# Table of Contents

1. Definitions
2. References

Here is the list of pertinent documents related to Portrayal:

1. Recommendation V-127 Operational procedures for vessel traffic services
2. Recommendation V-125 The use and presentation of symbology at a VTS Centre
3. Recommendation V-119 On the implementation of vessel traffic services
4. Guideline 1111 chap 10 VTS Human/Machine interface
5. Guideline 1111 chap 11 Decision support
6. Guideline 1105 Shore side portrayal
7. Guideline 1106 S100

Also, temporarily for VTS41 technical working group as reference:

1. Report of the IALA Workshop on the Data and Information at a VTS [Bremen 2013]
2. Report on the IALA Workshop on Human Factor and Ergonomic in VTS [Gothenburg 2015]
3. VTS41 input paper 10.3.2 Human Factor and Ergonomic
4. Setting the Scene

This section considers the scope of the guideline and its relations with other IALA guidelines and recommendations. The onion model illustrates the VTSO within his work environment.

Room

Workstation

**Portrayal**

Information

Needs

Tasks

Human Factor

**Operator**

The scope of this guideline on Portrayal covers only the “Portrayal” layer. The interfacing neighboring layers are only considered when relevant to the Portrayal.

1. General Requirements for Portrayal
   1. Operator Workload (7)

H37(7) - VTS Authorities face an increasing challenge to ensure the validity, clarity and conciseness of information and data portrayed is meaningful and useful to the VTSO rather than simply overload or perhaps even distracting.

H15(3) - Cognitive Aspects -Mental workload, fatigue, cognitive lock-up, attention loss

H39(6) - A decision support tool, used properly, should decrease the workload of the VTSO, increase situation awareness and improve the delivery of the service.

* + 1. Human factor

H11(3) - Consideration needs to be given to ergonomic factors with regards to portrayal to optimise technology-based workflow and mitigate the risks of VTS Operator fatigue and distraction.

H38(13) In some VTSs, such as in inland waters, VTS Authorities should consider the orientation of traffic images to ensure that VTS Operators can maintain full situational awareness without the risk of confusion when interacting with the vessel traffic.

**Our propositions, to finalise:**

* Quantity of monitors and/or windows
* Quantity of mouses and keyboards
* Configure the chart views to help the positioning of information. For example, chart rotation could be used.
* …

**Actions:**

* Investigate the ergonomic requirements for the portrayal.
* …
  + 1. Information needs
       1. Information categories

INS (Primary requirement: Communication Services)

Traffic Image compilation

Meteorological Information gathering

Hydrological Information gathering

Prevailing routing information and restrictions to manoeuvrability

Status of Navigational Aids

Relevant Port information

TOS

Vessel Movement Scheduling / Separation / Prioritisation

Sailing Plans

Pilotage

Special procedures for managing Hazardous Cargo carrying vessels

Management of berths / anchorages

Ship Reporting System

Fairways and Speed Limits

Re-routing of traffic around special events or works.

Enforcement action

NAS

Grounding warnings

Collision warning

Advice where on board equipment has failed

**Actions:**

* Review the lists and keep only items that are information category.
* Define the way to regroup information categories.
* Decide if we must explain in few lines each information categories.
* …
  + 1. Minimum information for a VTS

H37(11) - Guidance should be developed to enable to define the minimum information required to be portrayed to a VTS Operator to enable them to effectively deliver the declared service type in a given area.

**Actions:**

* Indicate which information are mandatory for a minimum VTS.
* Specify which minimum information should be always displayed
* …

**Raw information to finalise:**

* Possibility to trace communications and actions.
* …
  + 1. Filtering Relevant Information

H11(4) - There is already a risk of information overload with the varying sources of data available in a VTS Centre and the risk is expected to increase.

H16(5) - General guidelines to prevent information overload. Consider whether information needs to be constantly available /presented or not.

**Actions**:

* Split information by categories like constantly presented, presented by service, presented on demand and that could be filtered.

**Raw information to finalise:**

* Categories
  + Chart layers
  + Vessel position
  + Vessel speed, direction
  + Vessel tag
  + Trip information
  + Communications
  + Alerts (Alarm, warning, etc.)
  + ….
* Tools
  + Track fusion and correlation
  + Trip lists
  + Reminder lists
  + Zoomed chart views
  + Orientation of traffic image
  + …
* Filtering parameters
  + Geographical area
  + Data to display selectable by layers
  + Time base filtering
    - Constantly presented
    - Conditionally presented
    - …
    - On demand
  + VTSO tasks
  + VTSO services
    1. Tasks

**Actions:**

* List all VTS tasks.
  + Example of tasks:
    - Do a command
      * Radar acquire target
    - Modify data
      * Create or modify a vessel trip
    - Manage the portrayal
      * Chart pan, zoom in, zoom out, etc.
      * Filtering of information
    - VTS support tasks
      * Recent information playback
    - VTS auxiliary tasks
      * Shift on and shift off operators
      * Maintenance tasks and diagnostics
      * Sensor controls
      * House keeping tasks
* Associate all VTS tasks with information categories, if possible.
* Indicate which tasks are mandatory or optional.
  + 1. Decision Support Tools (Guideline 1110)

**Actions:**

* + - * List VTS pertinent decision support tools
      * On demand / Automatic
      * Audible / Visual Alarms and Alerts (9)
      * Real Time Risk Assessment
      * …
  1. Harmonisation with On Board Presentation – V.125 (8)

H37(8) - There is a need to investigate the requirement for harmonisation of the portrayal of information and data aboard and ashore, with a view to facilitating a common understanding of what is being portrayed and communicated.

H5 - Key objectives of e-Navigation include facilitation of data exchange between vessels and shore, integration and presentation of information onboard and ashore, with consistent standards and interoperability.

H11(14) - The adoption of on-board maritime symbology may not necessarily be the most appropriate for the specific role of a VTS.

**Decisions**:

* VTS symbology and portrayal should be appropriate for the task; Where applicable symbology should be aligned on on-board symbology.
* …

**Actions**:

* Investigate the requirement for harmonisation of the portrayal of information and data aboard and ashore
* …
  1. Timeliness of data (10)

H37(10) - Portrayal should ensure that the right information at the right time is available to assist in both the shore and on-board decision-making process.

H11(10) - VTS equipment should facilitate the portrayal of the right information at the right time to assist in the on-board decision making process; the need to negotiate extensive menu systems to reach relevant data must be minimised.

H18 - Real-time data vs. tactical data: Data from the different time frames should be presented in overlays that may be turned on and off selectively. In any case, the symbology for tactical data presentation should be different from the existing real-time symbology.

**Decisions**:

* Trip information and vessel position must be in real time, with the minimum delay as possible.
* Data from the different time frame than real-time should have specific indication and it should display of its age.
* …

1. Additional Data Sources (2)
2. Impact of S100 Product Specifications (3)
3. Data Quality Information (5 & 6)
   1. Sensor Information
   2. Decision Support Tools
   3. General Information
   4. External sources
   5. Determining Quality Level
   6. Displaying Quality Information
4. Operator Input Validation ? (12)
5. …