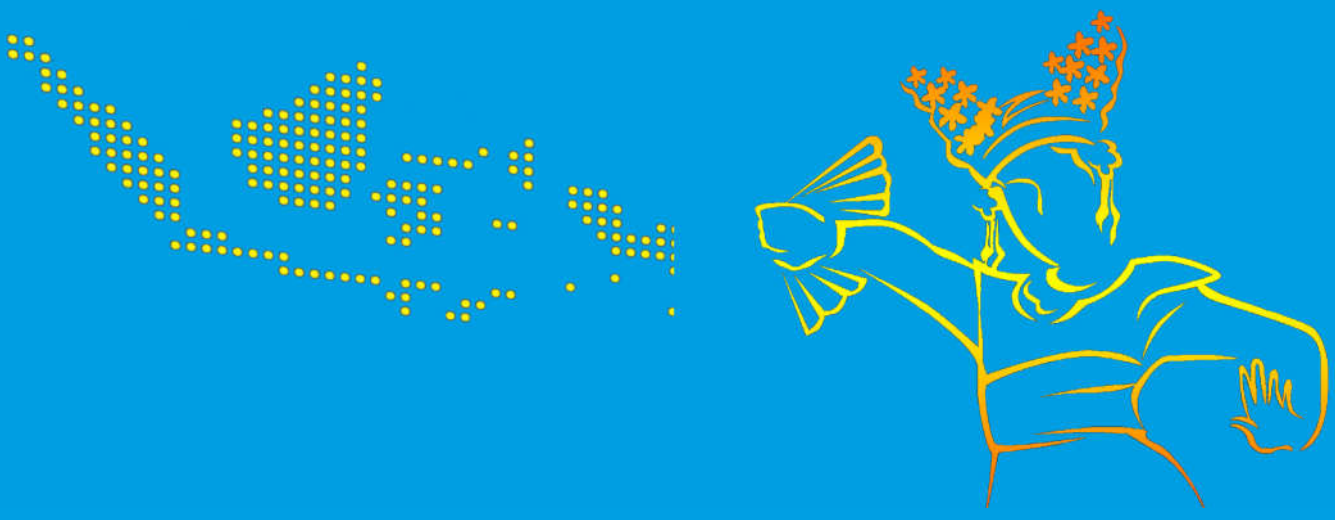
IALA

MINISTRY OF TRANSPORTATION
REPUBLIC OF INDONESIA

REPORT OF THE IALA WORKSHOP ON COMMON PHRASEOLOGY AND PROCEDURES FOR VTS COMMUNICATION

Denpasar, Bali, Indonesia, 20 to 24 February 2017



24 February 2017

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Report of the IALA Workshop on

Common Phraseology and Procedures for VTS Communication

Executive Summary

An IALA workshop on Common Phraseology and Procedures for VTS Communication was excellent hosted by the Indonesian Ministry of Transportation in Denpasar, Bali, Indonesia from 20 to 24 February 2017.

The workshop was attended by 60 delegates, representing 13 countries and 2 Sister organisations.

The workshop was structured with presentations on relevant topics on the first day followed by working group sessions on day 2, 3 and 4. Output work was reviewed and conclusions were agreed on day 5.

The workshop generated nine conclusions:

1. **There is a diversity of understanding with regards to how to provide effective and harmonised VTS communication, including phraseology, and further research is required to develop international VTS Communication Guidance.**
2. **VTS Communication Guidance and VTS training need to include but is not limited to:**
   - **cultural awareness and its implications for effective communication;**
   - **effective communication techniques.**
3. **SMCP does not fully reflect current VTS operations, and there is an ongoing need to align ship and shore communication in order to enhance mutual understanding and global harmonisation.**
4. **VTS Communication Guidance should take into account, as a minimum:**
   - **the availability of enhanced digital communication capabilities (e.g. VDES, broadband), and use of communications support technologies within the VTS environment to complement voice communication;**
   - **the advancement in technology such as the use of Ship Reporting System (SRS) by digital communication.**
5. **In order to standardise and improve the consistency of VTS communication, and thereby improve comprehension, keywords to stress the intention (e.g. Report, Read back and Proceed) can be included in the message.**
6. **Using a Human Centred Design process, there are tangible actions that can be taken in the physical design of a VTS Centre and the design of associated tools (hardware and software) to facilitate clear and unambiguous communication.**
7. **A shared understanding between VTS, pilots, master, tugs, etc. is essential for situational awareness and supports efficient and effective communication, and vice versa.**
8. **It is recognised that humans sometimes make errors when communicating. In VTS operations there is a need to manage and minimise the consequence of these errors.**
9. **After completion of the VTS communication guidance, related IALA documents should be reviewed and updated as appropriate.**

The output documents were forwarded to the VTS Committee (VTS43) for further development and completion and to the IALA Council to note.

Attendees enjoyed a welcome reception on day 1, a technical tour to the Benoa VTS on day 2 and a workshop dinner on board a cruise ship on day 3.

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IALA Workshop on Common Phraseology and Procedures for VTS Communication

1. INTRODUCTION

A workshop on the subject of Common Phraseology and Procedures for VTS Communication was hosted by the Indonesian Ministry of Transportation from 20 to 24 February 2017. The workshop was attended by 60 delegates, representing 13 countries and 2 Sister organisations.

A list of participants is at ANNEX D.

2. OVERALL PROGRAMME

The overall programme is shown in the following table; the detailed programme is in Annex F.

Monday 20 February	Tuesday, Wednesday and Thursday 21-23 February	Friday 24 February
Registration	Session 3, 4 and 5 Working Groups on 1. Language and Phraseology 2. Effective communication 3. Human Factors and Technology	Session 6 Presentation and discussion of Working Groups output
Lunch		Session 7 Workshop conclusions Closing of the Workshop
Session 1 Opening of the Workshop Keynote address	Lunch	
Session 2 Presentations by expert speakers Aims and Objectives Introduction Working Groups	Working Groups continued Tuesday Technical visit Thursday WG Report and conclusions	
Welcome reception	Tuesday dinner Benoa VTS Wednesday Workshop dinner	

3. CONCLUSIONS

Following a discussion on the conclusions of the working groups, the workshop agreed to the following nine conclusions:

1. **There is a diversity of understanding with regards to how to provide effective and harmonised VTS communication, including phraseology, and further research is required to develop international VTS Communication Guidance.**
2. **VTS Communication Guidance and VTS training need to include but is not limited to:**
   - **cultural awareness and its implications for effective communication;**
   - **effective communication techniques.**
3. **SMCP does not fully reflect current VTS operations, and there is an ongoing need to align ship and shore communication in order to enhance mutual understanding and global harmonisation.**
4. **VTS Communication Guidance should take into account, as a minimum:**
   - **the availability of enhanced digital communication capabilities (e.g. VDES, broadband), and use of communications support technologies within the VTS environment to complement voice communication;**
   - **the advancement in technology such as the use of Ship Reporting System (SRS) by digital communication.**
5. **In order to standardise and improve the consistency of VTS communication, and thereby improve comprehension, keywords to stress the intention (e.g. Report, Read back and Proceed) can be included in the message.**
6. **Using a Human Centred Design process, there are tangible actions that can be taken in the physical design of a VTS Centre and the design of associated tools (hardware and software) to facilitate clear and unambiguous communication.**
7. **A shared understanding between VTS, pilots, master, tugs, etc. is essential for situational awareness and supports efficient and effective communication, and vice versa.**
8. **It is recognised that humans sometimes make errors when communicating. In VTS operations there is a need to manage and minimise the consequence of these errors.**
9. **After completion of the VTS communication guidance, related IALA documents should be reviewed and updated as appropriate.**

Annexes to the Report

ANNEX A WORKSHOP ON COMMON PHRASEOLOGY AND PROCEDURES FOR VTS COMMUNICATION

Before the opening session there was a safety briefing by a representative of the venue.

4. SESSION 1 - OPENING

Chaired by Tuncay Çehreli, DGCS, Chairman of the IALA VTS Committee.

4.1 Welcome from Indonesia and opening ceremony by I Nyoman Sukayadnya, Secretary of Directorate General of Sea Transportation

The workshop started with a traditional Balinese opening dance performed on the stage followed by a video presentation showing the developments of VTS in Indonesia.

Mr. I Nyoman Sukayadnya welcomed all participants to Bali, Indonesia on behalf of Mr. A Tonny Budiono, Director General for Sea Transportation. He memorised the significance of VTS for navigational safety, efficiency and the environment. He hoped that the workshop will contribute to the work of IALA and wished all participants a fruitful workshop.

With five strokes on a traditional gong together with Tuncay Çehreli the workshop was formally opened.

The opening session was also attended by:
Mr. Raymond Siantury, Head of District Navigation Class I Tanjung Pinang
Mr. Sudarwedi, Head of District Navigation Class II Benoa
Mr. Supriyono, Head of Harbour Master and Port Authority of Benoa
Mr. Tofan Rindoyo, Deputy Director of Navigation for Maritime Telecommunication.

4.2 Welcome from IALA by Capt Tuncay Çehreli, Chairman IALA VTS Committee

Presentation abstract

On behalf of IALA Capt Çehreli thanked the Directorate General of Sea Transportation of the Ministry of Transportation of Indonesia for hosting the workshop. He highlighted the importance of the workshop for IALA to work together with and share the knowledge of experts. Voice communication is crucial at sea but many accidents happened due to improper or a lack of communication. There is a need for stand-alone VTS communication procedures with a global standardisation and harmonisation. The IALA VTS Committee is commenced to develop guidance on VTS voice communication which is the objective of the workshop. He finally thanked all delegates for their participation and wished everybody a good and fruitful workshop.

The full text of the Opening remark is in Annex H.

4.3 Keynote address by Allan Gray, Vice President IHMA

Presentation abstract

VTS is primary risk mitigation for the Harbourmaster it provides more than a conduit for simple information messages it forms the core of situational awareness within the port environment. It must engage with all port users to ensure a clear picture is shared by all. This shared picture requires clear unambiguous open air communications. Common phraseology may deal with simple information but can it deal with the transfer of technical information in an emergency situation. It must and therefore it must go beyond just the VTS and be applicable to all port users.

The full text of the Keynote address is in Annex I.

4.4 Press conference

There was a short press conference arranged attended by Mr. I Nyoman Sukayadnya, Capt. Tuncay Çehreli, Mr. Raymond Siantury and Mr. Sudarwedi.

5. SESSION 2 – PRESENTATIONS BY EXPERT SPEAKERS

Chaired by Tuncay Çehreli,

DGCS, Chairman of the IALA VTS Committee.

5.1 VTS voice communications, now and in the future

The presentation was made by Jillian Carson-Jackson, Nautical Institute

Presentation abstract

First an overview was given about the activities of the Nautical Institute with a focus on communications from a seafarer point of view.

Than the good and bad aspects of SMCP and sea speak were discussed, sometimes resulting in not using SMCP. Looking to the future where digital communication will play an increasing role, it was recognised that verbal communication will be needed in many VTS situations.

5.2 Comparison between maritime and aviation language

The presentation was made by Lilian Biber, NNVO, the Netherlands

Presentation abstract

In a comparison of voice communication between the maritime world and the aviation it was recognised that harmonisation between several maritime modalities is needed. Professional communication should be comprehensive, unambiguous, short and service related. SMCP does not always fulfil these requirements. Comparison of some examples using maritime communication and equivalent aviation language was presented. That raises the question of the use of message markers, language levels, etc. which should be investigated during the workshop and should lead to IALA VTS language.

The following three presentations introduced the topics of the Working Group.

