

THE IMPACT OF SAFETY CULTURE ON IMPLEMENTING AN EFFECTIVE I.S.M

RAFIK KAMEL & MOHAMED HUSSEIN NASSAR

Lecturer Maritime Transportation College -Arab Academy for Science, Technology & Maritime Transport, Egypt

ABSTRACT

The purpose of ISM Code is to provide an international standard for the safe management and operation of ships and for pollution prevention.

The international safety management (ISM) code in order to establish the culture of safety within the shipping industry and also to help make ships safer and seas cleaner.

A Safety Culture

May be described as the values and practices that management and personnel share to ensure that risks are always minimized and mitigated to the greatest degree possible.

An effective safety culture will support a shipboard environment that encourages and requires all on board to proactively considering their own and others' safety. In this way individual seafarers assume responsibility for safety rather than relying on others to provide it. Increasing confidence in the value of the *Safety culture* results in a more effective Safety Management System.

Safety Culture

Leads for setting targets for continuous improvement, with a goal of zero accidents and ISM Code non-conformities

The company can use safety culture as a means of maximizing the financial benefit and cost savings that may be derived from implementing effective Safety Management Systems also the crew will be less likely to be the victims of accidents.

KEYWORDS: The Impact of Safety Culture, Implementing, Effective I.S.M, Purpose of ISM Code is to Provide an International Standard

INTRODUCTION

The purpose of ISM Code is to provide an international standard for the safe management and operation of ships and for pollution prevention.

The Code is expressed in broad terms so that it can have a widespread application. Clearly, different levels of management, whether shore-based or at sea, will require varying levels of knowledge and awareness of the items outlined. The cornerstone of good safety management is commitment from the top. In matters of safety and pollution prevention it is the commitment, competence, attitudes and motivation of individuals at all levels that determines the end result.

Over the past ten years there has been a growing recognition that human error, rather than equipment problems, is responsible for approximately 80% of pollution and marine accidents. As a result of that, the international maritime organization (IMO) adopted the international safety management (ISM) code in order to establish the culture of safety within the shipping industry and also to help make ships safer and seas cleaner. The aims of the research are: study the improvement of the maritime safety culture in the maritime industry, establish safety and pollution prevention objectives and that develop. Implement and maintain a SMS and This research has been written with the analysis descriptive and uses many sources which are listed in the list of references.

THE SAFETY CULTURE

It is important for everyone in the company, ashore and afloat, to have an understanding and appreciation of the concept of safety culture. For a safety culture, to be truly effective, the company must encourage and motivate its personnel to make safety and environmental awareness their highest priorities. While the ISM Code states that one of its key objectives is to establish a 'safety culture' in shipping companies, it does not actually define the meaning of the term. However, a safety culture may be described as the values and practices that management and personnel share to ensure that risks are always minimized and mitigated to the greatest degree possible. In other words, with an effective safety culture, safety and pollution prevention are always the highest priority.

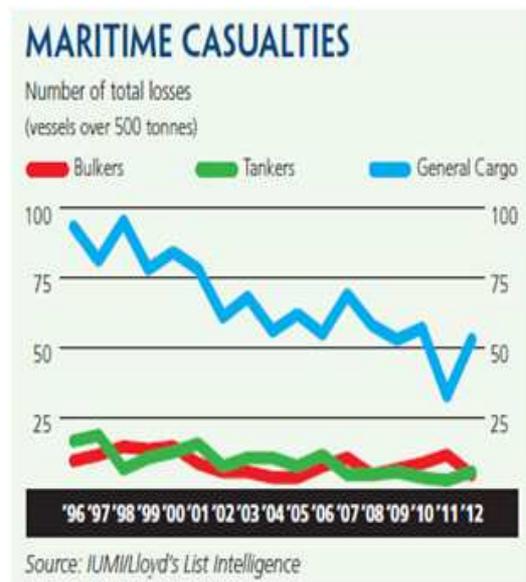


Figure 1

The company and its staff will always, and automatically, think about the implications for safety of every action, rather than simply following safety procedures because they have been imposed from outside. In an effective safety culture, everyone employed by the company, whether a manager, Master or a junior rating, truly believes in and understands the purpose of established procedures, and will think about safety, and the means of improving it, as a matter of course.

