The Requirement for Competence

Paul Mayo
Managing Director – SQEP™ Ltd
So, why is competence important?
That’s great...but who are you?

• 21 years’ in the Royal Air Force
• 2001-2 – MSc, Safety Critical Systems Engineering, University of York
• 2002-7 – Progressive Safety Engineer roles at Boscombe Down, Silver Software and Ebeni
• 2007-13 – AACE, roles included being the Safety Authority and Managing Director
• 2013-16 – SaRS, Chairman Elect, Chairman and Past Chairman
• 2013-Present – SQEP™ Ltd, Managing Director
What are you going to talk about today?

- What is competence?
- Where does the need for competence come from?
- Why measure competence?
- A recent history of guidance
- Assessing competence
- Pros and Cons
- Recap
- Questions
So, what is competence?

- **Wikipedia** – the ability of an individual to do a job properly. A competency is a set of defined behaviours that provide a structured guide enabling the identification, evaluation and development of the behaviours in individual employees.

- **HSWA74** – A competent person is one who has sufficient training and experience or knowledge to do the required job. This will include an understanding of relevant statutory requirements and an appreciation of the hazards involved.

- **HSE** – the combination of training, skills, experience and knowledge that a person has and their ability to apply them to perform a task safely.

- **UK SPEC** – Competence is the ability to carry out a task to an effective standard. To achieve competence requires the right level of knowledge, understanding and skill, and a professional attitude.
But where does the need for competence come from?

- **Legislation** – HSWA74, EPA90, etc...
- **Regulation** – Statutory Instruments and Approved Codes of Practice
Regulation – an example list

- Management of Health and Safety at Work Regulations 1999 (MHSWR)
- Provision and Use of Work Equipment Regulations 1998 (PUWER) - Regulation 9: Training
- Work at Height Regulations 2005 – Regulation 5: Competence
- Confined Spaces Regulations (1997) – Regulation 4: Work in Confined Spaces
- Control of Substances Hazardous to Health Regulations 2002 (COSHH) – Regulation 12: Information, instruction and training for persons who may be exposed to substances hazardous to health
- The Control of Asbestos Regulations 2012 – Regulation 10: Information, instruction and training
- The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) – Regulation 9: Information, instruction and training
- The Control of Vibration at Work Regulations 2005 – Regulation 8: Information, instruction and training
- The Pressure Systems Safety Regulations 2000 (PSSR) – Regulation 8: Written scheme of examination, Regulation 9: Examination in accordance with the written scheme
- The Control of Noise at Work Regulations 2005 – Regulation 10: Information, instruction and training
- Electricity at Work Regulations 1989 – Regulation 16: Persons to be competent to prevent danger and injury
But where does the need for competence come from?

- **Legislation** – HSWA74, EPA90, etc...
- **Regulation** – Statutory Instruments and Approved Codes of Practice
- **Industry Standards** – e.g. IEC 61508
- **HSE Guidance** – four phases for a competency management system (CMS)
- **Company Policy / Company bespoke scheme**

So...to comply with the Law
But where does the need for competence come from?

But also...

• **UK SPEC** – Society rightly places great faith in the engineering profession, trusting engineers and technicians to regulate themselves on its behalf. This trust can only be delivered through significant individual commitment that is publicly demonstrated by the attainment of the professional competence and behaviours that are described in this [UK-SPEC] Standard.
Why Measure Competence?
Why Measure Competence?

- Confirm competency – remove unknown unknowns
- Demonstrate competency
- Enable improvements
- Identify training needs
- Promote safety culture
Some recent history

- 1998 – Broadly-defined competencies on functional safety in IEC 61508
- 1999 – Safety Competency and Commitment – Competency Guidance for Safety-related System Practitioners
- 2006 – Managing Competence for Safety-related Systems – HSE / IET / BCS
- 2007 – Competence Criteria for Safety-related System Practitioners (The IET’s Blue Book, currently being updated)
- 2013 – UK SPEC (most recently reviewed)
- 2014/15 – SaRS Oil and Gas Competency Scheme
A Competency Model

- Need to understand what you are measuring
- Need to understand the scale
- Need to convey these

<table>
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<tr>
<th>Name</th>
<th>61508</th>
<th>Haz ID</th>
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<th>FMEA</th>
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</table>

(4 = Expert → 0 = No Knowledge)
A Competency Model

### ISA5 Reviewing safety documentation

Accurately and systematically reviews documents, supported by discussions to clarify ambiguities and understanding where necessary, to obtain evidence to support a judgement on whether a system has satisfied its functional safety requirements.

<table>
<thead>
<tr>
<th>Supervised Practitioner</th>
<th>Practitioner</th>
<th>Expert</th>
</tr>
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<tbody>
<tr>
<td>Has successfully performed review work requiring a high degree of accuracy</td>
<td>Can illustrate with e.g. review reports, witness testimonies how inaccuracies, omissions and deficiencies have been identified in reviewing safety-related system documentation as part of independent safety assessments.</td>
<td>Can illustrate, through review procedures and review records, how actions have been taken to ensure the accuracy of design reviews carried out as part of independent safety assessments. Can illustrate how insufficient accuracy in reviewing safety documentation has led to uncertainty with regard to a safety assessment.</td>
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</table>

Has successfully performed review work requiring a high degree of conceptual thinking. | As part of independent safety assessment has reviewed, using conceptual thinking, safety-related system documentation. |
Assessing Competency

- Individual assesses them self
- Demonstrable evidence is checked
- References are taken
- Individual is interviewed
Assessing Competency
Assessing Competency

• Individual assesses them self
• Demonstrable evidence is checked
• Individual is interviewed – not to ‘separate the wheat from the chaff’!!
• Levels are reviewed and normalised
• Records are stored
• Reviewed on a regular basis – live document!
Pros

Cons
Pros

• Potential competitive advantage
• Demonstrate competence
• Develop individuals to their full potential
• Provide tangible targets for career progress
• Match staff to tasks
• Identify skills shortage
• Identify training needs
• Promote safety culture
Cons

- Time and expense
- Accuracy
- Difficult
Recap

• What is competence
• Where does the need for competence come from
• Why measure competence
• A recent history of guidance
• Assessing competence
• Pros and Cons
Questions?

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