



International Federation of Air Traffic Safety Electronics Associations

Training Tools and Technology: Key Trends, Challenges and Opportunities for the coming Years

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Content

- **ICAO Training**
- **Training Techniques**
- **Impact of Technology**
- **Trends**
- **Challenges and Opportunities**





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Evolution of ICAO Training Philosophy

- **Standardized Training Guidelines (STGs)**
- **TRAINAIR (adaption of TRAINMAR - UNCTAD)**
- **TRAINAIR PLUS (Doc 9941 - TDG)**
- **Annex 1 – Personnel Licensing**
- **PANS – TRG (Doc 9868) – Amendment 4**
- **Doc 7192 – Training Manual Part E2**



Training Techniques and Media options depend on

- **Knowledge, Skills and Attitudes involved**
- **Resource constraints**
- **Preferred Learning Modes of the trainees**



Current predominant

Training Techniques

- Open Presentation
- Demonstration by Instructor
- Group Discussions
- Case Studies
- Role Plays, Games
- Simulations
- Supervised Practice
- Laboratory Exercises

Media Options

- Printed Texts (Handouts)
- Displays (Charts, Flip Charts)
- Projections (PPTs, Video Films)
- Equipment (Real, Simulator)
- Models (Fixed, Mobile)
- Computers (standard, multimedia)



Technologies are seen to have a significant impact not only on

**safety, efficiency,
capability, capacity,
environment and
financial performance
of the Air Transportation System**



but also on the

Aviation Training Requirements & Techniques



Evolving Air Traffic Services

Procedural Based Control:

Control on Where We Think the Aircraft Is

History



Landmark Navigation
Radio Beacons
Position Reports



Evolving Air Traffic Services

Surveillance Based Control:

Control on Where We Know the Aircraft Is

Today



VOR/DME
RADAR



Evolving Air Traffic Services

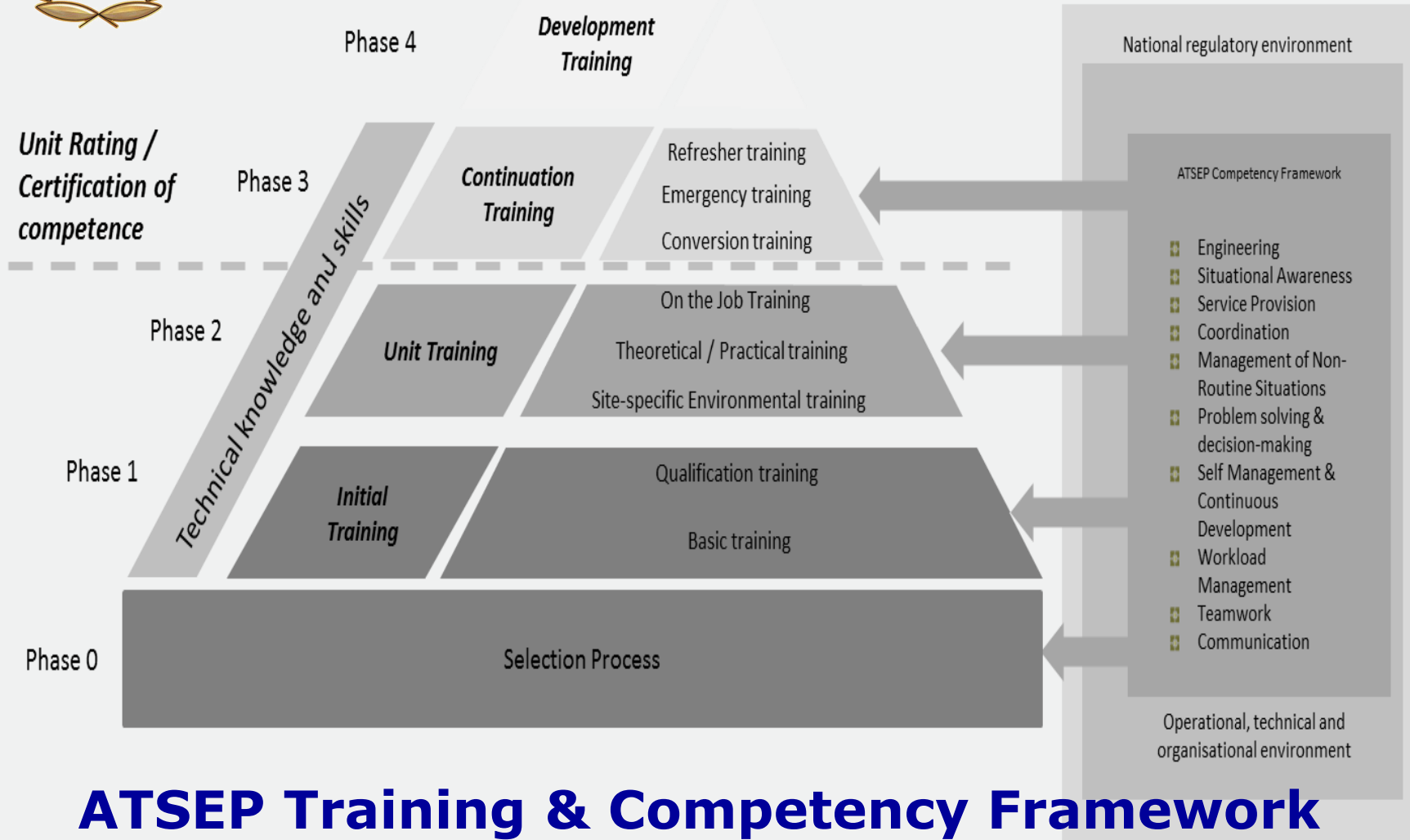
Trajectory Based Control:

Control on Where We Know the Aircraft Will Be

Future



PBN
ADS-B
Data Comm





Advances in Information and Communication Technology Offer myriad of training tools and techniques

- Response Technology – embed questions within presentation
- E-learning - Interactive and Motivating
- Mobile Learning – Accessibility and Ease of Sharing Content
- Webinars - Interactive and Reach
- Social Learning – to develop CDM skills



Demographic Profile of Aviation Work force

- **Baby Boomers**
- **Gen Xers**
- **Millennials**

Multi generational work force – a challenge!!!

All three generations with varied focus, perspective, and expectations need to be trained,

- a tough task for Course Developers and Instructors



Baby Boomers



- Today's leaders
- Prefer traditional Classroom-based learning programs
- View training as a means to grow and get ahead of the pack
- Look for familiar mechanisms to transition their knowledge to next generations.



Gen Xers



- comfortable with technology—such as personal computers, PDAs, and the Internet
- expect to step into leadership positions when the boomers retire
- needs ready and continuous connection to instant messaging and short, highly-focused training that can be quickly downloaded and accessed via mobile phones, PDAs, etc
- prefer media-rich, on-demand learning options



Millennials

- embrace technology, probing, and expect collaborative work environments
- emerging as a pragmatic, diverse, cooperative, and technologically fluent generation
- learning needs to be hands-on, interactive, collaborative, and fun
- responds well to the engaging, competitive nature of learning
- accustomed to using informal social networking tools, such as wikis, blogs, and podcasts.





Training Solutions

Blend of various techniques and tools that provide

- Flexibility with multiple options for training and communication to different target population
- Tools that enable each generation to achieve their individual goals

Specific blend of solutions and technologies will vary among organizations, based on different factors that prevail.

Challenge is in the hands of Course Developers.



Technology Again

Newer technologies, still developing promise to provide opportunities.

- Extensible markup language (XML)
- Learning content management systems



**Thank You
for your
Attention.**

Questions?