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Chapter 1. CONCEPT OF BRM-BTM

1.1   Bridge Team / Resource Management – Definition and Objectives

Bridge Resource Management (BRM) is the effective use of all resources available on the Bridge, in order to achieve safe and efficient ship's navigation. BRM is aimed at more safe and efficient navigation by enhancing total performance of all crew. BRM is not much different from the work done by individual on bridge, but more efficient work focused on human factors.

Therefore Bridge Team Management is a process to use all of the available resources, especially during critical operations. It came from the airline industry which found an alarming number of accidents happened despite prior warning from the equipment or crew, mostly by captains with "I can do this" attitude, who did not fully use critical information from either the equipment or junior personnel.

The Bridge Team Management course introduces the concept of a navigation Team to ship Masters and watch-keeping Officers, and frames their decision making process toward establishing watch conditions during the course of the voyage. Bridge Team Management techniques will emphasize decision making based upon conditions related to workload and potential threat to the vessel. The intent of this course is to define the individual task and responsibilities of the various team members while developing a situational awareness to prevent individual errors.

An effective BTM prevents incidents and accidents by improving communication and situational awareness, and by changing attitudes towards a safe working environment.

> *Concept of BRM-BTM Training in NYK started in 1998, as a consequence of the VLCC DIAMOND GRACE incident, which ran around in Tokyo wan (1997). NYK Line Tokyo emphasized the In-House BRM/BTM training following the incident as their commitment to "Safe Navigation & Safety of Life at Sea".*

1.2   CRM (COCKPIT RESOURCE MANAGEMENT) in Aviation Industry

As a consequence of the "Tenerife disaster", the collision involving two airplanes incident occurred in 1977 at Tenerife, CRM training was started. Investigation of the incident showed the KLM pilots misinterpreted some of the instructions. One of the causes was the pilot seemingly jumping to conclusions, and although considered one of the most experienced pilot, his attitude made him difficult to approach and challenge. Since Tenerife disaster, the improvement in cockpit procedure was discussed:

a) Any human can make a mistake, anywhere and anytime.
b) By recognizing that, CRM was developed based on the concept of error chain trapping before a human error to lead to any accident.
c) The idea is to eliminate or reduce human errors as much as possible, enhancing total team performance.

BRM in Marine Industry is based on CRM (Cockpit resource management). Likewise Aviation industry, most of Marine incidents are due to human error. There are differences in crew skills, stress and fatigue between ship and airline; however, the idea of eliminating human error is the core objective.

1.3 BASIC COMPONENTS OF BRIDGE TEAM MANAGEMENT:

- A watch size and structure appropriate to expected operating conditions (i.e., restricted waterways, traffic concentrations, and restricted visibility)
- A watch size and structure that effectively addresses the three primary bridge functions: navigation, collision avoidance, and communication;
- Clear roles and responsibilities for each bridge team member;
- Clear guidelines for internal and external communications;
- Procedures for navigating with a Pilot on board; and
- Comprehensive berth-to-berth voyage planning.

Existing Resource on Bridge:

- Navigation Equipment, ECDIS, Charts & Publications, Other materials & equipments.
- Operation & Instruction/Manuals, Navigational legal regulation, etc.
- Sound (Alarms) from instruments, Noise on working environment, Wind wave, stormy weather, Social environment pertaining to crews' status.
- Navigation warning, VTS information
- Human resource (Master, watch keeping Officers, Quarter Master, Lookout, Engine Dept, Pilot, Escort Vessel, TUG Staff)

Chapter 2. FACTORS INVOLVED IN BRM-BTM

2.1 SITUATIONAL AWARENESS (S.A.)

Situational Awareness is the ability to identify, process, comprehend and predict 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.*

When we lose the S/A, we increase the potential for human error mishaps.

Endsley's definition: "SA is the **perception** of elements in the environment within a volume of time and space, the **comprehension** of their meaning, and the **projection** of their status in the near future".

SA is about recognizing and responding to what is going on around you, same time it's a mix of assumptions, knowledge and abilities that throw our perception up

against the reality. It's the ability to observe things around and make decisions, basis on interpretation, attention, beliefs and expectations.

We may miss things around d*ue to various reasons, such as:*

- not paying attention, or concentrating our attention in different direction (tunnel vision, inattentive blindness);
- wrong assumption - the assumptions are usually based on what we know about the general subject.
- different beliefs, different expectations;

2.1.1 LEVELS OF SITUATIONAL AWARENESS

Level 1 SA – Perception:

Gathering information from the environment, within a volume of time and space. Perception is fundamental: without basic perception of important information, the chances of incorrect picture are increasing dramatically.

Level 2 SA – Comprehension:

Beyond perception, is important how people combine, interpret, store and understand information; it's the analyzing and thinking level: after perceiving, the information must be integrated, in order to determine its relevance to our goals / tasks. Comprehension level is directly related to our knowledge and experience.

Level 3 SA – Projection:

The ability to project from current events and dynamics, to anticipate future events (and their implications) allows for timely decision making. Experienced operators rely heavily of future projections.

2.1.2 TEAM'S SITUATIONAL AWARENESS

We must consider the SA of not just individual team members, but also the SA of the entire team. **Team's SA is defined as "*the degree to which every team member possesses the SA required for his or her responsibilities* " (Endsley).**

The success or failure of a team depends on each of its team members. If any one of the team members has poor SA, it can lead to a critical error in performance that can undermine the success of the entire team.

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 and adapt to the needs of team members.

To ensure a Shared Mental Model of the situation, team members must share their knowledge relative to:

• The task and team goals.
• Their individual tasks.
• Team member roles and responsibilities.

To provide a solid base for building team situational awareness, team members need to have information that will help them develop relevant expectations about the entire team task.
For example, when Captain goes to the Bridge, the duty Officer may assume he is relieved and tend to be negligent, or during maneuvering when the Master and watch keeping officer are together on bridge, Masters may over rely on his watch keeping officer & may overlook warning signs of potential dangers.

The loss of Situational Awareness usually occurs over a period of time and will leave a trail of clues. Be alert for the following clues that will warn of lost or diminished the Situational Awareness:

• Confusion or gut feeling: disorder within the team or a gut feeling that things are not right. This clue is one of the most reliable because the body is able to detect stimulus long before we have consciously put it all together.

• No one watching or looking for hazards: vessel operations require more than just driving the bow of the cutter or boat. The proper assignment and performance of tasks, particularly supervisory and lookout ones, is essential to safe vessel operations.

• Use of improper procedures: This puts the individual or team in a gray area where no one may be able to predict outcomes with any certainty.

• <u>Departure from regulations</u>: In addition to violating procedures, we are operating in an unknown area where the consequences of our actions cannot be predicted with any degree of certainty.

• <u>Failure to meet planned targets</u>: During each evolution, we set certain goals or targets to meet, such as speed of advance, waypoints, and soundings.
When they are not met, we must question why and systematically begin to evaluate our situation.

• <u>Unresolved discrepancies</u>: When two or more pieces of information do not agree, we must continue to search for information until the discrepancy is resolved.

• <u>Ambiguity</u>: When information we need is confusing or unclear, we must clarify or to fill in the missing pieces before proceeding.

• <u>Fixation or preoccupation</u>: When someone fixates on one task or becomes preoccupied with work or personal matters, they lose the ability to detect other important information. Early detection of both fixation and preoccupation is essential to safe vessel operations. The best way to identify these clues is by knowing the behavior of your team members and being alert to change. Preoccupation with personal matters can often lead to subtle changes in performance.

Maintaining a good situational awareness is possible through 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.

- When deviations are noted, effective team members should comment in specific and assertive terms.
- 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, not by waiting to be asked! When you have information critical to team performance,

speak up! All team members are tasked to identify problems before they affect mission accomplishment.

- 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).

The Two-Challenge Rule has been used effectively in aviation to detect fixation in a team member. If a team member fails to adequately respond to two or more challenges regarding omissions or questionable actions, the individual is assumed to have lost situational awareness and some action is required. Apply this rule in daily operations.

2.1.3 FAILURES IN 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: 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.
• 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 can minimize sleep deprivation.

Level 1 Failures: What May affect Perception

- • Most relevant data are not available / obscured, or user doesn't know what is relevant
- • Data presented in too much detail (we must extract the important information from the glut).
- • Inattentive Blindness (we don't notice that key elements have changed between 2 versions of the same image, lack of monitoring).
- • Optical Illusions (we see things different from reality).
- • Tunnel vision (we focus too much on one source of information only).
- • **Distractions, workload**

Level 2 Failures: What May affect Comprehension

- Inability to recognize data features that represent a known conceptual model (meaningful pattern / mental model).
- Contradiction (when information from 2(two) or more sources are contradictory).
- Paradox (something that seems to be illogical, absurd, impossible, opposed to common sense, but in fact may be true; a statement that contradicts itself; 2(two) ideas that cannot be both true in the same time).
- Missing Data (when we don't have enough information to take a decision).
- Lack of, or a lot of, experience and knowledge, may equally affect the comprehension level of an individual.
- **Distractions, workload**

Level 3 Failures: What May affect correct Projection

- • Inability to assimilate limitations of both human and equipment
– Data (i.e. Radar) sampling limitations may result in incorrect or ambiguous expected situation
– Environment (wind, tide) analysis – wrong forecast / predictions
- • Not enough present and/or past information to predict or anticipate.
- • Over-estimation or over-estimation.
- • **Distractions, workload**

A failure in SA on any level can affect the decision making process.

Refer to <u>Appendix 1</u> – Theoretical underpinnings of situation awareness: a critical review.

2.2   DECISION MAKING

Decision-making is an essential skill, in both operational and management levels. Applying a systematic method to solve problems is critical to team performance and the safety of operations. Team members share the responsibility for solving problems by contributing timely and valuable information to the team leader.

- Use of resources
- Decision
- Critique

2.2.1 Use of resources

It is important to make good use of all available resources when making decision. An advantage of making good use of all resources is to analyze the problems correctly, thereby it will be possible to identify the problems more positively, and be able to find a better & effective solution.

In order to maintain & promote safe operation, by allowing all team members to participate in the decision making and making good use of their resources can get more safe level of performance and desirable results.

> **Guideline of action**
> - Don't think you are always right.
> - Effective information is in various places.
> - To have a clear view of usable information and unusable information.
> - All crew members are responsible in putting the resources to practical use.
> - To allow for constructive discussion as long as time allows.

2.2.2 Decision

In order to make an effective decision, one must select an effective solution by not losing the sight o objective. Moreover, one shall decide on the solution considering the pros and cons for the objective.

Guideline of action
- Gather information before making a decision.
- Cross check information sources for agreement.
- Identify alternatives/contingencies so that possible solutions may be explored.
- Discuss the consequences of decisions in an effort to enhance the decision-making process.
- Provide the rationale of decisions.

2.2.3 Act –Implementation of decision-

All members must act in the similar manner after they have understood and agreed upon the contents of decision.

Furthermore, it is necessary for them to continuously evaluate the result of decision weather the desired goal is being achieved or not. If the objective is not being met, it is necessary to reassess the contents of decisions.

2.3 MEMORY AND ATTENTION

Attaining and maintaining Individual SA is much related to **attention and memory**, which are limited human resources.

Memory's Layers:

- Sensory memory
- Working memory
- Long-term memory
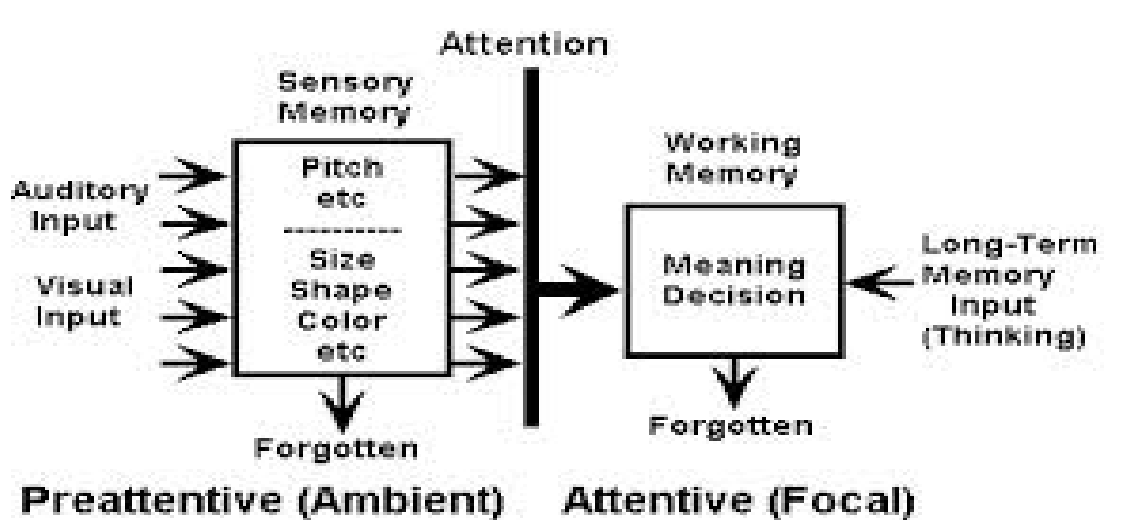
1. Sensory memory allow us to take a 'snapshot' of our environment, and to store this information for a short period. Only information that is transferred to another level of memory will be preserved for more than few seconds.

At this level we must:

– Switch among multiple data streams and manage task priority
– Filter out the "noise" (audio and video)
– Specify the tasks / roles of each team-member

2. Short-term memory is the stage between the sensory memory and the long-term memory. It is the workbench of our consciousness, and includes our awareness of the sensations, feelings and thoughts experienced.

The short-term memory is also called **working memory**, it is vulnerable and it's limited to average 5-7 tasks at any given time.

The way in which **attention** is employed in a complex environment is essential in determining which aspects of the situation will be processed to form situational awareness. Once taken, an information must be associated / integrated with other existing information, compared to goal states and projected into the future – *all heavily demanding on working memory*.

3. Long-term memory

- It's capacity is extremely large (practically can be considered unlimited): everything that we have ever learned or experienced, it is stored and available for retrieval.
- Items in the long-term memory are richly interconnected. When new information is added to the long-term memory, it is associated with a lot of existing information that bears a relationship with it.
- The information can be activated from long-term memory to support the short-term memory.
- Information collected from the sensory memory can go directly to the long-term memory for pattern recognition and coding, and then will be sent to working memory → requires recognition of meaningful patterns (mental models).
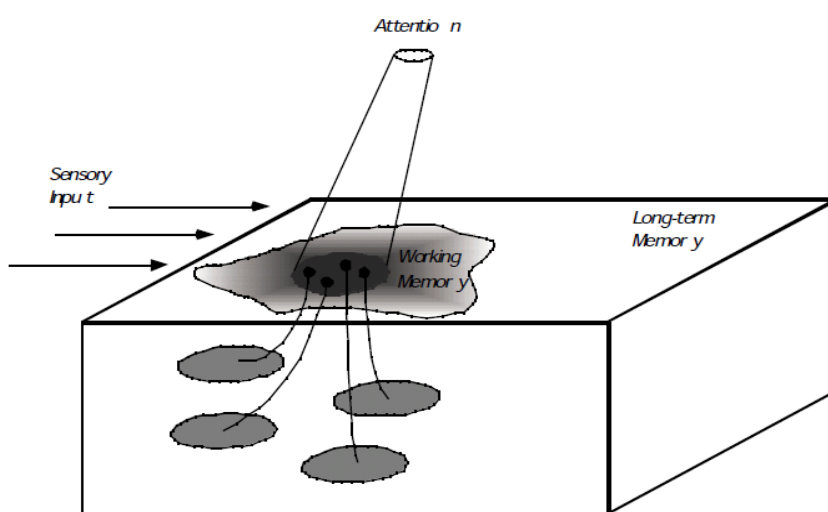
Figure 5. Working Memory as an Activated Subset of Long-Term Memory (based on Cowan, 1988)

Human Memory

Sensory Memory
████████

Short-term Memory
(Working Memory)
████████

Long-term Memory
████████

Explicit Memory
(conscious)

Declarative Memory
(facts, events)

Episodic Memory
(events, experiences)

Semantic Memory
(facts, concepts)

#### Implicit Memory
(unconscious)

Procedural Memory
(skills, tasks)

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2.4 WORKLOAD MANAGEMENT

Attention and working memory are limited resource significantly impacted by workload. A "workload" can be broadly defined as "the total requests made by users and applications of a system".

It is widely accepted that as workload increases, SA decreases – as consideration of supply and demand of resources is central to SA. It should be also considered the task management, involving the prioritizing, updating task status (monitoring) and attending the most important tasks.

S.A. – Workload Combinations:

- Low SA, Low Workload (Cadet level: don't know anything, don't really want to know, unless properly motivated).
- Low SA, High Workload (3rd Officer level: don't know much, but am trying way too hard to find out, if enough dedication exists).
- High SA, High Workload (senior 2nd Officer and Chief Officer level: do know a lot, but at great effort, therefore can't keep this up for long).
- High SA, Low Workload (Master level: do know, and it comes easily).

There are 4(four) particular ways for effective personal workload management:

I) BE FAMILIAR (Information level) with the ship/equipment.

II) BE ORGANIZED (Commitment level) – Check/lists, standard procedures, WI (work instructions), posters.

III) BE ALERT (Control level) – anything can happen, avoid to be tired, don't lose focus and concentration. Chronic unease concept.

IV) REMAIN CALM (Challenge level) – avoid panic and stay confident if anything happens.

For example: main purpose of high automation level on the Bridge - better and better equipment performance – is to reduce the workload.

Problems can occur when there is an over-reliance on technology, combined with a break-down (failure) of the equipment.

DEVELOPING STORY

AT LEAST 23 DEAD IN TAIWAN PLANE CRASH

- Workload Management is an important skill necessary to prevent misjudges or action caused due to improper workload. It consists of the following three factors:

1. <u>Prioritize tasks</u>:

It is necessary to place task in the order and instruct according to the importance of Task indicating the available time. In case the workload is particularly high, the team members should pay attention by not losing the importance of the objective in accordance with safe operation.

> **Guideline of action**
> - To have a clear understanding of important matters.
> - To consider time restriction.
> - Is it required to be done now? (order of priority)

2. <u>Distribute tasks</u>:

This is to adjust the workload among team members by introducing assignment. Excessive burden of work on a specified individual leads to error. Work should be equally distributed to all members of the team to enhance the productivity by doing so we eliminate the elements of error.

Guideline of action
- To identify the proper distribution of workload.
- Not to focus the workload on one person.
- Proper distribution of workload prevents a distraction
- Must be able to identify clearly when overload condition exists.
- To deal with a task of high priority when workload is high.
- To be able to redistribute the task when an individual among the team members or yourself becomes overload.

3. Stress Management

Stress greatly influences the judgment. It is necessary to maintain acceptable level of stress of oneself or others in order to make work environment more conductive as far as possible, and be able to judge under the circumstances, factors that can cause mental, physical, emotional stress.

Guideline of action
- To properly maintain the stress levels, (not too high, not too low)
- To identify the origins of stress caused due to the differences of opinion among the team members.
- You may cause stress to another individual, subconsciously by your acts.
- To know one's own limits & level of concentration.

Chapter 3. HUMAN FACTOR AND HUMAN INVOLVEMENT IN ERROR

"Error is simply a difference between an actual state and a desired state" (Sheridan)

"Human factors" is a discipline of study that deals with human-machine interface; it deals with the psychological, social, physical, biological and safety characteristics of a user and the system, focusing on how people interact with equipment, products, tools, procedures, etc.

Human Error is a concept for explaining malfunctions, accidents or other unintended consequences from operating a device or system where the error occurred due to actions of the human operator.

3.1 LEVELS OF HUMAN ERROR:

1. <u>Skill-based unsafe actions</u>, including Slips / Lapses

Slips = attention failure
Lapse = memory failure

Slips / Lapses
- Un-intended actions, due to various reasons: miss-communication, misprioritization of tasks, inattention, lapses of memory, etc.
- Slips may be humorous or seem insignificant, but they are a visual or an auditory form of human error, and slips may not recognized.
- Slips and lapses usually occur in very familiar tasks which we can carry out without much conscious attention.

Examples:
The wrong call-sign is used to call another vessel, or helmsman applying wrong rudder angle, not in accordance with the order received (generally doing the right action on the wrong object, or the wrong check on the right item).

Corrective Action
Inform the individual of the slip, regardless of difference in rank; (generally include in procedures proper settings, finger-pointing methods and layouts to ensure there is a logical sequence followed).

2. <u>Rule-based and Knowledge-based</u> mistakes:

- Mistakes are decision-making failures; an incorrect, unwise, or unfortunate act or decision caused by bad judgment, or lack of information / projection, or care.
- The two main types of mistake are rule-based and knowledge-based mistakes, arise when we do the wrong thing, believing it to be the right.

Examples:
- making a poor judgment when overtaking, leaving insufficient room to complete the maneuver (ignore traffic, passing effect, etc.).

- an operator misinterpreting the sound of an alarm / breakdown.

Corrective Actions:
- Briefings, planning, double checks, procedures for predictable non-routine high risk tasks, risk assessments;
- Training, job aids, diagrams, improve working environment, workload management, SMS policy, rules and regulations.

 3. Violations Errors (intentional)

Routine violations, Exceptional violations and Sabotage

- Errors due to violations are intentional failures, deliberately doing the wrong thing, due to various reasons: time pressure, not considering consequences, over-estimating and over-compliance, etc.
- The violation of health and safety rules / procedures is one of the biggest causes of accidents and injuries at work.

Examples:
- Not wearing safety equipment: "it will not happen to me" or "I am above the rules and regulations" type.
- Allowing untrained crew to carry out steering / watch-keeping.
- Master maintaining high speed in restricted visibility – time pressure.

Corrective Actions
- Proper supervision and monitoring of the personnel, experience-sharing;
- Explain the reasons and relevance behind the rules and procedures, provide training for abnormal and emergency situations – drills, scenarios: "*The more we sweat in peace, the less we bleed in war*" (Vijaya L. Pandit)

Generic Error Modeling System-GEMS (Reason, 1990)

BASIC ERROR TYPES

Skill-based level

SLIP → Attentional failures
- Intrusion
- Omission
- Reversal
- Misordering
- Mistiming

UNINTENDED ACTION

LAPSE → Memory failures
- Omitting planned items
- Place_losing
- Forgetting intentions

UNSAFE ACTS

MISTAKE → Rule-based mistakes
- Misapplication of good rule.
- Application of bad rule
Knowledge-based mistakes
- Many variable forms

INTENDED ACTION

VIOLATION → Routine violations
Exceptional violation
Acts of sabotage

3.2 HUMAN ERROR: MODELS AND MANAGEMENT

The human error problem can be viewed in two ways: **the person approach and the system approach**. Each has its model of error causation and each model gives rise to quite different philosophies of error management. Understanding these differences has important practical implications for coping with the ever present risk of mishaps in practice.

3.2.1 Person approach:

The longstanding and widespread tradition of the person approach focuses on the unsafe acts - errors and procedural violations - of people at the sharp end, directly involved in an accident: pilots, ship masters, physicians, surgeons, anesthetists, pharmacists, etc. It views these unsafe acts as arising primarily from aberrant mental

processes such as forgetfulness, inattention, poor motivation, carelessness, negligence, and recklessness. Naturally enough, the associated countermeasures are directed mainly at reducing unwanted variability in human behavior. These methods include poster campaigns that appeal to people's sense of fear, writing another procedure (or adding to existing ones), disciplinary measures, threat of litigation, retraining, naming, blaming, and shaming.

Followers of this approach tend to treat errors as moral issues, assuming that bad things happen to bad people - what psychologists have called the "just world hypothesis".

The person approach remains the dominant tradition in shipping, aviation, medicine, as elsewhere. From some perspectives it has much to commend it. Blaming individuals is easy, emotionally more satisfying, and financially more convenient than targeting institutions.

People are viewed as free agents capable of choosing between safe and unsafe modes of behaviors. If something goes wrong, it seems obvious that an individual (or group of individuals) must have been responsible. Seeking as far as possible to uncouple a person's unsafe acts from any institutional responsibility is clearly in the interests of managers. It is also legally more convenient.

Nevertheless, the person approach has serious shortcomings. Indeed, continued adherence to this approach is likely to thwart the development of safer institutions. Although some unsafe acts in any sphere are egregious, the vast majority are not. In shipping and aviation maintenance - a hands-on activity similar to medical practice in many respects – majority of quality lapses were judged as blameless.

An effective risk management depends crucially on establishing a reporting culture. Without a detailed analysis of mishaps, incidents, nearmisses, and "free lessons," we have no way of uncovering recurrent error traps or of knowing where the "edge" is until we fall over it.

(For example the complete absence of such a reporting culture within the Soviet Union contributed crucially to the Chernobyl disaster).

Trust is a key element of a reporting culture and this, in turn, requires the existence of a just culture - one possessing a collective understanding of where the line should be drawn between blameless and blameworthy actions. Engineering a just culture is an essential early step in creating a safe culture.

Another serious weakness of the person approach is that by focusing on the individual origins of error it isolates unsafe acts from their system context. As a result, two important features of human error tend to be overlooked:

- Firstly, it is often the best people who make the worst mistakes - error is not the monopoly of an unfortunate few.
- Secondly, far from being random, mishaps tend to fall into underline recurrent patterns. The same set of circumstances can provoke similar errors, regardless of the people involved. The pursuit of greater safety is seriously impeded by an approach that does not seek out and remove the error provoking properties within the system at large.

3.2.2 System approach

The basic premise in the system approach is that humans are fallible and errors are to be expected, even in the best organizations. We cannot change the human nature, but we can change the System, and if the better System we have, the less chance for human errors exists. Therefore errors are seen as consequences of Latent Conditions of a flaw in the system, rather than causes, having their origins not so much in the perversity of human nature as in "upstream" systemic factors.

Safeguards include recurrent error traps in the workplace and the organizational processes that give rise to them. Countermeasures are based on the assumption that though we cannot change the human condition, we can change the conditions under which humans work. A central idea is that of system defenses. All hazardous technologies possess barriers and safeguards. When an adverse event occurs, the important issue is not who blundered, but how and why the defenses failed. Also the "No Blame" policy plays an important part.

3.2.3 The Swiss cheese model of system accidents

Defences, barriers, and safeguards occupy a key position in avoiding accidents. High technology systems have many defensive layers: some are engineered (alarms, physical barriers, automatic shutdowns, etc), others rely on people (surgeons, anesthetists, pilots, control room operators, etc), and yet others depend on procedures and administrative controls. Their function is to protect potential victims and assets from local hazards. Mostly they do this very effectively, but there are always weaknesses.

In an ideal world each defensive layer would be intact. In reality, however, they are more like slices of Swiss cheese, having many holes—though unlike in the cheese,

these holes are continually opening, shutting, and shifting their location. The presence of holes in any one "slice" does not normally cause a bad outcome. Usually, this can happen only <u>when the holes in many layers momentarily line up to permit a trajectory of accident opportunity</u>—bringing hazards into damaging contact with victims.

The holes in the defences arise for two reasons<u>: active failures and latent conditions</u>. Nearly all adverse events involve a combination of these two sets of factors.

Active failures are the unsafe acts committed by people who are in direct contact with the system. They take a variety of forms: slips, lapses, fumbles, mistakes, and procedural violations. Active failures have a direct and usually short-lived impact on the integrity of the defences.

(At Chernobyl, for example, the operators wrongly violated plant procedures and switched off successive safety systems, thus creating the immediate trigger for the catastrophic explosion in the core).

