

Time pressures in the maritime industry

Shipowner / Ship manager guide



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Time pressures in the maritime industry

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Foreword

Time pressure is present in maritime shipping in many ways. Like all industries, working and delivering on time plays a crucial factor in activities within maritime shipping. Unfortunately, this means that time pressure can sometimes be a contributing factor in the cause of maritime incidents. This focussed guide aims to highlight the presence of time pressure to stakeholders in the maritime sector.

The aim of this guide is to:

- Promote awareness of time pressure within the maritime community.
- Improve understanding of different types of time pressure, including self-induced time pressure.
- Emphasise the importance of addressing this issue from top of the leadership chain and developing a visible management commitment to maintaining a safety culture.
- Develop guidance on the importance of repair and maintenance strategy, planned maintenance systems in managing resource issues.
- Emphasise the effect that time pressure can have on safety and well-being on board.

In our daily lives we often recognise the effects of time pressure. When in a hurry we may take risks that we otherwise would not, sometimes even unconsciously. Time pressure has an effect on the way we think. It tends to make us neglect our deeper knowledge and training, and sometimes may lead to potentially lethal consequences. It makes us cut corners, both literally and figuratively. One model used to describe this is 'Fast and Slow Thinking' ¹. An example of this can be seen in enclosed space incidents where one seafarer collapses in an enclosed space, which may have a hazardous atmosphere, and their colleague rushes to assist without thinking about the consequences. This has resulted in many deaths. Another model is the 'Efficiency Thoroughness Trade Off' ² (ETTO) which suggests that, with limited time available, some tasks may be overlooked or compressed.

Time pressure leads to stress and as with most forms of stress, there is a balance. There is nothing wrong with setting a realistic timeframe to complete an action or task. It is when the timeframe is unrealistic that 'excessive' time pressure becomes a problem.

¹ Kahneman, Daniel. Thinking, Fast and Slow. New York: Farrar, Straus and Giroux, 2011

² <https://erikhollnagel.com/ideas/etto-principle/>

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Introduction

The varied and conflicting demands on our time, from professional commitments to domestic responsibilities, push us to squeeze the most from every minute (Hochschild, 1997; Perlow, 1998, 1999).

Modern innovations like fast food drive-throughs, mobile telephones, microwave ovens, productivity applications etc. continually increase our ability to get more done in less time. Organizations strain to make the most efficient use of their employees, laying off those who can be spared and pushing those who remain to do more in fewer hours (Schor, 1991).

Experts such as Hochschild and Schor recognize the pressure that companies are under and highlight the impacts that can be felt by their employees such as constraining cognitive capacity and impairing performance.

The maritime shipping industry is not exempt from these effects, with ships being capital intensive assets where operating costs or expenses have a major impact on how the ship is run.

Time pressure is a feature of many areas of ship operation and there are numerous high-profile examples:



Navigation

The request to meet a 'challenging' Estimated Time of Arrival/departure (ETA/ETD) can lead to shortcuts being taken or insufficient time available for voyage preparation. Some of the best-known examples include the Titanic sinking, the capsizing of the Herald of Free Enterprise and more recently the grounding of Rena³.

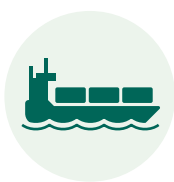


Mooring / unmooring

There may pressure to berth a vessel or to unberth to clear the berth within a certain timeframe. The Hoegh Osaka capsizing is a supporting example⁴.

³ <https://www.taic.org.nz/inquiry/mo-2011-204>

⁴ <https://www.gov.uk/maib-reports/listing-flooding-and-grounding-of-vehicle-carrier-hoegh-osaka>



Cargo operations

Pressure to prepare tanks, holds or cargo itself may lead to incidents in cargo spaces. Incorrect or incomplete lashing of containers plays a part in the eventual loss of containers overboard. There has been a trend of increased containers losses in recent years.



Maintenance

Pressure to complete repairs may result in rushed repairs causing damage to critical equipment or injury to crew.

Given that the existence of time pressure in general is beyond doubt, and that there is no formal recognition of time pressure within the maritime shipping industry, there is an opportunity to provide industry stakeholders with insight on the subject. To establish effective management of the risk associated with time pressure, there is a need to:

- Recognise where excessive time pressure is influencing behaviour.
- Identify where existing safeguards may be used to avoid incidents.
- Evaluate where help should be available under ISM.

This guide will detail situations, issues, and subjects to give the reader an understanding of time pressures in the maritime industry, specifically in a context of shipowner and/ or manager and share recommendations on how to manage them.

Time pressure

Time pressure is a form of stress that may impair a person's ability to make safe decisions. It can be a form of 'commercial pressure' and businesses may struggle to find the balance between maintaining safety on board and maximizing the commercial performance of the ship.