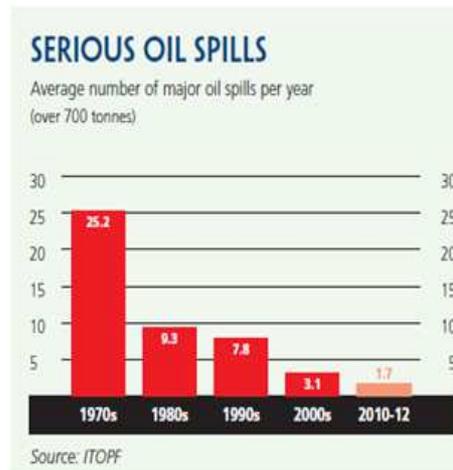


Figure 2

A safety culture will also help to eradicate any tendency towards behavioral complacency, when the need to adhere strictly to safety and pollution prevention procedures can be overlooked, either on shore or at sea, because of the misconception that if a particular type of accident has never previously happened it may never occur. Analysis of serious accidents in shipping has demonstrated that the personnel involved are usually highly trained, competent and experienced, and that the underlying cause of the accident, which could have been prevented, was a failure to follow established procedures.

The key to maintaining a safety culture is for all concerned to recognize that it is a matter of enlightened self-interest. The crew will be less likely to be the victims of accidents, and the company can use safety culture as a means of maximizing the financial benefit and cost savings that may be derived from implementing effective Safety Management Systems. It is important that companies recognize that investment in safety produces financial savings and is thus not a 'cost'. It is a fact that the improvement of safety saves money as well as lives.

Key Features of an Effective Safety Culture

- Recognition that all accidents are preventable and only usually occur following unsafe actions or a failure to follow established procedures.
- Management and personnel who think constantly about safety. An effective safety culture will support a shipboard environment that encourages and requires all on board to proactively considering their own and others' safety. In this way individual seafarers assume responsibility for safety rather than relying on others to provide it. Through mutual respect, increasing confidence in the value of the safety culture results in a more effective Safety Management System.
- Always setting targets for continuous improvement, with a goal of zero accidents and ISM Code non-conformities.

There are perhaps three key components to developing an effective safety culture:

Commitment from the Top

As identified by the ISM Code, commitment from the highest level of the company is vital to ensure that

personnel will act safely at all times. Without commitment from senior management the efforts of everyone else in support of the Safety Management System will be wasted. To develop the commitment of senior management it is essential that they completely understand the full cost of accidents in human, environmental and financial terms.

It may sometimes be questioned why safety should be the first priority when compensation for accidents and pollution is often met by insurance, and many safety measures appear at first sight to be expensive to implement.

However, it is important for senior managers and sea staff to appreciate that:

- Insurance seldom covers all losses and becomes more expensive following accidents;
- Criminal penalties for negligence can be considerable;
- During repair periods, vessels are not trading;
- Accidents and pollution fines damage a company's reputation with charterers, shareholders and personnel, including those at sea;
- Accidents lead to increased scrutiny by flag administrations and port state control inspectors; and
- Accidents and prosecutions adversely affect the public's perception of the company and of the industry as a whole.

To reiterate, commitment from the top to the fostering of an effective safety culture is a matter of enlightened self-interest. Apart from the tragic human costs of death or serious injury, it is estimated that the indirect financial costs of accidents for a company are generally about three times those of insurance claims involving personnel, cargo damage or pollution.

Measuring Current Performance and Behavior

In order to achieve an effective safety culture it is essential to have the means to monitor the company's current performance in order to identify ways in which safety can be improved.