Followers of the person approach often look no further for the causes of an adverse event once they have identified these proximal unsafe acts. But, as discussed, virtually all such acts have a causal history that extends back in time and up through the levels of the system.

Latent conditions are the inevitable "resident pathogens" within the system. They arise from decisions made by designers, builders, procedure writers, and top level management. Such decisions may be mistaken, but they need not be. All such strategic decisions have the potential for introducing pathogens into the system.

Latent conditions have two kinds of adverse effect: they can translate into error provoking conditions within the local workplace (for example, time pressure, understaffing, inadequate equipment, fatigue, and inexperience) and they can create long-lasting holes or weaknesses in the defences (untrustworthy alarms and indicators, unworkable procedures, design and construction deficiencies, etc).

Latent conditions - as the term suggests - <u>may lie dormant within the system for many years</u> before they combine with active failures and local triggers to create an accident opportunity. Unlike active failures, whose specific forms are often hard to foresee, latent conditions can be identified and remedied before an adverse event occurs. Understanding this leads to proactive rather than reactive risk management.

To use another analogy: active failures are like mosquitoes. They can be swatted one by one, but they still keep coming. The best remedies are to create more

effective defences and to drain the swamps in which they breed. The swamps, in this case, are the latent conditions.

Swiss Cheese Model of Accident Causation (After Reason)
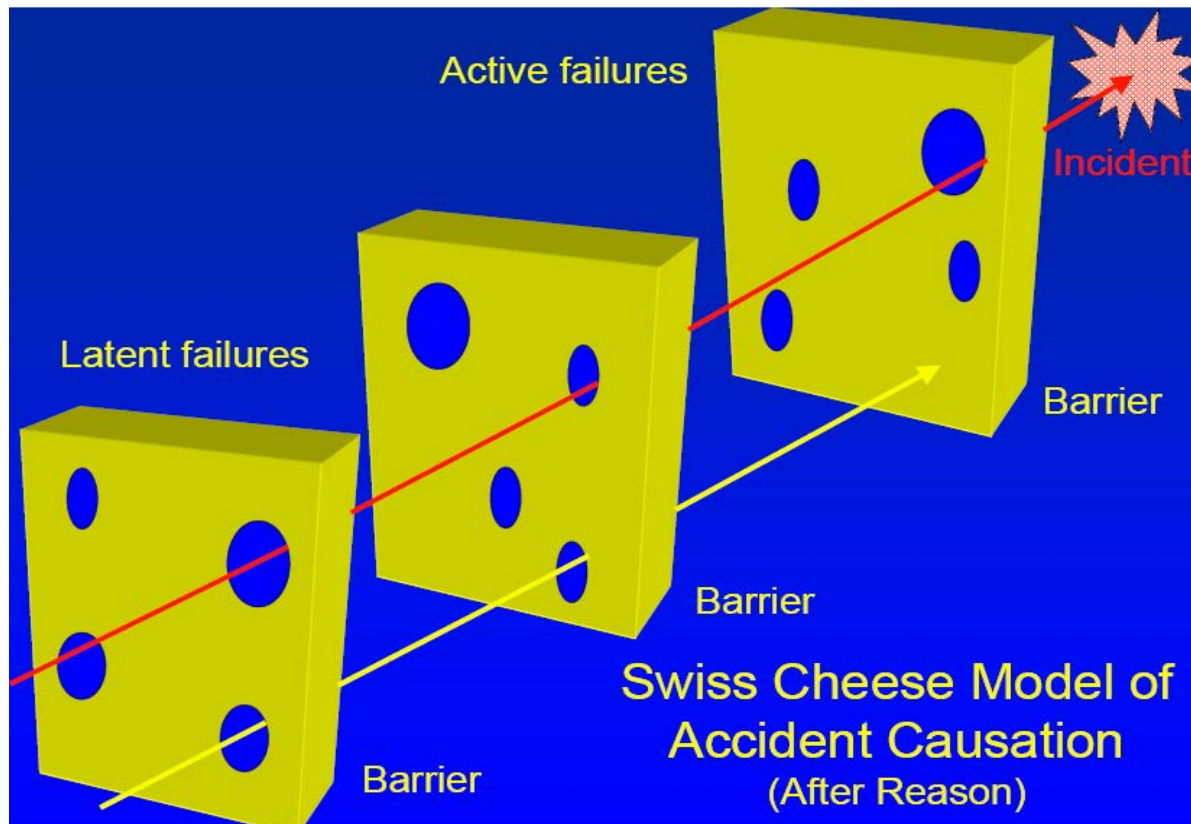
3.2.4 Error Management – High Reliability Company

Over the past decade researchers into human factors have been increasingly concerned with developing the tools for managing unsafe acts. Error management has two components: limiting the frequency of dangerous errors and - since this will never be wholly effective - creating systems that are better able to tolerate the occurrence of errors and contain their damaging effects – reduce consequences.

Whereas followers of the person approach direct most of their management resources at trying to make individuals less fallible or wayward, adherents of the system approach strive for a comprehensive management programme aimed at several different targets: the task, the workplace, and the institution as a whole.

High reliability organizations - systems operating in hazardous conditions that have fewer than their fair share of adverse events - offer important models for what constitutes a resilient system. Such a system has intrinsic "safety health"; it is able to withstand its operational dangers and yet still achieve its objectives.

However there are some paradoxes of high reliability: Just as medicine understands more about disease than health, so the safety sciences know more about what causes adverse events than about how they can best be avoided.

Over the past 15 years or so, a group of social scientists based mainly at Berkeley and the University of Michigan has sought to redress this imbalance by studying safety successes in organizations rather than their infrequent but more conspicuous failures. These success stories involved nuclear aircraft carriers, air traffic control systems, and nuclear power plants**.**

Most managers of traditional systems attribute human unreliability to unwanted variability and strive to eliminate it as far as possible. In high reliability organizations, on the other hand, it is recognized that human variability in the shape of compensations and adaptations to changing events represents one of the system's most important safeguards.

Reliability is "a dynamic non-event." It is dynamic because safety is preserved by timely human adjustments; it is a non-event because successful outcomes rarely call attention to themselves. We cannot measure an accident that never happened, therefore accident prevention is still kept as a pure theoretical subject.

Paradoxically, this flexibility arises in part from a military tradition - even civilian high reliability organizations have a large proportion of ex-military staff. Military organizations tend to define their goals in an unambiguous way and, for these bursts of semiautonomous activity to be successful, it is essential that all the participants clearly understand and share these aspirations. Although high reliability organizations expect and encourage variability of human action, they also work very hard to maintain a consistent mindset of intelligent wariness.

Perhaps the most important distinguishing feature of high reliability organizations is their collective preoccupation with the possibility of failure. They expect to make errors and train their workforce to recognize and recover them. They continually rehearse familiar scenarios of failure and strive hard to imagine novel ones. Instead of isolating failures, they generalize them. Instead of making local repairs, they look for system reforms.

Therefore high reliability organizations are the prime examples of the system approach. They anticipate the worst and equip themselves to deal with it at all levels

of the organization. It is hard, even unnatural, for individuals to remain chronically uneasy, so their organizational culture takes on a profound significance. Individuals may forget to be afraid, but the culture of a high reliability organization provides them with both the reminders and the tools to help them remember. For these organizations, the pursuit of safety is not so much about preventing isolated failures, either human or technical, as about making the system as robust as is practicable in the face of its human and operational hazards.

Model of Human Error causation (Reason, 1990)
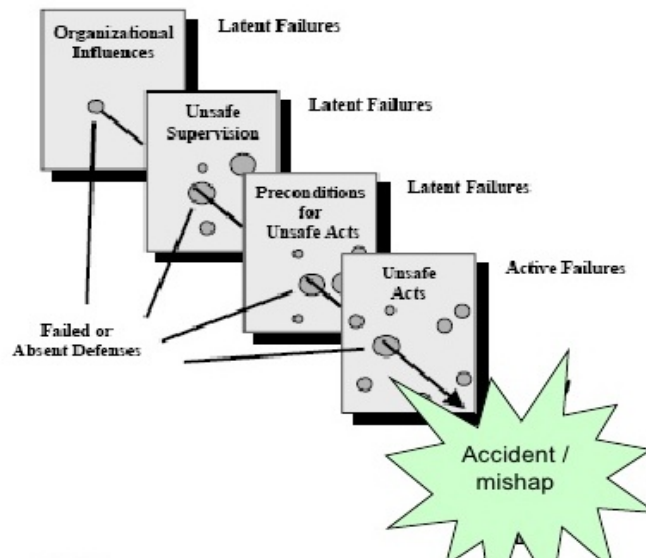
3.3 Efficiency of BRM in reducing the human error – SHEL Model

Theoretically, executing BRM techniques on board allows eliminating almost half of the human factors, which causes to the marine incident. Also utilizing BRM could eliminate the rest of the human factors related to crews' skills.

Skill + Knowledge + Experience + BRM (synergy effect) = **Better decision making**

Human Factor (SHEL model)

Most of human behaviors and life can be described in system. The system is considered as circumstances of people, the circumstance can be large as globe,

country, region, company, or small as a human. SHEL model is often used as graphical model describing the system. SHEL model was originally proposed by Edwards, an England scholar, in 1972, and modified by Hawkins who was a KLM Pilot. SHEL model is a framework for understanding human factor. SHEL model is commonly depicted graphically to display, not only the four components, but also the relationships or interfaces between the components.

These are four components to the model:

> Software (SOFTWARE / S): Rules, manuals and regulations;
>
> Hardware (HARDWARE / H): Equipment and instrument
>
> Environment (ENVIRONMENT / E): Internal and external environment
>
> Liveware (LIVEWARE / L): Human factors

Human (L) is in center of the system, and software (S), Hardware (H), Environment (E) and Human (L) are surrounding it.

There are corrugated gaps between the human in center and the all other components. These corrugated gaps indicate the interface between the Human and the other four components. A balanced between each of the components may be lost due to a mismatch of interfaces that can be a source of human error. On the other hand, a match of interfaces brings the best human performance.

The SHEL model, represents the interactions between the human and the other components, was adopted as a conceptual base of generic human factors. The interactions can be between:
+ Human & equipment: Liveware & Hardware
+ Human & Manuals: Liveware & Manuals
+ Human & Team members: Liveware & Liveware
+ Human and Navigation Environment: Liveware & Environment

On investigation of marine incidents or accidents, analyze not only the central Liveware components itself but also each interface between all relating peripheral components, such as L-S, L-H, L-E and L-L. Then a proper action to improve each component will be taken based on the analysis result.

Human factor aims at the best performance by matching external elements (peripheral components of S-H-E-L) with the characteristic of the human factors, as physiological or psychological factors.

There is another component called MANAGEMENT to adjusting the interface between the human and each of the other components. The MANAGEMENT component is not independent itself in the system, and it's position is vague. MANAGEMENT shall place in somewhere it can influence to all components including central LIVEWARE component, but shall not place in the same position as the other components of S-H-E-L.

SHEL MODEL (Relationship between Man and Machine)

H
HARDWARE
Equipment ● Instrument

S
SOFTWARE
Rule ● Regulation
Procedure ● Information

L
LIVEWARE

E
ENVIRONMENT
Physical environment
(Air-conditioner ● lights ● noise)
Weather ● Sea condition ● Social environment

L
LIVEWARE

→ Human makes mistake
→ When considering crisis management in this whole system, it is vital to consider not " Who" but "What" causes to a incident
→ Recourse management focusing on human is important

3.4 Error Chains

Maritime incidents or disasters are very seldom the result of a single event, they are almost invariably the result of a series of non serious incidents; the culmination of an error chain. Situational awareness helps the OOW to recognize that an error chain is developing and taking such actions, based upon this awareness, to break the error chain.

Certain signs in the function of a bridge team will indicate that an error chain is developing. This does not mean that and incident is about to happen; it does mean that the passage is not being carried out as planned and that certain elements of situational awareness may be lacking. The ship is being put at unnecessary risk and action must be taken to break the error chain.
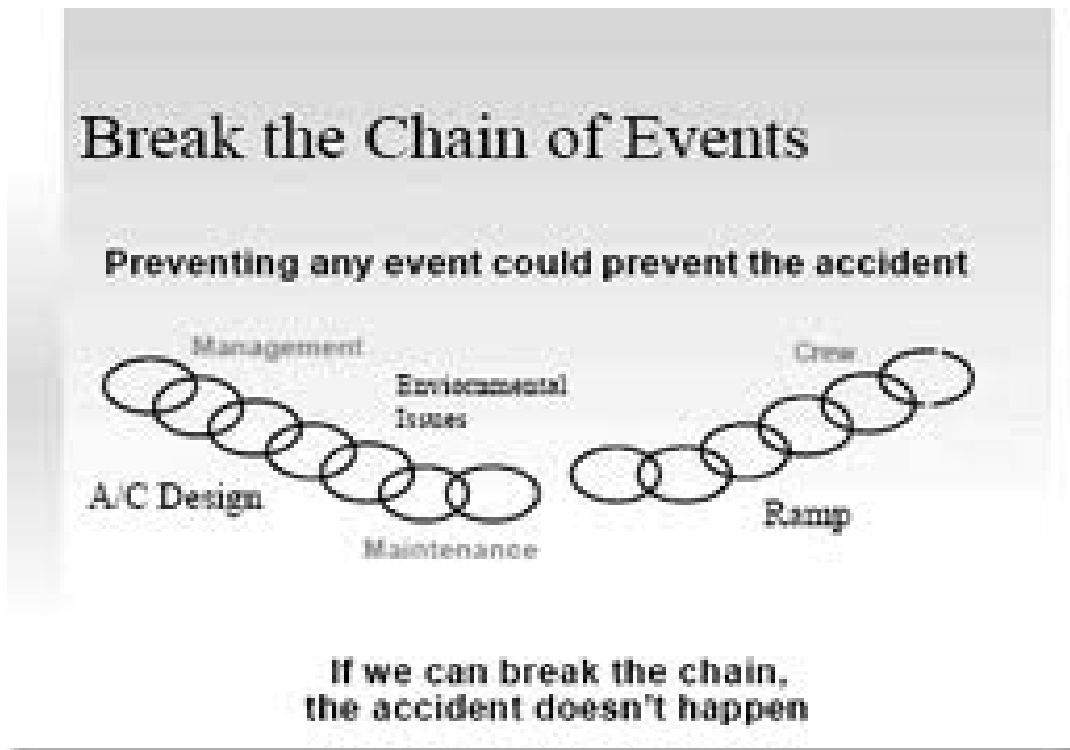
Error trapping mechanism:

Trapping slips, mistakes, and errors, (or breaking an error chain), is a key mechanism to avoiding mishaps.

Human error can occur at anytime. The earlier human error enters the process and/or the longer it goes undetected, the less effective the team will be and the greater the potential for mishaps.

Regulations are implemented to control some of the known errors, but regulations and standard operating procedures are not fail-safe mechanisms.

Team members must be able to identify all levels of human error and be empowered to take corrective action!

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3.5   Monitoring and Evaluation

Monitor and evaluation are elements focusing to the ship, passage and people (crew), these contribute to the basic source of information's to enhance situational awareness. Human behavior includes the possibility of errors and incorrect operation. Although monitoring the errors at all times is impossible, however by enhancing the ability to sense out the errors and malfunctions at an early stage can minimize the rate of errors.

Guideline of errors
- To recognize the errors lying in human behavior.
- To recognize the possibility of malfunction in machinery.
- Monitoring is important especially when conducting, operating and changing.
- To implement pessimistic monitoring procedure & evaluation without prejudice.
- To specify the issues by making good use of all available resources so far as time permits.

3.6   Analyses and Anticipation

This is to positively analyze and anticipate the situation, condition, trend of change that will occur from present situation in near future; also it includes studying an unforeseen situation.
In particular, it is important to anticipate the errors of an individual and team and also the possibility of approaching a dangerous situation. And one shall correct the plan appropriately depending upon the above anticipation, identify in case the facts of error are recognized, finally transfer to decision making.

If no error is the result of analysis, procedure should return to the initial stage of Monitoring and Evaluation.

Guideline of action

- To anticipate the errors by experience.
- Don't utilize wishful thinking.
- To anticipate the risk and have early warning attitude.
- To correct the plan accordingly from the skill of anticipation.

FLOW OF BRM

PRIMARY SIGNS OF ACCIDENTS

1. Ambiguity
2. Distraction
3. Feeling of Confusion / Inadequacy
4. Breakdown in Communication
5. Improper Conn / Lookout
6. Violation of Rules / Procedures
7. Deviation from the passage plan
8. Complacency

S/A: Situational Awareness

BRM SKILLS

1. Communication
2. Decision Making
3. Team Building
4. Situational Awareness

CAN NOT AVOID ACCIDENT

CAN AVOID ACCIDENTS

ERROR

NEGATIVE

POSITIVE

Bridge

Low S/A

Low S/A

Can not Recognise & break

Can Recognise & break

BRM SKILLS / ELEMENTS

→ BRM SKILL
→ ELEMENT

1 COMMUNICATION
- Communications
- Assertions/Inquiry
- Briefings

→ Technique for mutual understanding
→ For safe operation
→ Common workplace for exchanging views and understanding

2 DECISION MAKING
- Use of Resources
- Decision
- Act/Critique

→ Effective use of resources
→ Responsible decision making
→ Implementation of decision/ Evaluation of decision

3 TEAM BUILDING
- Leadership
- Team Compatibility
- Conflict Resolution

→ Maintain proper power balance and display of leadership qualities by an individual member
→ Common goal for the team members
→ To break the conflict

4 SITUATIONAL AWARENESS
- Monitor/Evaluation
- Analysis/Anticipation
- Sharing of Awareness

→ Monitor and evaluate the developing situation
→ Problem analyzing, Anticipation for errors and risks
→ Exchange of Information

5 WORKLOAD MANAGEMENT
- Prioritize
- Distribute
- Stress Management

→ Giving priority
→ Work assignment
→ Methods to control & minimize Stress for individuals & team members

Chapter 4. EFFECTIVE COMMUNICATION

4.1 Close-loop communication:

1. The SENDER sends a MESSAGE.
2. The RECEIVER sends a FEEDBACK back to the SENDER: acknowledges the message by repeating the entire message or the key parts.
3. The SENDER confirms the acknowledgement of the RECEIVER.

Sender
- Communication process starts with the sender, who should be conveying information necessary for task accomplishment.
- The sender must be proactive in making the receiver understand the message.

Too often, what is said is not always what is heard; to prevent this from happening, do the following:

State one idea at a time.
State ideas simply, accurate.
Explain when appropriate, repeat if required.
Encourage and acknowledge the feedback (Close the loop).

Receiver
- The effectiveness of the team often rests on its members' ability to listen – please refer to active listening.
- It is important to ensure that Receivers understand what the Senders want and why they want it.

In order to understand the message correctly, the Receiver must decode the information encoded by the Sender → Listening is more difficult than Talking.

Feedback: Receivers verify their understanding of the message with the sender.

Forms of feedback include:

Acknowledgment: a common courtesy, and it demonstrates that the receiver has heard the message. (Ok, Understood, Right, Correct, Indeed, etc.)
Parroting: repeating back the same words to the sender, and it confirms to the speaker that the words transmitted were the same as words received .

Paraphrasing: rephrasing in own words the content of the original message, and it clarifies the message for both the receiver and the sender

4.2 Communication skills

To optimize & enhance the ship's operation, communication skills are necessary to facilitate understanding between team members, to prevent wrong decision-making, to point out improper behavior, etc. It consists of the following three elements:

A. Communication: concerns speaking skill and listening skill necessary for proper understanding. Accordingly, the communication is a two-way traffic and is realized by actions of both sender and receiver.

> **Guideline of action**
> - To tell if the person has grasped the point of necessary information.
> - To communicate clearly and precisely by using language which is understandable to everyone.
> - Receiver shall repeat and respond to show that he understands. Active listening.
> - Monologue and body language's are likely to create misunderstanding.
> - Speaker shall confirm by questioning weather receiver understands the message completely.
> - In case the understanding is unreliable, to repeat and give the message securely.

B. Assertion / Inquiry: Assertions is to point out the error and insist upon to correct the act, which has deviated from safety. The level of assertion must be intensified in proportion to the level of tension in human behavior to avoid confrontation. Inquiry is to ask a question in order to confirm

C. Briefing / Debriefing: The briefing should be conducted at workplace, it is necessary for exchanging opinions and having good understanding among team members in all operational phases.

The effective briefing is to attract the attention of team members, in order for them to understand the operational plan. Moreover out lines of the plan must be thoroughly discussed concrete on planned acts to be done i.e. present/future issues, and alternative plan in case of emergency.

Although lead role for briefing is captain's prerogative, other crew members should be encouraged for positive involvement.

Guideline of action
- Briefing to be conducted at the workplace to tell the outlines of plan.
- To be able to set up objectives for safety.
- To involve all members concerned with operation
- To explain to the team, in case deviating from passage plan.
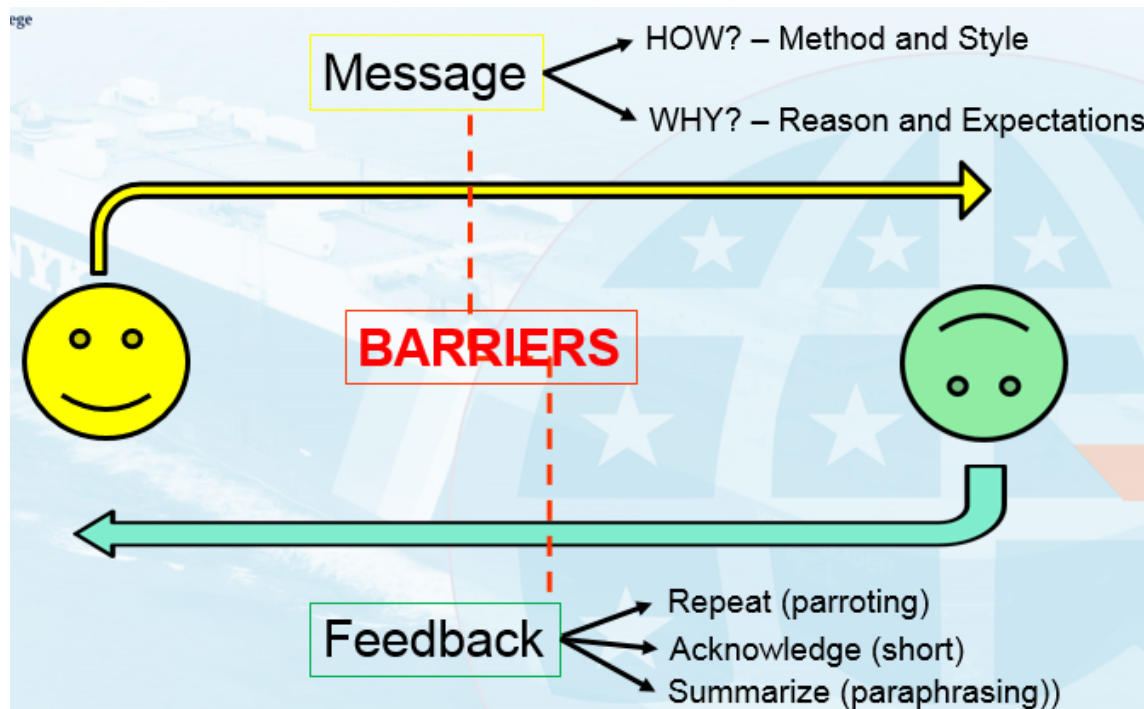
4.3   Barriers in Communication process

Barriers are influencing factors which impede or breakdown the continuous communications loop: they block, distort, or alter the information. By identifying the barriers and applying countermeasures, team members can effectively communicate.

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Barriers include:

- Non-assertive behavior due to lack of confidence and rank differences.
- Task-preoccupation, lack of attention and interest, tunnel vision, distractions.
- Anger or frustration, personal bias, emotional involvement and taboos.
- Language differences, regional usage, accent, un-familiar or complicated terms.
- Physical disabilities: speech difficulties or hearing problems.
- Cultural differences: norms of social interaction, ways of expressing, body language, personal space, communication style.
- Expectations and prejudices which may lead to false assumptions or stereotyping; (people often hear what they expect to hear, jumping to incorrect conclusions).
- Physical barriers: noise, equipment failure, interferences.

Talking and Listening are not separated, but what makes listening more difficult?

Planning – we are thinking about what we want to say next.

Evaluating – we are thinking about what has just been said.

Not concentrating – we are thinking about something else, not interested.

Pre-judging – we think we know what somebody is going to say.

Disagreement / dislike – we don't agree with the message and / or we don't like the person who is talking to us.

Distractions and / or interruptions.

Overcoming – we are receiving more information than we are able to take.

To actively listen, the receiver needs to:

- Acknowledge the ideas, be patient and supportive.
- Repeat using different words: reflection feedback (paraphrasing).
- Focus attention on the message, giving it momentary priority.
- Keep an open mind and suspend judgment, avoid anticipation.
- Verify what was heard, asking open-ended questions
- Summarize and clarify, to understand speaker's intention.

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The following actions have been observed in teams with effective communications skills:

- Repeat, as necessary, to ensure communication is accurately received.
- Use standard terminology when communicating information.
- Request and provide clarification when needed.
- Ensure statements are direct and unambiguous.
- Inform the appropriate individuals about your plans and when those plans change.
- Communicate all information needed by those individuals or teams external to the team. Don't use un-necessary communication.

4.4   Communication Techniques:

SUMMARISING: "OK, let's go over what needs to be done, yes?"

BUILDING: Instead of negative dismissal of someone's suggestion, focus on what works to value his contribution. "Right, as well as increasing the lookouts, we could also use a camera link to the Bridge; that would be effective, wouldn't it?"

DISAGREEING: Instead of brutal "I completely disagree with you; we have no budget for that!", it's better to use a more diplomatic way: "That's a very interesting suggestion, but I'm afraid I can't agree with you, as we don't have budget for that".

FLAGGING: it alerts the other person about your intentions before you start. This guards against the possibility of being miss-understood. "I just want to check with you I've understood the new protocols that were sent over yesterday".

TESTING: asking questions to find out how well someone has understood. "Can I just confirm what you're saying? Does the budget cover this area or not?"

AGGRESSIVE COMMUNICATION:
- we are under pressure and/or we feel frustrated.
- sometimes, with some people, it works;
- this is our nature / education / mentality;
- we are nervous; we think the best defense is to attack.

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PASSIVE COMMUNICATION:

■ we want to look "good" and "helpful";
■ we are afraid of getting an aggressive response;
■ we avoid direct confrontation, we want an "easy life";
■ we are tired and/or bored;

ASSERTIVE COMMUNICATION:

It's the combination of aggressive and passive. We never lose sight of what we want, whilst paying attention to other's opinions and wishes. Is the best way to interact to each other, but it doesn't come naturally.

4.5   Communication – types of questions:

OPEN TYPE: usually "Why", "What", "How", etc. for reflective persons, for reluctant people: "How do you think we should do this drill?"

PROBING TYPE: to *probe* views and opinions, or *hypothetical* questions, inviting speculations. "You have a good point, **but** have a look, shouldn't we also…?"

CLOSED TYPE: designed to close a subject, good method for "talkers", designed to get a short and precise answer, usually "yes" or "no". "Have you sailed on vessels of this size before?"

LEADING TYPE: *This type should be avoided:* The answer is induced / given in the question. "Would you not agree that the best decision is to anchor till morning?"