In other words, there is a fine balance between conducting operations safely and efficiently. Tilting the balance in favour of one may negatively affect the other.

It may not be apparent to individuals (or stakeholders) that their actions and/or instructions may result in time pressure being applied to staff further down the communication line.

In other words, any person directly or indirectly involved with ship operations has the potential to exert time pressure. Examples include:

- Agents.
- Authorities.
- Charterers.
- Colleagues.
- Ports and terminal managers.
- Port and / or cargo workers.
- Shipboard managers.
- Shore based managers.

Why does time pressure happen?

Some examples of why this happens include:

- Excessive administrative demands.
- Imbalance between resources and workload.
- Poorly constructed or non-existent procedures.
- Weak safety culture.
- Lack of awareness of the effect that instructions and messaging can have on people.
- Reluctance to challenge real or perceived authority.
- Structure of reward programmes for seafarers.

There are three different types of time pressure:

Explicit time pressure

This is sometimes called direct time pressure. A formal instruction, which is time bound, is given by a party with apparent legitimate authority that creates a pressure on the receiving party to carry out the instruction within the assigned time. In some cases, this formal instruction is recorded. The situation is, therefore, visible during audits and investigations.

***Example:** A voyage instruction is sent from a charterer to a shipowner with a tight schedule for a ship. An instruction is sent from the office to the ship to prepare the cargo hold for the next cargo - however the time allowed is not sufficient.*

Implicit time pressure

This is sometimes called indirect time pressure. In communications between parties, times are not explicitly mentioned, but are implied in the way the communication is carried out. In this case the recipient individual's decision-making is shaped by implicit messages in the communications and processes.

Sometimes, this affects people's perceptions of what the organisation wants. Implicit time pressure is not easily visible or recordable and will seldom be visible in an investigation or audit.

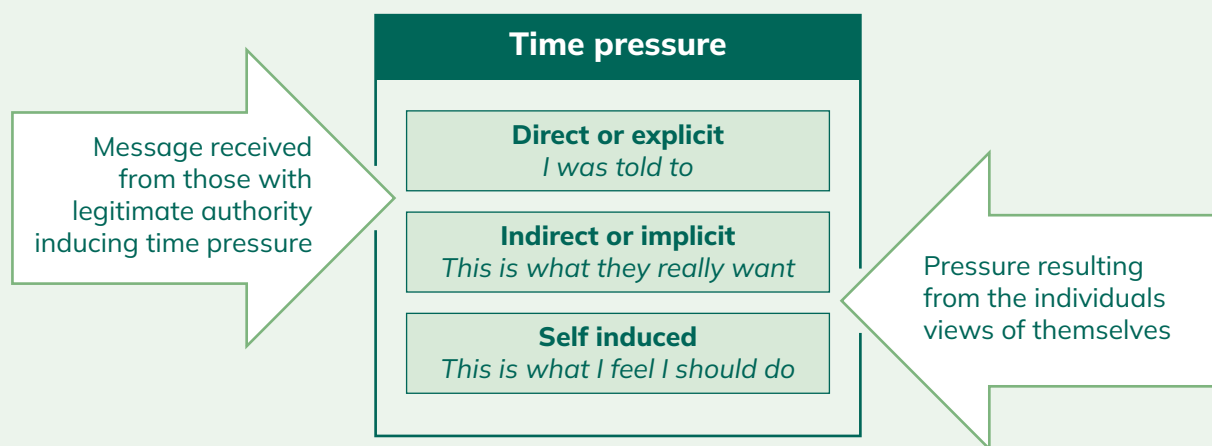
***Example:** A instruction to carry out repair work is sent out from the technical department of a shipowner to a ship with no mention of time. However, in most other cases, such an instruction is carried out with the highest priority.*

Self-induced time pressure

This type of time pressure does not originate from a third party but from one's own self. It is the perception that a task needs to be carried out within a particular timeframe determined by the individual, which is usually shorter than the desired timeframe.

***Example:** A vessel/technical manager who must leave the office to complete an important personal errand may choose to approve a safety work permit from the ship slightly more quickly than usual, paying more attention to the time taken to do the job than to the risks involved.*

Figure 1: Types of time pressure



Resources^{5,6,7} are available from charities or mental health professionals on self-induced time pressure (stress).

While self-induced time pressure can occur in any part of the organisation, it is mostly found on ships, as ship's staff are the ones that carry out the sharp end of the tasks. Although self-induced time pressure can occur in the shore side of any organisation, this has not been very visible in this analysis as most of the time it has either been a direct or an indirect time-pressure that affects the shore staff the most.

Of course, there are difference in personalities in people and this can lead towards time pressure.

