Evolution and meeting the future for aircraft engineering

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President, European Aviation Maintenance Training Committee

NGAP Montreal 1st – 4th March 2010
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• Train and Qualify
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<th>European Aviation Maintenance Training Training Committee</th>
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<tbody>
<tr>
<td>• An industry body dedicated to maintenance training</td>
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<tr>
<td>• Established 1984</td>
</tr>
<tr>
<td>• Registered 2007 as a non-profit Foundation in The Netherlands</td>
</tr>
<tr>
<td>• Main objectives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Members from training &amp; associated domains (OEM, Airlines, MRO, Basic &amp; Type training schools, Courseware / Training media providers etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To promote and harmonise cross-border training</td>
</tr>
<tr>
<td>• Improve aviation safety through training</td>
</tr>
<tr>
<td>• Represent the aircraft maintenance training industry at EASA</td>
</tr>
</tbody>
</table>
# European Aviation Maintenance Training Committee

## Secondary objectives
- Be recognised as the expert in aviation maintenance training
- Exchange information between members
- Cooperate with other related organisations
- Improve training quality & effectiveness
- Inform members of new learning technologies
- Act as an advisory body to members
- Propose amendments towards EASA on behalf of the members
- To discuss NPA with EASA

## Benefits
- Safety through training
- Share experience & work done
- Interact with leading players
- EASA contact
- Help shape European aviation training legislation

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Profile

- Next generation
- Job associated skills

- computer literate/human machine interface skills
- “human skills”, literate, numerate, communicators, team players
- skill of hand - as important as in the past
- Increasing emphasis on composite materials

### Maintenance demand

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total mechanics needed for additional aircraft</td>
<td>247,100</td>
<td>420,000</td>
</tr>
<tr>
<td>Total mechanics including fluctuation and retirement</td>
<td>405,500</td>
<td>739,000</td>
</tr>
</tbody>
</table>

**Assumptions:**

- An average of 20 mechanics per aircraft (line base, components and engine)
- A 4% per annum for fluctuation and retirement based on the current mechanics number

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To find the people we need

- Compete for trainees/employees with other “attractive” industries
- Mature industry image as perceived by the general population

<table>
<thead>
<tr>
<th>IT, banking, insurance, law, medicine etc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raise the profile of our work to show it in its best light</td>
</tr>
<tr>
<td>We need people at all levels</td>
</tr>
<tr>
<td>Make our industry inviting, welcoming, open and accessible</td>
</tr>
<tr>
<td>hard work</td>
</tr>
<tr>
<td>dirty</td>
</tr>
<tr>
<td>oil and grease</td>
</tr>
<tr>
<td>cold and wet/environmental</td>
</tr>
<tr>
<td>Shift work</td>
</tr>
<tr>
<td>family/social issues around travel away from home as part of the job</td>
</tr>
<tr>
<td>Interesting</td>
</tr>
</tbody>
</table>
Promote industry image

- Seen as “oil and grease”

- Excitement
- Hi-tech
- Opportunities and scope of activities/professions
  - other outdoor professions have a high perception in the community

Other outdoor professions

Construction Industry/Building site workers
  - surveyors
  - engineers

Environment workers

Researchers

Sports industry workers and players

Health
  - Paramedics

Police

Horticulture/Agriculture
  - Horticultural experts
  - Forestry experts
  - Veterinarians

Infrastructure
  - Bridges/Structural engineers
  - Electrical engineers
  - Telephone engineers
  - Telecommunications engineers
  - Road surveyors/engineers
  - Rail surveyors/engineers

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Some of the issues

- Licensing requirements
- Economic and structural changes in the industry
- Societal trends making the job less attractive than in years past

'Mechanics Wanted', Air Transport World, October 2008

Structured, progressive
- Relentless pressure on costs
- Business cycle makes aviation less attractive than some sectors
- Time for us to update our image
Train and qualify

