European Maritime Safety Agency

EMSA study
EMSA/2024/OP/0014

Task 1: Questionnaire to evaluate the current evacuation strategies on passenger ships

Revision 1.0

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About this study:

This report was commissioned by the European Maritime Safety Agency (EMSA) under framework contract 2024/EMSA/2024/OP/0014.

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Document History

Version	Date	Changes	Prepared	Approved
1.0	06/06/2025		Nina Kähler, Aarcha Santosh	J.-T. Zorn

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List of Abbreviations

AI	Artificial intelligence
FFL	Free fall Lifeboat
IMO	International Maritime Organization
LB	Lifeboat
LSA	Life Saving Appliance
MES	Marine Evacuation System
MOB	Man Over Board
MSC	Maritime Safety Committee
Pax	Passenger
Q	Question
QP	Question to passengers
RFID	Radio-Frequency identification
RoPax	Roll-On-Roll-Off-Passenger-ship/ferry
SRtP	Safe Return to Port

1. Executive Summary

The aim of this task, as a part of the study, is to capture a broad spectrum of experiences and viewpoints from key stakeholders in passenger ship operations and safety, enriching the understanding of current evacuation practices and challenges. To achieve this, a questionnaire has been developed in close consultation with EMSA and distributed to stakeholders from passenger ship operators, yards and design offices, class societies, maritime administrations, P&I clubs, maritime consultants, equipment manufacturers, researchers, towing tanks, pilots and other associations. In addition, passengers have been consulted with specific questions.

In total 522 responses have been received. 469 from professionals (232 working onboard passenger ships and 237 working onshore in the maritime business) and 53 from passengers.

Most responders working in the maritime industry (77.5 %) “trust the system” that is currently in place for evacuation of passenger ships. While 36.9% of responders “somehow trust the system”, about 5.2% express their distrust. Onshore workers show higher distrust (7.2 %) compared to seafarers (3.5 %) and 51.2% of seafarers “trust the system” set against 28.2% of onshore workers. 62.3% considers the increased number of passengers on large cruise ships to have a high impact on the evacuation duration and slightly more than half (51.1%) considers that this circumstance has a high impact on the overall safety risk. Successful evacuation under good weather conditions and negligible list/trim is rated 4.2 out of 5 (1= extremely unlikely, 5= most likely), with the biggest concern being evacuating a ship with a high list, rated 2.8 out of 5. The main concerns during emergency evacuation are passenger behaviour (6.39/10) and passenger mobility (6.33/10), which may require additional crew assistance. To improve evacuation, 68.6 % suggest new concepts, 45 % want safer lifeboats, 29.3 % recommend limiting onboard people, and 23.9 % suggest increasing the number of lifeboat seats.

Of the responders to the questionnaire, 34.8 % have experienced emergency mustering or evacuation, with 72.1 % assembling at muster stations and 14 % launching LSA. 64 % have felt well-prepared for the situation and 56% felt well informed during the emergency. Based on the results of the questionnaire, the main difference to drills was nervousness of crew and passengers. To improve drills it is proposed to conduct realistic drills and exercises that mimic actual emergency conditions, including unexpected factors and various scenarios.

Most responders (92%) participate in evacuation drills, mostly weekly, and perceive them vital (4.49/5). 81.2 % of seafarers feel well-prepared by the drills, 71.3 % of responders state that drill outcomes are always or often communicated.

Davit-launched lifeboats are the preferred LSA, followed by MES with inclined slides and vertical chutes. Each LSA has its own benefits and drawbacks. Regarding MES, 71.4% express concerns for disable or injured persons, children, oversized persons and 70.8% express the same concerns for the MES with chutes. On the other hand, the main concern with lifeboats are technical doubts regarding davits / hooks / wires. In both cases, 40% of responders have concerns regarding the crew skills for operating lifeboats and MES.

Half of the responders have experience with large lifeboats, with 49% noting their ‘less maintenance’ as a benefit while 64.4% identify ‘significant loss of capacity if one fail’ as a major drawback followed by ‘increased embarkation time’ and ‘handling large equipment’ both at 44.8%.

46.6% are aware of new evacuation systems like Survitec Seahaven and Viking LifeCraft which may save space and reduce evacuation time but have concerns about losing many seats if one system fails and the boarding of special needs persons. About 50.8% are involved in evacuation management, supported by checklists and electronic systems, which are rated 3.55/4 for usefulness.

Most responders indicate that 58.1% don the lifejackets in the cabin. However, 43.3% would the preferred location to be ‘designated muster areas’.

The passenger survey had fewer responses due to data privacy. 27 passengers filled the professional questionnaire, and 26 completed the passenger-specific one. Among 41 responders, 58.5% were under 50 years old. 46.2 % felt well-informed about safety measures, with an average score of 3.19 out of 4. Safety briefings mostly involved

mandatory muster station attendance (40.6 %) or cabin videos (34.4 %). Main evacuation concerns were panic (43.4 %), communication barriers (26.4 %), and orientation (24.5 %). 6 passengers (11.3 %) experienced an emergency, with 83 % informed via loudspeaker or crew instructions. Three picked up lifejackets in their cabins, and only one person boarded a liferaft.

2. Introduction

The aim of this task was to develop a questionnaire to assist in a comprehensive review of current evacuation practices on passenger ships. It centres on understanding and evaluating the present-day standards and procedures, particularly in the context of emergency management and life-saving equipment. The questionnaire explored the stakeholder perspectives on the functionality and readiness of life-saving appliances, any recent advancements in innovative evacuation systems.

The questionnaire also aimed to collect and analyse lessons learned from real-case scenarios where evacuation procedures have been put into action and life-saving appliances deployed. The questionnaire was intended to capture the perceived hazards and challenges as experienced by key stakeholders. This included crew members experienced in passenger ships, shipping companies, shipbuilders, designers, classification societies, maritime administrations, P&I clubs, equipment manufacturers and others.

The questionnaire has been realized by using a commercially available Software, the access to the questionnaire has been provided via the distribution of a link. The link has been sent to key stakeholders including crew members experienced in cruise ships, shipping companies, shipbuilders, designers, classification societies, maritime administrations, P&I clubs, equipment manufacturers and passengers. As the addresses have been asked to forward the link to colleagues and other relevant contacts, it is not known how many persons finally had access to the questionnaire. However, in total 522 responses have been received. 469 from professionals (232 working onboard passenger ships and 237 working onshore in the maritime business) and 53 from passengers.

3. Development of the Questionnaire

3.1 Aim of the questionnaire

The aim of the questionnaire was to

- study current practices regarding the development of evacuation strategies, decision-making processes during accidents, and the established procedures for evacuation on board
- collect and analyse lessons learned from real-case scenarios where evacuation procedures have been put into action and life-saving appliances deployed.
- capture the perceived hazards and challenges as experienced by key stakeholders
- draw preliminary conclusions about potential areas of improvement in the design and operational aspects of passenger ships, particularly in evacuation scenarios

3.2 Target audience

According to the tender specifications following addressees should be consulted: *Key stakeholders including crew members experienced in cruise ships, shipping companies, shipbuilders, designers, classification societies, maritime administrations, P&I clubs, equipment manufacturers, among others.*

Accordingly, the questionnaire has been sent to:

- RoPax operators
- Cruise operators
- Ferry operators
- Yards and design offices
- Class societies
- Maritime Administrations
- P&I clubs
- Maritime consultants
- Equipment manufacturers
- Researchers
- Towing tanks
- Maritime training centres
- Pilots
- Other associations

- Passengers

3.3 Boundary conditions and main principles

During the development of the questionnaire the focus was placed on the following:

  - Volume – the duration for filling the questionnaire should not extend 15 minutes
  - User friendliness, short and clear questions
  - Limited number of possible answers plus possibilities for additional comments
  - Logical user guidance (subsequent questions depending on the answer to the previous question)
  - Privacy: No conclusions should be drawn from the answers about the person giving the answer, providing an email address is voluntary
  - Dedicated version for passengers has been developed to avoid fake responses.

The questionnaire was distributed to around 200 email addresses with the request to forward it to colleagues and related contacts. The aim was to collect personal views and not tuned version of a specific group or branch.

3.4 Software

The questionnaire has been realized by using the commercially available Software ZOHO survey. This tool provides a wide range of question types, including multiple choice, rating scales, etc. Zoho Survey's advanced logic features to create dynamic surveys that adapt to respondents' answers.

The access to the questionnaire has been provided via the distribution of a link.

3.5 The Questionnaire

Finally, two versions of the questionnaire have been published. One version for the distribution to addressees working in the maritime context and one version explicitly for passengers. Both versions are documented in Appendix A and Appendix B.

The survey has been open for 19 days (2025-01-12 until 2025-01-31)

4. Evaluation

522 responses have been received. 469 by professionals (232 working onboard passenger ships and 237 working onshore in the maritime business) and 53 by passengers.

Many persons provided comments and free text, 77 people are willing to give an interview and have provided their email address.

Comments and free text answers have been directly copied from the questionnaire (without spell check etc.). Additions, where necessary to understand the context, have been made in square brackets.

4.1 Evaluation of replies from maritime professionals

The 469 professionals that filled in the questionnaire answered the questions as follows:

4.1.1 Personal information

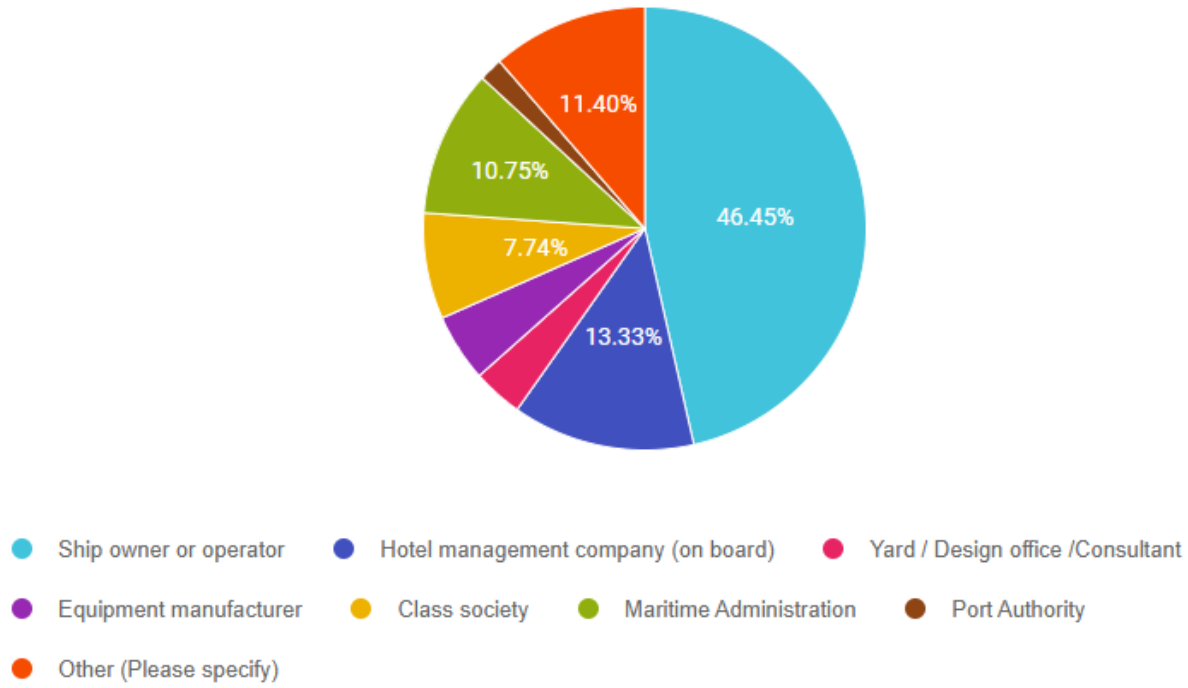
Q1.1: Who are you?
(469 answers)

Choices	Response count	Response percent
Working on board passenger ships / RoPax vessels	232	49.5%
Working onshore in the maritime business	**237**	**50.5%**
	469	

Q1.2: The company you work for is
(467 answers)

Choices	Response count	Response percent
Ship owner or operator	**216**	**46.5 %**
Hotel management company (on board)	62	13.3 %
Yard / Design office / Consultant	17	3.7%
Equipment manufacturer	23	5.0 %
Class society	36	7.7 %
Maritime Administration	50	10.8%
Port Authority	8	1.7 %
Other (please specify) *	53	11.4%
	467	

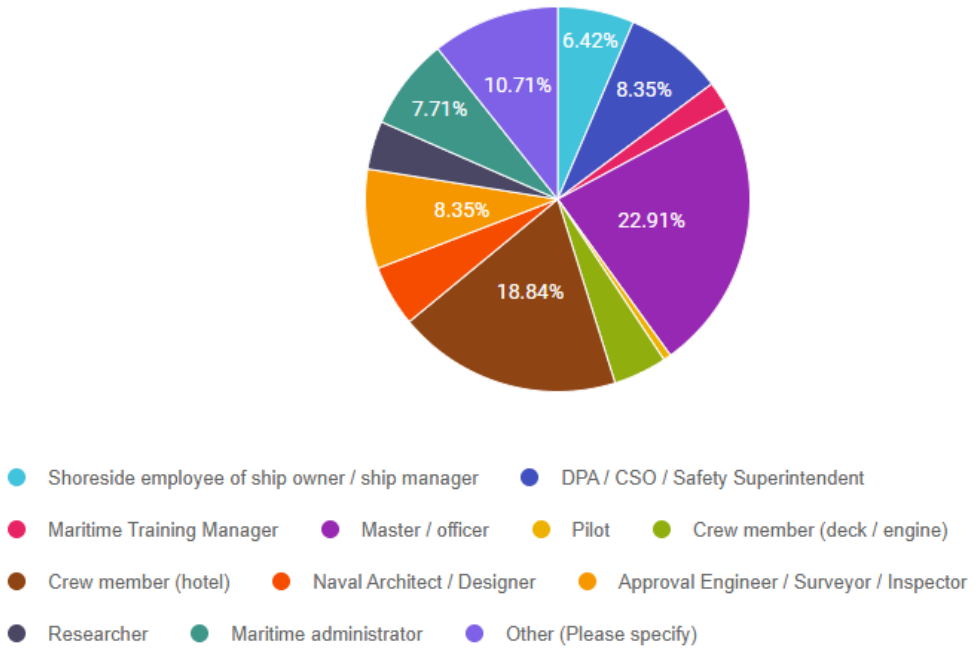
*Other (53) see Appendix C


11.40%
10.75%
46.45%
7.74%
13.33%
Ship owner or operator
Hotel management company (on board)
Yard / Design office /Consultant
Equipment manufacturer
Class society
Maritime Administration
Port Authority
Other (Please specify)

Q1.3: Which of these options describes your role best?
(467 answers)

Choices	Response count	Response percent
Shoreside employee of ship owner / ship manager	30	6.4 %
DPA / CSO / Safety Superintendent	39	8.4 %
Maritime Training Manager	11	2.4 %
Master / officer	**107**	**22.9 %**
Pilot	3	0.6 %
Crew member (deck / engine)	21	4.5 %
Crew member (hotel)	88	18.8 %
Naval Architect / Designer	24	5.1 %
Approval Engineer / Surveyor / Inspector	39	8.4 %
Researcher	19	4.1 %
Maritime administrator	36	7.7 %
Other (Please specify) *	50	10.7 %
	467	

*Other (50), see Appendix C



Q1.4: Do you have a role in case of emergency?
(Question to all that chose “working on board passenger ships / RoPax vessels” in Q1.1, 232 answers)

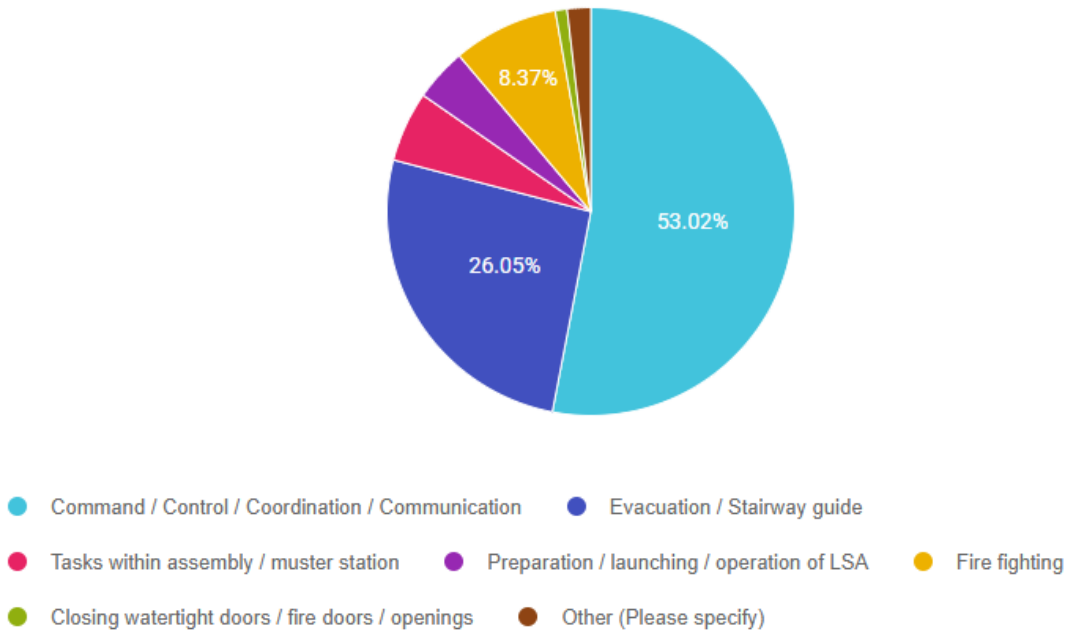
Choices	Response count	Response percent
Yes	**215**	**92.7 %**
no	17	7.3 %
	232	

Q1.5: Which of these options describes your emergency role best?
(Question to all that chose “yes” in Q1.4, 215 answers)

The following options were provided:

- Command / control / coordination / communication refer to personnel responsible for holding command at the bridge?, controlling?, coordinating between bridge and ? and communication between? Or to?
- Evacuation and stairway guide refers to personnel in charge of the physical guidance and movement of passengers from various areas of the vessel until their respective assembly station
- Tasks within assemble/ muster station are the crew in charge to
- Preparation/launching/operation of the LSA
- Fire fighting
- Closing watertight doors / fire doors / openings
- Others (please specify)

The outcome of the questionnaire for the same is presented below.



Choices	Response count	Response percent
Command / Control / Coordination / Communication	**114**	**53.0 %**
Evacuation / Stairway guide	56	26.1 %
Tasks within assembly / muster station	12	5.6 %
Preparation / launching / operation of LSA	9	4.2 %
Fire fighting	18	8.4 %
Closing watertight doors / fire doors / openings	2	0.9 %
Other (Please specify) *	4	1.9 %
	215	

*Other (4), see Appendix C

4.1.2 Opinion on emergency evacuations

Q2.1: What is your opinion for the evacuation of a large passenger ship?
(382 answers)

Choices	Response count (Overall)	Response percent (Overall)
I trust the system	**155**	**40.6 %**
I somehow trust the system	141	36.9 %
It is better than nothing	52	13.6 %
I don't trust	20	5.2 %
Other (Please specify)*	14	3.7 %
	382	

The 20 persons that don't trust are: 4 "Approval Eng /Surveyor / Inspector", 1 "DPA/CSO/Safety Superintendent", 1 "Marine Administrator", 8 "Master / Officer", 2 "Researcher", 1 "Shoreside employee of ship owner / ship manager", and 1 "Other".

A closer look at the responses of workers onshore and on board is shown below:

Choices	Response count		Response percent	
	Working onshore	Seafarers	Working onshore	Seafarers
I trust the system	**51**	**104**	**28.2 %**	**51.2 %**
I somehow trust the system	78	63	43.1 %	31.3 %
It is better than nothing	31	21	17.2 %	10.4 %
I don't trust	13	7	7.2 %	3.5 %
Other (Please specify)*	8	6	4.4 %	3.0 %
	181	201		

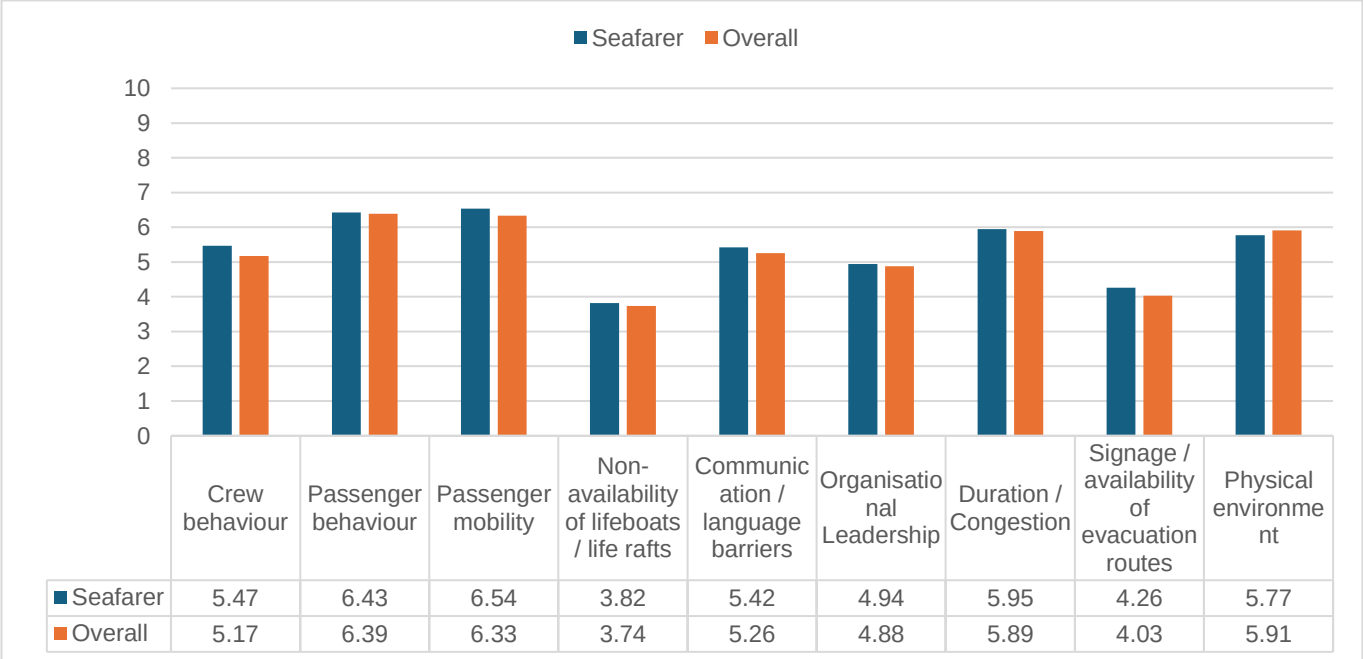
*Other (14), see Appendix C

Q2.2: Please rate your concerns with regard to emergency evacuations

(0 = no concerns, 10 = severe concerns)

Choices	Average rating (all)	Average rating (seafarers)
Crew behaviour (380 answers)	5.17	5.47
Passenger behaviour (379 answers)	6.39	6.43
Passenger mobility (380 answers)	**6.33**	**6.54**
Non-availability of lifeboats / liferafts (379 answers)	3.74	3.82
Communication / language barriers (379 answers)	5.26	5.42
Organisational leadership (380 answers)	4.88	4.94
Duration / congestion (377 answers)	5.89	5.95
Signage / availability of evacuation routes (378 answers)	4.03	4.26
Physical environment (list, trim, ship movement, smoke, ...) (379 answers)	5.91	5.77
Additional comments? ** (72)		

**Additional comments (72), see Appendix C



Summary of comments:

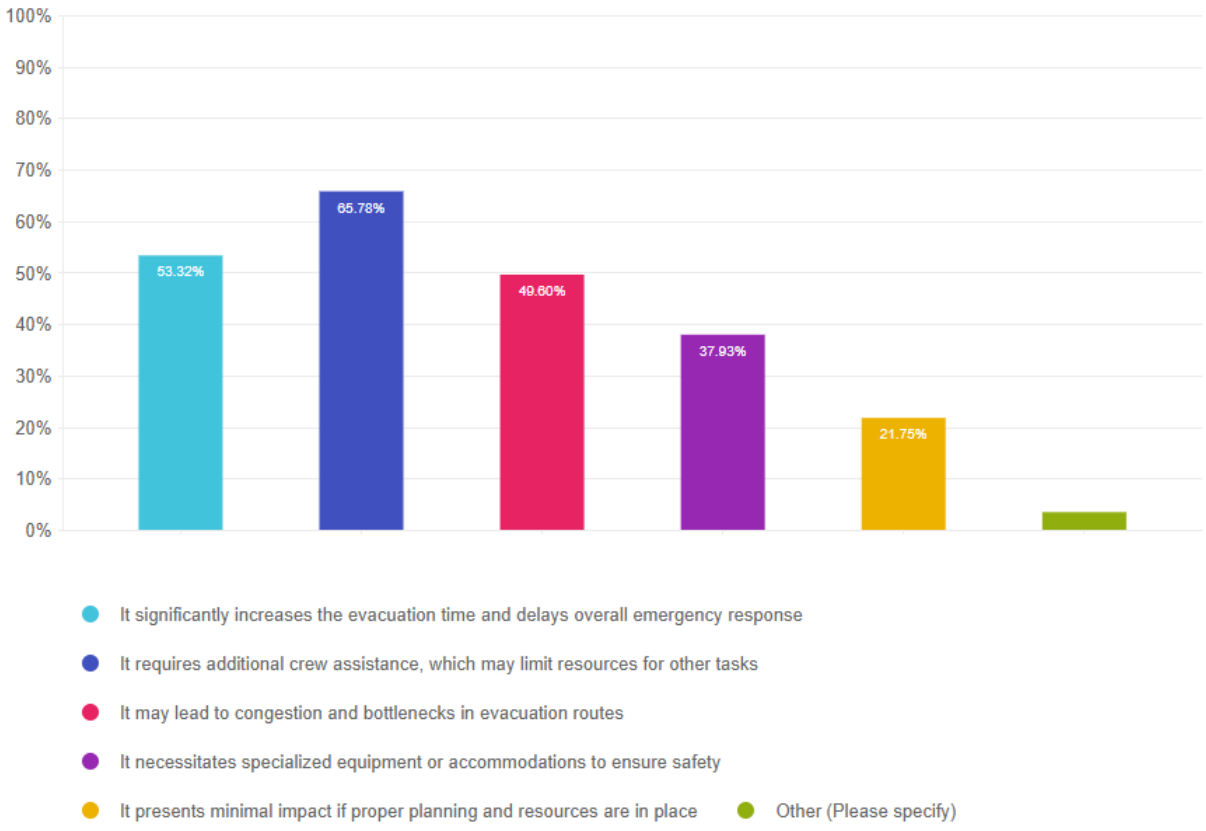
The responders mentioned following key aspects:

- Insufficient training opportunities.
- Challenges posed by passenger mobility, especially for those with disabilities.
- Capacity and design of lifeboats is seen inadequate for the average passenger size.
- There are doubts about the effectiveness of life-saving appliances in severe weather conditions.
- The behaviour of both crew and passengers during emergencies, including panic and lack of focus during drills, can severely impact evacuation efficiency.
- There is a call for better training, updated regulations, and the use of new technologies to improve overall safety and preparedness.

