SEAFARERS TRAINING CENTER INC

LEADERSHIP AND TEAMWORK

(Section A-II/1, Section A-III/1, Section A-III/6 and tables A-II/1, A-III/1 and A-III/6)

SCOPE

This course is intended to provide a person with the knowledge, skill and understanding of leadership and teamwork at the operational level on board a ship.

The course is designed to meet STCW 1978 amended requirements for the application of leadership and team working skills, in accordance with the 2010 Manila Amendments, specifically as stand in tables A-II/2 and A-III/2, Function: Controlling the operation of the ship and care for persons on board at the operational level.

OBJECTIVE

On completion of the course the trainee should be able to demonstrate sufficient understanding and knowledge of leadership and team working and have the relevant skills to competently carry out the duties of Master and chief mates on ships of 500 gross tonnage or more, or Chief engineer officer and second engineer officers on ships powered by main propulsion machinery of 3,000 kW propulsion power or more. The knowledge, understanding proficiency should include, but not be limited to, those listed in Column 2 of tables A-II/2 and A-III/2:

- Working knowledge of shipboard personnel management and training
- A knowledge of related international maritime conventions, recommendations and national legislation
- Ability to apply task and workload management
- Knowledge and ability to apply effective resource management
- Knowledge and ability to apply decisions making techniques

ENTRY STANDARDS

It is assumed that trainees undertaking this course will, through on-campus learning and onboard experience, have sufficient familiarity with shipboard operations to understand that

leadership and team working is an essential part of their role on board at the management level.

COURSE CERTIFICATE, DIPLOMA OR DOCUMENT

Documentary evidence should be issue to those who have successfully completed this course, indicating that the holder has completed a course of learning in leadership and team working at the management level, the minimum standard of which is based on this model course.

COURSE DELIVERY

The outcome of this course may be achieved through various methods such as, but not limited to:

- Classroom learning through presentations
- Group discussions
- Role play
- Simulations
- Case study analysis

These methods should be such as to ensure that all participants have adequate opportunities to interact and express themselves in face-to-face situations similar to those likely to occur when engaged in shipboard operations.

COURSE INTAKE LIMITATIONS

The number of participants should depend upon the facilities, but should be not less than is sufficient to enable appropriate interaction among trainees and should not exceed a number that can effectively learn given the resources available.

STAFF REQUIREMENTS

With respect to this course, an "instructor" is a person experienced in the interative teaching of leadership and team working, but who also has knowledge of shipboard situations, including multi-cultural crews and difficulties in communicating clearly in the English language, onboard as well as with people based ashore.

TEACHING FACILITIES AND EQUIPMENT

The facilities should include additional rooms for break-out discussion group, as well as the usual equipment such as overhead projection, interactive whiteboard, flip charts and access to computer terminals. Learning materials should include leadership and teamwork materials, including computer based training presentations and hard copy handouts, together with internet access and access to relevant library books and other publications.

Simulators could be used effectively for the training and assessment of an individual's situational awareness, handling of various situations and the judicious use of leadership and team working skills.

TEACHING AIDS

A1 Instructor manual (Part D of the model course 1.39)
A2 Assessment and Evaluation (Part E of the model course 1.39)

BIBLIOGRAPHY

The following suggested textbooks and websites are recommended for developing knowledge and understanding of leadership and teamwork:

B1 Jeffery, R. (2007) leadership throughout. London, the nautical institute
B2 Bass, B.M. (1990) Bass and Stodgil's handbook of leadership. Third edition. London, the Free Press
B3 Carnegie, Dale (1936 rev. 1981) How to win friends and influence people. Random house
B4 Drucker, P.F. (1968) The Practice of Management. London, William Heinemann
B5 Drucker, P.F. (2003) The New Realities. New Brunswick, NJ, Transaction Publishers
B6 Drucker, P.F. (2004) The Daily Drucker. 366 Days of insight and motivation for Getting the Right things Done. Harper Collins
B7 Goleman, D. (1996) Emotional Intelligence: Why It can Matter More than IQ. London, Bloomsbury
B8 Grint, K. (2005) Leadership: Limits and Possibilities. Basingstoke, Palgrave Macmillan
B9 Handy, C.B. (1993) Understanding Organizations. London, Penguin
B10 Hart, D. (1994) Authentic Assessment: A hand book for Educators, Menlo Park, CA, Addison Wesley

B11 Jones, S. & Glosing, J. (2005) Nelson's Way: Leadership Lessons from the great Commander. London, Nicholas Brealey
B12 Kotter, J. (1990) A force for Change: How Leadership Differs from Management. New York, the free Press
B13 Moon, J.A. (2002) Reflection in learning and Profesional Development. London, Kogan Page
B14 Maritime & Coastguard Agency (MCA) UK (2010) The Human Element: A guide to Human Behaviour in the shipping Industry. London, the stationery officer.
B15 Reason, J (1990) Human Error. New York, Cambridge University Press
B16 Reason, J 81997) Managing the Risk of Organizational Accidents. Aldershot, Ashgate
B17 Senge, P.M. (1994) The fifth Discipline. New York, Doubleday Business
B18 Western, S. (2008) Leadership: A critical Test. London, Sage
B19 Sidney Dekker (2007) Just Culture: Balancing Safety and Accountability. Aldersho, Ashgate
B20 Gunnar Fahlgren (2011) Human Factor. Bloomington, AuthorHouse
B21 Grech, Horberry, Koester (2008) Human Factors in the Maritime Domain. London, CRC Press
B22 Beaty, David (1995) The Naked Pilot. Shrewbury, Airlife Publising
B23 Maritime Resource Management course, provided by the Swedish Club Academy AB

ELECTRONIC MEDIA

E1 Definition. http://www.collinsdictionary.com/dictionary /english/chain-of-command?
E2 Managing Values Across Cultures: www.culturosity.com, www.youtube.com/watch?v=4DSV1NUGS3o and may other videos on leadership and teamwork in a modern context
E3 Situational Awareness etc.: www.crewresourcemanagement.net
E4 How's your cheese: www. Acsf.aero/attachments (pdf)
E5 Concepts of leadership: www.nwlink.com/~donclark/leader/leadcon
E6 International Maritime Organization: www.imo.org
E7 Measuring Outcomes: thelearningmanager.com/pubdownloads/developing
E8 Dale Carnegie's Golden Book: dalecarnegie.com
E9 Teamwork: en.wikipedi.org/wiki/teamwork
E10 Situational Awareness: en.wikioedia.org/wiki/situation_awareness
E11 Appraisal: en.wikipedia.org/wiki/Performance_ appraisal
E12 Risk Assessment: www.ccohs.ca/oshanswers/hsprograms/risk_assessment
E13 Strategic Thinking - Appreciation: www.acumenmobile.com/papers
E14 TeacherVision sites dealing with different teaching and assessment topics
E15 Leadership and teamwork: www.essaycom.com/course/chapter3.htm

IMO REFERENCES

R1 International Convention on Standard of training Certification and Watchkeeping for Seafarers, 1978, as amended 82011 edition)
R2 International Safety Management (ISM) Code and Guidelines on the Implementation of the ISM Code (2010 Edition)
R3 MSC Circular 1014: Gudelines on Fatigue Mitigation and Management
R4 MSC Res A 890(21) & Res A 955(23): Principles of Safe Manning & Amendments

COURSE OUTLINE

Indicative course outline – Total 20 hours, inclusive of assessment time

Subject Area and Topics	Hours
1. Introduction and administracion	1.0
2. Working knowledge of shipboard personnel management and training 1. Organization of crew, authority structure, responsibilities 2. Cultural awareness, inherent traits, attitude, behavior, cross-cultural communication 3. Shipboard situation, informal social structures on board 4. Human error, situation awareness, automation awareness, complacency, boredom 5. Leadership and team working 6. Training, structural shipboard training programme 7. Knowledge of personal abilities and behavior characteristics	5.0
3. Knowledge of international maritime conventions, recommendations and national legislation 1. International maritime conventions – SOLAS, MARPOL, STCW, MLC; role of IMO, ILO 2. Recommendation and national legislation	1.0
4. Ability to apply task and workload management 1. Planning and coordination 2. Human limitations 3. Personal abilities 4. Prioritization	4.0

5. Workloads, rest and fatigue 6. Management (leadership) style	
5. Knowledge and ability to apply effective resource management 1. Effective communication on board and ashore 2. Allocation, assignment and priorization of resources 3. Decision making reflecting team experience 4. Assertiveness and leadership, including motivation 5. Obtaining and maintaining situational awareness 6. Appraisal of work performance 7. Short and long term strategies	4.0
6. Knowledge and ability to apply decision making techniques 1. Situation and risk assessment 2. Identify and consider generated options 3. Selecting course of action 4. Decisión making and problema solving techniques 5. Authority and assertiveness 6. Judgement 7. Emergencies and crowd management	4.0
7. Conclusion 1. Evaluation of course, individual assessment and advice, certificate presentations	1.0
TOTAL	**20.0**

1.0 COURSE TIMETABLE

The following timetable for a 20 hours course should be considered indicative and adjusted in accordance with the needs of course participants. The topics should be covered, but with sufficient flexibility with respect to extent and depth that taken into account the differing learning needs of the participants.

Day	
Day 1	**Teaching working knowledge of shipboard personnel management and training** 1. Organization of crew, authority structure, responsibilities 2. Cultural awareness, inherent traits, attitude, behavior, cross-cultural communication 3. Shipboard situation, informal social structures on board 4. Human error, situation awareness, automation awareness, complacency, boredom 5. Leadership and teamworking 6. Training, structured shipboard training programme 7. Knowledge of personal abilities and behavioural characteristics 8. Case studies, group and plenary discussions
Day 2	**Ability to apply task and workload management** 1. Planning and coordination 2. Personnel assignment 3. Human limitations 4. Personal abilities 5. Time and resource constraints 6. Prioritization 7. Workloads, rest and fatigue 8. Management (leadership) style 9. Challenges and responses 10. Case studies, group and plenary discussions

Day 3	**Knowledge and ability to apply effective resource management** 1. Effective communication on board and ashore 2. Allocation, assignment and prioritization of resource 3. Decision making reflecting team experience 4. Assertiveness and leadership, including motion 5. Obtaining and maintaining situational awareness 6. Appraisal of work performance 7. Short and long term strategies **8.** Case studies, group and plenary discussions
Day 4	**Knowledge and ability to apply decision making techniques** 1. Situation and risk assessment 2. Identify and consider generated options 3. Selecting course of action 4. Evaluation of outcome effectiveness 5. Decision making and problema solving techniques 6. Authority and assertiveness 7. Judgement 8. Emergencies and crowd management 9. Case studies, group and plenary discussions **Knowledge of international maritime conventions, recommendations and national legislation (Teaching should stress "need" – why they are necessary – and not cover details)** 1. International maritime conventions – SOLAS, MARPOL, STCW, MLC; role of IMO, ILO 2. Recommendations and national legislation **Conclusion** Evaluation of course, individual assessments and advice, certificate presentations

Note: Teaching staff should note timetable are suggestions only as regards sequence and length of time allocated to each objective. These factors may be adapted by instructors to suit individual groups of trainees depending on their experience and ability and on the equipment and staff available for training.

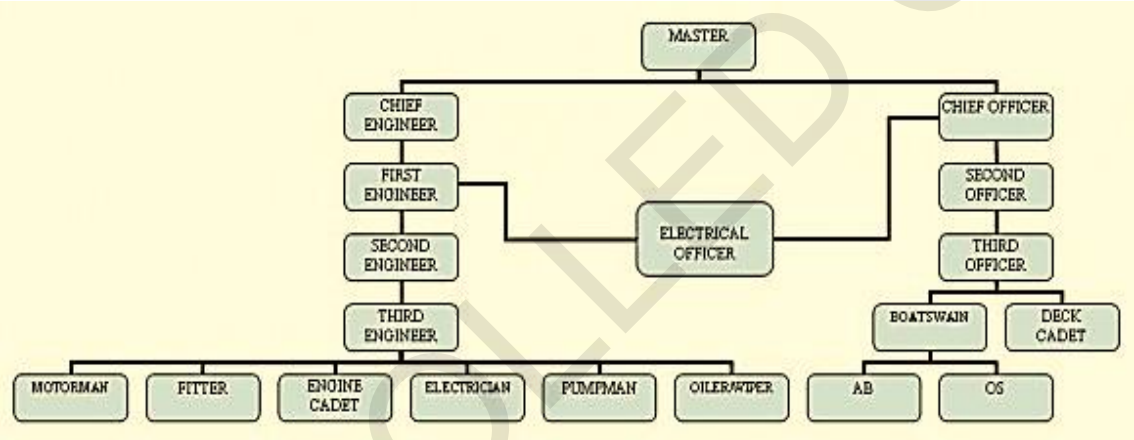
1. Introduccion

1.1 Introduccion and administration

Participants to be welcomed and introduced. The instructor outlines the course objectives, the programme and the teaching methodology. Administrative arrangements are described and participant responses sougt.

2. Working Knowledge of shipboard personnel management and training.

1. Organization of crew, authority structure, responsabilities.



Crew structure on board merchant vessels – deck department

Life on board of a vessel is very different from any other shore based jobs or organization. Each crew member has a precise rank and carries certain responsibilities in order to maintain the vessel operations successful.

Mainly, the vessel's crew has two types of seafarers: officers and ratings. Both these types of crew members have the capacity to work either on deck or in the engine room.

The Deck crew is in charge with the vessel navigation, watch keeping, maintaining the ship's hull, cargo, gear and accommodation, taking care of the ship's lifesaving and firefighting appliances. The deck department is also the one in charge with receiving, discharging and caring for cargo. According to the vessel's hierarchy, the deck officers are as follows: Master, Chief Officer, Second Officer, Third Officer and Deck Cadet (deck officer to be).

The supreme authority on board a merchant vessel is the Master. The entire crew is under his command. He is responsible for the safety, use and maintenance of the vessel and makes sure that every crew member carries out his work accordingly. He is also in charge of the following: payroll, ship's accounting, inventories, custom and immigration regulations, and the ship's documentation. In order to become Master, a seafarer must first have several years of experience as a deck officer and as Chief Officer.

According to the vessel's hierarchy, the first deck officer and the head of the deck department after the Master is the Chief Officer or Chief Mate. He is in charge with the vessel navigation, watch duties, charging and discharging operations. The Chief Officer also directs all the other officers on deck, creates and posts watch assignments and implements the Master's orders in order to maintain safe operations and maintenance of the vessel.

Second Officer or Second Mate is the next in rank after the Chief Mate and is the ship's navigator, focusing on creating the ship's passage plans and keeping charts and publications up to date. Apart from watch keeping, the Second Officer may also be designated to train the cadets on board or to fulfill the rank of security, safety, environmental or medical officer.

The Third Officer or Third Mate is the fourth deck officer in command and is usually the Ship's Safety Officer, responsible with ensuring the good functioning of the fire-fighting equipment and lifesaving appliances. He undertakes bridge watches and learns how to become a Second Officer.

A Cadet on board a merchant vessel receives structured training and experience on board and learns how to become a deck officer.

Apart from the officers, the deck department crew also consists of ratings, such as AB (Able Body Seaman), OS (Ordinary Seaman) and Boatswain.

The AB is part of the deck crew and has duties such as: taking watches, steering the vessel, assisting the Officer on watch, mooring and unmooring the vessel, deck maintenance and cleaning. The AB also secures and unsecures the cargo and carries our deck and accommodation patrols.

OS is the crew member whose main duty is to maintain the cleanliness of the whole ship and serves as assistant for the AB. Being an OS is considered to be an apprenticeship, a period called "sea time" in order to be allowed to take courses and training for AB.

Both AB and OS are usually supervised by a Boatswain, who is also a rating, in charge with examining the cargo-handling gear and lifesaving equipment as well. The Boatswain usually holds an AB certificate as well.

The structure for the deck department on board merchant vessels is mainly the same on all vessel types.

Crew structure on board merchant vessels – engine department

As mentioned in the previous material for the deck department on board merchant vessels, life on board is focused on precise rules and tasks. Each crew member carries out his rank duties in order to keep the vessel operations running safely and smoothly.

The engine crew is responsible with operating, maintaining and repairing, when required, the propulsion and support system. The engine department is also responsible with the repair and maintenance of other systems, such as: lighting, lubrication, refrigeration, air conditioning, separation, fuel oil, electrical power and so on.

According to the vessel's hierarchy, the engine officers are as follows: Chief Engineer, Second Engineer, Engine Watch Officer, Electrician Officer and Engine Cadet.

The first engine officer and in charge of the engine department is the Chief Engineer. He takes complete control of the engine room and must make sure that every system and equipment runs by the book and is suitable for inspection at all times. The Chief Engineer also maintains up to date inventory for spare parts, extra fuel and oil and delegates the tasks for the officers under his command. In order to become a Chief Engineer a seafarer must first be a Second Engineer with at least two years sea time experience.

After the Chief Engineer, in charge with the engine room is the Second Engineer, who also has a management level position. He assists the Chief Engineer in keeping the vessel running efficiently, is responsible for supervising the daily maintenance and operation in the engine room and prepares the engine room for arrival, departure or other operations. He reports directly to the Chief Engineer.

The Engine Watch Officer position is usually held by the Third or Forth Engineer and it is an operational level job. The Third Engineer is usually responsible with the change of boilers, fuel, the auxiliary engines, condensate and feed systems. The Fourth Engineer is the most inexperienced officer, who has duties assigned by the Second Engineer, and some of his responsibilities are: engine watch, air compressors, purifiers and other auxiliary machinery.

Another officer working in the engine room is the Electrical Engineer, in charge with overseeing and ensuring the maintenance and proper functioning of all the electrical systems and machinery. The Electrical Engineer responds directly to the Second Engineer and to the Chief Officer and has to have proper training to do this job.

Some merchant vessels also have amongst its crew members an Engine Cadet or Electrical Cadet, who receive structured training and experience on board and learn how to become an engine or electrical officer.

Apart from the officers, the engine department crew also consists of ratings, such as Motorman, Fitter, Electrician, Pumpman and Oiler/wiper.

The Motorman is the engine rating who keeps watch and assists the engine officers when performing maintenance tasks. He also participates in maintaining and repairing the main and auxiliary engines, pumps and boilers.

On board vessels, the Fitter carries out daily maintenance and engine cleaning jobs and is also specialized in fabrication, welding or repairing.

The Electrician on board a merchant vessel is the rating working on the electrical equipment and systems, wiring and high voltage panels.