5.3 Topic 1: Language and Phraseology

The presentation was made by Seunghee Choi, Korea Institute of Maritime and Fisheries Technology (KIMFT), Republic of Korea

Presentation abstract

Many different variations of the use of English as language were determinate. There are already differences in countries were English is the mother language leading to many variations in other countries or regions. This will come back in the use of English by seafarers of different countries, sometimes leading to misunderstanding and accidents. The use of standard phraseology has implications for training which will be discussed in the working group.

5.4 Topic 2: Effective communication

The presentation was made by Michele Landi, Italian Coast Guard, Italy

Presentation abstract

Some examples were presented of the misuse of effective communication. What is effective communication and which skills are needed? Standardisation should be the key issue to obtain effective communication. Communication should be structured. Three tasks were presented to work on during the workshop: the integration of common phraseology into current procedures, to identify key issues faced by VTS authorities and the review of existing guidance of IALA and other bodies.

5.5 Topic 3: Human Factors and Technology

The presentation was made by Ben Brooks, University of Tasmania, Australia

Presentation abstract

Based on the work programme of the VTS Committee guidance should be developed on VTS communication. How should human factors and technology play a role in VTS communication?

Training is a very important aspect in standardised and harmonised VTS communication. The influence of current and emerging technology on VTS communication was presented. From a human factors perspective also the design of VTS centres pays a role and will be discussed during the workshop.

5.6 Workshop aims and objectives

Neil Trainor, AMSA, Vice-Chairman IALA VTS Committee explained what the topics and the objectives of the workshop are.

BACKGROUND

VTS communication will be based on IMO Resolution A.857(20) Guidelines for Vessel Traffic Services. Some articles of that resolution were highlighted in order to define the aims of the workshop.

The background is to enhance the operational performance and effectiveness of VTS through the adoption of common phraseology and procedures for VTS communications based on the following arguments.

- The 2012 IALA VTS Symposium recognised that there is a compelling need to establish stand-alone communication procedures for VTS to facilitate clear and unambiguous transfer of information. This was followed by producing guidance for on VTS communication into the work programme 2014-2018 of the VTS Committee.
- A key factor in realising the full potential of VTS around the world is by ensuring that VTS communications are harmonised through common phraseology, procedures and technology for the delivery of precise, simple and unambiguous communications to the bridge team and allied services.
- A conclusion of the 2016 IALA VTS Symposium was that interaction and communication is not unique to VTS, and inspiration from other sectors, such as the aviation sector, may facilitate the development of enhanced and harmonized guidance on communications and phraseology.

OBJECTIVE

The objective of the workshop is to assist in the development of IALA documentation and associated material addressing the delivery of VTS communications with a view to improving its effectiveness in both routine communications and in developing situations. The workshop involved working groups examining the following subjects:

WG1 – Language and Phraseology Chair: Seunghee Choi Rapporteur: Lilian Biber	**WG2 –** Effective Communication Chair: Michele Landi Rapporteur: Naoyuki Takagi	**WG3 –** Human Factors and Technology Chair: Ben Brooks Rapporteur: Jillian Carson-Jackson
• Explore VTS message construction and the development of common phraseology to facilitate the clear and unambiguous gathering and transfer of information. • Identify and explore how common phraseology and procedures for VTS communications can best be incorporated in IALA documentation.	• Identify and explore factors on how best common phraseology can be integrated with the developing stand-alone communication procedures to facilitate clear and unambiguous transfer of information. • Explore and document key issues faced by VTS authorities in communicating effectively and ensuring standards and consistency in VTS communications. • Review existing IMO, IALA, and other similar communication guidance from other relevant bodies and subsequently identify strategies and best practices.	• Consider how culture plays a role in communication and phraseology. • Identify and explore how common phraseology and procedures for VTS communications can best be incorporated in IALA VTS training related documents. • Consider how communication breakdowns and errors occur and identify a path to resilience in communications. • Explore the interaction between non-technical skills (e.g., situational awareness, decision-making) and communication, and identify training related implications on this and other topics within the working group. • Address the role that VTS Centre design plays in creating physical spaces that facilitate effective communication. • Explore the implications of future technology for VTS Communications and associated human performance.

Output

The workshop would facilitate the exchange of best practices, ideas and knowledge amongst a wide range of VTS professionals and those from other sectors and contribute to influencing the formulation and development of IALA documentation on VTS communications. Therefore the output should provide the VTS Committee with proposals, concepts and examples of best practice that can be used in the development of guidance on VTS communications.

The workshop would also contribute to enhancing other IALA documents related to VTS communications, such as:

- Recommendation V-103 and its associated Model Courses with specific reference to the modules dealing communication.
- Recommendation V-127 on Operational Procedures for Vessel Traffic Services.
- Guideline 1089 on Types of Service (INS, TOS and NAS).

5.7 Introduction Working Groups

Neil Trainor, Vice-Chairman IALA VTS Committee introduced the Working Groups for the following days as follows.

WG1	Language and Phraseology	Chair: Seunghee Choi Rapporteur: Lilian Biber
WG2	Effective Communication	Chair: Michele Landi Rapporteur: Naoyuki Takagi
WG3	Human Factors and Technology	Chair: Ben Brooks Rapporteur: Jillian Carson-Jackson

The Secretary informed about the use of the file sharing application during the workshop.

ANNEX B **WORKING GROUPS**

6. SESSIONS 3, 4 AND 5 - WORKING GROUPS

The workshop broke into three Working Groups (WG) to progress the objectives as described above during Tuesday, Wednesday and Thursday.

7. SESSION 6 – REVIEW OF WORKING GROUP'S OUTPUT

Chaired by Neil Trainor, Vice-Chairman IALA VTS Committee.

The outputs from the workshop will be submitted to the 43rd session of the IALA VTS Committee (VTS43) in March 2017 where they will be progressed to completion.

7.1 Report of Working Group 1 – Language and Phraseology

1 Aims

Working Group 1 had two aims:

1.1 to explore VTS message construction and development of common phraseology to facilitate the clear and unambiguous gathering and transfer of information, and

1.2 to identify and explore how common phraseology and procedures for VTS communications can best be incorporated in IALA documentation.

2 Procedure

In order to meet these aims the group carried out the following tasks:

2.1 a review of the Standard Maritime Communication Phrases (SMCP) and other maritime communication reference materials in order to identify current lacks and suggest possible additional phrases necessary for VTS communication (see Appendix A);

2.2 production of a draft list of additional VTS communication phraseology in terms of NAS, INS, and TOS (see Appendix A);

2.3 an exploration of clearer, more effective, and more up-to-date communication language structures in order to make the additional list of VTS phraseology more coherent and consistent with that of SMCP;

2.4 make suggestions for identifying and classifying more straightforward and understandable language structures for mutual intelligibility when communicating by using plain language;

2.5 draft recommendations for future IALA communication guidelines (e.g., replace/supplement the current list of phrases with scenario-/topic-based categories, expand glossary); and

2.6 make suggestions for future directions of IALA research projects for analyzing authentic VTS communication (e.g., intercultural factors, cross-cultural factors, the use of plain language, benchmarking with other transportation industries) in order to inform the development of future VTSO operational procedures/training course design.

3 General points

In the review of the existing VTS communication guidelines (e.g., SMCP), the following general points were made:

3.1 Despite the fact that VTS has different communication requirements compared to the shipside, the current phraseology in SMCP is largely focused on mariners. There is therefore a strong need to align the communication of both parties in order to enhance mutual understanding.

3.2 SMCP does not fully reflect up-to-date technology. Therefore, SMCP needs to be extended with contemporary phraseology.

3.3 Due to congested VHF channels in busy traffic areas, there is a compelling need for concise, compact, and comprehensive SMCP communication, both for standard phraseology and for plain language (e.g., INFORMATION: Pilot on arrival). It was felt that current guidelines should be amended to reflect this need.

3.4 The use of VTS communication does not need to be linguistically precise (e.g., the omission of the "to be" verb and prepositions may be allowable). Most importantly, however, the language must be comprehended by different cultures and needs to be unambiguous for all parties involved.

3.5 The active use of message markers is encouraged, even though the use of message markers is often restricted and/or left out in very high-traffic areas. In this case, shortening VTS communication could make time available to use the message markers as prescribed in IALA documents.

3.6 In order to standardize and improve the consistency of VTS communication and thereby further improve the comprehension of standard phraseology, the use of keywords in the beginning of the message is recommended; such keywords stress the intention of the message (e.g., frequently used keywords for this purpose are report, request, and proceed).

7.1.1 ANNEX 1 to WG1 report

The following messages were suggested for the supplement of, and the future update of SMCP (The categories of SMCP are applied and specified).

A1/4.2 - Embarking / disembarking pilot	
1.	Pilot will embark on arrival at …
2.	Report when pilot is on bridge.
3.	Report when pilot disembarks.
4.	Contact pilot on VHF channel …
6.	Confirm pilot boarding time.
A1/6.1.1 - Acquiring and providing routine traffic data	
1.	What is your purpose of calling … port?
A1/6.2.1.2 - Navigational information	
1.	Channel … is closed for ingoing traffic.
2.	Fishing gear damage / oil pollution / wake damage / … is reported in position / location / near … buoy.
A1/6.2.1.3 - Traffic information	
1.	Deep draft vessel … approaching point …
2.	General direction of the TSS you are using is (cardinal direction).
3.	Vessel ahead of you is on the same / opposite course.
4.	Vessel on opposite course passing your port / starboard side.
5.	Vessel … will overtake you on port / starboard side.
A1/6.2.2 - Navigational assistance service	
1.	Navigational Assistance Service started at … UTC/LT.
2.	Navigational Assistance Service ceased / ended at … UTC/LT.
A1/6.2.2.1 - Request and Identification	
1.	Is your AIS switched on?
2.	Your AIS data is not visible on my system, please check.
3.	Please re-start your AIS.
4.	According to our equipment, your AIS has position error. Please check.
5.	According to our system/equipment, initial settings of your AIS are not correct (e.g. Ship name, call sign, MMSI number, LOA …).
6.	According to our system/equipment, your AIS settings are not updated (e.g. Port of destination, draft, air draft …).
7.	Service / equipment / … not operational.
8.	Service / equipment / … restored.

A1/6.2.2.2 - Position	
1.	You are within the area of …VTS/sector, call … VTS/sector on channel …
2.	You are entering … sector, report to … / change channel to …
3.	You are out of VTS area …
4.	Call us when entering VTS area …
5.	Distance to …, … cables / NM.
6.	You are approaching the … (e.g. pilot boarding station/anchoring position).
A1/6.2.3.1 - Clearance, forward planning	
2.	Next reporting point is …
3.	Report when leaving VTS area …
4.	Report when MV … is passed and clear.
5.	Keep / maintain present course/speed.
6.	Adjust course / speed to meet / make / maintain ETA … hours.
7.	Keep a distance of … cables/miles to the vessel ahead of you.
A1/6.2.3.2 - Anchoring	
1.	What time did you anchor/drop anchor?
2.	Proceed to anchorage area … for further instructions.
3.	You are not permitted to anchor in and around the fairway.
4.	Anchor on arrival.
5.	Heave up anchor and proceed to pilot station / entrance / strait / fairway / …
A1/6.2.3.3 - Arrival, berthing and departure	
1.	What are my berthing instructions? - Your berth will be available at … hours. - You will berth at … hours.
2.	Tug and tow in position …
A1/6.2.3.4 - Enforcement	
1.	This is … VTS VHF working channel, change channel for your communication.
2.	Two way traffic is not permitted in …, adjust your ETA / speed.
3.	The speed limit / maximum speed / minimum speed in channel / fairway / strait is … knots.
A1/6.2.3.5 - Avoiding dangerous situations, providing safe movements	
1.	Vessel … outgoing, passing buoy, contact on VHF channel … for safe passage.
2.	Vessel …, risk of collision, with the vessel … of you.
3.	Contact vessel … on VHF channel … for safe passage.
4.	Proceed at safe speed.
5.	You are navigating outside the correct traffic lane.
A2/3.4 - Draft and air draft	
1.	What is your maximum draft (fore/aft draft)?
Others	
1.	What is your present security level onboard?
2.	Do you have valid International Security Certificate of Compliance (ISCC)?
3.	Port on security level 2.
4.	We have received a report that you have hit buoy … in position …
5.	This incident will be investigated.

