Evolution and meeting the future for aircraft engineering

Ian E. Williams

President, European Aviation Maintenance Training Committee

Contents

- EAMTC overview

- Find

- Train and Qualify

- Retain

- Conclusion

EAMTC

European Aviation Maintenance Training Committee

- An industry body dedicated to maintenance training

- Established 1984

- Registered 2007 as a non-profit Foundation in The Netherlands

- Main objectives

- Members from training & associated domains (OEM, Airlines, MRO, Basic & Type training schools, Courseware / Training media providers etc)

- To promote and harmonise cross-border training

- Improve aviation safety through training

- Represent the aircraft maintenance training industry at EASA

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

Find

Profile	

- ## Next generation

  ▷

  - computer literate/human machine interface skills

- ## Job associated skills

  ▷

  - "human skills", literate, numerate, communicators, team players
  - skill of hand - as important as in the past
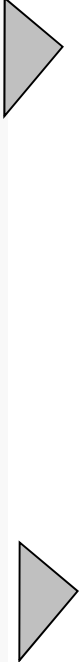 - Increasing emphasis on composite materials

Maintenance demand

	2018	2026
Total mechanics needed for additional aircraft	247,100	420,000
Total mechanics including fluctuation and retirement	405,500	739,000

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

Find

To find the people we need

- Compete for trainees/employees with other "attractive" industries

- Mautre industry image as perceived by the general population

- IT, banking, insurance, law, medicine etc

- Raise the profile of our work to show it in its best light

- We need people at all levels

- Make our industry inviting, welcoming, open and accessible

  - hard work
  - dirty
  - oil and grease
  - cold and wet/environmental
  - Shift work
  - family/social issues around travel away from home as part of the job
  - Interesting

Find

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

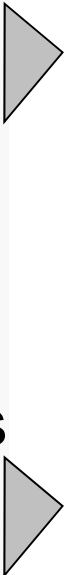- Horticultural experts
- Forestry experts
- Veterinarians

Infrastructure

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

Some of the issues

- ## Licensing requirements

  - Structured, progressive

- ## Economic and structural changes in the industry

  - Relentless pressure on costs
  - Business cycle makes aviation less attractive than some sectors

- ## Societal trends making the job less attractive than in years past

  - Time for us to update our image
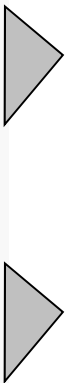
'Mechanics Wanted', Air Transport World, October 2008