Mostly on tanker vessels we may also find a Pumpman, responsible with the liquid cargo transfer system, pumps, the stripping pumps, filters valves, deck machinery involved in the liquid cargo transfer etc. His main job is to keep the liquid cargo system on a tanker running accordingly.

The Oiler or Wiper on board is the rating in charge with cleaning the engine spaces, machinery, lubricating bearings and other moving parts of the engine and assisting the engine officers in the general maintenance of the machinery in order to ensure the oil temperature is within standards and oil gauges are working properly.

Although the crew structure in the engine room is mainly the same, there are vessels that only have a part of the mentioned crew. This is due either to the size of the vessel or to financial reasons.

2. Cultural awareness, inheret traits, attitude, behavior, cross – cultural communication

The iceberg theory of occupational accidents show that the causes of accidents result from the unsafe work, inappropriate human behavior, the interaction between human behavior and work producing hazardous situation, and inappropriate management system. As these causes induce death and serious injuries, which implies the importance for a business organization to establish a culture for working safety.
A corporate culture is a set of shared attitudes, values, goals and practices that characterizes a company. It can affect the way employees feel, act, think and make decisions.
Therefore, a safety culture of an organization can be defined as a set of all members' common attitudes toward, goals of, values and faiths in safety. It is also about all employees' abilities and behaviors that demonstrate on the safety practices.

Seafarers' working habits and culture

The safety of shipping mainly relies on seafarers. Crew that are not responsible, of weak crisis awareness, of insufficient knowledge, and of belief on empiricism often are used to have habits of violation of policies and make human errors. The formation of crew's bad working habits and culture probably results from three main areas, such as inappropriate working management, working atmosphere or culture, and crew's perception of working.
Inappropriate management: It includes job misarranged, weak command of managers and ineffective supervision, which consequently will dilute crew's awareness of working safety.
Working atmosphere or culture: Work atmosphere and culture on ship will influence crew's attitude toward working. If senior crew with the habit of careless and sloppiness, they would repeatedly affect new crew's working manners.
Crew's perception of working: perception of working such as 'I just do following others do', 'I can not solve the problem which others can not solve', 'it is safe as long as there is no accident', 'today is safe as yesterday was safe' are usually circulated on board. These perceptions may cover potential symptoms of hazard and prevent crews from taken precautions against accidents, which will result in a bad quality of safety management owing to ineffective implementation of working rules and regulations.

Policies and practices of safety are used for regulating crew's operations through reward and punishment to pursue the working process implemented successfully. Nevertheless, such management system is not sufficient to achieve the goal of a good safety performance. Establishing a culture that place the safety issue as the highest priority is also necessary and crucial to facilitate the achievement of the goal. With this culture, crew can be nurtured to have higher awareness of safety and to feel an obligation to safety-without concern for repercussions.
The concrete strategies to establish a safety culture on board include:

(1) management and crew's commitments to safety;

(2) the provision of safe works and safety policies and practices, and confirmation whether crew have high awareness of and good attitudes toward safety prior to work;
(3) the safety issue related to work is of the priority to be paid attention than other matters;
(4) a safety culture is identified as part of corporate culture;
(5) effective vertical and horizontal communication about safety issues between managers and crews;
(6)clear policies in relation to reward and punishment for safety matters;
(7) adequate provision of training;
(8) establishing and maintaining a safe workplace and working environment;
(9)implementing risk management of routine work; and
(10) establishing a good evaluation and control system of safety management.

In addition to promoting a safe operation, the importance of a safety culture is that it makes good business sense for a shipping company as alternatively it would be costly to the company, including monetary cost and company reputation. Shipping companies need to evaluate their current culture of safety and move toward the third type safety culture mentioned previously. Leadership and management unconditional commitment as well as crew's participation play vital roles in establishing a safety culture. Changing culture takes time, however, it must to be done for improving working standard and quality so that the costs resulted from accidents can be avoided and further tangible benefits can be generated for companies.

3. Shipboard situation, informal social structures on board

Conduct in emergencies

In any emergency or other situation in which the safety of the ship or of any person on board or the marine environment is at stake, the Master, Officers and Petty Officers are entitled to look for immediate and unquestioning Code of Conduct for the Merchant Navy obedience of orders. There can be no exceptions to this rule. Failure to comply will be treated as among the most serious of breaches of discipline and may also warrant prosecution under the provisions of the Merchant Shipping Acts.

Preparing for and practicing responses for any shipboard emergency is a part of any ship's routine practices. Some Emergency measures adopted by mariners are the followings:

- Emergency Preparedness in Case of Ship Accidents

Whenever some incident of a serious or harmful nature happens suddenly, we classify it as an emergency. One of the most important factors in dealing with an emergency situation, apart from a sharp mind and the control of respectful fear, is the presence of a solid action plan. This is a general rule that is applicable to all situations whether on board a ship in the middle of the ocean or in a crowded city port amidst a sea of people and machinery.
Emergency situations on a ship tend to be more critical because ships are isolated, solitary floating objects moving in the vast and deep oceans. Since there are so many possible types of emergencies, it is necessary to know about both common and emergency essentials.
Here we will take a look at the general procedures and plans to be followed in case of an emergency situation on board a ship.

- Emergency Essentials - Types of Emergencies

For effective usage of the limited emergency equipment available on board, all personnel must be aware of the location of firefighting gear and lifesaving appliances and be trained in their use. They must also be aware of the alarm signals, recognize them, and muster at the muster point in case of any type of emergency.

The general alarm will be sounded in the event of:

- ✓ Fire
- ✓ Collision
- ✓ Grounding
- ✓ Cargo hose burst
- ✓ Major leakage or spillage of oil cargo
- ✓ Any other event which calls for emergency action

Other alarms could include:

- ✓ Engineer alarm for unmanned machinery spaces
- ✓ Carbon dioxide alarm
- ✓ Fire detector alarms
- ✓ Cargo tank level alarms
- ✓ Refrigerated store alarm

If your ship's alarms are ringing, it does not necessarily mean that the situation is out of control. Alarms are warnings, which are sounded so that people onboard take the emergency measures like wearing their life jackets, or gathering at a common point, depending upon the type of emergency and instructions given to them.

- Structure and Function of Emergency Response Teams

The basic structure of any emergency team will usually comprise four sub-groups.

- ✓ The Command Center
- ✓ The Emergency Team
- ✓ The Back Up Squad
- ✓ The Technical Team

Different sub-groups will do different tasks and coordinate with the other sub-groups.
Functions of Emergency Team groups:

- ✓ The Command Center

The command center will be located on bridge. The master is to take responsibility for the overall safety and navigation of the ship. All communications will be performed from here to the different teams as well as shore. A log must be maintained of all events.

- ✓ The Emergency Team

The Emergency Team will have the front line job of tackling the emergency. In general the chief officer will lead the team for the emergency on deck while the 2nd engineer will take charge for engine room emergencies. The duties of each person will have to be laid down and practiced for every emergency so as to avoid duplication, confusion, and chaos.

- ✓ The Support Team

The Support Team is to provide first aid and prepare the lifeboats for lowering. Should the above two function not be required, they should assist as directed.

- ✓ The Technical Team

The Technical, or Engineer's, Team will maintain the propulsion and maneuvering capability of the ship and auxiliary services as far as is possible in the circumstances.

- General Guidelines for Emergency Response

All members of the technical staff must know all the ship emergency codes in detail. All members of the crew should receive appropriate training in accordance with their role at the time of emergency. Mr. Skylight, Mr. Mob, Code Blue, and Oscar are some of the ship emergency codes followed by mariners.
On board passengers must be told about the possible dangers because otherwise the general public starts panicking.
An understanding of the effects on the behavior of the ship of wind, current, shallow water, banks, and narrow channels is equally important so that the technical staff does the wise

thing at the time of emergency. Closing of the watertight doors, fire doors, valves, scuppers, side-scuttles, skylights, portholes, and other similar openings in the ship is very important so that ocean water does not enter inside the ship.
In case of abandoning the ship, all the passengers must be rescued first using life jackets and life boats, or shifting them to another ship. The staff members should be the last ones to leave the ship and that even only after ensuring that no one is left on the abandoned ship. Modern ships are equipped with hi-tech and advanced life saving tools and with the help of mobile communication devices, or can easily contact off-shore rescue teams.

Conduct in situations other than emergencies

Emergency are fortunately rare and this document is primarily concerned with the day-to-day situation on board. An important factor in securing co-operation, which cannot be too strongly stressed, is good communications. This applies both to communications between a company's shore-based administration and the ship and to communications within the ship itself. It should be borne in mind, however, that certain acts of misconduct (e.g. absence from place of duty, etc.) could have the effect of causing an emergency. The following paragraph sets out some broad general guidance on everyday conduct.

a) Punctuality is very important both for the efficient operation of the ship and to avoid putting extra work on others. This is true of joining the vessel at the time appointed, returning from shore leave, reporting for watch-keeping duty and all other work. Absence at the time of sailing, in particular, may seriously delay the ship or even prevent her sailing until a replacement is found.

b) Duties. Every seafarer should carry out their duties efficiently to the best of their ability. Seafarers have a right to be told clearly what their duties are and to whom they are responsible for carrying them out; if in doubt, they should ask. Seafarers must also obey reasonable commands and instructions.

c) Treatment of accommodation. The ship is both a seafarer's place of work and home. Therefore both personal and shared facilities and accommodation should be used appropriately with consideration for others.

d) Behavior towards others. A person's anti-social behavior can be a nuisance to others on board. In extreme circumstances, it can also place the ship and the crew at risk of danger. Such behavior includes but is not limited to excessive noise, abusive language, harassment, bullying, aggressive attitudes and offensive personal habits. Seafarers should also be considerate towards those who need to sleep whilst others are awake.

e) Compliance with company rules and procedures. Any person on board a ship must abide by the applicable company-specific rules and procedures. These include but are not limited

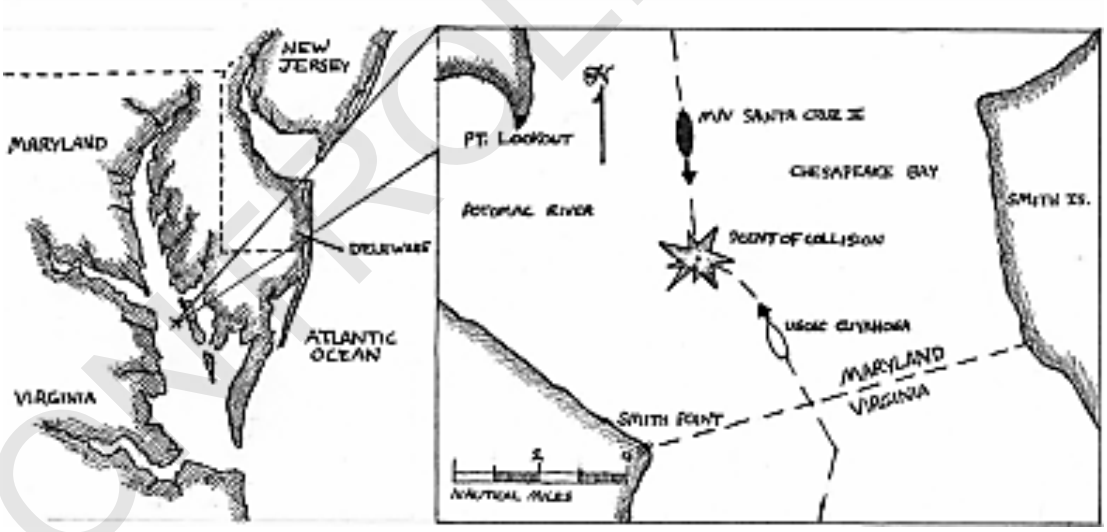
to rules and procedures relating to alcohol, smoking, drugs, offensive weapons, unauthorized persons or possessions or cargo, the environment, health or safety, harassment or bullying, criminal or fraudulent activity and IT systems.

4. Human errors, situation awareness, automation awareness, complacency, boredom

Types of Human Error

What do we mean by "human error"? Human error is sometimes described as being one of the following: an incorrect decision, an improperly performed action, or an improper lack of action (inaction). Probably a better way to explain human error is to provide examples from two real marine casualties.

The *first example* is the collision of the M/V SANTA CRUZ II and the USCGC CUYAHOGAvii, which occurred on a clear, calm night on the Chesapeake Bay. Both vessels saw each other visually and on radar. So what could possibly go wrong? Well, the CUYAHOGA turned in front of the SANTA CRUZ II. In the collision that ensued, 11 Coast Guardsmen lost their lives. What could have caused such a tragedy? Equipment malfunctions? Severe currents? A buoy off-station? No, the sole cause was human error.



There were two primary errors that were made. The first was on the part of the CUYAHOGA's captain: he misinterpreted the configuration of the running lights on the SANTA CRUZ II, and thus misperceived its size and heading. When he ordered that fateful turn, he thought he was well clear of the other vessel. The second error was on the part of the crew: they realized what was happening, but failed to inform or question the captain. They figured the captain's perception of the situation was the same as their own, and that

the captain must have had a good reason to order the turn. So they just stood there and let it happen. Another type of human error that may have contributed to the casualty was insufficient manning (notice that this is not an error on the part of the captain or crew; rather, it is an error on the part of a "management" decision-maker who determined the cutter's minimum crew size). The vessel was undermanned, and the crew was overworked. Fatigue and excessive workload may have contributed to the captain's perceptual error and the crew's unresponsiveness.

The second example is the grounding of the TORREY CANYONviii. Again we have clear, calm weather--this time it was a daylight transit of the English Channel. While proceeding through the Scilly Islands, the ship ran aground, spilling 100,000 tons of oil.

At least four different human errors contributed to this accident. The first was economic pressure, that is, the pressure to keep to schedule (pressure exerted on the master by management). The TORREY CANYON was loaded with cargo and headed for its deep-water terminal in Wales. The shipping agent had contacted the captain to warn him of decreasing tides at Milford Haven, the entrance to the terminal. The captain knew that if he didn't make the next high tide, he might have to wait as much as five days before the water depth would be sufficient for the ship to enter. This pressure to keep to schedule was exacerbated by a second factor: the captain's vanity about his ship's appearance. He needed to transfer cargo in order to even out the ship's draft. He could have performed the transfer while underway, but that would have increased the probability that he might spill a little oil on the decks and come into port with a "sloppy" ship. So instead, he opted to rush to get past the Scillies and into Milford Haven in order to make the transfer, thus increasing the pressure to make good time.

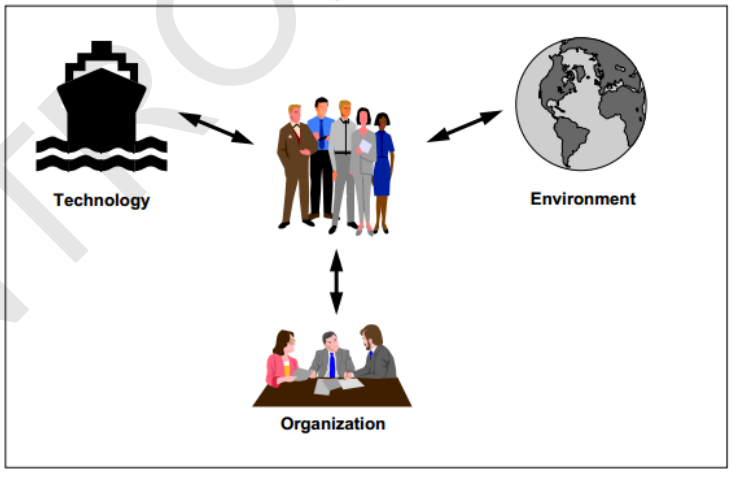
The third human error in this chain was another poor decision by the master. He decided, in order to save time, to go through the Scilly Islands, instead of around them as originally planned. He made this decision even though he did not have a copy of the Channel Pilot for that area, and even though he was not very familiar with the area.

The final human error was an equipment design error (made by the equipment manufacturer). The steering selector switch was in the wrong position: it had been left on autopilot. Unfortunately, the design of the steering selector unit did not give any indication of its setting at the helm. So when the captain ordered a turn into the western channel through the Scillies, the helmsman dutifully turned the wheel, but nothing happened. By the time they figured out the problem and got the steering selector back on "manual", it was too late to make the turn, and the TORREY CANYON ran aground.

As these two examples show, there are many different kinds of human error. It is important to recognize that "human error" encompasses much more than what is commonly called "operator error". In order to understand what causes human error, we need to consider how humans work within the maritime system.

The Maritime System: People, Technology, Environment, and Organizational Factors

As was stated earlier, the maritime system is a people system. People interact with technology, the environment, and organizational factors. Sometimes the weak link is with the people themselves; but more often the weak link is the way that technological, environmental, or organizational factors influence the way people perform. Let's look at each of these factors.

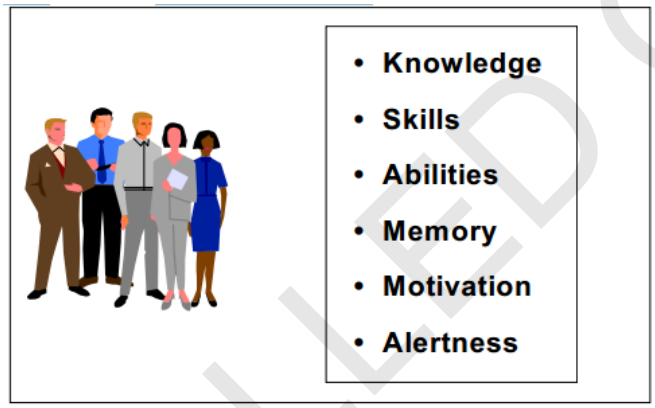


The Maritime System is a People System

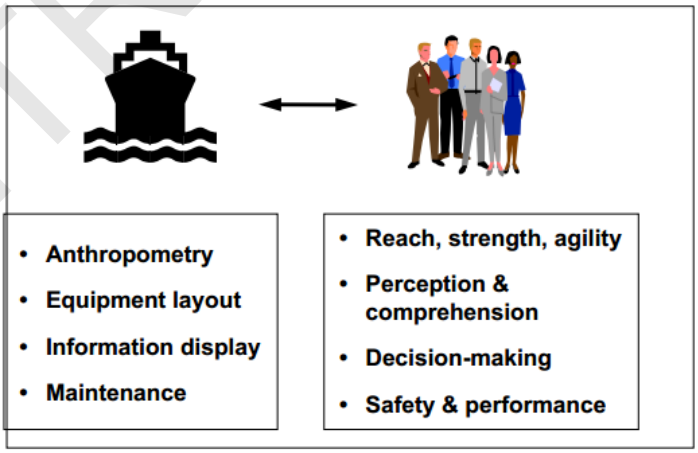
First, the people. In the maritime system this could include the ship's crew, pilots, dock workers, Vessel Traffic Service operators, and others. The performance of these people will be dependent on many traits, both innate and learned (Fig. below). As human beings, we all

have certain abilities and limitations. For example, human beings are great at pattern discrimination and recognition.