MULTIPLE TYPE: *This type should be avoided:* Multiple questions within the same subject, without giving time for answers. "Are we going now to anchorage? Why now? Can we do it later? When? What do you think? Is really necessary?"

RHETORICAL QUESTIONS: asked merely for effect, in fact no answer is expected the answer may be obvious or immediately provided by the questioner; "don't you think that vessel at anchor changes her heading due to prevailing force of current and wind?"
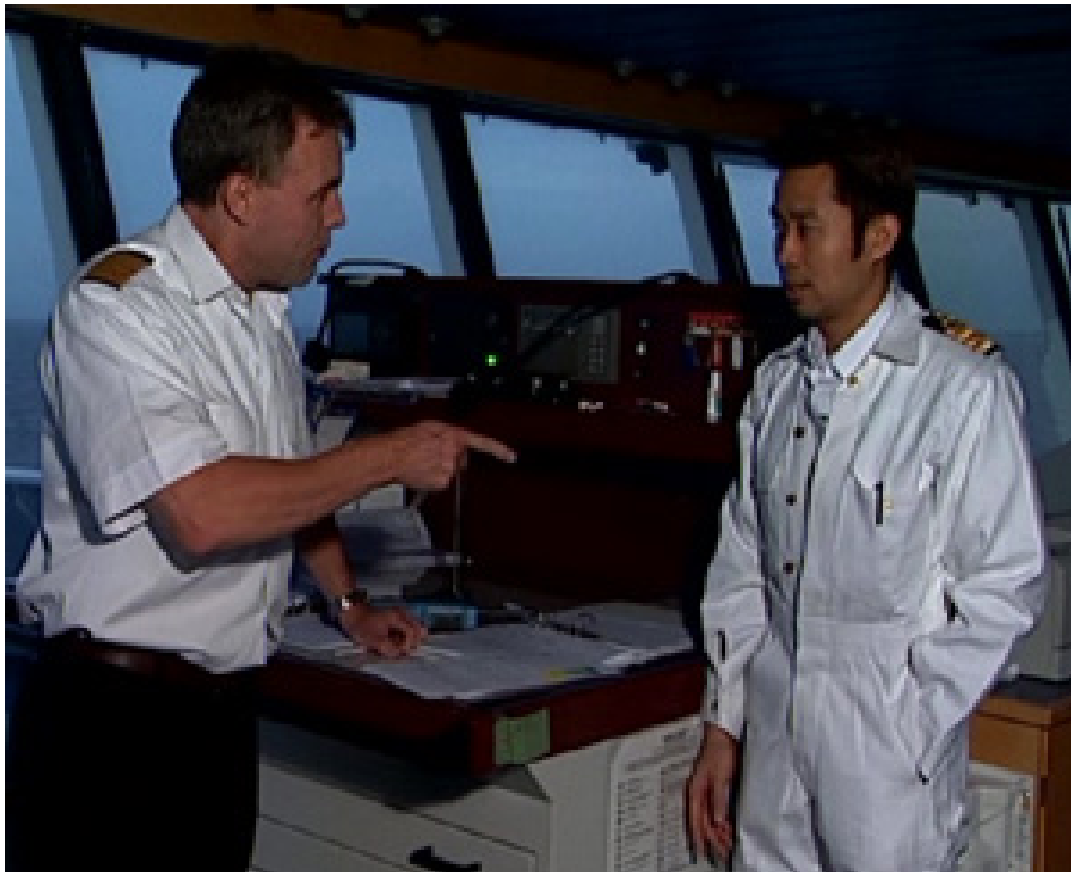
CIRCULAR QUESTIONS: "If your crew were here now, what issues would be particularly important to them?"

4.6 Body Language:

- Attention to this aspect, as different cultures and different situations are to be considered.
- Body language is an extension of our face, eye contact, gestures, posture, distance orientation, touch, physical appearance, etc.
- Large part of body language is un-intentional and not easy to control or observe.
- In order to improve the body language, you must be aware, avoid miss-understanding, adapt your behavior, ask if in doubt, watch yourself and don't use gestures which might be miss-interpreted.

Always ask yourself: did your choice of words, tone of the sentence, and body language (intentional gestures or subconscious movements) convey the same meaning? → HOW we say is very often more powerful than WHAT you say!

Chapter 5. HUMAN ATTITUDE AND PERSONALITY

"Readiness of the psyche to act or react in a certain way" (Jung's definition of attitude)

The concepts of personality and attitude overlap to some extent, and are not so easily separated. The distinctions are, however, that personality might be looked upon as the present result of a person's entire development, Personality is not superficial and is not situational.

Attitude, on the other hand, is the more superficial expression of the personality, adjusted to and influenced by the actual circumstances.

Furthermore, personality is deeply rooted and reasonably stable, whereas attitudes might be influenced by changes in circumstances, by others and by new experiences.

The reason for combining skills, attitudes and knowledge in the training program lies in the fact that they are inexorably linked together. Skills alone might be regarded as quite passive abilities, and whether a particular person's skills will have an impact or not depends on that person's personality, attitudes, involvement and his subjectively perceived possibilities to act.

Activity may be a result of attitudes like motivation, sense of responsibility, involvement and other feelings. The quality of a person's activity is, however, linked with knowledge; a person's attitude and involvement creates the accessible energy and that intellectual knowledge helps to channel this energy into distinct and rational initiatives and effective actions.

The correct equation is: <u>Competence = (Skills + Knowledge + Experience) x Attitude</u>

5.1 Attitude

Attitude = a favorable or unfavorable evaluative reaction toward something or someone, exhibited in ones beliefs, feelings, or intended behavior (Myers definition). It is a social orientation - an underlying inclination to respond to something either favorably or unfavorably.

Example: "**I like the moment in which something unpredictable happens, when you depart from standard procedure. It's a challenge you have to tackle**". (Capt Schettino statement in an interview, December 2010).

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5.1.1 Components of attitudes

a. *Cognitive* - our thoughts, beliefs, knowledge and ideas about something or someone; information and analysis.

b. *Affective* - feelings or emotions that something or someone evokes. e.g. fear, sympathy, hate, etc

c. *Behavioral* - disposition to act in certain way toward something or somebody. Emphasis is on the tendency to act, not the actual acting; what we intend and what we do may be different.

Only the <u>behavioral</u> component can be directly observed.

<u>Attitudes</u> are:

- **<u>common</u>**: many people can have similar attitude-generated behavior;

- **<u>situational, relational</u>**: behavior can change, depending on circumstances and environment.

- pure **<u>learning</u>** process, therefore can be **<u>changed</u>** ("un-learnt"), depending on how long and how deep was the learning process.

5.1.2 Theories of attitude formation and change

1. **<u>Functionalist theory</u>**: Attitudes are determined by the functions they serve for us. People hold given attitudes because these attitudes help them achieve their basic goals. There are four types of psychological functions that attitudes meet:

A. <u>Instrumental</u> - we develop favorable attitudes towards things that aid or reward us. We want to maximize rewards and minimize penalties. We develop attitudes that help us meet this goal. (for example, if we are in business, we favor the political party that will keep our taxes low; if unemployed we favor one that will increase social welfare benefits). We are more likely to change our attitudes if doing so allows us to fulfill our goals or avoid undesirable consequences.

B. <u>Knowledge</u> - attitudes provide meaningful, structured environment. In life we seek some degree of order, clarity, and stability in our personal frame of reference.

Attitudes help supply us with standards of evaluation, as stereotypes, so we can bring order and clarity to the complexities of human life.

C. Value-expressive - Express basic values, reinforce self-image. EXAMPLE: if you view yourself as a Catholic, you can reinforce that image by adopting Catholic beliefs and values.

D. Ego-defensive - Some attitudes serve to protect us from acknowledging basic truths about ourselves or the harsh realities of life. They serve as defense mechanisms. EXAMPLE: Those with feelings of inferiority may develop attitude of superiority.

Functionalist theory also offers a way of **attitude-change**, when it no longer serves its function and the individual feels blocked or frustrated. Thus attitude change is achieved not so much by changing a person's information or perception about an object, but rather by changing the person's underlying motivational and personal needs.

EXAMPLE: As your social status increases, your attitudes toward your old car may change - you need something that better reflects your new status. (For that matter, your attitudes toward your old friends may change as well).

2. **Learning theory** (which stresses attitude formation). There are several means by which we learn attitudes.

A kind of instinctive learning occurs when a neutral stimulus (A) becomes very strongly associated with another stimulus (B), resulting in a learned response. Then "A" alone causes that response.

a. *Classical conditioning*. An association between the topic and the nonverbal behavior that will become obvious if repeated often enough. And the nonverbal behavior will trigger emotional responses.

This is an example of classical conditioning: when two stimuli are repeatedly associated, the human learns to respond to them with a similar emotional reaction. Through repeated association, a formerly neutral stimulus begins to elicit an emotional reaction that was previously solicited only by another stimulus.

EXAMPLE: Pavlov's dogs. Lamp was lit when dogs received food. Food made dogs salivate. Then whenever a lamp was lit, dogs salivated even when food was not present.

COMMENT: This explains why behaviors can persist even after reinforcement is withdrawn. Also helps explain self-reinforcement.

b. *Instrumental, or operant, conditioning*. Behaviors or attitudes that are followed by positive consequences are reinforced and are more likely to be repeated than are behaviors and attitudes that are followed by negative consequences.

EXAMPLE: People agree with your opinion.

c. *Observational learning*. Children watch the behavior of people around them and imitate what they see. EXAMPLE: If a young girl hears her mother denounce all elected officials as crooks, she may repeat that opinion in class the next day. Whether she continues to repeat that opinion depends on the responses of her classmates, teacher, and parents. That is, observations determine the responses we learn, but reinforcement determines the responses we express.

3. Cognitive dissonance theory

Cognitive Dissonance = contradictory mental state, an anxiety or psychological conflict that arise when one is simultaneously aware of two different and opposing cognitions. For example, when we make a decision favoring one alternative despite reasons favoring another, or we act contrary to our beliefs.

Emotional Dissonance = contradictory emotional state, resulting from a contradiction between a person's simultaneously held opposing feelings

Both dissonances are creating a high discomfort, therefore people are motivated to reduce them, by changing their attitudes, by change beliefs, feelings and behavior.

Consistency theories hypothesize that, should inconsistencies develop among cognitions or emotions, people are motivated to restore harmony. In a state of dissonance, people may feel surprise, dread, guilt, anger, or embarrassment. People prefer to consider their choices as correct, despite any contrary evidence. This bias gives dissonance theory its predictive power.

- A classical example is expressed in the fable *The Fox and the Grapes* by Aesop (a fox sees some high-hanging grapes and wishes to eat them. When the fox is unable to think of a way to reach them, it's assuming that the grapes are probably not worth eating, as they must not be ripe or that they are sour).

- This example follows a pattern: one desires something, finds it unattainable, and reduces one's dissonance by criticizing it ("adaptive preference formation."). Other means of reducing dissonance are justifying, denying, blame on outside forces, or accepting as a best possible option, to avoid something worse.

A. *Key-rules of dissonance theory*:

1. Relationships among two cognitions or emotions can be either consonant, dissonant, irrelevant.

2. Individual will attempt to reduce or eliminate dissonance, by adding new cognitions / emotions, or by changing existing ones.

B. *Sources of dissonance*

1. Informational inconsistency. Receive information that contradicts what they already know or believe.

2. Unconfirmed expectations. People prepare themselves for an event that never occurs - or even worse, an event whose opposite occurs.

EXAMPLE: "When prophesy fails". In 1955, Marian Keech predicted that a great flood was going to destroy the Western Hemisphere on Dec 21. She attracted a band of followers, and received further messages about how the faithful could save themselves. The big day came and passed, and nothing happened; the followers received a Christmas message informing them that, because of their commitment and faithfulness, the earth had been spared.

How did the followers behave, both before and after the event? Prior to the big day, they were very secretive, and shunned publicity. After the big day, they called the media, sent out press releases, and recruited new followers. Why?

Many of these people had quit their jobs, and broken up with their spouses and friends, based on a belief that had been disconfirmed. This produced dissonance. They couldn't deny their past beliefs and they couldn't deny they had quit their jobs.

They could have decided they were mistaken, but that would create dissonance with other cognitions, such as their being intelligent people; hence, they convinced themselves they were right all along, and their faithfulness had saved the world.

3. <u>Insufficient justification for behavior</u>, as per classic Leon Festinger experiment, 1957, with a group of students involved in very boring workshop.

(https://explorable.com/cognitive-dissonance-experiment)

- If a person is induced to do or say something which is contrary to his private opinion, there will be a tendency for him to change his opinion so as to bring it into correspondence with what he has done or said.

- the larger the pressure used to change one's private opinion, beyond the minimum needed to change it, the weaker will be the above-mentioned tendency.

4. <u>Post-decision dissonance</u> - after every decision, you feel dissonance because you have rejected some good things and accepted some bad. We tend to become more certain of decisions afterwards.

NOTE: This does not mean we never regret a decision. Disconfirmed expectations, new information, or whatever may cause us feel we made a mistake. However, until these new events/information or whatever comes along, we will tend to feel more confident about our decision.

Not all inconsistencies result in cognitive dissonance. How is inconsistency possible?

1. Cognitions may not be important to the individual - hence inconsistency does not produce discomfort.

2. Cognitions may not come in contact with each other - contradictions can go unnoticed. Behavior may be mindless. EXAMPLE: We might enjoy a national park - without realizing we are overtaxing it.

NOTE: <u>The following relate primarily to counter-attitude behavior</u>.

3. Aversive consequences are not perceived. In order for cognitive dissonance to occur, a product must result from the counter-attitudinal behavior. That product is the bringing about, or possible occurrence, of an aversive event.

4. Person must feel <u>personally responsible</u>. If the person feels that environmental forces caused the action, or that the unwanted events were unforeseeable, they won't feel dissonance. How voluntary is the behavior? Were the consequences foreseeable. Note that foreseeable is not the same as foreseen - if you could have

foreseen it but didn't, you can feel dissonance.

C. An alternative to dissonance theory is the <u>Self-perception theory</u>.

Says we infer our attitudes from our behavior. There is no tension, rather, behavior just serves an informative purpose. We calmly observe our behavior, and draw reasonable inferences from it, just as we do when observing other people.

The results of cognitive dissonance experiments could be replicated quite well by observers. People read descriptions of the procedures, and predicted people's attitudes correctly.

EXAMPLE: "I must have really been tired, I slept a long time."

"I must not like him, I was really rude to him."

"I must really like this course, I studied really hard for the exam."

It is hard to choose between self-perception and cognitive dissonance theory since both usually make the same predictions. However, there is evidence that, as theory predicts, physiological arousal (that is, tension) accompanies dissonance conditions.

On the other hand, self-perception can explain some things dissonance can't. For example, when people are suddenly rewarded for doing something they did before just because they liked it, they can come to like it less.

EXAMPLE: (From Myers): Child was reading 6-8 books a week. Library then started a reading club which promised a party to those who read 10 books in three months. Child started checking out only 1 or 2 books a week. Why? "Because you only need to read 10 books."

Myers suggests dissonance theory successfully explains what happens when we act contrary to our clearly defined attitudes. We feel tension, so we adjust our attitudes to reduce it. Dissonance explains attitude change. When attitudes aren't well-formed, self-perception theory explains attitude formation that occurs as we act and reflect.

D. Applications in the real-world / history:

a. Racism. It has often been said you can't legislate morality. Yet, changes in civil rights laws and policies have been accompanied by changes in attitudes. Since Brown vs. Board of Education in 1954, the percentage of white Americans favoring integrated schools has more than doubled. Since Civil rights act of 1964, the percentage of white Americans who described their neighborhoods, friends, co-workers, or fellow students as all white declined by 20 percent for each of these measures. Possible explanations:

1. Disconfirmed expectations. Predicted calamities did not occur.

2. Information inconsistent with previous beliefs led to attitude change.

3. People were forced to behave in a counter-attitudinal manner. People who said they would not comply with laws did. Ergo, they reasoned blacks must not be so bad.

4. Racist attitudes became non-instrumental, because of the high costs of violating laws. You had to interact with blacks, so you might as well like them.

5. Value-expressive - racism became inconsistent with the images most people like to hold, so they adopted anti-racist attitudes.

b. Suppose you wanted a friend to support a political candidate. What might you do?

1. Get them to do some small task as a favor to you. Counter-attitudinal actions might influence attitudes; exposure to dissonant info might change their minds; classical or instrumental condition could take place - they receive praise for working for the candidate, which leads to positive attitudes.

2. If friend is for another candidate - provide them with dissonant info. Point out candidate is weak in areas friend likes him.

3. What if friend doesn't change his mind? This could occur because (a) friend discredits the source of the info - you (b) instead of liking the candidate, friend could decide he doesn't like you.

5.1.3 Attitudes Behaviors pattern:

Abelson (quoted in Myers) said, "we are, apparently, very well trained and very good at finding reasons for what we do, but not very good at doing what we find reasons for."

A. <u>Expressed attitudes are not always the same as true attitudes</u>, especially when dealing with sensitive topics. Methods such as the "bogus pipeline" and other methods for dealing with sensitive questions are helpful here.

B. <u>Specificity of measures was found to be important</u> - items used were not specific enough. Should determine attitudes toward the specific behavior, rather than some more general topic. Ideally, measures should correspond in Target, Action, Context, and Time.

1. <u>Target</u>. I might have favorable attitudes toward the environment, but have negative attitudes toward recycling because I find it inconvenient.

2. <u>Action</u>. I might support somebody's right to have an abortion, while being opposed to having an abortion myself. (We see this in public opinion polls today - a lot of people oppose abortion, while still supporting the right of others to have abortions, at least under certain circumstances.)

3. <u>Context</u>. I might support the right to have an abortion under certain circumstances (save the life of the mother, rape, incest) while being opposed to it in others. Indeed, depending on the question asked, you get widely varying levels of support for abortion. I might think it is ok to drink when I am going to stay at home, but not when I am going to drive.

4. <u>Time.</u> It is ok to drink at night or on the weekends, but not in the morning.

C. <u>Type of attitude measured is important</u> - cognitive, affective, behavioral. These are not identical or totally consistent - our minds are not efficient enough to process all information immediately and consistently. The behavioral component of attitudes best determines what we do.

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5.1.4 Fishbein / Ajzen Model of reasoned action

A. Fishbein refers to beliefs, attitudes, and intentions. We have referred to these as the cognitive, affective, and behavioral components of attitudes.

B. Assumptions of model:

1. Behavioral intentions are the only direct determinant of behavior.

2. Behavioral intentions are determined by affective attitudes and subjective norms.

3. Affective attitudes are a function of beliefs about consequences - subjective evaluation of those consequences.

EXAMPLE: I believe that smoking causes cancer. I believe that cancer is very bad. Ergo, I have negative feelings about smoking.

EXAMPLE: I believe that studying leads to higher grades. I do not care what my grades are. Ergo, I do not have favorable attitudes toward studying.

4. Subjective norms are a function of beliefs about the expectations of others times my motivation to comply with them.

EXAMPLE: My friends expect me to smoke. I want to please my friends. Ergo, I feel I should smoke.

EXAMPLE: My parents expect me to study. I want to please my parents. Ergo, I feel I should study.

C. Implications of the model.

1. Only behavioral intentions directly affect behavior. Effects of any other kind of attitude will only be indirect, and relationship with behavior could be weak.

2. Sometimes affective attitudes will determine our intentions, other times subjective norms will. Even if we dislike something, we may do it anyway, because of subjective norms. Further, the relative importance of affective attitudes and subjective norms may differ across people. EXAMPLE: You might think that somebody who doesn't like to study would not study. But, s/he may do so because of subjective norms.

3. <u>Model shows the importance of considering how valued the consequences are</u>. For example, two people might agree that smoking leads to cancer. But if one person doesn't care that much about cancer ("we're all going to die sometime") their belief about cancer may not keep them from smoking. You shouldn't assume that your evaluation of the consequences is the same as theirs.

4. <u>Several beliefs may determine your affective attitudes or subjective norms</u>. Affective attitudes are based on the total set of salient beliefs about performing a behavior. *Changing one or more beliefs may not be enough to bring about a change in the overall attitude or intention.*

EXAMPLE: I may believe that studying leads to high grades and that high grades are desirable. I may also believe that studying cuts down on party time, and I love to party. Hence, overall I may have a negative feeling towards studying.

Refer to Appendix 2 – Employees Attitudes and Job Satisfaction

5.2   Personality

One of the most complex concepts within the field of psychology is personality theory. Surrounding personality theory is an air of mystery and uncertainty that leads to frequent debates among academics.

Is personality predetermined from birth? Does it exclusively result from the environment a person grows up in? Is it stable or malleable?

However, when you strip away the nuances, personality is a tendency to behave in a certain way that persists across the lifespan. Think of personality as the building blocks of who you are. These central building blocks lay the foundation for other more contextual and specific traits.

Personality is also the totality of somebody's characteristics, interests, behavioral patterns, emotional responses, social roles and other individual traits.

- It's a developing process, stable and organized set of characteristics possessed by a person that uniquely influences his / her behaviors in various situations.

5.2.1 Carl Gustav Jung created **8(eight) personality types**. These orientations are the pairing of two attitudes: introversion and extroversion, and four functions.

The first of Jung's general psychological types was the general attitude type. An attitude, according to Jung, is a person's predisposition to behave in a particular way. There are two opposing attitudes: introversion and extroversion. The two attitudes work as opposing, yet complementary forces and are often depicted as the classing yin and yang symbol.

The introvert is most aware of the inner world. While the external world is still perceived, it is not pondered as seriously as inward movement of psychic energy. The introverted attitude is more concerned with subjective appraisal and often gives more consideration to fantasies and dreams. The extrovert, by contrast, is characterized by the outward movement of psychic energy. This attitude places more importance on objectivity and gains more influence from the surrounding environment than by inner cognitive processes. Clearly, it is not a case of one versus the other. Many people carry qualities of both attitudes, considering both subjective and objective information.

And further on, there were four functions that, when combined with one of his two attitudes, formed the eight different personality types.

Feeling is the method by which a person understands the value of conscious activity.

Thinking allows a person to understand the meanings of things. This process relies on logic and careful mental activity.

Sensing refers to the means by which a person knows something exists.

Intuition is knowing about something without conscious understanding of where that knowledge comes from.

• Extroverted Thinking – people understand the world through a mix of concrete ideas and abstract ones, but the abstract concepts are ones passed down from other people. Extroverted thinkers are often found working in the research sciences and mathematics.

• Introverted Thinking – people interpret stimuli in the environment through a subjective and creative way. The interpretations are informed by internal knowledge and understanding. Philosophers and theoretical scientists are often introverted thinking-oriented people.

• Extroverted Feeling – people judge the value of things based on objective fact. Comfortable in social situations, they form their opinions based on socially accepted values and majority beliefs. They are often found working in business and politics.

•   Introverted Feeling – people make judgments based on subjective ideas and on internally established beliefs. Oftentimes they ignore prevailing attitudes and defy social norms of thinking. Introverted feeling people thrive in careers as art critics.

•   Extroverted Sensing – people perceive the world as it really exists. Their perceptions are not colored by any pre-existing beliefs. Jobs that require objective review, like wine tasters and proofreaders.

•   Introverted Sensing – people interpret the world through the lens of subjective attitudes and rarely see something for only what it is. They make sense of the environment by giving it meaning based on internal reflection. Introverted sensing people often turn to various arts, including portrait painting and classical music.

•   Extroverted Intuitive – people prefer to understand the meanings of things through subliminally perceived objective fact rather than incoming sensory information. They rely on hunches and often disregard what they perceive directly from their senses. Inventors, social and religious reformers are characterized by the extraverted intuitive type.

•   Introverted Intuitive – people are profoundly influenced by their internal motivations even though they do not completely understand them. They find meaning through unconscious, subjective ideas about the world. Introverted intuitive people comprise a significant portion of mystics, surrealistic artists, even fanatics.

5.2.2 The "Big Five" Personality Traits

"The Big Five" is a theory of personality that identifies five distinct factors as central to personality: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

A set of fundamental traits that can define and, to some extent, predict a person's behavior in any environment. The main purpose is not to divide people in good or bad, but rather to estimate "the right person for the right job in the right time".

1. Agreeableness: The ability to get along with others. This personality dimension includes attributes such as trust, kindness, affection, genuine in expression, altruism, sympathy, concern about others, and other pro-social behaviors. How we tend to interact with others, how easy we can make friends.

- People high in agreeableness tend to be compassionate, trusting, friendly and cooperative. They tend to look for the best in everyone they meet and hold loyalty to the highest standard. They can be counted on to be generous, honest, dependable, and concerned about the well-being of others.

- Low scorers tend to be more aggressive and less cooperative, antagonist toward other people, more suspicious of the motives of those they encounter. They are quite cynical and skeptical about the world around them. Additionally, they are more willing to use flattery or craftiness to gain favor with others.

2. Conscientiousness: How organized and persistent is a person towards his / her goals. Common features of this dimension include the levels of thoughtfulness, self-discipline and self-control, and goal-directed behaviors.

- Those high in conscientiousness tend to be well organized, honest, methodical and mindful of details, with many to-do lists and breaking down large goals into achievable steps. They rely on organization and take a methodical approach to achieve their goals. They are willing to dedicate big efforts to succeed.

- Low scorers are less careful, less focused and more likely to be distracted from tasks, less persistent and less organized, laid-back. Spontaneity usually characterizes their approach to academic and vocational situations. They go with the flow and stay away from schedules and concrete plans.

3. Neuroticism focuses on the experience of negative emotions. Individuals who fall in the neurotic category tend to be more prone to mood swings and emotional reactivity. Response to depression, anxiety, hostility, tendency to experience

frustration and bitterness, as well as anger, impulsiveness and vulnerability. Tendency to experience negative thoughts and feelings, reactions to difficult or critical situations; the degree of emotional stability and impulse control.

- High scorers are characterized by moodiness, emotional distress / instability, anxiety, irritability, sadness, vulnerability and insecurity; tend to experience negative emotions very intensely and have difficulty controlling these emotions when they arise.

- Low scorers are typically more stable in their experience of emotions. They are more calm and relaxed in times of stress and tend to be quite slow to anger. They usually trust their ability to handle stressful situations and do not internalize awkward social situations; they are better able to withstand stress, less emotional and less prone to distress or panic.

4. Extroversion focuses on sociability and where individuals derive their energy from. The quality of being comfortable in expressing feelings and thoughts; tendency to seek company of other people, to be in the center of attention, loud, talkative, assertive, interest with people and things outside self; it's about gregariousness (preference for the company of others, avoidance of being alone), tendency to lead and dominate social situations, energetic disposition, excitement seeking, optimism.

- Individuals who score high on extraversion prefer to be in the presence of other people. They are often described as the "life of the party". They favor being in the spotlight and frequently engage in thrill-seeking behaviors. They leave social situations feeling excited and full of energy.

- Low scorers – Introverted – tend to be reserved; being surrounded by people leaves them feeling drained and exhausted. They prefer more solo pursuits, such as reading. Their lifestyles are more slow and deliberate, and they possess an inclination towards quietness, isolation and social discomfort; tendency to be reserved, to not express feelings and thoughts, to feel un-comfortable with others.

5. Openness focuses on the general reception to novelty, fantasy and imagination, aesthetics, willing to explore new places, try new things, experiment new activities, ready to explore; the capacity to entertain new ideas, the degree of curiosity, creativity, flexibility and preference for variety.

