Crew Competence Management Systems

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• Need for Competence
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Competence is the integration of knowledge, understanding, skills and values
Introduction

Competence vs. Qualification

QUALIFICATION: License to work

COMPETENCE: Ability to work
Introduction

Competence vs. Qualification

QUALIFICATION: Acquired by training

COMPETENCE: Acquired by learning
Need for Competence Management

Competence is subject to continuous change

Personnel competence does not stay uniform in time due to:

- Role and job changes
- New technology
- New rules
- Industry standards
- New business – company objectives
Need for Competence Management

The human element

Events and contributing factors having led to casualties and incidents for the period 2011-2015.

- Shipboard operations represented the main contributing factor
- Human error the main contributor
Need for Competence Management

The human element

Human error is not a random event, but humans can be pushed to faulty actions due to

1. Personal factors
2. Organizational factors
3. Task (job) factors
4. Onboard working conditions factors

Focus on improving the human reliability
Need for Competence Management

Competence management as an industry standard

TMSA - Element 2 (Recruitment and Management of Shore Based Personnel)

Main objective: competent ashore based staff

KPIs
• 2.1: formal performance assessment system in place
• 3.1: refresher training, technical skills training
• 4.1: continual professional development is encouraged
• 4.3: the company promotes appropriate interpersonal skills training
Need for Competence Management

Competence management as an industry standard

TMSA - Element 3 (Recruitment and Management of Vessel Personnel)

Main objective: competent crew onboard

KPIs

- 1.1: management procedures for selection, recruitment, promotion
- 1.3: procedures to identify mandatory and additional training
- 2.2: procedures for specific additional company training
- 2.4: procedures for additional training for individuals
- 2.6: Company monitors and records training results and effectiveness
- 3.3: training for vessel personnel exceeds minimum STCW req.
- 4.1: procedures to assess crew members for job competence are in place
- 4.2: documented procedure to ensure future training needs
- 4.3: Interpersonal skills are promoted
How to manage crew competence

A management system approach

A competence management system should be able to:

1. Identify;
2. Assess;
3. Monitor; and
4. Continuously improve

the competence of onboard personnel

The CMS should integrate relevant procedures of existing systems (SMS, Quality Management System, etc.)
# Technical and Non-technical skills

## Group of Competencies

<table>
<thead>
<tr>
<th>Technical</th>
<th>Non Technical</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>• STCW, ISM, SOLAS, MARPOL, ISPS, MLC, Flags, Class Rules, etc.</td>
<td>• Personal &amp; social qualities for certain forms of employment that do not depend on acquired knowledge</td>
<td>• Company policy, manuals, guidelines, etc.</td>
</tr>
<tr>
<td>• Industry guidelines or standards (e.g. TMSA)</td>
<td>• Identified according to the specific job profile</td>
<td>• Ship details</td>
</tr>
<tr>
<td>• Customers requests and feedback</td>
<td></td>
<td>• Users/manufacturers manuals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• New equipment, software/hardware</td>
</tr>
</tbody>
</table>
Competencies

Non technical skills

Non Technical Skills

Social (Interpersonal)
- Leadership
- Communication
- Teamwork

Cognitive (Personal)
- Resilience
- Self Management

Influencing (developing) people
Vision focused
Assertiveness
Oral
Written
Listening
Adapt
Reliable
Active participation
Situation awareness
Respond to changes
Decision making
Work under pressure
Work habits
Learning/self development
Competencies

Abilities of Resilient Systems/Humans

Knowing what to do, being capable of doing it.
Finding out and knowing what to expect

Respond

Learn

Monitor

Anticipate

Knowing what has happened
Knowing what to look for (indicators)

Source: E. Hollangel, 2012
How to manage crew competence

Activities that can be included in a CMS

• Pro-boarding familiarization
• Pre-employment assessment
• Career development
• Training scheduling
• Personnel assessment (on technical and non-technical skills)
• Roster Management
• Competence analysis – benchmarking
• CMS Reporting, Documentation
Assessment

*Competence is different from Performance*

thus

Assessing crew competence is a different task from assessing job performance
Crew CMS - RINA Approach

### Assessment

**Currently**
- Use (validated) available tools
- Reviewing new (market) assessment systems
- Gap reports of CMS with (behavioral) assessments

**In progress**
RINA Academy is working for the development of a new assessment system to be included in RINA CMS

- New taxonomy and links between skills
- Mathematical modeling
- Overall assessment (technical and non technical)
- Incorporate Risk into CMS
Crew CMS - RINA Approach

Training

RINA Academy support CMS

- Customized training focusing on weak areas (competence gaps)
- Technical and non-technical skills training
- E-learning
- Coaching
- Classroom courses
**Crew CMS - RINA Approach**

### RINA CMS Rules

- A documented procedure for the evaluation of the effectiveness of the actions carried out.
- ISO 10015 Quality management guidelines for training outcomes.

### Policy & objectives set by the management level:
1. Company objectives
2. Applicable Rules, standards
3. Procedures of other management systems
4. Lessons learnt, incident analysis

### Documented procedures, tools and criteria to assess competence:
1. Qualified int. assessors, as per IMO
2. Target vs. existing competence
3. Record keeping

### Plan for filling competence gaps (actions, roles, timeline):  
1. Criticality of gap
2. Operational goals
3. Training requirements
4. Refresh training

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**INTERCARGO, London 14.02.2018**
• Web set-up of RINA CMS
• Planning – history of assessment and training
• Online assessment
• Certificates, CMS documents, reports
• Data analysis, KPIs, benchmarking
• Competent personnel is a necessity due to:
  • multiple tasks with high risk levels that are demanded on-board ships
  • fast technology progress
  • introduction of new legislation
  • anticipated high standards that lead to pressing inspection and verification procedures.

• The gaps between qualification and competence should be managed with a systematic approach (a competence management system, CMS)

• Assessment of competence is a crucial step in a CMS

• Note that: Assessing competence differs from assessing job performance

• RINA activities: CMS methodology, web tools, Rules, Assessment techniques, training
Thank You

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GREECE

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