There isn't a machine in the world that can interpret a radar screen as well as a trained human being can. On the other hand, we are fairly limited in our memory capacity and in our ability to calculate numbers quickly and accurately--machines can do a much better job. In addition to these inborn characteristics, human performance is also influenced by the knowledge and skills we have acquired, as well as by internal regulators such as motivation and alertness.



The Maritime System: People



The Maritime System: Effect if Technology on People

The design of technology can have a big impact on how people perform (Fig. above). For example, people come in certain sizes and have limited strength. So when a piece of equipment meant to be used outside is designed with data entry keys that are too small and too close together to be operated by a gloved hand, or if a cutoff valve is positioned out of easy reach, these designs will have a detrimental effect on performance. Automation is often designed without much thought to the information that the user needs to access. Critical information is sometimes either not displayed at all or else displayed in a manner which is not easy to interpret. Such designs can lead to inadequate comprehension of the state of the system and to poor decision making.

The environment affects performance, too (Fig. above). By "environment" we are including not only weather and other aspects of the physical work environment (such as lighting, noise, and temperature), but also the regulatory and economic climates. The physical work environment directly affects one's ability to perform. For example, the human body performs best in a fairly restricted temperature range. Performance will be degraded at temperatures outside that range, and fail altogether in extreme temperatures. High sea states and ship vibrations can affect locomotion and manual dexterity, as well as cause stress and fatigue. Tight economic conditions can increase the probability of risk-taking (e.g., making schedule at all costs).

Finally, organizational factors, both crew organization and company policies, affect human performance (Fig. below). Crew size and training decisions directly affect crew workload and their capabilities to perform safely and effectively. A strict hierarchical command structure can inhibit effective teamwork, whereas free, interactive communications can enhance it. Work schedules which do not provide the individual with regular and sufficient sleep time produce fatigue.

Company policies with respect to meeting schedules and working safely will directly influence the degree of risk-taking behavior and operational safety.

As you can see, while human errors are all too often blamed on "inattention" or "mistakes" on the part of the operator, more often than not they are symptomatic of deeper and more complicated problems in the total maritime system. Human errors are generally caused by technologies, environments, and organizations which are incompatible in some way with optimal human performance. These incompatible factors "set up" the human operator to make mistakes. So what is to be done to solve this problem? Traditionally, management has tried either to cajole or threaten its personnel into not making errors, as though proper motivation could somehow overcome inborn human limitations. In other words, the human

has been expected to adapt to the system. This does not work. Instead, what needs to be done is to adapt the system to the human.

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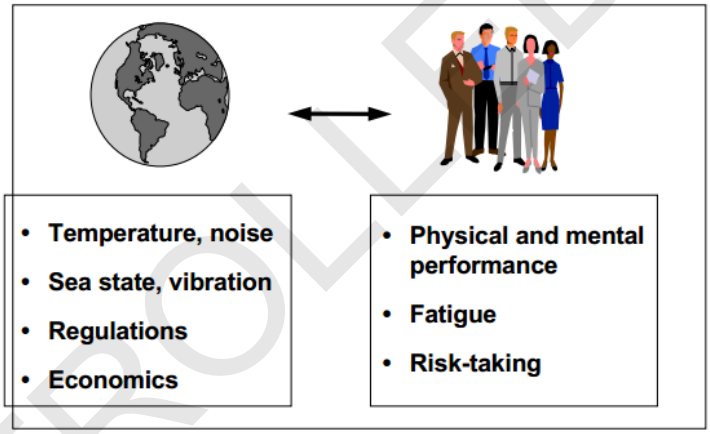
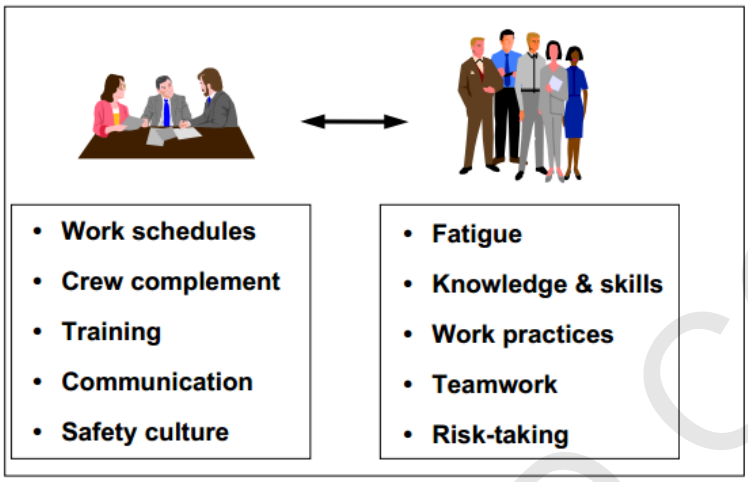


The maritime system: Effect of Environment on People



The maritime system: Effect of Organization on People

Situation Awareness

Situational awareness engendered more positive behaviors than ineffective ones which were clearly linked with other factors such as communication, leadership and team-working and the importance of seeing the bigger pictures:

'assuming roles have been given, then people talking about traffic... talking about where the vessel is in relation to track... about under-keel clearance...

about what's coming up ahead, tugs, hardly anyone being left out, and everybody feeding in and ensuring that others knew what the current status was'

For some, the effective attainment of situational awareness had a core component of technical capacity relating to an individual's ability to elicit information from equipment available to them.

There was also recognition from respondents about the cognitive levels of situation awareness in line with the model develop by Endsley (1995). Endsley's model propose three levels of situation awareness, namely perception, comprehension and projection.

Perception is evidence by:

'You're getting it (information) from all sources...'

'seeking input from the various instruments, from the various people'

Comprehension is supported by:

'...an awareness of everything that's going on around you.'

'...he is stepping back and he can see everything...'

And the highest order level of projection is supported by:

'they will anticipate...'

'...calmness, concentration and by relevant concentration and information, i.e. talking about the task ahead...'

Why should you improve it?

It is important that you know how many problems you face and how serious they are. The temporary loss or lack of situational awareness is a causal factor in many construction accidents.

Often there is so much 'going on' in your working environment, or you become so absorbed in your own thoughts, that you fail to spot those things that could pose a serious threat to your health and safety.

Improve your situational awareness

Get in the habit of regularly pausing to make a quick mental assessment of your working environment. When doing so, consider the following questions:

- Is there anything around you that poses a threat to your health and safety and if so, to what extent?
- Is the threat big enough that you should stop working?
- Is there anything you can do to safely reduce that threat in order that you can carry on working safely?

Use the SLAM technique described next.

If you see something unsafe or spot a hazard, don't walk by – take responsibility to deal with it.

If you feel you are in any immediate danger to your health or safety STOP work immediately and inform your supervisor.

SLAM Technique

SLAM consists of four simple steps:

1. STOP Engage your mind before your hands. Look at the task in hand.
2. LOOK at your workplace and find the hazards to you and your team mates. Report these immediately to your supervisor.
3. ASSESS the effects that the hazards have on you, the people you work with, equipment, procedures, pressures and the environment. Ask yourself if you have the knowledge, training and tools to do the task safely. Do this with your supervisor.
4. MANAGE If you feel unsafe stop working. Tell your supervisor and workmates. Tell your supervisor what actions you think are necessary to make the situation safe.

You may wish to create your own SLAM prompt card for your workforce on site. Side A could contain the SLAM technique as above. Side B could include key areas of risk to be aware of on your site.

Where and when should situational awareness techniques be used?

Assessment of your working environment should occur continually, but especially in the following situations:

- When beginning work on a new project/contract.
- When you think the work environment has changed since a risk assessment or method statement was written.
- When working with new or different workmates.
- Before complacency has set in – it can be a silent killer!

5. Leadership and Team Working

The role of a manager

A team leader/manager's job is to get things done by using all resources available to them. One of the first and most famous management theorists was Henri Fayol. Based on observation and experience, he proposed that there were five main functions of management.

Fayol's work illustrated a good system to help managers to work effectively. For instance, a scenario might be that a team is given an objective to find a way of reducing waste. Fayol's five functions can be applied to this waste reduction scenario to illustrate the importance of each function.

Planning involves setting goals for future performance. For instance, achieving a 5% reduction in waste over the next two years. This will involve deciding what equipment, training and staff involvement will be needed to achieve this goal.

Organising involves assigning tasks to different departments or individuals to achieve the goal.

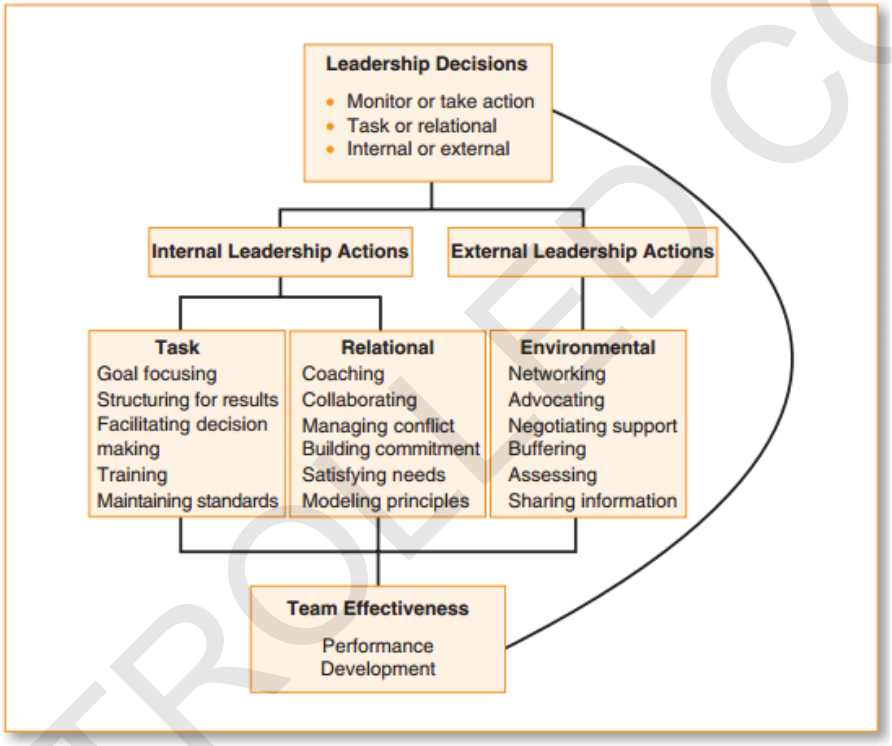
Commanding involves giving instructions to subordinates to carry out tasks. Such leadership is vital and CMI is committed to developing manager's skills in this area.

Co-ordinating involves bringing all departments together to achieve the goals. Achieving waste reduction will involve the operations team improving practices whilst the HR team will decide what training may be needed. The finance team will work out budgets available to finance any changes.

The final key function is controlling. Managers need to monitor progress against the goals, in this case reducing waste, and take appropriate corrective action as and when it is required.

The team leadership model

Effective leadership in teams assumes behavioral flexibility, problem-solving skills applicable to teams, and using discretion when determining if leader intervention is necessary. In the model in Figure below, the first box suggests that leadership decisions affect team effectiveness directly and through internal and external actions that leaders can decide to take or not take.



The model in the Figure is a good guide for inexperienced team leaders and will become more useful as leaders gain experience that allows them to internalize the model to the point where it becomes almost tacit—that is, leaders respond to situations without even thinking about the model.

The actions listed in the model are not all inclusive, and astute team leaders will add others and maybe delete some as they gain leadership experience in a team environment. What is most important is developing the ability to discern when an intervention is needed and the appropriate action to take during the intervention.

Internal task leadership actions are used to improve a team's ability to get the job done. They include the following:

- Being focused on appropriate goals
- Having the right structure to achieve the team's goals

- Having a process that makes decision making easier
- Training team members through developmental/educational seminars
- Setting and maintaining appropriate standards for individual and team performance

Internal relational actions are those required to improve team members' interpersonal skills and intrateam relationships. They include the following**:**
Coaching to improve interpersonal skills

- Encouraging collaboration among team members
- Managing conflict to allow intellectual conflict but not personal conflict
- Enhancing team commitment
- Satisfying the trust and support needs of team members
- Being fair and consistent in exercising principled behavior

It's all about Teamwork

It is encouraging to note 2010 Manila amendments to the STCW Code which mandates for training in bridge and engine room resource management and includes the application and use of leadership, managerial and team working skills for deck and engeering officer. The amendments recognise the need for effective communication onboard and ashore; and the importance of assertiveness and leadership, including motivation.
An analogy for the safe and efficient operation of a ship is that of the orchesta: The ultimate sucess of any orchestra lies with its musicians; each is higly trained and is part of a smaller team (string, brass, woodwinds, percussion etc) within the orchestra.

As a group they must be able to follow the score to the note. If one member of the orchestra makes a mistake, it will be evident not only to the rest of the orchestra but also the audience.

The conductor needs to understand the musical score as it is written and then lead a large and diverse group of musicians playing different instruments to achieve a harminious and sensitive delivery of the music.

He had to deal with the differing strengths, needs, sensitivities and communication style of the members of his orchestra. He is, of course, supported and directed by the board of directors.

In the ship context, the master is the conductor; the deck, engineer and hotel department represent the strings, the brass and the percussionists. The operations staff are, of course

also a part of this team, whose ultimate aim is to ensure the safe conduct of the ship and the safe and timely arrival of the cargo.

6. Training, structural shipboard training programme

Structured Shipboard Training Programme or SSTP is also known as Distance learning Program or DLP for deck cadets. This simply means that the Cadets need to complete a structured training programme on board ship when they join as trainee (cadet) on board. Cadets undergoing training needs to complete SSTP projects and assignments and send the same in due course of time.

The Importance of Shipboard Training

"The progress of shipboard training for cadets is to develop with a planned training. The Master usually delegate his responsibility to his Chief Officer who assumes commitment for organization a proper training program. On board ship training is concerned with performance rather than with subject manner; person learn to perform the task required on the job in the actual job setting under the guidance of the Chief Officer and assistance from other navigating officers".

Learning process occurs as the result of interaction between the dealing with Chief Officer and cadets through feedback whether positive or negative. On board training when carefully planned is an organized method of training, designed to help the cadets, through Chief Officer's instruction, learn skills while actually working in an assigned job.

Benefits of Training Onboard

One of the most important benefits of shipboard practical is that cadet is able to learn things through practical exercises by doing various jobs onboard ships. The exposure of cadets to the working environment is able to help cadets realize and understand the job requirements onboard merchant vessels. They are able to show their capabilities, gain confidence, and test effectiveness and productivity upon training onboard.

The new seafarers learn through doing the job, experiencing the same problems that will face in the profession. Cadets are permitted to work at their own speed, thereby gaining confidence and a sense of productiveness. If they learn in the actual work

environment, an understanding of the job and opportunity to correct errors before they become established is assured.

One of the potential benefits to be gained from a training regime which describes the outcomes required to undertake the various functions onboard, is flexibility. For cadets, the breaking down of the complex job of the watchkeeper into smaller elements allows flexibility of learning and timing and also provides the opportunity for skills gained onboard for truly multi-skilled officers in the future.

7. Knowledge of personal abilities and behavior

A Competency is an attribute, knowledge, skill, ability or other characteristic that contributes to successful job performance. Behavior competencies are observable and measurable behaviors, knowledge, skills, abilities, and other characteristics that contribute to individual success in the organization (e.g., teamwork and cooperation, communication). Behavioral Competencies can apply to all (or most) jobs in an organization or be specific to a job family, position, or career level. Behavioral competencies describe what is required to be successful in an Organization outside of a specific job. As such, behavioral competencies are specific to a person rather than to a job. Behavioral competencies describe how we do something, such as manage our jobs, our homes or our lives generally, and the behaviors we use, for example decision making, information gathering and wider thinking. Behavioral competencies clearly set out for staff and managers the behaviors that are required in each area of the organization in order to be successful. This helps people understand what is expected of them and gives them greater clarity about their team, and individual roles within it. Understanding the behavior that other areas of the organization see as essential to effective performance also helps us to improve how we work together. The behavioral competency is designed to be used by multiple Human Resource functions including Performance Management, Workforce Planning, Succession planning, Training and development, and Recruitment. The competencies and their "behavioral indicators" define what each employee needs to do to be successful and to contribute to the organization vision, mission, goals, objectives and strategies. The word behavioral competency is widely used in business and personnel psychology and refers to the behaviors that are necessary to achieve the objective of an Organization. Behavioral competency is also something you can measure and lists of competencies form a common language for describing how people perform in different situations. Every job or positions can be described in terms of hey behavioral competencies. This means that they can be used for all terms of Assessment, Including performance appraisals, training needs analysis and of course selection. Researchers measured the effect of organization advisors emotional, cognitive and other behavioral competencies on their clients' portfolio performances.

Classification

Types of Behavioral Competencies can be classified as follows:

1. Individual competencies – your personal attributes: Flexibility (personality), decisiveness, tenacity, independence, risk taking, personal integrity.

8. Managerial Competencies – Taking charge of other people: Leadership, Empowerment, Strategic planning, corporate sensitivity, Project Management and Management control.

9. Analytical Competencies – The elements of the decision making, Innovation, Analytical skills, numerical problem solving, practical learning, detail consciousness.

10. Interpersonal Competencies – Dealing with other people, communication, impact persuasiveness, personnel awareness, teamwork and openness.

11. Motivational Competencies – The things that drive you. Resilience (organizational), energy, motivation, achievement orientation, initiative, Quality Focus.

There are five competency groups given below and each group contain different behavioral competencies:

1. Achieving and delivery - Drive for results, Serving the customer, Quality focus and Integrity.

2. Personal effectiveness - Planning, organising and flexibility, Confidence and self-control, Problem solving and initiative and Critical information seeking.

3. Working together - Communicating with clarity, Embracing change, Collaborating with others and Influencing and relationship building.

4. Thinking and innovation - Innovation and creativity and Conceptual and strategic thinking.

5. Managing, leading and developing others - Managing and leading the team.

3 Knowledge of international maritime conventions, recommendations and national legislation

a. Role of IMO and ILO

- IMO

The International Maritime Organisation (IMO) is the United Nations agency responsible for developing international regulation for the shipping industry. This includes measures to deal with safety, the environment, technical co-operation, legal issues and security.