Sources of time pressure in the maritime industry

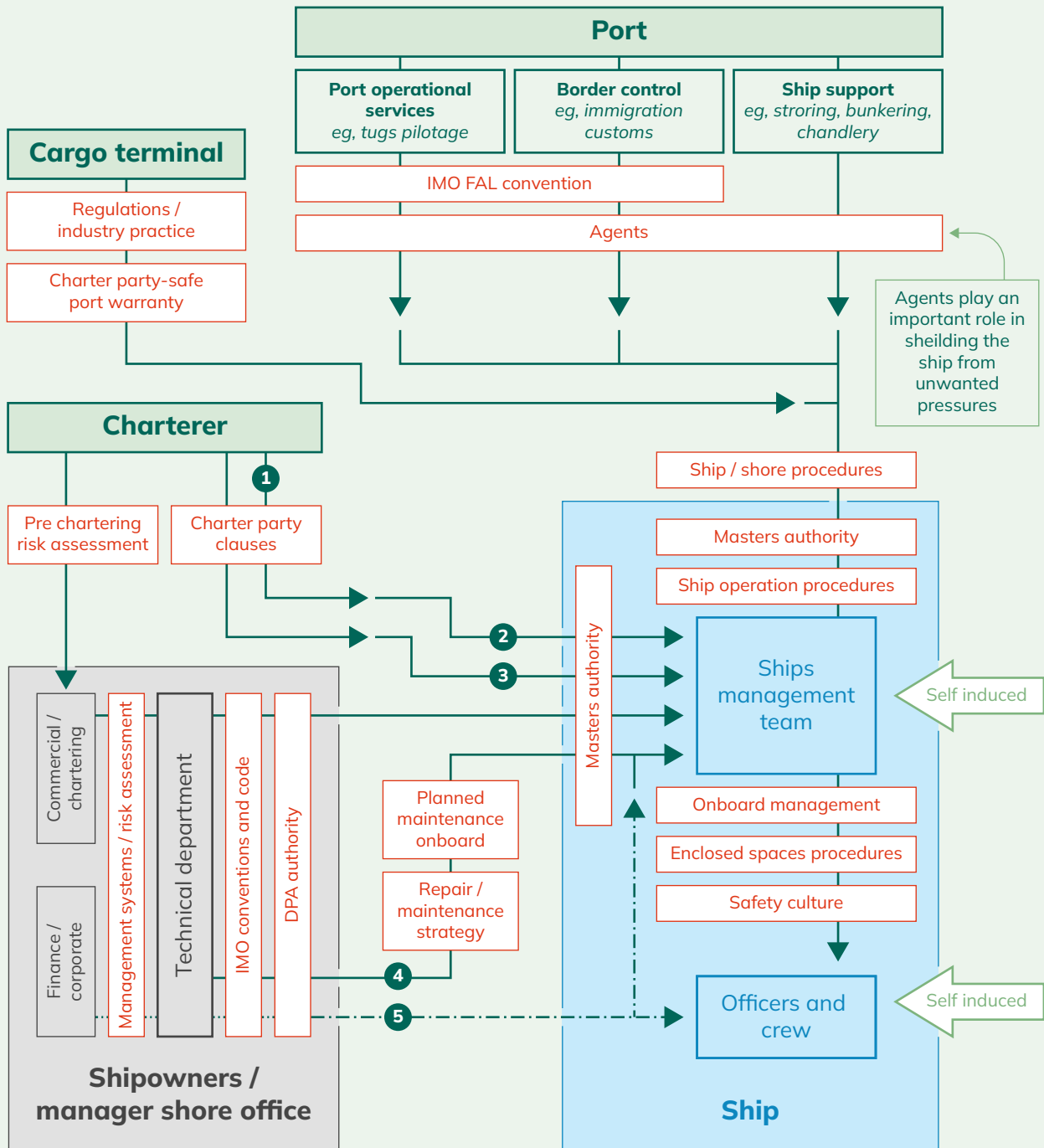
In a typical shipping company context, time pressure can arise from different sources. An analysis has been carried out to identify the various sources of time pressure and how they interact with the ship and ship-owner. The result is summarised in the following model.

⁵ <https://www.seafarerswelfare.org/seafarer-health-information-programme/good-mental-health>

⁶ <https://www.itfseafarers.org/en/health/managing-stress>

⁷ <https://www.mind.org.uk/information-support/types-of-mental-health-problems/stress/what-is-stress/>

Figure 2: A model of the sources of time pressures in the maritime industry



- 1 Charter with tight deadlines
- 2 Time charter revises time charter eta's
- 3 Charterer revises spot eta's
- 4 Excessive time pressure from repair and maintenance requirements
- 5 KPI's bonus performance management

In this model, the grey box represents the shipping company's shore office, and the blue box represents the ship. Arrows indicate the flow of communication – and in turn, time pressure. Continuous arrows represent direct time pressure, broken arrows represent indirect time pressure travels. The red boxes represent existing safeguards or barriers regulating time pressure within the system.

