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Input paper for the following Committee(s): check as appropriate Purpose of paper:

**□** ARM **□** ENG **□** PAP **X** Input

**□** ENAV **X** VTS **□** Information

Agenda item [[2]](#footnote-2) n.n

Technical Domain / Task Number 2 10.1

Author(s) / Submitter(s) Chair & Vice Chair of TD3 VTS Training

**Proposed Revision of Model courses for VTSO training**

* **Introduction**

Present VTS training programs, developed over years and primarily based on common practise, are “*subject1 driven*” with limited attention for teaching methodologies. However, VTS matured, its role and position in a changing maritime domain with complex vessel traffic patterns will gain more importance. Consequently the professional demands of VTSO’s, the Training Instructors and Assessors, as well as their competences, evolve and are increasing. In order to anticipate this development the potential and usefulness of a new but proven teaching and training methodology should be investigated.

In the field of education and training evolving perceptions regarding the learning and training of skills have led to the application of Competence Based Training (CBT). Some educational and training institutes, amongst which outstanding universities, introduced them several decades ago.

Research has proven that these training methodologies are sustainable and not just a trend.   
Due to their sufficient robustness these methodologies now have earned a permanent place in the wider field of education and training.

CBT has already been adopted and implemented in various fields by many countries in all continents, showing its global potential. CBT, being “*competence driven*”, is specifically very suitable for vocational training (and consequently for VTS training programs). The characteristics and advantages of CBT are provided in ANNEX A of this document with the aim for further development.

In accordance with its Strategy and goals for 2014-2026 (approved by Council 56 11-12-2013) and the herein included relevant priorities for the period 2014-2018

*P2 – Deliver a limited suite of high level standards suitable for direct citation by States and by other  
 international organisations;*

*P4 – Develop guidance for the delivery of VTS, including communications, human factors,  
 qualifications and training;*

*P11 – Develop funding sources, programs and delivery options for the World Wide Academy*

At the start of the new Working Programme period IALA will have the opportunity to produce a state of the art and for the future sustainable VTS Training Manual containing contemporary teaching methods.

* + **Actions arising from the input of the document**
* a consideration on the future implementation of CBT for VTS Training
* the change from a “*primarily subject driven*” to a “*competence driven*” approach for future VTS Training
* the drafting of a VTS Training Manual incorporating the revision of current Model courses in the VTS environment and other relevant IALA documentation
  + **Related documents**
* Model course V-103 (Standards for Training and Certification of VTS Personnel);
* Model course V-103-1 (VTS-operator Basic Training);
* Model course V-103-2 (Vessel Traffic Services Supervisor – Advanced Training)
* Model course V-103-3 (VTS On-the-Job Training, VTS operator and Supervisor);
* Model course V-103-4 (VTS On-the-Job Training Instructors);
* Guideline 1103 Train the Trainer
* Guideline 1014 Accreditation of VTS training
* Guideline 1027 Simulation in VTS Training
* Guideline 1017 Assessment of training requirements for existing VTS personnel,  
   candidate VTS operators, revalidation of VTS operator certificates
* Guideline 1032 Aspects of Training of VTS Personnel relevant to the introduction of the  
   Automatic Identification System
* VTS manual
* **Discussion**

The challenge will be to switch from the current “*subject driven*” training program to a “*competence driven*” program, where task-elements form the structure of the learning curriculum and consequently also form the structure of the model course.

In case topics no longer form the structure of the training material, as the different task-elements will determine this structure, also the role of the ‘teacher’ and/or ‘instructor’ will change.

In order to assess the feasibility of the CBT methodology for VTS training it will be necessary that the VTS Committee starts with a substantial discussion on this subject, identifying the benefits and drawbacks of a CBT approach and its consequences and risks in respect to the current training methodology, and for current VTS authorities and training institutes as a result of the changing approach.

In case the VTS Committee supports this proposal it is consequently recommended to revise the in chapter 1,2 mentioned documents of the IALA model courses in the VTS environment and other related IALA documents, where appropriate, with the aim to re-use as much material from the current model courses as possible.

* **time frame**

It is recognized that for the acceptance of the proposed new approach a broad engagement of the entire VTS Committee and approval by Council will be required.

* The initial discussions should take place during VTS-38 (October 2014).
  + Working Group 3 will formulate an advice to the Committee for discussion and with the aim for approval in plenary. This advice will address the matter of the use of CBT methodologies within VTS training, it is envisaged that the proposal to move towards a CBT based approach would be endorsed or otherwise during VTS38.
  + Working Group 3 will also provide a proposed framework and scope for a new VTS Training Manual with the aim for discussion and approval during VTS39;
  + It is envisaged that the relevant IALA Model Courses would be transferred to a CBT based approach and a VTS Training Manual developed in a time frame to enable them to be formally approved by the IALA Council ahead of launching them at the VTS Symposium in 2016.
* The final draft of the revised IALA Model Courses and the VTS Training Manual may be expected by the Committee for discussion in VTS41 (March 2016) with the aim for approval and submission to Council.
* **Actions requested of the VTS Committee**

The Committee is requested

* to discuss the potentials of the CBT methodology for VTS Training;
* to discuss the advice and outcome of the deliberations in Working Group 3 with the aim for approval
* to produce an output document for Council with the aim for approval
* to approve the proposed work package and time frame as mentioned in Chapter 3 of this document

ANNEX A

to VTS39/xx/xx

**CHARACTERISTICS AND ADVANTAGES**

**OF**

**COMPETENCE BASED TRAINING (CBT)**

CBT has already been adopted and implemented in various fields by many countries in all continents, showing its global potential. CBT, being “***competence driven***”, is specifically very suitable for vocational training (and therefore for instance for VTS training programs).

