

jan H. Harsem

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Sendt: 17. april 2017 14:19
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Kopi: Arne Martin Sagen; jan@harsem.no
Emne: SKAGERRAK ISM CODE

Nippon Anand
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Craig Laverick
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Phil Anderson
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Dear Sirs

The norwegian parliament has appointed a commission which is carrying out further investigations after the Scandinavian Star disaster in 1990.

<https://scanstargransking.no/>

As a part of the mandate, the commission shall evaluate how the authorities have followed up the recommendations that was given by the Scandinavian investigation committee in 1990 – 91. The ISM-code was developed as a result of the Scandinavian Star recommendations, among others. The Skagerrak Safety Foundation has therefore requested the commission to evaluate the implementation of the ISM-code in the maritime industry, the Norwegian maritime port state- and flag state control, in maritime investigations and the work of the police and prosecutor authorities. We don't know to what extent the commission is following up this request. Anyway: We consider that the status of the ISM-code is an essential issue in this respect, with consequences for the global safety at sea.

Therefore we kindly ask you, as international experts, to elaborate your opinion. This can be done by writing a short note, by answering these four questions:

1. What do you consider as the main intention by the development of the ISM-code?
2. How will you describe the status for the ISM-code in international ship operations today?
3. Is the intention of the ISM-code fulfilled in 2017?
4. What is the matter objections that eventually are creating a gap between the intention of the ISM-code, and the status of the ISM-code in 2017?

Please also give a short introduction of yourself, and sign the note.

We are very grateful for your contribution, which can be sent by email to Arne or Jan

Your note will be forwarded to the parliamentary committee.

This is our initiative - the commission is not informed about this.

SKAGERRAK 2

Regards from
SKAGERRAK SAFETY FOUNDATION

Jan Harsem (jan@harsem.no) and Arne Sagen (a.sagen@online.no)

Phil ANDERSON

Jan H. Harsem

Fra: Phil Anderson <philanderson@consultism.co.uk>
Sendt: 17. april 2017 20:03
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Kopi: Arne Martin Sagen
Emne: RE: SKAGERRAK ISM CODE

Dear Jan and Arnie (and Nippin and Craig in copy)

Many thanks your email and for including me in your reach-out.

I have been asked similar questions, on a regular basis, since at least the late 1990's – but I have always been frustrated and can only answer by suggesting that the questions are far too wide and general – I am not able to provide a single straightforward answer. In my experience there is a very wide spectrum of responses to ISM Code compliance across the international industry. At one end of the spectrum there are some very good Companies, and individuals, who have fully understood and embraced the idea of ISM – and I am no doubt at all are benefitting significantly from their commitment. At the other end of the spectrum I am still coming across Companies, and individuals, where the documented system is adequate enough to convince some Administrations to issue a SMC and DOC but the SMS has not been adequately or effectively implemented nor is the implementation being monitored by the Company – or the Flag Administration. I have been involved in quite a significant number of legal cases – and I am here thinking of criminal prosecutions and investigations (indeed I am working on one at the moment where 13 passengers died in a very serious fire on board and during the abandonment of the vessel) where there is no evidence of any effective implementation of the SMS – there is sometimes a culture of arrogance and / or complacency – or total lack of motivation by Masters and officers who perceive their loyalty to be towards Manning Agents in Manila, or elsewhere, and do not seem to have any sense of identity with the ship operating company – or its SMS.

Sorry that I cannot provide clear answers to your questions.

Kind regards

Phil

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NIPPIN ANAND 1

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Fra: Anand, Nippin <Nippin.Anand@dnvgl.com>
Sendt: 18. april 2017 16:10
Til: Anand, Nippin
Emne: Article
Vedlegg: 30 years on.pdf

Dear all,

Here's a paper with some thoughts on the success of the ISM Code within the maritime sector in the past two decades, as always comments, criticism, feedback is very welcome.

You will notice that the figure is not clear – please read the context of BowTie (otherwise referred to as 'hazard') as 'Navigation through the English Channel'. Reason - the paper was submitted later than the deadline and the editor tried very best to publish the paper despite last minute submission.

Best wishes, Nippin

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Thirty years on: In search of broken components

Introducing barriers has become a standard way of managing risk and safety – but it is not necessarily the best one



Nippin Anand
FNI

On 6 March 1987, the passenger ferry *Herald of Free Enterprise* capsized on departure from Zeebrugge, resulting in the death of 193 passengers and crew. It was considered one of the most severe accidents in the history of the maritime industry. The official inquiry into the case put the cause down to a ‘disease of sloppiness’ within the organisation. The *Herald* along with *Estonia*, *Scandinavian Star* and similar high profile accidents, led to the introduction of the ISM Code and the adoption of the safety management system. This year marks the 30th anniversary of the *Herald of Free Enterprise*, and we are faced with some difficult questions. What has the ISM Code achieved and what lies ahead?