Q2.3: How do you think the limited mobility of some passengers will impact the evacuation process? (more than one answer possible, 377 persons answered)

Choices	tick counts	Tick percentage
It significantly increases the evacuation time and delays overall emergency response	201	53.3 %
It requires additional crew assistance, which may limit resources for other tasks	**248**	**65.8 %**
It may lead to congestion and bottlenecks in evacuation routes	187	49.6 %
It necessitates specialized equipment or accommodations to ensure safety	143	37.9 %
It presents minimal impact if proper planning and resources are in place	82	21.8 %
Other (Please specify)* (13)	13	3.5 %

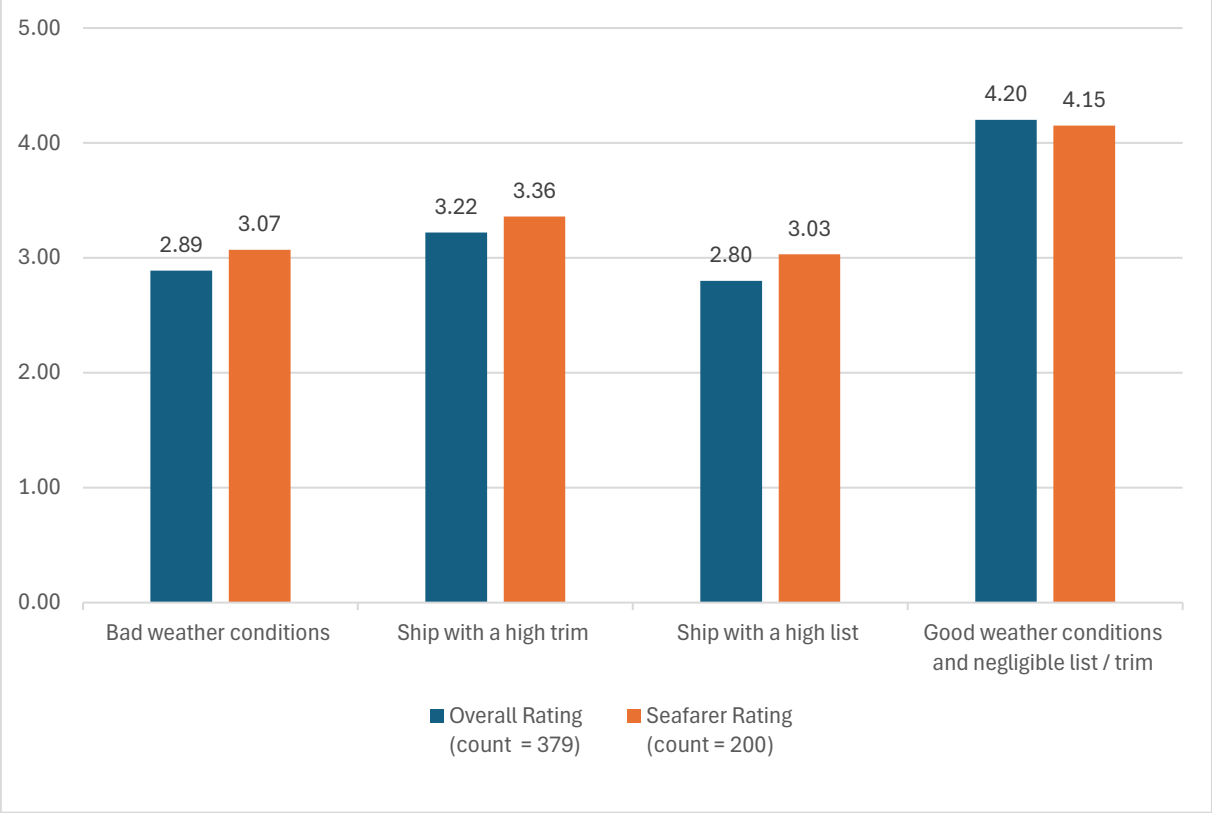
*Other (13), see Appendix C



Q2.4: Please indicate how likely a successful evacuation is in the following scenarios
(379 answers)

(1 = extremely unlikely, 5 = most likely)

Choices	Average rating (all)	Average rating (seafarers only)
Bad weather conditions (379 answers)	2.89	3.07
Ship with a high trim (378 answers)	3.22	3.36
Ship with a high list (377 answers)	2.80	3.03
Good weather conditions and negligible list / trim (376 answers)	4.20	4.15



Q2.5: How does the increased number of passengers on large cruise ships impact the evacuation duration?
(377 answers)

Choices	Tick counts	Tick percentage
1 = low impact	36	9.6 %
2= medium impact	106	28.1 %
3 = high impact	235	62.3 %
	377	

Average rating: 2.53.

Q2.6: How does the increased number of passengers on large cruise vessels impact the overall safety risk? (378 answers)

Choices	Tick counts	Tick percentage
1 = low impact	38	10.1 %
2= medium impact	147	38.9 %
3 = high impact	193	51.1 %
	378	

Average rating: 2.41

4.1.3 Personal experience with emergency mustering and / or evacuation

Q3.1: Did you personally experience an emergency mustering and / or evacuation (not a drill)? (379 answers)

Choices	Response count	Response percent
Yes	132	34.8 %
No	247	65.2 %
	379	

Q3.2: on which ship type?
(question only to those who replied “yes” in Q3.1, 130 answers)

Choices	Response count	Response percent
Cruise ship	100	76.9 %
RoPax vessel	9	6.9 %
Cargo vessel	17	13.1 %
Other (Please specify)*	4	3.1 %
	130	

*Other (4), see Appendix C

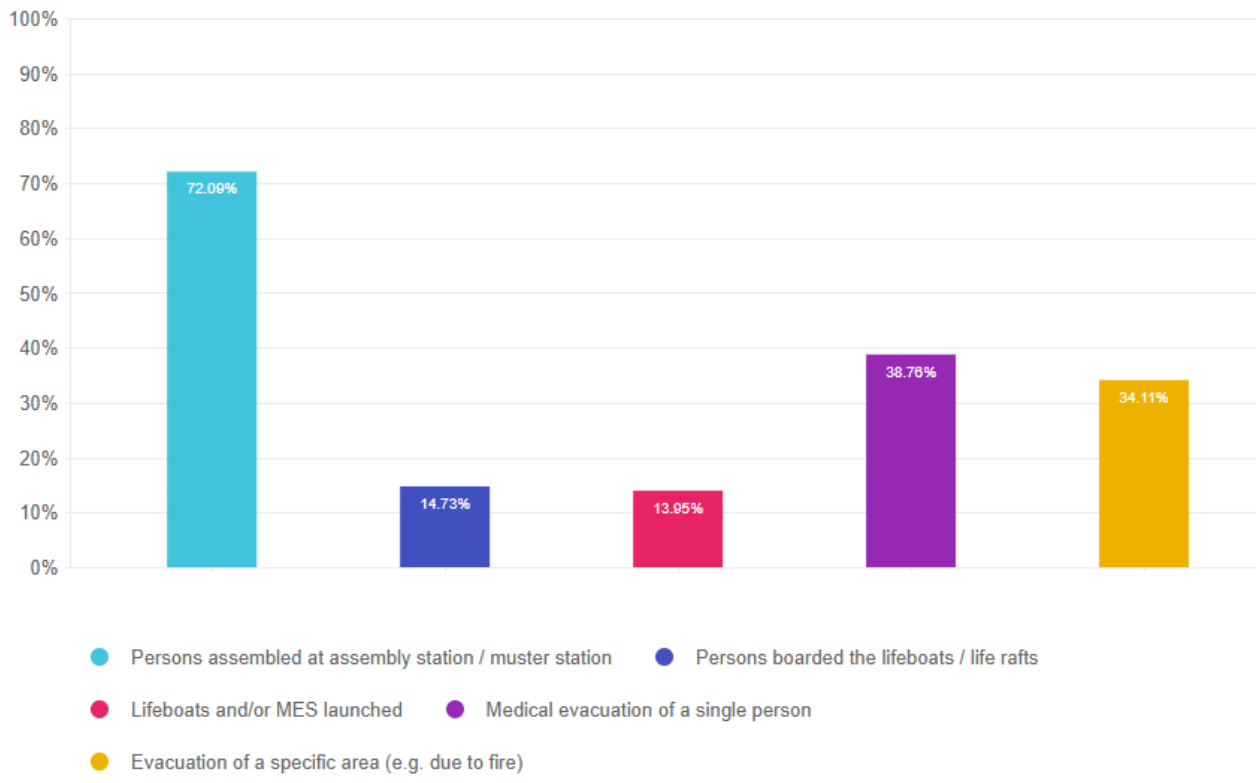
Q3.3: Please give an indication of number of persons on board
(question only to those who replied “yes” in Q3.1, 109 answers)

Choices	Response count	Response percent
less than 500	6	5.5 %
500 to 1000	13	11.9 %
1001 to 5000	78	71.6 %
more than 5000	11	10.1 %
I don't know	1	0.9 %
	109	

Q3.4: What was the extent of the emergency?
(question only to those who replied “yes” in Q3.1, more than one answer possible, answered by 129 persons)

Choices	Response count	Response percent
Persons assembled at assembly station / muster station	93	72.1 %
Persons boarded the lifeboats / liferafts	19	14.7 %
Lifeboats and/or MES launched	18	14.0 %
Medical evacuation of a single person	50	38.8 %
Evacuation of a specific area (e.g. due to fire)	44	34.1 %
Any additional comments?*	13	

*Comments (13), see Appendix C



Q3.5: Did you board a lifeboat or a liferaft?
(question to those who replied “persons boarded lifeboats / liferafts in Q3.4, 19 answers)

Choices	Response count	Response percent
yes, a lifeboat	14	73.7 %
yes, a liferaft / MES	5	26.3 %
No	0	0.0 %
Other (Please specify)	0	0.0 %
Any additional comments? *	2	

*Comments (2), see Appendix C

Q3.6: What was the type of lifeboat?
(question to those who replied “yes, a lifeboat” in Q3.5, 13 answers)

Choices	Response count	Response percent
Davit launched lifeboat	10	76.9 %
Freefall lifeboat	2	15.4 %
Other (please specify)*	1	7.7 %
Any additional comments?*	1	

*Other (1) and comments (1), see Appendix C

Q3.7: How did you feel during the launching of the lifeboat?
(question to those who replied “yes, a lifeboat” in Q3.5, 13 answers)

Choices	Response count	Response percent
1 (scared)	1	7.1 %
2	0	0.0 %
3	5	35.7 %
4 (safe)	8	57.1 %
Any additional comments? *	1	

*Comments (1), see Appendix C

Average rating: 3.43

Q3.8: Did you feel well prepared for the situation?
(question only to those who replied “yes” in Q3.1, 125 answers)

Choices	Response count	Response percent
1 (no)	3	2.4 %
2	11	8.8 %
3	31	24.8 %
4 (yes)	80	64.0 %

Average rating: 3.50

Q3.9: What made you feel well prepared? What could have gone better?
Free text (41), see Appendix C

Summary of replies:

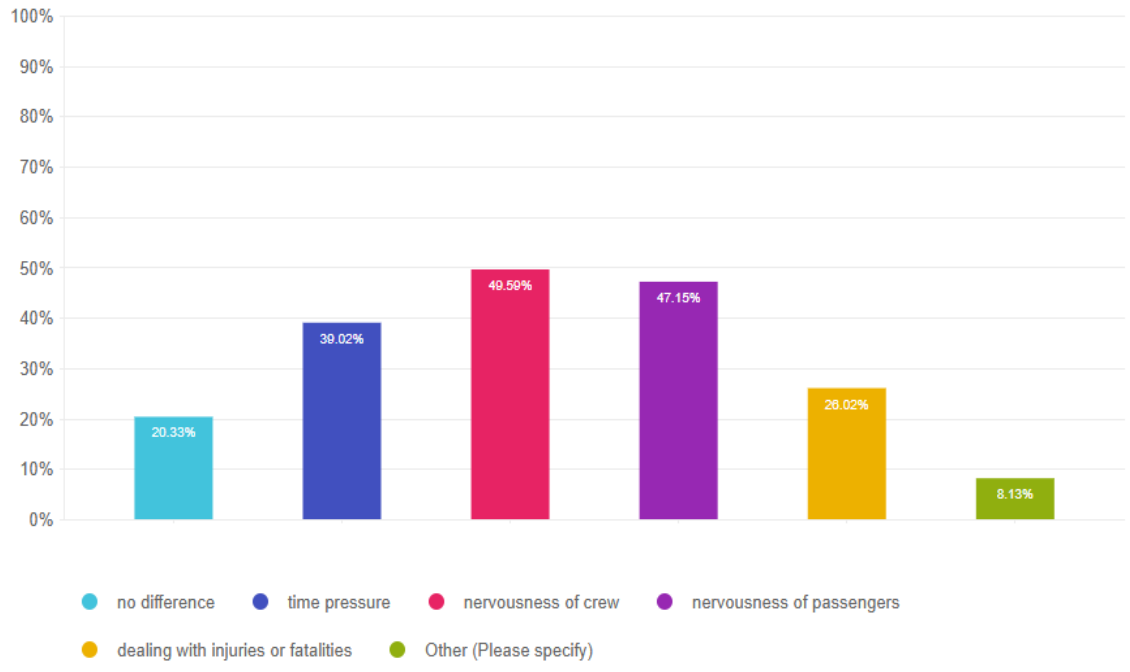
The responders mention following key topics:

- Regular and realistic training and drills are crucial for building confidence and ensuring that the crew knows their responsibilities during emergencies.
- Experience and knowledge of safety systems enhance preparedness.
- Proper equipment and clear procedures are essential for effective response.
- Effective crowd management and communication with passengers are vital.
- Continuous improvement and learning from past experiences help address challenges.
- Individual training, self-control, and leadership play significant roles.
- Companies that emphasize safety and provide proper training ensure their crew is well-prepared for emergencies.

Q3.10: What was the difference to drills?
(question only to those who replied “yes” in Q3.1, more than one answer possible, 123 persons answered)

Choices	tick counts	Tick percentage
No difference	25	20.3 %
Time pressure	48	39.0 %
Nervousness of crew	**61**	**49.6 %**
Nervousness of passengers	58	47.2 %
Dealing with injuries or fatalities	32	26.0 %
Other (please specify) *	10	8.1 %
Any additional comments? **	11	

*Other (10) and **Comments (11), see Appendix C



Q3.11: Did you feel well informed during the evacuation process?
(question only to those who replied "yes" in Q3.1, 117 replies)

Choices	Response count	Response percent
1 (no)	4	3.4 %
2	11	9.4 %
3	37	31.6 %
4 (yes)	**65**	**55.6 %**
	117	

Average rating: 3.39

Q3.12: What was the largest challenge with regards to information / communication?
Free text (45), see Appendix C

Summary: Breakdowns in command and control, multiple communication sources, and maintaining real-time information add to the complexity. Effective communication is crucial for ensuring calm and clear communication amidst panic and stress but often hindered by following factors:

- passengers and crew not listening to announcements,
- poor communication infrastructure with
  - radio black spots,
  - equipment failures,
  - language barriers, and
  - high noise levels.

4.1.4 Drills

Q4.1: Do or did you participate in evacuation drills?
(355 answers)

Choices	Response count	Seafarers Response count	Overall Response percent
Yes	**327**	**183**	**92.1 %**
no	28	4	7.9 %
	355		

Q4.2: How often?
(question only to those who replied "yes" to Q4.1, 325 answers)

Choices	Response count	Seafarers Response count	Overall Response percent
Once	12	2	3.7 %
Occasionally	74	11	22.8 %
At least once per month	49	21	15.1 %
weekly	**190**	**147**	**58.5 %**
	325		

Q4.3: How do you perceive evacuation drills?
(question only to those who replied “yes” to Q4.1, 323 answers)

Choices	Response count (all)	Overall Response percent	Seafarers Response count	Seafarers’ response percent
1 (waste of time)	0	0 %	0	0.0 %
2	9	2.8 %	7	3.9 %
3	29	9.0 %	19	10.5 %
4	81	25.1 %	52	28.7 %
5 (vital)	**204**	**63.2 %**	**103**	**56.9 %**
	323		181	

Average rating: 4.49 (total), 4.38 (seafarers)

Q4.4: What are your ideas to improve the drills
Free text (83), see Appendix C

Summary of replies:

To improve ship safety drills

- It is seen essential to conduct realistic and frequent drills that mimic actual emergency conditions, including unexpected factors and various scenarios.
- Active involvement of both crew and passengers are seen crucial.
- Utilizing modern technologies, providing personalized assistance, and
- gathering feedback for continuous improvement could enhance preparedness.

Q4.5: Do the drills make you personally feel well prepared for an emergency evacuation?
(question to those who replied “yes” to Q4.1, 324 answers)

Choices	Response count (all)	Overall Response percent	Seafarers Response count	seafarers Response percent
Yes	**255**	**78.70%**	**147**	**81.2 %**
no	26	8.02%	15	8.3%
Not sure	43	13.27%	19	10.5 %
	324		181	

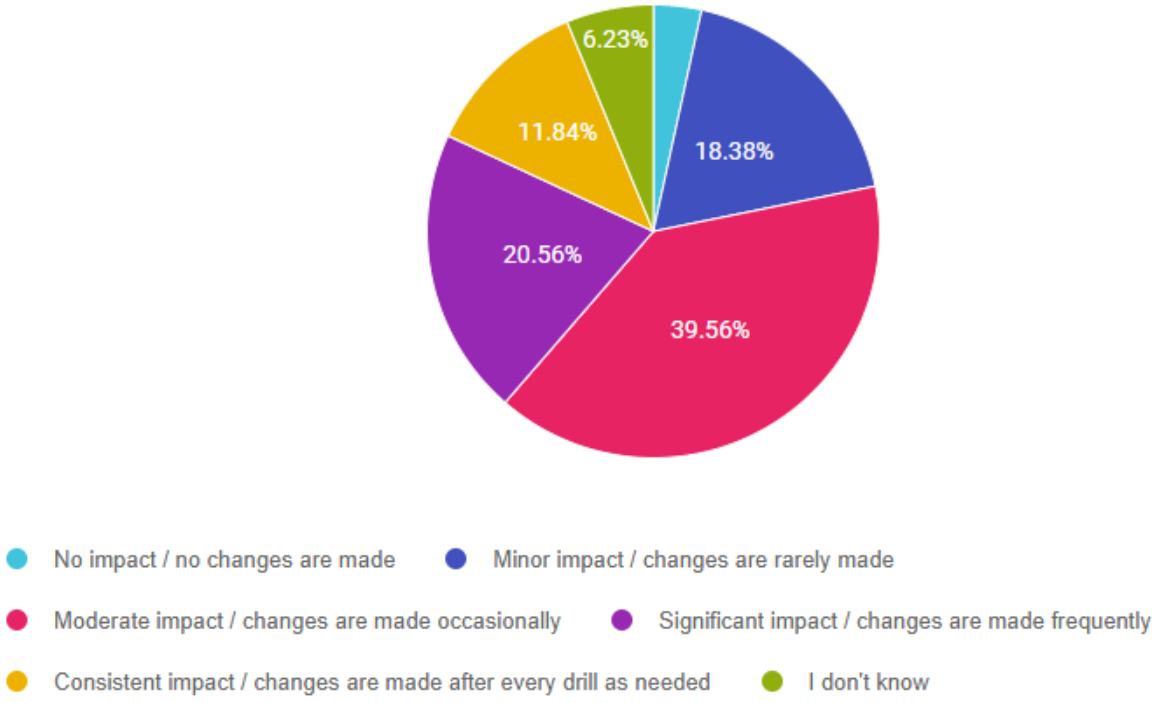
Q4.6: How frequently are the outcomes of the drills evaluated and effectively communicated to you?
(question to those who replied “yes” to Q4.1, 321 answers)

Choices	Response count (all)	Response percent	Seafarers’ response count	Seafarers’ response percent
Never	19	5.9 %	6	3.3 %
Rarely (e.g. once per year)	30	9.4 %	10	5.6 %
Sometimes (e.g. few times per year)	29	9.0 %	10	5.6 %
Often (after most drills)	80	24.9 %	44	24.4 %
Always (after every drill)	**149**	**46.4 %**	**105**	**58.3 %**
Other (please specify) *	14	4.4 %	5	2.8 %
Total responses	321		180	

*Other (14), see Appendix C

Q4.7: To what extent do the outcomes of drills directly impact or change the operational procedures?
(question to those who replied “yes” to Q4.1, 321 answers)

Choices	Response count (all)	Response percent (all)	Seafarers’ response count	Seafarers’ response percent
No impact / no changes are made	11	3.4 %	6	3.4 %
Minor impact / changes are rarely made	59	18.4 %	28	15.6 %
Moderate impact / changes are made occasionally	**127**	**39.6 %**	**74**	**41.3 %**
Significant impact / changes are made frequently	66	20.6 %	37	20.7 %
Consistent impact / changes are made after every drill as needed	38	11.8 %	29	16.2 %
I don’t know	20	6.2 %	5	2.8 %
	321		179	



11 persons answered “no impact / no changes are made”:

- 3 “crew member (hotel)”,
- 3 “Master / Officer”,
- 2 “Shoreside employee of ship owner / ship manager”,
- 2 “Maritime administrator”,
- 1 “DPA/CSO/Safety Superintendent”

4.1.5 Life Saving Appliances

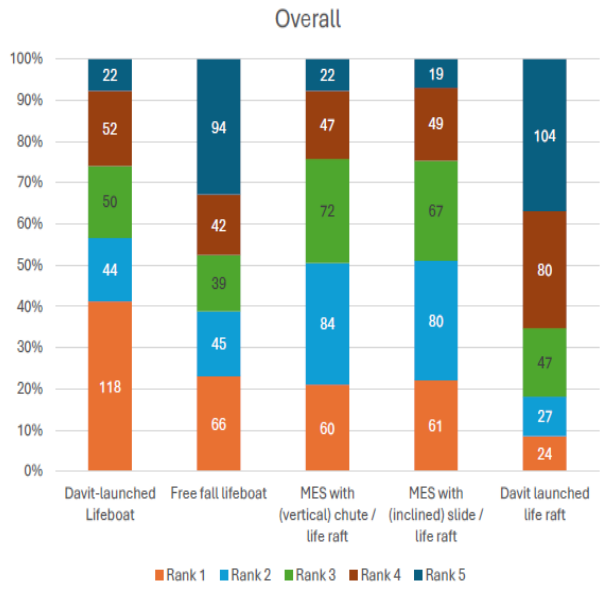
Q5.1: What kind of life-saving appliance would you personally prefer to use, if you had the choice?
(329 answers, rank1 = preferred option)

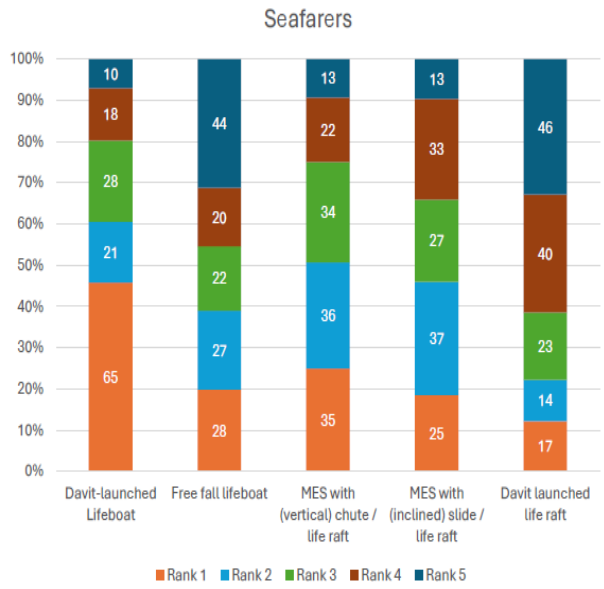
Choices (all)	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank overall
Davit-launched Lifeboat	**118**	**44**	**50**	**52**	**22**	**I**
Free fall lifeboat	66	45	39	42	94	IV
MES with (vertical) chute / liferaft	60	84	72	47	22	III
MES with (inclined) slide / liferaft	61	80	67	49	19	II
Davit launched liferaft	24	27	47	80	104	V

Seafarers only (170)

Choices (seafarers)	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank overall
Davit-launched Lifeboat	**65**	**21**	**28**	**18**	**10**	**I**
Free fall lifeboat	28	27	22	20	44	IV
MES with (vertical) chute / liferaft	35	36	34	22	13	II
MES with (inclined) slide / liferaft	25	37	27	33	13	III
Davit launched liferaft	17	14	23	40	46	V

Only difference between “seafarer’s” and “all” responders is that MES with vertical chute had a higher preference amongst seafarers as opposed to the MES with inclined slide.





Q5.2 Please explain the benefits of your preferred option
Free text (120), see Appendix C, a short summary for each option is provided below:

Preferred option "Davit launched LB"

Summary: The responders that choose davit launched lifeboats in first place see several benefits for emergency evacuations on passenger vessels:

- Lifeboats are enclosed, offering a protected environment, and provide the greatest occupant protection and are considered safer and more comfortable than liferafts.
- Lifeboats offer better manoeuvrability and stability at sea, especially in adverse weather conditions.
- Lifeboats are easy to operate,
- Lifeboats use gravity for launching
- Lifeboats are ready for use at any time.
- Lifeboats are well-tested evacuation systems.
- Lifeboats are more suitable for mobility-impaired persons
- Lifeboats accommodate more people efficiently.

Preferred option "Free fall LB"

Summary: The responders that choose Free fall lifeboats in first place see several benefits for emergency evacuations:

- Free fall lifeboats provide quick and fool-proof launching,
- Free fall lifeboats are independent of weather conditions, making them reliable in adverse situations.
- The simplicity of their deployment ensures immediate readiness and rapid evacuation, minimizing the risks associated with complex procedures.
- Free fall lifeboats offer better protection against the elements and are not prone to punctures, providing a safer environment for occupants.
- Free fall lifeboats are designed to be self-righting, reducing the chance of capsizing.
- Free fall lifeboats are not connected to the ship with wires, which can be advantageous during evacuation.

Preferred option "MES with (vertical) chute / liferaft"

Summary: Marine Evacuation Systems (MES) with vertical chutes and liferafts offer several benefits for emergency evacuations.

- MES allow for direct boarding
- MES have been performance tested in high seas,
- MES have no risk of accidents related to hook openings or rope failures.
- MES are easier to deploy during rough conditions compared to lifeboats, which require high training standards and can be challenging to lower in bad weather.
- The flexible nature of liferafts makes them more comfortable and less prone to seasickness than boats.
- MES require minimal onboard maintenance, with servicing handled by shore contractors,
- MES can be mounted within the accommodation for dry boarding.
- MES provide a fast, efficient, and safer evacuation option, especially in adverse conditions.

Preferred option "MES with (inclined) slide / liferaft"

Summary: Marine Evacuation Systems (MES) with inclined slides and liferafts offer several benefits for emergency evacuations.

- MES provide a fast, safe, and efficient means of evacuation, with less risk of failure and fewer mechanical parts that could malfunction.
- The inclined slide is familiar to many people, making it less intimidating and easier to use.
- MES systems allow for quick deployment and boarding, reducing the time needed for preparation.

- MES are not reliant on operational davits or hooks, which simplifies the process and minimizes the risk of accidents.
- MES systems are also more tolerant of roll and motions, making them safer in adverse weather conditions.
- MES with inclined slides are reliable, easy to maintain, and provide a safer and more comfortable evacuation option for both passengers and crew.

Preferred option “Davit launched liferaft”

Summary: Davit-launched liferafts offer several benefits for emergency evacuations:

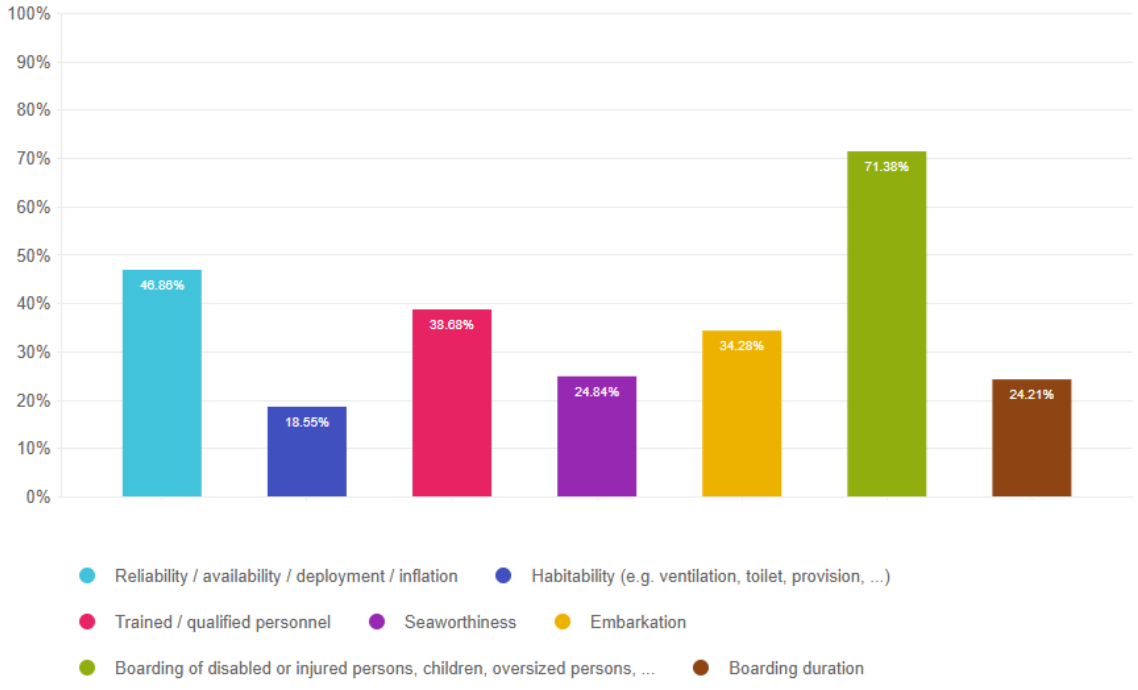
- They can be launched in almost all situations and vessel positions, providing flexibility and reliability.
- Davit launched liferafts allow for good practice and training opportunities for crew members, enhancing their preparedness.
- Davit launched liferafts are considered a reliable and practical option for evacuations.