While the SMS required by the ISM Code provides such a mechanism, a readily comprehensible means of monitoring the effectiveness of particular safety regimes and policies is the Lost Time Incident (LTI) rate, which is commonly used across many industries to measure personnel injuries.

Lost Time Incident is an incident which results in absence from work beyond the date or shift when it occurred. The LTI rate is usually calculated as the number of LTIs that occur during one million working hours, although sometimes different multiples are used.

Following the introduction of the ISM Code, research by P&I Clubs has demonstrated that if the number of personnel accidents is reduced then the number of other accidents, such as those involving damage to property or the environment will also be reduced. The goal of a company should therefore be to reduce the LTI rate to zero. Companies regarded as being at the cutting edge of safety culture seek to achieve negligible LTI rates.

The most common forms of LTIs are 'slips, trips and falls'. By adopting a culture that will prevent these and other minor injuries from occurring, lives will ultimately will saved.

More strikingly, research has also shown that for approximately every 330 unsafe acts or non-conformities, 30 are likely to result in minor injury. Of these 30 injuries one is statistically likely to be an LTI. Thus the prevention of 330 unsafe acts is likely to prevent a significant injury. Statistics also suggest that the prevention of 30 LTIs is likely to result with the saving of a life!

This concept is illustrated by the safety pyramid diagram below:

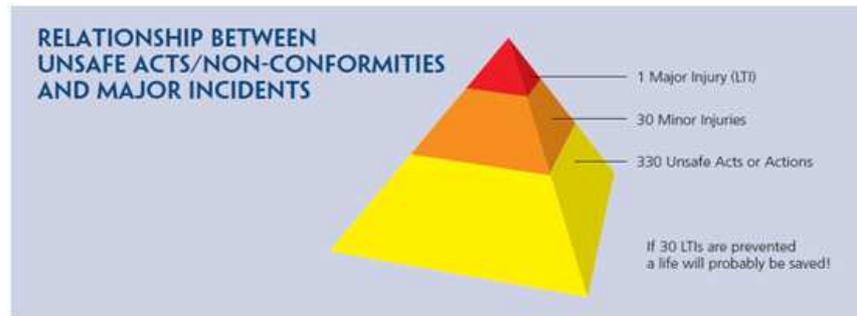


Figure 3

There are a number of performance monitoring techniques that measure different accident data, or which are derived from statutory reporting requirements within national legislation. It is most important that companies employ some means of monitoring their safety performance over time.

Many companies find it useful to compare their safety records with those of other similar companies or industries. Members of the Oil Companies International Marine Forum (OCIMF), and the Informal Tanker Operators' Safety Forum (ITOSF), for example, compare their safety statistics, as do members of the International Support Vessel Owners' Association (ISOA).

It is recognized that conditions existing in different trades cannot be readily compared, but it can be productive to establish informal arrangements with other companies operating in broadly similar circumstances to exchange information and experience.

Modifying Behavior

A key aim of a safety culture should be to modify the behavior, where required, of company personnel so that they 'believe in safety, think safety and are committed to safety'.

Developing an effective safety culture based on the concept of continuous improvement, personal commitment and responsibility by all, is a long term process and involves much hard work and effort.

Experience gained through the proper implementation of an SMS should result in changes in behavior, but other measures may also be required. Some companies may wish to conduct 'behavioral assessment' programs, using outside consultants to oversee changes to the company's safety culture. For many companies, however, other approaches can also be appropriate.

It is important that employees fully understand why they are following procedures required under the SMS. They need to understand that the purpose is not simply to satisfy ISM Code auditors but to bring about actual improvements in safety.

Additional advice on accident prevention, and the introduction of safety culture, is available from P&I Clubs, classification societies, maritime administrations and national ship owners' associations. It should be fully understood that changing behavior is a long term and continuous process. Full operational and financial commitment of senior management to the support of the company safety culture is essential.