1. **CHARACTERISTICS OF CBT**

According to Norton (1987), Foyster (1990) and Delker (1990) the key characteristics of CBT

programs are:

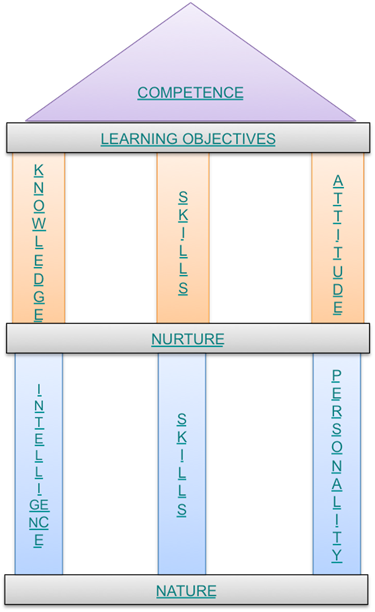
* Competencies are carefully selected;
* Supporting theory is integrated with skill practice; essential knowledge is learned to support the performance of skills;
* Detailed training materials are keyed to the competencies to be achieved and are designed to support the acquisition of knowledge and skills;
* Methods of instruction involve mastery learning, the premise that all participants can master the required knowledge or skill, provided sufficient time and appropriate training methods are used;
* Participants’ knowledge and skills are assessed as they enter the program;
* Learning should be self-paced;
* Flexible training approaches including large group methods, small group activities and individual study are essential components;
* A variety of support materials including print, audiovisual and simulations (models) keyed to the skills being mastered is used;
* Satisfactory completion of education and training is based on achievement of all specified competencies’.

1. **advantages of cbt**

There are many advantages arising from Competency Based Training (CBT) for the different parties involved.

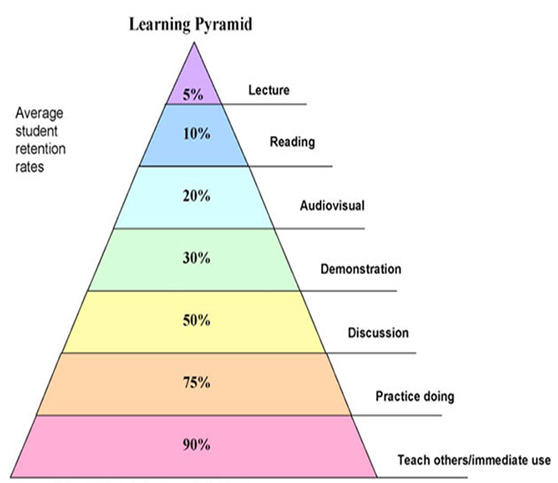
* 1. **For VTS-authorities**
* It is an industry and demand driven (outcome-based) training programme based on well-defined industry standards (occupational standards);
* These industry standards include the organizations strategy and form the solid basis upon which the program (curriculum), assessment and learning materials are designed and developed;
* CBT programmes focus on what the participant is expected to be able to do in the workplace as opposed to just having theoretical knowledge;
* It is therefore a training program which ensures that learners gain the necessary knowledge, skills and attitudes to be successful in the working environment;
* This also means that Human Factors are an integral part of the curriculum (see figure 1).
* Financial benefits

*Figure 1. Competence pyramid*



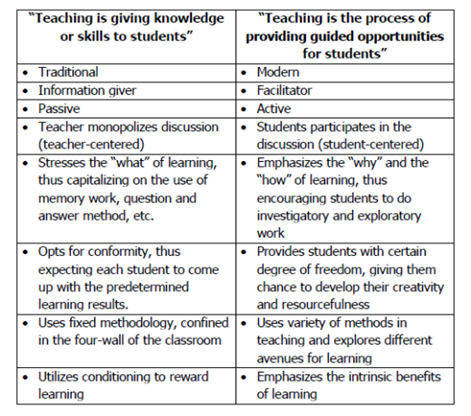
* 1. **For VTSO’s**
* The teaching program has more variety;
* Classroom time is dynamic and contains quite a bit of interaction;
* The lessons are student centered enabling the student to use his/hers own learning strategy and learning pace to master the competencies.

*Figure 2. Learning Pyramid*



* 1. **For the Instructor**
* The training program provides the Instructor with more tools to diversify classroom teaching therewith keeping the trainees motivated and cooperative;
* His/Her role changed from being a encyclopedia to guiding students to their knowledge.