4.1.6 Liferafts and MES

Q8.1: What are your biggest concerns with regard to Marine Evacuation Systems (MES)?
(more than one answer possible, 318 answers)

Choices	Response count (all)	Response percent (all)	Seafarers Response count (164)	Response percent (seafarers only)
Boarding of disabled or injured persons, children, oversized persons, …	**227**	**71.4 %**	**96**	**58.5 %**
Reliability /availability/ deployment/ inflation	149	46.9 %	76	46.3 %
Trained / qualified personnel	123	38.7 %	64	39.0 %
Embarkation	109	34.3 %	55	33.5 %
Habitability (e.g. ventilation, toilet, provision,…)	59	18.6 %	37	22.6 %
Seaworthiness	79	24.8 %	36	22.0 %
Boarding duration	77	24.1 %	36	22.0 %
	318		164	
Any additional comments? *	31			

*Comments (31), see Appendix C



Summary of comments:

- MES have seen improvements in reliability, but concerns remain about their effectiveness in adverse conditions
- MES lack propulsion, making it difficult to control rafts in bad weather or near shore.
- The system can be complex for inexperienced crew to handle,
- regular testing is often lacking.
- MES may not be suitable for disabled or injured individuals, who might be better served by lifeboats.
- The willingness of passengers, especially the elderly or those with mobility issues, to use the slides can be problematic.

Q8.2: What are your concerns with regard to MES with chutes?
(315 answers)

Choices	Response count	Response percent
Boarding duration	63	20.1 %
Persons refusing to use the chute	180	57.1 %
Injuries	145	46.0 %
Persons get stuck	132	41.9 %
Boarding of persons with special needs (children, oversized persons, physically impaired persons, stretchers,…)	**223**	**70.8 %**
Correct and complete deployment of chutes	88	27.9 %
Connection between chute and liferaft	70	22.2 %
Usability in bad weather	155	49.2 %
Usability under list/trim conditions	98	31.1 %
Other (please specify)*	9	2.9 %
	315	
Any additional comments? **	11	

*Other (9) and **Comments (11), see Appendix C

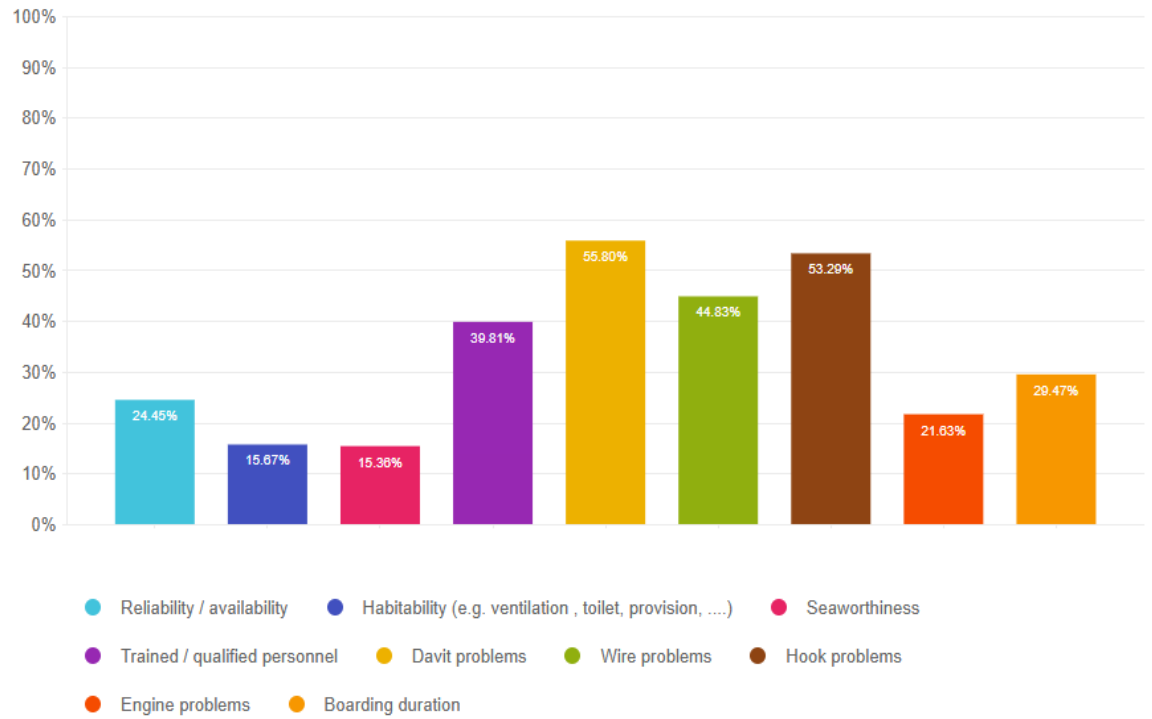
4.1.7 Lifeboats

Q9.1 What are your biggest concerns with regard to davit-launched lifeboats?

(more than one answer possible, 319 answers)

Choices	Response count	Response percent
Reliability /availability	78	24.5 %
Habitability (e.g. ventilation, toilet, provision,…)	50	15.7 %
Seaworthiness	49	15.4 %
Trained / qualified personnel	127	39.8 %
Davit problems	**178**	**55.8%**
Wire problems	143	44.8 %
Hook problems	170	53.3 %
Engine problems	69	21.6 %
Boarding duration	94	29.5 %
	319	
Any additional comments?*	31	

*Comments (31), see Appendix C



Summary: Davit-launched lifeboats face several challenges during emergency evacuations:

- Launching lifeboats in bad weather or when the vessel is listing is difficult and requires high expertise.
- Lifeboats are often cramped and congested, especially with large capacity boats, and may not accommodate larger passengers comfortably.

- Improper maintenance and technical problems with davits, wires, hooks, and engines are common issues.
- Training for crew members on lifeboat operations is often insufficient, leading to difficulties during actual emergencies.
- Passenger panic can disrupt communication between crew members, further complicating the evacuation process.

Q9.2 Do you have experience with large lifeboats (more than 150 persons)
(322 answers)

Choices	Response count	Response percent
Yes	165	51.2 %
no	157	48.8 %
	322	

Q9.3 What are in your opinion the benefits of large lifeboats?
(question only to those that replied “yes” to Q9.2, 157 answers)

Choices	Response count	Response percent
Less maintenance due to less lifeboats	**77**	**49.0%**
Less trained crew members required	57	36.3%
Seaworthiness	66	42.0%
Other (please specify)*	21	13.4%
	157	
Any additional comments?**	8	

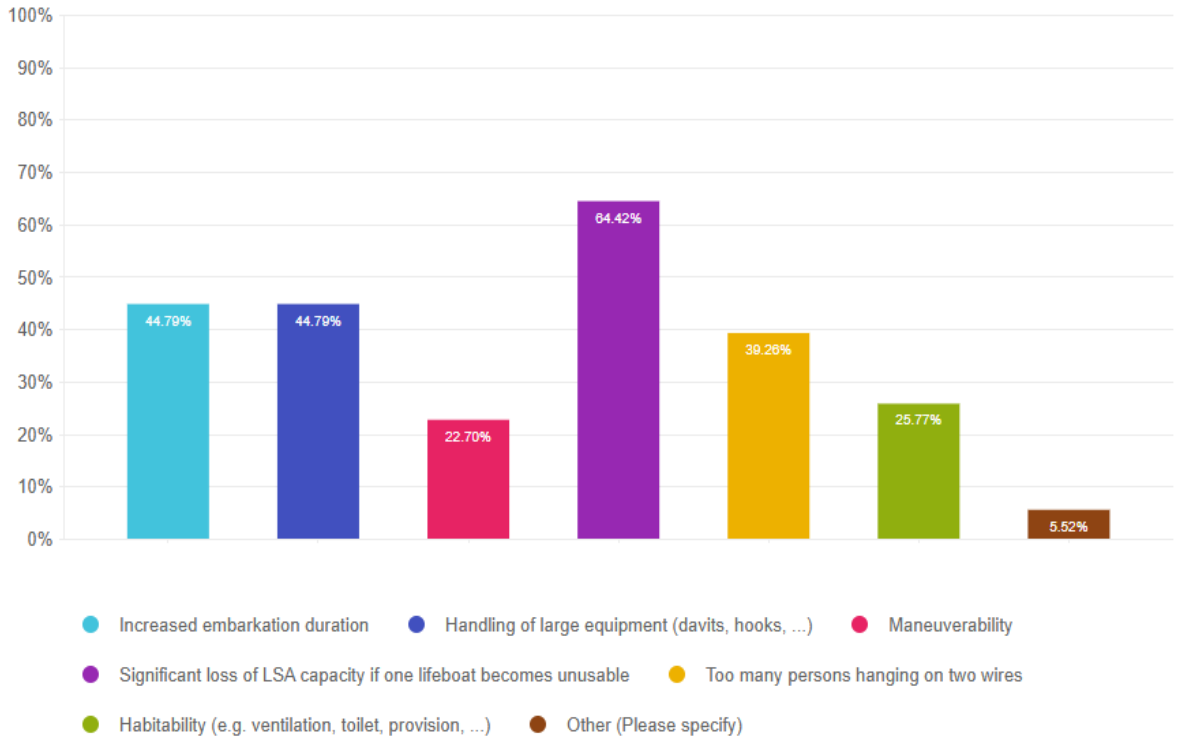
*Other (21) and **Comments (8), see Appendix C

Q9.4 What are in your opinion the drawbacks of large lifeboats?

(question only to those that replied “yes” to Q9.2, more than one answer possible, 163 answers)

Choices	Response count	Response percent
Increased embarkation duration	73	44.8 %
Handling of large equipment (davits, hooks, …)	73	44.8 %
Manoeuvrability	37	22.7 %
Significant loss of LSA capacity if one lifeboat becomes unusable	**105**	**64.4 %**
Too many persons hanging on two wires	64	39.3 %
Habitability (e.g. ventilation, toilet, provision)	42	25.8 %
Other (please specify)*	9	5.5 %
	163	
Any additional comments?**	5	

*Other (9) and **Comments (5), see Appendix C



Q9.5 Do you see additional challenges in case the large lifeboat has two separate decks?
(question only to those that replied “yes” to Q9.2, 162 answers)

Choices	Response count	Response percent
Yes	81	50.0 %
no	63	38.9 %
I don’t know	18	11.1 %
	162	

Q9.6: Which?
(question only to those that replied “yes” to Q9.5, more than one answer possible, 78 answered this question)

Choices	Response count	Response percent
Embarkation	**64**	**82.1 %**
Ventilation	21	26.9 %
Communication / crowd control	61	78.2 %
Other (please specify)*	8	10.3 %
	154	
Any additional comments?**	3	

*Other (8) and **Comments (3), see Appendix C

4.1.8 Novel / Alternative Evacuation Systems

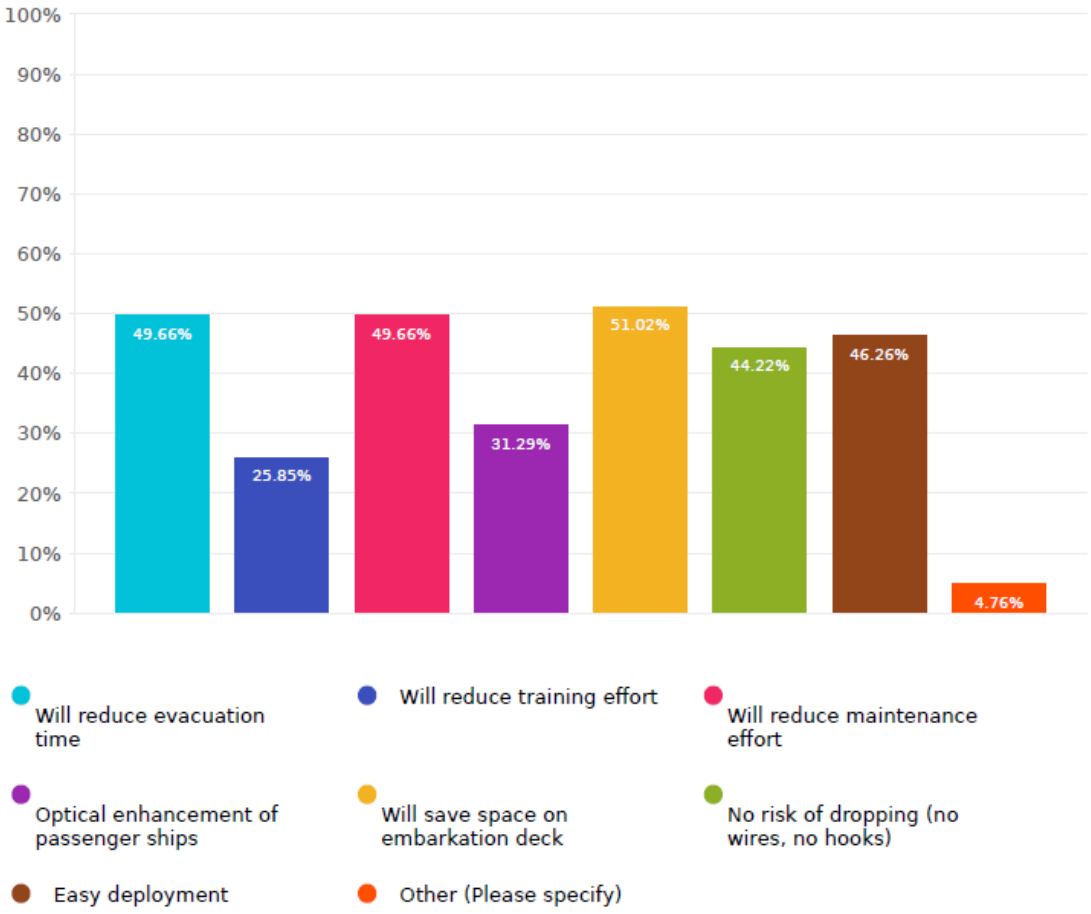
Q10.1 Have you heard about novel / alternative evacuation systems for more than 800 persons (e.g. Survitec Seahaven, Viking LifeCraft)?
(322 answers)

Choices	Response count	Response percent
Yes, both	101	31.4 %
Yes, Viking LifeCraft	39	12.1 %
Yes, Survitec Seahaven	10	3.1 %
No	**124**	**38.5 %**
Not sure	48	14.9 %
	322	

Q10.2: What are in your opinion the benefits of these systems?
(question only to those who replied not “no” or “not sure” to Q10.1, more than one answer possible, 147 persons answered this question)

Choices	tick counts	Tick percentage
Will reduce evacuation time	73	49.7 %
Will reduce training effort	38	25.9 %
Will reduce maintenance effort	73	49.7 %
Optical enhancement of passenger ships	46	31.3 %
Will save space on embarkation deck	**75**	**51.0 %**
No risk of dropping (no wires, no hooks)	65	44.2 %
Easy deployment	68	46.3 %
Other (please specify)*	7	4.8 %

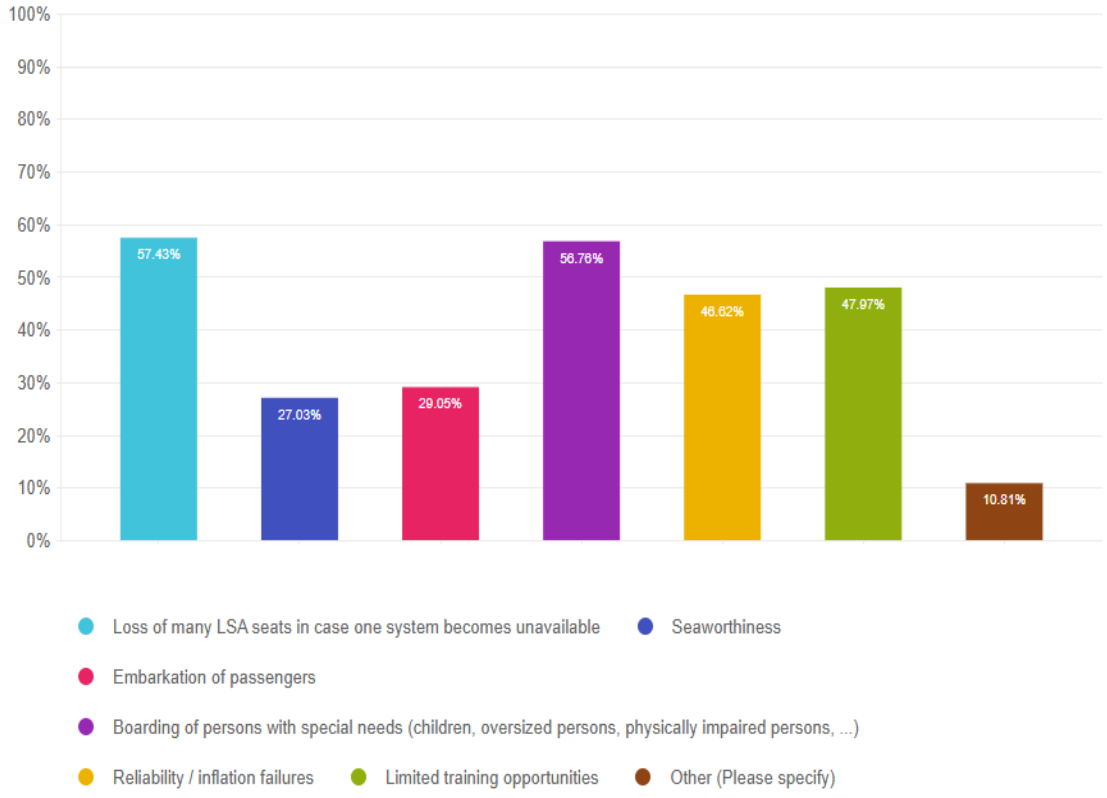
*Other (7), see Appendix C



Q10.3: What are in your opinion the drawbacks of these systems?
(question only to those who replied not “no” or “not sure” to Q10.1, more than one answer possible, 148 persons answered this question)

Choices	tick counts	Tick percentage
Loss of many LSA seats in case one system becomes unavailable	**85**	**57.4 %**
Seaworthiness	40	27.3 %
Embarkation of passengers	43	29.1 %
Boarding of persons with special needs (children, oversized persons, physically impaired persons, …)	84	56.8 %
Reliability / inflation failures	69	46.6 %
Limited training opportunities	71	48.0 %
Other (please specify)*	16	11.8 %

*Other (16), see Appendix C


100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
57.43%
27.03%
29.05%
56.76%
46.62%
47.97%
10.81%
Loss of many LSA seats in case one system becomes unavailable
Seaworthiness
Embarkation of passengers
Boarding of persons with special needs (children, oversized persons, physically impaired persons, ...)
Reliability / inflation failures
Limited training opportunities
Other (Please specify)

4.1.9 Management and Coordination of emergency evacuation processes

Q6.1: Are you involved in the management / coordination of emergency evacuation processes?
(333 answers)

Choices	Response count	Response percent
Yes	169	50.8 %
no	164	49.2 %
	333	

Q6.2: Do you get support by a decision support system?
(question only to those who replied “yes” to question Q6.1, more than one answer possible, 168 persons answered this question)

Choices	Response count	Response percent
Yes, by checklists	**142**	**84.5 %**
Yes, by an electronic system	79	47.0 %
no	7	4.2 %
Other (please specify) *	7	4.2 %

*Other (7), see Appendix C

Q6.3: Is the decision support system helpful?
(question only to those who replied not “no” to question Q6.2, 159 answers)

Choices	Response count	Response percent
1 (not helpful)	0	0.0 %
2	11	6.9 %
3	50	31.5 %
4 (very helpful)	**98**	**61.6 %**
	159	
Any additional comments? *	14	

*Comments (14), see Appendix C

Average rating: 3.55

Q6.4: Please describe the decision support system in short terms
(question only to those who replied not “no” to question Q6.2, 63 answers)

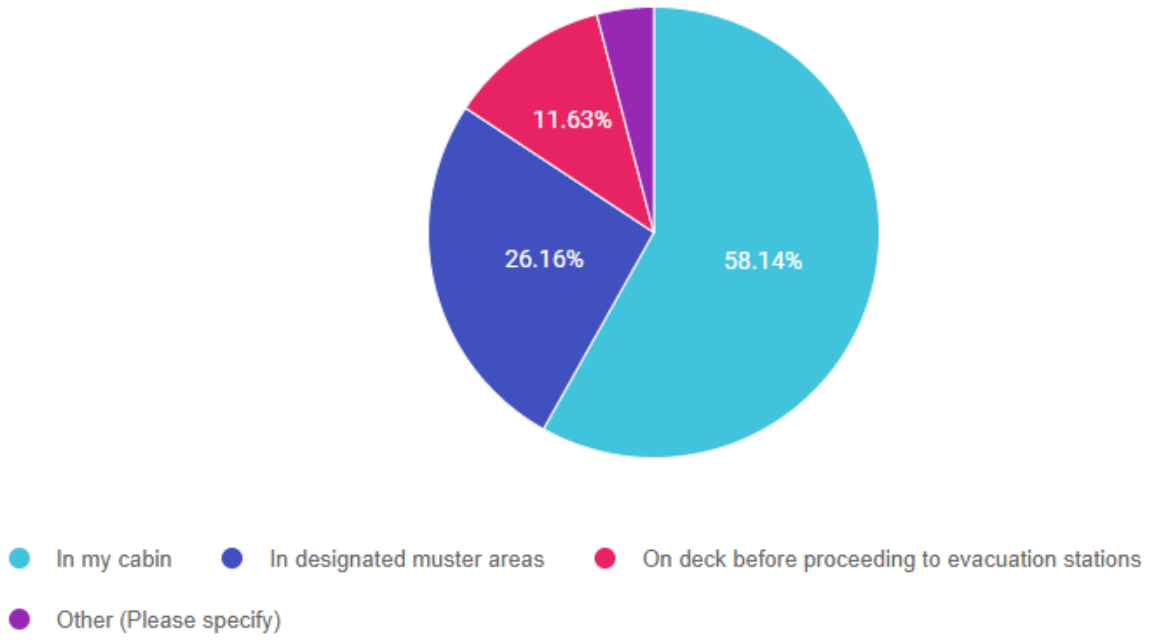
Free text (63), see Appendix C

4.1.10 Evacuation Strategies

Q7.1: Where should you don your life jacket according to the procedures?
(question only to those working on board, 172 answers)

Choices	Response count	Response percent
In my cabin	**100**	**58.1 %**
In designated muster areas	45	26.2 %
On deck before proceeding to evacuation stations	20	11.6 %
Other (please specify)*	7	4.1 %
	172	

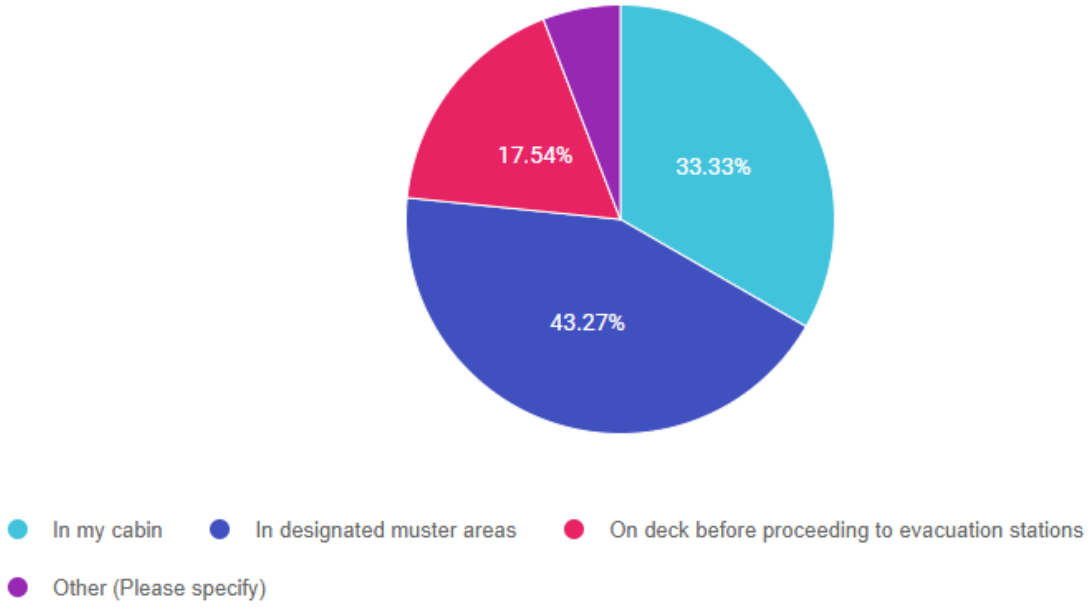
*Other (7), see Appendix C



Q7.2: What would be your preferred location?
(question only to those working on board, 171 answers)

Choices	Response count	Response percent
In my cabin	57	33.3 %
In designated muster areas	**74**	**43.3 %**
On deck before proceeding to evacuation stations	30	17.5 %
Other (please specify)*	10	5.9 %
	171	

*Other (10), see Appendix C



4.1.11 Concluding Questions

Q11.1: How would you improve the evacuation of large passenger vessels?
(more than one answer possible, 318 persons answered)

Choices	tick counts	Tick percentage
Limit the number of people on board	93	29.3 %
Increase the number of required lifeboat seats	76	23.9 %
Improve the safety of current lifeboat design	143	45.0 %
Consider new evacuation concepts	**218**	**68.6 %**
Other (please specify)*	50	15.7 %

*Other (50), see Appendix C

Summary: To improve the evacuation of large passenger ships following ideas have been given by the responders:

- Utilizing new technologies like adaptable emergency signs and AI-enhanced CCTV can enhance safety.
- Improved crew training, including training for failure scenarios, is crucial.
- Holistic evacuation scenarios should be included in design requirements.
- Extra LSA capacity should be increased.
- Advanced evacuation analysis for potential hazards and prioritizing safety training and drills are essential.
- Reducing the need to evacuate through better ship design.
- Increasing the available space per person in evacuation means.
- Regular and realistic drills, better crew training.
- Ensuring sufficient muster capacity and evacuation routes are vital.

Q11.2 Any other information or comment regarding evacuation of ships that you want to share with us?
(77 replies), see Appendix C

In summary the responders address following key aspects:

- trainings / drills
- Mustering and evacuation routes
- LSA
- Crew number and skills
- SAR
- Special needs passengers
- Evacuation analysis
- Safety culture
- Maintenance and service
- Rules and regulations

In the following table the replies to this question have been sorted and assigned to the key aspects.