What does the IMO do?

The IMO sets international maritime standards through a number of Conventions and guidelines. The three main IMO Conventions are:

- International Convention for the Safety of Life at Sea (SOLAS) – which covers safety at sea
- Standards of Training, Certification and Watchkeeping Convention (STCW) – covering training and professional standards for seafarers
- International Convention for the Prevention of Pollution from Ships (MARPOL) – which addresses environmental concerns

Why is the IMO important to seafarers?

The IMO Conventions are of importance to seafarers because they have a direct impact on living and working conditions. The IMO is made up of representatives of the flag States. The ITF, representing the interests of seafarers, and the organisations of the shipping industry have observer status. This means that we can have an input into discussions but no vote on any decisions that are to be taken. The ITF has a permanent representative to the IMO, in addition there are monitors elected from ITF affiliated unions who participate in the various committees. Our aim is to ensure that seafarers' interests are addressed and protected when any new regulation is being considered.

Which areas are covered?

There are committees or sub-committees on the following subjects

- Maritime safety
- Marine environment protection
- Legal
- Facilitation
- Technical co-operation
- Bulk liquids and gases
- Radiocommunications and search and rescue
- Ship design and equipment
- Dangerous goods, solid cargoes and containers
- Fire protection
- Flag State implementation
- Safety of navigation
- Stability of load lines and on fishing vessels safety
- Standards of training and watchkeeping

ILO

The International Labour Organisation (ILO) is the UN agency that sets internationally recognised labour standards to protect the rights of workers.

The ILO is made up of a social partnership of governments, employers and trade unions. ITF leads the work of the shipping and fisheries trade unions in this partnership.

What does the ILO do?

The ILO sets international labour standards through key international agreements:

- Declaration of Fundamental Rights at Work (1998) enshrines the right of workers to organise and bargain effectively, as well as freedom from discrimination and other basic employment rights

- Eight 'core' ILO Conventions cover the fundamental rights expressed in the Declaration. These Conventions cover:

  - ✓ Forced labour
  - ✓ Freedom of association and protection of the right to organize
  - ✓ Right to organise and collective bargaining
  - ✓ Equal remuneration
  - ✓ Abolition of forced labour
  - ✓ Discrimination (employment and occupation)
  - ✓ Minimum age
  - ✓ Elimination of the worst forms of child labour

Major achievements of the ILO over the past few years include the adoption of the Maritime Labour Convention, 2006, and the Work in Fishing Convention.

What is the Maritime Labour Convention?

Adopted in February 2006, the ILO's Maritime Labour Convention sets the minimum standards to ensure satisfactory conditions of employment for the world's seafarers. It brings together and updates over 65 other ILO maritime labour instruments, while introducing a system of certification and inspection to enforce it.

This Convention needs to be ratified by a minimum number of ILO member states to come into effect - the European Parliament wants to see European Union countries ratify the Convention by 2008.

Once ratified, ships of all countries will be subject to inspection in the ports of any country that has ratified. Ships could be detained if they are deemed not to have met the standards set.

Which areas does it cover?

The Maritime Labour Conventions covers:

- An employment agreement, guaranteeing decent on-board working and living conditions, to be signed by both the seafarer and the shipowner, or a representative of the shipowner
- Monthly pay, in full and in accordance with the employment agreement and any applicable collective agreement
- 14-hour work limit in any 24-hour period, 72 hours in any seven-day period
- The shipowner must pay to repatriate a seafarer in case of illness, injury, shipwreck, insolvency, sale of ship and so on
- Specific requirements for living accommodation and recreational facilities – including minimum room sizes, and satisfactory heating, ventilation, sanitary facilities, lighting and hospital accommodation.
- Access to prompt medical care when on board and in port

Ships will need to comply with the Convention through holding a Maritime Labour Certificate and Declaration of Maritime Labour Compliance issued by the flag state, which must be available on board for any port state inspection.

What is the Work in Fishing Convention?

The ILO Work in Fishing Convention (No.188) was adopted in 2007 to set standards to protect workers in the fishing sector. It will come into effect when it is ratified by a minimum of 10 ILO member states (including eight coastal nations). The Convention aims to ensure that fishers:

- Have improved occupational safety and health and medical care at sea, and that sick or injured fishers receive care ashore
- Receive sufficient rest for their health and safety
- Have the protection of a work agreement
- Have the same social security protection as other workers

There are also measures to ensure compliance and enforcement. Large fishing vessels on extended voyages may be inspected in foreign ports to ensure that fishers do not work under conditions that are hazardous to their safety and health.

Do the IMO and ILO work together?

Sometimes the IMO and ILO join forces to address issues of mutual concern. Two examples of this are the fair treatment of seafarers in the event of a maritime accident, for which there are now joint guidelines, and the issue of liability and compensation regarding claims for death, personal injury and abandonment of seafarers.

STCW

The safety of life at sea, the marine environment and over 80% of the world's trade depends on the professionalism and competence of seafarers.

The IMO's International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW), 1978 was the first internationally-agreed Convention to address the issue of minimum standards of competence for seafarers. In 1995 the STCW Convention was completely revised and updated to clarify the standards of competence required and provide effective mechanisms for enforcement of its provisions.

In 1997, IMO adopted a resolution setting out its vision, principles and goals for the human element. The human element is a complex multi-dimensional issue that affects maritime safety, security and marine environmental protection involving the entire spectrum of human activities performed by ships' crews, shore based management, regulatory bodies and others. All need to co-operate to address human element issues effectively.

Since the 1980s IMO has increasingly addressed the people involved in shipping in its work. In 1989, IMO adopted Guidelines on management for the safe operation of ships and for pollution prevention - the forerunner of what became the International Safety Management (ISM) Code which was made mandatory through the International Convention for the Safety of Life at Sea, 1974 (SOLAS).

The ISM Code is intended to improve the safety of international shipping and to reduce pollution from ships by impacting on the way shipping companies are managed and

operated. The ISM Code establishes an international standard for the safe management and operation of ships and for the implementation of a safety management system (SMS).

Effective implementation of the ISM Code should lead to a move away from a culture of "unthinking" compliance with external rules towards a culture of "thinking" self-regulation of safety - the development of a 'safety culture'. The safety culture involves moving to a culture of self-regulation, with every individual - from the top to the bottom - feeling responsible for actions taken to improve safety and performance.

b. Recommendation and national legislation

The maritime industry's most important concerns are safety of personnel and prevention of marine pollution for a smooth cargo transportation and marine operation at high seas. International Maritime Organisation (IMO) introduced SOLAS – Safety of life at sea, MARPOL- The International Convention for Prevention of Marine Pollution from Ships, for safeguarding human life and marine environment from all kinds of pollutions & International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW).
SOLAS 74, the last adopted revised convention of 1974, includes a number of chapters which deals with safety precautions and safety procedures starting from the construction of ship to real emergency situation like – "Abandon Ship". The convention is updated so as to meet the safety norms in the modern shipping industry.

MARPOL 73/78, since it came into force in 1973 and later revised by the protocol in 1978, ensures that shipping remains the least environmentally damaging modes of transport. It clearly highlights the points to ensure that marine environment is preserved by elimination of pollution by all harmful substance which can be discharged from ship.

The 1978 STCW Convention was the first to establish basic requirements on training, certification and watchkeeping for seafarers on an international level. Previously the standards of training, certification and watchkeeping of officers and ratings were established by individual governments, usually without reference to practices in other countries. As a result standards and procedures varied widely, even though shipping is the most international of all industries.
The Convention prescribes minimum standards relating to training, certification and watchkeeping for seafarers which countries are obliged to meet or exceed.

Thus, Safety of Life at Sea (SOLAS) and Convention for Prevention of Marine Pollution (MARPOL) and Standards of Training, Certification and Watchkeeping for Seafarers stands as three solid pillars that support the maritime industry by protecting the most important issues – marine pollution prevention and safety of human life and seafarers.

The entry into force of the MLC convention marks significant progress in the recognition of seafarers' roles and the need to safeguard their well-being and their working conditions. This is a truly important landmark for seafarers; and for shipping, on which the global economy relies.

The MLC treaty, which has been ratified by 48 countries, aims to achieve decent work for the world's seafarers and secure economic interests in fair competition for quality shipowners.

The MLC is considered the 'fourth pillar' of the most important maritime regulations covering international shipping, complementing three major conventions adopted by IMO: the International Convention for the Safety of Life at Sea (SOLAS); the International Convention for the Prevention of Pollution from Ships (MARPOL); and the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). These three IMO treaties were first adopted in the 1970s and have each been ratified by more than 150 countries, representing more than 99 per cent of world merchant shipping.

SOLAS + STCW + MARPOL + MLC

IMO and ILO have a long history of co-operating on issues which come under the remit of both Organizations, insofar as they relate to seafarers, and have established joint ILO/IMO ad-hoc expert working groups on issues such as on hours of work and rest, seafarers' medical examinations, fair treatment of seafarers in the event of a maritime accident, and liability and compensation regarding claims for death, personal injury and abandonment of seafarers.

IMO's STCW Convention was revised in 2010 and includes mirror provisions to the MLC requirements on such issues as hours of work and rest, where the two treaties overlap

Mandatory IMO Instruments

- SOLAS 74
- SOLAS 74 + PROT 78
- SOLAS 74 + PROT 88
- MARPOL 73/78 + PROT 97
- STCW 78
- LOAD LINES 66
- LOAD LINES 66 + PROT 88
- Tonnage 69
- COLREG 72
- All instruments (Codes etc.) made mandatory through these conventions and protocol

Government Responsibility
The Government of a State Party to a mandatory IMO instrument must be in a position to implement and enforce its provisions through appropriate national legislation and to provide the necessary implementation and enforcement infrastructure.

4 Ability to apply task and workload management

a. Planning and coordination

Planning is considered to be the central function of management because it sets the pattern for the other activities to follow. "Planning means defining goals for future organizational performance and deciding on goals, objectives, the tasks and use of resources needed to attain them" (Richard Daft). Planning encompasses four elements:

- Evaluating environmental forces and organizational resources
- Establishing a set of organizational goals
- Developing strategies and plans to achieve the stated goals

- Formulating a decision-making process

These elements are concerned with organizational success in the near future as well as success in the more distant future. Planning to the future, the manager develops a strategy for getting there. This process is referred to as strategic planning. The other examples of planning are business planning, project planning, personnel planning, advertising and promotion planning, etc.

Managers at every level of an organization plan. The plans outline what the organisation must do to be successful. While plans of each managerial level may differ in focus, they harmonise to achieve both the short and long term organisational goals.

The organizing, leading and controlling functions all derive from planning in that, these functions carry out the planning decision.

The final phase of the management process is controlling. "Controlling means monitoring employees' activities, determining whether the organization is on target toward its goals, and making correction as necessary.

Controlling ensures that, through effective leading, what has been planned and organized to take place has in fact taken place.

Three basic components constitute the control function:

- Elements of a control system
- Evaluating and rewarding employee performance
- Controlling financial, informational, and physical resources.

Controlling is ongoing process. An effective control function determines whether the organization is on target toward its goals and makes corrections as necessary.

Thus the purpose of management control is to ensure the organization stays on its quality path. Controlling or coordinating includes continuous collection of feedback, monitoring and adjustment of systems, processes and structures accordingly. Examples include use of financial controls, policies and procedures, performance management processes, measures to avoid risks, etc.

It is worth pointing out that these managerial functions are related and interrelated to each other.

b. Human limitations

Limitation - A reduction of the individual's capacity to perform job-related tasks as a result of a psychological condition. The person can still do their job from a psychological point of view, though with reduced capacity e.g. the worker is slower, less productive, less efficient, or can do the work activity for a shorter duration – but they can still do that activity.

- ✓ For instance, the worker with poor concentration may be limited in tasks in which an increased error rate is unacceptable e.g. a production line, or from tasks which demand a high degree of productivity e.g. assembling a certain number of items within a time limit. While there may be no danger of immediate harm, the worker is likely to significantly slow down production, create problems for co-workers, or be fired for lack of adequate performance.

The many barriers to critical thinking can be broken down into four basic categories.

- ✓ Basic human limitations
- ✓ Use of language
- ✓ Faulty logic or perception
- ✓ Psychological and sociological pitfalls

Basic human limitations

Our basic human limitations remind us that we are not perfect and that our understanding of such things as facts, perceptions, and memories prevents us from seeing or understanding the world with total clarity.

There are many examples of basic human limitations that interfere with our ability to think critically.

- ✓ Confirmation Bias and selective thinking
- ✓ False memories
- ✓ Ignorance
- ✓ Perception limitations
- ✓ Personal biases and perjudices
- ✓ Physical and emotional hindrances
- ✓ Testimonial evidence

Describing limitations or restrictions

a. The description should be detailed, but clear and easy to understand for the reader.

For example:
"Due to the worker's cognitive difficulties (concentration problems, memory difficulties, impaired judgment, and poor decision-making abilities), they are likely to have limitations in positions in which a significant component of the job involves complex activities, high-level decision-making, or multi-tasking i.e. supervisory or managerial positions, high-level clerical or analyst positions, etc… For the same reasons, they are also restricted from any position involving operation of high-speed or dangerous machinery, due to the risk for injury to themselves or others."

b. It is important to comment on the clinical reason for, and the plausibility of, the worker's stated or observed limitations. For example:
"Given the level of cognitive impairment resulting from the head injury (as outlined in neuropsychological testing, collateral information from spouse, and the functional capacity assessment), the above-noted limitations and restrictions are reasonable and may reduce the likelihood of a failed return to work."

c. The description of limitations should be based on the provider's review of the available information and their clinical judgment, not simply the worker's self-report. For example:
"While the worker reports that they have severe memory impairments and cannot work at all, collateral information and psychological testing places these impairments in the mild to moderate range. Therefore, the worker is not totally impaired, but may be limited in, or even precluded from, the positions outlined above."

d. Opinions on non-psychological conditions and limitations should not be included i.e. physical limitations, lack of education, etc.

e. Comments on psychological conditions and limitations unrealated to the work incident should be clearly noted as such. For example:
"While the worker's depression is clearly impacting his ability to work, this preexisting condition had already resulted in a partial disability 6 weeks prior to the work incident."
"The worker's anxiety and related limitations appear to be more a result of ongoing labour relations issues that the compensable work incident."

f. Any statement of significant limitations, restrictions or disability must be accompanied by significant supporting clinical information. It is not appropriate to make statements

that a claimant is partially or totally disabled while providing little or no supporting information and few limitations or restrictions.

g. Limitations and restrictions may be temporary or permanent and it is important to describe them with the appropriate qualifiers.

i. Temporary limitations and restrictions may require work accommodation during treatment that can be removed at the point of recovery.
ii. Permanent limitations and restrictions are not removed even after the person has reached their point of maximum recovery.

c. Personal abilities

What is the best guarantee of your security and survival? Is it money? Talent? Education? A good relationship? Is it who you know?

While these certainly can play a part, the best guarantee of your security and survival is you. In fact, your confidence and certainty in your personal abilities is the only guarantee that you will succeed in whatever you choose to do—today and tomorrow.

Personal Abilities addresses the only thing which can influence your life, and the lives of those around you: You. By making available to you cutting-edge technology that is far in advance of anything you may have seen or experienced to date, you are poised to acquire knowledge about yourself that will quite frankly, blow you away! Once you have this knowledge and have experienced the positive effects it brings to your life, your abilities will increase and barriers will fall away. With each step, your competence and confidence improve, revealing a future path of your choosing.

Personal skills will often be related to how you fit into ‘the team’ or the ‘culture of the workplace’.

Too often, we only think about our technical skills as they are easiest to identify. These are important; but employers want a person who can approach the task and interact with others too. If you have a clear understanding of your skills, it helps you to become more confident with employers.

It also helps you to consider other patterns and forms of employment and should enable you to explore realistic work options.

d. Prioritization

Prioritization is the essential skill that you need to make the very best use of your own efforts and those of your team. It's also a skill that you need to create calmness and space in your life so that you can focus your energy and attention on the things that really matter.

It's particularly important when time is limited and demands are seemingly unlimited. It helps you to allocate your time where it's most-needed and most wisely spent, freeing you and your team up from less important tasks that can be attended to later... or quietly dropped.

With good prioritization (and careful management of reprioritized tasks) you can bring order to chaos, massively reduce stress, and move towards a successful conclusion. Without it, you'll flounder around, drowning in competing demands.

Simple Prioritization

At a simple level, you can prioritize based on time constraints, on the potential profitability or benefit of the task you're facing, or on the pressure you're under to complete a job:

- Prioritization based on project value or profitability is probably the most commonly-used and rational basis for prioritization. Whether this is based on a subjective guess at value or a sophisticated financial evaluation, it often gives the most efficient results.
- Time constraints are important where other people are depending on you to complete a task, and particularly where this task is on the critical path of an important project. Here, a small amount of your own effort can go a very long way.

- And it's a brave (and maybe foolish) person who resists his or her boss's pressure to complete a task, when that pressure is reasonable and legitimate.

Prioritization Tools

While these simple approaches to prioritization suit many situations, there are plenty of special cases where you'll need other prioritization and time management tools if you're going to be truly effective. We look at some of these prioritization tools below:

✓ Paired Comparison Analysis

Paired Comparison Analysis is most useful where decision criteria are vague, subjective or inconsistent. It helps you prioritize options by asking you to compare each item on a list with all other items on the list individually.

By deciding in each case which of the two is most important, you can consolidate results to get a prioritized list.

✓ Decision Matrix Analysis

Decision Matrix Analysis helps you prioritize a list of tasks where you need to take many different factors into consideration.

✓ The Action Priority Matrix

This quick and simple diagramming technique asks you to plot the value of the task against the effort it will consume.

By doing this you can quickly spot the "quick wins" which will give you the greatest rewards in the shortest possible time, and avoid the "hard slogs" which soak up time for little eventual reward. This is an ingenious approach for making highly efficient prioritization decisions.

✓ The Ansoff Matrix and the Boston Matrices

These give you quick "rules of thumb" for prioritizing the opportunities open to you.

The Ansoff Matrix helps you evaluate and prioritize opportunities by risk. The Boston Matrix does a similar job, helping you to prioritize opportunities based on the attractiveness of a market and your ability to take advantage of it.

✓ Pareto Analysis

Where you're facing a flurry of problems that you need to solve, Pareto Analysis helps you identify the most important changes to make.