It is important to stress that time pressure can originate from within the line of responsibility and from other outside sources.

Time pressure can arise from within the 'Company' (as defined in the International Safety Management Code (ISM)) or from an outside source, which then affects the company both ashore and on board.

Time pressure can arise from charterers in the form of tight deadlines. A common source of time pressure is amending the time required to arrive at a port or berth, or a request to change cargoes and therefore tank/hold combinations on a tight deadline.

Ports and terminals also create time pressure on the ship – for example, by giving a ship at anchorage waiting for a berth a very short time to prepare and come alongside. If the ship requests more time, the port may assign the berth to another ship and ask the waiting ship to continue waiting for another berthing opportunity.

What does time pressure look like?

Stress due to time pressure can manifest differently between people. While some may show many physical signs, others may show only some or no signs at all.

Physical signs may include: decreased energy and insomnia, headaches, weight change and change in appetite, frequent sickness, rapid heartbeat, and sweating.

Non-physical signs may include: irritability and generally acting differently or changed mood. Increased complaints and grievances are another sign that may be an effect of time pressure.

Preventing time pressure

Preventing time pressure and managing expectations can go a long way to mitigating circumstances that can cause incidents. Below is a list of mitigations that can be put in place to reduce the adverse effects of time pressure.

- Understanding the sources of time pressure.
- Knowing the visible signs of time pressure.
- Planning and prioritising work.
- Having an accessible safety management system.
- Confident leaders and a healthy safety culture.
- Having a strategic view of workload.
- 'STOP the job' practices.
- Supporting the master's authority.
- Strong and open communication.
- Challenging time pressure.

The ship owner / ship manager guide

The shipowner may have several roles with respect to time pressure including:

Creating time pressure to maximise earnings

This can include pressure to be early on ETAs to incur demurrage or limiting maintenance time to increase availability. Often this is the result of aggressive and 'progressive' targets to improve performance year on year, which are not accompanied by risk assessments to understand the impact.

Such target setting should be covered by processes to ensure risks are not being introduced. Linking such target setting to reward systems will lead to moral hazard and both direct and indirect time pressure.

Transmitting time pressure

In some cases, the owner may transmit time pressure created by an outside body such as a charterer to the ship without moderation.

A Charterer may require a ship to reach a port with all its cargo holds/tanks prepared but not allow enough time to safely complete the operation. This may lead to shortcuts by the staff to ensure that the end result is achieved, but perhaps not completely following all the safety procedures.

Moral hazard and bonuses

Moral hazard may occur when one part of an organisation / system may benefit from taking a risk while the consequences affect another 'player'. This is the classic commercial versus technical trade off.

A particular example of moral hazard is bonuses paid by a charterer directly to the ship's crew for tank cleaning. For some crew, this can be a huge amount, resulting in the work being given top priority.

This practice is wrong on many levels. The owner allowing this encourages the view that performance is more important than safety. The organisational culture will be affected by this abdication of management, and it will in fact bypass all the designed barriers.

The whole concept of bonus schemes is to reward for either something that is done 'better' than expected, or something that has been done more quickly / with fewer people than expected. The latter will of course lead to cutting corners and breaching procedures.

Moderation of and protection of the ship from time pressure

When a shipowner / manager should intervene in a charterer's orders to the ship but does not and waits for the Master to follow orders or challenge it from his

end, they are failing in their duty. The shipowner / manager has a role under ISM to manage all hazards and this should include time pressure.

It should be seen as a failure if the owner/manager does not take steps to avoid excessive time pressure, instead relying on the Master to take care of the ship and its safety.

Existing time pressure management in shipping organisations

Even if there are neither mandatory regulations nor explicit mention of time pressure in the international regulations or requirements, ISM envisages the management of a variety of hazards.

Companies may have already set up some check balance functions in their organisations which take on the role of a safeguard from time pressure.

Example: *A pre-chartering risk assessment assesses a potential charter for all the risks. Time pressure may be assessed as one of these risks, and if the ship involved will not be able to perform the charter within the given time slot, then it should be either rejected or a different ship assigned to the charter.*

The Master's overriding authority in matters concerning safety and prevention of pollution, is sometimes used as an effective safeguard to alleviate any extreme time pressure situations.

Example: *If a charterer requests a ship to take a shortcut from the planned passage to save time, and the Master assesses it as risking the safety of the ship or environment, he can use his authority to override the instruction.*

It should be stressed that where excessive time pressure originates with or is transmitted by the Company, it is the Company's role to mitigate that time pressure before instructions are transmitted to the ship thus avoiding the Master being put under pressure.

However, there are also examples where these effective safeguards are not in place or placed incorrectly, or not used correctly or where a safeguard is placed correctly, it has a weakness which leads to problems.

This section of the guide will focus on these safeguards, their use, the potential weaknesses and potential solutions. The aim is to make the reader aware of these issues and take measures to improve them.