- High scorers in this trait have a broad range of interests, open-minded, tend to be imaginative, creative, and to seek out cultural and educational experiences.

- Low scorers are more down-to-earth, less interested in creativity, and more practical in nature; also can be rigid in opinions, not accepting others and not open to changes, difficulties to adapt in different situations and circumstances.

However, when discussing this model, it is important to keep in mind that a high or low score on any particular factor is not necessarily good or bad. For example, there are situations where being more compliant and inclined to trust others is beneficial and there are other situations where a more skeptical approach would be the wisest choice. *The Big Five is a great way to gain more insight into your own internal experience so you can make more sense of your own thoughts and behaviors.*

- The Big Five personality traits have been replicated in a variety of different languages and cultures, such as German, Chinese, Indian, etc. scoring the Big Five structure across several cultures using an international English language scale.

- Recent work has found relationships between Geert Hofstede's cultural factors with the average Big Five scores in a country. That would be the "Learning" part of the human personality.

5.2.3 Other Personality Traits, related to job-environment:

1. Locus of control is the extent to which people believe that their behavior has a real effect on what happens to them; the willingness to take responsibility, to accept own mistakes.

People who believe are in control of their lives have an *internal (High) locus of control.* People who think that forces beyond their control dictate what happens to them have an *external (Low) locus of control.*

2. Self-efficacy is a person's beliefs about his / her capabilities to perform a task. People with high self-efficacy believe that they can perform well on a specific task. This belief results in them being more able to focus their attention on performance.

3. Self-esteem is the extent to which a person believes is worth while and deserving individual. A person with high self-esteem is more likely to seek higher status jobs and to be more confident in his/her ability to achieve higher levels of performance. In contrast, a person with less self-esteem may be more content to remain in a lower-level job, be less confident of his/her ability.

4. Authoritarianism is the extent to which a person believes that power and status differences are appropriate within hierarchical social systems. High authoritarianism score will reveal a desire for order, power, status, demand for un-questioning obedience, strong chain of command, rigid in opinions, discriminative towards others.

5. Machiavellianism People's behavior directed to gaining power and controlling the behavior of others; individuals tend to be rational and non-emotional, willing to do almost anything in order to attain their personal goals, calculated approach; no much loyalty and friendship; usually they are charismatic and manipulative. (this concept is named after *Machiavelli*, a 16th-century author).

6. Risk Propensity is the degree to which a person is willing to take chances and make risky decisions. It's personal risk management, tendency to take or to avoid various risks; is related to own understanding and perception.

5.2.4 Myers – Briggs Model of personality (after K. G. Jung) – MBTI:

In the 1920s, Jung's theory was noticed by Katharine Cook Briggs, who later co-authored one of the most popular personality indicators used today, the Myers-Briggs Type Indicator® (MBTI®).

They developed a convenient way to describe the order of each person's Jungian preferences – this is how the four-letter acronyms were born. There were four possible pairs of personality traits:

•Introversion (I) or Extroversion (E)

•Intuition (N) or Sensing (S)

•Thinking (T) or Feeling (F)

•Judging (J) or Perceiving (P)

According to the Myers-Briggs model:

- The first letter determines the attitudes of the dominant and subsequent functions;
- The last letter shows which function is dominant.
- For Extroverts, the dominant function is focused on the outside world. J means that one of the Judging functions (Thinking or Feeling) is dominant; P points to one of the Perceiving functions (Intuition or Sensing).

- For Introverts, J and P show the auxiliary rather than dominant function – the dominant function itself is internalized.

Chapter 6. TEAM WORK

TEAM: a group of people – different personalities, mixture of talents and skills, different experience and knowledge – who can work together to achieve a *common goal* (common project, purpose or service).

SUCCESFULL TEAM:

- good communication between members and good morale;
- trust and support each other, avoid conflicts, but encourage competitiveness;
- each member must know and understand his role / task;
- operation and dealing with various strength and weakness;
- all opinions must be listened and encouraged;
- all members must feel valued / appreciated.

6.1 Team Skills

Seven critical team skills have been identified that can be employed to reduce the probability for human error.
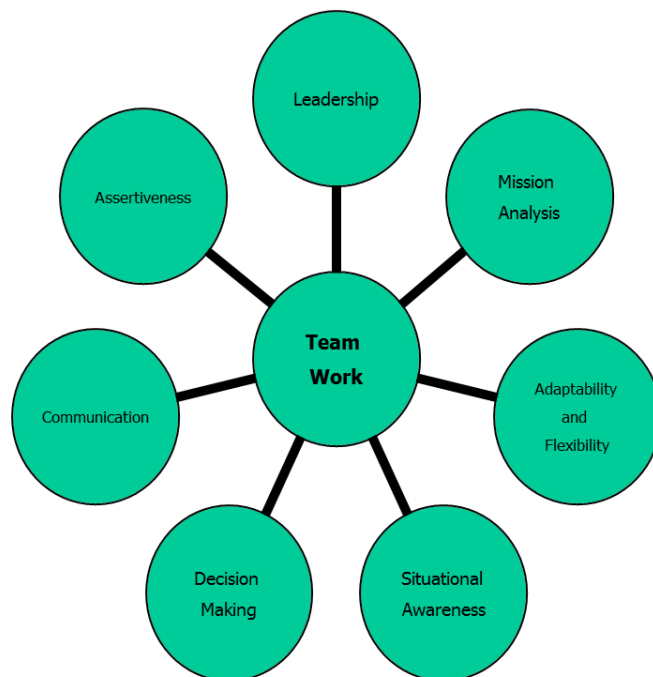
1. Adaptability and Flexibility: altering a course of action to meet changing demands, same time able to maintain constructive behavior under pressure.

2. Situational Awareness: knowing at all times what is happening to the team and the mission.

3. Decision Making: applying logical and sound judgment based on the information available.

4. Communication: clearly and accurately sending and acknowledging information, instructions, and commands; and providing useful feedback.

5. Assertiveness: actively participating, stating, and maintaining a position until convinced by the facts (not by the authority or personality of another) if some position was wrong.

6. Leadership: directing and guiding the activities of other team members, stimulating personnel to work together as a team, and providing feedback to the team members regarding their performance.

7. Mission analysis: making long-term and contingency plans.

6.2 Team Building and Developing – 4 stages

I) *FORMING*: Individuals come together, introductions; the team members should appreciate and respect each other enough to work together. People are cautious, guarded, and friendly but no trust yet; roles and responsibilities not defined; low level of conflicts, little visible disagreement.

II) *STORMING*: Team-members identify what leadership will be suitable. Highest amount of conflicts and disagreements; the Team Leader has a crucial role at this stage, balancing the situation; relations made and broken; team not productive, frustrations, confusions, ego.

III) *NORMING*: Develop rules and norms for working together. The agreement is the key factor here; parameters and boundaries must be established. Team members must be open to learning, to accept and appreciate differences, to find the best ways; clear communication, sense of belonging; low amount of conflicts and disagreements.

IV) *PERFORMING*: Team is ready to work as a unit; team-members are confident and familiar, there is unity, synergy, loyalty, trust, respect, motivation and dedication; there are formal rules and procedures, but also flexibility and adaptability to changes.

6.3 Leadership vs Management
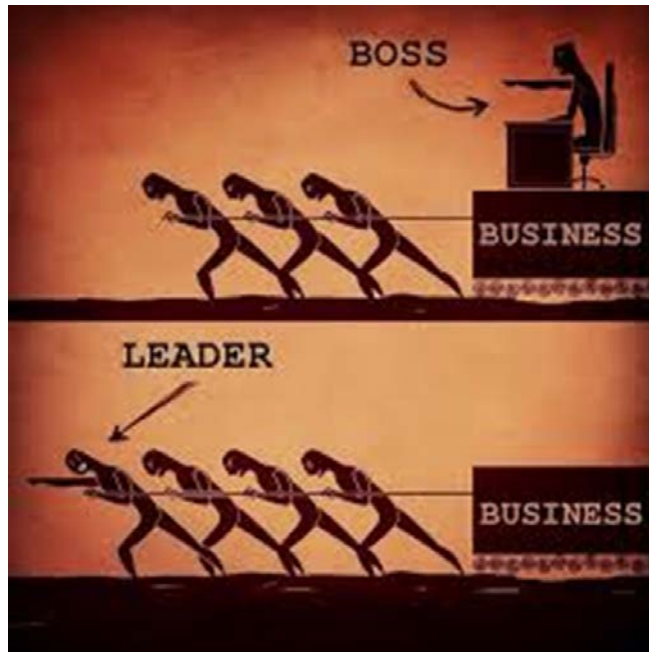
To some extent, the Leadership and Management concepts are overlapping, meaning that both are "Bosses", both are monitoring the Team resources and both are decision factors in the Team; the differences between Leader and Manager are mostly noticeable in difficult or unusual situations.

Especially when something goes wrong, the Manager will look at the Team and will identify the faults and the weakness of the Team; the Leader will first look into the <u>*mirror*</u> *and will help the weak team members.*

- MANAGER: has experience and knowledge, has education, diploma and license, and he is the Boss because of his named position and/or the rank in the Team. People will listen and obey the Manager mainly within the job environment, and people **may or may not** like, trust, respect, follow or fear the Manager.
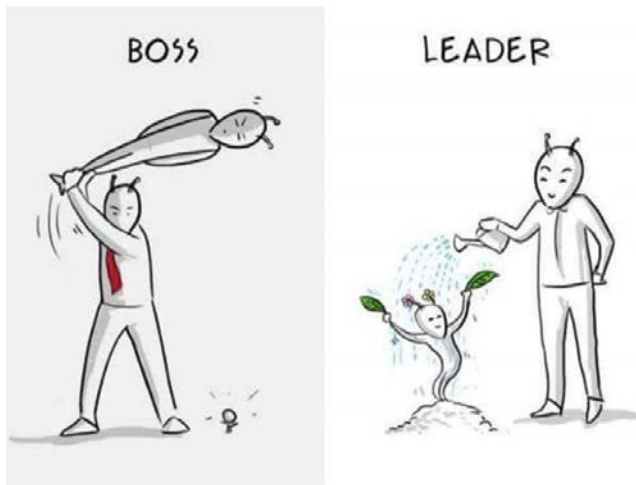
- LEADER: **may or may not** have knowledge, education, high rank, license or diploma, but he is the Boss because of skills, abilities, power and/or charisma, and people will unconditionally trust, respect, like and follow the Leader. Team members will grow and will come to trust themselves, will feel protected and motivated.

On board Vessel there is a chain of command given by Crew List ranks, duties and responsibilities, as well as by Company's SMS and by Maritime Laws; therefore a Vessel's Master has to be a Manager, but in the same time a Vessel's Master can be a Leader, too.

TEAM LEADER has the key-role: *is the mirror of the Team*.

- defines / establish the goals, communicates to the members, getting agreement on how to achieve; effective communication;
- understands different behaviors (attitude and personality), and culture styles;
- makes sure everyone has a contribution – balance in the team;
- builds trust, providing help and support, is fair and honest;
- knows how to handle criticism, encouraging assertiveness;
- organizing and monitoring team resources, delegates job, not responsibility;
- leads by example, able to inspire and motivate the team, has enthusiasm;
- team-members should trust, respect and follow the Leader.

6.4   Management Styles

1. Performance oriented style (Autocratic Style):

- High concern for Performance, low concern for People;
- Will take a higher risk on people but a lower risk on performance;
- Good in budget control, material benefits can be high; people will not be happy, due to job / time pressure and poor relationships;
- Standard personality profile: high Authoritarianism, low Agreeableness, low Openness, high Conscientiousness, lower Extroversion, higher Neuroticism, high Self-esteem and Self-efficacy;
- One-way communication, One-man show; doesn't like challenges, difficult to approach, discourage opinions of team-members;
- Poor loyalty from the Team: people would leave the Team if they have an option or another source of income;
- Low level of motivation, enthusiasm and dedication of the Team members;
- High risk of accidents / incidents involving human life and health, including mental health;

1. Human oriented style (Democratic Style):

- High concern for People, low concern for Performance;
- Will take a higher risk on performance, but a lower risk on people;
- Poor in budget control, material benefits and profit can be low; people will be happy, not much job or time pressure, good relationships;

- Standard personality profile: Lower Authoritarianism, high Agreeableness, higher Openness, lower Conscientiousness, higher Extroversion, lower Neuroticism;
- Two-ways communication, encourage feedback, sometimes un-necessary communication; poor challenge and response, easy to approach, encourage opinions of team-members;
- Higher loyalty from the Team: people would prefer to stay the Team, even if there are other options; very supportive of team-members;
- Higher level of motivation, enthusiasm and dedication of the Team members;
- High risk of incidents involving the whole Organization, due to possible lower standards, and/or lower profits.

There no perfect recipe for a Management Style, as it depends on the Team and it depends of the Job nature and requirements.

In a Shipping Company and on board Vessels, none of the above extremes style would be appropriate, as they are both considered high risk, therefore a good balance would be required.

Therefore, in Shipping – ashore or on board – the most appropriate Management Style would be a combination between "Tiger" and "Panda", able to make a balance between Human and Performance, between Safety and Business.

The "Zebra" style is somewhere in the middle, but with less passion and less involvement, less experience and less knowledge;

The "Dolphin" is able to satisfy both Human and Performance requirements because is more flexible, more passionate, more enthusiastic and more dedicated, and has more experience and knowledge, plus skills and abilities.

6.5   The Leadership Grid Theory:

Grid theory underlying the grid shows the level of concern for production and concern for people, also provided the model of people's behavior and concern.

Horizontal axis: **Concern for production**
Product means all tasks that manager who has high concern for production focuses on getting or accomplishing the mission. Level of concern can be different by people. The level may be changed depending the work even though the same person does. The level of concern rate on a scale from 1 to 9, where 1 is the lowest and 9 is the highest.

Vertical axis: **Concern for people**
People mean all persons involved the work, such as boss, subordinate, co-worker and clients. The level of concern rate on a scale from 1 to 9, where 1 is the lowest, and 9 is the highest.

Leadership exert to the others. Thus, effective leadership can be mostly determined by how the leaders have a basal concern for the people. Concern for the people

represents in many ways. Some leaders have highly concern for people's relationship's and frankly represent the concern that they want the followers to like them. The other leaders have highly concern for product achievement. They expect people to do what they are told without question or debate. Furthermore, there are other styles of leaders as leaders who pretend being friendly, abuse strategy or compromise, and/or take into account for understanding and conviction etc.

Style 1.1   :   Impoverished Management (DOESN'T MATTER)
Exertion of minimum effort to get required work done is appropriate to sustain organization membership.

Style 1.9   :   Country Club Management (YOU ARE RIGHT)
Thoughtful attention to the needs of people for satisfying relationships leads to a comfortable, friendly organization performance is possible through balancing the necessity to get out work with maintaining moral of people at a satisfactory level.

Style 5.5   :   Middle of the Road Management (NOT BEST BUT ACCEPTABLE) Adequate organization performance is possible through balancing the necessity to get out work with maintaining moral of people at a satisfactory level.

6.6 Corporate Management Styles

A manager's style is determined by the situation and prevailing circumstances, the needs and personalities of employees, and by the culture of the organization. Successful management styles involve building teams, networks of relationships, and developing and motivating others.

Managers must select a management style that is best suited for them, their department, their subordinates, and finally the Organization they work for. The situations managers encounter may require varying management styles depending on a specific assignment, the employees being managed, or the manager's personality.

Management positions require a certain degree of authority and therefore managers may often find themselves in leadership positions. However, not all leaders are managers and not all managers are leaders. Managers who possess good leadership skills influence and motivate employees to achieve organizational goals.

Examples of corporate management styles such as:

1. <u>Participative management</u>: involves sharing information with employees and involving them in decision-making. Employees are encouraged to run their own departments and make decisions regarding policies and processes. It has often been promoted as the quick cure for poor morale and low productivity. Employees must have the skills and abilities to participate, technical background, communication skills, and intelligence to make decisions and communicate those decisions effectively. The organization's culture must support employee involvement.

2. <u>Theory X (USA)</u>: assumes that people are lazy, they don't want to work, and it is the job of the manager to force or coerce them to work. McGregor's Theory X makes 3 basic assumptions:

(1) the average human being dislikes work and will do anything to get out of it;
(2) most people must be coerced, controlled, directed, and threatened or punished to get them to work toward organizational objectives; and
(3) the average human being prefers to be directed, wishes to avoid responsibility, has relatively little ambition, and places job security above ambition.

According to this theory, responsibility for demonstrating initiative and motivation lies with the employee and failure to perform is his/her fault. Employees are motivated by extrinsic rewards such as money, promotions, and tenure.

3. <u>Theory Y (Japan)</u> suggests that people are honest and they want to work, and they will follow any required task. Theory Y assumes that higher-order needs dominate individuals, the Organization may simply order anything to Employees without any objection or disagreements.

 The set of assumptions for Theory Y is:

(1) the average human does not dislike work and it is as natural as play;
(2) people will exercise self-direction and self-control in order to achieve objectives;
(3) rewards of satisfaction and self-actualization are obtained from effort put forth to achieve organizational objectives;
(4) the average human being not only accepts but also seeks responsibility;
(5) the intellectual potential of the average human is only partially realized. If productivity is low and employees are not motivated, then it is considered failure on the manager's part.

4. <u>Theory Z</u> combines elements of both U.S. and Japanese management styles and is sometimes called Japanese Management. It assumes that the best management style involves employees at all levels of the organization.

Specific characteristics included in Theory Z are: long-term employment, less specialized career paths, informal control, group decision making, and concern for the individual rises above work-related issues.

This theory satisfies both lower order and higher order needs. Looking out for employees' well being satisfies the lower-level needs. Incorporating group processes in decision making satisfy middle-level needs and encouraging employees to take responsibility for their work and decisions satisfy higher-level needs.

Many firms are increasing productivity by placing more emphasis on group decision-making and teams. Firms are also showing more concern for family-related issues like childcare, flexible work schedules, and telecommuting.

5. <u>Total Quality Management</u> (TQM) is a management style that integrates of all functions of a business to achieve a high quality of product. The major hall-marks are customer satisfaction, quality as the responsibility of all employees, and teamwork. The entire workforce, from the CEO to the line worker, must be involved in a shared commitment to improving quality. TQM encourages employees to grow and learn and to participate in improvements, also an ever-changing or continuous process, and emphasizes the ideas of working constantly toward improved quality. Money and Time should not be important, to achieve best Quality.

6. <u>Management by Walking Around</u> is a technique used by managers who are proactive listeners. Managers gather as much information as possible so that a challenging situation doesn't turn into a bigger problem. Listening carefully to employees' suggestions and concerns will help evade potential crises. MBWA benefits managers by providing unfiltered, real-time information about processes and policies that is often left out of formal communication channels; management gets an idea of the level of morale in the organization and can offer help if there is trouble.

A potential concern of MBWA is that the manager will second-guess employees' decisions. The manager must maintain his or her role as coach and counselor, not director. By leaving decision-making responsibilities with the employees, managers can be assured of the fastest possible response time; another possible mistake managers make is to inadvertently create more work for employees, by offering suggestions that may be interpreted as assignments, increasing the workload and slowing down progress.

7. <u>Management by Objectives</u> is a process in which employees actively participate in setting goals that are tangible, verifiable, and measurable: all employees and work groups set goals that are in alignment with organization's goals. Overall organizational objectives are converted into specific objectives for employees. Objectives at each level of the organization are linked together, so if each individual achieves his/her goals, then the department will achieve its goals and the organization objectives will in turn be met.

There are four steps involved in the MBO process: <u>setting goals</u>, <u>participative decision-making</u>, <u>implementing plans</u>, and <u>performance feedback</u>. Top managers work with lower level managers to set goals for their departments. Each manager then works with employees in the department to set individual performance goals. Managers are allowed to implement their plans and control their own performance. MBO utilizes every manager's expertise to benefit the organization and permits managers to continuously improve.
The final step is to continuously provide feedback on performance and achievement of objectives. By periodically reviewing employees' performance goals can be modified or new goals can be set. This step complements the formal appraisal system because the continuous feedback throughout the year keeps individuals informed of their progress.

This management style is not without its problems. Managers often set their departmental goals and objectives too narrowly at the expense of the organization's strategic goals or objectives.

Another problem arises when managers are not flexible in setting up the goal setting and evaluation processes and employees lose the ability to respond to issues quickly. Unrealistic expectations about results are often a problem with MBO programs as well as the unwillingness of management to allocate rewards based on the accomplishment of individual goals.

8. Employee empowerment puts managers in the role of coach, adviser, sponsor, or facilitator. Decision-making is pushed down to the lowest levels of the organization. Empowerment involves delegating the decision-making authority regarding the action to be taken on a task that is considered to be important to both the manager and employee.

The main reasons for implementing such program are to provide fast solutions to business problems; to provide growth opportunities for employees and; to lower organizational costs while allowing the manager to work on multiple projects. Employee empowerment is the most effective when management has set clear obtainable goals and defined specific accountability standards. The success of employee empowerment relies on the ability of management to provide resources such as time and money; to provide support by way of legitimacy; and to provide relevant and factual information so employees can make educated decisions. Employees benefit from empowerment because they have more responsibility in their jobs. Employee empowerment increases the level of employee involvement and therefore creates a deeper sense of satisfaction and higher levels of motivation.

9. Self-managed work teams delegates the authority to make decisions such as how to spend money, whom to hire, and what projects to undertake. Self-managed work teams are generally composed of 10 to 15 people and require minimal supervision.

6.7 Team issues: problems and conflicts; conflict management.

Main issues in a team are the relationship problems: personality issues, rather than specific.

Conflicts are inevitable parts of any team, but the challenge is how we deal with them. Conflicts in a team are sometimes a "necessary evil", as they can bring progress and further development or strengthening of the team – however, the conflicts must be handled and resolved in a constructive manner, don't listen to only one part, don't look for blame, avoid assumptions, stick to the facts and issues, and most important, focus on practicable and actionable solutions, without considering things that can't be changed;

In case a difference of opinion and conflict of opinion are generated regarding an understanding of information and the decided policies, etc., they must be resolved constructively without developing an emotional conflict, which may negatively influence a situational awareness and the ability of decision making & lowers the performance of team.

- Conflict may be defined as a struggle or contest between people with opposing needs, ideas, beliefs, values, or goals. Conflict might escalate and lead to nonproductive results, or conflict can be beneficially resolved and lead to quality final products.

- Conflict management is the principle that all conflicts cannot necessarily be resolved, but learning how to manage conflicts can decrease the odds of nonproductive escalation. Conflict management involves acquiring skills related to conflict resolution, self-awareness about conflict modes, conflict communication skills, and establishing a structure for management of conflict in your environment.

How do people respond to conflict? Physiologically we respond to conflict in one of two ways: we want to "get away from the conflict" or we are ready to "take on anyone who comes our way." Neither response is good or bad: it's a personal response. What is important to learn, regardless of our initial physiological response to conflict, is that we should intentionally choose our response to conflict – we can deliberately choose a conflict mode. By consciously choosing a conflict mode instead of to conflict, we are more likely to productively contribute to solving the problem at hand. Below are <u>five conflict response</u> modes that can be used in conflict.

1. The **Competing** conflict mode is high assertiveness and low cooperation, will compromise the human relations for the benefit of performance, when quick action needs to be taken, when unpopular decisions need to be made, when vital issues must be handled, or when one is protecting self-interests.

In a Competing mode we are ready for "War": arguing, debating, using rank or influence, intimidating, standing your ground, clearly stating own opinions.

Competing it's win/lose, it maximizes reaching one's own goals or getting the problem solved at the cost of the other party's goals or feelings.

2. The **Avoiding** mode is low assertiveness and low cooperation, simply avoiding the issue, to buy time or to find another place; Avoiding can be accepted as temporary solution, but Avoiding will not solve the conflict. Many times people will avoid conflicts out of fear of engaging in a conflict or because they do not have confidence in their conflict management skills. Times when the avoiding mode is also appropriate are when you have issues of low importance, or when you are in a position of lower power.

3. The **Accommodating** mode is low assertiveness and high cooperation, also called harmonizing, will focus on preserving relationships but compromising the job. Times when the accommodating mode is appropriate are to show reasonableness, develop performance, create good will, or keep Peace.

The Accommodating mode can be problematic when one uses the mode to "keep a tally" or to be a martyr. For example, if you keep a list of the number of times you have accommodated someone and then you expect that person to realize, without your communicating to the person, that she/he should now accommodate you.

4. The **Compromising** mode is moderate assertiveness and moderate cooperation, "give-and-take" solution, can be win-win or lose-lose situations. The relationships are within limits, however each part fails to achieve original goal. Times when the compromising mode is appropriate are when you are dealing with issues of moderate importance, when you have equal power status, or when you have a strong commitment for resolution. Compromising mode can also be used as a temporary solution, or when Diplomacy is required, finding a middle ground, negotiating, assessing values and making concessions.

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Dealing With Conflict – Thomas/Kilmann model

5. The **Collaborating** mode is high assertiveness and high cooperation. Collaboration has been described as "putting an idea on top of an idea on top of an idea…in order to achieve the best solution to a conflict." The best solution is defined as a creative solution to the conflict that would not have been generated by a single individual. With such a positive outcome for collaboration, some people will profess that the collaboration mode is always the best conflict mode to use. However, collaborating takes a great deal of time and energy. Therefore, the collaborating mode should be used when the conflict warrants the time and energy. For example, if your team is establishing initial parameters for how to work effectively together, then using the collaborating mode could be quite useful. On the other hand, if your team is in conflict about where to go to lunch today, the time and energy necessary to collaboratively resolve the conflict is probably not beneficial.

Times when the collaborative mode is appropriate are when the conflict is important to the people who are constructing an integrative solution, when the issues are too important to compromise, when merging perspectives, when gaining commitment, when improving relationships, or when learning.

What factors can affect our conflict modes?

Some factors that can impact how we respond to conflict are listed below with explanations of how these factors might affect us.

• **Gender** Some of us were socialized to use particular conflict modes because of our gender. For example, some males, because they are male, were taught "always stand up to someone, and, if you have to fight, then fight." If one was

socialized this way he will be more likely to use assertive conflict modes versus using cooperative modes.

• **Self-concept** How we think and feel about ourselves affect how we approach conflict. Do we think our thoughts, feelings, and opinions are worth being heard by the person with whom we are in conflict?

• **Expectations** Do we believe the other person or our team wants to resolve the conflict?

• **Situation** Where is the conflict occurring, do we know the person we are in conflict with, and is the conflict personal or professional?

• **Position (Power)** What is our power status relationship, (that is, equal, more, or less) with the person with whom we are in conflict?

• **Practice** involves being able to use all five conflict modes effectively, being able to determine what conflict mode would be most effective to resolve the conflict, and the ability to change modes as necessary while engaged in conflict.

• **Determining the best mode** Through knowledge about conflict and through practice we develop a "conflict management understanding" and can, with ease and limited energy, determine what conflict mode to use with the particular person with whom we are in conflict.

• **Communication skills** The essence of conflict resolution and conflict management is the ability to communicate effectively. People who have and use effective communication will resolve their conflicts with greater ease and success.

• **Life experiences** As mentioned earlier, we often practice the conflict modes we saw our primary caretaker(s) use unless we have made a conscious choice as adults to change or adapt our conflict styles. Some of us had great role models teach us to manage our conflicts and others of us had less-than-great role models. Our life experiences, both personal and professional, have taught us to frame conflict as either something positive that can be worked through or something negative to be avoided and ignored at all costs.

