



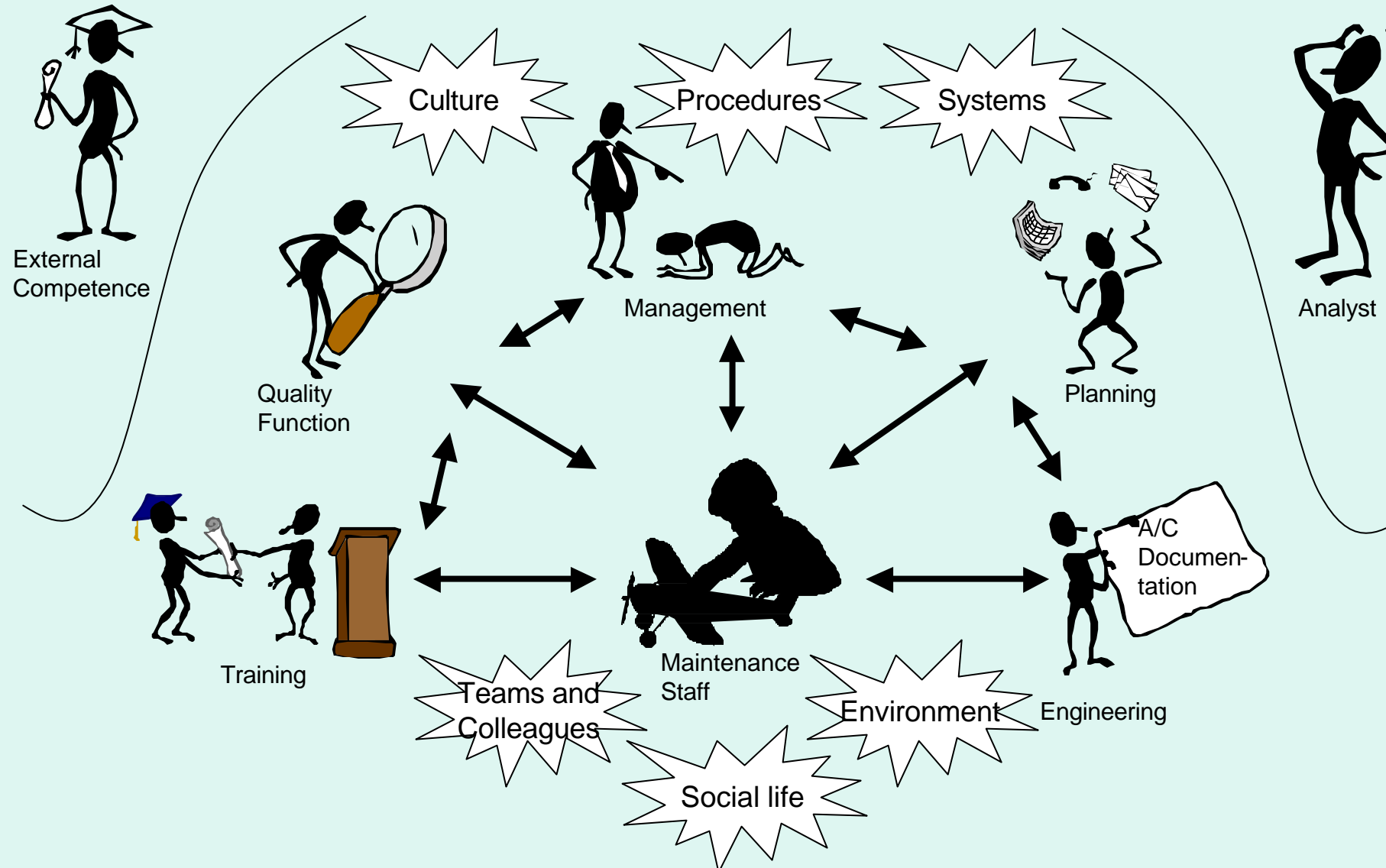
Training Standards for Human Factors Practitioners