It firstly asks you to group together the different types of problem you face, and then asks you to count the number of cases of each type of problem. By prioritizing the most common type of problem, you can focus your efforts on resolving it. This clears time to focus on the next set of problems, and so on.

e. Workloads, rest and fatigue

For many years, fatigue was discounted as a potential cause of or contributor to human error. One reason for this misunderstanding was the old myth that fatigue could be prevented by various characteristics: personality, intelligence, education, training, skills, compensation, motivation, physical size, strength, attractiveness, or professionalism. However, recent accident data and research point to fatigue as a cause of and/or contributor to human error precisely because of its impact on performance. Human error resulting from fatigue is now widely perceived as the cause of numerous marine casualties, including one of the worst maritime environmental disasters in the last century, the Exxon Valdez. The negative effect of fatigue present a disastrous risk to the safety of human life, damage to the environment, and property. Because shipping is a very technical and specialized industry, these negative effects are exponentially constant alertness and intense concentration.

There are many ways to categorise the causes of fatigue. To ensure thoroughness and to provide good coverage of most causes, they have been divided into 4 general categories.
• Crew-specific factors
• Management factors (ashore and aboard ship)
• Ship-specific factors
• Environmental factors

<u>Crew Specific Factors</u>

The crew-specific factors are related to lifestyle behaviour, personal habits and individual attributes.
However, fatigue varies from one person to another and its effects are often dependent on the particular activity being performed.
The crew-specific factors include the following:

✓ Sleep and rest
- quality, quantity and duration of Sleep

- sleep disorders/disturbances
- rest breaks

✓ Biological clock/circadian rhythms

✓ Psychological and emotional factors, including stress
- fear
- monotony and boredom

✓ Health
- diet
- illness

✓ Stress
- skill, knowledge and training as it relates to the job
- personal problems
- interpersonal relationships

✓ Ingested chemicals
- alcohol
- drugs (prescription and non-prescription)
- caffeine
- Age
- Shift work and work schedules
- Workload (mental/physical)
- Jet lag

Management Specific Factors

The management factors relate to how ships are managed and operated. These factors can potentially cause stress and an increased workload, ultimately resulting in fatigue. These factors include:

✓ Organizational factors
- staffing policies and retention
- role of riders and shore personnel
- paperwork requirements
- economics
- schedules-shift, overtime, breaks
- company culture and management style
- rules and regulations
- resources

- upkeep of vessel
- training and selection of crew

✓ Voyage and scheduling factors
- frequency of port calls
- time between ports
- routing
- weather and sea condition on route
- traffic density on route
- nature of duties/workload while in port

Ship Specific Factors

These factors include ship design features that can affect/cause fatigue. Some ship design features affect workload (i.e. automation, equipment reliability), some affect the crew's ability to sleep, and others affect the level of physical stress on the crew (i.e. noise, vibration, accommodation spaces, etc.). The following list details ship-specific factors:

✓ ship design
✓ level of automation
✓ level of redundancy
✓ equipment reliability
✓ inspection and maintenance
✓ age of vessel
✓ physical comfort in work spaces
✓ location of quarters
✓ ship motion
✓ physical comfort of accommodation spaces

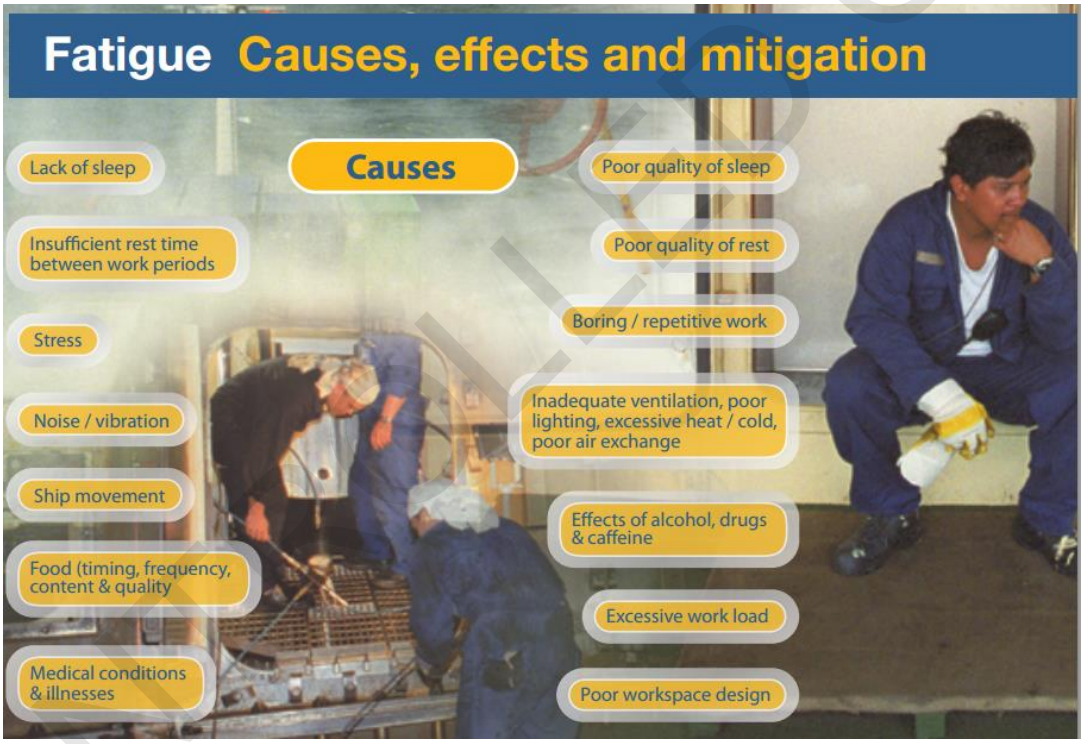
Environmental Specific Factors

Exposure to excess levels of environmental factors, e.g. temperature, humidity, excessive noise levels, can cause or affect fatigue. Long term exposure may even cause harm to a person's health.
Furthermore, considering that environmental factors may produce physical discomfort, they can also cause or contribute to the disruption of sleep.
Ship motion is also considered an environmental factor. Motion affects a person's ability to maintain physical balance. This is due to the extra energy expended to maintain balance while moving, especially during harsh sea conditions. There is a direct relation between a

ship's motion and a person's ability to work. Excessive ship movement can also cause nausea and motion sickness.

Environmental factors can also be divided into factors external to the ship and those internal to the ship. Within the ship, the crew is faced with elements such as noise, vibration and temperature (heat, cold, and humidity). External factors include port and weather condition and vessel traffic.

There are a number of things that can be done to address these causes. Some contributors are more manageable than others. Opportunities for implementing countermeasures vary from one factor to another (noise can be better addressed during the vessel's design stage, breaks can be addressed by the individual crew member, training and selection of the crew can be addressed during the hiring process, etc.).



Mitigating fatigue

<u>Seafarers</u>

- ✓ Try to get deep, uninterrupted sleep 7 to 8 hours per 24- hour day
- ✓ Take strategic nap (up to 20 minutes)
- ✓ Develop pre-sleep routing: warm shower, light reading, write up personal diary, meditation/ yoga
- ✓ Ensure dark, quiet, cool sleeping environment & comfortable bed

- ✓ Avoid interruption during extended period of sleep
- ✓ Eat/ drink lightly before bed
- ✓ Visit toilet before trying to sleep
- ✓ Avoid alcohol & caffeine prior to sleep
- ✓ Avoid caffein eat least 6 hours before bed time
- ✓ Minimized is turbance of rest/sleep periods
- ✓ Take break between work periods
- ✓ Get sufficient sleep before high activity periods
- ✓ Maintain fitness for duty
- ✓ Eat regular, well-balanced meals
- ✓ Exercise regularly
- ✓ Accurately record hours of work & rest

<u>Master</u>

Implement Company's fatigue management plan in respect of:

- ✓ ISM Code requirements for clear, conciseguidance on operational procedures
- ✓ Adequate rest for joining crews before assuming duties
- ✓ Allowing time for proper hand overon crew change
- ✓ Language barriers, social, cultural and religious isolation
- ✓ Interpersonal relationships, stress, loneliness, boredom, social deprivation & increased work load as a result of small crew numbers
    - Shor leave,on board recreation & family communication
    - Workable & safe watchkeeping arrangements
    - Job rotation
    - Crew education & training to recognise & mitigate fatigue
    - Monitoring & effective management of crew hours of work & rest
- ✓ Create open communication environment for reporting fatigue
- ✓ Establish procedures for scheduling shipboard work & rest periods
- ✓ Rotate tasks requiring high physical or mental demand with low-demand tasks
- ✓ Schedule potentially hazardous tasks for day time hours, & ensure crew adjusted for working in their day time
- ✓ Ensure that adequate rest is received by all -encourage napping
- ✓ Promote individual record keeping of hours rested/worked.
- ✓ Re-appraise traditional work patterns & areas of responsibility to establish most efficient utilization of resources
- ✓ Ensuread equate heating, ventilation, air-conditioning & lighting
- ✓ Minimize noise & vibration

- ✓ Establish shipboard practices for dealing with fatigue incidents
- ✓ Encourage healthy lifestyle

Shipowner/Shipmanager

- ✓ Develop fatigue management plan to cover:
  - ISM Code requirements for clear, concise guidance on operational procedures
  - Adequate rest for joining crews before assuming duties
  - Allowing time for proper hand over on crew change
  - Voyage length, time in port, length of service & leave ratios
  - Language barriers, social, cultural and religious isolation

f. Management (leadership) style

Management leadership is about finding ways to meet the needs of your employees and of your organization. There is no single correct management leadership style -- the best leadership style is the one that meets the challenges you are facing and the needs of the people you are leading. Effective leaders are often flexible and are able to change their style of leadership to suit changing circumstances.

Types of Leadership Styles

Different types of leadership styles exist in work environments. Advantages and disadvantages exist within each leadership style. The culture and goals of an organization determine which leadership style fits the firm best. Some companies offer several leadership styles within the organization, dependent upon the necessary tasks to complete and departmental needs.

Laissez-Faire

A laissez-faire leader lacks direct supervision of employees and fails to provide regular feedback to those under his supervision. Highly experienced and trained employees requiring little supervision fall under the laissez-faire leadership style. However, not all employees possess those characteristics. This leadership style hinders the production of employees needing supervision. The laissez-faire style produces no leadership or supervision efforts from managers, which can lead to poor production, lack of control and increasing costs.

Autocratic

The autocratic leadership style allows managers to make decisions alone without the input of others. Managers possess total authority and impose their will on employees. No one challenges the decisions of autocratic leaders. Countries such as Cuba and North Korea operate under the autocratic leadership style. This leadership style benefits employees who require close supervision. Creative employees who thrive in group functions detest this leadership style.

Participative

Often called the democratic leadership style, participative leadership values the input of team members and peers, but the responsibility of making the final decision rests with the participative leader. Participative leadership boosts employee morale because employees make contributions to the decision-making process. It causes them to feel as if their opinions matter. When a company needs to make changes within the organization, the participative leadership style helps employees accept changes easily because they play a role in the process. This style meets challenges when companies need to make a decision in a short period.

Transactional

Managers using the transactional leadership style receive certain tasks to perform and provide rewards or punishments to team members based on performance results. Managers and team members set predetermined goals together, and employees agree to follow the direction and leadership of the manager to accomplish those goals. The manager possesses power to review results and train or correct employees when team members fail to meet goals. Employees receive rewards, such as bonuses, when they accomplish goals.

Transformational

The transformational leadership style depends on high levels of communication from management to meet goals. Leaders motivate employees and enhance productivity and efficiency through communication and high visibility. This style of leadership requires the involvement of management to meet goals. Leaders focus on the big picture within an organization and delegate smaller tasks to the team to accomplish goals.

5 Knowledge and ability to apply effective resource management

a. Effective communication on board and ashore

The ability to properly convey information by word of mouth and/or by written communication is important not only to the safety of ship's crews, visitors and passengers, but also to the wellbeing of crews.

It would seem that the standard of English of some seafarers is so bad that they have difficulty communicating not only between themselves but also with agencies outside the ship.
The aim of the IMO Standard Marine Communication Phrases (SMCP) is to get around the problem of language barriers at sea and avoid those misunderstandings which can cause accidents. But, is it used at sea?

The key to improved verbal communication is in the recruitment of seafarers who have an understanding of the English language; in education in the art of effective communication and in the maritime environment; and in a programme of regular testing in their knowledge of the English language.
Today there seems to be more paperwork than ever, in the form of e-mails, questionnaires, procedures and checklists. How many of us have stopped to consider whether the email that we have just sent to about 50 addressees was actually relevant to all of them?

Perhaps the questionnaires and checklist are necessary, but do we need so many? Checklist are not foolproof; if properly used, they can be of considerable assistance as an aide-memoir for ensuring that nothing has been forgotten when carrying out, for example, a safety critical procedure. But, they can lead to a 'tick in the box' culture that, in turn, can breed complacency.

Modern communication are supposed to make life easier for all. Some ship's bridge serve as the communications hub, where can be found not only the communication fit in accordance with SOLAS, but also fax machines, desktop computers, and mobile telephones. All these systems of course make communication easier, but they can also have an effect on the safe operation of the ship. How many safe operations of the ship. How many ship operators have thought to ensure that restrictions are placed on the use of mobile telephones and desktop computers on the bridge?

But, communication is not just about talking, writing, procedures etc. It is about exchanging ideas, information and knowledge between individuals, and between crew and management ashore. It is about the provisions of telephone communications and email and internet facilities to enable crew to keep in touch with their families.

It is about the dissemination of information through professional journals, company newsletters and noticeboard bulletins to inform the crew of important issues that have an effect on their professional life, health, safety and welfare. It is about recognizing, interpreting and correctly reacting to people incidences or situations that are open to misunderstanding due to cultural differences. It is about empowerment, inclusion, leadership and teamwork.

Effective communication therefore, is the key to the successful operation of any ship.

The alphabet of effective communication

- ✓ Alarm system management

Alarms can be distracting can cause confusion and be ignored by those who are not aware of their sources and implications. Careful design and management of alarm systems is required.

- ✓ Breakdowns in communication

Can be due to faulty, incomplete, or imprecise information or data, or through failing to interpret a message because of language, social or cultural differences.

- ✓ Cultural understanding

Recognize, interpret and correctly react to people, incidences or situations that are open to misunderstanding due to cultural differences.

- ✓ Display

A device or feature designed to provide status, position, or condition information to the operator through visual or auditory feedback.

- ✓ Effective communication

The successful transmission of information through a common system of symbols, sign, behavior, speech, writing, or signals, by physical, mechanical or electronic means.

- ✓ Feedback

Exchanges of ideas, information and knowledge crew and management ashore.

- ✓ Gossip, grapevine

An unofficial means of communication, which is normally founded on speculation and rumour; indicates a lack of effective and communication.

- ✓ Handbooks and operating instructions

Ensure that documents that explain how to use, maintain and operate the ship and its equipment are written in the native language of the reader, are not technically complicated and are easy to understand.

- ✓ Illustrations

Use imagery, photos, drawings and cartoons to inform and illustrate, in order to reach out to non-native English speakers.

- ✓ Journals, Newsletters and Bulletins

Professional journals, company newsletters and noticeboard bulletins inform the crew of important issues that have an effect on their professional life, healt, safety and welfare.

- ✓ Keeping in touch

Telephone communication, and email and internet facilities enable crew to keep in touch with their families.

- ✓ Language barriers

Some seafarers may be unwilling to admit their difficultly in understanding and communicating because the commonly used language onboard is not their native language.

- ✓ Management seminars

A means of bringing together seafarers from different ships and shore management, to exchange ideas, information and knowledge.

- ✓ Noticeboards

For the display of important information to the crew, such as watch and station bills, safety notices, company bulletins social evens etc..

- ✓ Order, instructions & procedures

The "what to do" and "how to do" of safe ship operations. All should be clearly defined, easy to understand and in a working language or languages understood by the ship's personnel.

- ✓ Paperwork

An abundance of correspondence (both paper and electronic), statistical reports, and questionnaries and checklists can sidetrack the seafarer (especially the master or the chief engineer) from his primary purpose of working the ship, if it is not carefully controlled.

- ✓ Questionnaires & checklists

Usability and quality ussurance questions that require a "yes" or "no" answer. Checklist, if properly used can be assistance to ensure that nothing has been forgotten when carrying out a procedure. Can lead to a "tick in the box" culture that in turn can breed complacency.

- ✓ Rule of the road

The international regulations for preventing collision at sea. A form of silent communication requiring vessels to take positive action to avoid the risk of collision, by standing on altering course or adjusting speed, backed up by sound and light signals. Otherwise known as the collision Regulations or Colregs.

- ✓ SMCP

Standard Marine Communication phrases. A comprehensive standardized safety language, covering all major safety-related verbal communication, including phrases to cover the more important safety-related fields of verbal shore- to ship, ship to shore, ship to ship and on board communications.

- ✓ Telephony

Active management policies should be put in place to ensure telephones (especially mobile telephone) are not used to call master or crew at inappropriate times, eg when navigating in busy or confined waters or when resting and in a substantially different time zone from that of the caller.

- ✓ User feedback

Seeking the input of those who live and work aboard ship in order to improve the design of the ship and its systems, in terms of it habitability, maintainability, workability, controllability, manoeuvrability and survivability.

- ✓ Visual signals

The use of flags, signs, symbols, hand signals and gestures to inform, direct and communicate especially to those who have difficulty in understanding and communicating because the commonly used language onboard is not their native language.

- ✓ Working language

English shall be used on the bridge as the working language for bridge-to-bridge and bridge-to-shore safety communications as well as for communications on board between the pilot and bridge watchkeeping personnel unless those directly involved in the communications speak a common language other than English.

b. Allocation assignment and prioritization of resources shipboard

The effectiveness of allocation, assignment and prioritization of resources will be measured by several respondents in terms of a successful outcome which will similar criterion in decision making. Further it measured also by negatively situations:

"If the bridge team is working well, nobody's appearing to be doing too much and getting overstressed or overworked, there is time for any one of them to come around and have a look to see what someone else's doing and that other person isn't (saying) "what are you doing?"… if there is this decent flow of information and gentle movement of people around, that's an indication that everybody's working and nobody's overworked and hopefully nothing's getting missed."