Key aspect	Input
Training / drill	• Follow ISO TC8/SC1 works on virtual training and MES • I would train more people to drive the life/fast rescue boats, and I do more real training involving MES • (more) practical and realistic training for the crew in the handling of crowds in a crisis situation; • More needs of training, with specific LSA equipment • We should start in the process of shore side training, to increase the training time and the proper possibility to learn. I had crew members who paid money to get the STCW, that means the are not reliable • Training frequencies too high on board so they are not effective. Lowering boats is a danger, too many accidents, but training of lifeboat crew is too poor, should be properly trained in the type of boat ashore (the stcw training is a joke). • Training under easy circumstances and keeping crew motivated is key • Dedicated team trained for evacuation at night, low visibility and unfavorable weather conditions • A mandatory specially trained safety team onboard of ships for training leading emergency scenarios to reduce work load of engine and deck officers • (more) practical and realistic training for the crew in the handling of crowds in a crisis situation; • I would train more people to drive the life/fast rescue boats, and I do more real training involving MES • the crew must train with real evacuees in an environment as close to a real situation as possible. • the crew must be given feedback after each drill and be included in the adjustment of the procedures • actual GEA drills should be carried out w/ all passengers
Mustering, evacuation routes	• Measures for space at the muster station and inside LSA have to be more realistic (w/ life jackets everyone needs more space, not just larger people (<- majority of cruise passengers)); • Primary mustering should be external. Ship designs should allow for this. Human nature - No one wants to feel trapped. In the unknown people will be much happier being in the fresh air outside knowing that they can get off the ship quickly their selves. They can see the rescue craft. being inside and not being able to see what's going on is frightening no matter what training and experience you have • Consider alternative mustering process and locations for boarding of LSA • Consider dynamic signage when mustering, in case of non availability of some escape routes. • RFID technology or similar should be implemented for the role call." • Hallways are narrow and passengers often walk in the wrong way. Also on deck when most pax have mustered it becomes very narrow. Pax who are really big or using scooters will have a hard time proceeding to their station • it is needed to keep innovating in the concepts and technologies for evacuation means the industry should really embrace digitalization of processes and data interoperability to boost situational awareness, prevention and mitigation of unwanted events. • Evacuation on large passenger ships should take into considerations the location on the guests at the movement of the emergency. Moving large cows of guest to assembly stations or back to their cabins to pick up the lifejackets Could create more issues. Large venues such as theatres, restaurants and other spaces should be considered and equipped as safe areas for gathering guests in case of emergency and guide them to nearest evacuation system. RFID technology or similar should be implemented for the role call."

Key aspect	Input
LSA	• Gravity is still best. • For evacuation means of passenger ships: have additional space for moving around and lifeboats/liferafts studied to avoid sea sickness • Inflatable systems have a high failure rate. substitution of lifeboats to 75 % should not be allowed because rigid lifeboats have a higher safety level than inflatable systems • Establish a lifetime limit for lifeboats and davits (will reduce amount of failures) • The designated seating arrangements in survival crafts provide a theoretical value, but these capacities are rarely achievable in practice • Consider extreme environmental scenarios which could limit or impair LSA deployment • ALL ships need to go to a MES system and lifeboats with more capacity. This way there will be less lifeboats on board.
Crew (skills, number)	• There is no focus, rules or attention to the physical state/condition of crewmembers involved in emergency functions. I know this survey focuses on the Evacuation part, But I would suggest make requirements (lifting/carrying and cycling/running exercises) that crewmembers need to reach before they can have a firefighting function or other emergency function onboard • Emergency situation leads to panic it is very important to have a team for panic management. • Afraid of big numbers of crew members who will panic when they realize that is real situation, not just a drill • On passenger ships we need better qualified personnel for emergency functions • Minimum manning crew levels are probably the biggest threat to any evacuation plus poorly trained crew • The safety at sea is decreasing, the ship are not anymore with 1000 pax and 500 skilled crew. Now we have up to 7000Pax and 2000 half skilled crew.
SAR	• Concerned about SAR, who is going to assist 6000 people in lifeboats/ rafts in the middle of the ocean. A regular cargo ship passing by will not be able to help much • Beside the evacuation of persons from the ship the recovery of the number of persons from the lifeboats/MES is an issue to consider
Special needs passengers	• "Include a real demographic for evacuation in SOLAS, i.e. there's no consideration of disabled people in life boat design. How are wheel chair passengers accommodated in evacuation plans? • Basics such as ramps, etc on the evacuation route aren't considered, but how do you get a wheelchair user safely stowed in the boat, or even a raft? We also have persons (e.g. blind) with support animals who must leave their animal in evacuation event. What about an animal ark where support animals are rescued separately to the normal lifeboat? • There should be alternative alarms for the disabled (deaf); • Implementation of a maximum number of severely disabled people depending on crew capacity for evac-assistance • The disabled should have cabins close to muster stations • Technical means for the (easy and safe) transportation of disabled people should be mandatory (e.g. EvacChair); • Additional the construction of the vessel with this life boat design, we should go away from it and installing proper MES station with the possibility for overweigh people and disabled people. • There's no consideration of disabled people in life boat design. How are wheel chair passengers accommodated in evacuation plans? • Hallways are narrow and passengers often walk in the wrong way. Also on deck when most pax have mustered it becomes very narrow. Pax who are really big or using scooters will have a hard time proceeding to their station • The problem of embarking persons in wheelchairs has become larger and larger in the past years. However, IMO and classes have lost the focus on this topic.

Key aspect	Input
Evacuation Analysis	• For passenger ships, advanced evacuation analysis should be mandated. So that the congestion points and bottleneck points can be identified well in advance • It would be very interesting to do a study with a new buildings to do a full evacuation of a vessel with actors similar as done for new aircrafts including manning and launching of all required survival crafts. • "Include a real demographic for evacuation in SOLAS
Safety culture	• The Key role for the evacuation is the entire crew. Crew must feel to be a part of a ship and not just employee for single contracts • There is no other way to improve than keep in changing ratio in favor of safety versus economical profit by new technologies and adopting present procedures and upgrading LSA.
Maintenance /Service and repair	• Due to huge pressure in the market, it's experienced that service stations are pressed on time to do proper service, resulting in failures on the evacuation systems • Systems need to be low maintenance, and easy to maintain. Some are too complicated. • Enhance, standardise, and uniformize the requirements for the O&M (Operations & Maintenance) of LSA.
Rules and Regulations	• Assess the current 150-persons limit of LBs for increasing to higher (more common) figures • Current rules are not made with SRtP-principles in mind, which state that the ship is its own best lifeboat, and have not considered this at a principal level. • The rules and design requirements of them is long overdue for a review, the most of the requirements is based on historical data and OPINIONS. It is an area there always have been many incidents within. It is not for no reasons, that the joke is ""the kill more than they safe"", if we should improve safety under evacuation, I would start to review the lifeboat requirements before anything else." • Current regulatory environment and conservatism in the maritime industry can be a blocker for innovation. • Current Solas has requirements that are either not in engineering terms logically justified or refer to 100y old ship designs. As an example, all modern pax vessels in practice capsize before sinking and this fact is fully decoupled from LSA design philosophy • The survival crafts are a good idea if the SOLAS concept is adjusted a bit, the important for large cruise vessels are to "move away" from the ship, not necessarily stay "six days at seas, 6 knots speed etc." • Assess the current 150-persons limit of LBs for increasing to higher (more common) figures • The rules and design requirements of them is long overdue for a review, the most of the requirements is based on historical data and OPINIONS. It is an area there always have been many incidents within. It is not for no reasons, that the joke is ""the kill more than they safe"", if we should improve safety under evacuation, I would start to review the lifeboat requirements before anything else." • Current regulatory environment and conservatism in the maritime industry can be a blocker for innovation. Today there is little incentives for intelligent risk taking and testing. • Existing LSA code requirements on escape widths etc. provide good design guidance but it is sometimes hard to justify the results relative to actual safety or ease of evacuation. It is often difficult to reconcile escape arrangements with the design of certain passenger ship types, especially so where the arrangement does not allow for an entire deck of public spaces in way of LSA embarkation • Include a real demographic for evacuation in SOLAS

Key aspect	Input
Other	• Limit the number of persons on board • Maritime administration have to be manned by at least one enough qualified inspector, who has working experience on board of large passenger boats in position of senior navigation/safety officers • For bigger ferry's is my concern on welfare and working conditions for seafarers. Lack of leadership and bad leadership, Crew can be up to 4 in each cabin according to regulations (normally 2) means lack of personal space, lack of sleep and rest due to long working days under hard pressure due to the nature of ferry operations." • The Emergency plan needs to be simple. there tends to be an over reliance on announcements rather than "triggers". Far too wordy. Too many stages. Why are fire team members then assigned to a lifeboat. This is a stage too many. We're waiting for them to turn up causing delays. Give people one duty and let that be all they have to worry about. Too many roll calls needed moving from stage to stage un-necessarily having a great chance to miss somebody. • A change to the requirements is well overdue and while the new and novel ideas are welcome they tend to be looked at from a commercial perspective rather than the end user. Also once new build contract is sign invariably for a four or five ship series the equipment chosen is out of date from day one, new systems need to modular and interchangeable, rigid lifeboats should be avoided unless multi purposed as tenders, in this case some would benefit those with restricted mobility • In perfect weather conditions evacuating a vessel is a challenge that can be overcome. In a storm with high waves it is questionable if any equipment used today will function as intended. The vessel should therefore not be in such weather conditions or not need to be evacuated at all. As the concept of leaving the vessel is problematic on vessels with a large amount of persons onboard the vessel itself should be the lifeboat, or at least one part of the vessel

Q11.3: Would you be willing to give us an interview? If yes, please provide your e-mail address.

73 persons provided their email addresses. It is intended to invite some of them to participate in the workshops planned in Task 3.

4.2 Evaluation of replies from passengers

The 53 passengers that filled in the questionnaire* answered the questions as follows:

Comments and free text answers have been directly copied from the questionnaire (without spell check etc.).

*27 passengers filled in the “professional” questionnaire, 26 the one dedicated to passengers.

4.2.1 Personal information

QP1.1 How often do / did you travel on passenger ships?

(26 answers)

Choices	tick counts	Tick percentage
Once	4	15.4 %
Occasionally (e.g. once per five years)	5	19.2 %
Regularly (e.g. once per year)	**7**	**26.9 %**
Often (multiple times per year)	6	23.1 %
Other (please specify)*	4	15.4 %
	26	

***Other (4), see Appendix D

QP1.2 How old are you?
(41 answers)

Choices	tick counts	Tick percentage
Younger than 50	**24**	**58.5 %**
Between 50 and 65	13	31.7 %
Between 66 and 80	3	7.3 %
Older than 80	1	2.4 %
	41	

QP1.3 How would you rate your physical fitness?
(41 answers)

Choices	tick counts	Tick percentage
Very good	11	26.8 %
Good	**15**	**36.6 %**
Okay	12	29.3 %
Limited	3	7.3 %
	41	

4.2.2 Emergency experiences

QP2.1 Did you experience an emergency event on a passenger ship?
(41 answers)

Choices	tick counts	Tick percentage
Yes	6	14.6 %
No	**35**	**85.4 %**
	41	

QP2.2 How was the emergency communicated to you?
(more than one answer possible, question to those who replied “yes” to QP2.1, 9 answers)

Choices	Response count	Response percent
By loudspeaker / Public Adress System	**5**	**55.6 %**
By crew members giving verbal instructions	3	33.3 %
By visual signals (e.g. flashing lights)	1	11.1 %
By text message / cabin communication system	0	0 %
Other (please specify)	0	0 %
	9	

QP2.3 Have you been called to the Muster stations?
(question only to those who replied “yes” to QP2.1, 6 answers)

Choices	Response count	Response percent
Yes	2	33.3 %
No	**3**	**50.0 %**
I don’t know	1	16.7 %
	6	

QP2.4 Where did you pick your life jacket?
(question only to those who replied “yes” to Q2.1, 5 answers)

Choices	Response count	Response percent
No life jackets were needed	2	40.0 %
In my cabin	**3**	**60.0 %**
At the muster station	0	0 %
At the lifeboat / liferaft embarkation deck	0	0 %
Other (please specify)	0	0 %
	5	

QP2.5 At what time of the day the emergency happened?
(question only to those who replied “yes” to QP2.1, 5 answers)

Choices	Response count	Response percent
In the daytime	2	40.0 %
At night	**3**	**60.0 %**
	5	

QP2.6 What were the weather conditions during the emergency?
(question only to those who replied “yes” to QP2.1, 5 answers)

Choices	Response count	Response percent
Good (warm / calm sea)	2	40.0 %
Bad (cold / stormy / rough sea)	0	0 %
Medium	**3**	**60.0 %**
Other (please specify)	0	0 %
	5	

QP2.7 Did you board a lifeboat / liferaft?
(question only to those who replied “yes” to QP2.1, 6 answers)

Choices	Response count	Response percent
Yes, a lifeboat	0	0.0 %
Yes, a liferaft	1	16.7 %
No	**5**	**83.3 %**
	6	

QP2.8 How did you perceive the embarkation of lifeboat?

No responses

QP2.9 How did you feel during the launching process?

No responses

QP2.10 How did you feel during time at sea with the lifeboat?

No responses

QP2.11 How did you perceive the interaction with the crew?

No responses

QP2.12 How did you perceive the embarkation into the liferaft?

No responses

QP2.13 How did you feel during your time in the liferaft?

No responses

4.2.3 Passenger information

QP3.1 Did you feel well informed about the safety measures on board?
(26 answers)

Choices	Response count	Response percent
1 (no)	1	3.8 %
2	5	19.2 %
3	8	30.8 %
4 (yes)	**12**	**46.2 %**
	26	

Average rating: 3.19

QP3.2 How did the safety briefing take place?
(more than one answer possible, 63 answers)

Choices	Response count	Response percent
By video in my cabin	11	34.4 %
By video / app on my mobile phone	6	18.8 %
Mandatory show-up in muster station with lifejacket	**13**	**40.6 %**
Mandatory show-up in muster station without lifejacket	4	12.5 %
Mandatory passenger meeting in a public space	6	18.8 %
Mandatory show-up at the lifeboats with lifejacket	5	15.6 %
Mandatory show-up at the lifeboats without lifejacket	2	6.3 %
In written form (poster, flyer, ...)	10	31.3 %
Other (please specify)*	6	18.8 %
	63	

*Other (6), see Appendix D

4.2.4 Concerns

QP4.1 What are your biggest concerns with regard to emergency evacuations?
(more than one answer possible, 66 answers)

Choices	Response count	Response percent
Panic	**23**	**43.4 %**
Evacuation of mobility impaired persons	11	20.8 %
Communication / language barriers	14	26.4 %
Orientation	13	24.5 %
Other* (please specify)	5	9.4 %
	66	

*Other (5), see Appendix D

4.2.5 Concluding questions

QP5.1 Any other information or comment regarding evacuation of ships that you want to share with us?

Freetext (9), see see Appendix D

QP5.2 Would you be willing to give us an interview? If yes, please provide your e-mail address.

4 persons provided their email addresses.

5. Summary

5.1 Maritime professional's survey

The substantial number of responses, extensive comments and diverse free text contributions from individuals across various roles in the maritime business (see Q1.2 and Q1.3) underscores the urgency and the interest in this topic within the maritime community. Below are the main findings from the questionnaire.

The majority of responders (77.5 %) expressed either "trust" (40.6%) or "somehow trust" (36.9%) the system, 5.2 % "don't trust". Notably the proportion of onshore workers that "don't trust" is higher (7.2 %) compared to seafarers (3.5 %), refer Q2.1. 62.3% consider that the increased number of passengers on large cruise ships impact the evacuation duration and more that a half 51.1% considers that this circumstance has a high impact in the overall safety risk. On a scale from 1 (extremely unlikely) to 5 (most likely), the likelihood of a successful evacuation under good weather conditions and negligible list / trim is rated at 4.20 (seafarers: 4.15). The primary concern is an evacuation of a ship with high list (rating 2.80, seafarers: 3.03), see Q2.4.

The most significant concern regarding emergency evacuation is "passenger behaviour" (rating 6.39 of 10) followed by "passenger mobility" (rating 6.33 of 10, see Q2.2). The limited mobility of some passengers is anticipated to "require additional crew assistance, which may limit resources for other tasks" (see Q2.3).

When asked "how would you improve the evacuation of large passenger vessels?" (Q11.1) 68.6 % of responders choose "consider new evacuation concepts" followed by "improve the safety of current lifeboat design" (45.0 %), "limit the number of people on board" (29.3 %) and "increase the number of required lifeboat seats" (23.9 %).

Regarding emergency mustering and/or evacuation experiences, 34.8 % of the responders reported having such experiences (refer Q3.1). In 72.1 % of these cases, individuals were assembled at the muster stations, and in 14 % of the cases LSA have been launched (see Q3.4). Additionally, 64 % of the responders felt "well prepared" for the situation, while 2.4 % did not (see Q3.8). With regards to drills, the most significant differences compared to drills were, "nervousness of crew" (49.6 %) and "passengers" (47.2 %).

The majority of responders (92%) have participated in evacuation drills (refer Q4.1), with most of them engaging in weekly drills (58%, refer Q4.2). On a scale from 1 (waste of time) to 5 (vital) drills are rated highly: 4.49 by all responders and 4.38 by seafarers (refer Q4.3). Remarkably, none of the responders perceive evacuation drills as "waste of time", see Q4.3.Furthermore, 81.2 % of the seafarers feel well prepared for an emergency situation, while 8.3 % don't (Q4.5). Outcomes of drills are communicated to seafarers "after every drill" (58.3 %) or "often (after most drills)" (24.4 %). 3.3 % of the seafarers stated that the outcomes are "never" communicated (Q4.6). Regarding the impact of drill outcome on operational procedures, 41.3 % of seafarers stated that the outcome of drills has "moderate impact" on operational procedures, 20.7 % see "significant impact", and 3.4 % of seafarers stated that the outcome of drills has "no impact", (see Q4.7). To improve drills responders propose conducting realistic drills that include unexpected factors and various actual emergency scenarios (refer Q4.4).

Regarding LSAs, most responders would opt for a davit launched lifeboat in case of emergency evacuation. MES with inclined slides are the second choice from all responders and thirds for seafarers, while MES with vertical chutes are thirds for all responders and second for seafarers (refer Q5.1). Interestingly, each LSA has been selected for both first and last place. Each of the LSA has its benefits, see Q5.2: Davit-launched lifeboats are seen beneficial because of the enclosed and protected environment for occupants, easy operation, good manoeuvrability and seaworthiness. They are seen suitable for mobility impaired persons as well. The use of gravity is also seen beneficial. MES are appreciated for their performance in high seas, quick deployment, direct and quick boarding, and their independency from accident-prone wires and hooks. Compared to lifeboats, MES are easier to deploy in rough conditions and that the flexible structure of liferafts makes them more comfortable and less prone to seasickness than boats. Regarding liferaft access via (vertical) chute or (inclined) slide, it is stated that inclined slides might be more familiar, making it less intimidating and easier to use. Free fall lifeboats are praised for their quick and easy launching, reliability in adverse situations and their seaworthiness. Davit-launched liferafts are seen beneficial regarding their flexibility and reliability and the good training opportunities.

However, all LSA have their drawbacks. For MES, "boarding of disabled or injured persons, children, oversized persons,…" is the biggest concern (71.4 % of all responders, 58.5 % of seafarers only), followed by "reliability, availability, deployment, inflation" (46.9 % of all, 46.3 % of seafarers) and "trained / qualified personnel (38.7 % of

all, 39.0 % of seafarers), see Q8.1. For davit-launched lifeboats, “davit problems” (55.8 %) are named as the primary concern, followed by “hook problems” (53.3 %) and “wire problems” (44.8 %), see Q9.1.

Approximately half of the responders have experience with large lifeboats designed for more than 150 persons, see Q9.2.The main benefit of which is identified as “less maintenance due to less lifeboats” (49.0 %, see Q9.3), while the largest drawback is the “significant loss of LSA capacity if one lifeboat becomes unusable” (64.4 %, see Q9.4).

With regard to Novel or alternative evacuation systems, 46.6 % of responders have heard about such systems (Survitec Seahaven or Viking LifeCraft or both), while 38.5 % have not heard about it, and 14.9 % are “not sure”, see Q10.1. The main benefits of these systems include, “will safe space on the embarkation deck” (51.0 %) followed by “will reduce evacuation time” and “will reduce maintenance effort” (49.7 % each). Of the listed drawbacks, most of the responders choose “loss of many LSA seats in case one system becomes unavailable” (57.4 %), followed by “boarding of persons with special needs (children, oversized persons, physically impaired persons, …” (56.8 %) and “limited training opportunities” (48.0 %), see Q10.3.

About lifejacket donning locations, 58.1% of the responders indicated that they don their lifejacket “in my cabin”, 26.2% in “designated muster areas”, 11.6 % “on deck before proceeding to evacuation stations” and 4.1% “in other locations” (see Q7.1). However, 43.3 % would prefer to don the lifejacket “in designated muster areas”, while 33.3 % prefer to do it in their cabins (Q7.2).

Approximately half of the responders (50.8 %) are involved in in the management / coordination of emergency evacuation processes (see Q6.1), the majority gets support by a decision support system; 84.5 % by checklists, 47.0 % by electronic systems. 4.2 % don’t have access to a decision support system (see Q6.2). On a scale from 1 (not helpful) to 4 (very helpful), the usefulness of such systems is highly rated, with 3.55 on average. None of the responders rated the usefulness as “not helpful”.

5.2 Passenger’s survey

The passenger survey collected 53 responses, but its reach was limited by data privacy constraints. 27 passengers completed the professional questionnaire and 26 the passenger-specific version.

41 responders gave details of their age, see QP1.2: 58.5 % of them are younger than 50, 31.7 % are between 50 and 65, 7.3 % are between 66 and 80 and 2.4 % are older than 80 (which may not reflect the demographics on cruises).

On a scale from 1 (no) to 4 (yes), 46.2 % of responders answered the question “did you feel well informed about the safety measures on board” with a 4 (yes), while 3.8% (1 person) answered a 1 (no). On average the score was 3.19 out of 4. In most cases the safety briefing included a mandatory show-up in muster station with lifejacket (40.6 %), took place via video in the cabin (34.4 %), see QP3.2.

The biggest concern of passengers about emergency evacuation is “panic” (43.4 %) followed by “communication / language barriers” (26.4 %) and “orientation” (24.5 %), see QP4.1.

6 of the responders (11.3%) experienced an emergency event on a passenger ship (QP2.1). 83% of these persons were informed about the emergency via loudspeaker/public address system and/or by crew members giving verbal instructions (50%, refer QP2.2). 2 persons were called to the muster station, 3 were not and 1 doesn’t know (QP2.3). 3 donned lifejackets in their cabin, 2 answered that “no life jacket was needed”, 1 person did not answer the question (QP2.4). Finally, only one person boarded an LSA (liferaft), refer QP2.7.

6. Conclusion

The survey showed that the majority of maritime professionals in general trust or “somehow trust” the system, seafarers are more positive than their onshore colleagues.

Main concerns are raised regarding the behaviour and mobility of passengers in case of emergency evacuations. In particular the LSA access via slide or chute is seen critical for passengers - especially for those with special needs (elderly, disabled). Regarding the handling of special needs passengers it is proposed to have special trained teams for evacuation assistance and implement a maximum number of severely disabled persons depending on crew capacity for evacuation assistance. Furthermore, it is proposed to arrange wheelchair cabins in the vicinity of the assembly stations / embarkation deck, and to make technical means for transportation of disabled persons (e.g. evac chairs) mandatory, to have special alarms for blind and deaf persons and to consider the handling of support animals in case of evacuation.

Asked for ideas to improve the evacuation of large passenger vessels, following ideas were presented: Some responders propose to use consider digital solutions and modern technologies like radio-frequency identification (RFID), apps, adaptable emergency signs and artificial intelligence (AI) in video surveillance. Others recommend improving crew training, to increase the number of crew members, to require full scale passenger mustering, to increase the robustness / safety of ships in order to reduce the need for evacuation or to reduce the number of passengers (on certain voyages).

Davit-launched lifeboats are the preferred option for evacuation, but concerns are raised about the reliability of davits, hooks and wires and the deployment in rough environmental conditions. There are doubts that the space inside the lifeboats is sufficient for “real” passengers, that might clearly exceed the 75 kg /person that are considered in the design of lifeboats.

As mentioned above regarding MES concerns are raised regarding the boarding of special needs persons. Another concern is that people might refuse to use the chute.

For LSA systems with large capacities (large lifeboats and AES) concerns are raised regarding the loss of a large number of seats in case one system fails, followed by embarkation time and handling of large equipment.

The importance of drills is rated high and most of the responders feel well prepared for an emergency evacuation. However, many responders propose to make drills more realistic and include unexpected factors such as unannounced drills, drills during nighttime, communication issues, unavailability of key persons, blocked routes and involvement of passengers (or actors). Furthermore, it is proposed to train crowd / panic management and cabin search. In contradiction of the in principle positive rating of drills doubts are raised about the skills of the operating crews of both lifeboats and MES.

Regarding donning the life jacket, majority stated donning it in the respective cabin according to procedure. However, donning the life jacket in the designated muster area was identified as the preferred location.

Following communication issues are raised: amount of different means (radios, phones, PA), radio black spots, high noise levels and equipment failures. Regarding language barriers it is proposed to provide instructions in multiple languages.

Finally, some responders mentioned the need to improve the safety culture, living conditions and physical fitness of crew members. Concerns are raised how to rescue thousands of evacuees from LSA. Additionally, it was mentioned that current regulatory environment and conservatism in the maritime industry can be a blocker for innovation.

Appendix A Questionnaire 1

Passenger ship evacuation and life-saving appliances

On behalf of the European Maritime Safety Agency (EMSA) DNV Maritime Advisory is working on a study focused on enhancing safety and evacuation effectiveness in passenger ships.

This survey aims to study current practices, procedures and lessons learned from evacuation events and drills.

Your input is highly appreciated and will be treated anonymously.

Privacy Statement on the processing of personal data in the context of the survey to evaluate current evacuation strategies on passenger ships

The protection of privacy is of high importance to the European Maritime Safety Agency (´EMSA´). EMSA is responsible for the personal data it processes. Therefore, we are committed to respecting and protecting the personal data of every individual and to ensuring efficient exercising of data subject's rights. All the data of personal nature, namely data that can identify an individual directly or indirectly, will be handled fairly and lawfully with the necessary due care.

This processing operation is subject to Regulation 2018/1725 of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data. The information in this Privacy Statement is given pursuant to Articles 15 and 16 of the Regulation 2018/1725.

1. Nature and the purpose(s) of the processing operation

The purpose(s) of the processing of personal data is/are:

DNV SE, EMSA's contractor, will organise a survey using Zoho Survey Platform, for which they hold a licence, to complete Specific Contract 1, which is part of implementing the Framework Contract 2024/EMSA/2024/OP/0014.

The contractor developed a comprehensive questionnaire reviewed by EMSA to evaluate current evacuation strategies on passenger ships. They have structured this questionnaire to analyse lessons learned from real-life scenarios where evacuation procedures were implemented, and life-saving appliances were utilised.

The survey aims to capture perceived hazards and challenges experienced by key stakeholders, including crew members on cruise ships, shipping companies, shipbuilders, designers, classification societies, maritime administrations, P&I clubs, and equipment manufacturers. The contractor is expected to use robust analytical techniques to process the collected data, with the objective of identifying potential areas for improvement in the design and operational aspects of passenger ships, particularly in evacuation scenarios. The final report for this task will provide preliminary recommendations to enhance evacuation design, procedures, and life-saving equipment.

The survey is anonymous, and the participation is voluntary. No personal data is being processed unless the participant provides contact information for a potential follow-up interview, in which case, the survey responses will no longer be

anonymous.

The survey is to be launched at the end of 2024 and be open to collect answers until middle of 2025.

EMSA will not reuse the personal data for another purpose that is different to the one stated above.

2. Categories/types of personal data processed

The categories/types of personal data processed are the following:

General personal data: Age range, Professional and personal e-mail and Physical fitness.

3. Processing the personal data

The processing of the personal data is carried out under the responsibility of the Head of Unit 2.1 Safety and Security, acting as delegated EMSA data controller.

Personal data are processed by EMSA's contractor called DNV SE using the Zoho Survey Platform.

4. Access to and disclosure of personal data

The personal data is disclosed to the following recipients:

Designated Contractors' staff members in change of the survey.

The information concerning the Survey to evaluate current evacuation strategies on passenger ships ... will only be shared with people necessary for the implementation of such measures on a need to know basis. The data are not used for any other purposes nor disclosed to any other recipient.

The information in question will not be communicated to third parties, except where necessary for the purpose(s) outlined above.

Personal data are not intended to be transferred to third countries.

5. Protecting and safeguarding personal information

EMSA implements appropriate technical and organisational measures in order to safeguard and protect data subjects' personal data from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to them.

6. Access, rectification, erasure or restriction of processing of personal data

Data subjects have the right to access, rectify, erase, and receive their personal data, as well as to restrict and object to the processing of the data, in the cases foreseen by Articles 17 to 24 of the Regulation 2018/1725.

If data subjects would like to exercise any of these rights, they should send a written request explicitly specifying their query to the delegated data controller, Head of Unit 2.1 Safety and Security.

The above requests will be answered without undue delay, and in any event within one month of receipt of the request. However, according to article 14 (3) of the Regulation 2018/1725, that period may be extended by two further months where necessary, taking into account the complexity and number of the requests. EMSA shall inform the data subject of any such extension within one month of receipt of the request, together with the reasons for the delay.