REPORTING ACCIDENTS, NEAR MISSES AND NON-CONFORMITIES

When a major incident occurs it is common for considerable time, effort and money to be spent establishing what happened. Following the investigation, when the causal factors are known, it is often discovered that these were apparent and visible long before the incident occurred. Reporting such events at an early stage, followed by appropriate remedial action, can prevent accidents that lead to pollution, damage, injury or loss of life.

With the objective of improving safety and pollution prevention, the ISM Code requires the company to ensure that the SMS includes procedures to investigate and analyze 'non-conformities, accidents and hazardous situations'.

The need to record accident data is universally accepted. However, it is also important for the company and personnel to recognize the importance and value of reporting non-conformities and hazardous occurrences, so called 'near misses'. In particular, it is important to ensure that all personnel, both ashore and at sea, understand that when a non-conformity or near miss is reported that the intention is not to find someone to blame or punish.

Rather, the identification of non-conformities or 'near misses' provides an opportunity to investigate why they occurred, since the causal factors underlying 'near misses' are fundamentally the same as those which lead to accidents resulting with injury, loss of life, or pollution. By having an understanding of why incidents have occurred, sometimes gained by interviewing those involved, it is possible to introduce corrective action.

Once a corrective action has been taken, the chances of an actual accident, resulting in injury, damage or pollution, will be greatly reduced.

Every Effort Should Therefore be Made to Modify Behavior by Reassuring Those Who Fear That Reporting Incidents Could Have Negative Consequences

IMO Guidance on Near Miss Reporting

A near miss is defined by IMO as "a sequence of events and/or conditions that could have resulted in loss. This loss was prevented by a fortuitous break in the causal chain of events and/or conditions".

IMO Guidance provides examples of near miss incidents and also notes that barriers may be created against near miss reporting, particularly where a blame culture exists.

It includes the following general advice on near miss reporting:

- The ultimate objective of near miss reporting and investigating is to identify areas of concern and implement appropriate corrective actions to avoid future losses. To do so requires that reports are generated, shared, read, and acted upon. Companies are encouraged to consider whether their reports should be disseminated to a wider audience;
- It may take years for safety trends to be discerned, and so reporting should be archived and revisited on a timely basis. Near miss reports should be considered along with actual casualty or incident reports to determine trends.

There should be consistency in the identification and terms used to describe causal factors across near miss and casualty/incident reports.

The ‘Just Culture’ Approach

The IMO Guidance referred to above also addresses the question of ‘blame culture’ by recommending that the industry should instead develop a ‘just culture’ approach.

A ‘just culture’ features an atmosphere of responsible behavior and trust whereby people are encouraged to provide essential safety related information without fear of punishment. However, this is qualified by recognizing that a distinction must be drawn between acceptable and unacceptable behavior. Unacceptable behavior cannot be ignored and individuals must still face consequences if they engage in it.

Within the context of a ‘just culture’ it is essential that the company clearly defines the circumstances under which they will guarantee a non-disciplinary outcome and confidentiality. It is important that companies provide training and information about their approach to adopting a ‘just culture’ for sea staff, as well as for shore management and superintendents.

THE ROLE OF A SAFETY CULTURE IN PREVENTING ‘ACCIDENTS’

At the risk of stating the obvious, the underlying purpose of a Safety Management System (SMS) that embraces an effective safety culture is to prevent ‘accidents’. Accidents and unintended pollution incidents do not just happen – they are caused, usually by more than one factor coming together at a particular place and time. Change any one of these factors, even slightly, and the accident would probably not occur. Instead one would experience what is termed a ‘hazardous occurrence’ or a ‘near miss’ – in other words a ‘near accident’.