Time pressure arising from a charter or charter party

A charterer wants to fix a ship to carry a cargo. The charterer pays a day-rate for the time a ship is hired for, or a freight for carrying its cargo from point A to B within a specified interval of time. In both cases, the aim of the charterer is to maximise earnings by carrying as much cargo in the shortest amount of time.

At the same time, for a ship-owner or operator, the ship earns only while it is on hire (time or voyage charter), therefore, it is in the interest of the owner to ensure that idle days are minimised as far as possible.

In this context, time pressure can either arise from the charterer or the owner depending on the charter party. It is, however, worthwhile mentioning, that until a ship is fixed on a charter party, the owner has the right to reject potentially tightly scheduled voyages. Also, during the charter party, at times, charterers may give orders which put ships on tight deadlines, which can potentially endanger the ship, crew, cargo or environment if not properly dealt with.

It is generally understood, from a chartering point of view, that the Masters 'Overriding Authority', means that they have the ultimate control over the safety of the vessel. However this understanding should not be used as justification for applying high levels of commercial pressure on them, nor does it stop the Master from feeling the effects of it.

Safeguard 1: Pre-chartering risk assessment

It is self-evident that some form of risk assessment is carried out before a ship is chartered to ensure the ship is fit, in its current condition, for the cargo proposed and that the port is safe for the ship to enter. This assessment should also include ensuring there is sufficient time available for the ship to conduct the necessary operations.

Pre-chartering risk assessment, as the name suggests, is an assessment of the risks involved in the charter and gives a chance for the ship-owner to weigh these risks against the pay off. The pre-chartering risk assessment therefore becomes a key barrier in managing time pressures arising out of a charter party. The decision based on this assessment is critical. This is the last point in the 'fixing' process where an unsuitable cargo can be avoided without prejudicing safety or incurring commercial consequences.

A properly carried out risk assessment can mitigate a lot of unwanted outcomes at a later stage, for example, financial risks, legal risks and/or operational risks. 'Operational risk' may include a ship being delayed in arriving to a port or having to call at a port without properly preparing its cargo holds / tanks etc.

Potential weaknesses

There can be instances when such a safeguard does not carry out its intended purpose.

Despite knowing that the ship cannot perform the charter without carrying out shortcuts, the charter is accepted as it may seem too lucrative to reject.

This may be because:

- Where shipowner, operator and technical managers are different entities, ship-owner pressurises the ship operator to take the charter, as the deal is lucrative, even if it means taking on additional time pressure. Technical managers and ship staff then have to take shortcuts to perform the voyage.

- Where owner, operator and technical manager are the same, business decisions are taken by the commercial department. However, accountability for safety is passed on to technical managers.
- Organisational culture of the shipping company is such that decisions are not taken purely based on the results of the risk assessment.
- Pre-chartering risk assessment is not conducted correctly.
- Charterer pays a bonus for getting the job done in a shorter time.

Solutions

Leadership – emphasis should be on long term sustainability of the business rather than short term gains.

Organisational structure – proper systems in place. Those that are accountable for the consequences of the risks taken should be the ones to take the risks.

ISM scope – presently, the ISM covers time pressure in a broad manner. Perhaps SMS should also cover aspects of employment of a ship and should contain the risk assessments and due diligence that a commercial manager should take when dealing with a potential charterer.

Organisation culture – this is an extension of the leadership that shows that the focus is on the culture of the organisation.

An example of a pre-chartering risk assessment can be found in Annex A.

Safeguard 2: Safety management system (SMS)

Many a time, even if a pre-chartering risk assessment fails to catch a potential high time-pressure voyage, the operational and/or technical departments can spot it.

As per ISM code, shipping companies should have safety management systems in place to assess all operational risks and to have safeguards in place to reduce those risks to a level which is as low as reasonably practical. The safety management system has evolved into a powerful tool that can be used to address many risks.

Potential weaknesses

The policies and procedures of a company are mostly sufficient to safeguard against risks of time pressure as well. However, this risk is not explicitly stated in the SMS.

Just as human factors play a critical role in every aspect of ship operations, so too do time and the pressures arising from it. For this reason, the risk of time pressure should also be part of the SMS and explicitly mentioned whenever and wherever required.

When there is no overarching system governing this, it is bound to be misused.

Therefore, the weakness in this part can be divided as:

Scope of SMS – it is generally believed that ISM and SMS apply to only the ship and the technical management of the company. In the same way, finance and accounting departments are seldom 'within the scope' of ISM despite having a significant influence on the resources available for the operation of the ship or indeed the purchase and design of the ship.