7. Legal basis for Data processing

Processing is based on Article(s) 5a of the Regulation 2018/1725.

The study supports EMSA's Strategic Priority as was set in the 5-year strategy 2020-2024 is contribute to higher maritime safety standards, anticipate new maritime safety challenges and expectations and provide knowledge-based solutions with the aim of contributing to the reduction of marine casualties and human loss.

8. Storing Personal data

EMSA does not keep personal data longer than necessary for the purpose(s) for which that personal data is collected.

The contractor DNV will delete any personal data as soon as the analysis of the survey will be completed, no later than end of 2025.

9. Data protection points of contact

Should data subjects have any queries/questions concerning the processing of your personal data, they should address them to the data controller, Head of Unit 2.1 Safety and Security under the following mailbox: DPO-Queries-Dept3@emsa.europa.eu.

Any data subject may also consult EMSA Data Protection Officer at: DPO@emsa.europa.eu.

Recourse:

Complaints, in cases where the conflict is not resolved by the Data Controller and/or the Data Protection Officer, can be addressed at any time to the European Data Protection Supervisor: edps@edps.europa.eu.

Please tick the box to begin the survey

☐ I have seen the privacy statement

Passenger or professional

*Who are you?

- ◯ Passenger
- ◯ Working on board passenger ships / RoPax vessels
- ◯ Working onshore in the maritime business

The company you work for is

- ◯ Ship owner or operator
- ◯ Hotel management company (on board)
- ◯ Yard / Design office /Consultant
- ◯ Equipment manufacturer
- ◯ Class society
- ◯ Maritime Administration
- ◯ Port Authority
- ◯ Other (Please specify)

Which of these options describes your role best?

- ◯ Shoreside employee of ship owner / ship manager
- ◯ DPA / CSO / Safety Superintendent
- ◯ Maritime Training Manager
- ◯ Master / officer
- ◯ Pilot
- ◯ Crew member (deck / engine)
- ◯ Crew member (hotel)
- ◯ Naval Architect / Designer
- ◯ Approval Engineer / Surveyor / Inspector
- ◯ Researcher
- ◯ Maritime administrator
- ◯ Other (Please specify)

Do you have a role in case of emergency?

- ◯ yes
- ◯ no

Which of these options describes your emergency role best?

- ◯ Command / Control / Coordination / Communication
- ◯ Evacuation / Stairway guide
- ◯ Tasks within assembly / muster station
- ◯ Preparation / launching / operation of LSA
- ◯ Fire fighting
- ◯ Closing watertight doors / fire doors / openings
- ◯ Other (Please specify)

Evacuation concerns

What is your opinion for the evacuation of a large passenger ship?

- ○ I trust the the system
- ○ I somehow trust the system
- ○ It is better than nothing
- ○ I don't trust
- ○ Other (Please specify)

Please rate your concerns with regard to emergency evacuations:

(0 = no concerns, 10 = severe concerns)

Crew behaviour

0 1 2 3 4 5 6 7 8 9 10

Passenger behaviour

0 1 2 3 4 5 6 7 8 9 10

Passenger mobility

0 1 2 3 4 5 6 7 8 9 10

Non-availability of lifeboats / life rafts

0 1 2 3 4 5 6 7 8 9 10

Communication / language barriers

0 1 2 3 4 5 6 7 8 9 10

Organisational leadership

0 1 2 3 4 5 6 7 8 9 10

Duration / congestion

0 1 2 3 4 5 6 7 8 9 10

Signage / availability of evacuation routes

0 1 2 3 4 5 6 7 8 9 10

Physical environment (list, trim, ship movement, smoke, ...)

0 1 2 3 4 5 6 7 8 9 10

Additional comments?

How do you think the limited mobility of some passengers will impact the evacuation process?

(more than one answer possible)

- [ ] It significantly increases the evacuation time and delays overall emergency response
- [ ] It requires additional crew assistance, which may limit resources for other tasks
- [ ] It may lead to congestion and bottlenecks in evacuation routes
- [ ] It necessitates specialized equipment or accommodations to ensure safety
- [ ] It presents minimal impact if proper planning and resources are in place
- [ ] Other (Please specify)

Please indicate how likely a successful evacuation is in the following scenarios:

Bad weather conditions

extremely unlikely — most likely

1 2 3 4 5

Ship with a high trim

extremely unlikely — most likely

1 2 3 4 5

Ship with a high list

extremely unlikely — most likely

1 2 3 4 5

Good weather conditions and negligible list / trim

extremely unlikely — most likely

1 2 3 4 5

How does the increased number of passengers on large cruise ships impact the evacuation duration?

low impact — high impact

1 2 3

How does the increased number of passengers on large cruise vessels impact the overall safety risk?

low impact — high impact

1 2 3

Emergency evacuation

*Did you personally experience an emergency mustering and / or evacuation (not a drill)?

- ◯ yes
- ◯ no

On which ship type?

- ◯ Cruise ship
- ◯ RoPax vessel
- ◯ Cargo vessel
- ◯ Other (Please specify)

Please give an indication of number of persons on board:

- ◯ less than 500
- ◯ 500 to 1000
- ◯ 1001 to 5000
- ◯ more than 5000
- ◯ I don't know

What was the extent of the emergency?

(more than one answer possible)

- ☐ Persons assembled at assembly station / muster station
- ☐ Persons boarded the lifeboats / life rafts
- ☐ Lifeboats and/or MES launched
- ☐ Medical evacuation of a single person
- ☐ Evacuation of a specific area (e.g. due to fire)

Any additional comments?

Did you board a lifeboat or a life raft?

- ◯ yes, a lifeboat
- ◯ yes, a life raft / MES
- ◯ no
- ◯ Other (Please specify)

Any additional comments?

What was the type of lifeboat?

- ◯ Davit launched lifeboat
- ◯ Freefall lifeboat
- ◯ Other (Please specify)

Any additional comments?

How did you feel during the launching of the lifeboat?

scared			safe
1	2	3	4

Any additional comments?

Preparedness

Did you feel well prepared for the situation?

no 1 2 3 4 yes

What made you feel well prepared? What could have gone better?

What was the difference to drills?

(more than one answer possible)

- [ ] no difference
- [ ] time pressure
- [ ] nervousness of crew
- [ ] nervousness of passengers
- [ ] dealing with injuries or fatalities
- [ ] Other (Please specify)

Any additional comments?

Communication

Did you feel well informed during the evacuation process?

no 1 2 3 4 yes

What was the largest challenge with regards to information / communication?

Drills

*Do or did you participate in evacuation drills?

- ◯ yes
- ◯ no

How often?

- ◯ once
- ◯ occasionally
- ◯ at least once per month
- ◯ weekly

How do you perceive evacuation drills?

waste of time — vital

1 2 3 4 5

What are your ideas to improve the drills?

Do the drills make you personally feel well prepared for an emergency evacuation?

- ◯ yes
- ◯ no
- ◯ not sure

How frequently are the outcomes of the drills evaluated and effectively communicated to you?

- ◯ Never
- ◯ Rarely (e.g. once per year)
- ◯ Sometimes (e.g. few times per year)
- ◯ Often (after most drills)
- ◯ Always (after every drill)
- ◯ Other (Please specify)

To what extent do the outcomes of drills directly impact or change the operational procedures?

- ◯ No impact / no changes are made
- ◯ Minor impact / changes are rarely made
- ◯ Moderate impact / changes are made occasionally
- ◯ Significant impact / changes are made frequently
- ◯ Consistent impact / changes are made after every drill as needed
- ◯ I don't know

LSA choice

What kind of life-saving appliance would you personally prefer to use, if you had the choice?

Please rank (1= preferred option)

Davit-launched lifeboat	
Free fall lifeboat	
MES with (vertical) chute / life raft	
MES with (inclined) slide / life raft	
Davit launched life raft	

Please explain the benefits of your preferred option

Coordination

Are you involved in the management / coordination of emergency evacuation processes?

- ◯ yes
- ◯ no

Do you get support by a decision support system?

(more than one answer possible)

- ☐ yes, by checklists
- ☐ yes, by an electronic system
- ☐ no
- ☐ Other (Please specify)

Is the decision support system helpful?

not helpful			very helpful
1	2	3	4

Any additional comments?

Please describe the decision support system in short terms

Evacuation strategies

Where should you don your life jacket according to the procedures?

- ◯ In my cabin
- ◯ In designated muster areas
- ◯ On deck before proceeding to evacuation stations
- ◯ Other (Please specify)

... and what would be your preferred location?

- ◯ In my cabin
- ◯ In designated muster areas
- ◯ On deck before proceeding to evacuation stations
- ◯ Other (Please specify)

Life rafts and MES

What are your biggest concerns with regard to Marine Evacuation Systems (MES)?

(more than one answer possible)

- [ ] Reliability / availability / deployment / inflation
- [ ] Habitability (e.g. ventilation, toilet, provision, ...)
- [ ] Trained / qualified personnel
- [ ] Seaworthiness
- [ ] Embarkation
- [ ] Boarding of disabled or injured persons, children, oversized persons, ...
- [ ] Boarding duration

Any additional comments?

What are your concerns with regard to MES with chutes?

- [ ] Boarding duration
- [ ] Persons refusing to use the chute
- [ ] Injuries
- [ ] Persons get stuck
- [ ] Boarding of persons with special needs (children, oversized persons, physically impaired persons, stretchers, ...)
- [ ] Correct and complete deployment of chutes
- [ ] Connection between chute and life raft
- [ ] Usability in bad weather
- [ ] Usability under list/trim conditions
- [ ] Other (Please specify)

Any additional comments?

Lifeboats

What are your biggest concerns with regard to davit-launched lifeboats? (more than one answer possible)

- [ ] Reliability / availability
- [ ] Habitability (e.g. ventilation , toilet, provision, ...)
- [ ] Seaworthiness
- [ ] Trained / qualified personnel
- [ ] Davit problems
- [ ] Wire problems
- [ ] Hook problems
- [ ] Engine problems
- [ ] Boarding duration

Any additional comments?

Large lifeboats

Do you have experience with large lifeboats (more than 150 persons)

- ◯ yes
- ◯ no

What are in your opinion the benefits of large lifeboats?

(more than one answer possible)

- ☐ Less maintenance due to less lifeboats
- ☐ Less trained crew members required
- ☐ Seaworthiness
- ☐ Other (Please specify)

Any additional comments?

What are in your opinion the drawbacks of large lifeboats?

(more than one answer possible)

- ☐ Increased embarkation duration
- ☐ Handling of large equipment (davits, hooks, ...)
- ☐ Maneuverability
- ☐ Significant loss of LSA capacity if one lifeboat becomes unusable
- ☐ Too many persons hanging on two wires
- ☐ Habitability (e.g. ventilation, toilet, provision, ...)
- ☐ Other (Please specify)

Any additional comments?

Do you see additional challenges in case the large lifeboat has two separate decks?

- ○ yes
- ○ no
- ○ I don't know

Which?

(more than one answer possible)

- ☐ Embarkation
- ☐ Ventilation
- ☐ Communication / crowd control
- ☐ Other (Please specify)

Any additional comments?

Novel / Alternative Evacuation Systems

Have you heard about novel / alternative evacuation systems for more than 800 persons (e.g. Survitec Seahaven, Viking LifeCraft)?

- ○ yes, both
- ○ yes, Viking LifeCraft
- ○ yes, Survitec Seahaven
- ○ no
- ○ not sure

What are in your opinion the benefits of these systems?

(more than one answer possible)

- ☐ Will reduce evacuation time
- ☐ Will reduce training effort
- ☐ Will reduce maintenance effort
- ☐ Optical enhancement of passenger ships
- ☐ Will save space on embarkation deck
- ☐ No risk of dropping (no wires, no hooks)
- ☐ Easy deployment
- ☐ Other (Please specify)

What are in your opinion the drawbacks of these systems?

(more than one answer possible)

- ☐ Loss of many LSA seats in case one system becomes unavailable
- ☐ Seaworthiness
- ☐ Embarkation of passengers
- ☐ Boarding of persons with special needs (children, oversized persons, physically impaired persons, ...)
- ☐ Reliability / inflation failures
- ☐ Limited training opportunities
- ☐ Other (Please specify)

Passenger emergency

*How old are you?

- ◯ Younger than 50
- ◯ Between 50 and 65
- ◯ Between 66 and 80
- ◯ Older than 80

How would you rate your physical fitness?

- ◯ Very good
- ◯ Good
- ◯ Okay
- ◯ Limited

*Did you experience an emergency event on a passenger ship?

- ◯ yes
- ◯ no

How was the emergency communicated to you?

(more than one answer possible)

- ☐ By loudspeaker / Public Address System
- ☐ By crew members giving verbal instructions
- ☐ By visual signals (e.g. flashing lights)
- ☐ By text message / cabin communication system
- ☐ Other (Please specify)

Have you been called to the Muster stations?

- ◯ yes
- ◯ no
- ◯ I don't know

Where did you pick your life jacket?

- ○ No life jackets were needed
- ○ In my cabin
- ○ At the muster station
- ○ At the lifeboat / life raft embarkation deck
- ○ Other (Please specify)

At what time of day did the emergency happen?

- ○ In the daytime
- ○ At night

What were the weather conditions during the emergency?

- ○ Good (warm / calm sea)
- ○ Bad (cold / stormy / rough sea)
- ○ Medium
- ○ Other (Please specify)

Did you board a lifeboat / life raft?

- ○ yes, a lifeboat
- ○ yes, a life raft
- ○ no

How did you perceive the embarkation of lifeboat?

very difficult — very easy

○ 1 ○ 2 ○ 3 ○ 4

Any additional comments?

How did you feel during the launching process?

extremely scared — safe — N/A

1 2 3 4

Any additional comments?

How did you feel during time at sea with the lifeboat?

very scared — safe — N/A

1 2 3 4

Any additional comments?

How did you perceive the interaction with the crew?

not helpful — crew exuded calm

1 2 3 4

Any additional comments?

How did you perceive the embarkation into the life raft?

very difficult — very easy

1 2 3 4

Any additional comments?

How did you feel during your time in the life raft?

very scared — safe

1 2 3 4

Any additional comments?

Passenger information

Did you feel well informed about the safety measures on board?

no			yes
1	2	3	4

How did the safety briefing take place?

(more than one answer possible)

- [ ] By video in my cabin
- [ ] By video / app on my mobile phone
- [ ] Mandatory show-up in muster station with lifejacket
- [ ] Mandatory show-up in muster station without lifejacket
- [ ] Mandatory passenger meeting in a public space
- [ ] Mandatory show-up at the lifeboats with lifejacket
- [ ] Mandatory show-up at the lifeboats without lifejacket
- [ ] In written form (poster, flyer, ...)
- [ ] Other (Please specify)

What are your biggest concerns with regard to emergency evacuations? (more than one answer possible)

- [ ] Panic
- [ ] Evacuation of mobility impaired persons
- [ ] Communication / language barriers
- [ ] Orientation
- [ ] Other (Please specify)

Lessons learned

How would you improve the evacuation of large passenger vessels?

(more than one answer possible)

- [ ] Limit the number of people on board
- [ ] Increase the number of required lifeboat seats
- [ ] Improve the safety of current lifeboat designs
- [ ] Consider new evacuation concepts
- [ ] Other (Please specify)

Final question

Any other information or comment regarding evacuation of ships that you want to share with us?

Would you be willing to give us an interview? If yes, please provide your e-mail address.

Appendix B Questionnaire 2 – for passengers

European Maritime Safety Agency

Passenger ship evacuation and life-saving appliances

On behalf of the European Maritime Safety Agency (EMSA) DNV Maritime Advisory is working on a study focused on enhancing safety and evacuation effectiveness in passenger ships.

This survey aims to study current practices, procedures and lessons learned from evacuation events and drills.

Your input is highly appreciated and will be treated anonymously.

Privacy Statement on the processing of personal data in the context of the survey to evaluate current evacuation strategies on passenger ships

The protection of privacy is of high importance to the European Maritime Safety Agency (´EMSA´). EMSA is responsible for the personal data it processes. Therefore, we are committed to respecting and protecting the personal data of every individual and to ensuring efficient exercising of data subject's rights. All the data of personal nature, namely data that can identify an individual directly or indirectly, will be handled fairly and lawfully with the necessary due care.

This processing operation is subject to Regulation 2018/1725 of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data. The information in this Privacy Statement is given pursuant to Articles 15 and 16 of the Regulation 2018/1725.

1. Nature and the purpose(s) of the processing operation

The purpose(s) of the processing of personal data is/are:

DNV SE, EMSA's contractor, will organise a survey using Zoho Survey Platform, for which they hold a licence, to complete Specific Contract 1, which is part of implementing the Framework Contract 2024/EMSA/2024/OP/0014.

The contractor developed a comprehensive questionnaire reviewed by EMSA to evaluate current evacuation strategies on passenger ships. They have structured this questionnaire to analyse lessons learned from real-life scenarios where evacuation procedures were implemented, and life-saving appliances were utilised.

The survey aims to capture perceived hazards and challenges experienced by key stakeholders, including crew members on cruise ships, shipping companies, shipbuilders, designers, classification societies, maritime administrations, P&I clubs, and equipment manufacturers. The contractor is expected to use robust analytical techniques to process the collected data, with the objective of identifying potential areas for improvement in the design and operational aspects of passenger ships, particularly in evacuation longer be anonymous.

The survey is to be launched at the end of 2024 and be open to collect answers until middle of 2025.

EMSA will not reuse the personal data for another purpose that is different to the one stated above.

2. Categories/types of personal data processed

The categories/types of personal data processed are the following:

General personal data: Age range, Professional and personal e-mail and Physical fitness.

3. Processing the personal data

The processing of the personal data is carried out under the responsibility of the Head of Unit 2.1 Safety and Security, acting as delegated EMSA data controller.

Personal data are processed by EMSA's contractor called DNV SE using the Zoho Survey Platform.

4. Access to and disclosure of personal data

The personal data is disclosed to the following recipients:

Designated Contractors' staff members in change of the survey.

The information concerning the Survey to evaluate current evacuation strategies on passenger ships ... will only be shared with people necessary for the implementation of such measures on a need to know basis. The data are not used for any other purposes nor disclosed to any other recipient.

The information in question will not be communicated to third parties, except where necessary for the purpose(s) outlined above.

Personal data are not intended to be transferred to third countries.

5. Protecting and safeguarding personal information

EMSA implements appropriate technical and organisational measures in order to safeguard and protect data subjects' personal data from accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to them.

6. Access, rectification, erasure or restriction of processing of personal data

Data subjects have the right to access, rectify, erase, and receive their personal data, as well as to restrict and object to the processing of the data, in the cases foreseen by Articles 17 to 24 of the Regulation 2018/1725. If data subjects would like to exercise any of these rights, they should send a written request explicitly specifying their query to the delegated data controller, Head of Unit 2.1 Safety and Security.

The above requests will be answered without undue delay, and in any event within one month of receipt of the request. However, according to article 14 (3) of the Regulation 2018/1725, that period may be extended by two further months where necessary, taking into account the complexity and number of the requests. EMSA shall inform the data subject of any such extension within one month of receipt of the request, together with the reasons for the delay.

7. Legal basis for Data processing

Processing is based on Article(s) 5a of the Regulation 2018/1725.

8. Storing Personal data

EMSA does not keep personal data longer than necessary for the purpose(s) for which that personal data is collected.

The contractor DNV will delete any personal data as soon as the analysis of the survey will be completed, no later than end of 2025.

9. Data protection points of contact

Should data subjects have any queries/questions concerning the processing of your personal data, they should address them to the data controller, Head of Unit 2.1 Safety and Security under the following mailbox: DPO-Queries-Dept3@emsa.europa.eu.

Any data subject may also consult EMSA Data Protection Officer at: DPO@emsa.europa.eu.

Recourse:

Complaints, in cases where the conflict is not resolved by the Data Controller and/or the Data Protection Officer, can be addressed at any time to the European Data Protection Supervisor: edps@edps.europa.eu.

Please tick the box to start the survey

☐ I have seen the privacy statement

Frequency of travelling

*How often do / did you travel on passenger ships?

- ○ once
- ○ occasionally (e.g. once per five years)
- ○ regularly (e.g. once per year)
- ○ often (multiple times per year)
- ○ Other (Please specify)

Passenger emergency

*How old are you?

- ○ Younger than 50
- ○ Between 50 and 65
- ○ Between 66 and 80
- ○ Older than 80

How would you rate your physical fitness?

- ○ Very good
- ○ Good
- ○ Okay
- ○ Limited

*Did you experience an emergency event on a passenger ship?

- ○ yes
- ○ no

How was the emergency communicated to you?

(more than one answer possible)

- ☐ By loudspeaker / Public Address System
- ☐ By crew members giving verbal instructions
- ☐ By visual signals (e.g. flashing lights)
- ☐ By text message / cabin communication system
- ☐ Other (Please specify)

Have you been called to the Muster stations?

- ○ yes
- ○ no
- ○ I don't know

Where did you pick your life jacket?

- ○ No life jackets were needed
- ○ In my cabin
- ○ At the muster station
- ○ At the lifeboat / life raft embarkation deck
- ○ Other (Please specify)

At what time of day did the emergency happen?

- ○ In the daytime
- ○ At night

What were the weather conditions during the emergency?

- ○ Good (warm / calm sea)
- ○ Bad (cold / stormy / rough sea)
- ○ Medium
- ○ Other (Please specify)

Did you board a lifeboat / life raft?

- ○ yes, a lifeboat
- ○ yes, a life raft
- ○ no

How did you perceive the embarkation of lifeboat?

very difficult — very easy

○ 1 ○ 2 ○ 3 ○ 4

Any additional comments?

How did you feel during the launching process?

extremely scared 1 2 3 4 safe N/A

Any additional comments?

How did you feel during time at sea with the lifeboat?

very scared 1 2 3 4 safe N/A

Any additional comments?

How did you perceive the interaction with the crew?

not helpful 1 2 3 4 crew exuded calm

Any additional comments?

How did you perceive the embarkation into the life raft?

very difficult 1 2 3 very easy 4

Any additional comments?

How did you feel during your time in the life raft?

very scared 1 2 3 safe 4

Any additional comments?

Passenger information

Did you feel well informed about the safety measures on board?

no			yes
1	2	3	4

How did the safety briefing take place?

(more than one answer possible)

- [ ] By video in my cabin
- [ ] By video / app on my mobile phone
- [ ] Mandatory show-up in muster station with lifejacket
- [ ] Mandatory show-up in muster station without lifejacket
- [ ] Mandatory passenger meeting in a public space
- [ ] Mandatory show-up at the lifeboats with lifejacket
- [ ] Mandatory show-up at the lifeboats without lifejacket
- [ ] In written form (poster, flyer, ...)
- [ ] Other (Please specify)

What are your biggest concerns with regard to emergency evacuations?

(more than one answer possible)

- [ ] Panic
- [ ] Evacuation of mobility impaired persons
- [ ] Communication / language barriers
- [ ] Orientation
- [ ] Other (Please specify)

Final question

Any other information or comment regarding evacuation of ships that you want to share with us?

Would you be willing to give us an interview? If yes, please provide your e-mail address.

Appendix C Comments and free text from the questionnaire to maritime professionals

Please note, that the comments / free text have been taken from the questionnaires without checking spelling or grammar.

Question	Other	Comments / Free text
Q1.2	Other (53) 1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 6. Accident investigation authority 7. Coast Guard 8. Coastguard 9. Corporation 10. crew member 11. Cruise Line 12. EMSA study manager 13. European Transport Workers' Federation 14. Flag State 15. galley 16. Galley 17. Galley 18. GALLEY 19. galley 20. Galley deparmtemen cook position 21. galley department 22. Holland America Line 23. Hotel galley department 24. Hotel galley department 25. Hotel galley department 26. Hull and Machinery 27. Marine inspector 28. Maritime Education and Training 29. Maritime investigator	

Question	Other	Comments / Free text
	30. Maritime OHS Consultant 31. Maritime union 32. Maritime University Professor 33. Maritime University Professor, Safety officer on Passenger ship 34. medical 35. National Safety Board 36. P&I Insurance 37. Rescue swimmer 38. Safety Investigation Authority 39. Safety Investigation Authority 40. Seafarers Union 41. SEARCH AND RESCUE 42. Search and Rescue/Fire Fighting 43. Search and Rescue/Fire Fighting 44. Ship agency 45. Shipowners' Association 46. Trafic & Safety 47. Training 48. union 49. Union 50. Union 51. University 52. University 53. VIRGIN VOYAGES	
Q1.3	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A 7. Accident investigator 8. AD&A consultant 9. Chief Engineer 10. Chief Safety Investigator 11. Compliance	

Question	Other	Comments / Free text
	12. Conultant 13. Developer of safety equipment 14. Engineer officer 15. Executive 16. FSC officer 17. Galley 18. galley 19. Harbour Master 20. hotel 21. Human Resources 22. Instructor 23. instructor safety training 24. investigation 25. Loss Prevention 26. Maritime adviser 27. Maritime Surveyor 28. Market Manager 29. OPERATIONAL MANAGER/MASTER/MDO 30. OPERATIONAL MANAGER/MASTER/MDO 31. OPERATIONAL MANAGER/MASTER/MDO 32. Policy advisor 33. Port Security 34. Port State Control inspector 35. Previous employment in cruise ship business 36. Project Manager 37. Regulatory Affairs 38. Rescue Swimmer 39. Safety equipment sales 40. Safety equipment services 41. Safety equipment services 42. SAR 43. Senior Advisor	

Question	Other	Comments / Free text
	44. Specialist in maritime safety 45. Surveyor and auditor 46. Technical Director 47. Technology- Reliability Engineer 48. Trade union official 49. Unionist which support the seafarers about their rights 50. Working with seafarers on ferries	
Q1.5	1. Medical response team 2. Pax Muster Leader 3. Technical Control 4. medical	
Q2.1	1. Not specified 2. Depends on crew and passengers awarness and trainng. 3. Not specified 4. You specify which system (SMS or equipment?) 5. When the people do their dutys, I trust 6. I fully trust the system until the pax need to step into the lifeboats. 7. It Will fail to do the job because of the big pax blocking the exits. 8. organisation is OK, but for full evacution in 30 min.limit is not enough crew members, especially male sex members mail 9. We operate small passangers ships 10. I hope that nothing happens 11. Theory and practice are worlds apart 12. Depending on the brand. Fully trust given to AIDA Cruises 13. Room for improvement	

Question	Other	Comments / Free text
	14. The passenger ship evacuation procedures and requirements have evolved over the years. Though time tested and experience gained, it still requires continuous updates.	
Q2.2		1. Lack of use of new technology to increase efficency in eveacuation, - Evacuation routes might differ very much depending on what type of situation that exists on board (location of smoke etc.),- New risks not taken in acount in old regulation, such as lithium batteries etc." 2. Additional comment to the point related to "passenger mobility", as this for me means my concern related to our (ship's crew) inability to in time and properly evacuate all HCP guests - especially those in heavy electronic wheelchairs or with heavy disabilities. 3. "Additional factors. Fatique Seafarers living and working condition (shearing cabins, lack or bad leadership, long working periods with high pressure, low manning and so on)" 4. All the above factor in isolation can be mitigated through the appropriate control measures whether, design, equipment, human resource and training. The desire would be to drive the collective scores to the lower end. If evacuation is conducted in a timely manner it can be successful, though not in all cases, e.g using the rough timeline of Costa Concordia if the Command team had realise the catastrophic nature of the incident immediately a more organised approach would have been taken for the preparation for abandonment. It was fortuitous they ended up on a rock ledge as if the vessel had rolled over in deeper water the, casualty numbers would have been significantly higher. 5. Avoid pax that can't move propperly, these Will endanger the evacuation. 6. Biggest issue might be getting all guests to actually fit in the boats. The solas requirement for a space in the boat is too small. 7. Calculations and Tests for the amount of LSA and Evacuation Times is bases on people who are fitter, younger and slimmer than the mayority of Cruise Passenger 8. concerning the duration, I clarify that my score concern vessels with life rafts 9. Concerns in time of evacuation and system availability in severe weather conditions 10. "Concerns on crew familiarization. 11. Concerns on LSA availability, as part of the evacuation process, in extreme (but possible) scenarios not matching the current regulatory framework" 12. Congestion routes should be accessed well in advance by the master, concerning the situation and informed to the crew to guide passengers effectively. 13. could observe performance on AIDA ships more than 50 times 14. "Crew and passenger behaviour are linked together. Any failure in the crew behaviour will lead to passenger confusion and vice versa. Physical environment is diffucult to train in advance, and it might trigger behaviour in crew and passengers that are difficult to prepare for."

