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Advancing navigational safety: Digimar's project focus on routine maritime communication

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Roadmap

- Routine communication
- Digimar background, main objective, and WPs
- Focus on (WP2.1.):
  - standard protocol of routine communication
  - standards of competence in routine maritime communication

Routine communication

Communication in the maritime domain may take the form of:

- special purpose messages (distress, urgency, and safety), or
- routine messages.

(Bocanegra-Valle, 2011)

Routine communication

Routine ship-shore communication is distinguished by (Johnson, 1999):

- predictability, - unambiguity, - clarity, and - simplicity.

Vessel 1	On this position, correct, you won't cross ahead of me?
Vessel 2	Yes, sir, affirmative, I want to cross ahead of you.
Vessel 1	Okay.

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Digimar background

Ineffective and ambiguous communication can be a contributing cause of shipping accidents.

Communication significantly deviates from the standard protocol of communication.

MET institutions and maritime authorities are responsible for providing maritime communication education and training.

Technologies allow the creation of digital tools for self-directed life-long learning.

Scant attention to the perspective of shore service operators as a key communication agent.

Need for harmonization between and revision of the documents that define the standard protocol of communication.

(c.f. Boström, 2020; Dževerdanović-Pejović, 2013; Jurkovič, 2022)

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Digimar main objective

"to enhance navigational safety,
measured through statistically significant differences (gap analysis)
in the maritime communication skills of
shore service operators and higher education students
before and after the implementation of a digital educational pilot study
enacted through instructional videos and chatbots, and
potentially to contribute to
a reduction of human, environmental, societal, and/or economic losses
resulting from maritime accidents."

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Digimar WPs

WP1: Project Management

WP2: Maritime Communication Standard- and Data-based Content Development

WP3: Digital Educational Tool Development, Deployment and Evaluation

WP4: Maritime Communication Standard- and Data-based Benchmarking

WP5: Exploitation and Dissemination

Digimar WPs

WP1: Project Management

WP2: Maritime Communication Standard- and Data-based Content Development

WP3: Digital Educational Tool Development, Deployment and Evaluation

WP4: Maritime Communication Standard- and Data-based Benchmarking

WP5: Exploitation and Dissemination

	Activity title	Lead partner
WP2.1.	Overview of Internationally Adopted Rules, Procedures and Standards	University of Kotor
WP2.2.	Overview of Cases in Marine Accident Databases	University of Kotor
WP2.3.	Pre-Educational Pilot Study Authentic Routine Maritime Communication Databases (shore service operators' strand)	Sveučilište u Rijeci
WP2.4.	Pre-Educational Pilot Study Learner Routine Maritime Communication Databases (students' strand)	Sveučilište u Rijeci

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RQs

RQ1: Which internationally adopted rules, procedures, and standards that govern routine maritime communication will be included in the analysis of the databases of authentic routine maritime communication and of student simulations?

RQ2: Which internationally adopted rules, procedures, and standards define the standards of competence in routine maritime communication in different national contexts?

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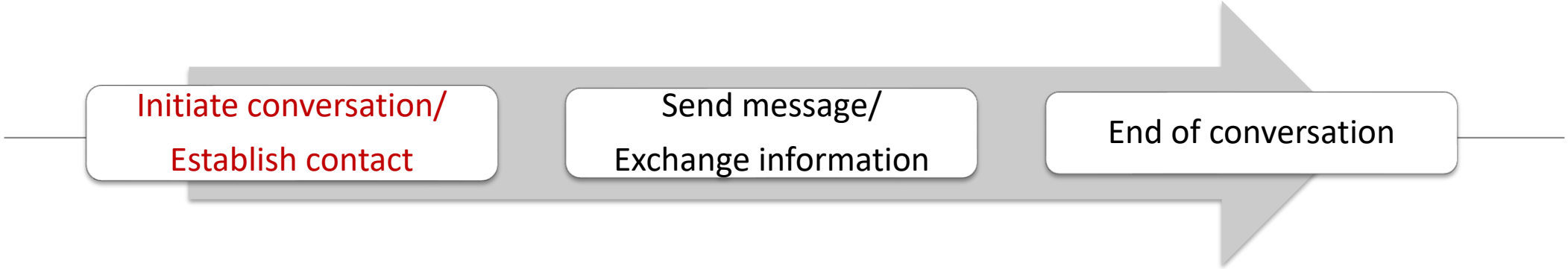
RQ2: Which internationally adopted rules, procedures, and standards define the standards of competence in routine maritime communication in different national contexts?