Structure of the company – proper structure not in place. The decisions of a commercial department can hardly be challenged by the technical or safety department, creating a moral hazard resulting in conflict between technical and commercial department. The technical department is bound by, and accountable for, the safety and operations of the ship, whereas the chartering/commercial department may be motivated by profitability, especially where chartering

bonuses are awarded that relate to 'utilisation'. The commercial viewpoint may dominate, especially in low freight rate markets, resulting in increased risk especially if there is no commercial consequence to taking on a commercial risk.

In some companies, these above-mentioned functions are separated as different legal entities or business units. This kind of structure further enables a silo working mentality and these issues are exaggerated further.

Owner pressure – owner's direct involvement in daily operational of the ship. This can have both positive and negative impacts. There are cases when an owner directly involved in the daily operation of the ship can see the challenges faced and takes a proactive approach in extending the resources for improvement of the system. There are also times when the opposite happens, and it is these scenarios that turn out to be burdensome on the shipping company.

Absence of detailed procedures – there are detailed ship-specific procedures for conducting a particular operation, however, detailed information about the time required

to safely complete the operation is not always present. The aspect of time is left to the person responsible for carrying out a task. Some people will complete the same task over a lengthy period while others will carry out it in a reasonably short period of time. It may not be clear which one was correct and if there were any safety shortcuts taken while fulfilling the task.

Implementation of systems – even where procedures are in place, implementation may be quite a different matter from what is stated in the SMS. We have seen that different companies implement the same written procedure in different ways. Differences can also be seen between different ships from the same company.

Culture – organisational culture hampering the process of the effective safeguard. This is where self-induced time pressure originates. The culture of the organisation is such that the employees assume that the allocated tasks must be completed in the allocated time, despite being well aware of the fact that it is very difficult to achieve the necessary results without compromising safety. The practice of challenging back is non-existent.

Solutions

Review the scope of SMS – scope of the ISM SMS should include the employment aspects of a ship. Including the commercial, finance and accounting departments in the SMS will help alleviate time pressure that originates from these places.

Reorganisation of company structure – the goals of the individual departments should be well aligned with the overall company goals. Responsibility, authority, and accountability should reside in the same department or very close to each other, so time pressure is not exerted between departments.

Where pressures are exerted between departments, matters should be elevated to higher levels within the company to find a solution rather than passing it down within departments and to the ship. An

organisation with a flat structure benefits from better communications between departments than a hierarchical one.

State time frame in the procedures – shipboard procedures for carrying out a task should include an expected time required to complete the task. This will give a fair idea of the time required to not only the person who is going to do the task but to all involved and will further help in planning other tasks accordingly.

Change in leadership and culture – leaders and ship-owners should realise that a positive drive from them can make all the difference and should work towards it. It is in their hands to change the organisational culture to make personnel more interactive and empower them to question an order that cannot be safely completed in the given time.

Safeguard 3: Authority of the designated person ashore (DPA)

A further line of defence is the designated person ashore whose role, as per the ISM code, includes:

- Providing a link between the company and those on board.
- Monitoring the safety and pollution aspects of the operation of each ship.
- Direct access to the highest level of management to raise.

In theory the DPA should have access to the highest level of management within the company and be able to raise issues related to safety and prevention of pollution.

However, there are often potential weaknesses in this barrier.

Potential weaknesses

Organisational structure – at times, a DPA has conflicting responsibilities, which puts pressure on the ships they manage. On one hand, they should act as the safety ambassador of the ship, while on the other, they are also the operational manager who must ensure that the ship fully performs for the charterer. Here, the DPA themselves forms part of the reason that generates time pressure on a ship.

Direct access to the top management is not clearly established, or not used in scenarios when it should be used. While in theory, this access is one of the fundamental objectives of having a DPA, in practice, there are many instances where this is not the case. In some cases, the DPA does not use their access to alleviate time pressure on the ships.

There are times when the DPA does not receive enough operational information / communication to allow proactive measures. Sometimes, the flow of information from the ship to a DPA can also be questionable.

DPA does not have enough resources to pay full attention to all ships under their overview.

Example: *the DPA could be assigned more ships than one person can normally concentrate on, and in this case, they must prioritise the more important tasks leaving room for improvement.*

DPA not performing the role of a DPA.

Solutions

Having a proper organisational structure without conflicting demands can alleviate a lot of this weakness and strengthen this defence in the context of time pressure but also in the overall context of safety management.

Providing clear but also separate line of communication to the topmost part of the management can alleviate a lot of issues with this important safeguard.

Having sufficient resources is another important aspect that can improve the job of a DPA immensely. This can ensure that indirect time pressures and, in some cases, self-induced time pressure are reduced.

Safeguard 4: Master's authority

The ISM code has provided the Master with some clear roles and given certain strong authority and in certain cases – an overriding authority. In fact, in the context of ISM, the Master is the only person who has overriding authority when it comes to matters regarding safety of the ship and prevention of pollution.

While this safeguard can protect the ship in most instances, weaknesses exist here too.