Discerning how we manage our conflict, why we manage conflict the way we do, and thinking about the value of engaging in conflict with others are important. With better understanding we can make informed choices about how we engage in conflict and when we will engage in conflict. The next section provides points for us to consider when determining if we will enter into a conflict situation or not.

How might you select your conflict management style?

There are times when we have a choice to engage in or avoid a conflict. The following six variables should be considered when you decide whether to engage in a conflict.

1. How invested in the relationship are you?

The importance of the working/personal relationship often dictates whether you will engage in a conflict. If you value the person and/or the relationship, going through the process of conflict resolution is important.

2. How important is the issue to you?

Even if the relationship is not of great value to you, one must often engage in conflict if the issue is important to you. For example, if the issue is a belief, value, or regulation that you believe in or are hired to enforce, then engaging in the conflict is necessary. If the relationship and the issue are both important to you, there is an even more compelling reason to engage in the conflict.

3. Do you have the energy for the conflict?

Many of us say, "There is not time to do all that I want to do in a day." Often the issue is not how much time is available but how much energy we have for what we need to do. Even in a track meet, runners are given recovery time before they have to run another race. Energy, not time, is being managed in these situations.

4. Are you aware of the potential consequences

Prior to engaging in a conflict, thinking about anticipated consequences from engaging in the conflict is wise. For example, there may be a risk for your safety, a risk for job loss, or an opportunity for a better working relationship. Many times people will engage in conflict and then be shocked by the outcome or consequence of engaging in the conflict. Thoughtful reflection about the consequences, both positive and negative, is useful before engaging in or avoiding a conflict.

5. Are you ready for the consequences?

After analyzing potential consequences, determine whether you are prepared for the consequences of engaging in the conflict. For example, one employee anticipated a job loss if she continued to engage in the conflict she was having with her boss over a particular issue. After careful consideration, the employee thought and believed strongly enough about the issue that she did engage in the conflict with her boss. Her annual contract was not renewed for the upcoming year. Because this individual had thought through the consequences of engaging in the conflict, she was prepared to be without a job for a while and able to financially and emotionally plan for this outcome. Most consequences of engaging in conflict are not this severe, but this example illustrates the value of thinking through consequences.

6. What are the consequences if you do not engage in the conflict?

To avoid losing a sense of self, there are times when you must engage in conflict. Most people have core values, ideas, beliefs, or morals. If a person is going to

sacrifice one of their core beliefs by avoiding a conflict, personal loss of respect must be considered. In such cases, even if a person is not excited about confronting the conflict, one must carefully consider the consequences of evading the conflict. When the personal consequences of turning away from the conflict outweigh all other factors, then a person usually must take part in the conflict.

6.8   Authority and Assertiveness
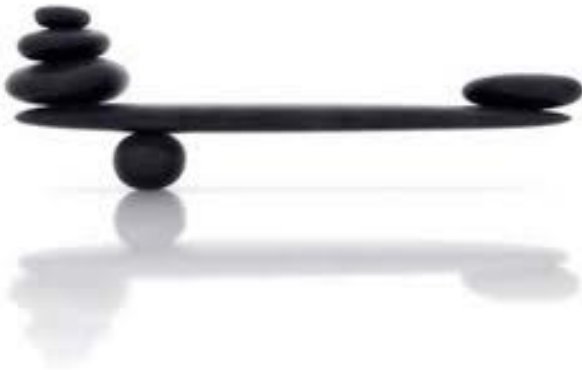
Too high Authority:
- expected total command
- poor communication skills
- can't delegate
- performance oriented
- sometimes might need to prove himself

Too low Assertiveness:
- silenced by superior's authority
- unaware of what's expected from him
- communication barriers
- personality clash

Assertiveness is standing up for your right to be treated fairly. It is expressing your opinions, needs, and feelings, without ignoring or hurting the opinions, needs, and feelings of others.

Chapter 7. CROSS CULTURE MANAGEMENT

7.1   Culture – Values and Norms

As a broad concept, 'culture' is highly complex. However, in its simplest form, culture is about the distinctive ways in which people behave in certain situations or contexts, and about how they expect other people to behave in these or similar contexts.

Culture: "A system of values and norms that are shared among a group of people and that, when taken together, constitutes a *design for living*." (*Hofstede, Namenwirth and Weber).*

- "Culture" can provide us with many answers on how and why people behave differently around the globe. One explanation it surely provides is that people have very different views on "What is a good boss", or on "how teams should be led", therefore a challenge in developing intercultural management competence is the fact that there is no "one way" to lead.

- Many Companies need to face the fact that the leadership styles/guidelines they have been practicing might not be suitable for these cultures.

Values: Abstract ideas/assumptions about what a group believes to be important, good, right, true and/or desirable.

Norms: Social rules and guidelines that prescribe an appropriate or a standard pattern of behavior in particular situations, for particular groups and societies.

7.2   Culture – Folkways and Mores

Folkways: Routine social conventions of everyday life, such as dress codes, social manners, and neighborly behavior.

Mores*:* Norms central to the functioning of society and its social life, customs and practices accepted and followed by a group, reflecting laws and moral standards.

The concept of *__Folkways__* is associated with the name of **William Sumner** who made one of the clarifying analyses of culture and its implications. According to him, Folkways are like products of natural forces which men unconsciously or instinctively set in operation, developed out of experience which reach a final form of maximum adaptation to an interest which are handed down by tradition, and admit of no exception or variation; the change to meet new conditions are still within the same limited methods and without rational reflection or purpose.

From this it results that all the life of human beings in all ages and stages of culture is primarily controlled by a vast mass of Folkways handed down from the earliest existence of the race; only the top-most layers are subject to change and control, and have been modified by human philosophy, ethics and religion or by other acts of intelligent reflection.

Folkways are recognized ways of behavior in a society which arise automatically within a group to meet the problems of social living. Different societies have found different workable patterns. A group through trial and error, sheer accident or some unknown influence may arrive at one of the possibilities, repeats it and accepts it as the normal way of behavior. It is passed on the succeeding generations and becomes one of the ways of the group of the folk hence a Folkway.

- According to Sumner men inherited from their beast ancestor's psycho-physical traits, instincts and dexterities or at least predispositions which give them aid in solving the problem of food supply, sex, commerce and vanity. The result is mass phenomena: currents of similarity, concurrence and mutual contribution and these produce folkways. The Folkways are thus the product of frequent repetition of petty acts, often by great numbers acting in concert or at least acting in the same way when face to face with the same needs.

- According to Lundberg, Folkways designate those uniformities in the behavior of a group which develop relatively spontaneously and even unconsciously in adapting to common life conditions and which become established through repetition and general occurrence. Thus they are those unconscious collective modes of behavior that are believed to ensure the survival and growth of the group. They are the customs and usages which have been passed from old generations and to which new elements are added according to the changing needs of times. They represent man's unique means of adapting himself to his environment.

- The English word "morality" comes from the same root, as does the noun moral. However, Mores do not, as is commonly supposed, necessarily carry connotations of morality. Rather, morality can be seen as a subset of Mores, held to be of central importance in view of their content, and often formalized in some kind of moral code.

- The Greek term equivalent to Latin <u>mores</u> is <u>ethos</u>. As with the relation of mores to morality, ethos is the basis of the term <u>ethics</u>, but does not itself carry connotations of morality as much as of customary proper behavior peculiar to a given society.

7.3   Determinants of the Culture
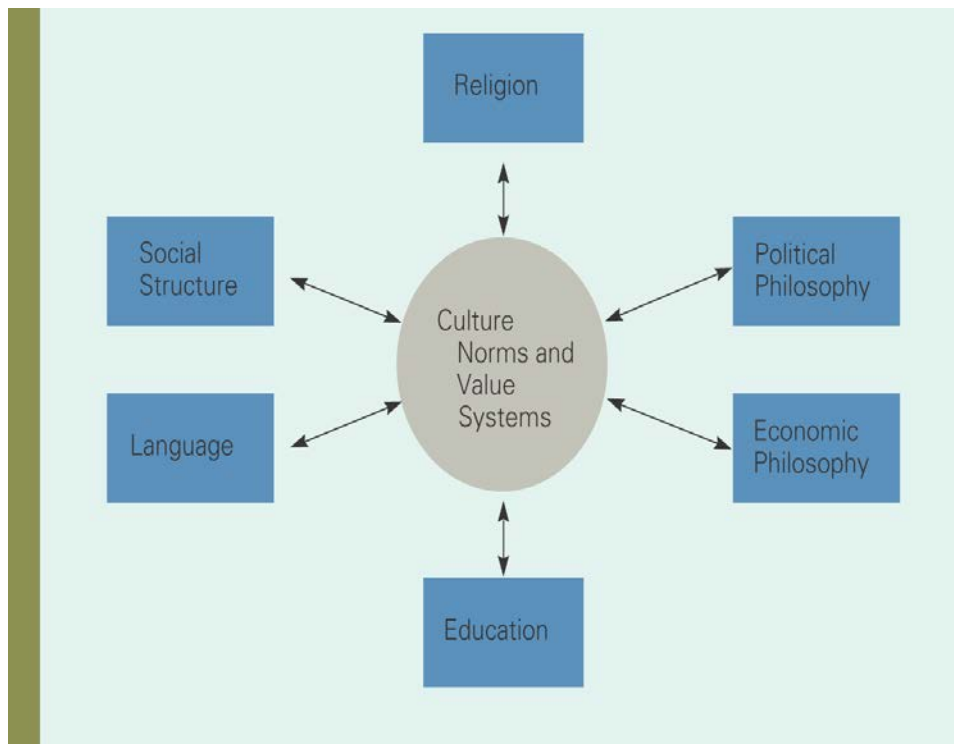
To understand a Culture, and subsequently to evaluate a Culture, the following, but not limited to, should be considered:

- History of the culture, from the origins until present; Legends and Heroes, conflicts;
- Language and Communication styles, methods;
- Geography, position / location, climate, borders, natural resources;
- Economy, financial resources; employment, job diversity and retribution;
- Political system, leadership, management styles; systems of laws, level of freedom;
- Religion, beliefs, traditions, customs, folkways and mores, tolerance and acceptance of others; symbols and rituals;
- Education, Social environment, common attitudes, holidays, art and creativity;
- Race, gender role, birth rate, life expectancy, risks associated to daily life, safety of environment, social structure – social layers or cast systems;
- Any other relevant aspects.

7.4   Resolving the cultural differences

At Company level there is not always realistic to treat the seafarers as individuals → cultural differences must be solved at Vessel's level.

A) "*The lone individual*" situation: if there is somebody alone from a particular cultural group (single nationality, woman on board, etc), the below mistakes should be avoided:

 - considering him/her alone as representative of his/her entire nation or group;
 - over-loading him/her with work in an attempt to make sure he/she doesn't feel left out;
 - over-protecting him/her because "is alone";
 - expecting too much from him/her, pressure, testing, etc.

B) Organize **activities** which encourage **teamwork** (regular meetings – formal, work related; and social events – informal activities, such as parties, games, etc).

C) **Religion** among seafarers must be respected, no discriminations and no judgments upon various beliefs; the festivals, holidays and celebrations must be equally considered on board.

D) **Manage the performance** – how the performances on board are being assessed, praised and/or criticized.

 "*An army marches on its stomach*" (Napoleon) – galley department on board the ships is very important for maintaining a good environment.

E) **Informal communication**: sometimes best way to develop understanding, tolerance and respect is by just talking one to another.

- language is often a barrier, standard of english can vary, therefore attention to avoid for miss-understandings.
- some people can understand a lot and have a good S.A., but they are reluctant to talk, therefore they should be encouraged.
- general culture and knowledge may reduce the barriers.

There are **2(two) dangerous areas** in informal communication: (1) HUMOUR (not equally appreciated and understood by different cultures) and (2) STEREOTYPING (most dangerous area, to judge an individual based on general knowledge / experience).

7.5   Dimensions of Culture

- In 1980, the Dutch management researcher **Geert Hofstede** first published
the results of his study of more than 100,000 employees of the multinational
IBM in 40 countries (Hofstede, 1980, 1983, 1984, 1991, 1997, 2001).
Hofstede was attempting to locate value dimensions across which cultures vary. His
dimensions have been frequently used to describe, understand and evaluate
different cultures. Initially Hofstede identified four dimensions that he labeled
individualism, masculinity, power distance, and uncertainty avoidance:

- individualism-collectivism dimension describes cultures from loosely structured to
tightly integrated.
- masculinity-femininity dimension describes how a culture's dominant values are
assertive or nurturing.
- power distance refers to the distribution of influence within a culture.
- uncertainty avoidance reflects a culture's tolerance of ambiguity and acceptance of
risk.

Hofstede and Bond (1984; also see Chinese Culture Connection, 1987) identified
a fifth dimension, a Confucian dynamism labeled "long-term orientation versus short-
term orientation" to life. The Confucian dynamism dimension describes cultures that
range from short-term values with respect for tradition and reciprocity in social
relations to long-term values with persistence and ordering relationships by status.
And the 6th dimensions added was "indulgence vs restraint", referring to the grade of
tolerance within a culture.

1. Individualism versus Collectivism. This dimension refers to how people
define themselves and their relationships with others.

- In an individualist culture, the interest of the individual prevails over the interests of
the group. Ties between individuals are loose. People look after themselves and
their immediate families.

- Masakazu (1994) defines modern individualism as "a view of humanity that justifies
inner beliefs and unilateral self-assertion, as well as competition based on these".

- In a collectivist culture, the interest of the group prevails over the interest of the
individual. People are integrated into strong, cohesive sub-groups that continue
throughout a lifetime to protect in exchange for unquestioning loyalty. One difference
is reflected in who is taken into account when you set goals. In individualist cultures,
goals are set with minimal consideration given to groups other than perhaps your

immediate family. In collectivist cultures, other groups are taken into account in a major way when goals are set. Individualist cultures are loosely integrated; collectivist cultures are tightly integrated.

- In individualist cultures such as the United States, for example, when meeting a new person, you want to know what that person does. You tend to define people by what they have done, their accomplishments, what kind of car they drive, or where they live. Individualist cultures are more remote and distant.

- Cultures characterized by collectivism emphasize relationships among people to a greater degree. Collectivist cultures stress interdependent activities and suppressing individual aims for the group's welfare. Often, it is difficult for individuals from highly individualist cultures to understand collectivist values.

- In the workplace, in individualist cultures, the employer-employee relationship tends to be established by contract, and hiring and promotion decisions are based on skills and rules; in collectivist cultures, the employer-employee relationship is perceived in moral terms, like a family link, and hiring and promotion decisions take the employee's in-group into account.

2. Masculinity versus Femininity: The Masculinity side of this dimension represents a preference in society for achievement, heroism, assertiveness and material rewards for success. Society at large is more competitive. Its opposite, Femininity, stands for a preference for cooperation, modesty, caring for the weak and quality of life. Society at large is more consensus-oriented. In the business context Masculinity versus Femininity is sometimes also related to as "tough versus tender" cultures. Hofstede found that women's social role varied less from culture to culture than men's. He labeled as masculine cultures those that strive for maximal distinction between what women and men are expected to do.

- Cultures that place high values on masculine traits stress assertiveness, competition, and material success.

- Those labeled as feminine cultures are those that permit more overlapping social roles for the sexes. Cultures that place high value on feminine traits stress quality of life, interpersonal relationships, and concern for the weak.

- It is important to understand that these traits apply to both women and men; that is, both women and men learn to be ambitious and competitive in masculine cultures, and both women and men learn to be modest in feminine cultures.

- From his study of Thais in the United States, Rojjanaprapayon (1997) notes that

masculinity in all cultures is not the same as Hofstede's Western concept of masculinity as assertiveness, aggressiveness, and goal orientation. Thais can be very aggressive and goal oriented in some situations but are expected to be attentive, supportive, and yielding. Rojjanaprapayon suggests labeling this dimension more appropriately as affection.

- In the workplace, in masculine cultures, managers are expected to be decisive and assertive; in feminine cultures, managers use intuition and strive for consensus. Solidarity and quality of life are stressed.

3. Power Distance, or the way the culture deals with inequalities.

- Hofstede defines power distance as "the extent to which less powerful members of institutions and organizations within a country expect and accept that power is distributed unequally".

- Hofstede believes that power distance is learned early in families. In high power distance cultures, children are expected to be obedient toward parents versus being treated more or less as equals.

- In high power distance cultures, people are expected to display respect for those of higher status.

- Power distance also refers to the extent to which power, prestige, and wealth are distributed within a culture. Cultures with high power distance have power and influence concentrated in the hands of a few rather than distributed throughout the population.

- These countries tend to be more authoritarian and may communicate in a way to limit interaction and reinforce the differences between people. In the high power distance workplace, superiors and subordinates consider each other existentially unequal. Power is centralized, and there is a wide salary gap between the top and bottom of the organization. In cultures high in power distance, for example, corporate presidents' offices are more likely to be luxurious, with controlled access. Company bosses are "kings" and employees "loyal subjects" who don't speak out.

- In the low power distance workplace, subordinates expect to be consulted, and ideal bosses are democratic. In more democratic organizations, leaders are physically more accessible.

4. Uncertainty Avoidance, the extent to which people in a culture feel threatened by uncertain or unknown situations, the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity. The fundamental issue here is how a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? Countries exhibiting strong UAI maintain rigid codes of belief and behavior and are intolerant of others behavior and ideas. Weak UAI societies maintain a more relaxed attitude in which practice counts more than principles.

- Hofstede explains that this feeling is expressed through nervous stress and in a need for predictability or a need for written and unwritten rules. In these cultures, such situations are avoided by maintaining strict codes of behavior and a belief in absolute truths.

- Cultures strong in uncertainty avoidance are active, aggressive, emotional, compulsive, security seeking, and intolerant; cultures weak in uncertainty avoidance are contemplative, less aggressive, unemotional, relaxed, accepting of personal risks, and relatively tolerant.

- Students from high uncertainty avoidance cultures expect their teachers to be experts who have all the answers. And in the workplace, there is an inner need to work hard, and there is a need for rules, precision, and punctuality. Students from low uncertainty avoidance cultures accept teachers who admit to not knowing all the answers. And in the workplace, employees work hard only when needed, there are no more rules than are necessary, and precision and punctuality have to be learned.

5. Long Term versus Short Term: In 1987, the "Chinese Culture Connection," composed of Michael H. Bond and others, extended Hofstede's work to include a new dimension they labeled **Confucian work dynamism**, now more commonly called long-term orientation versus short-term orientation to life.

- This dimension includes such values as thrift, persistence, having a sense of shame, and ordering relationships. Confucian work dynamism refers to dedicated, motivated, responsible, and educated individuals with a sense of commitment and organizational identity and loyalty.

- Countries high in Confucian work dynamism are Hong Kong, Taiwan, Japan, South Korea, and Singapore—popularly referred to as the Five Economic Dragons.

- Long-term orientation encourages thrift, savings, perseverance toward results, and a willingness to subordinate oneself for a purpose.

- Short-term orientation is consistent with spending to keep up with social pressure, less savings, preference for quick results.

6. Indulgence vs Restraint - Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms.

7.6   7- Features model of Culture

Considering the relation "Beliefs and Values vs. Rules" 7(seven) features of national culture:

- Studies of Fons Trompenaars and Charles Hampden Turner, developing a model of culture with 7(seven) dimensions, 5(five) orientations are covering the ways in which human beings deal with each other, 1(one) way in which societies look at Time, and 1(one) way regarding attitude of the culture to the Environment.

1. **_Universalism vs. Particularism_**: describes how people judge other people's behavior; what is more important: Rules or Relationships?

2. **_Individualism vs. Collectivism_**: do we function in a group or as individuals? (similar with Hofstede's homonymous dimension).

3. **_Neutral vs. Emotional_**: do we display our emotions? (some people are more likely to show how they feel, comparing to others). The importance of feelings and relationships.

4. **_Specific vs. Diffuse_**: how separate we keep our private and working lives? This dimension is sometimes referred to as "**_concern-/commitment-dimension_**", which is expressed at the level of an individual affected by a particular situation or action. (For example, relationship with the Boss: for some cultures, boss is only at work; for other cultures, boss is boss, everywhere is met).

5. **_Achievement vs. Ascription_**: Do we have to prove ourselves to receive status or is it given to us? This dimension refers to the question of whether the

status of an individual by religion, origin or age results or the status has could mainly with his own performance.

6. ***Sequential vs. Synchronic***: Do we do things one at a time or several things at once? This dimension deals with the question of how people in different cultures manage time.

7. ***Internal vs. External*** control: Do we control our environment or are we controlled by it?

7.7 Communication Styles in different social context

- Individualism and collectivism have been associated with direct and indirect styles of communication - that is, the extent to which speakers reveal intentions through explicit verbal communication.

- In the direct style, associated with individualism, the wants, needs, and desires of the speaker are embodied in the spoken message.

- In the indirect style, associated with collectivism, the wants, needs, and goals of the speaker are not obvious in the spoken message.

Context is information that surrounds a communication and helps convey the message:

- High-Context Societies: Messages are often highly coded and implicit, such as Japan and many Arabian countries.

- Low Context Societies: The message is explicit and the speaker says precisely what he or she means such as the United States and Canada

- Rojjanaprapayon (1997), for example, demonstrated specific communication strategies in Thai communication: Thais do not use specific names when they express negative feelings; Thais tend to use words and phrases expressing probability, such as "maybe," "probably," "sometimes," "likely," and "I would say so, but I am not sure"; Thais do not show their feelings if doing so would make the other person feel bad; and Thais also use indirect nonverbal communication by having less or avoiding eye contact and keeping greater personal distance.

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A. High-context society:

- More internalized understandings of what is communicated
- Long term relationships
- Strong boundaries
- Knowledge is situational, relational.
- Decisions and activities focus around personal face-to-face relationships and around a central person who has authority.

B. Low-context society:

- Knowledge is un-codified, public, external, and accessible.
- Sequencing, separation--of time, of space, of activities, of relationships
- More interpersonal connections of shorter duration
- Task-centered. Decisions and activities focus around what needs to be done, division of responsibilities.

The Structure of Relationships

- **High context:** Dense, intersecting networks and long-term relationships, strong boundaries, relationship more important than task
- **Low context:** Loose, wide networks, shorter term, compartmentalized relationships, task more important than relationship.

Main Type of Cultural Knowledge

- **High context:** More knowledge is below the waterline--implicit, patterns that are not fully conscious, hard to explain even if you are a member of that culture
- **Low context:** More knowledge is above the waterline--explicit, consciously organized.

Entering High and Low Context Societies

- **High contexts** is difficult to enter if you are an outsider (because you don't carry the context information internally, and because you can't instantly create close relationships).

- **Low contexts** is relatively easy to enter if you are an outsider (because the environment contains much of the information you need to participate, and because you can form relationships fairly soon, and because the important thing is accomplishing a task rather than feeling your way into a relationship).

Indirect and direct styles of communication

- In high-context cultures, messages are **implicit and indirect:** Voice intonation, timing, and facial expressions play important roles in conveying information

- In low-context cultures, people often meet only to accomplish objectives and **tend to be direct** and focused in their communications.

Elaborate and succinct styles: Three degrees of **communication quantity**

The elaborating style is more popular in high-context cultures that have a moderate degree of uncertainty avoidance.
The exacting style focuses on precision and the use of the right amount of words to convey the message and is more common in low-context, low-uncertainty-avoidance cultures

The succinct style is more common in high-context cultures with considerable uncertainty avoidance where people tend to say few words and allow understatements, pauses, and silence to convey meaning.

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Chapter 8. PASSAGE PLANNING

8.1 Responsibility for Passage Planning

8.1.1 Master's Responsibility
It is the Master's responsibility to prepare Passage Plan for the intended voyage and to ensure that all the watch keeping officers observe it.

8.1.2 Delegation of Passage Planning
The Master may delegate Second Officer and/or other navigational officers to undertake the following activities as required.

a) Identify nautical charts, nautical publications and other reference material necessary for the voyage.
b) Preparation of the Bridge Notebook (Passage Plan)
c) Plotting the intended track and/or the necessary clearing/bearing/circles in the nautical charts to be used.
d) Entering in the nautical charts navigational warnings, see way information and other data necessary for the sea areas to be navigated in.

8.2 Passage Appraisal

8.2.1 General
The Master shall collect and appraise all pertinent information before any voyage is started in order to fulfill the requirements of the voyage.

8.2.2 Selection of Routing
Selection based on the past experiences, sailing directions and other navigational information should be completed before passage appraisal. The following factors should be taken into account for route selection.

8.2.21 Ocean Passage
a) Required ship's speed and the distance for the voyage.
b) The weather forecast and sea condition in addition to the information from weather routing service agencies.
a) Load line zones applicable for sea areas to be navigated and the required ship's freeboard.
b) The endurance based on fuel, lubricating oil, provisions on hand.
c) Possibility and necessity of supply en route.
d) Availability of safe navigable passage based on geo- political issues.

8.2.22 Coastal Passage

    a)   Distance from the coast for safe navigation.
    b)   Traffic Separation Scheme according to the IMO.
    c)   Relationship between the depth of water and the ship's draft.
    d)   Navigable area in an archipelago.
    e)   The state of congestion at the area to be navigated.

8.3   Passage Planning
The following consideration shall be given to the passage planning.

8.3.1 Selection of Nautical Charts
Collect all charts for the intended voyage, putting them into the correct order. Charts not absolutely for the voyage but which are adjacent to the area to be navigated should be included, as should the very large scale charts. Although it may not be necessary to actually use such charts, they may include information which could prove useful during the voyage.

8.3.2 No-Go Area and Margin of Safety
Coastal charts should be examined and all areas where the ship cannot go should be carefully shown by cross-hatching. In waters where the tidal range may be large. No-go areas should be determined taking the tidal height into consideration. Before tracks are marked on the chart the Margins of Safety should be determined in order to give the vessel enough see room to keep away from any danger even in case of a worst scenario. The Margins of Safety should be determined taking the following factors into consideration, and it is advisable to set an appropriate head mark, clearing bearings and Parallel indexing (PI) targets to allow OOWs to confirm that she has enough safe see room.

    a) Size of the ship
    b) Reliability of navigational equipment
    c) Tidal current
    d) Maneuverability and the speed
    e) Others

8.3.3 Track Selection

8.3.3.1 Ocean Track
Ocean tracks should first draw on the small-side charts, according to the decisions made based on the paragraph 2.2.1. regarding the route. All information gathered for Passage Appraisal shall be taken into consideration for the track selection.

8.3.3.2 Coastal Tracks

Coastal tracks may be considered by the decision made at the appraisal stage and should be first drawn on the small-scale charts starting from the departure port to the arrival port. These first tracks will form the basis of the plan and from them the distances and steaming times can be obtained. When completed, these tracks should be transferred to and drawn on the larger-scale charts of the area to be navigated.

8.3.3.3 Distance Off

Distance off shall warrant of the ship has enough sea room in order not only to give other vessels the way and/or to keep the ship away from an danger in case of emergency situations like Main Engine Failure or Steering Gear Failure. The distance away from the coast and dangerous objects shall be determined based upon the Margins of Safety and the following factors:

   a) State of visibility, traffic density and presence of fishing vessel traffic.
   b) Proximity of landmarks and/or navigational aids for position fixing.
   c) Accuracy and scale of nautical charts to be used.
   d) Effects of environmental factors such as tides, current, weather, etc.
   e) State of traffic congestion.

