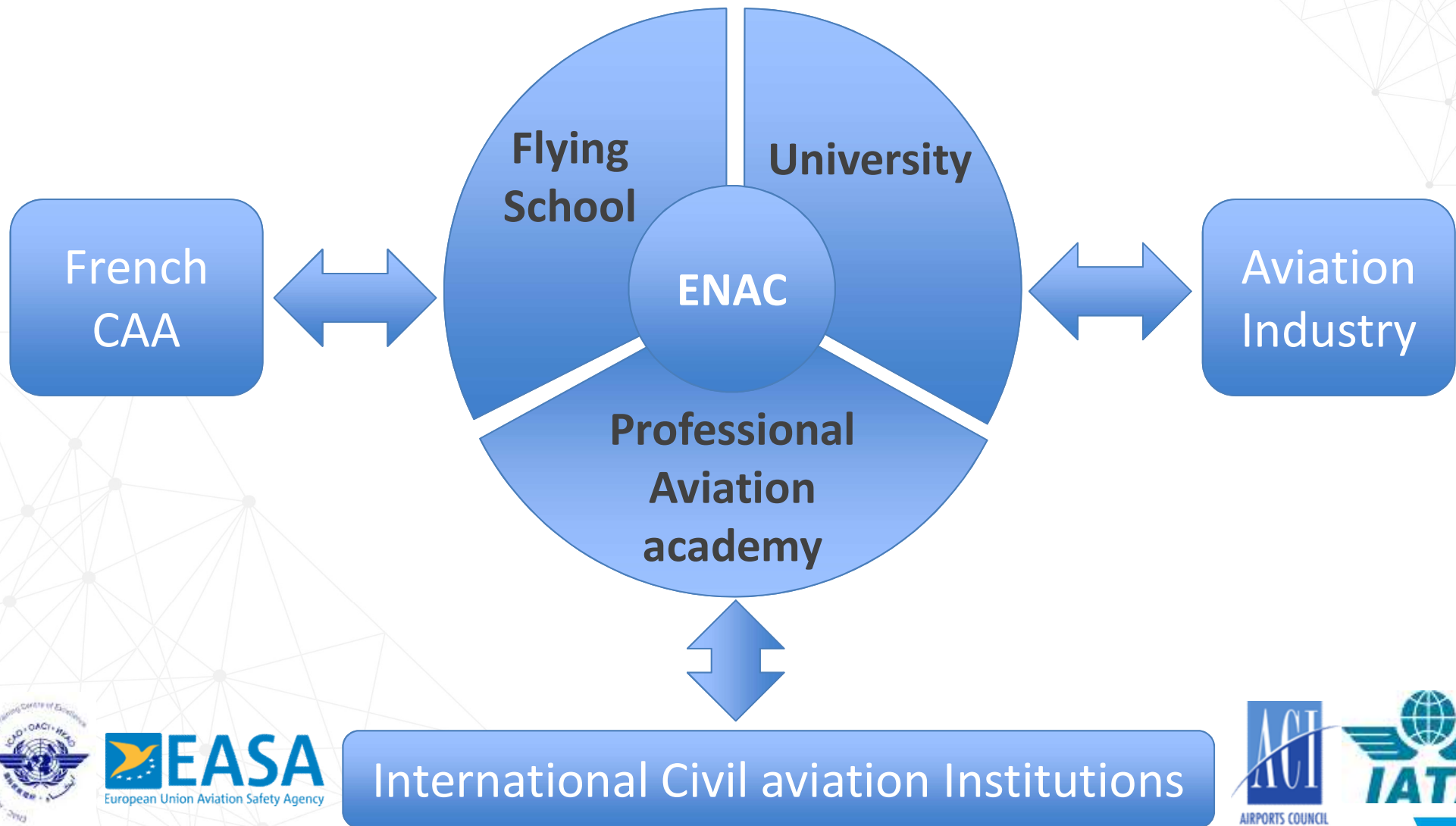
Global Air Transport System research

- Synergy between research and education
- Scientific and technological advances and breakthroughs
- Societal expectations
- ACARE and SESAR Challenges



New
generation
of ATS

ENAC - a unique model in the world



Getting closer to aviation industry employers

A willingness to get closer at every level, while keeping education excellence

A blue pyramid diagram with four horizontal levels, each containing a text box. The pyramid is positioned in the center of the slide. The text boxes are white with blue borders and contain the following text from top to bottom: 'Strategic and Governance level: Executive Board', 'Validation of Courses and Programs level : training and development councils', 'Education level: Initial, advanced, professional training programs, student projects, and End-of-studies at the end of initial training', and 'And of course, for shaping the future: Applied Research (funding of research chairs, research thesis,...)'.