7.2 Report of Working Group 2 – Effective Communication

The Chairman opened the meeting by introducing himself and then asked each member of the group to introduce himself / herself and to explain their individual background and expertise.

A productive discussion was conducted regarding the general suggestions given by theory of effective communication and which of these indications are applicable to the maritime and VTS contexts. The following were considered valuable for the scope of this workshop:

- Do not rush, remain calm.
- Make sure that you are not holding your breath.
- Listen – even if you do not agree – before you speak.
- Take timeout when you are becoming overly stressed.
- Understand and try to reduce the emotion. To achieve this, follow the procedure, use appropriate voice, do not shout
- Recognize the intention behind the information.
- A two way street communication.
- Engaged/Focused listening. (But multi-tasking ability is important.)
- Manage stress
- Be assertive
- Provide feedback (including “read back”)
- Stay calm under pressure
- Quick stress relief
- Clear speech delivery

The working group then focused on the discussion of structuring and transferring information through VHF. An academic study regarding the language of seafaring and how maritime English language is constructed and displayed was presented. The study provided some examples of message patterns in special purpose (emergency, urgency, safety) and routine communications, which were shared by the working group.

Moves	Steps
1. Initiate message	1.1. Indicate message marker
	1.2. State addressee (receiving station/all ships)
	1.3. Identify oneself (calling station)
	1.4. Indicate ship’s position
2. Send message / Broadcast information	2.1. State nature of distress, imminent risk or relevant data
	2.2. State assistance required
	2.3. State addition information or important requirements
3. End of message	3.1. Switch off/Indicate end of message

Figure 1 - Special purpose message pattern

Moves	Steps	
1. Initiate conversation / Establish contact	1.1. State addressee (receiving station)	
	1.2. Identify oneself (calling station)	
	1.3. Indicate VHF working channel / Agree or disagree working channel	
	1.4. Switch over/indicate end of tur	
2. Send message / Exchange information	Stage a: initial stage	Stage b: subsequent stage
	2.1.a Address receiving station	2.1.b Address receiving station
	2.2.a Identify calling station	2.2.b Identify calling station
	2.3.a Indicate ship's position	2.3.b Exchange messages information as appropriate
	2.4.a Indicate time of transmission	
	2.5.a State nature of communication	2.4.b Switch over/indicate end of turn
	2.6.a Switch over	
3. End of conversation	3.1. Address receiving station	
	3.2. Identify calling station	
	3.3. Acknowledge final message	
	3.4. Bid farewell and thank politely	
	3.5. State intention to end call	
	3.6. Switch off/Indicate end of message	

Figure 2 - standard message pattern

Based on internationally-recognized recommendations for implementation when ships communicate with each other or with shore-based stations, the framework of messages presented above was used to define the VTS message patterns, in order to achieve an effective delivery of vessel traffic services, with some efforts to simplify or better define some aspects of the messages, taking into consideration the following:

- VTSO's are not the only user of maritime radio communication
- All the procedures have to be consistent with ITU and IMO regulations
- Use appropriate words for closing a transmission (OUT/OVER)

In order to simplify some aspects of the message patterns (procedure to call a vessel, agreement on VHF channel) and at the same time to emphasize some parts of the communication, the group considered some key issues related to VTS:

- Most part of information regarding ships and their voyages are already present at VTS (use of ISPS form, SRS)
- The radio VHF frequency/ies are already set and promulgated to the mariners through the appropriate maritime documentations.
- Use of IALA Guideline 1083 for the nomenclature of the VTS
- Use of some pro-words and key words to better define and emphasize the followed message
- Pro-word TRAFFIC
- key word CLEARANCE, READ BACK
- Clear identification of identity, position, intention/destination of vessels (IALA 1089).
- In case of crossing situations, call the give-way vessel first, and then the stand-on vessel
- In case of providing positions, it is recommended to use buoys, landmarks, lighthouses, first, then cardinal points or cardinal directions, and then latitude and longitude.

A very productive discussion was held regarding the use of the phrase "read back," as a means to prompt the receiver of a message to repeat the content of the message just received. This way a VTSO can ensure that the message is clearly understood. It was agreed that the use of "read back" can contribute significantly to achieve an effective communication for VTS purposes.

Following this was a discussion on how to convey a message over the VHF radio. The group explored the draft of IALA documentation (guideline) on VTS radiotelephony communications, focusing on the various techniques for effective transmission of radio communications that are included in the above guideline:

- Preparation of the message
- Speech rate
- Volume of the voice
- Word grouping and pausing
- Nuclear stress
- Pronunciation of letters and digits
- Use of plain text/abbreviations

After exploring these techniques, each of the participants read a Mayday message consisting of 47 words, following these techniques. The chairman measured the duration of each message and counted the speech rate.

Name	Time	WPM
Test1	38	74
Test2	37	76
Test3	24	117
Test4	34	82
Test5	30	94
Test6	30	94
Test7	31	91
Test8	34	82

Figure 3 - role play results on effective communications techniques

This activity reminded the participants of the importance of the techniques in the guideline, including the speech rate, and the participants agreed that they should be part of the VTSO training.

Discussed on the second day were factors hindering effective communication, which included the following:

- Technical factors
- Operational factors
- Human factors (linguistic and non-linguistic)

Various factors (e.g. vocabulary, grammar, sounds) related to the English language used in VTS communications were discussed in detail, and later the participants listened to actual recordings offered by TST (Toyo Shingo Tsushinsha, a port radio service provider in Japan) where voice communication was really challenging. These included speakers in panic, with strong accent, and a topic totally unexpected in the context of VTS. These case studies confirmed the participants' awareness that following the proper procedures on the part of VTS alone does not always lead to successful communication. Then the group moved on to measures for ensuring standards and consistency, focusing on the training of VTSO's and mariners (including cadets).

During the workshop on the following day, the group considered the relevant documentation coming from IMO, IALA, and other similar communication guidance from other relevant bodies in order to identify common strategies and best practices. Then the group made VTS communication examples and analysed them. In annex 1 is reported the list of the work.

Then the group examined ICAO manual of radiotelephony and ICAO language proficiency requirement in greater depth. The group found the following features of aviation industry of interest

- Use of the phrases "read back" and "words twice" in aviation.
- Language proficiency tests are based only on aviation contexts and speaking/listening abilities.

7.2.1 ANNEX 1 to WG2 report

WEATHER INFORMATION Case 1

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 (Pro word) WEATHER+ INFORMATION (Marker)	
	2.2 Weather Condition Statement	
	2.3 ADVICE (Marker)	Additional Measures
	2.4 Provide relevant Advice	
3. End of conversation	OVER/OUT	

WEATHER INFORMATION Case 2

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 INFORMATION (Marker)	
	2.2 (pro word) WEATHER + INFORMATION	
	2.3 Information of weather (speed of tidal) for the _____ hours	
3. End of conversation	OVER	

WEATHER INFORMATION Case 3

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 INFORMATION (Marker)	
	2.2 referring the obstacle around the addressee state (N-W-E-S)	
	ADVICE (Marker)	
3. End of conversation	OVER	

TRAFFIC CLEARANCE

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)/ Vessel	
	1.2 (name) + VTS	
2. Body of message	2.1 (Pro word) Trafic + clearance	New keywords, to ensure that the vessel receive a clear message related to the permission on particular thing.
	2.2 Name of vessel we are referring	
	2.3 Provide Relevant Information/data	
	2.4 ADVICE (Marker)	Additional Measures
	2.5 Provide relevant Advice	
	2.6 (Pro Word) Traffic Information (Marker)	Additional Measures
	2.7 Provide Relevant Information/data	
3. End of conversation	OVER/OUT	

TRAFFIC INFORMATION (NAVIGATIONAL WARNING)

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station/Vessel)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 (Pro word) Navigation + Warning(Marker)	
	2.2 Provide Relevant Warning Information	
	2.3 Advice (Marker)	Additional Measures
	2.4 Provide Relevant Advice	
	2.3 Question (Maker)	Additional Measures
	2.4 Provide relevant Question	
3. End of conversation	OVER/OUT	

TRAFFIC INFORMATION (COLLISION AVOIDANCE) Case 1

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station/Vessel)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 (Pro word) Collision + Warning(Marker)	The usage of "Warning" marker, It's depends on the situation
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
	2.4 Advice(Maker)	Additional Measures
	2.5 Provide relevant Advice	
	2.6 Read Back (Marker)	New keywords. Only for The Collision Avoidance to Ensure the Vessel Undestand the Message
3. End of conversation	OVER/OUT	

TRAFFIC INFORMATION (COLLISION AVOIDANCE) Case 2

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station/Vessel)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 (Pro word) Collision + Warning(Marker)	The usage of "Warning" marker, It's depends on the situation
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
	2.4 Advice(Maker)	Additional Measures
	2.5 Provide relevant Advice	
	2.6 Read Back (Marker)	New keywords. Only for The Collision Avoidance to Ensure the Vessel Undestand the Message
3. End of conversation	OVER/OUT	

TRAFFIC INFORMATION (COLLISION AVOIDANCE) Case 3

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station/Vessel)	
	1.2 this is (name) + VTS	
2. Body of message	2.1 (Pro word) Collision + Warning(Marker)	The usage of "Warning" marker, It's depends on the situation
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
	2.4 Advice(Maker)	Additional Measures
	2.5Provide relevant Advice	
	2.6 Read Back (New Marker)	New keywords. Only for The Collision Avoidance to Ensure the Vessel Undestand the Message
3. End of conversation	OVER/OUT	

TRAFFIC INFORMATION Case 1

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 INFORMATION (Marker)	
	2.2 Name of vessel we are referring	
	2.3 Position of the vessel we are referring with distance and bearing.	
	2.4 ADVICE (Marker)	
	2.5 Provide relevant advices	
3. End of conversation	OUT	

TRAFFIC INFORMATION Case 2

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 TRAFFIC + INFORMATION (Marker)	
	2.2 Referring to the equipment	
	2.3 QUESTION (what are your intentions)	
	2.4 REQUEST (Marker)	
	2.5 Provide relevant request	
3. End of conversation	OVER	

TRAFFIC INFORMATION Case 3

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 (Pro word) TRAFFIC+ INFORMATION (Marker)	
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
3. End of conversation	OVER/OUT	

TRAFFIC INFORMATION Case 4

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 (name) + VTS	
2. Body of message	2.1 (Pro word) TRAFFIC+ INFORMATION (Marker)	
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
3. End of conversation	OVER/OUT	

TRAFFIC INFORMATION Case 5

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station)	
	1.2 THIS IS (name) + VTS	
2. Body of message	2.1 (Pro word) TRAFFIC+ INFORMATION (Marker)	
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
	2.4 ADVICE (Marker)	Additional Measures
	2.5 Content of the advice	
3. End of conversation	OVER/OUT	

(SAILING CONTEST) Broadcasting

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving All Vessels)	
	1.2 this is (name) + VTS	
2. Body of message	2.1 (Pro word) Navigational + Information (Marker)	
	2.2Relevant Information	
	2.3 Advice(Marker)	Additional Measures
	2.4Provide relevant Advice	
3. End of conversation	OVER/OUT	