Dr. Sam Cromie
Trinity College, Dublin



**RAeS Human Factors Training in Aviation
Maintenance Conference**
Bentley Priory, November 2004

Human Factor Issues in Maintenance Organisations



Anatomy of a Human Factors Programme

HF in
Procedure design
Planning
Shift handovers

Analysis & recommendations:
Training
Maintenance Data
Quality Discrepancies

Evaluation of impact

Duplicate inspections

HF & Ergonomic Auditing

Event Investigation

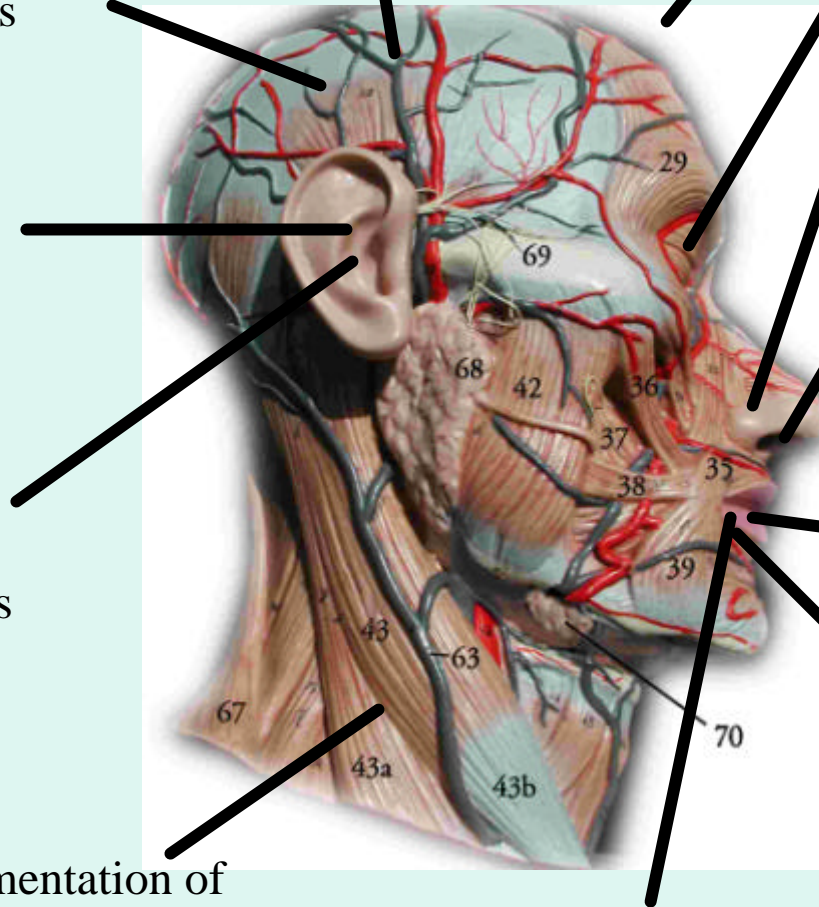
Feedback:
Training
Maintenance Data
Quality Discrepancies
Error reporting
Event reporting

Training:
Initial
Continuation
Investigators, Trainee

Policies:
Safety
Disciplinary Policy

Implementation of
Recommendations and
Programmes

Reporting to Authorities
Manufacturers, etc

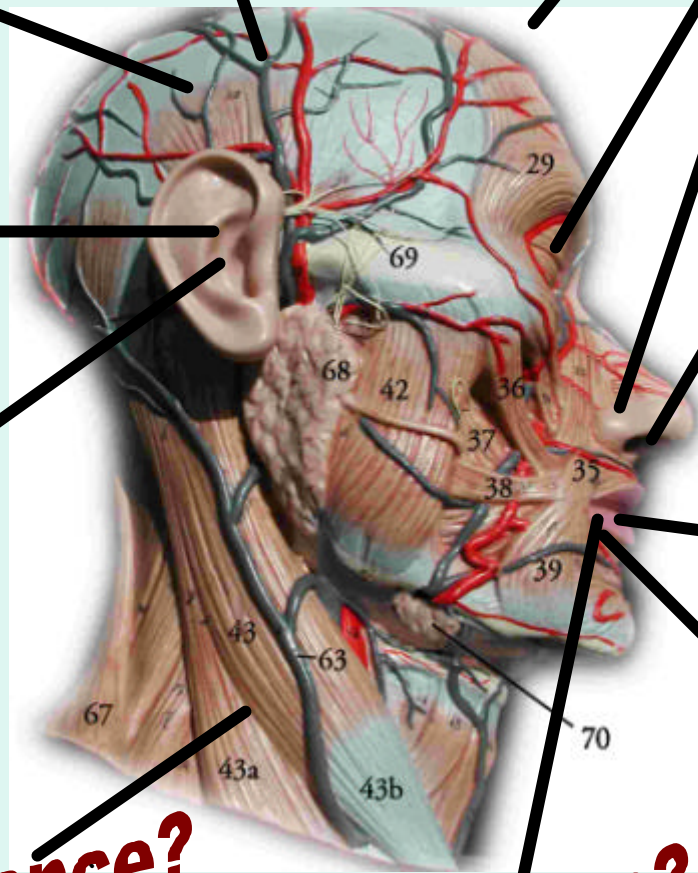


Analysis & recommendations:
Training
Maintenance Data
Quality Discrepancies

Evaluation - Impact
Competence?
Competence?
Duplicate Inspections

HF in
Procedure design
Planning
Shift handovers
Competence?