Question	Other	Comments / Free text
		15. "Crew training, not just familiarisation is essential. Also ability to train for failures, without taking primary equipment offline or risking damage of the primary LSA" 16. Crowd is difficolta to manage and crew must be really focused on emergency role which is not always something sure 17. Depends on ship design and safety culture of management and crew. 18. Despite all the sensitization attempts, the crew is not feeling that sense of Safety "giving" that is necessary. The Hotel head department needs to be more committed during the Pax Drill, instead they are looking always for revenue and giving services to the passengers even during the drill, showing low commitment on other staffs. The average scores of Pax Drill doesn't go over then 75% because the pax are always distracted by other activites. 19. Despite good emergency system structure is in place together with vcontinuous training and drills is very difficult to predict which will be the real reaction of the crew members and moreover of passengers to an emergency depending also from which type of emergency. nowadays ships are becoming bigger and bigger but most of the time the crew member number are not well proportional to the passengers carried. 20. Every thing good. 21. Failure of LSA equipment such as Marine Evacuation Systems can affect the LSA availability dramatically. Also, the evacuation of the vessel as per SOLAS by having to fill up massive lifeboats with untrained passengers in a panic increases the risk. 22. High Concerns around the mobility of passengers and being able to get them to a survival craft in good time. Also, on board system for evacuation is clunky and needs streamlining 23. Human behaviors during emergency situation is the key even the person/Crew is Well trained 24. Human behaviour such as panic 25. I answered the question, as asked for large cruise ships. 26. I believe that oversize lifeboat and the evacuation analysis are not realistic based on the real behavior of the passenger. In addition lowering of LB with relevant release could be dramatic in case of bad weather. 27. I don't trust internal mustering of pax & Crew 28. I used to work on small passenger ships as safety officer and wrote my diploma on evacuation of passenger ships. To ensure a safe evacuation a good crew/pax ratio and a lot of training is necessary in my opinion. 29. I would like to see an improved safety culture on board. Sometimes crew's knowledge is below satisfactory, regardless of frequent trainings provided. 30. In general I have no issues with the technical solutions fitted on board and feel that other non-prescriptive solutions could work as well. Biggest questionmark is of-course the human element related to the evacuation. Does the crew know their tasks and know how to operate the equipment? Does the master give the order in time for evacuation? etc

Question	Other	Comments / Free text
		31. "It's mostly communication and crew qualifiation problem in Emergency cases.That is also often panic or absend-minded risk from passengers side.I have 25 years maritime experience, around 15 years as a Master, 3 years as Nautical Inspector and 1,5 years as Agent & Shipper.I've started 6 months ago as traffic coordinator in small port with dense traffic in vacation period.There is no language problem on-board of passenger ships here due to most of passengers are citizens of our country.It could be training of crew a bit to low." 32. keep it up 33. Keep up good work 34. Keep up the good work 35. Life saving appliances are still not proper for any kind of weather and evacuation conditions. The number of seats/places in lifeboats are not proper with real people needed to accommodate. We are still some how in the same situation when ms Titanic sunk in 1812. Real investments needed to eguip large passanger boats with safe lifesaving equipment and with proper number of crew in comparision with passanger amount on board etc. 36. Lifeboat capacity is not big enough compared to the average American size 37. Lifeboats always have a certain capacity, for example 150 persons, during our training exercises with crew you notice that 150 crew members (most skinny small) inside make it already packed and squeezed. I am not sure if 150 passengers, who most of them are 'big plus size', will fit properly inside the lifeboat 38. Limited training opportunities, due to various reasons, make it challenging to adequately prepare for a real-world scenario 39. "Maritime legislation is hopelessly outdated compared to shore side legislation. For example, it does recommend not to use sliding doors in escape routes, but does not prohibit it. This lack in clear and detailed legislation is being abused by cruise lines.The space allocated in lifeboats is barely large enough for a tiny Asian crew member, but would be completely insufficient for the average (overweight) passenger.Cruise lines do not put a limit on passengers with limited mobility, neither is there sufficient evacuation capability for such people. A 60-80 year old passenger is no longer capable of climbing into a lifeboat, yet there do not exist devices to allow them to walk into one (except the ships tenders)The psychology of emergency behaviour is little understood. Better training requirements are necessary." 40. Most of the crew does not have the dedication of really safe passengers during a real scenario. Additionally, they are not focussed during drills and don't understand their real responsibility. They get wasted during parties etc and thus put passengers at risk. 41. My highest concern are the practices for passenger drills that have been implemented during the pandemic. I know of one cruise company no longer holding GEA drills for everyone but only a video instruction and scanning passenger with life jacket at the muster station during the whole day. Passengers therefore do not always use their designated evac route which might lead through an otherwise closed crew staircaise.

Question	Other	Comments / Free text
		Additionally, the crew no longer has the practice and experience with handling large numbers of people at the muster station. 42. My PhD was EVACUATION EFFICIENCY ASSESSMENT MODEL ON CRUISE SHIPS and i I did similar research. It will be interesting to compare our results. 43. N/A 44. N/A 45. "Never vessels have cross flooding arrangements, to remain upright. The vessels have more LSA than necessary to serve each person onboard. Have worked 4 years in charge of crisis management service provider to the maritime industry, including several real cases globally with pax/cruise, but these concerns were not an issue in any of the cases worked on." 46. New digital technologies should be pushed to ensure, with evidences, the status of readiness of evaquation equipment 47. nil 48. No 49. no comments 50. Non 51. none 52. None 53. None 54. nothing 55. nothing to add 56. On the passenger ships I worked on the evacuation capacity was partly covered by rafts. Evacuation into rafts in heavy seas would for some passengers be very difficult/ not possible. There were also doubts among the crew how well the MES rafts system would function in heavy seas/ strong wind. 57. Passenger mobility is a topic, but this can be different from cruise to cruise and there are significant differences between cruise companies depending a lot of the average age of the passengers. 58. "Personally I think that the panic factor can heavily affect the process. Reliability of MES in bad weather conditions can be drastically reduced My answers above were mainly given considering a large passenger vessel with over that 1000 people on board." 59. Physical environment it's depend by kind of emergency. 60. Procedures in place are ensuring everyone familiarization (guests and crew) and drill participation, but high number of persons on board and partial turnover operations in all ports are challenging desired participation percentage and realistic overview on drill performances. Therefore, that general emergency drill involving all persons on board should be performed while at sea, in convenient time and with all services closed. Unfortunately it will negatively impact on board revenues and guest comfort.

Question	Other	Comments / Free text
		61. Remove Lifeboats. All ships must be only equipped with MES+Lifersfts for faster abandoning. Besides, lifeboats are deadly dangerous during drills. 62. safety 63. safety 64. "Ships are getting bigger. Rules(Solas) are obsolete. Persons in charge of lifeboats are trained but LB are too big. The IMO has to take a big step in getting reviewed all LSA rules, facing reality!!!!" 65. SOLAS requirements are fulfilling legislative issues but in case of real emergency we are doomed. No development on this front since Estonia incident and rescue equipment standards are out dated. 66. The amount of people cruise ships carry these days are immense to perform evacuation in 30 minutes as required 67. the bigger vessel is considered the highr possibilty of missing passangers at the muster stations, easier to lose overview. 68. The crew behavior is professional, however the critical lacking are the training of the operators of the lifeboats and MES systems. Today the training is too shallow for this to be thrustable in an emergency situation with high stress level. There should be built and developed training facility where the operator crew can do hands on training launching lifeboats and MES. 69. The evacuation of a large passenger ship is a complex operation, fraught with risk. It would only ever be considered as a last resort given the risks involved. 70. Training the crew is sufficient 71. Very large vessels with over 8000 pax and crew are a concern 72. Weather conditions
Q2.3	1. RoPax - few problems / Cruise - large 2. The Vessels are simply not designed for people with limited mobility... Both passengers and crew. 3. How to embark pax on a lifeboat who can't walk 4. It reduces the lifesaving capacity of survival crafts 5. Special routes, equipment and a crew contingent. Plans to be adapted for each voyage/pax change. Appointed crew members to make themselves known at the begin of the voyage and do a training tour to simulate an evacuation.	

Question	Other	Comments / Free text
	6. It is still close to criminal situation, when lot of passangers are totaly trunk and crew has to be able to evacuate them in short time 7. We do not have sufficient manpower available. And the manpower available is not necessarily suitable for the tasks expected to be carried out. 8. The emergency plan for cruise includes special needs team, that is deployed to assist guests with mobility issues. 9. This is if there is enough crew to handel evacuation and at same time serch and rescue the vessel. 10. Survival Crafts & Gangways are not designed ideally for handicapped persons 11. it can be hard when pax cannot use elevators and Special Needs team have to move for long distances 12. Depending on how limited mobility is defined. For wheel chairs proper planning to be in place. For people having bad fysical condition or have (extreme) overweight might create challenging sitations. Especially those who not can use MES. 13. depending on amount of passengers with mobility issues	
Q3.2	1. Drillship 2. Military 3. MPSV(offshore) 4. Navy vessel	
Q3.4		1. None 2. Coasta Europa in Sharme el Sheik - Passengers evacuated to the quay alongside. Vessel listed to Port as Hull was compromised.

Question	Other	Comments / Free text
		3. Man-overboard launching fast rescue boat 4. Experienced Fire in the engineroom but later on it was under control and extinguished 5. Roro engineroom fire 6. Evacuation of public areas with lose items due to heavy rolling. 7. Fire in engine room. general alarm was sounded 8. Regular annual test of MES before service and for crew familiarization 9. Evacuation to the pier while the ship was alongside 10. Fire was occured when boiler door was opened. Reverse air flow caused fire with the small embers 11. Fire in ME room. 12. Shore-based tenders were used for the evacuation. 13. Full Mustering during MOB
Q3.5		1. N/A 2. Also a liferaft, but only at first basic safety training
Q3.6	1. Not specified	2. Not in emergency, but in practical during the ship drills and practical courses
Q3.7		1. Better to know how, than to be afraid in emergency
Q3.9		1. actual scenario 2. All team know their responsibility 3. "At the beginning of the incident: NO. When starting to use checklists, confidence grew. Also started to realise that it (the actions) was actually the same as a drill, this made me feel confident because we drill very regularly. 4. In this particular situation there was nothing that could have been done better." 5. Back then I had a different role and I was Stairway Guide. We mustered all Passengers and Crew on board to make a count due to a MOB report. The drills and trainings made me feel well prepared and also that the Passengers were calm and new where to go and how to act. This was before we started with "Digital Safety Instruction" and Passengers were participating in a drill where they had to muster all together before the start of the Cruise. Now we are mainly only making "Digital Safety Instruction" for all cruises and therefore the Crew are as well loosing experience with crowd management and the Passengers are not used to muster in a big crowd as if they would if we make a "normal" PAX drill every time for each cruise. 6. better equipment for fire team 7. Frequent drills on boatd 8. Initial reaction was not the best and information to the guests could have been done in better way, but most of the crew reacted well and actions taken were adopted well for the situation faced. 9. It was mentioned in previous comment.

Question	Other	Comments / Free text
		10. I've spent enough time at sea to understand and appreciate the importance of crew training. I was also in charge of the ship's safety systems and I was confident that everything was in good order. 11. "Knowledge of equipment available on board. More realistic trainings, involving more crew." 12. long cruise ship experience in emergency teams. 13. "Muster fell apart as muster station was alongside funnel vents where smoke from engineroom fire was exiting. Single point failure of emergency systems as fire burnt through control cabling so no discharge of High Ex foam available for 6 hours." 14. My own experience. A good learning curve to see another company's emergency response. Lessons to be learnt. Lack of announcements lack of sounding of alarms. 15. my own knowledge 16. My personal training, the state of mind in that moment and behavior control. 17. My profession. More crew training is needed 18. On a personal level, yes, but an individual's influence is limited. 19. "once at muster crew training could be better, they had confusion.I knew the ship before we went onboard as a family" 20. Personally yes as professional seafarer it was my job to ensure emergency process were followed. This was some time ago, and I would say while there are many diligent seafarers in the industry the experience and competency has begun to suffer. 21. "Preparered by training and drills over the years.The hifog system failed at that time and had to release manually." 22. protocol was followed, vessel owners insisted on regular drills 23. "Regular crew drills. Based on the drills and clear procdures the amount of ""thinking"" is less. ""Train as you fight because you fight as you train""" 24. regular trainings being performed, close vicinity to the shore, presence of ship's doctor on board, qualified crew 25. Safety first 26. Safety first 27. "Self-confidence in my abilities and understanding of the situation. A more thorough understanding of the entire onboard leadership of the situation." 28. The Company is providing properly trainings for the officers, therefore I would feel well prepared for any case of emergency 29. The instruction is very clear and specific 30. the system is organize 31. training and knowledge 32. Training and small crew. Only 70 pers. onboard and everyone was well trained for the task.

Question	Other	Comments / Free text
		33. Training helped but more experience needed for crew involved since the passenger drill has changed. No longer do a drill for pax where they all muster at the same time. Drill is now conducted over a longer period and pax can attend any time so crew don't get to utilise crowd management skills or deal with large numbers of people at one time. 34. Training, experience. 35. Training, self control and leadership. 36. Training, self-control and leadership in critical moments... 37. Trainings, Exercises 38. We practice emergency duty 39. Weekly drill training and familiarization 40. Weekly training, "old" Pax Drill Style with guests, 41. Yes we are prepared becoz we trained in the ship
Q3.10	1. Not specified 2. Time, middle of the night 3. Evacuating/saving "real" human being istotally different from using dummies/labels/etc during drills. 4. Things never run as per plan 5. As above, muster station failure 6. Real emergencies drive events drill don't, this can create time anomalies.. 7. Accounting of the guest and crew. 8. intoxicated crew, since the incident happened during the nighttime; but honestly most crew reacted in a proper way (kinda muscle memory effect took over, since the drills been very good trainings) 9. failure or fire tubes 10. Night condition, bad weather	1. None 2. Communication problem, crew were just awake and not fully aware what is going on 3. It was like a training exercise however with some more stress and adrenaline 4. Unexpected cause of the Fire 5. Poor design of safety systems, nearly new ship. 6. Crew knew what to do but didn´t act according trained procedures for each alarm. Assebly was never ordered from master but crew did it independently without any order. 7. The routines practiced in drills often differ significantly from actual emergency situations 8. Crew was mustered fast and acting as per their emergency duties. Clearly crew was doing what they practice during the drills. 9. I have seen both extreme where crew rise to the situation and work well and others where perhaps due to personality or poor leadership things begin to go wrong. 10. As the crew and guest were evacuated to the pier, it took time to make the roll call. 11. Weather.
Q3.12		1. At that time in that role the information was received via PA and was sufficient. 2. Both passengers and crew members often fail to listen to or follow announcements. Moreover, some of these announcements are excessively used or complex 3. Comms infastructure onboard, radio black spots. 4. Comms were ok although sets had no internal radios. 5. Communication

Question	Other	Comments / Free text
		6. Communiction equipment for the fire fighter teams should work all times. Poor quality or too less equipment makes communication difficult and als the dead spot of radio reception is a problem. 7. Crew alert was given without previous sufficient info to the guests. 8. crowded 9. "Dead crewmember on-board. Encloused space casualities.3 x Fire on-board both in port, with pilot on-board and at sea" 10. Dead sectors . places that communication with VHF/UHF is unavailable 11. Emergency fire 12. ensuring that the crew and the passengers were not panicking 13. everyone was challenged 14. failure of PA system 15. Foreign crews reverting to their mother tongue. 16. Height may affect the capability to communicate 17. Higher ranks could not make fast decisions 18. I was part of upper shipboard management, so obviously well informed. However, time, noise, stress, uncertainties created challenges. 19. I've put 2 as each Captain is different and no matter how many times they are told or trained in the importance of communication, they can go off script, ramble, or due to language/accent issues be unclear. 20. Keep the passenger informed / Passenger were already on early state of the emergency proceeding to Muster Station and somehow part of them ignore the instruction of the captain 21. Keeping all passengers calm and well informed about the situation 22. Keeping passengers and crew honestly informed without scaring them. 23. Lack of attention 24. Language barrier 25. Lots of noise, hard to focus 26. many people talking in muster station meant crew inaudible at times 27. Muster list for the guest in real time scenario 28. nil 29. noisy ship and lots disruption around. difficult to have radiodiscipline and communicate clearly due to stress. 30. nothing 31. Passengers want to be informed constantly. 32. Pax in panic 33. quality of the messages coming through radios (load of messages, noise, technical challenges) 34. Radio’s and black spots 35. Scale and size of command structure

Question	Other	Comments / Free text
		36. Sea conditions (1.5 m swell) 37. Seemed to be a breakdown in Command and Control. It was successful, however the ship was alongside and the evacuation was by gangway. 38. The amount of different sources of communication being used; radios, phones, PA system. 39. "The captain gave an enormous amount of very structured information and gave it very regularly with each tiny little update.I still think back to this emergency as a school book example of how to do it correctly." 40. The Language barrier of the people 41. The signal was very clear about locations 42. to assure that everybody was aware of the situation 43. To wait so long. It need hours to fix the situation 44. Too much communication over the radio 45. When the black out on the ship
Q4.4		1. Very vital. Without training you will not be able to respond correctly 2. Twice a month 3. non 4. What we have at Virgin Voyages already covering what would be expected during emergency evactuation process 5. Stick as much as possible to the real scenario. Ensure minimal “drill only” practices that distract from realistic operation in case of emergency 6. communacation 7. communication 8. Plan and execute real scenarios with different unexpected factors such as breakage in the link of command (unavailability of key crew mewmbers so others can fill up the duties), difficulties in communication, night time, during voyage and not at port, etc 9. drill should be done at least once a month specially to a crew that is working more than 5 years in a cruise ship and crew will suffer because of the drill because sometimes no one will shoulder the job or production of the crew when he or she is on drill thats why after drill most of crew are like wasting time because of the drill just my opinion thanks 10. The information flow is not optimal and modern technologies could drastically improve it for better decision support 11. Drills as much as close to reality gives crew the best muscle memory to act in case of a real emergency 12. nothing 13. Team work 14. Have them at likely times of an incident i.e not always 10am every weeks. Its used as a tick box exercise. All muster stations to be on the same deck as lifeboat/ MES / raft embarkation.

Question	Other	Comments / Free text
		15. Vital for crew familiarisation 16. Keep Training by Drill.. 17. So many answers. 18. active crew involvement is essential for learning. 19. Small group trainings more effective than whole ship drills, to conduct complete drills less often, which is mostly perceived as interruption of 'real' work 20. Have more people in emergency duties and more trainers (officers are not enough!!!) 21. As realistic as possible 22. We lower all boats regularly, we don’t do this with the rafts anymore. That should be reinstated. With a small training raft. A 12 person raft with 6 crew, on a crane designed for 25 or 35 people rafts is quite safe and a good way to train. 23. Improved crew training / qualification / familiarization with the specific ship equipment and procedures 24. more exercises on Board 25. Creating a sense of urgency 26. nil 27. All crew, regardless of function on board to perform every 5 years (the least) the fire fighting and life saving training in a shore side training facility. 28. Keep them short and to the point 29. Better signs to make it even more clear for people as they don't listen to announcements, at all, don't understand that you muster under a lifeboat. 30. Drills scenario should represent actual case 31. Passenger drills have been reduced to next to nothing since the COVID-19 pandemic. The industry has completely forgotten the lessons learned from the Costa Concordia disaster, focusing on passenger comfort and profitability instead. 32. Due to already high work load onboard the drills are often seen as burden and people take them less serious specially in hotel departments 33. CROWD MANAGEMENT 34. Hands on testing and demonstration of the LSA equipment is critical to confidence & familiarisation. Drills should be led by those in-charge of that area / discipline. 35. realistic scenarios, complement drills with trainings, actually muster all passengers at the same time as it would be in case of an emergency 36. Make it more unexpected and put the emergency teams to a lot of surprises. Now all the drills scenarios are always planned, discussed, everybody knows exactly how to attack the fire, where to muster, what the scenario is. Make it more realistic and unexpected. 37. too much ticking of the boxes ., too often, and too many ordinary crew not interested, not used, no clue

Question	Other	Comments / Free text
		38. More reslistic, full scale - everyone participating, full crowd of passengers (or actors) participating, with panic and other real conditions, actual evacuation and disembarkation 39. More realistic scenarios. Involving of (volunteer) pax. Involve Crew in inventing the scenarios. Give small incentives to those crew/pax invilved in case the time limits are kept. 40. More time availability 41. to have additional consideration for the crew that were planned to rest as they will not be as enthusiastic to interrupt their resting time. 42. Drills need to be practiced seriously like an actual event and unannounced and different times of the day and not specific date of the week and specific time that crew is prepared and aware 43. Ecourage the usage of the actual excape routes on board, not only the everyday passenger routes. 44. In the past, passenger were actively involved in drills during the regular embarkation days. This has changed in the last years, so that the crew on board is not anymore faced with real crowd managment. (See also STCW Course) 45. Since we suspended doing full pax drills, our evacuation drills are actually no real evacuation drills anymore, as cabins are not searched. This also means that crew members over time, are not properly trained anymore as they very seldomly experience to "really" evacuate and search an area. 46. Make them closer to a real world scenario. But getting closer to an evacuation during heavy weather/list is hard to replicate. 47. form time to time use of people to crowd certain compartment to simulate real life situation 48. To make drills with Passengers and Crew (Evacuation Teams and Mustering Teams) before start of each cruise. 49. Before embarking, people must receive instructions regarding safety and emergency management, obviously on board, everything will be renforced and specified. 50. To involve more deeply the ship personnel that are not nautical crew as entertainment, shops, waiters etc. 51. More live action. 52. Identifying areas of improvement and focus additional training to improve. 53. Frequency is important - so maybe virtual solutions 54. Drills should be carried out as close as possible to the real scenario and should be followed by the discussion on what went wrong and how to improve next time. 55. They have to be weekly and there has to be a high focus on each seafarer's duty so a real senario is done on reflex. Drills have to be evaluated in a forum, so everybody have a saying for wider understanding of issues. Big townhall meetings isn't always best practice, 56. Drills becomes boring for the crew, as they do not understand the importance of it. It's a mentality issue, people believe that training / drill are not useful or time waste. How to improve that - I believe that is a question of many people.

Question	Other	Comments / Free text
		57. Remove lifeboats. Use electronic mustering and presence reporting 58. Crew members should know precisely what they must do. There are people with a high seniority in the company who still cannot understand the steps of an emergency. The explanations should be very pedagogical and simple language. 59. To establish that ALL service MUST BE absolutely closed. And ALL CREW must be more sensitize on the aspect of the Safety. 60. Increase the total number of crew members dedicating more resources to the evacuation. 61. As per my experience evacuation drills generally work well. The scenario is however always the same and it never considers possible negative factors such blocked routes, or an alternative muster station never get practiced. 62. On passenger ships they are currently doing a muster 2.0 which was developed during covid. The is smooth and efficient for the guests and crew, but it should be adjusted and to be made more "realistic". 63. Training of different situation. We use already crew to let them act like pax that the Musterteams get an idea how it feels when the station is full of guests. 64. more close to real scenarios has to be performed. 65. Remove virtual muster and similar non-fullscale passenger drills, which lead to an underestimate of movement time due to a lack of congestion. 66. 1. More Realistic Simulations:Simulate Actual Emergency Conditions: Incorporate more realistic elements into drills, such as simulated smoke, dimmed lights, and loud noise to mimic real emergency conditions. This helps passengers and crew better react under pressure.Live Role Play: Involve passengers in role-playing scenarios where they act out various emergency situations, such as abandoning ship, using life jackets, or following the crew's instructions. 2. Interactive Training for Passengers:Interactive Technology: Use mobile apps or onboard screens to provide passengers with step-by-step instructions on safety procedures, emergency exits, and assembly areas. This would ensure everyone has easy access to information in a visual format.Pre-Arrival Briefing: Provide pre-arrival online tutorials or videos that explain evacuation procedures, especially for frequent cruisers who may already know the basic drills. 3. Crew Involvement and Training:Cross-Department Collaboration: Crew members from different departments (e.g., entertainment, dining, housekeeping) should participate in drills and be trained in emergency procedures, ensuring that they can assist passengers from all areas of the ship.Advanced Crew Training: Ensure crew members undergo advanced training in evacuation techniques, such as handling large groups of panicked passengers, assisting those with disabilities, and using lifeboats or liferafts. 4. Personalized Assistance: Targeted Drills for Vulnerable Passengers: Consider offering specific drills for people with disabilities, children, or elderly passengers to make sure they understand the steps involved and have tailored assistance. Passenger Accountability: Assign certain passengers as "buddy systems" to check on others, ensuring no one isleft behind during the drill or in the event of an actual emergency.