8.3.3.4 Course Altering Targets

Take following into consideration when selecting the targets for altering course:

   a) As targets for altering course, select conspicuous promontories, islands, lighthouses and landmarks or targets in transit, near the beam of the ship.
   b) For transit bearing after alteration of courses, select nearby and conspicuous targets that are nearly parallel to the direction of the new course.
   c) Use targets in transit at the bow or stern.
   d) When a prominent target cannot be found or when a critical course altering point is located in heavy traffic density, always select two or more objects.

8.3.4 Position Fixing Interval

Ship's position shall be fixed, at an interval not exceeding 60 minutes during ocean passage and every 15 minutes during coastal navigation. Appropriate fixing intervals for each navigation area must be determined taking into account safety for navigation, status of traffic, ship's speed, etc. in addition,

primary/secondary position fixing method, radar/visual target and navigation aids to be used for fixes, must be determined beforehand.

8.3.5 Marking of navigational Aids

Navigational aids and targets to be made use of are to be high lighted. Consideration must be given to the fact that targets located on the edge of charts are likely to be overlooked.

8.3.6 Clearing Bearing / Circle

Establish clearing bearings/circles that are easy to use and effective in helping achieve safe maneuvering-taking into consideration the topographical features around the intended track, the types and number of targets, weather passage is in the day or night, and such other factors.
The following are the types of clearing bearings/circles.

  a) By use of targets in transit (leading line).
  b) By use of the bearing from a single target.
  c) By use of a range from the single target or from the coast line by radar.
  d) By utilizing contour lines.

8.3.7 Parallel indexing

Parallel indexing (PI) is a useful method of monitoring cross-track tendency and the necessary information needed for planned (PI) should be marked on the charts.

8.3.8 Under keel Clearance / Tidal Window

The ship's draft and the depth of the water the ship will navigate must be well understood in order to achieve the necessary UKC. In large tidal areas, adequate UKC may only be attainable during the period that the tide had achieved a given height. Such safe periods, called the tidal window, must be clearly shown on the charts. When calculating the UKC, the Category of Zone of Confidence must be considered.

8.3.9 Other information required to be shown on the Nautical Charts.

The following shall be drawn on the charts for achieving safe navigation.

8.3.9.1 Routine checks and Changes

Routine Safety confirmation or the point where the work will be changed as follows should be marked adjacent to the intended track.

  a) start a manual steering/
  b) Man a quartermaster adjacent to the steering wheel.

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c) Tests and changeover of nautical instruments and steering gear.
d) Notice to the ECR. (hour before S/B, etc)
e) Astern engine test.
f) Change of watch level.
g) Call captain.
h) Clearing anchor.
i) Start of PI
j) Change of position fixing method.
k) Speed Change.
l) Change of charts.

8.3.9.2 Abort point

When approaching constrained waters such as narrow channels or pilot boarding areas. The topographical features or traffic situation may preclude the ship from the danger: It will not be possible to do other than proceed. The point of no return should be determined and marked on the chart in order for the Bridge Team to make a correct decision weather the ship should proceed or not even in case of an emergency such as follows.

a) Unexpected larger deviation from the intended track.
b) Main engine failure.
c) Malfunction of navigational instruments.
d) Unavailability of tug boats and/or unavailability of the berth.
e) Dangers happening in the coast line and/or harbor facilities.
f) Such other factors.

8.3.9.3 Contingency

Contingency planning should be made at the planning stage and clearly shown on the chart so that the bridge team does not spend time for planning safe action when the passage does not go as planned. This planning will include:

a) Alternative course.
b) Waiting areas.
c) Safe anchorages in case of emergencies.
d) Emergency berths.

8.3.9.4 Wheel Over Point (W/O)

When the ship is navigating in confined waters, the margins of safety may require the ship to commence altering course at the wheel-over position some distance before the track intersection in order to achieve the new planned track. Wheel-over points must be clearly shown on the chart.
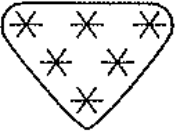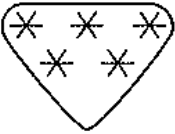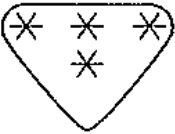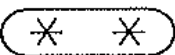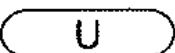
8.4 Chart accuracy: Zone of Confidence (ZOC)

Zone of confidence A1   (6-stars)
Zone of confidence A2   (5-stars)
Zone of confidence B   (4-stars)
Zone of confidence C   (3-stars)
Zone of confidence D   (2-stars)
Zone of confidence U   (data not assessed)

ENC Symbol	CATZOC Equivalent

A1

A2

B

C

D

U

Category of Zone of Confidence (CATZOC) (2.91)

Please see also NP100 – The Mariner's Handbook pages 5 and 41.

ZOC	Position Accuracy	Depth Accuracy		Seafloor Coverage	Typical Survey Characteristics
A1	± 5 m	=0.50 + 1%d		Full area search undertaken. Significant seafloor features detected and depths measured.	Controlled, systematic survey high position and depth accuracy achieved using DGPS or a minimum three high quality lines of position (LOP) and a multibeam, channel or mechanical sweep system.
		Depth (m)	Accuracy(m)		
		10	± 0.6		
		30	± 0.8		
		100	± 1.5		
		1000	± 10.5		
A2	± 20 m	= 1.00 + 2%d		Full area search undertaken. Significant seafloor features detected and depths measured.	Controlled, systematic survey achieving position and depth accuracy less than ZOC A1 and using a modern survey echosounder and a sonar or mechanical sweep system.
		Depth (m)	Accuracy(m)		
		10	± 1.2		
		30	± 1.6		
		100	± 3.0		
		1000	± 21.0		
B	± 50 m	= 1.00 + 2%d		Full area search not achieved; uncharted features, hazardous to surface navigation are not expected but may exist.	Controlled, systematic survey achieving similar depth but lesser position accuracy less than ZOC A2 and using a modern survey echosounder, but no sonar or mechanical sweep system.
		Depth (m)	Accuracy(m)		
		10	± 1.2		
		30	± 1.6		
		100	± 3.0		
		1000	± 21.0		
C	± 500 m	= 2.00 + 5%d		Full area search not achieved, depth anomalies may be expected.	Low accuracy survey or data collected on an opportunity basis such as soundings on passage.
		Depth (m)	Accuracy(m)		
		10	± 2.5		
		30	± 3.5		
		100	± 7.0		
		1000	± 52.0		
D	Worse than ZOC C	Worse than ZOC C		Full area search not achieved, large depth anomalies may be expected.	Poor quality data or data that cannot be quality assessed due to lack of information.
U	Unassessed – The quality of the bathymetric data has yet to be assessed.				

Remarks:
To decide on a ZOC Category, all conditions outlined in columns 2 to 4 of the table must be met.

8.5　Bridge Notebook

8.5.1　Items to be shown on the Bridge Notebook

All the necessary information stipulated in paragraph 3 above should be shown in the Bridge Notebook in chronological order so that the bridge team can utilize it as a check list, as the passage goes along. Bridge Notebook shall be checked and approve by the Master before commencement of the voyage. It should consist of at least the following information:

a) Column for confirming way point passing time.
b) Way points, course altering points from the particular target and/or by latitude and longitude.
c) Distance and course made good between way points.
d) Distance to the arrival port.
e) Clearing bearing/circle.
f) Necessity of calling Captain.
g) Watch level.
h) Expected UKC.
i) Navigational instruments to be used.
j) Position fixing interval.
k) Conspicuous visual/radar target.
l) Any danger which preclude safe navigation.
m) Abort point.
n) Contingency plan.
o) Landfall navigation aids and light.
p) Total distance for the voyage and total steaming time at service speed.
q) Signature for the Master and OOW's.
r) Other information needs for safe navigation.

8.5.2　Remarks

Information which is required to attract OOW's attention such as following items should be clearly shown as remarks in the Bridge Notebook.

a) Time of Pilot calling.
b) VHF channel for the particular communication.
c) Sunrise and sunset.
d) Books and other materials to be referenced.
e) Contingency plan.

8.5.3 Passage Plan Map

The Passage Plan Map, which is to be attached the Bridge Notebook, visually shows the outline of the voyage and should carry such information as distance, navigation method, weather and sea condition, traffic situation, conspicuous targets, reports to be made to VTIS/Harbor operation, etc.

8.6 Executing and monitoring the plan

8.6.1 Required Speed

The following should be taken into consideration for deciding the steaming speed:

a) Company's instruction in relation to the intended voyage.
b) Weather and sea condition to be encountered.
c) Condition of Main Engine.
d) Endurance in terms of fuel on hand.
e) Interrelation between the speed, displacement and fuel consumption.

8.6.2 ETA

The following should be taken into account determining ETA:

a) Cargo operation, necessity of Quarantine and/or Pilotage, Passenger boarding, requirement from the shipper/cosignee.
b) Any restriction for the navigation established by the port state.
c) Weather and Sea condition to be encountered.
d) Possible time loss resulting from passing constrained waters such as narrow channels, topographically or politically dangerous area en route.

8.6.3 Way Point Passage

When determining the passing time of way points, the following should be taken into account:

a) Constrained waters such as narrow channels should preferably be passed during day time.
b) Necessity of speed control for adjusting the passing time of shallow water area where ship's draft requires certain tidal height in order to achieve safe UKC.

8.6.4 Briefing

The Master shall brief navigational officers in the established passage plan before entering the constrained waters. When the ship encounters hazardous navigation, role assignment and requirements for OOWs must be clearly briefed.

8.6.5 Fatigues Control
The Master is required to ensure that rested and unfatigued personnel fit for watch keeping duty are available, taking the following into account:

8.6.5.1 Rest
a) All persons who are assigned duty as an Officer in charge of a watch or as a rating forming part of a watch should normally be provided a minimum of 10 hours of rest in any 24 hour period.
b) The hours of rest may be divided into no more that two periods, one of which shall be at least 6 hours in length.
c) The requirements for rest periods laid down in a) and b) above, need not be maintained in the case of an emergency or drill or in other overriding operational conditions.

8.6.5.2 Change to Watch Schedule
The Master may change the established watch schedule if necessary, in order to ensure that the watch keepers are fit for duty. Alterations of time assignment should be made to prevent work concentration on a particular crew member(s).

8.6.5.3 Posting of Watch Schedule
The Master shall post the established watch keeper's schedule on the Bridge notice board and Officer's & Crew's Mess rooms.

8.6.6 Bridge Team Management (BTM)
BTM is aimed at eliminating the risk that an error on the part of any one person may result in a disastrous situation. The Master and all OOWs must understand the concept of BTM and make the best use of all resource available for watch keeping duties.

8.6.6.1 Encouragement of Assertiveness
BTM does not refer to an act of management by one person but a continuous adaptation of all the team members to fulfill the team rolls that they have been assigned. It is thus of utmost importance to ensure functioning of all watch keepers as part of the team. The Master is required to encourage and motivate every team member to participate in the watch keeping duty as a crucial part of the team. In addition, the Master should bear in mind that the high authority management is likely to deteriorate assertiveness of subordinates. It is advisable therefore not to give the impression of useless or redundancy when receiving reports from the team members.

8.6.6.2 Reporting

Since reporting in clear and simple manner is considered to be the most important factor to achieve the best possible effect of the BTM, every watch keeper is required to mutually report or give orders loud and clear so that the important information can be conveyed to the third person at the same time.

8.6.6.3 Watch Level and Role Assignment

It is considered to be a Matter of course for the Master to give distinction role assignment to every watch keeper to function the BTM and watch level, which is to be operated based on the following standards, giving full consideration to the result of the passage appraisal.

a) The determined Watch Level shall be shown on the Bridge Notebook and Bridge notice board.
b) Setting/changing of the Watch Level and standard role assignment for each Officer can be modified by the Master taking account of the configuration and skill watch keepers, traffic, weather, topographical condition of the area traversed, atc.

8.6.6.4 Instructions to Quartermasters

The Master and OOWs should give appropriate orders with regard to the following and confirm that those are effectively performed to utilize Quartermasters for achieving safe and smooth watch keeping.

a) Duties of Quartermasters in relation to lookout.
b) Reporting system for information when keeping lookout.
c) Correct and consistent steering based on the order given by the OOW and maintaining the course to be steered.
d) Other reports that the Master or OOW deems necessary.

8.6.6.5 Instructions to OOW

The Master shall give orders to OOWs regarding the following and ensure that everyone will function effectively as a team member.

a) Matters related to taking over the conn.
b) Matters related to role assignment of OOWs.
c) Matters to be reported to the Master.
d) Other additional duties assigned to OOWs by the Master.

8.6.7 Monitoring

The Master and OOWs must utilize navigational charts and information shown on the Bridge Notebook properly and constantly confirm that the passage, less than expected UKC, etc. must be studied for it's origin and the appropriate counter measure shall be taken.

8.7 Evaluation and Improvement

The Master shall evaluate adequacy of the passage plan followed by assessment on how the plan performed on the concept of the BTM. Necessary suggestions and instructions for improvement, if needed, should be recorded.

Refer to following Appendices:

Appendix 1 - Situation Awareness
Appendix 2 - Employees attitude and job satisfaction
Appendix 3 - Bridge-Team-Management practical guide
Appendix 4 - Tugs and Pilots - legal issues

Passage Planning: Planning symbols

Course Line

090 (T) x Distance

No-go Area

Parallel Index

(Arrows point towards reference object.)

Parallel Index Distance

3.0°

Safe Navigation Limit

090

Leading Line   LL

090

Head Mark   HM
Clearing Bearings

090

a) NO-GO AREA	Areas where the ship cannot go must be shown by highlighting or cross-
b) WOP, W/P, WHEEL OVER POSITION	The ship must commence altering course at the wheel over position some dist
c) P, PILOT	Pilot boarding area.
d) ABORT, ABORT POINT, NO-RETURN POINT	When approaching constrained waters the ship may be in a position beyond w
e) CONTINGENCY, CONTINGENCY PLAN	Contingency plans will have been made at the planning stage and clearly shown on the chart, so that the OOW does not have to spend time looking for and planning safe and safe action when his duties requires him to be
f) PI, PARALLEL INDEX	The parallel index(PI) is a useful method of monitoring cross-track tendency ir
g) SAFE NAVIGATION LIMIT	Lines which indicate borders of navigable water limit. They usually be shown v
h) LL, LEADING LINE	Targets in transit line.
I) HM, HEAD MARK	Head mark.
j) CLEARING BEARINGS	Clearing lines by using a target bearing.

Passage Planning: Chart symbols

CLEARING BEARING/HEAD MARK/NO GO AREA
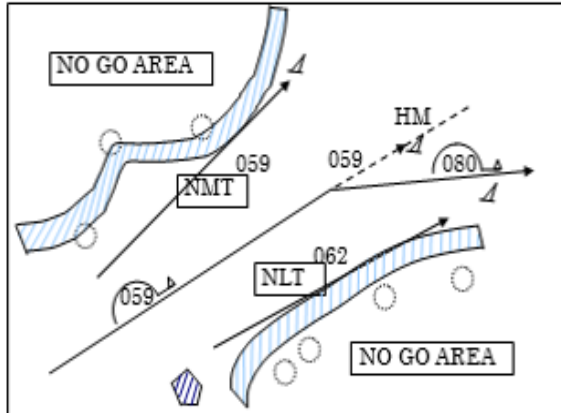
ABORT: CONTINGENCY
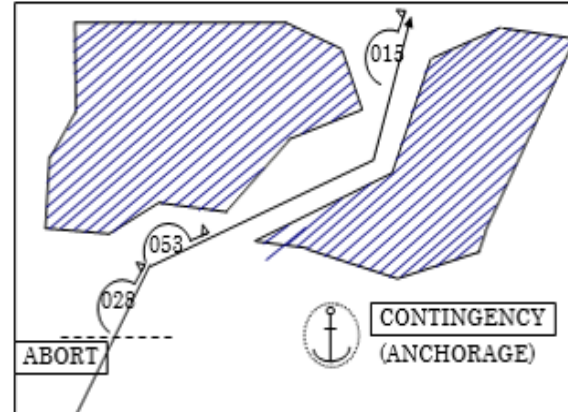
PARALLEL INDEX/LEADING LINE.: SAFE NAVIGATION LIMIT
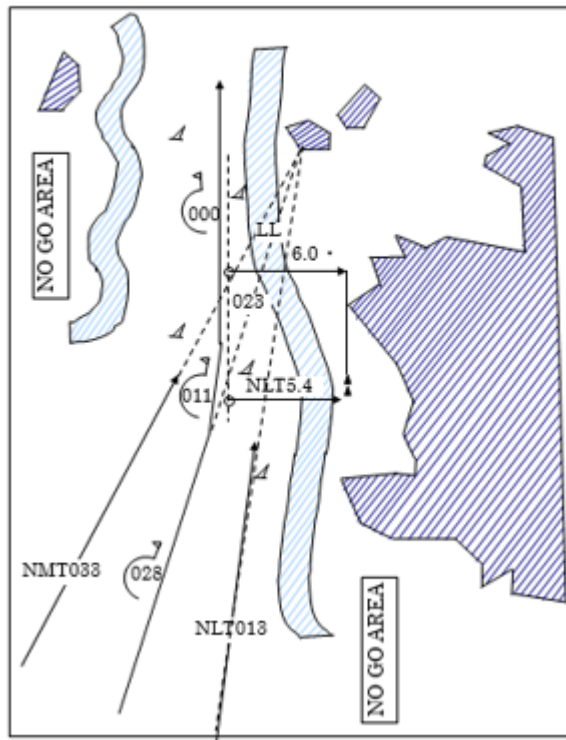
(W/O: CROSS INDEX RANGE)
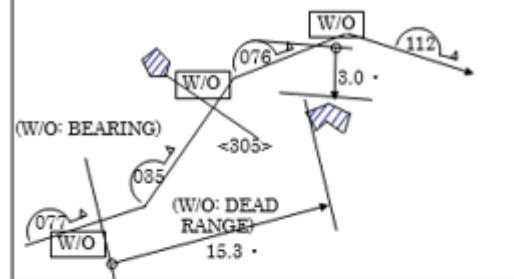
Passage Planning: Passage Plan Map

PASSAGE PLAN MAP (GENERAL CONCEPT OF NAVIGATION)   M/V NYK VIRGO   VOY. NO.07E24

<S-074002-06FIG>

NAVTEX STATIONS TO BE MONITORED FRM RTD TILL GIBRALTAR- P,T,M,E,K,A,D,R,G

CROSSING FERRIES - BEWARE

ENGLISH CHANNEL- HEAVY TRAFFIC AREA , MAINTAIN GOOD LOOKOUT BY ALL AVAILABLE MEANS. THOUGH THE DEEP SEA PILOT IS ON BOARD , THE MASTER AND OOW STILL REMAIN RESPONSIBLE FOR THE ACTIONS TAKEN.

ENGLISH CH.

FISHING BOATS

BRIXHAM P/S

ROTTERDAM PORT A

ATLANTIC OCEAN

BAY OF BISCAY

USHANT

REP. PT.

REP. PT.

IMPORTANT NOTE- THE T.S.S. IN THE ENGLISH CHANNEL AND DOVER STRAIT HAVE BEEN CHANGED , WILL COME INTO EFFECT FROM THE 1STJULY2008, CHARTS AFFECTED WILL BE PUBLISHED AND AMMENDED AS APPLICABLE.

C. FINISTERRE

ATLANTIC OCEAN FAIR TO MODERATE WEATHER IS EXPECTED THIS VOYAGE

REP. PT.

RECIPROCAL TRAFFIC

NAVTEX STATIONS TO BE MONITORED FRM GIBRALTAR- PORT SAID - G,X,B,T,V,O,X

C. DA ROCA

Numerous Seismic survey cable laying operations, Rig move are in force as marked on the charts. Monitor Nav warnings, rig moves, movements around oil fields. Monitor Navtex warnings.

REP Pt

C. SAN VICENTE

GALITE

REP. PT.

C.DE GATA

FISHING BOATS   SICILIA

STRONG CURRENT AND HAZE CAN BE EXPECTED IN THE STRT OF GIBRALTAR

GIBRALTAR

REP. PT.

WP

WP

ALBORAN SEA

CAP BON

A PORT SAID PORT B

CROSSING VESSEL

MOROCCO

ALGERIA

MALTA   FISHING BOATS

Chief Officer   2/O   3/O   Master

B   P   WP

P : Pilot Station   GC : Great Circle
B : Berth   RL : Rumb Line
D : Drift   OTHERS
A : Anchorage   CURRENT EFFECT, DIST.
                          HAZARDOUS (Pirable, Fishing boats)
                          CONSPIC OBJECT, ETC.

CHAPTER 9. IMO STANDARD TERMS

These terms are according to the IMO Standard Terms, which, however, modified by JMS for clear and easy Bridge communications.
Please refer the Keywords in black letter and keep the communication clearly during BRM Training with ship handling simulator.

Standard on-board communication phrases   Sample

> Standard wheel order

Port fifteen.
Hard-a-port.
Port ~~ , steer one eight two.
Steady (as) she goes / Steady on ~~.
Keep buoy / mark / beacon ~~ on port side.
Report if no steering.
Dismiss the wheel.
(Phrase written in italic are not the standard terms but use as an expression).

> Handover of watch keeping responsibilities

Present position latitude ~~longitude~~.
One mile left from the course line.
Now giving ~~ degrees for lee way and keeping the heading 090 degrees on gyro course to the new way point.

> Traffic situation in the area

There is one vessel on same course on the starboard side.
Its speed is slower than our ship.
There is one vessel on opposite course in position 20 degrees port head, 10 miles.
There is one vessel crossing in position 45 degrees on the starboard side 5 miles,
It is changing to starboard.
On port bow 8 miles there is one crossing vessel and its bearing is not changing.
CPA 0.2 TCPA 12 min.
On port beam is a small tanker which we are slowly overtaking.
There are many fishing boats right ahead of us, 18 miles.
Dead astern, 8 miles there is another vessel.

Vessel has given way / Vessel has not given way yet.
Vessel standing on / We need not give way.

We will stand on.
We will alter course to give way.
Vessel will **pass** ~~ nautical miles ahead / astern.
Vessel ahead / astern on same course.
What is the heading of the vessel ahead of us?
What is the **ship's position**? (Confirm the ship's position, please.)
What is the **direction and distance** to the Sea buoy?
1.5 miles right from course line. And 046 degrees on gyro course **to the next way point, 4.4 miles to the wheel over point.**
Give ~~ short **blast(s)** (on whistle).

Meteorological conditions

Visibility ~~ nautical miles.
Visibility reduced by fog.
Visibility expected to increase to ~~ nautical miles.
Visibility expected to decrease to ~~ nautical miles.
There were two heavy showers during my watch.

Special machiney events

Breakdown of main engine(s) (at ~~ UTC / local time).
Total blackout (at ~~ UTC / local time).
Blackout in ~~ (at ~~ UTS / local time).
Speed reduced (at ~~ UTC / local time).
Main engine(s) stopped ~~ at ~~ UTC / Local time due to ~~.
Can you give me a rough estimate on the repairs?

Handing and taking over the watch or Conn.

I now have the watch.
I now have the Conn.
You now have the Conn.
I'm ready to relieve you. (your watch / the watch)
I've been (properly) relieved.

Propulsion system

Engine-room manned.
Engine on bridge control.
How long does it take to change engine from ahead to astern?
It takes ~~ minutes to change engine (from ahead to astern).
What notice is required to reduce from full sea speed to maneuvering speed?
~~ Minutes notice required (to reduce from full sea speed to maneuvering speed).
We have right-hand propeller.
What is maximum maneuvering power ahead?
What is maximum revolutions ahead / astern?
Do twin propellers turn inward or outward when going ahead?
Tell the engine room to reduce the revolution to 65.

Anchoring

Stand by port / starboard / both anchor(s) for let go.
We will let go port / starboard / both anchor(s).
Put ~~ shackles in water.
Walk back port / starboard / both anchor(s).
Put ~~ shackles in water.
Walk back port / starboard / both anchor(s) one / one and a half shackle(s).
Let go port / starboard / both anchor(s).
Check the cable(s).
Hold on port / starboard / both cable(s).
How is cable leading?
Cable(s) leading ahead / astern / to port / to starboard / round the bow up and down.
Is / are anchor(s) holding?

Tug assistance

We will take ~~ tug(s).
Tug(s) will pull / push.
We take lines of vessel.
We'll be using the ship's line (hawsers).
Made tug fast on port bow with ship's line.
We take line(s) of tug(s).
Stand by for making fast tug(s).
Use center / Panama lead.
Use fairlead on port side / starboard side.
Use fairlead a midships.
Use fairlead on port bow / starboard quarter.
Send heaving line to tug.
Send two towing line(s) to tug.
Lower towing line(s) to tug.
Slack away towing line(s).
Make fast ~~ tug(s) forward / on port bow / on starboard quarter / aft.
Make fast forward tug alongside on port side.
Keep well clear of towing line(s).
Let go tug(s).
Tug(s) is / are let go.
Towing line broken.

General

Is propeller clear?
No, porpeller not clear.
Are fenders on berth?
No, no fenders on berth.

Berthing

We will berth port side alongside.
We are docking port side-to and heading in.
We will moor to buoy(s) ahead and astern.
We will ,oor to dolphins.
We'll 4-2-2.
Fore station, (take) head lines first.
Aft station, (take) spring lines first.
Lower two head lines to the line boat.
Send out head / stern / breast lines.
Send out ~~ spring(s) forward.
Send out ~~ spring(s) aft.
Use center / Panama lead.
Use bow lead.
Use port quarter / starboard quarter lead.
Heave in ~~ line(s) / ~~ spring(s).
Stop heaving.
Slacking away ~~ line(s) / ~~ spring(s).
Stop slacking ~~ line(s) / spring(s).
Hold on ~~ line(s) / ~~ spring(s).
Heave in easy.
Keep lines tight.
Report forward / aft distance to ~~.
Forward / Aft distance to ~~ ~~ meters.
We have to move ~~ meters ahead / astern.
We are in position.
Make fast fore and aft.
Fast forward.
Fast aft.

Unberthing

We'll carry out the engine trial. Report when you are ready.
The hawser is slack. We'll heave it tight.
Are you ready to get underway?
No,, not ready (yet) (to get underway).
Ready to get underway in ~~ minutes.
Stand by for let go.
Single up ~~ lines and ~~ springs fore and aft.
Slack away head / stern / breast line.
Let go everything forward / aft.
Let go tug line.
~~ is / are let go.
Stand by bow anchor(s).
Let go all lines. All lines on deck. All clear aft, sir.
The bow is approaching the dock. About 50 meters.
We'll turn counter-clockwise.
The ship is edging away from the dock.
Cleared forward quay at 50 meters of distance.