VESSEL DOES NOT COMPLY WITH TRAFFIC REGULATION (HEADING TO OPPOSITE TRAFFIC LANE) Broadcasting

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving All Vessels)	
	1.2 this is (name) + VTS	
2. Body of message	2.1 (Pro word) Navigational + Warning (Marker)	
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
	2.4Relevant Warning Information	
	2.5 Advice(Marker)	Additional Measures
	2.6 Provide relevant Advice	
3. End of conversation	OVER/OUT	

INFORMATION NEARBY TRAFFIC THAT A VESSEL CROSSING CENTER LINE Broadcasting

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving All Vessels)	
	1.2 this is (name) + VTS	
2. Body of message	2.1 (Pro word) Navigational + Warning (Marker)	
	2.2 Name of vessel we are referring	
	2.3 Position of vessel using cardinal point/directions and distance	
	2.4Relevant Warning Information	
	2.5 Advice(Marker)	Additional Measures
	2.6 Provide relevant Advice	
3. End of conversation	OVER/OUT	

METEOROLOGICAL INFORMATION

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station) 2 Times	
	1.2 THIS IS (name) + VTS	
2. Body of message	1.3. (Pro word) WEATHER + INFORMATION (Marker)	
3. End of conversation	2.4 OUT	

SAFETY INFORMATION Case 1

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 SECURITÈ (3 times)	
	1.2 ALL SHIP (3 TIMES)	
	1.3 THIS IS (name) + VTS	
2. Body of message	2.1 safety information (position using cardinal point + minimum distance/min or max speed)	
	THIS IS (name) + VTS	
3. End of conversation	OUT	

SAFETY INFORMATION Case 2

Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 State addressee (receiving station) 3 Times	
	1.2 Areas we are referring to	
	1.3 THIS IS (name) + VTS	
2. Body of message	2.1 INFORMATION (Marker)	
	2.2 Vessel we are referring to. NOT UNDER COMMAND IN THE POSITION (position using cardinal point)	
	2.3 Provide relevant advice	
3. End of conversation	OUT	

SAR INFORMATION

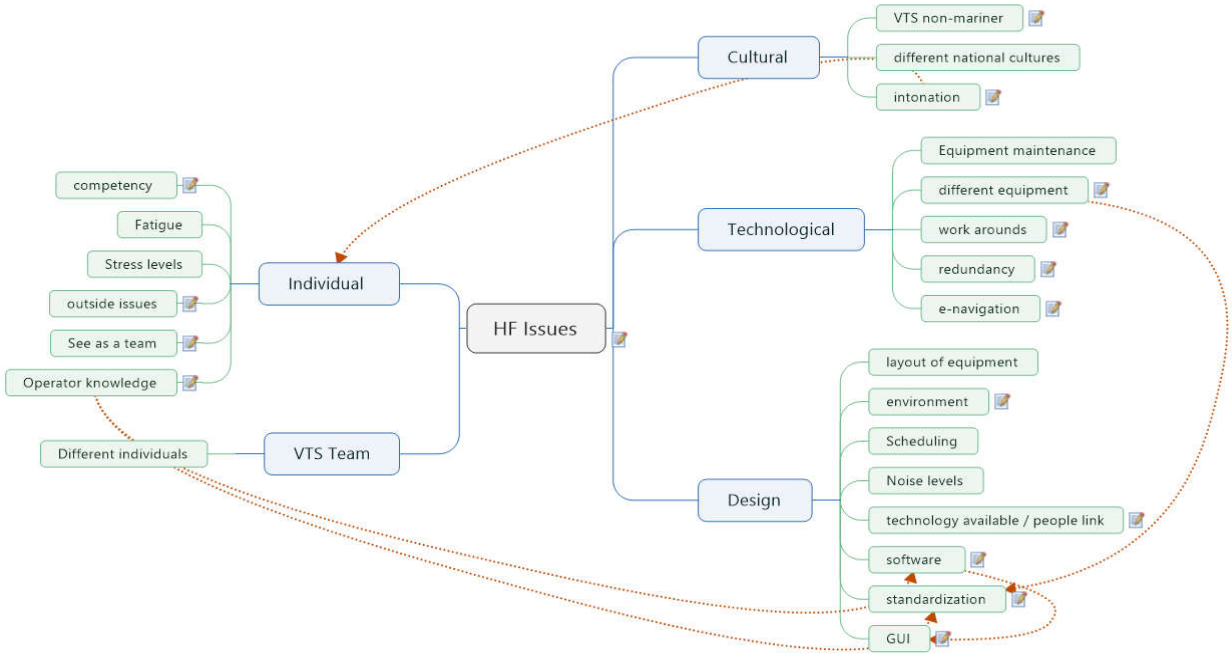
Message	Procedures	Note
1. Initiate conversation / Establish contact	1.1 SECURITE' (MARKER) 3 Times	
	1.2 State addressee (receiving station) 3 Times	
	1.3 THIS IS (name) + VTS	
2. Body of message	2.1 INFORMATION (Marker)	
	2.2 Operation SAR activity in position (position using cardinal point)	
	2.3 REQUEST (Marker)	
	2.4 Provide relevant request	
3. End of conversation	OUT	

7.3 Report of Working Group 3 – Human Factors and Technology

The working group, chaired by Ben Brooks, addressed the objectives through a series of short presentations followed by discussion or break-out sessions.

7.3.1 Human Factors and communications

The session focused on human factors that affect communication, including information procession, decision making and situational awareness. The presentation highlighted human factors as they may affect communication and comprehension. The full results of the working group are provided in Annex 1 of WG3 report (7.3.7). An overview mind map of the discussion is provided below.



The session noted:

- Advances in Maritime Education and Training technologies are providing us with new and innovative ways to train VTS personnel in the use of coded languages such as SMCP.
- The human factors implications for verbal communication and phraseology include individual, team, technological, cultural and design issues. The effective management of these issues will support the Vessel Traffic Service to achieve best practice communication.
- Human factors include the goals of reducing risk, maximising safety and improving the comfort for people working in a VTS. However, it must also be acknowledged that the foundations of human factors were built on the goal of maximising workplace efficiency. This goal is particularly important when searching for opportunities to improve verbal communication.

The session concluded: *The human factors implications for verbal communication and phraseology in VTS include individual, team, technological, cultural and VTS-related design issues.*

7.3.2 Designing for effective communications

Centre design considerations that may affect communication were reviewed. The technical visit to Benoa VTS provided an opportunity to view specifics of design. Nielson's design principles of discoverability; feedback; conceptual model; affordances; signifies; mappings and constraints were reviewed. Key considerations for designing for effective communication in VTS were highlighted and include:

- Reduce Ambient (background) noise – locate servers in a different room; could even put computers in a different room.
- If there is a large space around work station consider design options to dampen sound
- Use of headsets / style of headsets – could be single ear headset so possible to hear other sounds; option to switch between speaker and headset depending on traffic volume
- Information sources – CCTV; weather; traffic image (AIS / radar image integrated) easily visible so VTSO can reference during communications as required.
- Communication recording / playback option at VTS position (enable playback if required)
- Communications software – access to comms frequencies; ability to do a 'retransmission'.
- Use of simplex frequencies vs duplex – simplex means other vessels in the VTS area are able to hear all communications / enhance situational awareness.

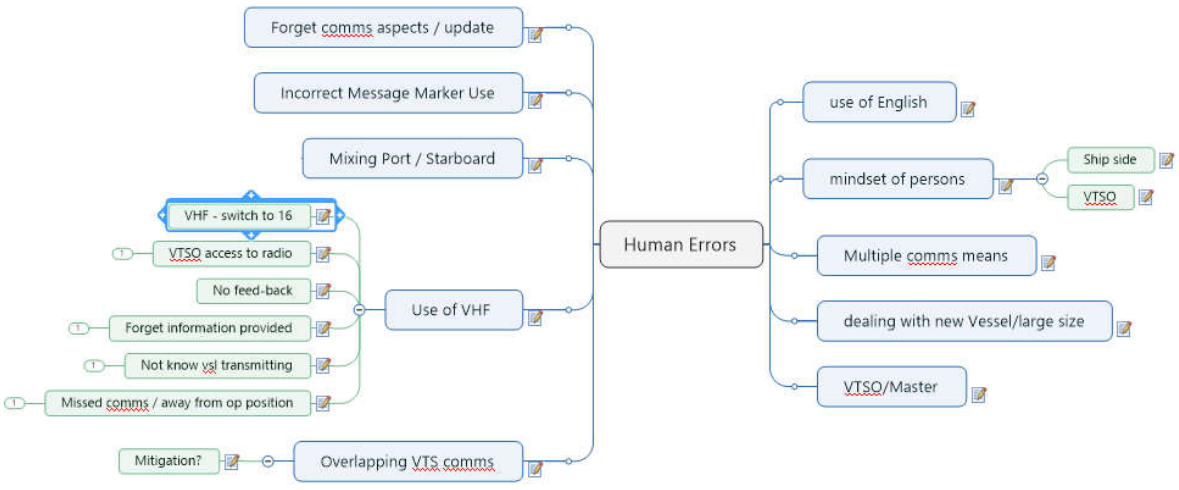
In the discussion on design considerations the concept of ergonomics was raised, noting options that include: sit/stand consoles (flexible height); adjustable chairs (made for 24/7 use); single keyboard / mouse operation for multiple screens (simplified); ergonomic keyboard dedicated for VTS operations (simplify versus use of menus).

The session concluded: *Using a Human Centred Design process, there are tangible actions that can be taken in the physical design of a VTS Centre and the design of associated tools (hardware and software) to facilitate clear and unambiguous communication. .*

7.3.3 Human Error and communications

It was noted the 'to err is human'. Within the context of communications, errors can occur at many different levels, and may be related to the use of language; the mindset of the persons communicating (further examined in section 7.3.5 – cultural aspects); the use of different communications methods; overlapping communications channels; and technical issues related to communications equipment.

The group identified a number of possible mitigation measures for many of the errors identified, noting there are some instances where a mitigation measure may address multiple errors. The full results of the working group are provided in Annex 2 of WG3 report (7.3.8). An overview mind map of the discussion is provided below.



The session concluded that: *It is recognised that humans sometimes make errors when communicating. In VTS operations there is a need to manage and minimise the consequence of these errors.*

7.3.4 Implications of future technology for VTS Communications

An overview of the current state of digital data technology developments for use in the maritime environment was provided, noting the link between digital technologies and the areas of operation as defined by IMO in the work on e-navigation.

AIS was defined in both an operational and technical manner, and the effect of the increase in AIS (automatic identification system) use for aids to navigation; man-overboard units; and other innovative uses was noted. The status of development of the VHF data exchange system (VDES) was noted, specifically the fact that VDES includes AIS, VDE (VHF data exchange) and ASM (application specific messages). A presentation on VDES was provided, which highlighted the agreed capability of VDES (AIS, VDE terrestrial and ASM terrestrial and satellite) and the developing capability for VDE satellite. The presentation concluded that work will continue at the International Telecommunication Union (ITU) World Radio Conference (WRC) in 2019 for the satellite component of VDE.

The group identified a number of digital communications approaches already in place within a VTS or shore authority, including providing information through a website; use of AIS; use of NAVTEXT; and e-mail (through 3G/4G or through INMARSAT). It was noted that some VTS may also manage DSC (Digital Selective Calling).