Train and qualify

- Manpower

  ▷ For a/c flying today

- To meet OEM projected sales

  ▷ Target moves with advances in a/c technology

Aircraft demand

	2018	2026
Total Aircraft	17,650	32,000
Additional Aircraft	12,355	21,000

Train and qualify

Today and tomorrow

- SAFETY is our No1 priority

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

- Evolution of specialisations

  ▷
  - 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

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

Technicians

Fitters/Mechanics

Apprenticeships combining theory & practical

Ease of progression

Approved Type Training

Approved Basic Training

Familiarisation training

Skill of Hand - Practical

NGAP Montreal 1st – 4th March 2010

Train and qualify
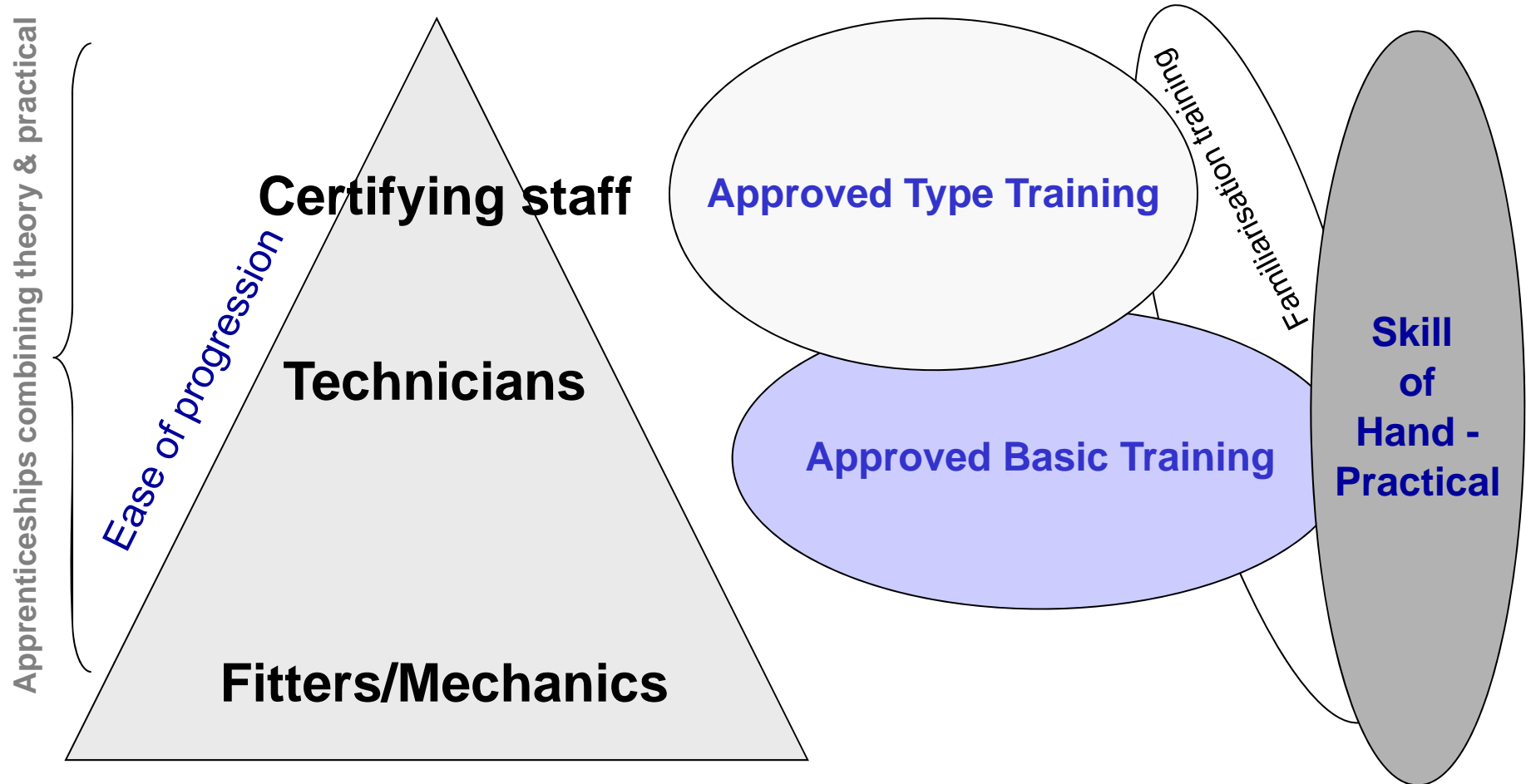
Training, Qualifying and Licensing

- Knowledge, skills, attitude

  ▷ • Exams, competence assessments, attitude (interpersonal/soft skill competencies, less objective, less measurable, not task or type specific)

- Role of the instructional/assessment staff

  ▷ • Train staff to meet new roles
    - Coach/Facilitator
    - Competence assessment

- Licensing requirements

  ▷ • Structured, accessible
  - Emphasis on competence as well as knowledge
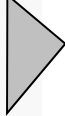 - Ease of transfer of previously owned knowledge, skills

Train and qualify

Support for training

- Different methods for different countries

  - "self-starter"
  - free market
  - State sponsored
  - Co-financed
  - Incentive programmes

- Government/industry liaison

  - education systems/syllabi that suit industry/society needs

- Individual ownership

  - Lifelong learning
  - Encourage individual responsibility

- Recognition of prior learning

  - help to reduce costs

Train and qualify

Promote & fund training/learning

- # Training/adult learning

  - 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"

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

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

- # Give choice to individuals

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

Retain

Workforce mobility

- More fluid than in the past
  - Can train and re-train
  - Move between jobs

- Changing values
  - Employees seek best deal
  - Traditional employee sources no longer there

- Link academic and practical
  - Ensure due credit is given to practical skills

- Encourage "upwards mobility"
  - Transfer of previously owned knowledge and skills

Retain – re-train

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

  ▷
  - co-ordination between education and employment

- Provide flexible alternatives

  ▷
  - Self-starters
  - Part-time learning
  - Distance learning

Conclusion

- To find the people we need

  - Upgrade our image
  - Make our industry one that is attractive, accessible and encourages upwards mobility
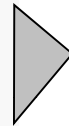
- Training

  - Focus on all levels
  - Ensure accessibility
  - Will evolve with a/c design

- Qualification

  - Increasing attention on competence
  - Promote harmonisation

- Retain

  - Remove barriers to training
  - Ensure flexibility for individuals

THANK YOU

Refs:

ITQI Report 2008

OECD Promoting Adult Learning – ISBN 92-64-01092-0 – © OECD 2005

http://www.oecd.org/document/57/0,3343,en_2649_39263238_36675769_1_1_1_1,00.html

EAMTC www.eamtc.org

NGAP Montreal 1st – 4th March 2010