Potential weaknesses

Organisational structure – in the written procedures, the Master is given the authority they deserves but when it comes to practical matters, decisions are taken with limited involvement, or the Master is only involved when it comes to the execution of the task.

Here indirect time pressure plays an important role. When looking at the written procedures, it may seem that Master is given all the required authority, however, the practical operations may paint a different picture. The expectation is that the Master will run the ship to keep the charterers happy, even if that means cutting some safety corners.

Reward structure – Master is also influenced by the reward structure created by the company. The implicit message here is that “this is what the company wants me to do”.

Organisational culture – rather than questioning the unreasonable task, the Master passes on the time pressure to subordinates, thereby negating the existence of this authority. Here the indirect time pressure exerted on the Master is converted into direct time pressure on his subordinates.

Leadership – leadership both ashore and on board will have to be investigated.

Self-induced pressure – Master simply accepts the unreasonable task in the hope of achieving the results by cutting corners, here self-induced time pressure plays a part.

Solutions

Organisation structure and culture

– certain organisations are better at implementing clearly what is written in their procedures, while others struggle with it. Carrying out the words in action goes a long way in addressing many of the problems associated with safety, and not just in terms of time pressure.

Reward structure – while reward structure is beneficial to great extent, one should not overdo it. The reward structure should be carefully planned and executed, keeping

in mind that it must not put the staff in position where the reward conflicts with safety procedures.

Self-induced time pressure – this can be mitigated with more ship-shore staff interactions and inducing the organisational culture of needing to get the job done safely even if it means putting additional time.

Time pressure arising from maintenance

Time pressure may also result from maintenance activities. This can be exacerbated by port rules that limit work which can be carried out alongside or at anchor.

This may include:

- Pressuring a ship to sail from drydock before all work is completed and / or testing is completed. This will often be accompanied by an aggressive load port ETA.
- Limiting time available at anchor to carry out major repairs or surveys.
- Insufficient resources available to carry out planned maintenance.

Safeguard 1: Planned maintenance and management systems

While a Planned Maintenance and Management System (PMMS) can broadly be classified as part of the safety management system, it is highlighted here as a separate safeguard.

A PMMS ensures that ships' systems and equipment are taken care of and maintained to ensure their continued good operation and longevity.

A well planned and executed PMMS ensures that maintenance intervals are planned to make the best use of available resources without putting undue pressure on personnel.

Potential weaknesses

Cost and PMMS are closely knit together. When the cost of running a ship and good performance of a ship are closely linked, it can create undue pressure on the personnel involved with it. This can be classified as indirect time pressure.

Here, maintenance is either carried out too quickly or carried out with cheaper parts. This results in having to maintain the system at a higher frequency and probably

at a higher cost, but since the cost is spread over time, it is not easily captured in the accounts. The result is extra workload for the ship's team in each time period, but a higher bonus for the management team.

***Example:** The fleet superintendent and ship's management team are not only responsible for the safe running of the ship but also the cost-effectiveness of it. When the cost-effectiveness of running of the ship is linked to the bonus of the employees, there may be instances when this aspect takes a higher priority than safety.*

Ship's performance of planned maintenance is compared across the company's fleet and is linked to budget allocation. At times, a ship may not be performing as it should due to external factors which are not really under its control, but is still penalised.

Example: *A route with a short sea passage and frequent port calls puts added time pressure on the staff involved and encourages them to complete maintenance tasks in a shorter time to log that all tasks have been completed. At times, this may result in safety shortcuts, and at other times, staff are pressurised to work longer and outside their normal working hours to complete the tasks.*

Another example is where one ship is running a route where it is costly to fly in spare parts and service engineers, compared to others which are plying routes where this is not a challenge. This pushes the ship that is affected to procure local and cheap spares and do the maintenance themselves, rather than flying in a service engineer. All this leads to safety issues at

a later stage. Staff assessment is linked to safety management and completion of tasks in each period of time.

Solutions

Having a robust PMS with due regard to the longevity of the ship systems. While it is much easier said than done, delinking cost and PMS or investing in better quality and maintenance products keeping the long-term aspect in mind, has the potential to save money and unwanted repair and maintenance.

Taking a careful approach when linking staff bonus to performance bonus can also address the situation. Along the same lines, delinking individual ship performance from fleet performance when there are certain aspects that are out of the hands of the ship can also add to better performance.

Conclusion

Time pressure is a specific safety risk that is not explicitly mentioned or addressed in many shipping companies as our current regulations do not directly and explicitly address this. Time pressure may be a contributory factor in many accidents or incidents.

Taking a focused approach to this particular risk can go a long way in not only addressing the safe operation of ships but also contribute to better management of the company in the long run.

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Glossary / definition of terms

Agent

Someone who is legally empowered by their principal to act on their behalf. The principal may be another individual, firm or an organisation. A shipping agent is a person who deals with the transactions of a ship visiting or docking in their assigned port.