Key factors were communication of the task and the ability of the team to clarify understanding and to highlight potential risk issues:

"…this boils down to understanding of the briefing, the briefing is clear, that the task given are right and the equipment is probably good. And safety, that all the people concerned, are fully aware that under no circumstances do they undertake an unsafe task, and that whatever they've been given they have the gut understanding that if tis not going correctly to stop. Should be aware that they also have the right to feedback, to delay things without fear of retribution."

c. Decision making reflecting team experience

While many of the decisions we make on a daily basis are quite simple, some are not.

These decisions may involve assimilating a huge amount of information, exploring many different ideas, and drawing on many strands of experience.

And the consequences of the right or wrong decision may be profound for the team and the organization.

So, should leaders be decisive, think the issues through on their own, and take firm action?

In some cases, no.

There's a limit to how much information any one individual can process, and a limit on how many perspectives one person can see. Many decisions need full group participation to explore the situation, provide input, and make a final choice. As you've probably seen, groups can often make better decisions than any one person operating on his or her own. This is one of the main reasons that good companies have boards, to which important decisions are taken.

What's more, many decisions need "buy-in" from the people affected by them if they're to be implemented successfully, and it's hard to get this buy-in if people haven't been involved in the decision-making process.

The problem is that when you bring other people into the decision-making process, you need to approach decisions differently. These approaches vary, depending on a number of different factors, including:

- ✓ The type of decision.
- ✓ The time and resources available.
- ✓ The nature of the task being worked on.
- ✓ The environment the group wants to create.
- ✓ The amount of buy-in needed.
- ✓ Understanding why and how best to organize decisions for your team is an important skill. We'll show you some key tools that you can use when you want to involve your whole team in the decision-making process.

The Challenge of Team Decisions

Using team input is challenging, and it takes preparation and time. As the saying goes, if you put three people together in a room, you'll often get four opinions. People can often see issues differently – and they all have different experiences, values, personalities, styles, and needs. Team decision-making strategies should therefore be used when you want to get participation and achieve consensus.

When time is of the essence, a good decision is one that's made quickly. That doesn't usually happen with full team decision making. And when one or two people have the necessary expertise to make the decision, it doesn't make sense to involve the whole team – the experts provide most of the input and make the final choice anyway.

However, where the situation is complex, consequences are significant, commitment and buy-in are important, and where team members can work together maturely, team decision making is often best.

- ✓ Team Consensus Methods

When your whole group needs to be involved in the process, you need to explore consensus decision-making models. With these, each team member has the opportunity to provide input and opinions. All members discuss alternatives until they agree on a solution.

With consensus, there's often compromise. Not everyone gets everything they want out of the final decision. However, because everyone has fair input, the decisions reached are often ones that all can live with.

- ✓ Ensuring Participation

A consensus decision depends on hearing everyone's opinion. In a team situation, that doesn't always happen naturally: assertive people can tend to get the most attention. Less assertive team members can often feel intimidated and don't always speak up, particularly when their ideas are very different from the popular view.

The Stepladder Technique can help you manage these differences. Each team member thinks about the problem individually and, one at a time, introduces new ideas to the group leader – without knowing what ideas have already been discussed. After the first two people present their ideas, they discuss them together. Then the leader adds a third person,

who presents his or her ideas before hearing the previous input. This cycle of presentation and discussion continues until the whole team has a chance to add their opinions.
The benefit of this process is that everyone feels heard and acknowledged. Once all of the ideas have been presented, the team can look at ways to narrow the options down, and make a decision.

- ✓ Voting for Consensus

Voting is a popular method for making decisions, and it's a good approach to use where opinions are strongly divided between two or three options.

Unfortunately, it becomes less useful where there are many options – imagine an election where people have only one vote to choose between eight candidates: its possible that a candidate could win with as little as 13% of the vote. This would leave 87% of people feeling very dissatisfied!

Multi-voting can address this problem. Proceeding through a number of rounds of voting, individuals are given a certain number of votes in each ballot, which they can allocate to the various options any way they want. Essentially, they provide a "weighting" to their choices. They can give one vote to each of several different choices, all of their votes to once choice, or any combination in between. After all the votes are placed, the choices with the highest number of votes are carried through to the next round, until a winner emerges.

This method allows more people to have input in the final decision. There may still be people who give the final choice no votes, but that number tends to be significantly reduced. This method is popular when time is an issue and full buy-in isn't essential for success.

d. Assertiveness and leadership, including motivation

There are at least two major influences that affect how individuals perform in their environment.
These influences include: i) the type of leadership that exists, and ii) personal motivation.

Assertiveness is one of the most valuable skill sets leaders and managers can possess. It ensures that you are clear, consistent and understood by those you lead. Assertiveness helps eliminate the confusing and inconsistent messages many of us often convey unintentionally to our employees and coworkers.

While neither is scientific in nature, there is significant research that identifies some theories and general conclusions about why people perform, how they perform, and why some people display different behaviours that puts them in positions of leadership.

In addition to addressing leadership and motivation as theories rather than as scientific fact, there are other issues about personal behaviour that must be considered. The most basic concepts are that every person is (a) like every other person; (b) like some other people; and (c) like no other person. A further explanation may help clarify this statement. Every person is like every other person in that we have a need for food, water, shelter, etc. We are like some other people in that we have similar personality traits which cause us to be more dominant and aggressive, while others may be more passive and submissive. Finally, we are unique in that no other person has the same genetic make-up, past experiences, or view of the world. It is these differences that suggest an analysis of leadership and motivation can result in general conclusions about behaviour and performance Human behaviour is as much a reflection of the differences between individuals as it is a reflection of their similarities. These individual differences are caused by a number of influences and characteristics. For example, personality traits focus on individual differences that make each person a unique human being. Our biological make-up concentrates on how we function as a result of our evolution and human inheritance. Our behaviour is largely influenced by the system of rewards and punishments that are present in our environment. Our cognitive approach focuses on how our thinking and memory affects our behaviour. The fact that we are here at this time with immediate influences, and the ability to express a free will, may present the greatest influence of all.

Any theories about leadership and motivation can be contradicted since these theories have many exceptions. It is important that these theories are considered general statements that have been confirmed through observational studies and are applicable only to the extent that they reflect and are influenced by individual behaviour. We might ask: “Why should we even pursue these topics if there are so many inconsistencies, exceptions, and variables that affect conclusions?”. If we are searching for scientific evidence that is universally applicable, we may be wasting our time, but if our goal is to better understand human behaviour and its impacts on personal performance, the insights gained from such theories and studies are invaluable.

Systems formerly made up of rules, regulations, and procedures are being replaced by requirements for flexibility and customer service resulting in personal initiative, empowerment, and greater levels of individual decision-making. To achieve this, it is important to better understand human behaviour and some of the things that impact our actions and reactions.

Motivation

Motivation can be defined as “the extent to which persistent effort is directed toward a goal”

Effort: The first aspect of motivation refers to the amount of effort being applied to the job. This effort must be defined in relation to its appropriateness to the objectives being pursued. One may, for example, apply tremendous effort to inappropriate tasks that do not contribute to the achievement of the stated goals.

Persistence: The second characteristic relates to the willingness of the individual to stay with a task until it is complete. For example, an important task that gets accomplished with effort but allows the person to rest on their laurels for an extended period does not display persistence.

Direction: Is the effort directed towards the organization's goals or related to the individual's self-interest? Direction is therefore measured in terms of how persistent effort is applied in relation to the goals being pursued.

Goals: There are two different kinds of goals being pursued simultaneously. They are individual goals and organizational goals which may produce quite different results if they are not compatible.

Next we should distinguish between motivation and performance. While there may be little doubt about the motivation of the individual in terms of effort, persistence, and direction, there may be a lot of questions about the individual's performance as it relates to the organizational goals. The worker may be really busy and factors such as skill levels, task understanding, and aptitude may negatively impact performance. On the other hand, self-interest may create its own motivation not related to the organizational goals.
People may be motivated by factors in the external environment such as pay, supervision, benefits, and job perks. This is referred to as extrinsic motivation. They may also be motivated by the relationship between the worker and the task. This type of motivation is called intrinsic motivation. These factors often exist simultaneously.

e. Obtaining and maintaining situational awareness

Situational Awareness is the ability to identify, process, and comprehend the critical elements of information about what is happening to the team with regards to the mission. More simply, it's knowing what is going on around you.

Effective team situational awareness depends on team members developing accurate expectations for team performance by drawing on a common knowledge base.

This concept, known as maintaining a "Shared Mental Model" allows team members to effectively:

• Anticipate the needs of other team members.
• Predict the needs of other team members.
• Adapt to task demands efficiently.

Maintenance of situational awareness occurs through effective communications and a combination of the following actions.
• Recognize and make others aware when the team deviates from standard procedures.
• Monitor the performance of other team members.
• Provide information in advance.
• Identify potential or existing problems (i.e. equipment-related or operational).
• Demonstrate awareness of task performance.
• Communicate a course of action to follow as needed.
• Demonstrate ongoing awareness of mission status.
• Continually assess and reassess the situation in relation to the mission goal(s).
• Clarifying expectations of all team members eliminates doubt.

Comment on Deviations

When deviations are noted, effective team members comment in specific, assertive terms.

Monitor Performance of Others

Be alert for changes in the performance of other team members caused by work overload, stress, errors, etc.
When changes are noted, take action by speaking up.

Provide Information

Don't wait to be asked. When you have information critical to team performance, speak up!

Identify Problems
All team members are tasked to identify problems before they affect mission accomplishment.

Demonstrate your awareness of task performance

Know how your job and those of other teams members contribute to overall mission accomplishment.

EXAMPLE: It may not be necessary to know the technical aspects of other team member's jobs, but you must be aware of what actions, information, etc. they need from you to do their jobs effectively.

Communicate a Course of Action

Effective communications may be the most important factor in achieving and maintaining situational awareness. To ensure a Shared Mental Model, speak up and verbalize any intended action. Understand that the level of situational awareness achieved is related to the level and quality of communication observed in team members.

Demonstrate Awareness of Mission/Task

Ensure that your performance reflects an understanding and awareness of the mission or task being performed.

EXAMPLE: Effective team leaders plan ahead and communicate the plan to team members. This ensures that everyone is aware of the plan and builds a Shared Mental Model of the situation.

Barriers to situational awareness
The following barriers reduce our ability to understand the situation. Recognizing these barriers and taking corrective action is the responsibility of all team members.

- Perception based on faulty information processing.
- Excessive motivation.
- Complacency.
- Overload.
- Fatigue.
- Poor communications.

<u>Perception</u>

Perception is our mental picture of reality. The amount and quality of information available limit all pictures of our current operational state. Insufficient information makes it difficult to ensure that our mental picture is always aligned with reality. Our mental picture is affected by:

- Past Experiences: We act on information based on our knowledge. When something looks similar to what we are familiar with, we may react as if it were the same.

- Expectations: We interpret information in such a way that it affirms the planned action. We may rationalize that the ship is being set by a current that was

incorrectly computed, when in reality no one has compensated for bearing errors in the instruments.

- Filters: We are provided with information, but we don't use it. We don't pay attention to information that doesn't match our mental picture.

Excessive Motivation

This behavior imposes expectations and filters that affect our ability to fully assess the situation and any safety risks. It includes, but is not limited to, "GET HOME-itis" and an overriding sense of mission importance (e.g. "you have to go out. . .").

Complacency

Assuming everything is under control affects vigilance.
When things are slow, tasks are routine, and/or when the vessel's employment objectives have been achieved, complacency can occur. Challenging yourself and/or the team to be prepared for contingencies (e.g. planning or training) can deter complacency.

Overload

Overload causes distraction; fixation; increased errors, and high stress. Prioritizing and delegating tasks and minimizing job distractions can improve safety in conditions of overload.

Fatigue

Fatigue affects vigilance. Adjusting work routine and imposing sleep discipline to prevent wake cycles longer than 18 hours and permit at least 5 and preferably 8 hours/day of sound sleep can minimize sleep deprivation.
This includes enforcing lights out, permitting late sleepers, and as needed having stand-downs.

Poor Communications

The level of situational awareness achieved is related to the level and quality of communications observed in the team.

Human error

The large amount of information processed by teams and the many necessary interactions within and between teams provides the opportunity for human error. Chains of human error are normal and should be expected. There are three levels of human error.

- Slips.
- Mistakes.
- Errors.

Slips

Slips are the incorrect sending of information or mis-communication. Often well-formed habits take over and we make a slip. Slips often occur in giving rudder or engine commands, or in responding on the radio. These slips may be humorous or seem insignificant, but they are a visual or auditory form of human error. They may indicate that the individual making the slip is under added stress. Unfortunately, the individual may not recognized the slip.

Example: an example is a verbal rudder order for left rudder when the direction of the hand was toward the right. The wrong call sing that is used to respond to another vessel is another example of a slip.

Corrective action: inform the individual of the slip regardless of difference in rank.

Mistakes

Mistakes are failures in planning. Mistakes almost always have to do with the selection of objectives and the time required to achieve them.

Example: This may be a wrong trackline chosen because of improper reading of the compass rose. In the engine room it may be the timing for engine maintenance that conflicts with a planned, though poorly promulgated, restricted maneuvering event.

Corrective Action: Questioning the plan during the brief and performing thorough double checks, can reduce the probability of these mistakes.

Errors

Errors are flawed execution; incorrect actions based on either correct or incorrect information. Errors, because they are defined as actions, are the most serious form of human error.

Example: The helmsman applying rudder in accordance with the conning officer's slip is an error; likewise, the helmsman applying the opposite rudder to that which was correctly ordered creates a similar error.

Corrective Action: Effective teams are alert to errors and use assertive communications to alert others to the problem.

Situational awareness is dynamic, hard to maintain, and easy to lose. Knowing what is going on all the time is very difficult for any one person, especially during complex high stress operations. Therefore it is important that we know what behavior is effective in keeping us situationally aware. The following actions can help a team retain or regain situational awareness.

- Be alert for deviations from standard procedures.
- Watch for changes in the performance of other team members.
- Be proactive, provide information in advance.
- Identify problems in a timely manner.
- Show you are aware of what's going on around you.
- Communicate effectively.
- Keep abreast of the mission status.
- Continually assess and reassess the situation.
- Ensure that all expectations are shared for complete awareness by the whole team.

f. Appraisal of work performance

A performance appraisal is a review and discussion of an employee's performance of assigned duties and responsibilities. The appraisal is based on results obtained by the employee in his/her job, not on the employee's personality characteristics. The appraisal measures skills and accomplishments with reasonable accuracy and uniformity. It provides a way to help identify areas for performance enhancement and to help promote professional growth. It should not, however, be considered the supervisor's only communication tool. Open lines of communication throughout the year help to make effective working relationships.

Each employee should receive a thoughtful and accurate appraisal. The success of the process depends on the supervisor's willingness to complete a constructive and objective appraisal and on the employee's willingness to respond to constructive suggestions and to work with the supervisor to reach future goals.

Why Appraise Performance?
Periodic reviews help supervisors gain a better understanding of each employee's abilities. The goal of the review process is to recognize achievement, to evaluate job progress, and then to design training for the further development of skills and strengths. A careful review

will stimulate employee's interest and improve job performance. The review provides the employee, the supervisor, the managers, and Human Resources a critical, formal feedback mechanism on an annual basis, however these discussions should not be restricted solely to a formal annual review.

A Pay-for-Performance Structure
Annually, the appropriate supervisor evaluates each employee's performance. In the case where an employee has changed jobs part-way through the appraisal period, both of the employee's supervisors during the appraisal period should submit an appraisal of the employee's performance. During the performance evaluation process, the most recent job description on file should be reviewed and updated if necessary via the position description and if the employees need a salary increase.

g. Short and long strategies

In business, management establishes short-, medium- and long-term objectives. Long-term objectives are addressed in the business plan, which defines the company's vision, mission and objectives. Operations management sets the goals (ends) and tactical (means) strategies to be used in achieving milestones and objectives. The milestones provide a measurement to ensure that the strategies used are effectively moving toward achieving the objectives. A company's planning process begins with defining the vision of the company, setting forth the mission, identifying objectives and then designing a tactical strategy to achieve the mission.

Strategic Planning

Strategic planning is based on establishing a long-term plan to achieve a specified mission, through the attainment of objectives set. These objectives provide empirical information that the strategy is working. A strategic plan looks out over an extended time horizon, three to five years or more. The plan establishes where the business is currently, where management wants to go, how they will get there and how they will know when they have arrived.

Short-term Operational Planning
Short-term strategies are defined as plans that are developed to solve a particular problem. Short-term strategies should be used, when time permits, to solve any problem that is not covered by standard operating procedures. Developing good short-term strategies requires the following steps:

Identify the problem: before developing a plan, you need to know why a plan is needed. Exactly what is the problem you have to deal with? To effectively identify the problem, you need to use all available resources. Involve as many people as you can. In critical situations, you may try to make some time. This usually involves slowing down. For example, if you think you have deviated from a safe course, you may stop and take the time to figure out what your position is.

Benefits of Strategic and Short-term Planning

In some instances, companies are very good at articulating or designing a strategic plan but fail to execute a short-term operational plan, which comprises the toolkit required to achieve the strategic plan. Likewise, having short-term plans without a long-term strategy results in a lack of direction or focus as to the corporate vision and values of the company. By combining these two planning components, a company is able to set a general path based on company values, goals and objectives, while having the ability to adapt to changing environments.

Successful Business Management

Both long-term strategic and short-term operational planning are important to the future success of any organization. Focusing and implementing a strategic plan fails to account for the operational factors necessary in the short term to achieve the objectives of the company in the long term. Without a tactical short-term plan, operations management is unable to identify the milestones that are important to achieving the overall strategy set forth in the business plan. Therefore, it is necessary to coordinate operational short-term plans to ensure that they are effective in achieving the basic mission of the company.