Question	Other	Comments / Free text
		5. Frequent Drills and Rehearsals: Frequent Safety Checks: Organize brief, impromptu drills or safety reminders throughout the cruise. This helps passengers stay alert and accustomed to emergency procedures. "Pop-Up" Drills: Randomized drills can ensure that passengers are always aware and not caught off guard by scheduled or routine safety drills. 6. Feedback and Continuous Improvement: After-Drill Feedback: Gather feedback from passengers and crew after each drill to understand what went well and what could be improved. This ensures that each drill becomes a learning experience. Evaluation and Review: Regularly assess and update the drills based on new safety technologies, lessons learned from past incidents, and changes in passenger needs. 7. Clear Communication: Multi-Language Announcements: Given the international nature of cruise passengers, drills and instructions should be provided in multiple languages, ensuring clarity for everyone onboard. Clear Signage: Ensure there are clear and easily visible signs to direct passengers to emergency exits and assembly stations, avoiding confusion during an actual evacuation. By combining more realistic and engaging drills, enhancing crew and passenger participation, and continuously improving based on feedback, the effectiveness of evacuation drills on cruise ships can be greatly increased. 67. go back to real drills. many have gone to a video in the cabin to replace the real drill. Partly due to covid measures continuing into a post covid world. 68. Sending officer around the ship asking questions in regards emergency duties. Using crew to act as a passengers on muster stations. 69. Return to full pax drills 70. For passenger the approach of individual mustering at assembly station for every passenger equipped with their personal life jacket like on AIDA ships in combination with mandatory watching the safaty video in cabins or even on mobile phone on board is an effective way to enhance trust of successful escape procedures in case of emergency 71. Each vessel be required to do a full evacuation annually, this could be stretched to two years if a vessel class if layouts are the same. Not much point testing the LSA every couple of months if no-.one ever actually gets in it or tests the process. 72. Passenger muster drills on embarkation day must be compulsory. Mustering of all passengers upon hearing General Emergency Signal. Unsynchronized passenger drills do not allow the crew to practice effectively. 73. provide realistic scenarios 74. In my opinion real pax drills were better than digital mustering. 75. Realistic scenarios 76. Utilise complex scenarios to test different responses and avoid drills becoming a 'tick box exercise' 77. - Collect data from safety systems to support evaluation of training exercise - Use Smart cameras and adaptable emergency signs

Question	Other	Comments / Free text
		78. People participating in the drill were not familiar and did not take the drill seriously. To improve the drills, there is a need to work on the willingness and involvement of passengers. 79. It really depends on the management level of the vessel and what effort they put into the drills 80. Variety of drills, combining evacuation drills with different emergencies that might happen on board (fire, grounding, explosion, medical emergency, etc.) 81. Regularly participate in deployment tests for evacuation systems. This has the purpose of training crew and we often see that more training could be useful, but vary a lot from ship to ship. 82. SOLAS accepts info instead of drills on voyages under 24 hours. 83. Engagement of the personnel participating in the drill, so that they take away the complete learnings from the exercise , along with the critical activities.
Q4.6	1. N/A 2. N/A 3. As officer, I take part in training the crew 4. At special occasions 5. e.g. during audits on board 6. I am involved at officer level moste evaluations stay at this level 7. I attending as a class surveyor 8. I insist upon it. It's a company requirement. 9. I was on position of chief mate and responsible for that purpose 10. NA 11. Type Approval process 12. Used to be often. Not applicable in my present line of work 13. We have a group chat designated solely for the drill as per your location. Not only after every drill, everyday if there is new process implémentation or something is always broadcast on the workchat. 14. Working shoreside	
Q5.2		Preferred option “Davit launched LB”

Question	Other	Comments / Free text
		1. I personally prefer lifeboats instead than rafts or MES 2. I would I prefer to stay on the ship as long as possible. 3. Depends on the weather conditions. 4. Good training 5. Lifeboat provides the greatest occupant protection provided it is properly deployed. 6. I feel that boats are safer and more comfortable than rafts, plus you can still sail somewhere. 7. Lifeboats in general provide manoeuvrability and more stability while at sea compared to life rafts. The MES is significantly more effective compared to the Davit life raft as the evacuation is faster in many ways. Rigging the davit life rafts requires more time and it's efficiency comes down to the experience of the crew launching the rafts. 8. Ready any time 9. Saftey for myself and others 10. "It depends very much from evacuation conditions etc.There is need for new type of life-saving appliances like closed self floating conteiners etc." 11. Simple operation, gravity launches the boat. 12. It is a well-tested evacuation system, in an enclosed and relatively protected environment. 13. Taking care of mobility impaired persons 14. It's a lifeboat, it's the most seaworthy lifesaving appliance. 15. I think life raft is good for passenger 16. MES system effectiveness could be highly affected by adverse weather condition. Abandoning a ship in adverse weather condition (i.e. 40 kts of wind and 3 mts swell), proper deploying of MES with 200 people could be difficult. 17. David launched lifeboat is the most safe one! And is the only one who I know from passengers and crew memebers is not to scarry to "jump" on! 18. I feel safer in an enclosed lifeboat and fastened to a seat, without the need of freefalling. 19. Less risk of personal damages when properly maintained, and in good wheather conditions. 20. Lb are easier to embark and more ready to go then a liferaft that has been prepared by a cook hoping he could remember the training he received 21. Most comfortable, Motor power to help others easier, 22. Easy access and easy to handle for the crew and also good protection and survivalbility compare to MES 23. In case of abandon ship scenario, lifeboat will be more safe and comfortable for the persons. 24. Lifeboats are still considered a safe option taking into account the large number installed and the few failures, mostly on launching devices, and damages. Size of lifeboats today may be a concern due to limited space and time necessary to embark, even they are type approved (assumptions, not taking into account bad weather, trim, list and stress situation as well as overweight passengers)

Question	Other	Comments / Free text
		25. Easiest and quickest 26. Better handling in bad weather and more people to embark for each survival craft ops 27. There is no comfort life saving appliance. On cruise ships the capacity is extremely overcrowded and my cause serious problem by passanger behavior depending on duration of time until everyone get rescued 28. robust equipment preferred. free fall looks risky, davit raft blows around like kite in wind until loaded and doesn't inspire confidence. 29. I would be afraid to be "launched"; I'd rather a smoother way. 30. Its the most tried equipment; and usually has an emergency launching arrangement that is easy compared to MES / davit launched liferafts 31. Sturdier and more reliable type of LSA, safer forms of launching and retrieving 32. Lifeboat, well known and trained seafarers, MES inclined slide - easy to use and easy to handle even for not well trained crew. Vertical chute to many weak ends. Davit launch raft and free fall to much risk and need for well trained crew. 33. This is the safest way to offload passengers 34. Lifeboats are a thing of the past, taking up much space and prone to accidents. They require constant maintenance, which is not always guaranteed. Government sponsored research into newer evacuation systems (inflatable, embedded in the hull?) is necessary. 35. The lifeboat ensures getting away from the ship since it has an engine and the seating position whilst cramped will be more comfortable compared to a liferaft. 36. Easy accessibility and possible comfort 37. Large capacity. Lifeboat can be kept in one place better with help of the engine, or the engine can be used to quickly get away from a sinking ship. Enclosed providing protection. Plenty of storage space for food/water etc. With proper training, can be filled, lowered and released quickly. 38. "1. Quick Deployment,Efficient Launching: Davit-launched lifeboats can be rapidly lowered into the water from the ship’s side. The davit system allows for a smooth and fast deployment, even in rough sea conditions, which is critical in an emergency.Accessible in Emergencies: Since the lifeboats are already stored in a position where they can be easily lowered, passengers and crew can quickly board and evacuate the ship, reducing the time spent in a potential danger zone.Safety and StabilityProtected from Rough Seas: The davit system ensures that lifeboats can be lowered in a controlled and stable manner. This minimizes the risks of the lifeboat being damaged or capsized during deployment, even in rough seas or stormy weather.Easier Handling: The davit system allows for easier handling by the crew, and the lifeboats themselves are designed to be stable and sturdy, providing safe shelter during an evacuation.Capacity and ComfortLarger Capacity: Davit-launched lifeboats are typically larger and can accommodate more passengers than other types of lifeboats, which is crucial when trying to evacuate large numbers of people in an emergency.Better Equipped: Many davit-launched lifeboats are equipped with survival supplies such as food, water, medical kits, and signaling devices, which ensures passengers' well-being during a potential

Question	Other	Comments / Free text
		waiting period until rescue.Reliability in Adverse ConditionsWorks in Challenging Conditions: The davit-launched system can be deployed in adverse conditions such as high winds or rough seas, making it more reliable than some other types of lifeboats, which might struggle in those circumstances.Versatility: Whether during daylight or at night, in good or bad weather, the davit-launched lifeboat system is built for versatility and can be used reliably in almost any emergency scenario.Training and FamiliarityStandardized Training: Since davit-launched lifeboats are widely used in the maritime industry, crew members are typically well-trained in their operation, ensuring quick and accurate deployment during an emergency.Passenger Familiarity: Cruise ships typically conduct drills and safety briefings about lifeboat procedures, making it easier for passengers to understand and use the lifeboats effectively if needed.Lower Risk of InjurySafe Boarding and Disembarkation: With a davit-launched system, passengers can board the lifeboat while it's still safely attached to the ship. Once everyone is aboard, the lifeboat is lowered into the water, minimizing the risk of falling into the water during a chaotic emergency.Reduced Chance of Capsizing: Davit-launched lifeboats are designed to be self-righting in the event they are capsized, which further enhances passenger safety during evacuation.Maintenance and ReliabilityDurability and Long Life: The davit-launched system, with proper maintenance, is highly durable and reliable, ensuring that the lifeboats remain functional for many years.Minimal Risk of Mechanical Failure: Compared to other systems, davit-launched lifeboats tend to have fewer moving parts that could fail during an emergency, increasing their overall reliability.Compliance with RegulationsMeets International Standards: Davit-launched lifeboats are designed to meet rigorous international safety regulations (e.g., SOLAS – Safety of Life at Sea). This ensures that the lifeboats comply with the highest standards for passenger safety during emergencies.ConclusionThe davit-launched lifeboat is an excellent choice for large passenger ships because of its speed, reliability, safety features, and ability to handle large groups of passengers effectively. It is a well-established, proven system that provides confidence in emergency situations, ensuring passengers are safely evacuated in the shortest amount of time possible." 39. easy to load and easy to lower and easy to maneuver. 40. no remarks <u>Preferred option "Free fall LB"</u> 41. "In general i prefer the free fall lifeboat and chute option as they leave ""no regret"" in the decision to get to water level. Also prefer not to be connected to the ship with too many wires like you are in a a davit launched lifeboat or liferaft. In a passenger ship scenario i recognize that free fall lifeboats might not be practical from a space perspective, although it would be my preference if it was an option. For davit launched lifeboats training is done regularly, but for the liferafts I find it to be very rare that training is done. Hence the davit launched liferaft is my least preferred option."

Question	Other	Comments / Free text
		42. MES are not reliable, people get stuck in the chutes 43. Davit launched life boats can be effectively used when the ship's trim/list conditions and weather conditions are favourable. Therefore, I would place more focus on free-fall life boats and MES. 44. Free fall lifeboat is quick and not so effected by listing 45. Fiberglass boats provide better protection against the elements, are not subject to being punctured, and dont have a long term of failed deployments as is the case with MES 46. Free-fall-Boat no wires, short time for evacutation. MES always gets stuck in vertical chutes, always broken arms and legs when we doing MES test on SY 47. MES is the most reliable system in all weather conditions. It is effective and time efficient. 48. "Free fall can be launched safely and no additional measures are needed once launched, and you are well clear of the ship. Of the other options the inclined slide is the easiest for passengers to comprehend as safe way to get to the liferaft, weather permitting." 49. quick, safer, dry 50. Safest after deployment 51. Simple launching in all weather conditions 52. "For most seaman the free fall lifeboat is considered as the best option as they work also in very bad weather conditions. For cruise vessels, or persons with restricted mobility this is however no option.MES are considered as reliable and safe in most conditions. Preparation in an emergency for the crew should be easy.Davit launched life boats are good once in the water, but launching especially during bad weather when the vessel is rolling involves quite some risks for all involved and the possible list of the vessel is limited.Davit launched life rafts has the same issues as the boats, but worse in every aspect.From my point of view they should not be part of the standard LSA capacity for cruise ships especially not when multiple life rafts should be launched via one davit." 53. "Among the various evacuation systems available, my professional assessment has consistently ranked them based on their efficiency and readiness for rapid deployment. At the top of the list is the free-fall lifeboat, which I consider the fastest and most reliable evacuation system in emergencies. Free-fall lifeboats are designed to be in a constant state of readiness, allowing for immediate deployment without the need for complex procedures. In the event of an emergency, the free-fall lifeboat is released from its secure position and slides directly into the water, carrying crew members to safety in a matter of seconds. The simplicity and speed of this system make it an invaluable asset during critical moments when time is of the essence.Davit-launched lifeboats, while slightly more traditional in their design, also offer a dependable means of evacuation. These lifeboats are similarly kept in a standby state, ready for immediate deployment when required. The key to their effectiveness lies in the meticulous maintenance of the davit system and the preparedness of the crew to operate it efficiently. While the deployment process may involve more steps compared to a free-fall lifeboat, the davit-launched lifeboat remains a reliable option for evacuating personnel.On the other hand, the Marine Evacuation System (MES) offers a more modern approach to evacuation. This system typically involves the

Question	Other	Comments / Free text
		use of inflatable slides or chutes that lead directly to liferafts, enabling crew members to evacuate quickly and efficiently. While the MES presents a significant advantage in terms of accessibility and usability, I have observed that the time required for inflation and setup can be a concerning factor. In high-pressure situations, where seconds can mean the difference between life and death, any delay in deployment could potentially compromise the effectiveness of the evacuation. As such, while the MES holds promise as a reliable evacuation solution, its implementation must address these time-related challenges to maximize its utility in real-world scenarios.Evacuation procedures during maritime emergencies are critical, and one question that has often crossed my mind what would i use in such senario and the answer was the Hydrostatic-Release Unit (HRU)-operated liferafts. However, the success of any evacuation system depends not only on the equipment but also on preparedness and timely action. When faced with an emergency at sea, where every second counts, a clear and systematic evacuation plan becomes paramount. In such scenarios, my immediate course of action would involve manually deploying the HRU-operated liferaft, but yes, when we talk about a passenger ship this is not very practical. However, the journey to this point highlights an essential reality: the evacuation system's performance at the critical moment of deployment can make or break survival chances. My observations and experiences aboard ships have led me to conclude that the most challenging aspect of evacuation is the launching phase of the system. This stage is fraught with risks, as malfunctions, delays, or human errors can severely impede the evacuation process. While survival in the water becomes a tangible possibility once an individual has successfully evacuated, the real question remains: What if the evacuation process itself fails? It is this consideration that underscores the importance of maintaining a focus on evacuation systems that prioritize speed, reliability, and ease of use." 54. FFL more safer seats, closed area, beter and faster relese 55. inflatable systems and MES have a high statistic failure rate and are not accepted by passengers. Therefore lifeboats should be the preferred system. 56. Free fall lifeboat is safest n fastest way to get off the ship in danger but for well fit persons in there. 57. Ease and speed of operation 58. Free fall has the quick and fool-proof, weather independent launching system. Of course not practically possible for a pax ship. 59. boats are safer than life rafts but launch via david needs good training skills and may be impacted by weather, trim, list. 60. "Free fall, quick and no worries about the launching equipment MES could be bottleneck David launched sensitive to list and boarding and releasing" 61. Fast get away, completely protected 62. Lifeboat is preferable to raft. Free fall is quick and clean. 63. Safety and time management 64. I think it's safer with the inclined slide. 65. Quick launch

Question	Other	Comments / Free text
		66. Just from my experience 67. MES has my preference as this is a more efficient option due to high number of crew required to evacuate. Currently ship is equipped with davit launched life rafts.. which will take a lot of time to complete successfully for full evacuation. 68. great 69. Free fall lifeboat can be used in almost all weather. Davit launched life rafts are too slow. <u>Preferred option “MES with (vertical) chute / life raft”</u> 70. "Direct boarding,Performance tested in high seas,No risk of being dropped by hook opening, rope failure" 71. Free fall lifeboat is not relevant on passenger ships. 72. Malfunction on Davits makes the difference. Safest evacuation with least casualties if something happens is to have the survival craft at water level before entering. Rafts is more convenient to be in compared to a boat, due to the flexiable nature. Waves and wind does not have the same impact on the rafts compared to boats, so people get less seasick. 73. "Have already experienced a vertical helical slide and I felt confident.We do not that some accidents may occur on release hooks and it decreases our confidence" 74. Easier to deploy during rough conditions 75. Lifeboats are not easy to lower in bad weather - needs a high training standard. MES easy to deploy 76. I relay on my self 77. Speed...we're at the abandonment stage, if the ship has become untenable, even with SRtP requirements the onus is to get everyone off. There will always be injuries during the abandonment phase and an MES is a safer option than lifeboat, they now weigh over 40 tons fully loaded and in all but the most benign condition be a real challenge to both load and launch. MES station can be mounted within the accommodation to ensure dry boarding. 78. Over time, lifeboats have been involved in several accidents. MES (Marine Evacuation Systems) require minimal onboard maintenance, with servicing handled by shore contractors. 79. Compact and efficient, so more over capacity can ensure extra time to each passenger 80. it is safer 81. "The reason i choose chute above slide is that i feel the slide can be worse in bad weather.My personal prefered choice that i used to joke about when i worked onboard ferrys was:Fast Rescue Boat off the ship, cause then i only had 2 other crew members to keep track of.Then when the ship have been abandoned was leaving the FRB for a liferaft.Mostly cause i didn't trust the FRBs (we had) heavy weather capabilities." 82. LA selected gives rapid and effective evacuation

Question	Other	Comments / Free text
		83. "EFFECTIVE TO SAFE LIFE ON TNE OPEN SEA,SLIDE FROM BOARD TO RIGGED LIFERAFT AT WATERBORN" 84. Fast and easy, no person in the water 85. N/A Preferred option “MES with (inclined) slide / life raft” Summary (copilot): Marine Evacuation Systems (MES) with inclined slides and liferafts offer several benefits for emergency evacuations. They provide a fast, safe, and efficient means of evacuation, with less risk of failure and fewer mechanical parts that could malfunction. The inclined slide is familiar to many people, making it less intimidating and easier to use. MES systems allow for quick deployment and boarding, reducing the time needed for preparation. They are not reliant on operational davits or hooks, which simplifies the process and minimizes the risk of accidents. MES systems are also more tolerant of roll and motions, making them safer in adverse weather conditions. Overall, MES with inclined slides are reliable, easy to maintain, and provide a safer and more comfortable evacuation option for both passengers and crew. 86. the slide reminds most people of a roller coaster and in that way it feels more familiar 87. fast, safe, efficient 88. not reliant on operational davits/hooks 89. Allows much easier egress for all, both pax and crew 90. Fast evacuation, less probability of injuries 91. Less risk of failure 92. safe 93. "Inclined passages allows participants to view the arrival on the associated liferaft. Vertical passage are easy to be used and do not require falls." 94. easy maintenance and easy use 95. MES is more reliable then everything else, you can deploy it at all the times and there are not so many mechanical parts that could fail. 96. All of the option are not good in real life emergency. No development or investments has been done since Estonia tragedy. 97. MES less handling - no tricky launch procedure 98. ease of embarkation & descent to sea surface 99. easy and fast, no big preparation needed. no hooks 100. Generally lower height, more tolerant of roll and motions 101. Faster, Safer, Not exposed to the weather conditions 102. Inclined MES present lower risk of injuries. 103. MES with slide is less intimidating and reduces crew injury risk for drills, 104. I am aware of the number of accidents involving lifeboats.

Question	Other	Comments / Free text
		105. The MES system is not in place oN HAL ships it significantly decreasea the abandon ship time for crew members 106. This rating is based with the mobility issues of our pax in mind. Free fall boats are absolutely not suitable on cruise ships. 107. "MES seems fastest, safest and easiest to maintain in optimal condition.lifeboats over raft due to the increased rigidity and safety." 108. "Similar to an airplane for fast evacuation.Too many accidents happen with lowering boats into the water." 109. More flexibility and safety of operation in adverse environmental conditions 110. Quick deployment and evacuation of MES systems 111. It's a mass evacuation system. I would really like to see another system that's quicker and safer developed. 112. safe and fast 113. is easy to prepare 114. MES Very quick to deploy and board, no waiting for preparation around davits or boats, potential engine issues etc 115. Inflatable liferafts/lifeboats are preferred due to more personal space and possibility for moving around etc. Inclined slide is of course best option, but rather impractical/impossible for large ships due to trim and list. Helical chute/slide is a good alternative. 116. "Easy access, less crew member and operational involvement. Nonetheless the3 choice is subject to evaluation taking into account weather contitions In advesrse weather Davit launched lifeboat is preffered" <u>Preferred option “Davit launched life raft”</u> 117. It can be launched in almost all situations and in all vessel position. 118. FFL give more protection to the occupants and is not conditioned by complex manual operations. On the other hands, is not recommended for elderly persons 119. good practice to crewmembers 120. Good
Q8.1		1. "The issues around reliability has significantly improved. However there is still an effect in terms of confidence of crew and passengers if they are aware of the recent years rather bad statistics. Boarding of disabled people can be done via other means such as lifeboats. If they are being boarded through the MES it should have additional capacity to cope with it." 2. Lack of propulsion in the rafts 3. "Fire safety.Many failures during yard trials.No regularly testing on board." 4. do not withstand ice and fire, Diffcult to handle when wind ist strong

Question	Other	Comments / Free text
		5. We have Raft Leaders which are getting theoretical training and once every 3 years a short practical training. Therefore the complete handling of MES are to complicated for "non experienced crew" 6. There are questions on reliability, these can be mitigated by redundancy, I would have a vessel with no lifeboats and perhaps 150% requirement if MEX only though these would need support of four larger FRC and/or Tender if vessel is fitted with such. Manning of survival craft need consideration both for rigid and non rigid, boats over 150 in capacity should have an additional PSC&RB holder for each additional 100 persons. The certification should be split into types base of capacity and structure, e.g. Universal covering all types both rigid and no rigid, capacity restrictions, there is no need to train a hotel officer or supervisor how to drive a lifeboat that has twin engine and carries 400+ pax, there is need for them to fully understand the launching and management of non rigid survival craft as that is where they and their peers are needed. 7. I found MES not bad as system, but is vulnerable to weather conditions. Better system is RFD with a single release of all rafts and chutes. 8. better than davit launched rafts 9. Of course it is a good system to save a high number of pax/crew. But it is not so stabil, no motor, maybe sit in the water 10. "Never worked with systems in practice by myself.One concern would be situations close to the shore where such rafts would drift ashore without any chance to control them in bad weather." 11. "Among the various evacuation systems available, my professional assessment has consistently ranked them based on their efficiency and readiness for rapid deployment. At the top of the list is the free-fall lifeboat, which I consider the fastest and most reliable evacuation system in emergencies. Free-fall lifeboats are designed to be in a constant state of readiness, allowing for immediate deployment without the need for complex procedures. In the event of an emergency, the free-fall lifeboat is released from its secure position and slides directly into the water, carrying crew members to safety in a matter of seconds. The simplicity and speed of this system make it an invaluable asset during critical moments when time is of the essence.Davit-launched lifeboats, while slightly more traditional in their design, also offer a dependable means of evacuation. These lifeboats are similarly kept in a standby state, ready for immediate deployment when required. The key to their effectiveness lies in the meticulous maintenance of the davit system and the preparedness of the crew to operate it efficiently. While the deployment process may involve more steps compared to a free-fall lifeboat, the davit-launched lifeboat remains a reliable option for evacuating personnel.On the other hand, the Marine Evacuation System (MES) offers a more modern approach to evacuation. This system typically involves the use of inflatable slides or chutes that lead directly to liferafts, enabling crew members to evacuate quickly and efficiently. While the MES presents a significant advantage in terms of accessibility and usability, I have observed that the time required for inflation and setup can be a concerning factor. In high-pressure situations, where seconds can mean the difference between life and death, any delay in deployment could potentially compromise the effectiveness of the evacuation. As such, while the MES holds promise as a reliable evacuation solution, its implementation must address these time-related challenges to maximize its utility in

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		real-world scenarios.Evacuation procedures during maritime emergencies are critical, and one question that has often crossed my mind what would i use in such senario and the answer was the Hydrostatic-Release Unit (HRU)-operated liferafts. However, the success of any evacuation system depends not only on the equipment but also on preparedness and timely action. When faced with an emergency at sea, where every second counts, a clear and systematic evacuation plan becomes paramount. In such scenarios, my immediate course of action would involve manually deploying the HRU-operated liferaft, but yes, when we talk about a passenger ship this is not very practical. However, the journey to this point highlights an essential reality: the evacuation system's performance at the critical moment of deployment can make or break survival chances. My observations and experiences aboard ships have led me to conclude that the most challenging aspect of evacuation is the launching phase of the system. This stage is fraught with risks, as malfunctions, delays, or human errors can severely impede the evacuation process. While survival in the water becomes a tangible possibility once an individual has successfully evacuated, the real question remains: What if the evacuation process itself fails? It is this consideration that underscores the importance of maintaining a focus on evacuation systems that prioritize speed, reliability, and ease of use." 12. Some systems are quite complicated to set out. 13. nil 14. How can you manage to get out for example 500 persons through MES station with in 30minutes? That´s impossible in real life. 15. Keeping its all part in place and alongside in unfavorable weather conditions 16. In our company the plan is to move disabled or injured persons, children, oversized persons to the lifeboats as long as its possible. 17. Different comments depending on the vessel and route. Habitability is more of a concern trans-Atlantic than cross-channel, for example 18. rely on other survival craft as they have no means of propulsion to get away from the ship 19. Psychological denial to enter the chute for passengers, for slides the correct position after inflatation and behaviour in heavy seas 20. What are the results of testing this LSA in towing tanks with bad weather conditions? example with big waves and / or heavy list/trim? 21. All our equipment (lifeboats, tenders, fast rescueboats, liferafts) are in good condition and under strict rules from Coast Guard & Flag state. Same for our trainings and drill requirments. But what I notice is that nobody (coast guard, flag state, Dutch government, Lloyds, etc) is interested in the physical state/condition of crewmembers participating in Emergency. Yes we have a medical certificate, but that is not focused on emergency functions where you experience heat, heavy equipment and physical work for a long time. Crew members assigned to firefighting are overweight and unfit. Make rules regarding the physical state/condition of crewmembers in emergency teams.

Question	Other	Comments / Free text
		22. Asking persons to step into a slide that can be rather high above the water, will result in discussion with persons who are not willing. 23. Previous cruise company had guests on board with average age of 75. 24. Our guests are too old and fragile for this. 25. MES training occurs more seldom than lifeboat training, thus crew competence is important. 26. The overall effectiveness of the system when the evacuation takes place during adverse weather conditions 27. Critical is the boarding duration in terms of changing trim or heel 28. non 29. I am concerned about the reliability and safety of the system in bad weather (wind, seas) conditions. 30. Reliability in bad weather is my biggest concern. 31. -
Q8.2	1. Crew training 2. Time frame 3. Same as above 4. Not familiar with chutes 5. I do not have personal experience with such type of MES 6. Often problems with deploying the systems 7. Connecting additional rafts 8. Fire safety. Failure affects total system 9. Durability of the chute to get so many people through in a short amount of time	1. In our company the plan is to move disabled or injured persons, children, oversized persons to the lifeboats as long as its possible. 2. How can you manage to get out for example 500 persons through MES station with in 30minutes? That´s impossible in real life. 3. nil 4. I am not sure if with this systems there were ever bad weather tests of this systems. 5. there is no guarantee that it will work since a test and safety drill is not possible 50% chance it wont work is not something I feel comfortable with 7. Even when it is not so easy to come onboard, most people will be able to use the chute and it is on us to separate the disabled, elderly etc to bring them to the lifeboat. Also with the MES we can catch easier persons out of the water if they jump overboard 8. I have heard of accidents where people hadn't fastened their life jackets properly and the life jacket got caught/stuck inside the chute leading to the suffocation of the person. 9. I don’t have any experience or training with MES 10. Straight chutes are quite bad for untrained people. Helical chutes preferred for PAX. 11. non
Q9.1		1. As soon we have more than 1 meter of swell/wave a safe release is very difficult and needs a high expertise of boat leaders. On load release can be trained only theoretical - at certain wave height a save release is not possible 2. Biggest concern is launching in bad weather / when the vessel is listing. 3. Congestion & crampness inside the large capacity boats

Question	Other	Comments / Free text
		4. I think a lot of the above could be summarized in "improper maintenance" 5. It is one of the most common Deficiency areas under PSC.. all kinds of problems. 6. Large lifeboats are quite packed. 7. Launching in high waves conditions. 8. Launching of the davit rafts truly comes down to the operators knowledge and experience, while the MES is more self-operating. 9. Lifeboats are far more reliable than MES 10. Lifeboats are not made for 150 American passangers. Average american here is over 100kg. It won't fit. It's hard to fit slim crew inside, pax are partly 2-3 times bigger 11. Lifeboats have killed more people than they saved. Let's create a system which is idiot proof and intuitive to use. 12. Lifeboats which are also used as Tenderboats. 13. Limitation of use in case of high list 14. Mostly technical problems (davit, wire, hook, engine) resulting from lack of trained personnel 15. Never enough training with the davits and boats. 16. nil 17. "No passenger has ever been trained to board a lifeboat; can you imagine it? They will all be filming each other." 18. On load release or release in case of bad weather and its impact on persons on board. 19. Passenger panic disrupting communication between crew members. 20. poor maintenance on Board 21. Remote control wire for brake. 22. Sea state and weather conditions. 23. Space 24. Space, you can not fit in what they are designed for 25. The modern totally enclosed lifeboats have very heavy and cumbersome browsing tackle which make launching hazardous. 26. Their size and infrastructure has gone beyond normal use and oversight. Using lifeboats in all but clam conditions poses risk, recovery of 400+ personnel from a lifeboat would be a challenge. The same applies to an MES of course though its flexible nature makes it easier. 27. Too many persons in a very confined space: 150 persons in a life boat. Average weight 75kilo gram, is not from this day and age 28. Training of the crew and especially hook operators and their reaction on releasing the hooks especially under bad weather conditions. 29. very complicated and dangerous to use in some weather conditions 30. Will be overcrowded when full till total capacity.

Question	Other	Comments / Free text
		31. With the latest IMO/MSC circular, many ships no longer lower boats with their assigned crew, choosing to ferry them using other means. This is not preparing the crew for an actual emergency and makes them unaware/untrained for how the lowering feels and as such how to explain this to passengers.
Q9.3	1. Deck space 2. Easier lowering process 3. Financial benefits 4. handling of boats becomes more difficult for simple trained crew. 5. just reduction of the space needed at the open decks and the possibility to accommodate large number of persons 6. Less training incidents due to less volume. 7. Modern seafarers have less skill to use all kind of boat - to much of theoretical studies instead of real practice 8. More ifficient boarding, simpler/better seating arrangement, two entrances etc. 9. More passangers in one life boat 10. more people onboard 11. More robust 12. No benefits 13. None 14. Quicker evacuation due to higher capacity. 15. Taking uo less length of the vessel for evacuation 16. Better arrangement inside 17. Hopeless to manoeuvre 18. Less congestion of boats around the ship 19. Saving time and resources for each embarkation and lowering process 20. Quicker manning despite larger numbers due to two doors for embarkation	1. Available responses are not precise. Lifeboat with capacity of 400 people are mounted on passengers ship carrying 8000 people and this doesn´t mean that there are less lifeboat. Amount could be the same, but impact in case of not availability will affect an higher amount of people to be reassigned. 2. "Bad grammar:*fewer lifeboats, *Fewer trained...." 3. "Better manouevrability and possibility to arrange the seating in more sensible way are a mentionable safety improvement. Higher # of pax /lenght is of course practical necessity for the large vessels." 4. easier lowering process 5. Large modern cruise ships are not possible to build (not enough side shell length available) without over 150p lifeboats or other novel LSA arrangements. 6. Less space taken up along the ship side leaving possibilities for other design features including other revenue generations 7. Recently bigger lifeboat are installed overhanging this reduce the failure probability of the davit becuase of from stowage position can be directly lowered without hangs out step. 8. STCW training requirments for certifed persons are not requiring crew to practise on such size of boats. When crew members are on board they are certified but not qualified to sail those boats.