HF & Ergonomic Auditing
Event Investigation
Competence?



Feedback:
Training
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Quality Discrepancies
Error reporting
Event reporting
Competence?

Training:
Initial
Continuation
Investigators, Trainers
Competence?

Implementation
Recommendations and
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Competence?

Policies:
Disciplinary Policy
Reporting to Authorities
Manufacturers, etc.
Competence?
Competence?

The regulatory context

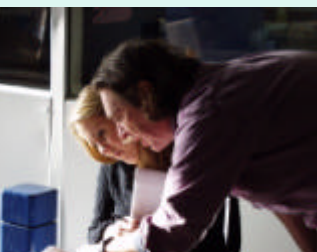
- “...competence must include an understanding of the application of human factors and human performance issues appropriate to that persons' function in the organisation” ECAR Part 145.30e
 - On-the job competence assessment
 - Job descriptions for each job role
 - Assessed for the need for initial training
 - Receive continuation training



Competence Standards for HF Practitioners



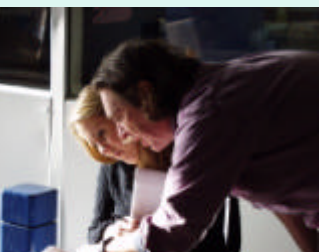
- No specific regulations – up to the company to “ensure competence”
- Authorities not being proactive in specifying standards – leaving it up to the industry
- Companies ambiguous about standards:
 - Unnecessarily raising the bar
 - Portability of qualifications = poachability of key staff
- Industry bodies unwilling to push the issue
- Individual practitioners enthusiastic





Professional Development for Human Factors Practitioners

The STAMP project:
Specialised Training for Aviation
Maintenance Professionals



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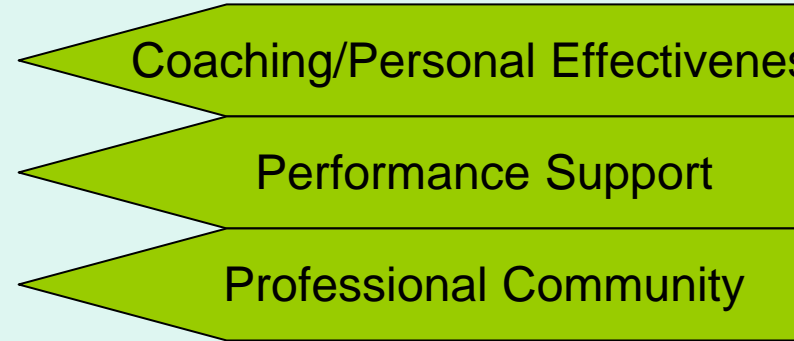
- Haphazard
- Not systematic
- No progression
- No competence assessment
- No industry standards
- No records kept



A Professional Development Framework



Level 3 Certificate	
Assessment	Assessment
Training	Training
Assessment	Assessment
Training	Training



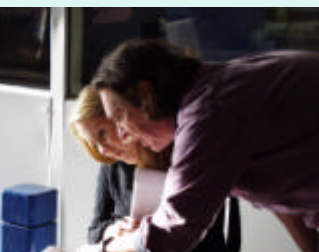
Level 2 Certificate		
Assessment	Assessment	Experience
Training	Training	Training



Level 1 Certificate	
Assessment	Experience
Training	Experience

Elements of STAMP Professional Development Framework

- Training needs analysis, competence profiles for professional groups
- Training Curriculum & Methodology
- Competence Assessment
- Certification Strategy
- Performance support – tools, expertise, information resources
- Coaching/personal effectiveness
- Professional Community

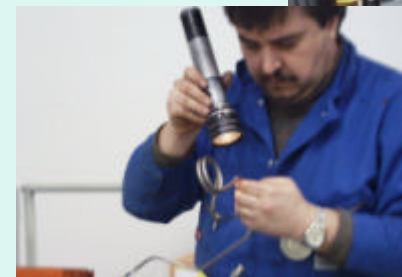
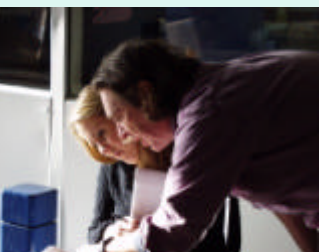