6 Knowledge and ability to apply decision making techniques

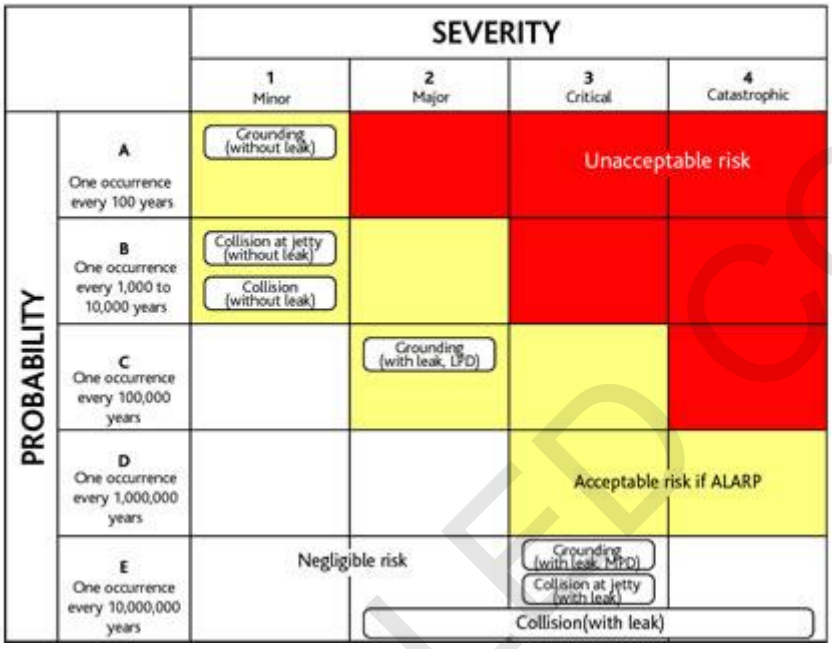
a. Situation and risk assessment

According to International Maritime Organization (IMO), risk is the “combination of the frequency and the severity of the consequence”, thereby articulates two components of the likelihood of occurrence and the probability of severity of the (un)predictable consequences.

What is Risk Assessment for Ships?

"Safety management objectives of the company should…establish safeguards against all identified risks" so has it been stated in the paragraph 1.2.2.2 of the ISM Code (*International Safety Management Code*). However this does not determine any particular approach to the risk management theory, and it is for the company itself to choose methods appropriate in accordance with its organizational structure, its ships and trades. The methods could vary accordingly but how ever more or less formal they are, they should be well organised and planned if assessment and responses are meant to be completed and act effectively, and also the entire exercise should be documented in drafts or amendments so as to provide evidence of the decision-making process.

Maritime Risk Analysis Results



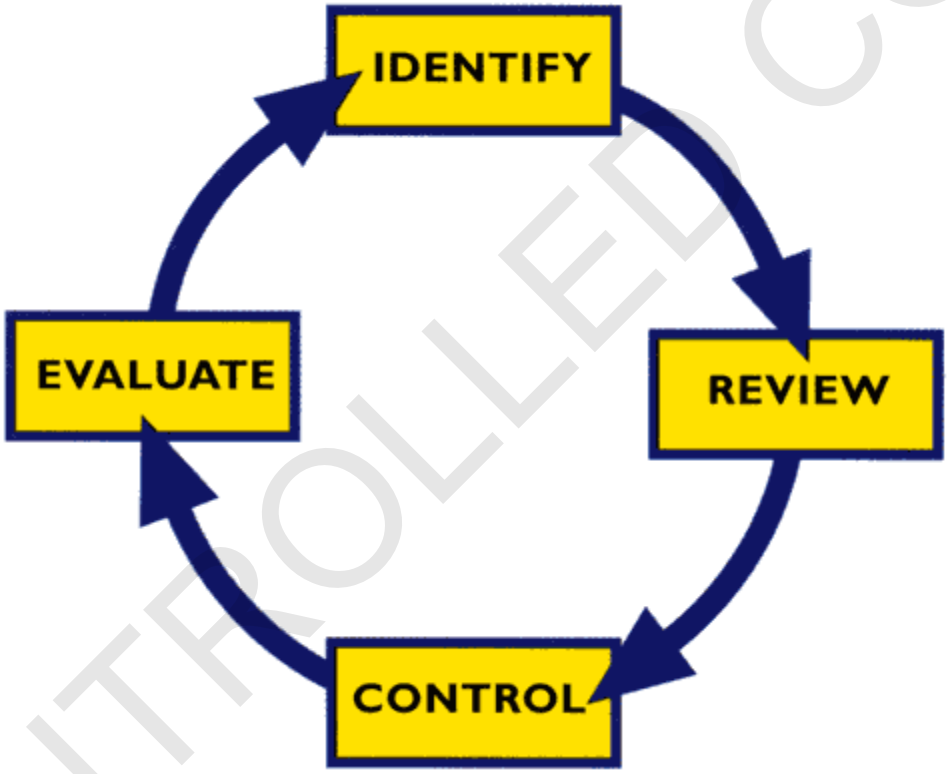
ISO 8402:1995 / BS 4778 define risk management, which includes maritime risk assessment as: "The process whereby decisions are made to accept a known or assessed risk and/or the implementation of actions to reduce the consequences or probability of occurrence."

The Marine Risk Assessment Process

Basically the risk assessment process is concerned with observing the company's activities and operations, identifying what might go wrong, and deciding upon what should be done in order to prevent it. The areas pertained to are:

- Identification of hazards
- Assessment of the risks concerned
- Application of controls to reduce the risks
- Monitoring of the effectiveness of the controls

The identification of hazards is most important since in determines the course of actions to be followed thereafter. Observation of the activities helps in achieving perfect accuracy and completeness which again can only be accomplished by a systematic process. For this it is necessary to have professional training and instruction to assure its application in a thorough and consistent manner. Also it is important to keep in mind that hazards must not be confused with incidents whereas incidents must not denote consequences.



The marine risk assessment helps in evaluation of each hazard associated with the risks in terms of the likelihood of harm and its potential aftermath. This assists in enabling the company to imply priorities and exploit its scarce resources for greatest effect.

While settling with the application of controls, it is essential to take the frequency of the activity into account so that a potential moderate risk may be more important to be addressed upon than a rare but substantial risk.

The most relevant risks to monitor are:

- Health and safety issues of individuals involved directly or indirectly in the activity, or those who may be otherwise affected
- Property of the company and others
- The environment

b. Identify and consider generated options

Although we do not want to focus on how options are generated in organization, a descriptive understanding of it is needed for a more complete perspective. Fiel studies of the decision making process in organizations provide insights on how problems are structure.

First, sometimes a search routine was followed where options were searched for by directly seeking new options, by scanning the organization's written or unwritten memory, by initiating a call for proposed alternatives, or by passively waiting for unsolicited alternatives, also, sometimes a design routine was followed where only one custom-made alternative was designed, or else modifications were made to existing alternatives.

This paper is limited to a discussion of methods for generating more than one alternative for a model of a decision problem which could be subsequently used in a formal decision analysis. We also will not consider cases in which the set of all feasible alternatives can be readily specified; in such cases the pre-decision phase is spent screening out poor alternatives prior to subsequent evaluation.

SUMMARY OF OPTION GENERATING PROCEDURES AND EVALUATION CRITERIA

Category of Method	Specific Procedure	Evaluation Criterion
Attribute based	present attributes one at a time	maximum number of options in set which are perfect or good on at least one attribute
	design options to do well on the heavily weighted attributes	maximum number of options in set which are close to optimal
	partition the attributes prior to eliciting options	maximum number of reasonable options
	deemphasize the personal nature of the attributes	maximum number of novel options
	enumerate all possible options by combining all possible levels of each attribute	maximum fraction of total possible major variants included in set
	attribute invention or replacement	maximum flexibility of the option set
	examine higher level attributes	maximum flexibility of the option set
State based	present possible states of nature one at a time	maximum probability best option in set
	design options to do well in the more probable states of nature	maximum number of options in set which are close to optimal
Composite (attribute based and state based)	elicit a preliminary set of options on heavily weighted attributes; then conduct a sensitivity analysis before eliciting more options	maximum number of options in set which are close to optimal
Option based	present examples of options and elicit more options	maximum number of options related to examples
	specify the characteristic or generic structure of options, then select options which will meet the required structure	maximum fraction of total possible major variants included in the option set
	visualize the ideal option and design options which are close to it	maximum number of options in set which are close to optimal
	present examples of options framed in a different way	maximum number of reasonable options
General creativity	brainstorming	maximum number of novel options
	synectics	maximum number of novel options

Criteria for evaluating the option set

Once a preliminary set of options has been generated, it should be evaluated to determine if additional options need to be include during predecision phase (during the analysis phase, additional options may be revealed as a result of the analysis). Since it may not be possible to determine if good options are included in the set without extensive formal evaluation. One approach to the problem of evaluating an option set before it is possible to formally evaluate the option it contains (and the ones it does not) is to shift the evaluation backwards onto the option-generation methods used.

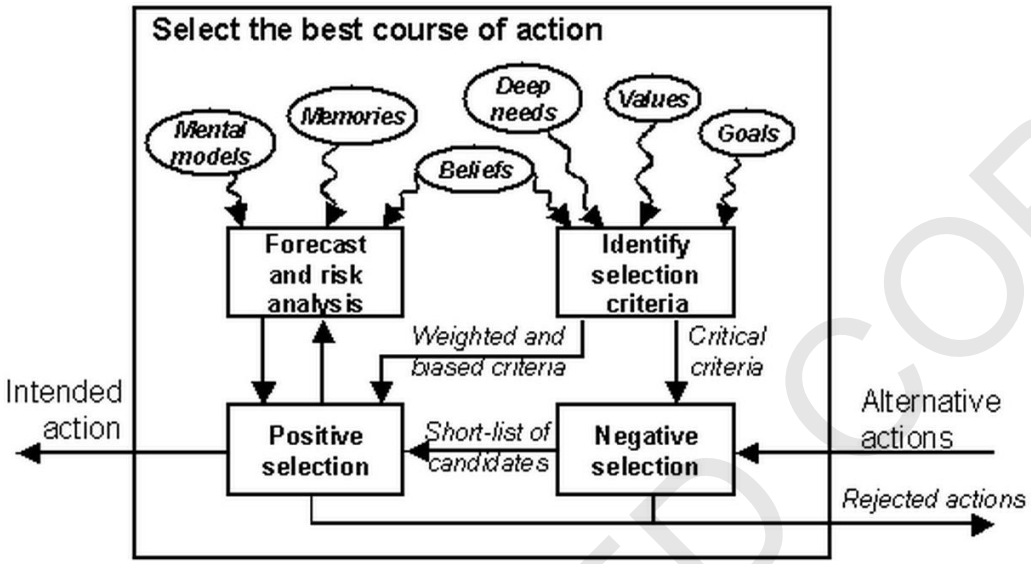
A variety of criteria can be used in evaluating the set of options. The procedures presented still must be experimentally evaluated to determine how well choise sets generated with each procedure meet different criteria. Whenever experimental or theoretical evidence suggest that a method will on a criterion, we present the evidence after introducing the method.

Option – generating procedures

- Attribute-based procedures
- Design options to do well on the heavily weighted attributes
- Be more detailed in partitioning the attributes prior to eliciting options
- Deemphasize the personal nature of the attributes to increase the number of options generated upon consideration of goals; emphasize the personal nature of the attribute to increase the quality of the options generated
- Completely enumerate all possible options by combining all possible levels of each attribute
- Attribute invention or replacement
- Expand the scope of the problem by examining higher level attributed

c. Selecting course of action

Given the possible courses of action, we now need to decide which will be carried forward for action. Creativity is often thought of as the divergent activity of coming up with good ideas, but equally important is converging back in as we select the ideas that will be used.



Criteria

Selection is done through the application of some form of criteria, which may be consciously or subconsciously selected. These are reasons for or against taking the action, which will allow us to weigh up the pros and cons or the return on investment for each alternative.

Negative criteria, which give reasons not to select an alternative, may include costs, risks, difficulty, hassle and trouble. Positive criteria, which highlight the benefits that an alternative might offer, include whether goals will be met, how well they might be met, plus ease and speed of implementation.

We tend to use many criteria based on deep needs and personality factors, for example extraverts may seek attention and risk whilst introverts will seek safety. Our values also lend key criteria that will help us decide what is right and wrong.

Criteria may also be prioritized, for example cost may be all-important whilst time is a more negotiable element. Although we do not do mathematical weighting in our heads, we will usually lean towards some criteria rather than others.

Negative selection

Remember when you last bought or rented a home. What you probably did was to go along to a number of housing agents and come away with piles of home details, then start your selection by sorting out the definite 'no good,' the 'maybe' and the 'interesting' homes.

The initial strategy that we commonly use when faced with a lot of choices is to 'sort the wheat from the chaff,' rapidly eliminating those items we do not want, rather than looking closely at those which we might select. The negative criteria that we use clearly define the

boundary of the problem in terms of our primary constraints. We reject houses because we definitely do not want to live in that area or cannot afford that amount of money.

Forecasting and risk analysis
A key technique for selecting the best course of action is to project the alternatives we are considering into the future to see what might happen if we implement each of these ideas.

In forecasting we make much use of our mental models to help us grope forwards, weighing up the implications of each alternative, estimating both the possible outcomes and how likely each one is. We can then choose the most desirable future that will best move us towards achieving our goals. It is a testament to the power of human mind that we do this complex projection in the twinkling of an eye, whilst it still takes supercomputers many hours to calculate the weather.

Positive selection
The final selection of the alternative that we will implement uses criteria in a more positive way, seeking to narrow down the short-list to the item we will actually implement.

This process is not always cool and rational, and even after a long and drawn-out selection process, we sometimes change our minds for no apparent purpose, probably because our subconscious either objects in some way to the selection or prefers another idea that has already been logically eliminated.

d. Decision making and problem solving techniques

Problem solving and decision-making are important skills for business and life. Problem-solving often involves decision-making, and decision-making is especially important for management and leadership. There are processes and techniques to improve decision-making and the quality of decisions. Decision-making is more natural to certain personalities, so these people should focus more on improving the quality of their decisions. People that are less natural decision-makers are often able to make quality assessments, but then need to be more decisive in acting upon the assessments made. Problem-solving and decision-making are closely linked, and each requires creativity in identifying and developing options, for which the brainstorming technique is particularly useful. SWOT analysis helps assess the strength of a company, a business proposition or idea; PEST analysis helps to assess the potential and suitability of a market. Good decision-making requires a mixture of skills: creative development and identification of options, clarity of judgement, firmness of decision, and effective implementation. For group problem-solving and decision-making, or when a consensus is required, workshops help, within which you can incorporate these tools and process as appropriate. Here are some useful methods for effective decision-making and

problem-solving: First a simple step-by-step process for effective decision-making and problem-solving.

Decision-making process

- Define and clarify the issue - does it warrant action? If so, now? Is the matter urgent, important or both. (Pareto Principle).
- Gather all the facts and understand their causes.
- Think about or brainstorm possible options and solutions.
- Consider and compare the pros and cons of each option - consult if necessary - it probably will be.
- Select the best option - avoid vagueness or 'foot in both camps' compromise.
- Explain your decision to those involved and affected, and follow up to ensure proper and effective implementation.

Decision-making maxims will help to reinforce the above decision-making process whether related to problem-solving or not, for example:

"We know what happens to people who stay in the middle of the road. They get run down." (Aneurin Bevan)

"In any moment of decision the best thing you can do is the right thing, the next best thing is the wrong thing, and the worst thing you can do is nothing."

JFDI - Just Frigging Do it (polite version). The decision-maker's motto. There are usually several right answers when you are faced with a complex decision. When you've found the best solution you can find, get on with it, make it work, and it most probably will.

Some principles for ethical decision-making

1. Step back from **every** decision before you make it and look at it **objectively**. Use the above list of examples of unethical behaviours as a check-list to see if you might possibly be falling into one of these traps. It's easily done: to get swept along by excitement and urgency; or by apparently demanding expectations, whether self-imposed or otherwise. Aim for objectivity and fairness - not for personal power, 'winning', strategic plotting, high drama, etc.

2. Strive for **fairness** rather than polarised 'winner takes all' outcomes. Try to facilitate solutions rather than actually deciding and imposing decisions, unless all parties are happy for you to do so.
3. Understand the Psychological Contract and how it applies to your situation. Concepts such as Empathy and the Johari Window are useful in gaining appreciation of other people's situations and feelings, which is central to managing the Psychological Contract.
4. Learn from history and previous situations. Reviewing how previous situations were handled reduces the risks of making daft mistakes: not many things are fundamentally new in this world, despite how unique you believe your situation to be. Also history is a superb store of already invented wheels, which can often save you the time and agonies of trying unsuccessfully to invent a new one.
5. Get the facts from all possible perspectives. Often a challenging issue offers three main options: (a) your instinctive or personal view; (b) a main alternative option; and (c) the commonly under-estimated ever-available third main option of **doing nothing**. Doing nothing in times of real emergency can be disastrous, but for a very large number of situations doing nothing is the only truly wise way. Doing nothing is not weakness or procrastination if it done in the right way for the right reasons.
6. Understand the long-term consequences. Model or brainstorm the 'what if' scenarios. Again look at previous examples and history.
7. Check the law. In whatever territories are affected by the decision. But do not base your decision wholly on the law. See the ethics and law notes.
8. Consult widely - especially with critical people, and especially **beyond** your close circle of (normally) biased and friendly advisors, colleagues, friends, etc. You have not properly consulted if you merely seek and obtain confirmation from a tame advisor. After the event such 'consultation' can very easily be interpreted as a conspiracy, in which your 'advisor' is deemed not to have been an advisor but a co-conspirator. Consult especially the people affected by the situation and potential actions, and if using a survey of any sort then ensure the positioning and questions used are balanced and objective, because to be otherwise is unethical in itself. You should even consult about how to frame the survey and wording of the questions if the issue is anything but a minor one.
9. Consider cause and effect in the deepest possible sense. Life and all that surrounds it is one huge interconnected system. If you are making big decisions - or even apparently little fleeting decisions within a potentially big and sensitive environment - these decisions will affect many people and aspects of life, now and especially into the future.
10. Resist the delusion and arrogance that power and authority tends to foster. This is especially important to guard against if you live and work in a protected, insulated or isolated situation, as many large scale leaders and decision-makers tend to do. Being a leader for a long time, or for any duration in a culture of arrogance, privilege and advantage, provides great nourishment for personal delusion. Many

unethical decisions are borne of arrogance and delusion. Guard against becoming so dangerous.

11. Beware of justifying decisions according to religious faith. There is nothing wrong with having a religious faith, but there are various risks in leaning too heavily on a god or faith when making serious decisions. See the ethics and religion notes.

12. Aim for solutions and harmony, objectivity and detachment. Facilitate rather than influence. Help, don't sell. Diffuse situations - find common ground - don't polarise or inflame. Whenever you see a big swell of expectation looming (among your immediate team, not those affected by your decision) which is borderline ethical/unethical, remember the ever-available third option to decide clearly and firmly to do nothing, in the right way for the right reason. The best ethical decisions are usually decided by people who are most affected by them, rather than by leaders who don't trust the people.

e. Authority and assertiveness

Authority is certainly an important component in leading a team. However, finding the right dose of this ingredient is not easy. Using too much authority can be as detrimental to a team as using too light. Assertiveness is also a very important quality, but again, finding the right balance is tricky. This section offers some tools that might help to find the right level of authority and assertiveness.