Question	Other	Comments / Free text
	21. Redundant propulsion	
Q9.4	1. Crew need much more training skills 2. Multi tier seating 3. Not specified 4. Passenger will feel cramped with no possibility to see out 5. Seating arrangement looks too cramped 6. the interior are very small comparing the people they should accommodate 7. High number of persons, must of them definitely untrained in such case of evacuation 8. crowd control less easy 9. none	1. Passenger panic 2. Require an Alternative Design with uncertain outcome 3. no drawbacks, only embarkation duration 4. The personal space in the large lifeboats from my experience is so little that the mental impact on the passengers could create panic event which increase the complexity of an already critical situation. 5. Multi tier seating in high seas
Q9.6	1. congestion 2. public health issue (vomiting etc) 3. stability, shelter from environment 4. stability 5. how can we put lifeboats in two different decks?! 6. Quick transfer of persons between the decks must be ensured. 7. Crowd Management to avoid panic situation. 8. specific training of crew in handling passenger embarkation	1. the person in charge must know exactly how and what to do 2. Having been involved in the testing of large lifeboats they can be loaded with the required time the issue is the launching and the ongoing management . 3. Beside CMs part of technical team, highly qualified pursers or management people (i.e. pursers) should be assigned to maintain the calm.
Q10.2	1. Not specified 2. Possible to build even larger and more sustainable cruise ships 3. Not specified 4. None	

Question	Other	Comments / Free text
	5. Esp. Survitec Seahaven has seating arrangement superior to anything else. I expect the seaworthiness to be better than trad. Systems. 6. never seen, never had chance to test 7. Will reduce evacuation time if they work	
Q10.3	1. Not specified 2. No drawbacks 3. TrainAnd we will need to train the drivers and the launching teams. Also on original deployment in Denmark unit failed to open so in reality we loose 900 people capacity 4. Lack of experience of the systems' reliability. Useless in ice (like other survival craft as well) 5. Accessibility at high list & trim conditions 6. Risk of hidden defects associated with new technology deployed in service 7. see previous answer [never seen, never had chance to test] 8. Perception risks of 'no lifeboats' 9. It looks good in theory but wait until you have to use it in real emergency 10. the use of the ISO 5476:2023 may permit to limit the limited training opportunities. Boarding capability of persons with special needs have been adressed and seaworthiness up to the conditions applicable to a MES has been demonstrated 11. Maneuverability	

Question	Other	Comments / Free text
	12. All of these can be overcome with the right training and oversight regime. 13. Fire safety. Long vulnerability times with regard to fire, wind and waves. 14. Problems may occur with bowsing lines preventing the system to be deployed. The packing instructions are really important on this kind of systems to avoid any deployement and inflation failures 15. Abandoning a ship in adverse weather condition is not the same to do it inside a fjord or a lake. Inflatable craft ineffectiveness could add additional difficulties into an emergency situation. 16. Owner reluctance to install such systems	
Q6.2	1. Flowcharts 2. ERO 3. By a telephone 4. Evacuation analysis reports 5. ESS/SERS/RRDA 6. Procedures 7. I don't understand the meaning of "decision support system"	
Q6.3		1. Very fast 2. Very fast 3. We also have an direct link with the office team 4. There is a great future for electronic evacuation systems. They allow operators to not forget essential steps in the process and allow for a faster evacuation process. Direct messenging on the ships tv's should be explored, as well as more intuitive and obvious signage. Especially when a ship has its fire screen doors closed, the aspect changes drastically to passengers with are not familiar with its layout. 5. Too complicated, electronic systems unreliable cumbersome 6. Vital 7. knowledge of it is very important 8. Well established checklist are available and useful.

Question	Other	Comments / Free text
		9. Noticed that the decision support is not always used 10. nil 11. Always depends on the quality of the system. 12. Could be more detailed 13. It is helpful, but it is only as good as the operator, there always tends to be the need to over elaborate, it should always be simple and underpinned by training and experience. 14. Checklist for various scenarios
Q6.4		1. A plan that is made for dealing with an emergency 2. A relevant aide memoir that lets you consider various situations and allows for dynamic decision making. 3. Actual and accurate help will be applied 4. Beside ship equipment and monitoring systems, on board team plus shoreside emergency response team. 5. "checklist + SMCS system that prompts actions and allows targeted activations of safety systems.binders with information depending on the scenario." 6. Checklist completion confirmed by Command Team 7. "Checklist consist of two parts. one that can be activated without the masters concent in order to save time and one where decisions are pending the masters approval. Drawings, firealarm system, fire door panels etc all help to get an overview.A well functioning communication is vital." 8. Checklist for evacuation process 9. Checklist, flowcharts and computer program for stability calculations. 10. Checklist, virtual checklist and a safety management computer system that allows for operating safety appliances and overseeing operation. 11. check-lists 12. Checklists and other documents, such as actions plans and hazardous chemical lists, kept on the bridge and safety center.l 13. Checklists for all expected scenario’s. Web-based support to fleet operation center. 14. Checklists with standard actions to be considered 15. communicatiom 16. comunacation 17. "Decision support binder Binder with fire action plans Digital fire control plans with pre-planned actions that can be set in motion automatically or by digital command." 18. DSS is a tool to comply with all required steps during an emergency. 19. Effective 20. Efficient 21. Electronic Checklists and flow diagram

Question	Other	Comments / Free text
		22. Electronic muster and digital SMCS 23. Electronic SMCS 24. Electronical Mustering - developed emergency response plan - clear instruction to all crew members 25. Emergencies are stressful situations and DSS help us in proper follow up on emergency procedures n minimize mistakes due stress or pressure. 26. Excellent 27. Excellent 28. Flow chart check. 29. Folder with checklists, designated duties and detailed procedures 30. Green book / yellow book for emergency situations similar to aviation industry. 31. Guidance for crew how to act in specific emergency situations. 32. helpful in case of stress and short time proceeding 33. Helps to designated persons to take proper and timely actions and decisions. 34. In a stessed emercency situation you need a checklist , you are familiar and trained whit 35. In dutch: incident bestrijdingsplan. 36. Integrated into Safety Managment Control System 37. is an information system that supports the organizational and decision-making activities. 38. Is effective but need a good knoledgment of all people involved and this is not easy. 39. It gives suggestions and preplanned actions 40. It lets me know if everyone is mustered and ready to leave. 41. It should be an aid memoir with clear concise checklists to support events and not be overly verbose. 42. Its a ch3cklist for on the bridge and computer screen to coordinate OOWs and Captains in the drill/emergency procedures 43. KIS, Keep it simple 44. Masters decision support system, flow chart style with prompts and aid memories. Very useful. 45. Needs more engagement with assessing current situation 46. Paper checklists are available in a binder on the bridge. The smcs also has pop up checklists available when placing emergency signage. 47. Paperbased checklists. 48. Pda for mustering, visible on the bridge and front office to find missing person plus checklist 49. Provides checklists with actions based on the type of emergency. 50. Provides procedures for the areas which are more prone to have an emergency 51. "Real-time Data Integration: Collects and processes information from various ship systems (e.g., engine performance, navigation, weather) for better situational awareness.Predictive Analytics: Uses historical and real-time data to forecast potential risks, like severe weather or mechanical issues, allowing for proactive decisions.Emergency Management: Assists in managing crises, such as route changes in storms,

Question	Other	Comments / Free text
		evacuation plans, or crew responses to onboard incidents.Resource Optimization: Helps in making efficient decisions about fuel consumption, staffing, and onboard services.Benefits:Improved Safety: Facilitates better emergency response and risk management.Operational Efficiency: Optimizes ship performance and resource allocation.Better Planning: Supports long-term decision-making, like itinerary adjustments based on weather or market demand.In short, a DSS enhances the effectiveness of cruise ship management by providing timely, accurate, and actionable information to guide decisions." 52. Safety management system covers all stages of an emergency and includes comprehensive cheklists 53. Schematic. 54. Short well described checklist to support senior bridge team in a stressful environment. 55. Standard procedures, but adapted with the conditions and situations that we receive directedly from the SAR vessel and RCC. 56. the evacuation analysis report will help in identifying potential congestion areas and will assist in assistance in advance 57. The scenarios are too numerous and diverse to be comprehensively covered by checklists 58. "The system contains various different emergencies and includes detailed descriptions of what needs to be done by which person / team.The system from my point of view does however only has limited use in an emergency as than it is to late to read all of this.The checklists as contained in the ISM manual are very basic and just cover the main items.From my point of view the use in an real emergency is very limited. It is however a good tool for training of the crew." 59. They can be very useful for controlling and counting people. 60. Tick boxes - tick what is ok 61. Very effective 62. We have clear guidance in our Emergency Response Plan as well as Fire Action Plans for all major locations. 63. Well structured and organized.
Q7.1	1. Engine Control Room 2. After safety-duty 3. Just before leaving the bridge, last one to disembark the ship 4. At my emergency duty station before proceeding to the embarkation deck 5. Cabin or in emergency position – bridge 6. Office 7. While proceeding to emergency duty station	

Question	Other	Comments / Free text
Q7.2	1. Not specified 2. Engine Control Room 3. On the way to your Muster station 4. After safety-duty 5. Simple reason is that too many cabins might not be reachable and the cumbersome life jackets hinder walking 6. It's good as it is 7. Depend on emergency role 8. Spare in office 9. Not specified 10. While underway	
Q11.1	1. Use new technology such as adaptable emergency signs and AI technology in CCTV 2. Company's to be willing to invest money. 3. Develop structural abandoning systems ready to be deployed. 4. Implement MES systems on board HAL ships and change the LB boarding procedure 5. improved crew training 6. improved crew training, including training for failure 7. Incluce holistic evacuation scenarios in design requirements 8. Increase extra capacity 9. Perform advanced evacuation analysis for potential hazardous scenarios and keep the report handy 10. Prioritise safety training and drills 11. reduce the need to evacuate 12. Better training ashore, so that it has minimum impact on vessel operation, whilst increase crew competences	

Question	Other	Comments / Free text
	13. By adopting a combination of these strategies, the overall safety and effectiveness of evacuation procedures on large passenger vessels can be significantly improved 14. design of large passanger vessels have to take into account evacution from large passanger cabin areas; to increase number/proportion of male crew members 15. I don't like internal muster stations. 16. Improve mustering and evacuation of special needs passengers 17. Make hooks foolproof (now available with new design) 18. Require full-scale passenger muster 19. Survitec SeaHaven and VIKING Lifecraft is the way forward 20. Training, Dedicated evacuation teams, Streamlined procedure 21. Appropriate limits for the maximum capacity of any single system or additional redundancy requirements when high-capacity systems are in use 22. Better system for directing pax to lb 23. Better training crew and more professional approach to trening from management side. 24. do not build larger ship (XL class) 25. increase the available space per person in evacuation means. 26. Require more space per seat. Weight limit needs to be higher. 27. Require real time events from on boarding processes, e.g granular asset lists, digital checklists and system signals	

Question	Other	Comments / Free text
	28. Improve the crew's knowledge, urgency and general safety culture on board. 29. Consider new design of LSA boats or rafts or any other means of evacuation (launchable ship section e.q.) 30. More crew members! Administration must stop to allow limits crew members! 31. Reduce the required time for abandonning the vessel. 32. evacuation shall be supported by other means (shore support, enhanced safety of the ship) 33. Improvement of MES design its test requirements (materials used, structure calculations, regulations for electrical/hydraulic/pressurized systems), more succesfull (operational) MES tests, Increased training on board, handling large amount of people. 34. Increase the number of trained crew!! 35. Limit the number of people on certain voyages 36. Perform realistic drills with planned unexpected factors in order for the crew and most importantly the passengers to get faliliarized with the evacuation procedures. 37. Act in all directions to increase / optimize the space per person on board, in evacuation paths, in survival craft and improve on survival craft launching systems. 38. Eliminate the liferaft...Difficult to prepare for ship personnel.	

Question	Other	Comments / Free text
	39. Embarkation of actual LSA is always a challenge, specially in heavy weather conditions 40. Limit the lifetime of LSA equipment. 41. Not a single country is capable of rescuing 5000 people from the ocean. Evacuation a ship is only the first part of the process and not every ship founders close to port 42. Have more crew trained in crowd management, especially Lifeboat Commanders and other Crew assigned to man the lifeboats (usually crewmembers from the Hotel Department) 43. more regular drills 44. better crew training for more reliability and readiness 45. Ensure sufficient muster capacity, crew, evacuation routes and LSA capacity 46. Increased knowledge of crew and pax 47. More focus should be placed on preventing evacuation, so greater robustness is needed for large ships. 48. No changes needed 49. The equipment, when well maintained is not an issue. Improvements can only come by better trained crewmembers & better-educated guests. 50. Not specified	
Q11.2		1. "1.Emergency situation leads to panic it is very important to have a team for panic management.2.Good leadership leading the evacuation team.3.Dedicated team trained for evacuation at night, low visibility and unfavourable weather conditions." 2. A change to the requirements is well overdue and while the new and novel ideas are welcome they tend to be looked at from a commercial perspective rather than the end user. Also once new build contract is sign invariably for a four or five ship series the equipment chosen is out of date from day one, new systems

Question	Other	Comments / Free text
		need to modular and interchangeable, rigid lifeboats should be avoided unless multi purposed as tenders, in this case some would benefit those with restricted mobility 3. A mandatory specially trained safety team onboard of ships for training leading emergency senarios to reduce work load of engine and deck officers 4. Afraid of big numbers of crew members who will panic when thay realize that is real situation, not just a drill. 5. "Altough the picture in the EMSA's post is for a cruise ship, thousands of europeans and even more around the world travel each day in passenger ferries, which is my case.If this survey is also for those passengers don't forget to mention it when promoting the survey." 6. Any other information or comment regarding evacuation of ships that you want to share with us? 7. Assess the current 150-persons limit of LBs for increasing to higher (more common) figures 8. Beside the evacuation of persons from the ship the recovery of the number of persons from the lifeboats/MES is an issue to consider. 9. "Coast guard, Flag state, Lloyds are very strict with their LSA inspections and regulations. Which is very good. From my experience, our LSA equipment onboard is in good order and always ready to go. Any malfunctions are always reported and repaired straight away. What I noticed is that there is no focus, rules or attention to the physical state/condition of crewmembers involved in emergency functions. I know this survey focuses on the Evacuation part, But I would suggest make requirements (lifting/carrying and cycling/running exercises) that crewmembers need to reach before they can have a firefighting function or other emergency function onboard." 10. communacation 11. communication for crew 12. Comprehensive risk-based assessment of the actual risk involved in cruising is necessary. Current rules are not made with SRtP-principles in mind, which state that the ship is its own best lifeboat, and have not considered this at a principal level. 13. Concerned about SAR, who is going to assist 6000 people in lifeboats/ rafts in the middle of the ocean. A regular cargo ship passing by will not be able to help much 14. "Consider extreme environmental scenarios which could limit or impair LSA deployment.Consider dynamic signage when mustering, in case of non availability of some escape routes.Consider alternative mustering process and locations for boarding of LSA" 15. "Current regulatory environment and conservatism in the maritime industry can be a blocker for innovation. Today there is little incentives for intelligent risk taking and testing. It is a huge barrier for investments that it is so costly to try out new ways (evacuation being only one of many) and equipment manufactures are reluctant to invest time and money, whilst authorities are unwilling to be first movers. And should there be a case, then it has very long outlooks to become a recognized industry standard and thereby be a revenue driver for the inventors. We have seen many companies with fresh and viable ideas, but they

Question	Other	Comments / Free text
		have run out of money before getting anywhere, because the idea is dead before anyone wins from it. It is my impression that there are ship owners/operators that are willing to explore new ways of working, but instead of being incentivized for their courage, they are discouraged by red-tape barriers and a potential investment case where the fact that they have a ship that is not up to code can be a hindrance for them to sell it." 16. "Current Solas has requirements that are either not in engineering terms logically justified or refer to 100y old ship designs. As an example, all modern pax vessels in practise capsize before sinking and this fact is fully decoupled from LSA design philosophy." 17. Due to huge pressure in the marked, it's experienced that service stations are pressed on time to do proper service, resulting in failures on the evacuation systems. 18. Enhance, standardise, and uniformize the requirements for the O&M (Operations & Maintenance) of LSA. 19. "Evacuation on large passenger ships should take into considerations the location on the guests at the movement of the emergency. Moving large cows of guest to assembly stations or back to their cabins to pick up the lefejackets Could create more issues. Large venues such as theatres, restaurants and other spaces should be considered and equipped as safe areas for gathering guests in case of emergency and guide them to nearest evacuation system. RFID technology or similar should be implemented for the role call." 20. "Existing LSA code requirements on escape widths etc. provide good design guidance but it is sometimes hard to justify the results relative to actual safety or ease of evacuation. It is often difficult to reconcile escape arrangements with the design of certain passenger ship types, especially so where the arrangement does not allow for an entire deck of public spaces in way of LSA embarkation" 21. follow ISO TC8/SC1 works on virtual training and MES 22. For evacuation means of passenger ships: have additional space for moving around and lifeboats/liferafts studied to avoid sea sickness. 23. For passenger ships, advanced evacuation analysis should be mandated. So that the congestion points and bottleneck points can be identified well in advance 24. HAL ships need to go to a MES system and lifeboats with more capacity. This way there will be less lifeboats on board. 25. Hallways are narrow and passengers often walk in the wrong way. Also on deck when most pax have mustered it becomes very narrow. Pax who are really big or using scooters will have a hard time proceeding to their station 26. I am planning to publish a book about human behaviour in emergencies and crowd control, based upon my experience as both a cruise ship officer and volunteer firefighter. 27. I believe the increasing number of passengers on cruise ships is becoming a serious concern. It is probably common knowledge that is an emergency really happen it would be almost impossible to evacuate

Question	Other	Comments / Free text
		in due time several thousands of scared people not fully trained for the situation. Whereas it is needed to keep innovating in the concepts and technologies for evacuation means the industry should really embrace digitalization of processes and data interoperability to boost situational awareness, prevention and mitigation of unwanted events. 28. "I have worked on-board ships for almost a decade as officer, I have surveyed ships as flagstate surveyor, I am educated as PSC officer and inspected ships in Paris MoU, Been approval surveyor of drawings and on sight of the yard for the approval of passenger ships with plus 1000 passengers. and now working for a LSA manufacture. I have seen it all.If I would find a deficiency, i would always aim for the lifeboats. The rules and design requirements of them is long overdue for a review, the most of the requirements is based on historical data and OPINIONS. It is an area there always have been many incidents within. It is not for no reasons, that the joke is ""the kill more than they safe"", if we should improve safety under evacuation, I would start to review the lifeboat requiremnents before anything else." 29. I would train more people to drive the life/fast rescue boats, and I do more real training involving MES 30. if they continue to embark people on their first contract, the result will always sufficient, or before boarding they must receive specialized training based on the ship 31. "In perfect weather conditions evacuating a vessel is a challenge that can be overcome. In a storm with high waves it is questionable if any equipment used today will function as intended. The vessel should therefore not be in such weather conditions or not need to be evacuated at all. As the concept of leaving the vessel is problematic on vessels with a large amount of persons onboard the vessel itself should be the lifeboat, or at least one part of the vessel.Regarding challenges with the mustering of passengers onboard a vessel, the solution can be boiled down to three things. Firstly the crew must train with real evacuees in an environment as close to a real situation as possible. Secondly the crew must be given feedback after each drill and be included in the adjustment of the procedures. Thirdly communication must be prioritised of which especially the public address system's functionality (e.g. level of volume, coverage etc.) is a key to success." 32. "Include a real demographic for evacuation in SOLAS, i.e. there's no consideration of disabled people in life boat design. How are wheel chair passengers accommodated in evacuation plans? The standard plan profile of a seating position is a mean of a clothed human but does it reflect the demographic? Would disabled passengers be able to survive in the boat for a duration up to rescue? Basics such as ramps, etc on the evacuation route aren't considered, but how do you get a wheelchair user safely stowed in the boat, or even a raft?We also have persons (e.g. blind) with support animals who must leave their animal in evacuation event. What about an animal ark where support animals are rescued separately to the normal lifeboat? It's appreciated that the concept is rather niche, however the animal rescue is being discussed in some forums with disability representatives and they were dismayed that their animals would be lost, and some said they wouldn't leave the ship in such a case." 33. "inflatable systems have a high failure rate.substitution of lifeboats to 75 % should not be allowed because rigid lifeboats have a higher safety level than inflatable systems"

Question	Other	Comments / Free text
		34. It would be very interesting to do a study with a new buildings to do a full evacuation of a vessel with actors similar as done for new aircrafts including manning and launching of all required survival crafts. 35. keep it up the great job 36. Large Passanger ships are very safe. Any evacuation would require more enhanced knowledge and participation of passengers. 37. Limit the number of persons on board. Establish a lifetime limit for lifeboats and davits (will reduce amount of failures) 38. Maritime administration have to be manned by at least one enough qualified inspector, who has working experience on board of large passenger boats in position of senior navigation/safety officers 39. MES should be mandatory on ALL passenger vessels; there should be alternative alarms for the disabled (deaf); measures for space at the muster station and inside LSA have to be more realistic (w/ life jackets everyone needs more space, not just larger people (<- majority of cruise passengers)); actual GEA drills should be carried out w/ all passengers; implementation of a maximum number of severely disabled people depending on crew capacity for evac-assistance; the disabled should have cabins close to muster stations; (more) practical and realistic training for the crew in the handling of crowds in a crisis situation; technical means for the (easy and safe) transportation of disabled people should be mandatory (e.g. EvacChair); the effects of trim/list, smoke, etc. should be studied more and considered in evac analyses 40. Minimum manning crew levels are probably the biggest threat to any evacuation plus poorly trained crew. 41. More needs of training, with specific LSA equipment 42. More training and New concept 43. N/A 44. n/a 45. nil 46. Nil 47. no 48. no 49. No 50. No 51. No 52. no comment 53. No comment 54. No Reamrks 55. Non 56. None so far 57. None the system is well organized

Question	Other	Comments / Free text
		58. Not for the moment. 59. On passenger ships we need better qualified personal for emergency functions. 60. "One of my biggest concerns is manning on smaller passenger and car Ferrys where there can be as little as 4 crew onboard with 299 pax (1 AB) For bigger ferry's is my concern on welfare and working conditions for seafarers. Lack of leadership and bad leadership, Crew can be up to 4 in each cabin according to regulations (normally 2) means lack of personal space, lack of sleep and rest due to long working days under hard presure due to the nature of ferry operations." 61. Primary mustering should be external. Ship designs should allow for this. If the incident is going to take time and it is unlikely that the incident will escalate to abandon ship then the internal secondary muster stations can be utilised combined with appropriate announcements. Human nature - No one wants to feel trapped. In the unknown people will be much happier being in the fresh air outside knowing that they can get off the ship quickly their selves. They can see the rescue craft. being inside and not being able to see what's going on is frightening no matter what training and experience you have. Then having to calmly crocodile out to a boat and board it will be daunting and more likely to create selfishness and panic. This is something that I feel very strongly about. Also the Emergency plan needs to be simple. there tends to be an over reliance on announcements rather than "triggers". Far too wordy. Too many stages. Why are fire team members then assigned to a lifeboat. This is a stage too many. We're waiting for them to turn up causing delays. Give people one duty and let that be all they have to worry about. Too many roll calls needed moving from stage to stage un-necessarily having a great chance to miss somebody. 62. "SOLAS prescribes for 30 minutes and all need to be evacuated. With the amount of persons and with the nature of persons on board I do not see this happening. What did we learn from the Costa Concordia evacuation? In the training Human Behaviour and crisis management, we learn about that a percentage of persons will not do anything even if they are told. Even from the crew, they will not listen, they have their own. I do not know if more training will help. Maybe a mass casualty needs to happen first before the maritime industry realizes that the size of ships with the persons on board has become too large.Ships disasters do not tend to happen on a smooth sea, what we always train for / with. With training, regardless of what, it is the imagination of the distress by the the persons who are involved in the training." 63. Systems need to be low maintenance, and easy to maintain. Some are too complicated. Gravity is still best. 64. Tenders that are part of the vessel itself. 65. The current arrangements and procedures onboard large cruise ships are good. The crew are training, so the muster part is ok. The survival crafts are a good idea if the SOLAS concept is adjusted a bit, the important for large cruise vessels are to "move away" from the ship, not necessarily stay "six days at seas, 6 knots speed etc." 66. The designated seating arrangements in survival crafts provide a theoretical value, but these capacities are rarely achievable in practice

Question	Other	Comments / Free text
		67. The fact to get into a lifeboat in case of an emergency can be scary 68. The Key role for the evacuation is the entire crew. Crew must feel to be a part of a ship and not just employee for single contracts. Is missing the role of own responsibility for the crew due that "the problem" can be always handover to the shoulder of the neighbour. 69. The problem of embarking persons in wheelchairs has become larger and larger in the past years. However, IMO and classes have lost the focus on this topic. 70. The size of the vessel are increasing, of course that is understandable due to operational reason and revenue. But the safety at sea is decreasing, the ship are not anymore with 1000 pax and 500 skilled crew. Now we have up to 7000Pax and 2000 half skilled crew. We should start in the process of shore side training, to increase the training time and the proper possibility to learn. I had crew members who paid money to get the STCW, that means the are not reliable. Additional the construction of the vessel with this life boat design, we should go away from it and installing proper MES station with the possibility for overweigh people and disabled people. 71. There is no other way to improve than keep in changing ratio in favor of safety versus economical profit by new technologies and adopting present procedures and upgrading LSA. 72. Tidak ada. 73. Training frequencies too high on board so they are not effective. Lowering boats is a danger, too many accidents, but training of lifeboat crew is too poor, should be properly trained in the type of boat ashore (the stcw training is a joke). 74. Training under easy circumstances and keeping crew motivated is key! 75. Viking Sky is a lesson learning senario 76. we are doing it well here on board,,an as far as I'm concern,our evacuation system will be very effective incase of emergency... 77. YES

Appendix D Comments and free text from the questionnaire to passengers

Please note, that the comments / free text have been taken from the questionnaires without checking spelling or grammar.

Question	other	Comments / Free text
QP1.1	1. Not specified 2. OONW on passenger ships in international voyages. 3. Not specified 4. about 10 times within 20 years	
QP3.2	1. - 2. Tannoy 3. – 4. – 5. Video in public screen + voice announcement 6. on first day on board to all pax and crew	
QP4.1	1. Not specified 2. The fact that passengers do not study the safety cards stuck on the inside of cabin doors 3. it's totally dependent on the crew's ableness and ability 4. Too many passengers to handle in short time 5. Increase the number of required lifeboat seats	

Question	other	Comments / Free text
QP5.1		1. Most important Point is Form Mey Point of view, that the Cruise ship can return to the next Harbour, what ever Happens. Save Evaluation of thousands of people seem to be impossible. Reduction of the size of Cruise ships is needed. 2. There seems to be a trend to only provide safety information on your cabin via video. And I guess that many guest just skip this and are not prepared in case of an emergency. 3. I have sailed myself on cruise ships and concluded that despite the many safety provisions any cruise or passengership is a disaster in the making. I was also involved in the rescue mission after the ESTONIA sank. There is simply no way that all people on board can be disembarked in time when one such vessel is sinking. For instance, on the newest cruise liners the most expensive cabins are on the higher decks, and are regularly occupied by elderly people. In case of an evacuation they have to descent the many decks using hte stairs. They will never make in on time. Luckally the Costa Concordia sank so close to the shore and did not fully immerse. 4. n/a 5. The IMO type of pictograms and signs cannot always be fully understood by normal passengers. 6. No 7. The fact to get into a lifeboat in case of an emergency can be scary 8. Altough the picture in the EMSA's post is for a cruise ship, thousands of europeans and even more around the world travel each day in passenger ferries, which is my case. If this survey is also for those passengers don't forget to mention it when promoting the survey. 9. No

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