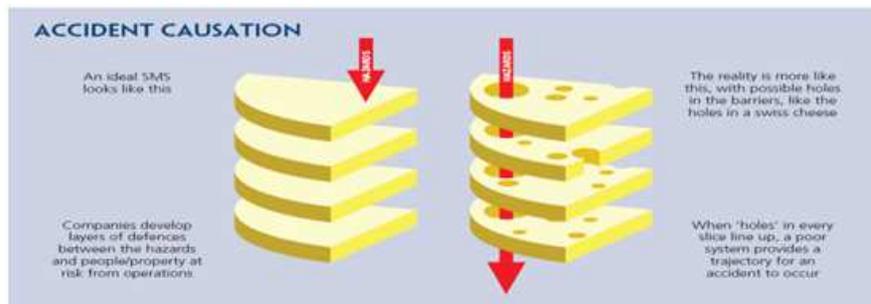


Figure 4

The above illustrative model can be used to show the concept of causal factors combining to lead to an accident. The model uses the concept of ‘swiss cheese slices’ to represent barriers, physical and procedural, that are placed by the company to prevent accidents.

Self Regulation

The introduction of the ISM Code in the 1990s was an attempt by governments to create a culture of self regulation of safety and pollution prevention, in which the application of a safety culture goes beyond unthinking compliance with externally imposed rules. The ISM Code places particular emphasis on internal management of safety, and requires companies and their personnel to establish targets for performance.

Self regulation requires every individual in the company, both at sea and ashore, to be responsible for every action taken to improve safety, rather than seeing such measures as being imposed from outside. The ISM Code requires the development of both company specific and ship specific Safety Management Systems (SMS), with safety procedures that are organized by those who will be directly affected by the implications of any failure.

It may be helpful to recall that the development of regulations governing safety and environmental protection for shipping has progressed over time through interrelated stages, all of which still have relevance to the 21st Century shipping industry.

Culture of Punishment

The earliest and most basic stage of regulation concentrated on the consequences of safety failures where, in the aftermath of accidents involving personal injury or damage to the ship and cargo, efforts were made to find someone to blame.

This created a culture of punishment, where the essential theme was to identify and apportion blame, often to the last person in the chain of events.

The underlying principle was that the threat of punishment would influence behavior to the extent that safety would be a higher priority.

Culture of Compliance

A second stage developed throughout the 20th Century which involved the regulation of safety by prescription, where the industry was given sets of rules and regulations to follow. For example, the provisions of the SOLAS, MARPOL and STCW Conventions, together with the Collision Regulations, Load Line Convention and various specialist IMO Codes, provide the basis of the external regulatory framework for international shipping.

This stage was an advance because it was designed to attack known points of danger before actual harm occurred. This has led to the modern culture of compliance with external rules. However, a number of serious maritime accidents during the 1980s confirmed that compliance with regulation was not always enough to achieve safety and pollution prevention.

Culture of Self Regulation

The adoption by IMO of the ISM Code, and its mandatory enforcement by flag states, represented a most important step towards the creation of a new culture of self regulation in shipping, albeit imposed through a mandatory regime. Self regulation alone is not, however, wholly effective. In order to achieve safer seas and environmental protection it is necessary for all three approaches to regulation to coexist. Each stage of regulatory development still plays a significant part in influencing company and individual behavior.

COMPLAINTS AGAINST ISM CODE

Some of the common factors and complaints on Safety Management Systems which do not appear to be working satisfactory are as follows:

- There is too much paperwork.

- The procedure manuals are voluminous and difficult to read and refer.
- Some procedures are irrelevant and not specific to that ship or system.
- The SMS is brought off the shelf or copied from other company and not developed in house.
- There is no feeling of involvement in the system.
- It is only ticking boxes in checklist, without actually carrying out the required task.
- There are not enough people to undertake all extra work involved.
- There is not enough time to undertake all the extra work involved.
- The personnel are inadequately trained for the job.
- There is no support from the company.
- There is no perceived benefit as compared to all the input involved.
- ISM is just a paper work exercise.
- The seafarers are not respected by the management.
- The senior officers have become clerks and dedicate all time to paperwork to avoid detentions.
- Actual supervision and control by Chief Engineer and Captain is suffering as they are busy in paperwork.
- There is no support and guidance from senior officers as they sit on computers all day making reports and replying to messages.