Data collection and analysis

Regulatory framework for the rules, procedures, and standards that govern routine maritime communication for Vessel Traffic Service (VTS):

- Manual for Use by the Maritime Mobile and Maritime Mobile-Satellite Services (ITU 2020a, 2020b)
- IALA VTS Manual (IALA, 2008, 2022a)
- IALA Guideline G1132: VTS VHF Voice Communication (IALA, 2017)
- IALA Guideline G1132: VTS VHF Voice Communication and Phraseology (IALA, 2022b)
- IALA Model Course C0103-1-Ed. 3. VTS operator training (IALA, 2022c)
- Standard Marine Communication Phrases (IMO, 2001)

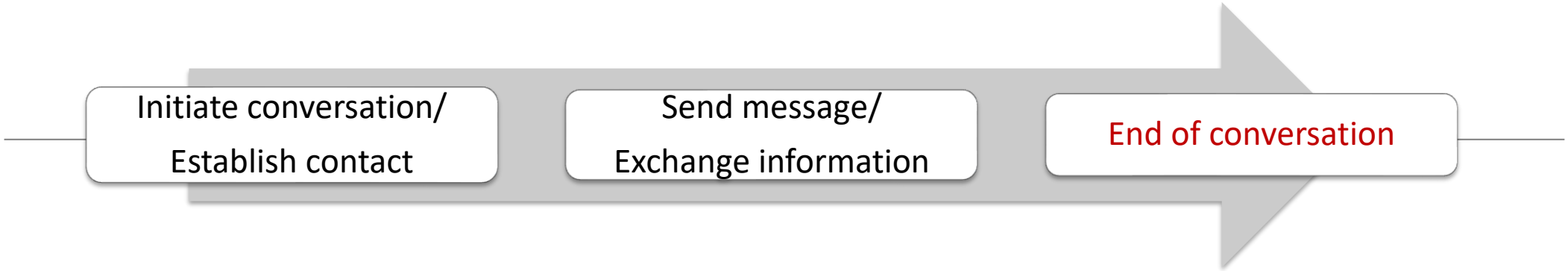
- Formality of tone of communication
- Pace of speaking
- Clarity of speech
- Use of local language (if applicable)
- Forms of politeness
- Completeness of communication



- Stating of addressee
- Identification of called station
- Identification of calling station
- Use of 'over' in turn taking

- Stating of addressee
- Identification of called station
- Identification of calling station
- Use of proword 'over' in turn taking

- Use of message markers
- Use of question words
- Separate spelling out of digits
- Use of closed loop communication
- Use of subject + verb + object/adverb structure
- Use of simple sentences
- Use of modal verbs
- Use of abbreviated forms
- Use of proword 'over' in turn taking
- Use of marine alphabet


Initiate conversation/
Establish contact
Send message/
Exchange information
End of conversation

- Out

PURPOSE:	SPEED LIMIT IN PORT		STATE ADDRESSEE		IDENTIFY CALLING STATION		IDENTIFY (NAME)		USE OF OVER	
			(station's name)		(This is)		(station's name)			
MOVES	VESSEL	VTS	Expected	Observed	Expected	Observed	Expected	Observed	Expected	Observed
EXCHANGE 1										
		Planet. City Harbour Master.	1	1	1	0	1	1	1	0
	Go ahead, sir.	Keep six knots.	1	0	1	0	1	0	1	0
	Yeah, keep six knots.		1	0	1	0	1	0	1	0

Conclusion

- Standard protocol of communication – the first step of a complex process
- Research-based recommendations for the revision of the standard protocol communication (IMO, IALA, ITU)
- Importance of a comprehensive definition of the standard protocol of communication
- Variables observed in the transcripts of:

  authentic routine interactions of VTS operators and

  student simulations

Conclusion

- before and after the implementation of the educational intervention through the use of digital education tools.
- gap analysis in the risk values attributed to the pairs of variables – assessment of the improvements in navigational safety as a result of the educational intervention.

Conclusion

Applied linguistics
&
maritime studies

Higher education institutions
&
maritime safety authorities

Adriatic region
&
Scandinavian region

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