If safety is understood and managed as a measure of ‘unsafety’ (accidents, incidents, near misses, defects and non-conformances), we are faced with a dilemma. On the one hand, we are striving hard to minimise ‘unsafety’ by setting ambitious goals (such as zero accidents). On the other hand, technological advances and cost pressures are making our goals unrealistic. Improving safety by focusing on ‘unsafety’ alone can only work to a certain extent. Beyond that, this approach becomes futile without a shift in thinking.

Plugs and barriers

Humans have made significant progress in disciplining workforces and addressing the problem of ‘human error’. In fact, most accidents are based on human failures. In the last few decades significant progress has been made in understanding the various sources of errors (for example, James Reason distinguishes between skill, knowledge and rule-based errors based on Jens Rasmussen’s model of human information processing). Several studies have been carried out to expand on the catalogue of errors aimed at controlling those errors by first introducing barriers and then plugging any ‘holes’ in those barriers. (The term ‘barrier’ is commonly used in barrier-based safety management.)

But the moment we introduce a barrier or a plug we are faced with even more challenges. First, the commitment to invest in a barrier (or plug) comes with certain expectations that it will justify the cost of investments. A key benefit of introducing bridge navigation alarm systems was that it allowed companies to consider reductions in manning levels. Second, introducing a barrier also means a commitment to maintain the functionality of that barrier throughout its operational life. Without this commitment, the barrier itself becomes a risk. And when technologies advance faster than our ability to regulate them, introducing barriers without suitable control mechanisms such as training and development, maintenance regimes or some other form of regulation creates more problems than they solve. ECDIS assisted groundings are just one example.

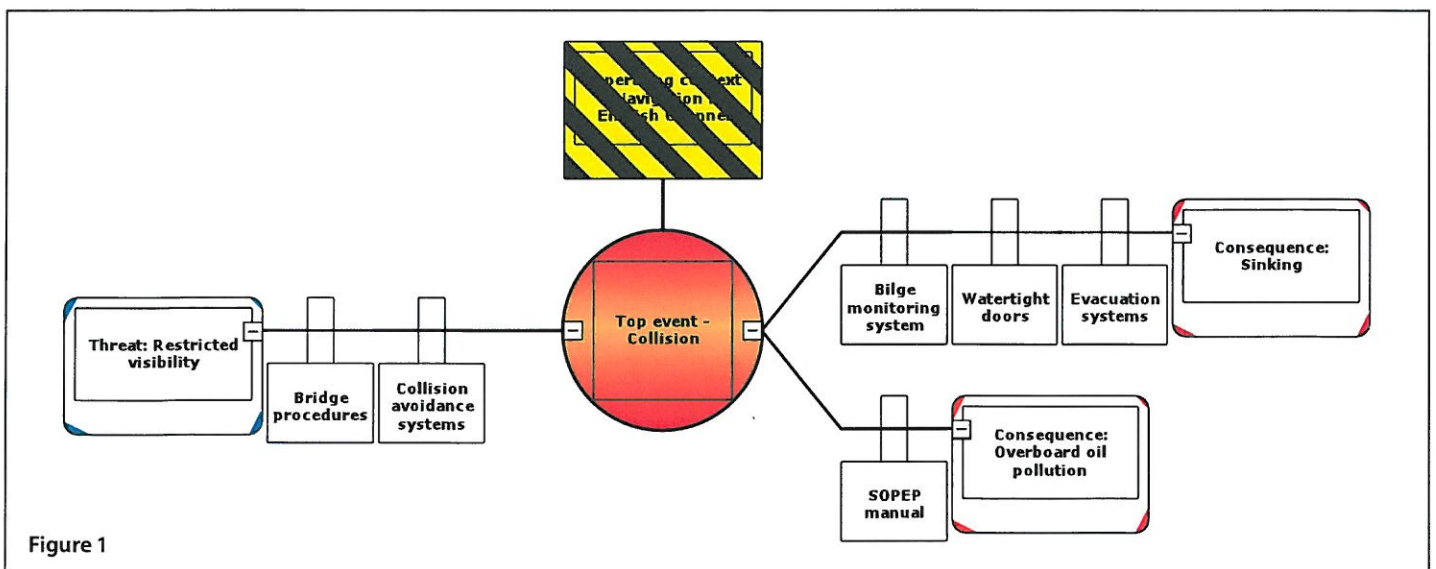


Figure 1

Process safety management

Focusing on malfunctions, failures and errors leads us to another problem. Imagine a system where energy flows from one direction to another. A threat enters the system at one end. If the system is not adequately designed and protected by barriers, the same threat can result in a catastrophic failure on the other hand (see figure 1).

Focusing purely on errors makes at least some sense if the system we are dealing with is purely mechanical and if the barriers are capable of functioning with minimal human intervention. A seized valve can be replaced and a corroded section of pipework can be cropped and replaced. The laws of physics determine the safety of such systems.

But what if the system is more than just mechanical? What if humans are involved in making the system function, and the success and failure of the system is determined by human action? The answer is process safety management and it sounds impressive.