Looking to the future, it was noted that enhanced access to, and use of, digital communications could be used within a VTS context to: extend coverage of communications capability; automatically upload / exchange information on ship routes; providing port call, or notice of arrival, information either automatically or manually; reducing information exchange requirements (e.g. MSI (maritime safety information)); opportunity to provide language independent communications (coded phraseology / display in own language; use of symbols).

In the transition to take advantage of digital communications capability, it was noted that there are a number of issues that will need to be addressed to ensure the introduction of the capability enhances, rather than detracts from, the operations of the VTS, and there could be lessons learned from the introduction of AIS in a VTS.

Details of the discussion re provided in Annex 3 of WG3 report (7.3.9).

The session concluded that: *The introduction of enhanced digital communications capabilities, and use of communications support technologies (e.g. digital voice recording and playback functions) within a VTS environment could have a number of benefits in facilitating, and complementing, voice communications.*

7.3.5 The role of culture in communications and phraseology

The role of culture and communications, including voice communications, was discussed. A related presentation from a Ted Talk (https://www.youtube.com/watch?v=YMyofREc5Jk) provided a base reference point for further discussion. It was noted that cultural aspects of communication colour how, and what, we communicate. Specifically, we have a tendency to hear what we expect to hear, and perhaps not what is actually being communicated.

To address the role of culture in VTS communications it was noted that there is a need to understand that your assumptions and understanding may not be the same as that of the person you are communicating with. There is an approach to be taken that is not necessarily about understanding all cultural references, but rather extending your understanding to realise there are different cultural biases that will influence communications.

The levels of culture were explored, noting that each person belongs to a number of cultural groups that can be related to nationality, profession, social groups, recreational activities, and more. When looking specifically at VTS communications, there is a need for the VTSO to put cultural assumptions aside when working on the circuit and to employ techniques that enable effective communications.

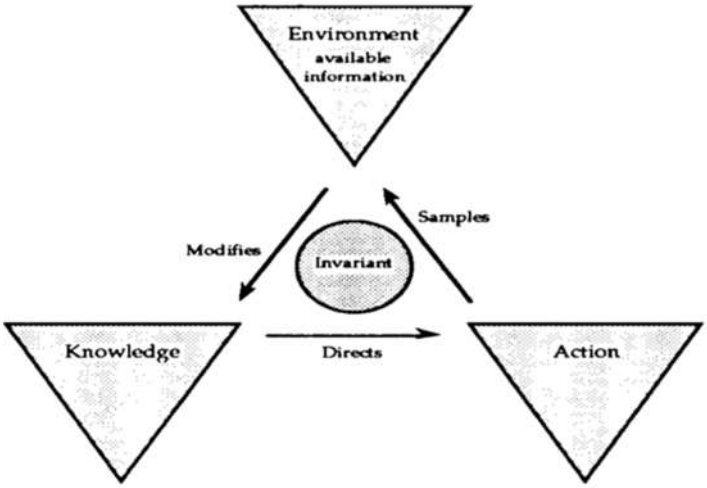
The session concluded that: *Different cultural groups have different communications 'norms' and each person is a member of many different cultures. VTS personnel need an awareness of cross-cultural*

influences and how this can affect their own, and others, approach to communication. There is a need to promote cultural awareness and, the implications for communications, in the VTS training regime.

7.3.6 Situational awareness

The three-level model for situational awareness (Endsley, 1995) was presented, with the caveat that, although accepted by most domains, the model may not always cater for the dynamic nature of situational awareness:

1. What information do I have?
2. What is going on?
3. What does it mean for the future state of the system?



The Perceptual Cycle Model (Hancock and Smith)

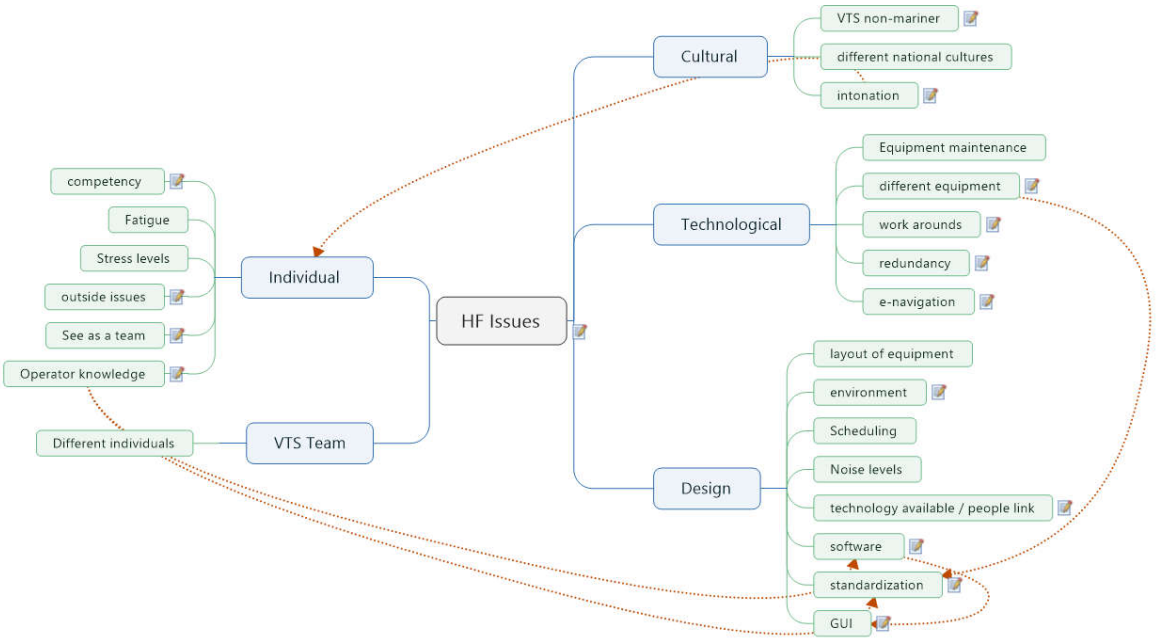
Situation awareness as a dynamic process does not have a clear beginning and end within the cycle, rather the process continues to evolve and adapt to the situation.

Through a workshop process it was noted that VTS, Pilot, Master, Tug Master, etc. need to have the same information, but that the information may be used in a different manner. For example, the Pilot and Master require the information for the navigation of the vessel, while the VTS Operator uses the information to manage the traffic within the waterway.

It was noted that support mechanisms need to be in place to address situations when some aspect of an activity does not go as planned or when one person has access to changed information that may not be available to all.

The session concluded that: *A shared understanding between VTS, pilots, master, tugs, etc. supports situational awareness. Maintaining situational awareness will support efficient and effective communication. Similar information should be available to all participants, but at different levels of detail.*

7.3.7 ANNEX 1 to WG3 report



In overview of the discussion the WG chair highlighted the focus on verbal communication

Note – this document is presented in raw data form, reflecting the notes taken during the discussion.

1 Cultural

1.1 VTS non-mariner

Communication with seafarer / mis-understanding

Professional cultures VTS and seafarers

VTS marine background / VTS non-marine background

1.2 Different national cultures

1.3 Intonation

See also: Individual

Although may speak same language, may use different intonation

i.e. culture that uses a 'soft' voice interacting with a culture that uses a 'loud' voice.

2 Technological

2.1 Equipment maintenance

2.2 Different equipment

See also: standardization

VTS / pilots / ships

Different equipment

Different understanding

Different situational awareness

Full team - VTS / ships / Pilots / Tugs (difference in technology)

Shared situational awareness may not be there

- Difference in equipment - equipment changes / standardization.

No requirement for specific equipment - reference to V-128

2.3 Work arounds

Some different experiences / may use work arounds to ensure activity can be completed.

Design of VTS - may be some features that are seldom used, difficult to get to when required.

2.4 Redundancy

Need for back up equipment

2.5 e-navigation

Various e-navigation projects / initiatives

- MUNI
- MonaLisa
- STM Validation
- Efficiensea / Efficiensea 2
- ASenS
- VESTA
- ACCSEAS
- Vessel Interface (Aus)
- etc.

Impact on VTS

Integration of data between ports / VTS / pilots / tugs

3 Design

3.1 Layout of equipment

3.2 Environment

Daytime / night time - additional activities and work

3.3 Scheduling

3.4 Noise levels

3.5 Technology available / people link

Look at technology available, but then need to look at the person using the technology.

May have advanced technology, but need to be sure the people can effectively use the technology.

3.6 Software

See also: GUI

Graphical interface - not designed effectively / different (not standard)

Different sectors in VTS / different countries

3.7 Standardization

Software

Hardware

Interface

3.8 GUI

Different approaches for different equipment (see software)

Looking at equipment specific training (similar for ECDIS)

Note training approach (basic training and OJT)

Discussion included work underway on S-Mode (NI / IMO)

Discussions on the introduction of 3D imaging.

4 VTS Team

4.1 Different individuals

5 Individual

5.1 Competency

Different competency

VTS / seafarers

Training approaches in different areas.

5.2 Fatigue

5.3 Stress levels

5.4 Outside issues

Outside pressures / lead to stress.

5.5 See as a team

Individuals may not seem to think themselves as a team - but work as individuals.

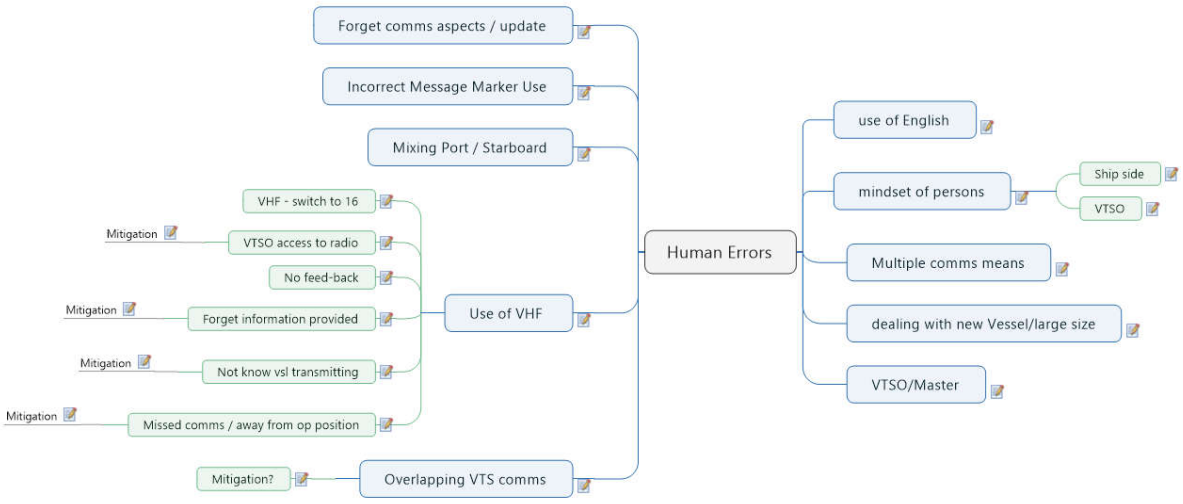
5.6 Operator knowledge

See also: software , standardization

Experience / ability to use equipment / software.

Need to understand what the system is telling them / operator training on how to interpret what the system is telling them.

7.3.8 ANNEX 2 to WG3 report



1 Use of English

National pride in language / inhibit ability to learn English / preference to speak mother tongue

If more than one ship coming into the area, preference for national vessel - example provided Indonesian vessel / foreign vessel - preference for Indonesian vessel.

Cultural issues / language comfort issue

Mitigation:

- Enforce all communication in VTS area in English. (how?)
- select persons with English
- provide training in language / in cultural behaviour (immersion environment; professionalism (enhance pride in job provision / job satisfaction); acknowledge the issue;)

2 Mindset of persons

'Baggage' that humans bring to their jobs - professional experience / past work environment; personal experience

Both on the ship side (master / mates / pilots) and on the shore side (VTSO)

2.1 Ship side

Master in command - know everything / not respond to information / advice from VTSO.