In simple terms, the shipping agent who, with a local expert, acts as a representative of their principal (the owner of the ship/charterer) and carries out the essential duties and obligations required to be carried out by his principal or the ship.

Barrier(s)

Something material or immaterial that impedes, separates and or blocks a passage. Barriers can be both intended and unintended.

Charterer

The Charterer is an individual, firm or an organisation, which enters into a contract with the owner to hire the ship, or space in the ship, for transporting cargo. In some cases, a charterer may own the cargo and employ a ship broker to find a suitable vessel to deliver the cargo for a certain price, called the freight rate.

Incident(s)

Incident in this context is a marine incident, which is an event, or sequence of events, which has occurred directly in connection with the operations of a ship that endangered, or, if not corrected, would endanger the safety of the ship, its occupants or any other person or the environment. Strictly speaking, an incident does not result in loss of life.

Owner / manager

The owner of the ship or another organisation or person, such as the manager, agent or bareboat charterer, who has assumed the responsibility for the operation of the ship from the owner and who, on assuming such responsibility, has agreed to take over the duties and responsibilities imposed on shipowners by maritime conventions.

Power balance

The dynamics between two or more people in a professional relationship which involves authority of one over the other.. The power balance is said to be unhealthy when one person holds most, or a lot of the power and it is deemed to be unfairly distributed. Experts suggest that it is healthy to strive for a dynamic where the power is distributed.

Annex A

Pre-chartering checklist

The need to conduct a pre-chartering check

Along with ensuring that the ship operates to the fullest extent possible, there is also a need to address the issue of time pressure from a human factor perspective. The company should analyse international regulations, industry standards and best practices to avoid time pressure, and should set clear policies and procedures.

NB: the DPA should have authority and responsibility in supporting the Master when needed. To do so, the DPA should have experience in relevant sea going (Senior Officer) and shore-based roles, enabling the understanding of conflicts and to be able to communicate effectively to resolve these conflicts.

Safe compliance with Laycan

- Has the company checked if the ship can indeed perform the charter as per the requirements of the charterer and without putting undue time pressure on the staff involved both on board and ashore?

- Does the SMS provide clear guidelines for candidate voyage Laycan compliance considering; the vessel's current navigation max speed, weather conditions any other restraints that may be posed by ships equipment?

- Does the SMS guide on the allowances given for inclement weather?

- Has it been ensured that this does not pressurise the crew into performing an unsafe voyage?

Additional precautions

- Does the SMS give clear guidelines for the required time for certain cargo? Has the space been prepared? Have considerations been made in regard to the timing of the last and next cargo? Is it in line with industry guidelines and standards?

- Are there any additional ship specific procedures in place (take into consideration the specific equipment present on board and their operational readiness, the level of manning etc.)?

- Does the SMS address and encourage the Master to consider extra resources, time, and hardware required to ensure:
 - Safe navigation
 - Engine room operations
 - Safety rounds
 - Safe cargo preparations
 - Work and rest hours

Carrying special cargo

- Confirm and inform the technical department to provide technical support to crew wherever and whenever required.

- Confirm and provide time margin for additional tasks require for safe transportation of the cargo (e.g., fumigation, extra lashing, and fire rounds).

- Is there a need to increase manning levels? This will ensure enough resources for additional tasks and still complying with work and rest hours' requirement.

Administrative work

- Have you checked if SMS provides guidelines for standards extra crew employment when necessary for admin or any task which leads to non-compliance of rest hours?

- Check if the company should seek ways to minimize admin work and utilize technology to safely complete admin work without unnecessarily burdening the crew.

Secure the vessel before departure

- Does the management system support the Master employing her/his authority to secure the vessel before departure and ensure it is safe for the voyage?

- Check if the threshold lead times as referenced for securing the vessel is included in SMS with details (e.g., cargo types, ship size, and cargo hold).

Safe execution of demanding voyages

- Check if SMS addresses effective and safe execution of demanding voyages such as short port stays, short turnaround time which can increase the workload on the crew.

- Check if sufficient time has been allocated for; bridge preparations, rigging the pilot ladder/gangway, mooring and tug operations. Does this comply with the ship-shore safety checklist?

Ports requiring long pilotages / complex maneuvers

- Check if the SMS encompasses procedures to check ports which have long pilotage and complex maneuvering patterns. Analysis should also refer benchmarking.

- Check if the SMS provides guidelines on safe navigation in such locations with considerations planning to comply with rest hours, extra crew, if applicable drop anchor before arrival to such places for providing rest to crew.

NB: The above measures should be introduced to charterers by the ship-owner/manager. Direct communication between the charterers and the Master and/or the ship's crew should be kept to a minimum, thus minimising the possibility of charterers putting direct time pressure on ship's crew or incentivising them to carrying out unsafe work.