*Figure 3. Changing role of the Instructor*



Example of CBT

Underneath you find an example of CBT training. The example is provided in order to illustrate the difference with the current V103/1 training and a possible format to use. The example is the competence Maintain and update vessel traffic image (situational awareness) which is one of a set of competencies.

***Maintain and update vessel traffic image***

Overview This standard covers the skills and knowledge required to maintain and update a vessel traffic image. A Vessel Traffic Services Operator is required to make a full appraisal of vessel traffic, correctly identifying all significant vessel traffic within and also entering the Vessel Traffic Services area. Additionally, the Vessel Traffic Services Operator must promptly contact all significant unidentified vessel traffic entering

the area.

There are three elements in this standard:

• Make a full appraisal of all vessel traffic in the Vessel Traffic Services area

• Correctly identify all significant vessel traffic in the Vessel Traffic Services area and vessel traffic entering into the area

• Promptly contact all significant unidentified vessel traffic entering the Vessel Traffic Services area

Target Group

This standard applies to an authorised Vessel Traffic Services Operator who has a duty to ensure the safety of navigation and protection of the environment within their area.

***Performance criteria***

***You must be able to:***

Conduct an appraisal of all vessel traffic in the Vessel Traffic Services area

P1 follow the specified watch handover procedures on taking over the watch

P2 create a dynamic traffic image to take account of present and developing situations that impact or will impact vessel traffic in the Vessel Traffic Services area

P3 maintain a continuous watch of all vessel traffic in the Vessel Traffic Services area

P4 maintain an awareness of the ship type or special characteristics of vessels that may influence the safe and normal operation of traffic flow in the Vessel Traffic Services area

P5 maintain an awareness of the cargo characteristics on board vessels that may influence their safe and normal operation in the area

P6 assess the risks posed by vessel traffic with respect to the safety and efficiency of vessel traffic and the threat of environmental pollution on a continuous cycle

***You must be able to:***

Identify all significant vessel traffic in the Vessel Traffic Services area

and vessel traffic entering into the area

P7 maintain an awareness of the intentions and sailing plans of all significant vessel traffic

P8 use all available means to correctly identify all significant vessel traffic in the Vessel Traffic Services area and also vessel traffic entering into the area

P9 establish the correct identity of vessel traffic in the Vessel Traffic Service area and vessel traffic entering into the area using vessel name/call sign or other appropriate means of identification

***You must be able to:***

Contact all significant unidentified vessel traffic entering the Vessel Traffic Services area

P10 use all available means to establish contact with all significant unidentified vessel traffic entering the Vessel Traffic Services area

P11 establish the correct identity of unidentified vessel traffic entering the Vessel Traffic Services area

P12 establish the intentions and sailing plans of newly identified vessel traffic entering the Vessel Traffic Services area

P13 obtain any further information (e.g. security level) about the vessel as required in accordance with operating procedure

P14 respond to the presence of significant unidentified vessels in accordance with standing operating procedures when it is not possible to obtain a positive identification

***Knowledge and understanding***

***You need to know and understand:***

K1 the hazards and risks of the workplace that may affect people and the environment

K2 how to make and apply decisions based on the assessment of risk

K3 how to apply practices that maximise the health, safety and welfare of self and others in the workplace

K4 national and international regulations, statutory authority, codes of practice and industry good practice in relation to Vessel Traffic Services and the role of Vessel Traffic Services Operator

K5 own organisation’s policies, procedures and working practices relevant to Vessel Traffic Services operations

K6 the different roles within Vessel Traffic Service operations, their priorities and responsibilities

K7 lines and methods of communication /reporting in the workplace

K8 vessel movement and data recording equipment, their operating principles and how they are maintained

K9 how to communicate clearly and effectively with the range of people involved

K10 principles and procedures of operation for all equipment used to maintain and update the vessel traffic image

***Additional Information***

The important contribution of Vessel Traffic Services towards maintaining the safety of life at sea, safety and efficiency of navigation and the protection of the marine environment is recognised nationally and internationally. International Association of Marine Aids to Navigation & Lighthouse Authorities (IALA) guidelines on recruitment, qualification and training for Vessel Traffic Services Operators have been adopted and are regulated in the UK through the Maritime and Coastguard Agency. These Vessel Traffic Services National Occupational Standards take cognisance of and complement the IALA guidelines and model courses.

Scope

The different equipment used to maintain and update the vessel traffic image includes:

1. Radio telephone equipment including Global Maritime Distress

Safety Systems (GMDSS)

2. Automatic Identification System (AIS)

3. Digital Selective Calling equipment

4. Telephone equipment

5. Facsimile

6. Electronic messaging equipment

7. marine radar/tracking systems

8. electronic chart systems

9. Closed Circuit Television (CCTV)

The different roles within Vessel Traffic Service operations include:

10. Vessel Traffic Service Operator

11. Vessel Traffic Service Supervisor

12. Vessel Traffic Service Manager

13. Harbour Master

14. Marine Pilot

15. Ship’s Master

16. Bridge Team

17. Other port stakeholders/allied services

1. Input document number, to be assigned by the Committee Secretary [↑](#footnote-ref-1)
2. Leave open if uncertain [↑](#footnote-ref-2)