2.2 VTSO

Trainee intake level

- school leavers (ab initio)

- coast station radio operators

- navigation officers / deck officer

- master mariners

From a training level, make the shift from the last position to the current position.

Mitigation

- provide concept of situational awareness from VTS point of view (waterway management, rather than previous role)

3 Multiple comms means

With use of more than one communication means, opportunity for error grows.

Verbal communications with ship coming in - port alongside. Then text message to indicated starboard alongside - VTSO didn't see the message so missed this.

Mitigation:

- integration of systems / eliminate opportunity to miss a text

4 Dealing with new Vessel/large size

Large ship into the port - first time the Pilot / VTS / Port has dealt with that size vessel, first time the ship has entered the port.

Ship collided within the port.

Mitigation:

- training before the ship arrives
- simulate arrival / all maritime persons involved (pilot, master, VTS, Harbour Master)

- define operational limits before arrival.

5 VTSO/Master

Communication error

Operator call ship / master of ship answer speak English / Operator cannot understand master english / operator cannot continue with communication.

Question - do we train VTSOs to deal with language difficulties?

Mitigation

- don't give up
- adjust language use / simplify
- reduce the length of the sentence
- use different words
- send by using other tools / change the mode of communication (i.e. text - AIS - Short Safety Related Message)
- work through the pilot (when onboard)
- Train / provide options to VTSOs before situation arises

6 Overlapping VTS comms

- Multiple VTS in the same area - provided by different authorities, using the same VHF channels.

1 for Port Services

2 for Government (Port approaches / Coastal)

MoU between Port and the Competent Authority.

- Master - who to respond to? VTSOs how to manage?

[Organisational / regulatory aspect]

Errors that could come from this:

Misunderstanding of communications - who from (which VTS)

Hand-over aspects / could forget to transfer

6.1 Mitigation?

Each VTS has a specific area for operation

However, all together, the communications overlap

- need to align operational procedures
- Hand-over procedures between 'VTS' (hand-over between sectors).
- Can treat as different sectors

7 Use of VHF

Multiple aspects related to VHF - both technical and operational.

7.1 VHF - switch to 16

On board ship -

- VHF may switch back to Channel 16 from a working channel (occurs with some types of VHF radios)
- Mitigation

- awareness that this may occur - train to recognise
- ability to go to channel 16 to notify the vessel that they need to move to the VTS frequency

7.2 VTSO access to radio

Some VTS - only one radio being used by 2 or more VTSOs - limit use of VHF / may introduce error by waiting for the channel...missing communications.

7.2.1 Mitigation

Mitigation -

- each VTSO have a radio with multiple channel selection.
- Each position have access to radio / one channel for one sector
- each position able to monitor other sector radio.

7.3 No feed-back

No close-loop communication approach / feedback to confirm information received.

Mitigate

- procedures include close-loop communication
- train on close-loop communication

7.4 Forget information provided

VTSO may not remember the communications provided.

7.4.1 Mitigation

Mitigation -

- could have some means of visual indication when information has been provided (i.e. pilot on board, etc.)
- high tech - in software / low-tech - using cards / strips

7.5 Not know vessel transmitting

Operator may not know which vessel is transmitting - especially important if a vessel is transmitting on VHF in appropriately.

7.5.1 Mitigation

Mitigation - RDF (VHF-DF)

7.6 Missed comms / away from op position

Opportunity where comms may be lost (single operator / night time operations)

7.6.1 Mitigation

Mitigation

- provide access to comms links in other areas of the centre.
- design VTS with more than one operator
- link with other VTS at certain times (other VTS monitors when operator away from position

8 Mixing Port / Starboard

Mean to say Port / say Starboard.

9 Incorrect Message Marker Use

Mix up use of message marker

10 Forget comms aspects / update

Forget to pass information - i.e. buoy unlit / diving operations.

7.3.9 ANNEX 3 to WG3 report

Connectivity Evolution

How are we connected? (3G, 4G, WIFI, VHF)

Why are we connected (work family, want to be)

When are we NOT connected (holidays, by choice, remote area/islands, when I don't want to, on ship – too expensive – i.e. overseas)

Workshop session

What digital communications already exist in VHF?

- VHF, digital radio
- Information through website
- AIS, NAVtext
- MR160 VHF communication model
- VSAT, DSC
- Digital radar
- Information sensors- weather, tide etc…
- IMMARSAT (not generally in VTS but ships can use).

How may VTS benefit from developments in digital communication capabilities?

- Extend coverage
- Automatically upload routes exchange information automatically/dynamically
- Adding port call messages/times they arrive in port
- Reducing time for information exchange (e.g., MSI information) – reduction of time for communications and can do M2M communications.
- Opportunities to receive message in your own language, use symbology

What errors may be introduced in a connectivity evolution for VTS (transition to more digital communications/reliance on digital communications)

- Attention –related issues so when we change the mode of the communication do we increase or decrease workload and affect attention?
- Exchange of data might be affected by cybersecurity errors could occur here.
- Availability of the system – if the system goes down (what is the redundancy) – you have reduced voice comms – and then this causes problems you may not recall SMCPs.
- Budget for installation but also for maintenance.
- Promulgation of errors (GIGO principle) an initial error
- Authenticity of digital communication may hide error
- Technological errors introduced – by poor implementation of the hardware (e.g., offsets)

We want to use this more and more and more – and so we will try to gobble up the bandwidth.

7.4 Conclusions Working Group 1 – Language and Phraseology

Working Group 1 presented the following conclusions.

1. There is a need for a system by which VTS-managers can provide IALA with their feedback regarding VTSO communication for future development of VTS-phraseology.
2. A cross-cultural, multi-disciplinary team (e.g. language specialists, VTSOs, training specialists, mariners and pilots) is required in order to conduct comprehensive research on VTS communication to develop more contemporary communication guidelines.
3. SMCP should be modernized to reflect current operations and technology in order to remain aligned with VTS services.
4. VTS-specific communication courses should be established to facilitate learning among current VTSOs in order to achieve standardization and to make communication more effective and clear.
5. IALA recommendation V103 and model course V103-1 to V103-5 should be reviewed with regard to communication requirements and document 1089 should be updated in order to reflect the need for concise and comprehensive VTS-phraseology after completion of the communication guideline.
6. Other modalities (e.g. aviation, oil and gas industry) could be benchmarked on best practices or researched to better understand and implement effective communication and the development of detailed communication guideline should be developed (e.g. testing, teaching aviation communication and ATC-phraseology from ICAO).

7.5 Conclusions Working Group 2 – Effective Communication

Working Group 2 presented the following conclusions.

1. VTS message patterns should consider introducing more keywords in order to clarify/emphasize the message, such as the use of “read back” as a feedback technique.
2. Encourage the use of proper words in ending the message (OVER and OUT, not only realising the PTT).
3. Radio procedures should take into account the advancement in technology such as the quality of modern voice transmission, the use of SRS and AIS.
4. VTS training should take into account the effective communication techniques in order to achieve effective provision of vessel traffic services.

7.6 Conclusions Working Group 3 – Human Factors and Technology

Working Group 3 presented the following conclusions Priority High, Medium, Low.

7.6.1 Human Factors activity

1 - The human factors implications for verbal communication and phraseology in VTS include individual, team, technological, cultural and VTS-related design issues.

Priority - H

7.6.2 Thinking about Design activity

2 – Using a Human Centred Design process, there are tangible actions that can be taken in the physical design of a VTS Centre and the design of associated tools (hardware and software) to facilitate clear and unambiguous communication.

Priority – M-H

7.6.3 Human Error discussion

3 – It is recognised that humans sometimes make errors when communicating. In VTS operations there is a need to manage and minimise the consequence of these errors.

Priority - H

7.6.4 Technology

4 – The introduction of enhanced digital communications capabilities, and use of communications support technologies (e.g. digital voice recording and playback functions) within a VTS environment could have a number of benefits in facilitating, and complementing, voice communications.

Priority - L

7.6.5 Culture

5 - Different cultural groups have different communications 'norms' and each person is a member of many different cultures. VTS personnel need an awareness of cross-cultural influences and how this can affect their own, and others, approach to communication. There is a need to promote cultural awareness and, the implications for communications, in the VTS training regime.

Priority - H

7.6.6 Situational Awareness

6 - A shared understanding between VTS, pilots, master, tugs, etc. supports situational awareness. Maintaining situational awareness will support efficient and effective communication. Similar information should be available to all participants, but at different levels of detail.

Priority – H

8. WORKSHOP REVIEW AND FINAL CONCLUSIONS

Chaired by Tuncay Çehreli, DGCS, Chairman of the IALA VTS Committee.

During the session information and a video were presented of the next IALA Symposium in 2020 in Rotterdam, the Netherlands which will be a combined symposium of VTS and ENAV.

Participants were also attended on the call for papers of the IALA Conference in 2018, Incheon, Republic of Korea.

8.1 Final conclusions of the workshop

After minor discussion nine conclusions were agreed as listed in the main report.

8.2 Workshop report

Wim van der Heijden, Secretary of the VTS Committee, noted that the workshop documents and photographs would be available on the workshop file sharing server on the VTSCOM page of http://www.iala-aism.org/file-sharing/ for one month. The draft workshop report will be posted on the file share server within one week and the final report will be posted after the deadline of comments, 10 March 2017, and will be permanently available on the IALA website. It will be forwarded to VTS43 and the IALA Council.

8.3 Closing of the workshop

The Chairman thanked everyone for attending and working so hard. He thanked the Working Group Chairs and Rapporteurs for all efforts and results. He thanked the Indonesian Ministry of Transportation and the Director General for Sea Transportation for the perfect arrangements made.

The Chairman wished everyone a safe journey home and declared the workshop closed.

HE Ambassador Dewa Made Sastrawan, Adviser of the Minister of Transportation on International Relationship, gave a closing speech. He remarked the importance of IALA documentation for VTS communication. He thanked everyone for the fruitful discussions in a good atmosphere. He wished everybody a safe voyage home or an enjoyable time in Bali.

The closing ceremony was also attended by:

Mr I Nyoman Sukayadnya, Secretary for DGST
Mr. Raymond Siantury, Head of District Navigation Class I Tanjung Pinang, representing the Director for Navigation of DGST
Mr. Sudarwedi, Head of District Navigation Class II Benoa as host in Bali
Mr. Tofan Rindoyo, Deputy Director of Navigation for Maritime Telecommunication.

9. TECHNICAL TOUR

On Tuesday 21 February a technical visit was brought to the Benoa VTS.

Presentations were given on the developments of VTS in Indonesia. It was remarked that not all VTS personnel is qualified the IALA V-103/1 level and nobody was qualified to V-103/2 level at this moment. Indonesia is working on a solution for this. Tuncay Çehreli attended to the VTS training facilities in Kuala Lumpur, Malaysia for the training of VTS personnel in the region.

The VTS centre was visited in groups.

The visit was followed by a dinner on invitation of the Directorate General of Sea Transportation and the Head of District Navigation of Benoa. Before and during dinner there was a traditional Kecak performance of Ramayana.

ANNEX C **SOCIAL EVENTS**

10. WELCOME RECEPTION

On Monday 20 February delegates enjoyed an informal dinner at the Grand Inna Kuta Hotel in Denpasar to welcome delegates to the workshop.

The welcome reception was opened by some traditional Balinese dances.

Short welcome speeches were given by Mr. I Nyoman Sukayadnya of the Directorate General of Sea Transportation and Capt. Tuncay Çehreli on behalf of IALA after which some tokens were presented to remind this event.