Training Needs Analysis



STAMP project:

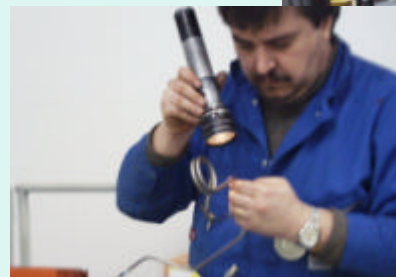
- Developed TNA methodology
- Established competence profiles for Trainers and Managers
- Profiles can be used for competence assessment, training design, training content and selection criteria



Training Curriculum & Methodology



- 3 Levels of training
- Tracks –
 - Core modules plus specific modules for professional groups: Trainers, Managers, Planners, Investigators, etc.
- Methodologies:
 - Competence focussed
 - Active
 - Problem centred



Assessment Methodology

- Different Methodologies for different competence objectives
- Sample methodologies:
 - Observation of skills, e.g. facilitation skills
 - Tests of knowledge
 - Case-study projects
 - Demonstration of application of particular tools, e.g. incident investigation
 - Documentation of performance evaluation feedback



Certification Strategy

1

- Portfolio based assessment process:
 - Training
 - Assessments
 - Experience
 - References

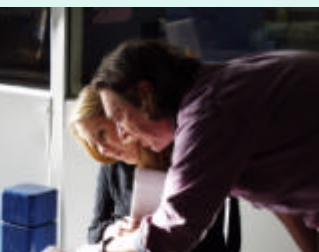


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Certification Strategy 2



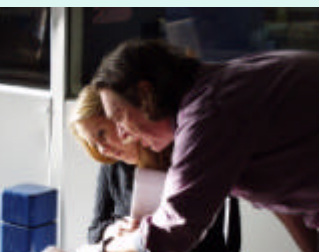
- Levels 1 & 2 – Vocational Certification; Possibly City & Guilds, London
 - Level 1 = Licentiateship
 - Level 2 = Graduateship
- Level 3+ Academic Certification, Possibly Trinity College
 - Level 3 = Graduate Diploma
 - Level 4 = Masters
 - Level 5 = Doctorate



Performance support



- Tools
 - TNA, event investigation, auditing, organisational learning
- Information resources
 - Reports, Case-studies, Presentation
- Training contexts
 - Classroom-based modules
 - E-learning
 - E-supported collaborative learning
- Access to expertise



Personal Effectiveness

- Mentoring
- Coaching
- Personal Effectiveness training
- Personal effectiveness counselling
- Self-management, stress management, conflict management

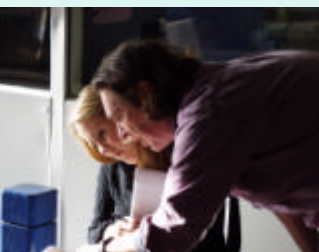


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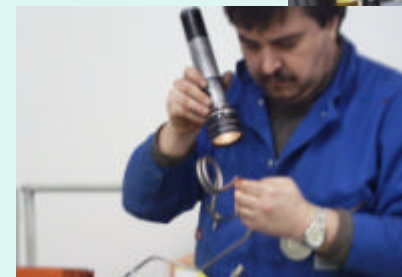


Professional Community

- E-collaboration:
 - Discussion forums, etc
- Conferences
- Newsletters
- Working groups



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Training

Professional development & Certification

Toolbox

Expertise

Library

Discussion groups

Search

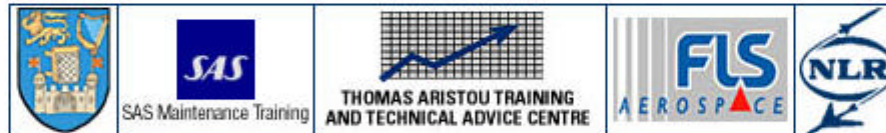
About the STAMINA Institute

Contact the Institute

Latest News

- Workshop on Human Factors Auditing 22-23 June, Amsterdam
- STAMINA Core Maintenance Human Factors Course May 12-14, Dublin
- STAMINA Human Factors Trainers' Course 9-11 June

Partners



Associates

- Fraunhofer Gesellschaft Institut Fabrikbetrieb und-automatisierung <http://www.iff.fhg.de/>
- Joint Research Centre, Ispra, Human Factors Centre <http://humanfactors.jrc.it/>