- Manpower
- To meet OEM projected sales
- For a/c flying today
- Target moves with advances in a/c technology

Aircraft demand

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2026</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Aircraft</td>
<td>17,650</td>
<td>32,000</td>
</tr>
<tr>
<td>Additional Aircraft</td>
<td>12,355</td>
<td>21,000</td>
</tr>
</tbody>
</table>

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Today and tomorrow

- SAFETY is our No1 priority
- Evolution of specialisations

- Keep doing well what we do well
- Improve other areas (e.g. following procedures, human error)

- Development linked to the evolution of aircraft technology
  - Airframe, Engine (B1)
  - Electrical, Instruments, Radio, Radar, Auto Pilot, Compass (B2)
  - Merging of “trades”/specialisations
  - HMI
  - Changing skill of hand

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Train and qualify

Focus on all areas

training participation rates of those with tertiary education are often 5 or 10 times higher than those of the low-skilled

Certifying staff

Approved Type Training

Approved Basic Training

Skill of Hand - Practical

Technicians

Fitters/Mechanics

Apprenticeships combining theory & practical

Ease of progression

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Training, Qualifying and Licensing

- Knowledge, skills, attitude
- Role of the instructional/assessment staff
- Licensing requirements

- Exams, competence assessments, attitude (interpersonal/soft skill competencies, less objective, less measurable, not task or type specific)
- Train staff to meet new roles
  - Coach/Facilitator
  - Competence assessment
- Structured, accessible
- Emphasis on competence as well as knowledge
- Ease of transfer of previously owned knowledge, skills

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Support for training

- Different methods for different countries
- Government/industry liaison
- Individual ownership
- Recognition of prior learning

- “self-starter”
- free market
- State sponsored
- Co-financed
- Incentive programmes

- education systems/syllabi that suit industry/society needs
- Lifelong learning
- Encourage individual responsibility
- help to reduce costs

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Train and qualify

Promote & fund training/learning

- Training/adult learning

- Challenge to find solutions where financial constraints are an obstacle to investment and participation in learning

- Give choice to individuals

- could be private (company or individual) and/or government co-financed

- Employers and individuals could share training cost and could be linked to prevent “poaching”

- Company networks, large enterprises provide training to small ones or pool the resources among firms with different training capacities

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Train and qualify

Qualification process evolution

• Global collaboration at the technical level

• ICAO, regulatory authorities, training bodies
  • Arrange regionally
  • Promote harmonisation
  • Inclusive - free and open to all
  • Encourage free participation and sharing of information

• EAMTC, Europe’s largest maintenance training foundation, ready to play its part
## Workforce mobility

- More fluid than in the past
- Changing values
- Link academic and practical
- Encourage “upwards mobility”

<table>
<thead>
<tr>
<th>Can train and re-train</th>
</tr>
</thead>
<tbody>
<tr>
<td>Move between jobs</td>
</tr>
<tr>
<td>Employees seek best deal</td>
</tr>
<tr>
<td>Traditional employee sources no longer there</td>
</tr>
<tr>
<td>Ensure due credit is given to practical skills</td>
</tr>
<tr>
<td>Transfer of previously owned knowledge and skills</td>
</tr>
</tbody>
</table>
### Encourage participation in training

- **Potential barriers**
  - Lack of motivation
  - Lack of time
  - Financial constraints

- **Ease time arrangements**
  - Tracking methods
  - LMS
  - Instructor-group sessions

- **Develop lifelong learning**
  - Coordination between education and employment

- **Provide flexible alternatives**
  - Self-starters
  - Part-time learning
  - Distance learning
Conclusion

- To find the people we need
- Training
- Qualification
- Retain

- Upgrade our image
- Make our industry one that is attractive, accessible and encourages upwards mobility
- Focus on all levels
- Ensure accessibility
- Will evolve with a/c design
- Increasing attention on competence
- Promote harmonisation
- Remove barriers to training
- Ensure flexibility for individuals

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THANK YOU