11. WORKSHOP DINNER

On Wednesday 22 February delegates enjoyed the workshop dinner at the Bali Hay cruise ship. During the tour some entertainment was performed.

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ANNEX E **WORKING GROUP PARTICIPANTS**

Working Group 1 Language and Phraseology

	Members	Organisation / Country
1	Seung Hee Choi (Chair)	KIMFT under National / Republic of Korea
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3	Capt. Pritish Deshpande	AATASH NORCONTROL / India
4	Mohd Sharif Ismail	Marine Department / Malaysia
5	Rajiv Bhatnagar	AATASH NORCONTROL LTD / India
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7	Prof. Eun-Kyu Jang	Korean Institute of Maritime and Fisheries Technology (KIMFT) / Republic of Korea
8	Burcin Erlevent	DGSC – VTS / Turkey
9	Masahiro Izumi	Japan International Cooperation Agency (JICA) / Japan
10	Abdussamad	Indonesia Port Corporation (IPC) / Indonesia
11	Indra Jatnika	Indonesia Port Corporation (IPC) / Indonesia
12	Prof. Jinsoo Park	Korea Maritime and Ocean University / Republic of Korea
13	Merry Oktarina	Indonesia Port Corporation (IPC) / Indonesia
14	Metta Rajendra Dewi	Indonesia Port Corporation (IPC) / Indonesia
15	Kah Siong NG	Maritime and Port Authority of Singapore / Singapore
16	Capt. Yap Poh Hong Christopher	Maritime and Port Authority of Singapore / Singapore
17	Peter Pratley	Toyo Shingo Corp. (tsp Corp) / Japan
18	Evan Frendo	KIMFT
19	Merry Dhani Anitasari	Directorate General Sea Transportation - VTS Palembang / Indonesia
20	Erika Marpaung, ST, MMTr	Directorate General Sea Transportation / Indonesia
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23	Moch Guntur	Indonesia Port Corporation (IPC) / Indonesia
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25	I Made Darsana	Directorate General of Sea Transportation / Indonesia
26	Kerrie Abercrombie	Australian Maritime Safety Authority / Australia
27	Mohd Jafni Shuib	Marine Department / Malaysia

Working Group 2 Effective Communication

	Members	Organisation / Country
1	Michele Landi (Chair)	Italian Coast Guard / Italy
2	Naoyuki Takagi (Rapporteur)	Tokyo University of Marine Science and Technology / Japan
3	Muhammad Syarief Rasak	DGST Sea and Transportation / Indonesia
4	Muhammad Taufik	DGST Sea and Transportation / Indonesia
5	Shinya Suzuki	JICA (Japan International Cooperation Agency / Japan
6	Yuka Kurioka	TST Corporation / Japan
7	Pieter Paap	Ministry of Infrastructure / the Netherlands
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10	Revo Rizki Aditiya	DGST Directorate of navigation / Indonesia
11	Merry Dhani Anitasari	DGST Directorate of navigation / Indonesia

Working Group 3 Human Factors and Technology

	Members	Organisation / Country
1	Ben Brooks (Chair)	Australian Maritime College / Australia
2	Jillian Carson-Jackson (Rapporteur)	Nautical Institute / Australia
3	Hidenobu Arai	Japan Radio Co. Ltd. / Japan
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19	Supartana	VTS Tanjung Priok

ANNEX F **WORKSHOP PROGRAMME**

DAY 1 – Monday, 20 February 2017 Workshop on Common Phraseology and Procedures for VTS Communication

Time	Activity	
1030 – 1230	**Steering Committee Meeting with Session Chairs and Rapporteurs**	
1100 – 1400	**Registration**	
1245 – 1345	**Lunch**	
1400 – 1500	**Session 1 – Opening of the Workshop**	**Chair: Tuncay Çehreli**
1400 – 1430	Welcome from Indonesia and opening ceremony	A Tonny Budiono, Director General for Sea Transportation
1430 – 1440	Welcome from IALA	Tuncay Cehreli
1440 – 1445	Administration and Safety Briefing	Host and/or representative of the venue
1445 – 1505	Keynote address	Allan Gray, Vice President IHMA
1505 – 1530	**Break**	
1530 – 1730	**Session 2 – Presentations by expert speakers**	**Chair: Tuncay Çehreli**
1530 - 1550	VTS voice communications, now and in the future	Jillian Carson-Jackson, Nautical Institute
1550 – 1610	Comparison between maritime and aviation language	Lilian Biber
1610 – 1630	Topic 1: Language and Phraseology	Seunghee Choi
1630 – 1650	Topic 2: Effective communication	Michele Landi
1650 – 1710	Topic 3: Human Factors and Technology	Ben Brooks
1710 – 1730	Workshop aim and objectives and introduction Working Groups	Neil Trainor

Evening event **Welcome Reception**
1900 – 2030 Venue: Grand INNA KUTA Hotel
Dress code: Casual

DAY 2 – Tuesday, 21 February 2017 Workshop on Common Phraseology and Procedures for VTS Communication

Time	Working Groups		
Session 3 **Co-ordinator:** **Neil Trainor**	**WG1 –** Language and Phraseology Chair: Seunghee Choi Rapporteur: Lilian Biber	**WG2 –** Effective Communication Chair: Michele Landi Rapporteur: Naoyuki Takagi	**WG3 –** Human Factors and Technology Chair: Ben Brooks Rapporteur: Jillian Carson-Jackson
0900 – 1030	**Presentation and objective setting** **Chair** **Topics WG1:** • Explore VTS message construction and the development of common phraseology to facilitate the clear and unambiguous gathering and transfer of information. • Identify and explore how common phraseology and procedures for VTS communications can best be incorporated in IALA documentation.	**Presentation and objective setting** **Chair** **Topics WG2:** • Identify and explore factors on how best common phraseology can be integrated with the developing stand-alone communication procedures to facilitate clear and unambiguous transfer of information. • Explore and document key issues faced by VTS authorities in communicating effectively and ensuring standards and consistency in VTS communications. • Review existing IMO, IALA, and other similar communication guidance from other relevant bodies and subsequently identify strategies and best practices.	**Presentation and objective setting** **Chair** **Topics WG3:** • Consider how culture plays a role in communication and phraseology. • Identify and explore how common phraseology and procedures for VTS communications can best be incorporated in IALA VTS training related documents. • Consider how communication breakdowns and errors occur and identify a path to resilience in communications. • Explore the interaction between non-technical skills (e.g., situational awareness, decision-making) and communication, and identify training related implications on this and other topics within the working group. • Address the role that VTS Centre design plays in creating physical spaces that facilitate effective communication. • Explore the implications of future technology for VTS Communications and associated human performance.
1030 – 1100	**Break**		
1100 – 1230	**Discussion – All WG1**	**Discussion – All WG2**	**Discussion – All WG3**
1230 – 1400	**Lunch**		
1400 – 1500	**Developing documentation**	**Developing documentation**	**Developing documentation**
1530	**Technical Visit Benoa VTS**		

Evening event **Dinner at Benoa VTS on invitation of DGST and Head of District Navigation of Benoa**

DAY 3 – Wednesday, 22 February 2017 Workshop on Common Phraseology and Procedures for VTS Communication

Time	Working Groups		
Session 4 **Co-ordinator:** **Neil Trainor**	**WG1 –** Language and Phraseology Chair: Seunghee Choi Rapporteur: Lilian Biber	**WG2 –** Effective Communication Chair: Michele Landi Rapporteur: Naoyuki Takagi	**WG3 –** Human Factors and Technology Chair: Ben Brooks Rapporteur: Jillian Carson-Jackson
0900 – 1030	**Developing documentation cont.**	**Developing documentation cont.**	**Developing documentation cont.**
1030 – 1100	Break		
1100 – 1230	**Developing documentation cont.**	**Developing documentation cont.**	**Developing documentation cont.**
1230 – 1400	Lunch		
1400 – 1530	**Developing documentation cont.**	**Developing documentation cont.**	**Developing documentation cont.**
1530 – 1600	Break		
1630	**Depart for Workshop dinner**		

Evening event **Workshop dinner**
1730 – 2200 Venue: Cruise ship
Dress code: Casual but the colour is white

DAY 4 – Thursday, 23 February 2017 Workshop on Common Phraseology and Procedures for VTS Communication

Time	Working Groups		
Session 5 **Co-ordinator:** **Neil Trainor**	**WG1 –** Language and Phraseology Chair: Seunghee Choi Rapporteur: Lilian Biber	**WG2 –** Effective Communication Chair: Michele Landi Rapporteur: Naoyuki Takagi	**WG3 –** Human Factors and Technology Chair: Ben Brooks Rapporteur: Jillian Carson-Jackson
→ 0800 – 1030	**Developing documentation cont.**	**Developing documentation cont.**	**Developing documentation cont.**
1030 – 1100	Break		
1100 – 1230	**Developing documentation cont.**	**Developing documentation cont.**	**Developing documentation cont.**
1230 – 1400	Lunch		
1400 – 1530	**Developing documentation cont.**	**Developing documentation cont.**	**Developing documentation cont.**
1530 – 1600	Break		
1600 – 1700	**Conclusions and report WG1**	**Conclusions and report WG2**	**Conclusions and report WG3**
1700 – 1800	**Steering Committee, Working Group Chairs and Rapporteurs meet to discuss conclusions workshop**		

Free evening

DAY 5 – Friday, 24 February 2017 Workshop on Common Phraseology and Procedures for VTS Communication

Time	Activity	
0900 – 1030	**Session 6 – Reports from working groups (WG)**	**Chair: Neil Trainor**
0900 – 0930	Report Working Group 1: Language and Phraseology	WG chair (or rapporteur)
0930 – 1000	Report Working Group 2: Effective Communication	WG chair (or rapporteur)
1000 – 1030	Report Working Group 3: Human Factors and Technology	WG chair (or rapporteur)
1030 – 1100	Break	
1100 – 1145	**Session 7 - Conclusions and Closing**	**Chair: Tuncay Çehreli**
1100 – 1130	Workshop review and conclusions	Tuncay Cehreli / Neil Trainor
1130 – 1145	Closing remark	Tuncay Cehreli
1145 – 1150	Closing the workshop	Host country

ANNEX G WORKSHOP INPUT AND OUTPUT PAPERS

Several documents were uploaded on the workshop file sharing facility for consultation during the workshop.

The following presentations were made during session 2 and input to the workshop (available on the workshop file sharing facility):

Paper number		Title / Author (if required)	Presenter
Presentation	1	VTS voice communications, now and in the future	Jillian Carson-Jackson
Presentation	2	Comparison between maritime and aviation language	Lilian Biber
Presentation	3	Topic 1: Language and Phraseology	Seunghee Choi
Presentation	4	Topic 2: Effective communication	Michele Landi
Presentation	5	Topic 3: Human Factors and Technology	Ben Brooks
Presentation	6	Workshop aim and objectives	Neil Trainor

Workshop Output documents

Number	Title / Author (if required)	Source	Action
1	Report IALA Workshop on Common Phraseology and Procedures for VTS Communication	IALA Secretariat	To VTS43 to consider To Council to note

ANNEX H OPENING REMARKS BY CAPT. TUNCAY ÇEHRELI, CHAIR VTS COMMITTEE

Good morning ladies and gentlemen welcome to IALA Workshop on Common Phraseology and Procedures for VTS Communications. First, on behalf of IALA and myself, I would like to thank Directorate General of Sea Transportation of the Ministry of Transportation of Indonesia for hosting this seminar in this fascinating city and their contribution to the organization. And thank you all for participating in this workshop.