These negative views are expressed by ship staffs who are been forced with a system which was developed without their involvement.

WHAT MAKES A SAFETY MANAGEMENT SYSTEM EFFECTIVE?

The basic fact is that SMS will only work if those personnel who are involved in its implementation actually want it to work. This means that the Head Office Management staff like Technical managers, Technical Superintendents, Training Staff, Auditors and Senior Officers on ship. Just getting Safety management Certificates and complying with paper work does not make the SMS effective.

The desire and motivation that makes personnel to embrace a new system comes if there is a belief in the management and the company. This belief comes from a “Company Culture” that has to be developed. This belief comes when you know that the company cares for you and when there is no duplicity, intentions are clear, and transparency is valued. This company culture then can be easily molded to a safety culture. Those companies who have an effective SMS have the following points in common:

- There is leadership and commitment is from the very top of the management, i.e. Owner, CEO, etc.
- The paperwork has been shrunk to manageable levels- including procedure manuals, checklists, reports etc.

- The personnel on board have a sense of ownership and empowerment and they know they are making a difference.
- The shore staff as well as the floating staff has a choice of continuity of employment.
- There is a two way communication between the office and the ship.
- There is mutual respect for each other and awareness of the importance to the individual and the company of managing safety.

These factors have enabled a company culture to be developed which then generated a safety culture. These factors produce a congenial working environment and safety consciousness in which people take responsibility for their own safety and contribute towards the safety of others and company as a whole.

As a natural consequence of the development of this company culture there is a change in the attitudes and values of the personnel. The immediate result is that the accidents, near misses, claims and compensation start decreasing. As the safety increases the motivation and willingness increases allowing people to become more efficient.

WHAT ISM CODE HAS ACHIEVED?

In spite of everything which has been said or discussed, the truth is that ISM with its paper work and documented procedures has achieved the following objectives:

- It has made people concerned about safety.
- It has made people feel responsible before signing as they are now legally responsible.
- It guides the crew in proper working.
- Helps in re- training and learning due to easy access to procedures.
- Makes us care more about the environment.
- Supports seafarers in doing morally correct and ethical things.
- There is always reference material available for those who want to learn

A correctly designed Safety management System with procedures that are ship specific and paper work which is manageable are the key indicators of successful implementation of ISM Code by the company.

When ship staff realizes that the Office means what it says and they are really concerned about their safety then ISM is not a burden any more. When personnel realize that ISM makes them safe and empowers them to make correct decisions then ISM is successful.

CONCLUSIONS

Finally all international passenger ships and oil tankers, chemical tankers, gas carriers, bulk carriers and cargo ships of 500 gross tons or more are required to have a Safety Management System. In the preamble to the International Safety Management (ISM) Code, the IMO states, "The cornerstone of good safety management is commitment from the top. In matters of safety and pollution prevention it is the commitment, competence, attitudes and motivation of individuals

at all levels that determines the end result.

In order to comply with the ISM Code, each ship class must have a working Safety Management System (SMS). Each SMS consists of the following elements:

- Commitment from top management
- A Top Tier Policy Manual
- A Procedures Manual that documents what is done on board the ship, during normal operations and in emergency situations
- Procedures for conducting both internal and external audits to ensure the ship is doing what is documented in the Procedures Manual
- A Designated Person Ashore to serve as the link between the ships and shore staff and to verify the SMS implementation
- A system for identifying where actual practices do not meet those that are documented and for implementing associated corrective action
- Regular management reviews

Another requirement of the ISM Code is for the ship to be maintained in conformity with the provisions of relevant rules and regulations and with any additional requirements which may be established by the Company.

Each ISM compliant ship is audited, first by the Company (internal audit) and then each 2.5 to 3 years by the Flag State Marine Administration to verify the fulfillment and effectiveness of their Safety Management System. Once SMS is verified and it is working and effectively implemented, the ship is issued with The Safety Management Certificate. Comments from the auditor and/or audit body and from the ship are incorporated into the SMS by headquarters.

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