IMO STANDARD MARINE COMMUNICATION PHRASES

1 DISTRESS MESSAGE

MAY DAY 93X)
THIS IS - - -
- THE NINE DIGIT MMSI OF THE VESSEL PLUS NAME OF VSL / CALL SIGN
- THE POSITION OF THE VESSEL
- THE NATURE OF DISTRESS
- THE ASSISTANCE REQUIRED
- ANY OTHER INFORMATION WHICH MIGHT FACILITATE RESCUE

-EXAMPLE-

- MAY DAY
- THIS IS TWO-ONE-ONE-TWO-THREE-NINE-EIGHT-SIX-EIGHT VLCC "TAJIMA" CALL SIGNDELTA ALPHA MIKE KILO POSITION SIX TWO ONE ONE DEGREES NORTH ZERO ZERO SEVEN FOUR FOUR DEGREES EAST

- I AM ON FIRE AFTER EXPLOSION IN HOLD
- I REQUIRE FIRE FIGHTING ASSISTANCE
- SMOKE NOT TOXIC
- OVER

2 URGENCY MESSAGE

PAN-PAN (3X)
ALL STATIONS (3X)
THIS IS - - -
- THE NINE DIGIT MMSI OF THE VESSEL PLUS NAME / CALL SIGN
- THE POSITION OF THE VESSEL
- THE TEXT OF THE URGENCY MESSAGE

 -EXAMPLE-
PAN-PAN PAN-PAN PAN-PAN
ALL STATIONS ALL STATIONS ALL STATIONS
THIS IS TWO-ONE-ONE-TWO-THREE-NINE-SIX-EIGHT-ZERO
VLCC "TAJIMA" CALL SIGN DELTA ALPHA MIKE KILO
POSITION: LAT. IN DEGREES, LONG, IN DEGREES OFF
NAKANOSE I HAVE PROBLEMS WITH MY STEERING GEAR
AND MY RUDDER IS IN TROUBLE I REQUIRE - - - OVER

3 SAFETY MESSAGE

SECURITE (3X)
ALL STATIONS (3X) OR ALL SHIPS IN A SPECIFIC
GEOGRAPHICAL AREA OR TO A SPECIFIC STATION.
THIS IS - - -
SECURITE SECURITE SECURITE
ALL STATIONS ALL STATIONS ALL STATIONS
THIS IS TWO-ONE-ONE-TWO-THREE-NINE-SIX-EIGHT-ZERO
VLCC "TAJIMA" CALL SIGN DELTA ALPHA MIKE KILO
IN POSITION FIVE CABLES NORTH WEST OF NAKANOSE BUOY
HARLIE
MY VESSEL IS NOT UNDER COMMAND AND HAVE RUDDER
PROBLEM
PLEASE STEER CLEAR OF MY VESSEL.
OVER

4 CONVERSATIONS BETWEEN VTS AND SHIP / SHIP AND VTS

1 SCENARIO: TOKYO BAY AREA OFF NAKANOSE CHANNEL

- TOKYO MARTIS TOKYO MARTIS TOKYO MARTIS
  THIS IS VLCC "TAJIMA" "TAJIMA" "TAJIMA"
  CALL SIGN DELTA ALPHA MIKE KILO.
  INFORMATION / WARNING.
  I AM NOT UNDER COMMAND IN POSITION FIVE CABLES
  NORTHWEST OF NAKANOSE BUOY CHARLIE.
  I HAVE PROBLEMS WITH STEERING GEAR.
  PLEASE ADVICE OTHER VESSELS IN THE VIVINITY TO KEEP
  CLEAR OF MY POSITION AND NAVIGATE WITH CAUTION.
  OVER
- "TAJIMA" "TAJIMA" "TAJIMA"
  THIS IS TOKYO MARTIS TOKYO MARTIS TOKYO MARTIS.
  QUESTION / REQUEST.
  I CANNOT LOCATE YOU ON MY RADAR SCREEN.
  WHAT IS YOUR PRESENT POSITION AND YOUR PRESENT
  COURSE AND SPEED?
  WHAT KIND OF ASSISTANCE DO YOU REQUIRE? OVER

- TOKYO MARTIS
  THIS IS "TAJIMA".
  ANSWER.
  MY POSITION IS - - - - - - - - - - - - - (ADVICE YOUR POSITION)
  AND MY PRESENT COURSE AND SPEED IS - - - - - - - - (ADVICE
  COURSE AND SPEED)
  I DO NOT REQUIRE ANY ASSISTANCE AND WILL PROCEED
  WITH CAUTION.
  OVER
- "TAJIMA"
  THIS IS TOKYO MARTIS.
  INSTRUCTION.
  YOU ARE IN THE MIDDLE OF FAIRWAY AND NEAR THE
  SHALLOW WATER.
  PLEASE PROCEED AND NAVIGATE WITH CAUTION.
  WE WILL ADVICE OTHER VESSELS IN THE VICINITY TO KEEP
  CLEAR OF YOUR PRESENT POSITION. OVER

- "TAJIMA"
  THIS IS TOKYO MARTIS.

ADVICE
PLEASE KEEP IN CONTACT AND STANDBY ON VHF CH. 16.
OVER

- TOKYO MARTIS
  THIS IS VLCC "TAJIMA"
  ANSWER.
  STANDING BY ON VHF CH. 16. OVER

- SECURITE SECURITE SECURITE
  ALL STATIONS ALL STATIONS ALL STATIONS IN THE VICINITY
  OF NAKANOSE BUOY CHARLIE.
  THIS IS TOKYO MARTIS.
  WARNING.
  VLCC "TAJIMA" IN POSITION FIVE CABLES NORTHWEST OF
  NAKANSE BUOY CHARLIE IS HAVING STEERING GEAR
  TROUBLES AND IT IS NOT UNDER COMMAND.
  VESSEL IN THE VICINITY PLEASE KEEP CLEAR OF AND
  NVIGATE WITH CAUTION.
  THIS IS TOKYO MARTIS. OUT.

2 SCENARIO: OFF ONE FATHOM BANK IN MALACCA STRAIT

- PORT KELANG RADIO PORT KELANG RADIO PORT KELANG
  RADIO
  THIS IS VLCC "TAJIMA" "TAJIMA" "TAJIMA" CALL SIGN DELTA
  ALPHA MIKE KILO.
  INFORMATION / WARNING.
  IN POSITION EASTBOUND LANE OF ONE FATHOM BANK.
  I HAVE PROBLEM WITH STEERING GEAR AND NOT UNDER
  COMMAND.
  PLEASE ADVICE OTHER VESSELS IN THE VICINITY TO KEEP
  CLEAR AND NAVIGATE WITH CAUTION. OVER
- "TAJIMA" "TAJIMA" "TAJIMA"
  THIS IS PORT KELANG RADIO.
  QUESTION / WARNING.
  I CANNOT LOCATE YOU ON MY RADAR SCREEN.
  WHAT IS YOUR PRESENT POSITION AND YOUR PRESENT
  COURSE AND SPEED?
  YOU ARE RUNNING INTO DANGER.
  SHALLOW WATER VERY NEAR YOUR COURSE.
  PLEASE NAVIGATE WITH CAUTION.

QUESTION.
WHAT KIND OF ASSISTANCE DO YOU REQUIRE? OVER.

- PORT KELANG RADIO
  THIS IS VLCC "TAJIMA".
  ANSWER.
  MY PRESENT POSITION IS - - - (ADVICE YOUR POSITION)
  AND MY PRESENT COURSE AND SPEED IS - - - (ADVICE YOUR
  COURSE AND SPEED)
  I DO NOT REQUIRE ANY ASSISTANCE.
  I WILL PROCEED WITH CAUTION. OVER.
- "TAJIMA"
  THIS IS PORT KELANG RADIO.
  ADVICE.
  PLEASE KEEP AND STANDBY ON VHF CH. 16. OVER
- PORT KELANG RADIO
  THID IS VLCC "TAJIMA"
  ANSWER.
  STANDING BY ON VHF CH. 16. OVER

- SECURITE SECURITE SECURITE
  ALL STATIONS ALL STATIONS ALL STATIONS IN THE VICINITY
  OF ONE FATHOM BANK.
  THIS IS PORT KELANG RADIO.
  WARNING.
  VLCC "TAJIMA" IN POSITION - - - - -
  IS NOT UNDER COMMAND AND IS HAVING PROBLEM WITH
  STEERING GEAR.
  ALL VESSELS IN THE VICINITY OF ONE FATHOM BANK
  EASTBOUND LANE.
  PLEASE KEEP CLEAR OF AND NAVIGATE WITH CAUTION.
  THIS IS PORT KELANG RADIO. OUT.

3 SCENARIO: OFF SINGAPORE STRAIT

- SECURITE SECURITE SECURITE
  ALL STATIONS ALL STATIONS ALL STATIONS IN THE VICINITY
  OF SINGAPORE STRAIT.
  THIS IS VTS SINGAPORE.
  WARNING.
  A TANKER VESSEL IS HAVING ENGINE TROUBLE IN POSITION
  ONE DECIMAL TWO MILES NORTHWEST OF BUFFALO ROCK.

ALL VESSELS IN THE VICINITY PLEASE KEEP CLEAR OF AND
NAVIGATE WITH CAUTION. THIS IS VTS SINGAPORE. OUT.

- "TAJIMA" "TAJIMA" "TAJIMA"
  THIS IS VTS SINGAPORE VTS SINGAPORE VTS SINGAPORE.
  INFORMATION ADVICE.
  CONTAINER M/V "NYK ALTAIR" IS LEAVING TANJONG PAGAR
  TERMINAL WESTBOUND.
  YOUR PRESENT COURSE IS TOO CLOSE TO OUTBOUND VESSEL.
  IT IS DANDEROUS TO "LATER" COURSE TO STARBOARD.
  PLEASE KEEP CLEAR OF AND NAVIGATE WITH CAUTION. OVER.

- VTS SINGAPORE
  THIS IS "TAJIMA"
  YES, I WILL NOT "ALTER" COURSE TO STARBOARD AND WILL
  PROCEED WITH CAUTION. OVER.

- SECURITE SECURITE SECURITE
  ALL STATIONS ALL STATIONS ALL STATIONS ALL AREAS OF
  SINGAPORE STRAIT.
  THIS IS VTS SINGAPORE VTS SINGAPORE VTS SINGAPORE.
  FOG WARNING / REDUCED VISIBILITY
  VISIBILITY IS REDUCED TO LESS THAN ONE MILE DUE TO FOG
  IN ALL AREAS OF SINGAPORE STRAIT.
  ALL VESSELS IN THE VICINITY ARE REQUIRED TO NAVIGATE
  WITH CAUTION AND ALWAYS KEEP IN CONTACT ON VHF CH.
  16. FOR ASSISTANCE.
  THIS IS VTS SINGAPORE. OUT.

- SECURITE SECURITE SECURITE
  ALL STATIONS ALL STATIONS ALL STATIONS TRANSITING OFF
  BUFFALO ROCK WESTBOUND LANE.
  THIS IS VTS SINGAPORE VTS SINGAPORE VTS SINGAPORE.
  INFORMATION / WARNING.
  VLCC "SHELL TRADER" IS TRANSITING SINGAPORE STRAIT
  NORTHBOUND AND IS PROCEEDING TO SBM SINGLE BUOY.
  ALL VESSELS TRANSITING SINGAPORE STRAIT PARTICULARLY
  WESTBOUND ARE REQUESTED TO KEEP CLEAR OF VLCC
   "SHELL TRADER" AND PLEASE NAVIGATE WITH CAUTION.
  THIS IS VTS SINGAPORE. OUT.

CHAPTER 10. BEHAVIOR ON CRISIS / EMERGENCY SITUATIONS

10.1 Main Engine Failure

- Emergency Response of Officer on Watch
. Hoist or light "not under command" signal
. Notify engineer on watch (Engineer on UMS duty)
. Report to Master
. Send attention drawing signals to surrounding ships
. Transmit Safety or Urgency Communication by VHF Ch. 16 as
  occasion demands
. Switch to hand steering
. Try to get as far as possible from coast while ship still has
  inertia
. Record time of occurrence of main engine failure and ship's
  position (see checklist)

- Response to Master
. Keep sharp lookout
. Grasp direction in which ship is drifting and speed
. Pay out appropriate lengths of anchor chain
. Grasp situation of breakdown / Check prospect of recovery
. Make first report direct to Marine Administration Manager
  (Owner / Charterer)
. Make request for salvage

- Emergency Response of Engineer on Watch (Engineer on UMS
  Duty)
. Check direct cause
. Communicate with Bridge
. Report to Chief Engineer
. Switch remote control system to ECR or to machinery side
. Make reset preparations according to Chief Engineer's
  instructions
. Bypass safety and protection device

- Response of Chief Engineer
. Call engine department
. Grasp breakdown and damage
. Check to see if main engine is still operative
. Investigate cause of failure / Take stopgap measures

. Check to see if crew are able to make repairs
. Compute time necessary to make repairs
. Report to master

10.2   FAILURE OF MAIN POWER SOURCE (BLACKOUT)

- Emergency Response of Officer on Watch
. Switch to hand steering
. Check magnetic compass course and gyro repeater readings
. Notify Chief Engineer or Engineer on watch (Engineer on UMS duty)
. Report to Master
. Check power supply to steering gear, navigation instruments, emergency lights, etc.
. Send attention drawing signals to surrounding ships
. Transmit Safety or Urgency Communications by VHF Ch. 16 as occasion demands
. Hoist or light "not under command" signal
. Record time of occurrence of power source failure and ship's position (see checklist)

- Response of Master
. Keep sharp lookout
. Grasp direction in which ship is drifting and speed
. Pay out appropriate lengths of anchor chain
. Grasp situation of breakdown / Check prospect of recovery
. Make first report direct to Marine Administration Manager (Owner / Charterer)
. Make request for salvage

- Emergency Response of Engineer on Watch (Engineer on UMS Duty)
. Communication with Bridge
. Report to Chief Engineer
. Switch main engine control position to ECR / Reset handle in stop position
. Check to see if emergency generator starts automatically
. Check to see if ACB is closed automatically
. Check direct cause and try to restart generator
. Start syand-by generator / Check again to see if ACB is closed automatically
. Start stand-by generator automatically or manually and close

ACB
. Restart generator and re-close ACB
. Stop, show down or restart main engine depending on
  circumstance
. Start up main auxiliaries sequentially (pay attention to
  electrical loads)
. Start up other auxiliaries sequentially (pay attention to
  electrical loads)
. Try to recover main engine
. Investigate cause / Take necessary measures

- Response of Chief Engineer
. Call engineer department
. Grasp breakdown and damage
. Investifate cause of failure / Take stopgap measures /
  if possible make complete repairs
. Check to see if crew are able to make repairs
. Compute time necessary to make repairs
. Report to Master

10.3   STEERING AND GEAR FAILURE

- Emergency Response of Officer on Watch
. Switch to hand steering
. Switch to other steering systems
. Switch to other power units
. Switch to non-follow-up control
. Notify Chief Engineer or Engineer on watch (Engineer on UMS
  Duty)
. Report to Master
. S/B main engine
. Switch to emergency steering as occasion demands

. Stop ship as occasion demands by stopping or reversing main
  engine
. Send attention drawing signals to surrounding ships
. Transmit Safety or Urgency Communications by VHF Ch. 16 as
  occasion demands
. Hoist of light "not under command" signal
. Record time of occurrence of steering gear failure and ship's
  position (see checklist)

- Emergency Response of Engineer on Watch (Engineer on UMS Duty)
. Communicate with Bridge
. Report to chief Engineers
. Perform work necessary for stopping main engine or going astern

- Command
. Keep proper lookout
. Grasp direction in which ship is drifting and speed
. Pay out appropriate lengths to anchor chains
. Announce emergency steering room
. Check gyro repeater readings
. Get ready for emergency steering
. Start emergency steering
. Make first report direct to Marine Administration Manager (Owner / Charterer)

- Mobile Team - 1
. Prepare for emergency steering / Excercise damage control
. Communication with Bridge
. Check gyro repeater readings
. Get ready for emergency steering
. Start emergency steering

- Mobile Team - 2
. Investigate direct and other causes, existed circumstance, etc.

- Back-up Team
. Support Mobile Teams

- BRIEFING POINT-

CURRENT FEELING
PORT OF DESTINATION
COURSE PLAN
EXTERNAL INFLUENCE (force / direction of wind, current)
STEERING POINT
SIGNAL-OBJECTS
ABORT POSITION
NO GO AREA

SHALLOW WATERS
NAVIGATION AID
POSITION CHECK, FREQUENCY OF THE CHECK
CLEARING LINE
PARALLEL INDEX
NAUTICAL INSTRUMENT (RADAR, APRA, ECDIS, ETC)
ENGINE, SPEED
VHF
ROLE ASSIGNMENT
WATCH (surrounding vessel's movements)
MANNING
POOR RANGE OF VISIBILITY
BEHAVIOUR ON CRISIS SITUATION
ANCHOR USAGE
CHART
DOCUMENT
OTHER

KEYWORD

- CHALLENGE & RESPONSE
- EFFECTIVE COMMUNICATION

- **ACCURACY**
- **BREVITY**
- **CLARITY**

10.4   ECDIS Failure

ECDIS Failure, Malfunction and Contingency Actions (Also refer to NYK Standard for Navigation Using ECDIS Chapter 10)

10.4.1   Abnormality or Malfunction of ECDIS

The Officer on watch, when an abnormality occurs in the ECDIS, shall immediately take the following measures:-

a)   If steering with auto track control, switch to manual steering.
b)   Switch to back up (i.e. other ECDIS or paper charts).
c)   Report to Master
d)   Ascertain navigation condition of own vessel.
e)   Confirm operation and integrity of second ECDIS. If on RCDS mode, continue navigation using paper charts.
f)   Ascertain navigation condition of own vessel (traffic, position, proximity of navigational hazard etc.).

10.4.2   One ECDIS Failure

When an ECDIS fails, shall immediately take the following measures:-
a)   OOW shall take measures as per above section 1.5.1 for abnormality or Malfunction of ECDIS.
b)   OOW shall notify the Chief Engineer or the Engineer on watch (Engineer on UMS duty).
c)   Master shall notify the Company.
d)   A joint Risk Assessment as per procedures of 'Risk Management' shall be carried out for navigating with one ECDIS.
e)   ECDIS repair shall be arranged at the earliest.

10.4.3   Both ECDIS Failure

The Officer on watch, when both ECDIS fails, shall immediately take the following measures:-
a)   If steering with auto track control, switch to manual steering.
b)   Switch on all steering systems.
c)   Notify the Chief Engineer or the Engineer on watch (Engineer on UMS duty).
d)   Notify the Master.
e)   Have main engine on S/B.
f)   Ascertain navigation condition of own vessel (traffic, position, proximity of navigational hazard etc.). Confirm position using radars and keep echo sounder switched on.
g)   If updated paper charts available navigate using paper charts and Ships equipped with iMASTER (or similar devices) shall utilize it with extreme caution.
h)   Stop movement of ship, as occasion demand, by stopping or reversing main engine.
i)   Record the time of the occurrence of the failure and the ship's position

Risk assessment shall be prepared keeping in mind the effect of both ECDIS failure applicable to the vessel.

The Risk Assessment shall be kept on the bridge in contingency plan file and be readily available in case of ECDIS failure when vessel is transiting in 'Confined and Heavy traffic waters'.

The master shall appraise the situation to the Company and request any assistance required such as copy of paper nautical charts etc.

10.4.4   Emergency Response by Engineer on Watch

a)   Report to the Chief Engineer.
b)   Communicate with the navigation bridge.
c)   Follow instructions from chief engineer.

10.4.5   Emergency Response by Chief Engineer and Off-duty Engineers

The Chief Engineer, when he receives the report of failure from the Engineer on watch, or when he becomes aware of the ECDIS failure, shall hasten to the engine control room and liaise with the bridge for any requirement of engines and should follow the orders from the master.

Chapter 11. Various Case studies

Case 1: TANKER - Inadequate Log Book Entry

During the recent SIRE inspection, one of our tanker fleet vessels was pointed out with following HIGH RISK observations:

Vessel maintained Watch level 1, when the visibility was restricted and recorded as 2.2 miles.

The above was recorded as high risk observation and viewed negatively by all concerned.

Upon investigation the following noted:

1. Vessel was encountering heavy weather and watch level-2 was maintained during the restricted visibility. In between the visibility improved to more than 3 miles and watch level was changed from level-2 to level-1. The duty officer did follow the company checklist as relevant in the circumstance, entry in the log book was also made for the compliance of checklist and the watch level maintained. However in the weather column of the deck log book the visibility was recorded as 5 which corresponds to visibility range of 2.2 miles or less. The wrong entry in the log book went unnoticed before it was pointed out by the SIRE inspector.

Credibility of the record was suspected and it was concluded that watch level 1 was maintained even though the actual visibility was poor; however the facts were exactly as mentioned above.

We all are aware of the importance of various records maintained onboard. All the shipboard records are legally binding and have serious consequences if proven to be wrong. Attempts of ascertaining innocence are suspected in most of the cases and can have serious repercussions on the commercial aspect of vessel's acceptability// suitability.

Corrective Action-
In few cases when, vessel encounters restricted visibility for consecutive days, and the continuous presence of Master is difficult on bridge for maintaining watch level-2. In these situations Master must follow the company SMS procedure and may leave the bridge for short time after a careful risk assessment, taking in account of all the associated circumstances including the performance of navigational equipment

Case 2: Weak points in BTM / BRM observed during Internal Audit by NYKSM & LNGSM:

1. Junior Officers do not report ship's position/speed/passing the buoy. Master does not order them to do so.
2. Most of the officers do not use PI by Radar.
3. Master does not confirm the current condition (direction and velocity).
4. Officers fix ship's position using only one method: by distance & bearing from one radar-target.
5. In many cases, Master & Officers are not able to find the mis-order by pilot and thus not correcting it.
6. Master reports to pilot only the present course & eng. motion when pilot comes on board; no explanation is given with the pilot card.
7. Master & Officers do not confirm the rudder angle indicator, when pilot orders it.
8. Pilot explains the navigation plan to Master when he comes on board. However, Master does not inform it to his Bridge Team.
9. Additional AB is stationed on the Bridge as look out. However, in his look out job the reporting is not included. In this case, Master does not order him anything. (Around 50%)
10. Most of the Officers do not confirm (& report) the ship's quarter before ship changing the course.
11. Most of the Officers do not report the overtaking small ships & crossing ships coming from behind the island in narrow passages.
12. Most of the Masters do not order the S/B anchor for approaching & securing the anchor just before berthing. Some of LNGC berthed with anchor in lashed condition.
13. Less than half of necessary symbols under SMS are inserted on the chart.
14. In many cases, charts & maritime publications corrections are not done at this moment.
15. Time on Engine logger is not adjusted.
16. Master does not understand the basic berthing procedure (including speed management).
17. Lack of Communication with Bridge Team & Fore & Aft station.
18. Master is failing in opening the mind to BTM.

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		17/02/22	01/22		

Case 3: "CONTAINER" incident

Findings:

1. There was inadequate sea room. Navigable width of the channel is 1 cable that is about 180 meters.

2. "IMARI" sighted Tug "Lucinda smith" and Dredger "G L Dredge 55" Dredging in the Navigable channel. (AIS and SVDR data) in North Shooters Island reach while she was in Bergen point west reach. However, During Master / Pilot information exchange there was no information given to the master regarding on going dredging operation in the channel near Shooter Island.

3. The pilots on board Imari did not communicate with Tug "Lucinda Smith" and Dredger "G L Dredge 55" which was dredging in the middle of the channel restricting the safe passage.

4. Tide was flooding in and was following the vessel restricting steering and maneuvering capabilities of the vessel.

5. As vessel turned to starboard to clear barge in the channel, Wind caught up her on her port side pushing the vessel closer to north of the channel

6. When vessel turned to starboard to clear Tug "Lucinda smith" and Dredger "G L Dredge 55" in the channel, Vessel was at the entrance of South Reach Channel and tide was NE'ly at about one knot. This contributed vessel to drift more towards north of the channel and caused difficulties to maneuver and steer clear of the scow and dredger.

7. The vessel is on Liner service. She is trading and calling same ports. The master is second time on the same vessel. This created complacency among bridge team members.

8. Both pilots were engaged in private conversation during the maneuver.

Immediate / Direct Cause:

Error / Misjudgment in Navigation due to Dredging operation in the channel resulted in to inadequate sea room for the vessel to maneuver.

Basic / Underlying Causes Of The Incident:

1.   _Inadequate Master / Pilot exchange. Traffic in the river was not discussed._

2.   _Undue reliance on the Pilot._

3.   _There was lack of clear and forceful action by the Master of "IMARI"._

4.   _Prevailing weather conditions and tidal current: Master Did not take in to account wind and current status._

5.   _Own vessel intended to pass on starboard side of the Channel in order to avoid Tug "Lucinda smith" and Dredger "G L Dredge 55". Vessel was unable to correct the sheer to starboard caused due to the Flooding tide and wind & the sharp Turn and ended up on the starboard side / north of the channel._

6.   _If there was no Scow and Barge, vessel would have run aground._

Control Action Needs / Countermeasures:

1.   _Vessels calling Howland Hook Terminal shall be briefed regarding the incident with emphasis on precautions to be taken when navigating in the straits and various "Reaches" (Channels)._

2.   _This incident shall be used as a case study._

3.   _Emphasis shall be made on Efficient Bridge Team Management & Master / Pilot relationship including information exchange._

4.   _Masters shall be briefed regarding the incident before joining vessel, by HSEQ. Masters shall be advised to be more decisive under such circumstances._

Case 4: "PCC" incident

Findings:

1. *Vessel was proceeding at 18.50 knots when visibility was less than half a mile and there was thick concentration of fishing vessels. (Master mentioned that the fog was intermittent, lifting at times & getting thick again) (Rule 6 safe speed).*
2. *Vessel did not reduce speed or stop as deemed necessary even if the vessel could not alter her course to her starboard side. (Rule 19 Conduct of vessels in restricted visibility).*
3. *Target Data information was used from AIS (displayed on RADAR) and no plotting by ARPA was done. Although, there were two targets on the PPI, close to each other, the AIS data was available for only one target and that particular target was being monitored. (Two trawlers trawling in pair). Sole reliance has been placed on AIS data for collision avoidance. ARPA plotting was not carried out. (AIS gives Speed over ground and vessels need to use speed over the water for collision avoidance (log)) (Rule 5 Look out).*
4. *Entire bridge team was not aware about this particular target without display of AIS data as their understanding was one target only and did not realize two vessels trawling in pair.*
5. *Master left wheel house to answer a Telephone call at a critical time. At this time, Master did not give clear indication regarding who had the conn of the vessel, although he suggested the course alterations leading to communication error.*
6. *When course was altered at 0256 hours UTC from 030 to 010, Third officer wanted to go to 000 deg. However, when master suggested 010 deg, 3/O complied without challenging master's decision.*
7. *0300UTC: 2/off saw AIS target with CPA 0.2 miles, He ordered course to be 007 while 3/Off was engaged in plotting noon position. Course alteration was not large enough to be readily apparent by 2/ officer. (Rule 8 Action to avoid collision).*
8. *The 3/off's decision to maintain course and speed with target vessel CPA of 0.2 miles was inappropriate. (Rule 7- Risk of collision).*
9. *The action taken to avoid collision was not made in ample time, was not large enough to be readily apparent to another vessel. (Rule 8 Action to avoid collision).*
10. *During Interview with deck cadets and junior officers, it was learnt that they were not very well versed with Collision regulations.*

Cause(s):

Following Bridge Team Management procedures were inadequately followed:

1. Improper Con of the vessel it was not clear who actually had the con of the vessel.

Master did not clearly convey this to the Third officer, resulting in ambiguity and inadequate action. There was a lack of assertiveness on part of the 3rd Officer. He did not seek clarification from the Master or take further action to avoid collision.

2. Distraction Master left the Bridge at a critical time to answer a call. (He should have ignored the call or should have delegated somebody else to answer the phone)

3. Handing over / Taking over - of the watch was not correctly followed As the vessel was involved in a maneuver to keep clear of the fishing vessel, the change of watch should have been deferred until the Fishing vessel was clear.