Let's start by defining the two kinds of authority: formal and personal authority.

Formal authority is the authority that goes with a particular job or status. For example, a captain or coxswain is given authority. These people are expected to make decisions, and they are usually paid to do so.

Personal authority is quite different. Personal authority has to do with all the things that make others listen to one's suggestions. Usually, wisdom, professionalism, integrity honesty and diplomacy form the cornerstone of personal authority. Someone with strong personal authority does not need formal authority to command attention. Using formal authority to command attention should be avoided.

Assertiveness is also an important attribute. Someone who is assertive is able to voice his or her concerns. But once again, too much or too little assertiveness can be bad. Combining different levels of assertiveness and authority results in different situations. The following example illustrate various combinations:

Situation I: Coxswain with strong authority and crewmembers with weak assertiveness

In this situation, the strong authority of the coxswain will intimidate the crewmembers. As a result, a crewmember will usually remain silent. All decisions and initiatives come from the coxswain. This is truly a one-person team. The following conversation illustrates this situation.

Coxswain: "Let's go this way and take a shortcut..."
Crewmember: "But..." - to express some concern regarding the shallow depth in this area.
Coxswain: "I said we are going this way. What's your problem?"
Crewmember: "Nothing...Sorry."

Situation 2: Coxswain with weak authority and crewmembers with strong assertiveness

This is probably the least dangerous situation, since the strong assertiveness of the crew-members compensates for the coxswain's lack of authority. The problem is that most decisions are made by crewmembers. The following conversation ilustrates this combination:

Coxswain: "You are leaving the channel if you go this way."
Crewmember: "It doesn't matter...Water is deep enough."
Coxswain: "But... I would prefer if we could remain in the channel..."
Crewmember: "I said it's deep enough. It's not the first time i have been this way."
Coxswain: "Ok, ok... If you are so sure..."

Situation 3: Coxswain with strong authority and crewmembers with strong assertiveness

This situation can cause serious conflicts among team members. The coxswain and crewmembers will argue constantly. The coxswain may have to use his or her formal authority to end altercations. This situation can become very dangerous, since emergency situation rarely leave time to argue. A situation like this one will be stressful for every member of the team. The following conversation illustrates the situation of excessive authority and excessive assertiveness:

Coxswain: "You are leaving the channel if you go this way."
Crewmember: "It doesn't matter...Water is deep enough."
Coxswain: "don't want you to leave the channel - is that clear?"
Crewmember: "Read my lips: IT IS DEEP ENOUGH FOR US TO GO THERE."
Coxswain: "I am in command here, so you will do as I say"

Situation 4: Coxswain with weak authority and crewmembers with weak assertiveness

This situation is the most dangerous situation, because nobody will take the necessary decision or actions. The serious lack of challenges on this kind of team will adversely affect thhe quality of decisions they make. The following conversation illustrates this problem.

Coxswain: "I'm not sure, but I think we just left the channel..."
Crewmember: "Should I slow down?"
Coxswain: "I don't know...Wait...I can't find our position..."
Crewmember: "You got it?"
Coxswain: "Not yet... Let's wait a bit... We should see something that will help us."
Crewmember: "Ok…"
A little later: CRUNCH! The boat is damaged in a submerged rock.

As you can see, none of these extreme situations are ideal. As a member of an SAR team, you must remain vigilant to prevent the development of such extreme situations. Now that you are able to recognize such dangerous extremes, let's looked at ways to prevent their occurrence.
Rule number one: if you want someone to become assertive, you need to create the appropriate working environment. To do so, it may be necessary to lower the level of authority on the team. The reverse situation is similar. If you want someone to be little less assertive, you may want to increase authority. Once again, you should try to increase personal authority rather than formal authority.

f. Judgement

Judgement is an aptitude that can be developed. To improve your judgement, you need a good decision-making process. You also need to know what factors can influence your judgement. This section will described a decision-making process as well as some factors that many adversely affect your judgement.

This decision-making process involves 9 steps:

- Vigilance
- Problema Discovery
- Problem diagnosis
- Alternative generation
- Risk analysis
- External influences
- Decision
- Action
- Monitoring

Vigilance
This is the first step in our process. Vigilance involves remaining aware that things may not go as planned. If you are vigilant, you know that anything can happen anytime and you plan according. This way of thinking minimizes the risk of being caught unprepared.

Problem discovery
When a problem occurs, you must discover it quickly. If you do not discover problems quickly enough, you may never get the chance to use your judgement.

Alternative generation
Now is time to find a way to solve the problem. At this point, any idea is good. Try to find as many potential solution as possible.

Risk analysis
In this step, you analyze the risks associated with each alternative. Once you have analyzed all the risk, you should be able to pick the best solution.

External influences
When you are ready to choose a solution, you are likely to be influenced by external factors. Very often, these influences or pressure will push you toward a solution that is not ideal. Common influences include:

- Economic factors (e.g., it's too expensive)
- Responsibilities (e.g., I promised… I have to…)
- General attitude (will be detailed later)
- Peer pressures (e.g., everybody is doing it… I have to be like the others…)
- Physical status (e.g., fatigue, illness)
- Hidden pressures (will be detailed later)

General attitude can seriously affect anyone's judgement. The following general attitudes are considered dangerous:

- Anti-authority (e.g., Don't tell me what to do…I don't have to follow the rules…)
- Impulsiveness (e.g., Do something…QUICK!)
- Invulnerability (e.g., It won't happen to me.)
- Excess confidence (e.g., I can do it!)
- Resignation (e.g., What's the point… it won't change anything…)
- Narrow – mindedness (e.g., I' ve been doing things this way for the past 3 years and I'm not about to change.)
- Lack of initiative (e.g., It's not my job to do this.)

- Laziness (e.g., That should be enough… Nobody will notice…)

Hidden pressure: hidden pressures are simply pressures that you are not aware of. These pressures usually involves your previous experience, your fears (conscious or unconscious) and your beliefs. For example, your fear of death may become a hidden pressure if you are called upon to retrieve a body. Dealing with hidden pressure is not an easy thing. You have to try to identify hidden pressures that might affect you at any particular time. A good way to accomplish this is to ask yourself: "Why am I doing this?" For example, if you are driving at 150 km/h on the highway, your answer to the previous question might be that you don't want to be late. In this case, your own reputation could be a hidden pressure. Knowing what pressures are affecting you is only the beginning. You still have to do something to minimize the effect of these pressures.

Decision
You have decided which solution is best and you are ready to act. Conduct a briefing at this point to let everyone know your plans and to assign tasks.

Action
At this point, you simply translate plans into actions.

Monitoring
You must monitor the effectiveness of the solution you chose as you are applying it. Doing so will ensure that any corrective measures are taken as needed.

g. Emergencies and crowd management

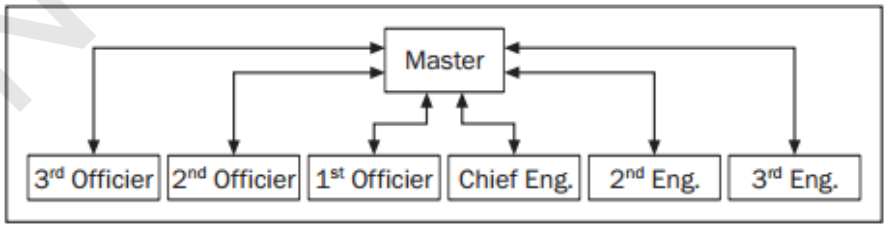
Generally, emergency management rests on three pillars: knowledge about past emergencies, an understanding about past emergencies, an understanding of human nature expressed in social sciences, and specialized expertise in response mechanisms. In this sense, ship management in emergency is mostly based on previously trained and organized crew. In emergencies a combination of knowledge, skills and training of crewmembers as well as the organization of management are fully pressed. For some types of emergencies we can be prepared in advance, such as, for example, the urgency in case of fire, man overboard and abandon ship because for these circumstances there are previously prescribed operational procedures and regular drills. Standard operational procedures for such emergencies, besides training, make an appropriate reaction possible. Taking into consideration the preparedness we can quickly respond to emergencies of this kind.

On the contrary, there are emergencies for which there is no previously prepared plan, on other terms, emergencies for which the crew has not been trained as for the kinds mentioned above. Such emergencies occur with an explosive or a collision. In the same category there are also the emergencies which cannot be foreseen and which result from a breakdown of a piece of equipment or automatic system. These are the cases of a high degree of urgency to which it is very difficult to response with a reasoned, appropriate and quick reaction. These are precisely the emergencies for which the crew had not been previously prepared and which cannot be foreseen, that demand specific knowledge from the standpoint of management. Such knowledge is necessary to make reactions even in these circumstances reasoned, appropriate and quick as much as possible.

Emergency management consists of two phases: Pre-incident and post-incident phases. Pre-incident tasks include predicting and analyzing of potential dangers and developing necessary action plans for mitigation. Post-incident response starts while the emergency is still in progress. At this stage the challenge is locating, allocating, coordinating, and managing available resources. An effective emergency response plan should integrate both of these phases within its objective. Separating the pre-incident and post-incident objective may lead to suboptimal solutions to be overall problem.
The emergency conditions on board are defined by the occurrence of a serious event which can result, or has already resulted, in a accident involving a threat to human lives, ship or cargo as well as the environment.

Management of team work organization

The team work of a modern ship organization presupposes logical and natural relation and unification of the master and deck officers as well as that of chief engineer and his engineer officer on the basis of work coordination and collaboration aiming at optimum ship management in all condition – participative leadership.



Principle of participative management of ship organization

In team work operational procedures in emergencies imply measures and activities which are synchronized and optimized by cooperation and coordination. The objective of such

measures and activities is re-establishing normal circumstances in as short a period as possible by optimum use of means, equipment and human resources.

From the organizational aspect the operational procedures are optimized by application of certain methods which enable individual crew members to act effectively. If we taken into consideration the measures and procedures which are in advance suitable for prevention of certain emergencies and are described in SOP (Standard Operational Procedures) the team acts on the basic of preparations and drill carried out in advance. However, in case of emergencies for which there is no in-advance determined operational procedure, a method characteristic for team work itself is applied. It is the method of short-term strategy" consisting of five elements:

- ✓ Define the nature of the problem;
- ✓ Build up a plan of problem solving;
- ✓ check the plan;
- ✓ Check if the plan is intelligiblr;
- ✓ Control the operation and coordination.

The second point refers to establishing acceptable limits of the development through an appropriate plan which is built up no the basic of participation of all crewmembers who are relevant according to their responsibility and the nature of the emergencies. This second point implies high motivation, a personal contribute to a positive development of the situation within which brainstorming take place which means that of all ideas and suggestions those considered best are selected from the aspect of eliminating emergencies, returning to normal conditions. Setting priorities and selecting optimum is the domain of the function and responsibility of the master, or team leader.

The third point implies checking the developed plan through application of the method of "questions and answers" in which each present team member makes it possible to ask questions, express reasonable doubt and propose possible alternative. This is in fact the phase of checking possible effectiveness of action and limits set up by the plan.

The fourth point is directed towards checking the extent to which the plan accepted has been understood by individual team members. In this phase the "closed loop" of plan intelligibility is to be achieved, a clear cause – consequence acting of individuals who will cooperate in action and mutually coordinate their activities. This point also includes the concept of control of acting of individual groups that will be interrelated and dependant in their work.

The fifth point refers to managing the entire plan through prompt informing, the master on the implementation of the plan defined, master's responses to possible questions during the realization of the plan as well as correction of the plan and creation of alternative solution

which can become necessary while carrying out the activities planned. The role of the master or the team leader in the fifth phase is important as an integrative element of the realization of the plan defined and becomes apparent in his capability to direct support and possible corrections.

Recognition of emergency

Emergency conditions on board are defined by the occurrence of a serious event which can result, or has already resulted, in an accident involving a threat to human lives, ship or cargo as well as the environment.

Therefore, the occurrence of emergencies can be analyzed in two ways. Namely, from the context of the definition of emergency on board results; these emergency conditions occur when a serious event has happened which "can lead, or has already led to an accident involving a threat to human lives, environment, ship, or cargo". Double-natures analysis of emergencies results from the imperative of acting urgently with the objective to remove the consequences of the serious event by the action undertaken in order to avoid the accident; the action is undertaken even if the accident has already happened as a result of the serious event in order to diminish harmful consequences.

Identification of emergency conditions depends on the time passed from the occurrence of the serious event to its recognition as well as the effects of the event which is the basic element of the qualification of a serious events as an emergency in the narrow sense and emergency in the broader sense of the term.

Therefore, it can be said that immediate conditions and circumstances of navigation are significant factors of a possible occurrence of serious event. Recognized conditions for the occurrence of a serious event point out to possible latent causes which should be foreseen as far as possible and appropriate safety precautions should be undertaken. The occurrence of emergencies through conditions and circumstances of navigation as well as crew readiness for possible events including the condition of the ship herself and her cargo can be analyzed from several aspects:

a) Circumstances and conditions of navigation, condition of the crew, ship and cargo (passengers) are recognized in time as a possibility of the occurrence of a serious event which could lead to emergencies, so that raising the level of precautions and appropriate operating procedures the occurrence of the event or emergency can be avoided, and possible accident prevent – safeguard against emergencies.
b) Circumstances and conditions of navigation including conditions of the crew, ship and cargo (passengers) are not recognized in time as a possible cause of the occurrence of a serious event so that precautionary measures have not been undertaken; consequently the serious event has occurred and has led to the emergency so that at this stage urgent and organized measures are undertaken as well as operational procedures aiming at:

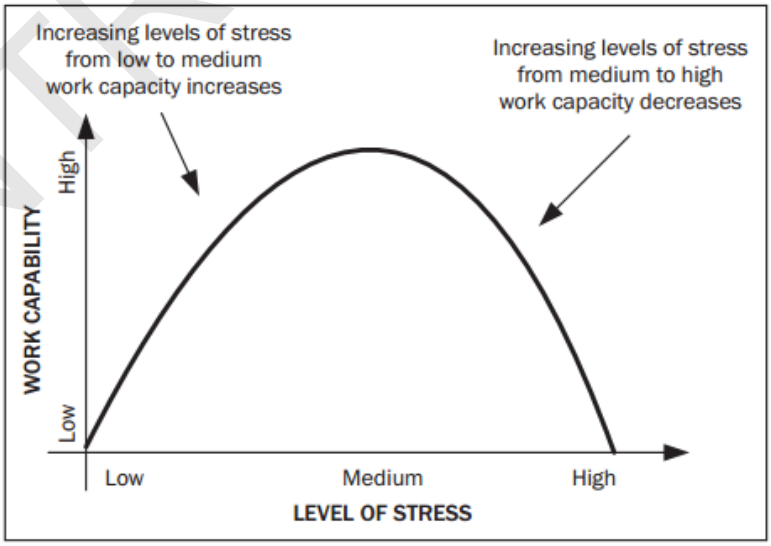
a. Preventing further development of the event that occurred and its harmful effect on people, ship environment and cargo, preventing the possibility that such an event or situation leads to even more harmful consequences – emergency in the narrower sense.

c) In case the previously mentioned measures have not been effective, and the event which has led to the occurrence of an emergency has become a threats to the persons on board or the ship's seaworthiness, has resulted in the need of abandoning ship, urgent and organized measures are undertaken:

a. Abandoning ship and saving human lives as well as reducing the consequences of the accident - emergency in the broader sense.

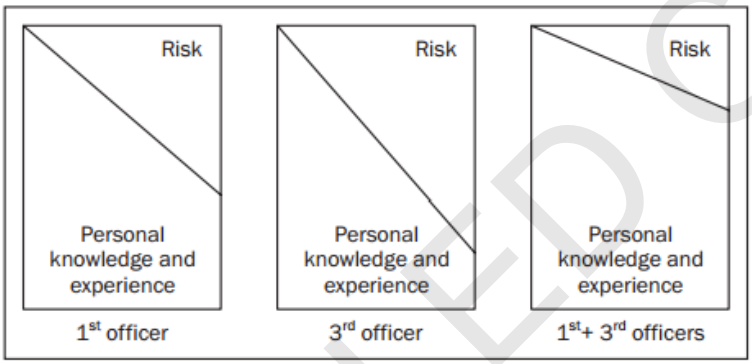
Model of management in emergency in conditions of participative management

The occurrence of emergency requires an urgent response to the altered conditions through mutual and synchronized acting of the crewmembers. The stressful conditions emerging in the first phase of the occurrence of emergency can lead to a spontaneous blocking of rational thinking and resigning to fear. In this phase the symptoms of stress are recognized. The development of the circumstances and the level of stress reached are reflected in the actions and work capability in two ways: increase in the energy level of the body / increase in the work capability and fall of the energy level of the body / reduced work capability.
It is precisely the application of short- term strategy. This makes it possible to control the level of stress and essential balance between decision-making and acting. By such an approach negative expressions of stress can be suppressed so as to enable the re-establishment of ordinary conditions.



Level of stress in relation to work capability

Short- term strategy can be effectively carried out only in a well-trained team since it is based on open communication, well-developed initiative and acceptance of master's authority. The application of short-term strategy is based on merging of individual knowledge and experience into the common, aiming at acting effective and reducing the risk of the action planned in emergency.
In order to unify effectively potential knowledge and experience during short-term strategy it is necessary to previously develop cooperation as an effective work style which should replace competition and individual effort in reaching the goal.



Merging of knowledge and experience

Gathering information
Gathering information after the occurrence of emergency impliespreviosly traine activities of reacting in emergency and preparing the emergency squad. It is of particular importance during information gathering the use effectively the time at disposal as well as potential knowledge and skill of all those who can take part in coping with unexpected circumstances considering the nature of emergency.
Creative use of the time at disposal will reduce the risk for the emergency squad to fall under the influence of stress which in the initial phase of disorientation and uncertainty can lead to lack of information exchange among the members of the team, too much trust that the master will solve the problem as well as to a wrong reaction fuelled by feavaluacEr.
The master's support to the team work through the participative management style in the phase of gathering information is extremely important for the feeling of leadership and taking responsibility which make the other members feel safe and create the climate for overcoming fear.
Pieces of information on the conditions must be described and, without pretensions to the future development of the events, definite and not general, timely and objective.
On the basis of the information gathered the nature of the problem and its actual state are determined. This is also the first phase of short- term strategy which enables a creative approach to solving of new conditions.

7 Conclusion

1. Evaluation of course, individual assessments and advice, certificate presentations.