Strategic and Governance level:
Executive Board

Validation of Courses and Programs level :
training and development councils

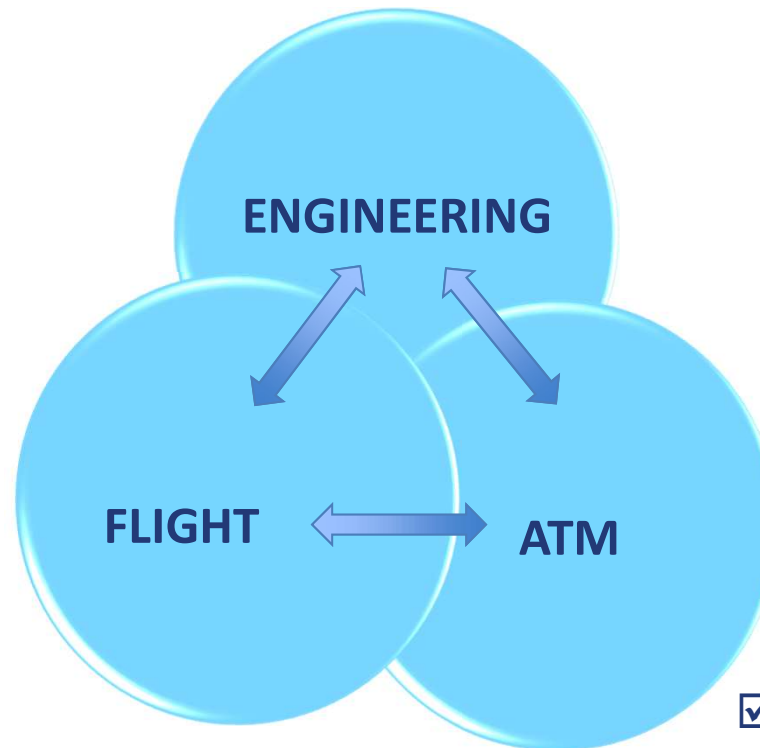
Education level:
Initial, advanced, professional training programs, student
projects, and End-of-studies at the end of initial training

And of course, for shaping the future: Applied Research
(funding of research chairs, research thesis,...)

ENAC - a unique model in the world

Diversity & Complementarities

- Avionics, Embedded Systems
- Air Navigation, GNSS
- UAVs – Drones
- System Engineering
- Information Technology – Human Machine Interaction
- Air Traffic Management
- Air Transport Techniques
- Airport Development
- Safety Management System
- Flight Safety
- Airworthiness
- Human Factors
- Security
- Human Science



- ATPL EASA licencing
- Flight instructors
- ATCo
- ATCo instructors
- ATSEP

- ☑ Undergraduate Programs
- ☑ Postgraduate Programs
- ☑ Research
- ☑ Continuing Education

Main figures and general resources

- 70 years of excellence in education & research for aeronautics and civil Aviation

- 3 000 students per year in 30 training programs and Phds in France and abroad: Brazil, Canada, China, Hong Kong, India, Indonesia, Ivory Coast, Malaysia, Philippines, Singapore, Vietnam
- 350 continuing training sessions
- 3 500 professional trainees per year
- 860 permanent staff & 1 400 affiliated professors



- Annual budget 130 M€
- 120 aircraft
- 7 Campuses in France
- 1 Part 145 maintenance repair shop



- Flight simulators, ATC simulators, Airport serious games
- Key national research centre in ATM & Navigation, Air Transport system
- Student accommodation (1 000 fully furnished studios)

Comprehensive training programs

To meet requirements of lifelong education

Initial training programs

- Graduate engineer degree (MSC)
- Masters of Science
 - MSc ASNAT
 - MSc IATOM
 - MSc IATSED
- Bachelor's degree

Initial Professional training programs

- Pilot Training
- ATCO
- ATSEP
- Aviation Technician

Executive & Continuous training programs

- Executive MBA
- One-year Advanced Masters (full time or part time)
- Customized Courses
- In-house training courses

Worldwide cooperation Masters & Pilot academy



Cooperation in South East Asia

⇒ **Cooperation with Civil Aviation institutions**

- ⇒ One-year advanced master (CAA Philippines, CAA Vietnam, SPTI Indonesia, discussion with other authorities)
- ⇒ In-house short courses (CATC Bangkok, STPI)
- ⇒ Welcome staff in masters at ENAC (AirNAv, STPI, CATC Bangkok, CAAV)

⇒ **Joint master of science**

- ⇒ NTU Singapore : MSc IATOM
- ⇒ ITB Bandung : MSc IATOM
- ⇒ USTH Hanoi : MSc IATOM

⇒ **Research**

- ⇒ PhD Co-supervised by ENAC & NTU Singapore - Airspace optimization
- ⇒ PhD Co supervised by ENAC and Aerothai – Airspace design



Thank you for your attention
Termina kasi
Any questions?

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