4. Improper Passage Planning. Areas with dense fishing traffic could have been avoided by planning the passage well clear of the fishing vessels.

Non-compliance of Collision regulations (COLREGS):

1. Unsafe speed - Vessel was not proceeding at a Safe speed (Rule 6 / Rule 19) while navigating in Thick Fog.
2. Inadequate Lookout - A proper Lookout (as per Rule 5) was not being maintained by the Bridge Team
i) The Fishing vessel which was involved in the collision was found not acquired by vessel's ARPA.
ii) There was no AIS Data available for this vessel.
iii) It appears that this Target was totally missed by the Bridge Team members due to inadequate monitoring / improper use of the radar equipments.

3. Risk of Collision was not determined (as per Rule 7) - There was no Radar plotting or systematic observation of the Fishing vessels. Radar Range scale in use was found to be inadequate / incorrect. (6 nm to 12 nm). Alteration of course was made on the basis of scanty Radar information.

The above causes indicate an extremely lax attitude on board the vessel towards safe navigation with the master perhaps being the most prone to negligence.

Counter-measures:

1. *The Master and Officers involved in Jingu collision incident to be re-trained in an area of BRM/BTM, collision avoidance, proper use of RADARs etc.*
2. *The master's behavior and attitude towards safety to be assessed by means of an interview with HSEQ staff. Future employment to be based on the result of such interview.*
3. *This incident shall be sent to all fleet vessels emphasizing Navigational Safety Measures to be adopted.*
4. *During SMS shore training seminars, the incident shall be presented to groups of Masters and deck officer, who shall analyze the case and identify the causes.*
5. *BTM / BRM training content for all deck officers, to be reviewed and carry out necessary changes.*
6. *Selected Target vessels (vessels navigating in dense fishing areas and /or navigating in dense fog) SVDR data to be retrieved and study effectiveness of BTM / Passage plan / collision avoidance in the office.*
7. *Animated video CD of this incident to be created and to be distributed to all manning offices for viewing by all deck officers prior joining. For existing staff on board and for future training on board, All vessels to be provided with this Animated video CD.*
8. *Senior officers to be briefed during briefing prior joining the vessel and this incident to be discussed.*
9. *Navigational audits to be strengthened in area an area of BTM / Passage plan / collision avoidance*
10. *Behavior based safety aspect to be ascertained at the time of interview by local manning offices.*

Case 5: "LNG" incident

5. Master did not advise the office of the incident. During the interview Master advised that he was not aware that vessel had touched bottom.
6. ECDIS position offset was not rectified before transit of the Suez canal
7. Master has been instructed to advise the office immediately in case of any abnormal situation beyond the expectation of the Master. If he is in any doubt he should seek guidance from the office.

Recommendations

The Master at the time of incident attended the NYK Singapore Training Centre for Ship Handling course in May 2009 – it is recommended that he attends a refresher course prioritising in handling of vessels in confined waters. This to be undertaken by him, prior to his next appointment.

It can be seen in the Company SMS Bridge Daily Checklist, that checking the operation of the speed log is not mentioned – it is suggested that proper operation of the speed log be added as an item to check within the relevant SMS checklist.

It can be seen that Al Utouriya, at the time of the incident, had a depth range of 100m selected for the echo sounder. Company to advise the Fleet that as part of the Passage Plan, that appropriate echo Sounder Ranges be selected, and also that depth alarm be programmed into the echo sounder unit.

When interviewed, the Master stated that he does not conduct Bridge Resource Management meetings with the Bridge Team, prior to transiting the Suez Canal – it is recommended that the Fleet be informed that this will be a Company requirement in the future.

It is recommended that the Company issues guidelines to the Fleet regarding the detection of, and countermeasures required to compensate for the effects of Bank Effect. Management to advise the fleet to check that all the parameters fed into the navigational instruments are correct and are as per the guidelines by the manufacturer although this was not a direct cause because bridge team members were aware about this.

Case 6: Dry–Bulk Carrier Safety Report – Collision while Anchoring Operations

While the cause of the above two accidents differs, please review the below fundamentals for harbor maneuvering:

1. *Make sure that the forward station is manned and have two anchors at stand-by as instructed in the* NYK Practical Requirements*.*
2. *Continually monitor by radar the positions and movements of anchoring ships.*
3. *Gather and appraise information about conditions of ports and/or anchorages well in advance, and also pay close attention to any unique sea and weather conditions.*
4. *When the anchoring process becomes difficult, the safety of the vessel like the change in the method of anchoring and shelter outside the anchorage to the safety sea area is decided to be top priority.*
5. *Think about the meaning of BTM (Bridge Team Management) again.*

Case 7: "VLCC" incident

Findings:

1. "HOTOKU MARU No 27" was not engaged in fishing at the time of the incident and was exhibiting the lights for a Power-driven vessel underway, as per Rule 23 (Masthead light and side lights).
2. "HOTOKU MARU No 27" was involved in a crossing situation with "NIPPON". As per COLREG Rule 15, "HOTOKU MARU No 27" was the give-way vessel and was required to keep out of the way of "NIPPON".
3. "NIPPON" was the Stand-on vessel and was initially required to maintain her course and speed, as per COLREG Rule 17. Own vessel "NIPPON" attempted to draw the attention of "HOTOKU MARU No 27" by flashing the Daylight signaling Lamp & by use of the ship's whistle as per COLREG Rule 34. However no action was taken by "HOTOKU MARU No 27".
4. Run-Up on the Main Engine was ordered by the Master, on 04 April / 0001 JST while the vessel was still in confined waters.

Causes and Contributory factors:

1. No action was taken by "HOTOKU MARU No. 27" (give-way vessel), as required by COLREG Rule16.

2. Timely action was not taken by vessel "NIPPON" (stand-on vessel) to avoid collision, as required by COLREG Rule 17. Reduction of own vessel's speed was not considered. Alteration of course to starboard was not considered at an earlier stage. (at 0105 LT, after passing Kami Se).

3. Action taken by "NIPPON" to avoid collision as required by COLREG Rule 8, was inadequate. When the decision had taken by Master to alter course to starboard to avoid collision with H.M 27, the initial helm order was given as Starboard 10 only.

4. Ineffective Bridge Team Management (BTM) / Bridge Resource Management (BRM) at time of incident; insufficient personnel were available on the Bridge. Master reduced the watch level on the Bridge, by relieving the 2nd Officer for completing routine paper work related to cargo document, when vessel was still in confined waters and not clear of navigational hazards.

5. Inadequate delegation of responsibilities: Master was involved in various activities all by himself, e.g. using the Daylight Signaling Lamp, ship's whistle, VHF etc., plotting vessel's position. Some of the duties should have been delegated to the

second officer. The 2nd Officer did not challenge Master's decision regarding reduction of watch level.

6. Non compliance with Watch Level as required by SMS. As per S-071000-04FIG of SMS, minimum watch level two is required to be maintained during departure port and in confined waters. Configuration of WL 2 includes Master, OOW, one Able Seaman and a Look-Out, however, no look out person was employed by Master.

Immediate Actions taken:

1. Telephonic briefing of new Master, Second Officer & Chief Officer was undertaken to ensure compliance with Navigational & SMS procedures.
2. New Master conducted BTM meeting for emphasizing the navigational procedure of NYKSM and use of engine for collision avoidance.

Long Term Countermeasures:

1. To include the incident as a case study during BTM training to emphasize following

>> To emphasize the importance of adequate watch level.
>> Feeding information to Master by officers.
>> The risk involved if Master perform various tasks in bridge all by himself.
>> Importance of delegating duties etc.
>> Reduction of speed as effective collision avoidance action.
>> Compliance with NYKSM navigational procedure in confined water especially from readiness of engine for immediate maneuver.
>> Advise from OOW to Master on corrective action.
>> Responsibility of stand-on vessel and subsequent collision avoidance action

2. In bridge familiarization of Navigating officers related to telegraph, instead of Master (or out going navigating officer) Chief Engineer shall impart familiarization on use of M/E with specific instructions that Main Engine is at their disposal and can be used any time. This is to develop confidence among Bridge Team members.

3. To judge Behavior Based Safety aspect of Navigating officers, a few scenarios shall be included during the employment screening and their response shall be reviewed:
>> Vessel is pressed to meet ETA,
>> Vessel is running late to pick up a pilot,
>> Master has increased M/E rpm to sea speed and he needs to reduce speed after some time due to traffic situation.
>> OOW challenged Master for some his action.

Case 8: "PCC" grounding incident
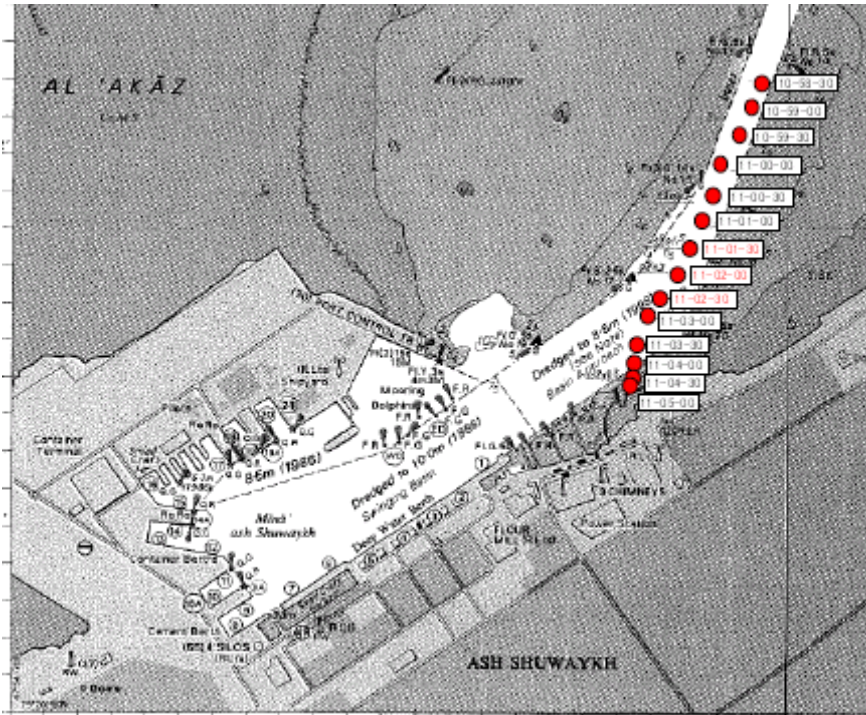
1.Pilot ordered "Hard to Starboard" (time 08-01-50)
2. Helmsman confirmed verbally the order "Hard to Starboard"
3. Helmsman applied rudder "Hard to Port" (time 08-01-55)
4. Nobody in Bridge Team confirmed rudder angle indicator
4. Pilot ordered Full Ahead engine
5. Pilot ordered Stop engine (time 08-03-10) followed by "Let Go Anchor" and "Full Astern" engine
It took relatively long time for the team to realize the error !!

Counter-measures:

- Master to instruct the Bridge Team to be alert and to double-check every Pilot order's execution, and to confirm the Rudder Indicator, ROT Indicator RPM, Indicator, Telegraph position Indicator, etc.

The checking to be done by "finger-pointing" as the most effective way of order confirmation.

CONFIRMING ACTUAL RUDDER ANGLE WITH FINGER

Case 9: "Container" collision and pollution incident

Arnd 0409LT on 30 January 2014, barge AZ Fuzhou being towed (alongside) by Tug AZ Carnation made contact with NYK Themis.

- NYK Themis had just departed Singapore, with pilot onboard at the time of the incident, in loaded condition, proceeding at a speed of about 7.5 knots.

- NYK Themis suffered hull damage in way of No 5 HFO Tank (s) and No 4 WBT (Heeling) (S). Approx 403 MT of HFO spilled overboard from NYK Themis

Findings (as per Root Cause Analysis Table):

- 4.10 - Inadequate monitoring

  - Incorrect information regarding the movement of the tug and tow by the Pilot.
  - Inappropriate look-out by officer in charge of forward station.

- 3.15 Complacency

  - Undue / over reliance on the pilot
  - Bridge Team not maintaining an effective look-out

- 3.3 Risk not properly identified

- 3.12 Distraction

   - Pilot and the Master were distracted by the traffic inbound and ahead in the TSS, rather than concentrating on present situation.

- 3.8 Lack of Situational Awareness

Counter-measures:

   - Master shall not hesitate to override the Pilot's actions, if in doubt regarding the Pilot's actions or in case deemed necessary.

- Confirm the intentions of applicable vessels by all means: Radar / ARPA, AIS, VHF, ECDIS, Pilot boat and Port authority, etc.

Case 10: "PCC" berthing incident in Alexandria Port

At 0804LT on 04th March 2014, M.V. Lyra Leader made contact with the lowered boom of a shore gantry crane at Berth No. 49, Alexandria Port, Egypt, whilst approaching her berth No. 40 during an astern maneuver, with the assistance of 2 tugs and with pilot onboard.

- The impact caused damage to own vessel (ventilators and railings), and to the shore gantry crane - which moved about 3 meters and got dislodged from its track-way. The boom and the body of the crane suffered damage.

Findings as per Root Cause Analysis Table:

1.   Incorrect ship handling and inadequate maneuvering plan for berthing by the Master and the Pilot.

2.   Failure of onboard BTM / BRM

3.   Lack of communication between the Master and the Pilot

4.   Lack of passage monitoring / situational awareness by the Bridge Team and the Pilot.

Counter-measures:

- To discuss and simulate the planned maneuver during the BRM/BTM meeting, including speed of vessel.

- Master should instruct the Officers which items to report during stations, based on the maneuvering situation.

Emphasize the importance of BRM-BTM meeting:

- check the Berthing Plan and speed management.

- confirm the correct reporting procedures: reference points, standard terminology, metric units.

- when reporting distance, it must refer to the shortest distance.

- highlight critical points of Berthing Plan: turning basin, expected changes in current direction, confined waters, etc.

Case 11: "VLCC" collision with fishing boat

VLCC "Takamine" had a grazing contact incident with fishing vessel "KORYO MARU" on the 6th Nov'15 at 0051hrs, while approaching Seki Saki Pilot station for calling at the port of Ube.

- At the time of contact, boat "KORYO MARU" was not engaged in fishing and was heading back to shore.
- No human injury and no pollution occurred either on own or opponent vessel.

Position of contact incident

Contact with the fishing vessel in position 32-52.268N 132-13.014E. Vessel heading 000° and speed 10.5kt

Vessel used Aldis lamp and whistle to attract the attention of the fishing vessel

0.5 NM

Fishing Boat with single crew member

10min before contact, the boat personal put the engine ahead (about 7 Kts), steering put on auto-pilot and then he went to the aft section of the boat for some work.

0045 hrs Master identified the converging situation with fishing boat

0044 hrs 2/O identified the fishing vessel with steady bearing.

At 0044LT, 2/Off observed steady bearing of a fishing boat, 5 points in the stb/side. This boat had been in stopped condition and suddenly started moving. 2/Off immediately informed the Master, who monitored the movement of the fishing boat which at 0.5nm dist.

Master judged that contact with the boat cannot be avoided by maneuvering of own vessel alone, so he concentrate on warning the boat, using Aldis lamp and Whistle, as he concluded that action by boat could be the best alternative in this situation.

He evaluated the situation and found that he could not alter course to starboard due to close proximity of the fishing boat.

Also speed reduction was not considered as the fishing boat was too close and there was not enough time for effective alteration of speed for passing clear of the boat.

Counter-measures:

Duty Officer not only to report to Master, but also to suggest actions or to challenge Master's decision, basis on BRM BTM techniques.

Case 12: "PCC" collision with Tanker vessel, Singapore strait
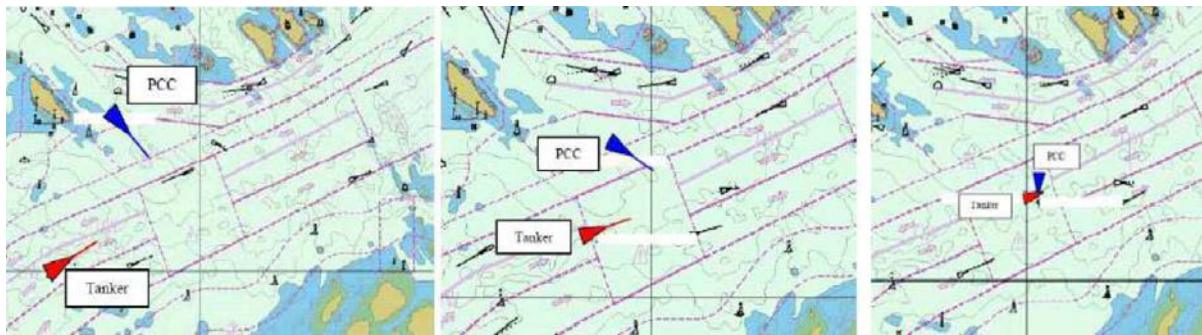
A PCC vessel and an Aframax tanker collided off Batu Berhanti inside the TSS precautionary area. The PCC had been proceeding towards the East bound lane of the TSS from Jurong Fairway. The tanker had been proceeding in the East bound deep water lane in the TSS. The PCC suffered hull damage in the bow area.

VHF Communication:

- VTIS Central = VTIS
- U.F. = United Fortitude
- O.L. = Oceanus Leader

00:29 – VTIS called 3 times the U.F., no reply
VTIS → U.F.: "United Fortitude, information, look out, outbound lah container ship, the Oceanus Leader, in your p/side, crossing the traffic lane, she's setting east, over"
00:31 – VTIS called twice the O.L., vessel replied
O.L. → VTIS: "Yes VTIS central, this is Oceanus Leader, go ahead"
VTIS → O.L.: "Look out for a tanker in your stb/side, the United Fortitude, she's east bound lah, tried to call her, no response from her, over"
O.L. → VTIS: "Yes sir, she will be passing ahead of me?"
VTIS → O.L.: "Then I say again, proceed with caution, look out for the tanker in your stb/side, United Fortitude, earlier I tried to call her lah, no response from her, over"
O.L. → VTIS: "Ok, I'll go more to port now, alter course to port, I will keep clear, keep clear of her, thank you"
VTIS → O.L.: "So are you gonna pass astern of her?"
O.L. → VTIS: "Ok, I will pass astern of her"
VTIS → O.L.: "Roger then, take early action, early action, to keep clear from her…"
O.L. → VTIS: "Ok Ok"

00:33 – VTIS called the U.F., vessel replied;
U.F. → VTIS: "VTIS central, United Fortitude, go ahead please"
VTIS → U.F.: "Exercise necessary caution, look out for the car carrier in your p/side, the Oceanus Leader, crossing the traffic lane, she's east bound, over".
U.F. → VTIS: "She will be crossing our bow, is that correct?"

00:34 – Oceanus Leader and United Fortitude started communicating:
O.L. → U.F.: "United Fortitude, I stop now, I go to starboard, please pass ahead of me; United Fortitude, this is Oceanus Leader, I stop the engine, I go to starboard now, please pass ahead of me"
U.F. → O.L.: "You are still moving, you are still moving, Ok, I'll pass ahead of you, but…"
O.L. → U.F.: "Yes, I'm altering to starboard now, please go to starboard, pass ahead of me United Fortitude, over; United Fortitude, this is Oceanus Leader, please pass ahead of me, I'm altering to starboard now".
U.F. → O.L.: "I pass ahead of you, correct? Oceanus Leader, I pass ahead of you, correct?"
O.L. → U.F.: "Yes, pass ahead of me, I'm altering to starboard now".
U.F. → O.L.: "Ok, I turn to port".
O.L. → U.F.: "No, no, I'm altering to starboard now, please pass ahead of me; please pass ahead of me, I'm turning to starboard now; please hard to starboard, hard to starboard United Fortitude!"
U.F. → O.L.: "Yes, hard to starboard"
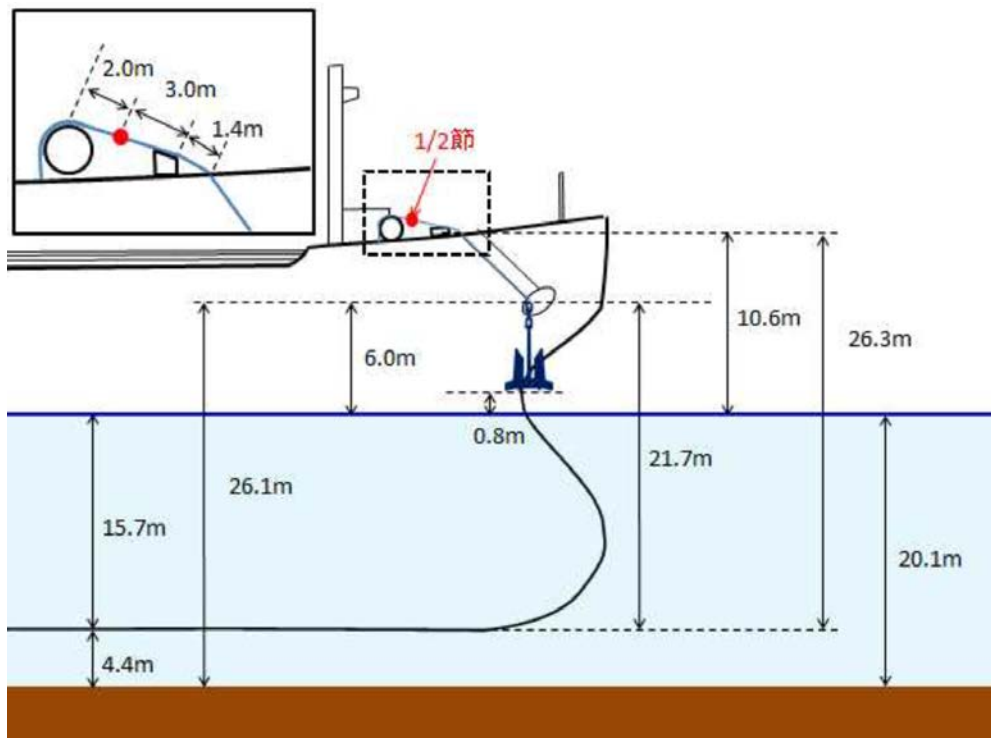O.L. → U.F.: "Come to starboard".

Counter-measures:

- clear and effective communication to be maintained on the Bridge, at all times;
- duty Officer to challenge Master's decision, as per BRM BTM techniques.
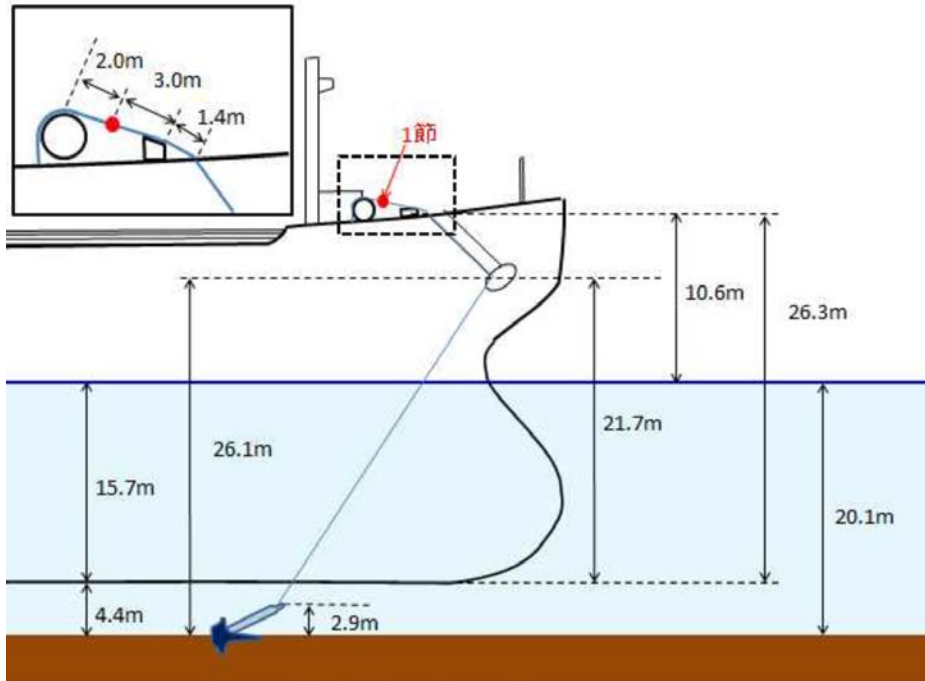
Case 13: "Bulk-carrier" anchorage incident, Fukuyama, Japan

On 20 Mar 2016, while "Shin Heiryu" was enroute to Fukuyama anchorage, she lowered port anchor into the water, and the anchor caused damage to the Subsea Pipeline.

- Master advised Chief Officer that he intended to use the Port anchor and ½ (half) shackle on windlass.
- Soon, Master instructed C/O to lower the Port anchor to one shackle on the windlass via the walkie-talkie.
- C/O enquired with Master if the order was to lower Port anchor to one shackle on the windlass. This order was confirmed by the forward station team members;
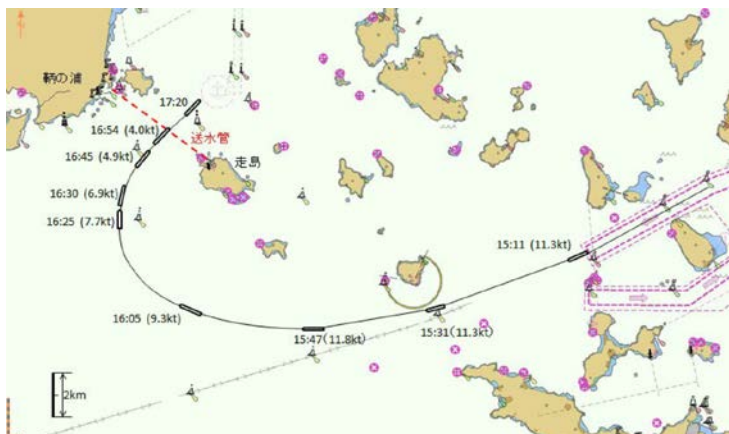- Started to walk back port anchor.

Stopped at one shackle on windlass. The clutch remained engaged and the brake was tightened;

- C/O reported that anchor chain was leading to 6 O'clock; a sound was heard by the staff at the forward stations. Chief Officer reported to the Master that he suspected that the anchor had touched the bottom. Vessel's speed was about 3.5 kts.
- Anchor appears to have fouled the submerged pipeline.
- Master did not expect the anchor to touch the bottom based on half shackle on the windlass;
- The communication between Chief Officer & Master took place in local language of the Bridge Team, and the Pilot did not understand what was happening.

13 April 2016: NYK Line receive information from Coast Guard about the damage to subsea pipeline.

Findings:

1. No BRM-BTM meeting carried out before arrival anchorage.
2. No discussion between Master and Ch/Off prior to stand-by Forward Station.
3. The term "Half Shackle" was ambiguous, same not clarified by the Team.
4. Chief Officer did not question Master's change of plan.
5. Miscommunication and misunderstanding.
6. Forward Station should not lower anchor without order/confirmation from Bridge.
7. Poor team work and improper Master-Pilot relationship.
8. Vessel did not report any anomaly encountered during anchorage.
9. Expected high financial loss, due to pipeline damage and water disruption.
10. Expected reputation loss due to environmental issues and Fishermen complaints.

Counter-measures:

- Clear and effective communication to be maintained on the Bridge at all times;
- BRM BTM principles to be applied in order to reduce human error potential.
- All vessels to apply "Yellow Mark" on the anchor chain, so Team will know when anchor is at the keel level.