Apart from Conference and Symposiums that focus on relatively broad matters, workshops and seminars have particular importance for IALA as they provide experts with an appropriate platform to work together and exchange their knowledge and experiences on a specific subject matter in the IALA remit such as VTS Communications.

As you know the aim of IALA is to foster the safe and efficient movement of vessels through the improvement and harmonisation of marine aids to navigation worldwide including VTS and by other appropriate means. In association with this aim, IALA has two main goals; harmonization of aids to navigation systems and related services through international cooperation and the provision of standards, and; to provide all coastal states with an efficient global network of aids to navigation and services for safety of navigation through capacity building and the sharing of expertise. The goals of IALA can be expressed in one word, as, harmonisation and networking, exactly what we are going to do in this week.

Communications, particularly ship to ship, ship to shore and shore to ship voice communications are crucial at sea. There are many accidents happened at sea due to improper or lack of communications. It is not only subject to the language used and phraseology but also subject to many other factors such as; national and international communication standards, training, nautical knowledge and communication equipment even personalities and cultures. So, we should take all relevant factors into account while dealing with communication matter.

You know, currently there are two main international standards on marine communications; Standard Marine Communication Phrases by IMO and Radio Regulations by International Telecommunication Union. Radio Regulations set the standards on mostly technical matters such as allocation of frequencies, radio and maritime services and the procedures for GMDSS, Global Maritime Distress and Safety System.

The other communication standard IMO SMCP has been compiled for three main aims, first;

- to assist in the greater safety of navigation and of the conduct of the ship;
- to standardize the language used in communication for navigation at sea, in port approaches, waterways and harbours, and on board vessels with multilingual crews, and;
- to assist maritime training institution in the meeting objectives of the marine communication standard.

However, considering all developments in the maritime industry, demands and compelling needs, today, IMO SMCP seems far from meeting our needs for improvement, standardization and harmonization of VTS services worldwide. This matter, I mean the need for communication procedures for VTS has also been reflected in the conclusions of the last two IALA VTS Symposiums. As you know IALA organises VTS Symposium every four years and the last Symposium was in Kuala Lumpur in 2016 and the next Symposium will be VTS-ENAV Symposium held in Netherlands in May 2020.

One of twelve conclusions of the 12th IALA VTS Symposium in 2012 was “there is a compelling need to establish stand-alone communication procedures for VTS to facilitate clear and unambiguous transfer of information”. And one of eleven conclusions of 13th VTS Symposium highlighted that “Interaction and communication is not unique to VTS and inspiration from other sectors, such as the aviation sector, may facilitate the development of enhanced and harmonised guidance on communications and phraseology”. So, it is obvious that VTS world needs stand-alone communication procedures or guidance to meet the goals and expectations.

In addition to this, the number and importance of VTS is increasing day by day all over the world, in addition to that, emerging technologies has a huge effect on the improvement ability and capability of VTS, particularly in its interaction with the vessels. You know, VTS should have the capability to interact with the vessel traffic and to respond to traffic situations developing in the VTS area to improve safety and efficiency

of vessel traffic and protection of the marine environment. So, all these developments inevitably necessitate global standardisation and harmonization of VTS including communication, particularly voice communications.

IALA, through the VTS Committee has already commenced to produce guidance on VTS Communication and your thoughts, ideas and proposals will be very valuable for IALA in the development of this guidance. You know, this is one of purposes of this workshop as “to provide the VTS Committee with proposals, concepts and examples of best practice that can be used in the development of guidance on VTS communications”.

Digital communication is another communication type for both ship and shore and another conclusion of the last VTS Symposium in Kuala Lumpur was about digital communication and interaction between ship and VTS. It was, “new sensors and communication systems, such as VDES, facilitate increased interaction between VTS and vessels even beyond VTS areas and there is need for leadership on utilising the opportunities these new technologies will provide”.

The joint VTS-ENAV working group of IALA at its first meeting last year focused on digital communication matter particularly digital communication and interaction between ship and shore. There is no doubt that digital communication between ship and shore will be enhanced in the near future but our focal point in this workshop is voice communication.

At the end of my speech I would like to thank once again to our host, Directorate General of Sea Transportation. I wish you a very good and successful workshop and enjoy your stay in Bali.

ANNEX I KEYNOTE ADDRESS BY CAPT. ALLAN GRAY, VICE PRESIDENT IHMA

THE IMPORTANCE AND REQUIREMENTS OF COMMUNICATIONS FOR A HARBOURMASTER.

I thank the organising committee of this workshop for inviting me to speak on behalf of IHMA .

IHMA is the peak body association representing Harbourmasters and those engaged in similar functions within the port environment. It is interesting to note that both IALA and harbourmasters are charged with the same function - "the safe and efficient movement of vessels" and thus the close association between our two organisations.

I considered a flashy PowerPoint presentation with pictures of ship accidents (Mariners love those) and videos of VTS chaos but then I considered the topic around oral communications and thought "let us see how they go listening to a simple Aussie sailor for 20 mins"

Common language or common phraseology is a wonderful thing but perhaps common understanding is just as important. I share with you a couple of examples;

1. Gas explosion or blowout. I was working on an LPG carrier, Philippine bosun 20 years with the company casually walks past myself and the cargo engineer and advises us that there was an explosion on deck. He casually walked away. The engineer and I race out on deck looking for towering flames and chaos but nothing. After searching for a while we found that the gasket joint between two pipe flanges had blown out in his English it had exploded.

2. Anchor in the circle. I have experienced this exact event once when I was at sea and more recently in my own port. The master of the vessel was given by the VTSO a designated anchor position as represented on the chart e.g. N1. The VTSO in monitoring the vessels final position is not happy that the vessel is not anchored in the centre of the designated area and therefore may swing out of its swing area and interfere with vessels in the nearby anchor positions. He continues to sake the master to reposition the vessel as he is not anchored in the correct position. This continues for some time until the frustration of the VTSO says "Captain will you please anchor inside the circle" the Captain in his frustration replied "I don't see no circle marked on the water".

So why does the Harbourmaster put in a VTS?

Is it communications only?

You know you identify a vessel nearing the port and say "Gidday, welcome to Oz, the BBQ is hot, pilots on his way"

Or maybe you want a little information back " has your eta changed, how deep are you, did you remember to bring beer for the BBQ"

But seriously; the transfer of simple communications/information is the most basic of VTS functions and if that was all the Harbourmaster wanted from his/her VTS I would think your task here may be over very quickly.

For the HM there is so much more he/she requires and this assumption is supported by the fact that the establishment of a VTS should be supported by a risk assessment.

Two key requirements came out of Fremantle's risk assessment.

-mitigation of risk through situational awareness (Banasol)

-traffic organisation to avoid conflicts (DD Victory/Bader 3)

In regards to the Banasol incident the vessel was passing via the western approaches approaching the inner pilot boarding ground. The vessels draft was 9.2m the usual restriction for this passage is 9m draft. We had high Spring tides and therefore assessment by the VTS was that the vessel could proceed on this passage and they closely monitored it. The pilot was heading out to the vessel and for some reason asked the vessel for its draft when the vessel replied 9.2m the pilot directed the vessel to alter course to port and get into

the deep water channel as it was running into danger. The pilot had no power to direct the vessel and did not have situational awareness and his actions potentially endangered the vessel.

The second incident was between the DD Victory and the Bader 3. The DD Victory was heading to the inner pilot boarding ground and the Bader 3 via East Channel. Both vessels had advised that their ETA was 0700. The VTSO had advised both vessels that pilot would board on arrival. This was not possible and perhaps he thought that the vessels would naturally separate. For an unknown reason the DD Victory chose to alter course 90 degrees to port and try and force itself into the main channel rounding the turning buoy inside of the Bader 3. The two vessels arguing who was to get the pilot first. The vessels passed within 2 cables of each other.

Harbourmasters are now moving away from the concept of bridge resource management (BRM) towards port resource management (PRM) or maritime resource management (MRM).

What is apparent, apart from the still leaking evidence of effective bridge teams is that there is a necessity for a broader sector of the port to be involved in what's happening with the movement of a vessel than just the bridge team (inclusive of the pilot);

VTS, tugs, mooring gangs, mooring boats, pilot boats, stevedores and other port users.

If therefore there is an expectation of a broader involvement and awareness within the port then point to point communications seems to counter-intuitive. VHF voice communications seems to be the most open, immediate and obvious solution.

I will come back to voice communication in amount but if I may digress slightly at this point.

I like many Harbourmasters are aware of technology suppliers in the VTS space looking at the transfer of the VTS picture to the pilots PPU. Now technology is a wonderful thing but this action seems totally counter-productive to ensuring an effective bridge team not alone a port team.

Question: So why do it?

Because you can. I don't believe that although there is always that underlying theme in technology. I think it is believed that by doing this they are taking pressure off the VTS and providing the pilot with greater situational awareness without the need to converse or understand each other. But what is occurring is that you are isolating the pilot from the bridge team and ultimately from the port team.

So if it is reasonable to conclude therefore that as a Harbourmaster I am more comfortable with open air voice communications which allows all port players to be immediately situationally aware then I am faced with the question you are faced with at this workshop.

If I want my VTSO to engage with the pilot, bridge team and port players on a technical level, how well can this be managed by a non-Native language.

Even in an English speaking country like Australia, if we talk fast (which we tend to do) can a foreign non-English speaking crew understand what is happening. If you are a native English speaker in a non-English speaking port can the port team effectively converse in technical English so that there port players can be aware as well as the bridge team.

Question: If a crisis develops in what language do we expect the port team to converse in given they are now under extreme pressure.

One August night in the port of Fremantle I had a vessel break free in an unexpected storm. It hit the railway bridge. When the VTSO called me I asked has the ship hit the bridge. It shouldn't have due to a shoal but I wanted to check. The VTSO kept saying that he didn't know. I kept asking saying I need an answer as I needed to stop trains. He kept saying I don't know. In reality what had happened is the AIS signal of the stricken vessel dislodged from the vessel and was showing on the VTS screen that the vessel was heading up river, which was not possible but in the moment of crisis the VTSO couldn't equate what he knew to be true and what he was seeing and was unable to put that into words to me. We are both Australian English speakers.

I sailed once to a South American port where all communications with the port were to be Spanish. Wasn't easy on a ship with six nationalities on board and none could speak Spanish.

So for the transfer of basic information I believe common marine vocabulary and message markers (although I very seldom ever hear or see used on the bridge of visiting ships) greatly assists but as is to be expected the Harbourmaster needs more than just a basic communications tower.

If the harbourmaster wants his/her VTS to be the centre of situational awareness in the port, actively engaging with all port users then how far can common phraseology go to address that technical interface.

I would argue that it's imperative that it does but as I am sure you are aware it may be a challenging task. But it must be considered form a whole of port perspective if it is to work. That is it needs to extend beyond the walls of the VTS to all port users; bridge team, tugs etc.

So I do not envy your task here over the next few days.

I trust that I have given you an onsite as to the needs of the Harbourmaster and the importance of immediate open and unambiguous communications especially in an emergency.

I would like to leave you with one final sea dog tale which highlights open and frank communications between VTS and vessel.

Our vessel was approaching the port of Yuzhny in the Ukraine. The approach has a roundabout where you can deviate to Odessa or Yuzhny . As we approached the roundabout the VTS called the vessel and directed the master to reduce speed to dead slow ahead and a specific course. The master was furious and immediately berated the VTSO about not telling him how to do his job and navigate his ship. There was silence. For each trip to Yuzhny thereafter the first question from the VTS was "what is the captains name" if it was the same captain we would proceed without further communications with the VTS. A clear example of open and unambiguous communications.

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