Patent and latent errors

The *Herald of Free Enterprise* departed from the port before departure checks were completed. The vessel was still three feet down by the head with ballasting in progress when she departed from port. At the time of departure, the chief officer assumed that the assistant bosun had proceeded to harbour stations, when in fact the bosun was fast asleep in his room and was not awakened by the station's call. The bosun was of the view that it was not his job to close or even ensure that the bow doors were closed prior to departure. And the Master felt that unless told otherwise he would assume that the bow doors would have been closed prior to sailing.

If we looked at these issues as patent (human) errors and latent (organisational) errors we would come up with a list of barriers and plugs to put in place to prevent the accident. Barriers included the lack of a rest hour log, bridge team management training to ensure closed loop communication, an alarm management system, clear reporting lines and detailed job descriptions. But if we examine most accident reports, many of the 'errors' are recurring issues. For example, this was not the first time the bow doors on the *Herald* had been left open. Similarly, the day of the incident was not the first time the fin stabilisers on the *Finnarrow* were left open. In the case of the *Hoegh Osaka*, the practice of loading undeclared cargoes was certainly not new within the industry.

Near miss reporting

Both patent and latent errors are part of normal work in a resource-constrained work environment and most errors are recoverable if detected in time. The trick is in paying attention to the most frequent errors and encouraging reporting of them. Near miss reporting is an appropriate tool to make this possible. It is unfortunate that parts of the maritime industry seem to have grossly misunderstood the purpose of near miss reporting and turned it into a number crunching exercise to satisfy insatiable KPIs. An error detection and reporting system that may have been used constructively is sometimes employed to control the behaviour of those at the bottom end of the labour markets, such as crew not wearing personal protective gear.

I am not against reminding people about using PPE. But if that is how we perceive most errors, it misses the point of near miss reporting. On the other hand, if we broaden our understanding of 'errors', we may become less concerned about missing log book entries and typographical errors and concentrate on what matters. Unfortunately, however, it is the former that take up most of our resources.

Concurrence of normal events

Imagine standing on the opposite side of a door as someone slams it opens towards you. Chances are it may hurt you. If we approached this problem in a mechanical fashion we could replace the door with sliding doors (an expensive affair), signpost it, or paint the floor yellow

– which would be cheapest. But note that the phenomenon is not permanent. It is transient. Two minor events, the abrupt opening of the door and someone approaching from the other side, have coincided and resulted in an abnormal situation. If we introduce barriers to prevent every such event, very soon workers will stop paying attention to the control measures, and may even laugh at us.

Similarly, imagine driving a car in wet weather with tyres that are worn, but within the legal limits, and having consumed a glass of wine (still within legal alcohol limits). Then there is a sudden bend on the road. If the car rolls, what is the root cause?

Many accidents are based on a concurrence of events which were all within the limits of defined tolerance, and actions which are part of normal work that combine to emerge as an undesirable outcome. The cause and the consequence are out of proportion. Of course, you could argue that the person on the other side of the door may have lost situational awareness and the driver in the car had become complacent, and overburden the system with even more controls, to prevent these things, but this is far from an ideal solution.

To overcome this problem, it is important to look at 'errors' – or minor deviations and actions that are part of normal work – in different situations and test the capability of the system to recover from those errors. If verbal communication with a seafarer is problematic, it is important to identify situations where this could become critical for system safety, such as hand steering in narrow channels or during emergencies. In this way we make effective use of resources and exercise control where it matters.

What lies ahead

In the 30 years since the capsizing of the *Herald of Free Enterprise*, we have made significant progress as an industry. But this progress has also led us into believing that we can explain the 'root cause' behind most accidents by looking for errors and failures. Our search for errors, near misses, incidents and non-conformances has become more intense. In an attempt to make the system safer, every inspection and investigation must come up with a list of root causes and non-conformances. We have arrived at a stage where our control mechanisms have fallen behind our abilities to manage the risks that we face. Further improvements will require a shift in the way we think about managing safety.

If we think about safety in a purely mechanistic way, and workers are treated as components in the system waiting to be blamed, we have been misled about managing safety. Things that mostly go right will occasionally go wrong where humans are involved. But this does not mean that we must over-react to every error and frantically introduce barriers and plugs for the sake of doing so. If we did so, the system will slow down to such an extent that no work will ever get done. For instance, the *Hoegh Osaka* lost stability and ran aground despite – or because of – a total of 213 checks for cargo operations alone. The industry is not in a position to afford more regulation and controls and the cognitive load on the average seafarer has reached its peak. Perhaps we need to remove some barriers and unplug some holes by looking at safety differently. The alternative is to hold senior management accountable for the functioning of each barrier. That, after all, was the intention some 30 years ago. 📧

Disclaimer – The views expressed in this article may not be the views of the organisation that the author represents.

jan H. Harsem

Fra: Anand, Nippin <Nippin.Anand@dnvgl.com>
Sendt: 22. april 2017 10:37
Til: jan H. Harsem
Kopi: Arne Martin Sagen; CLaverick@uclan.ac.uk; philanderson@consultism.co.uk
Emne: RE: SKAGERRAK ISM CODE

Good morning Jan

Thank you for your email, I'm sorry for being a bit tardish but it's been a very busy few months. It's also nice to hear from Phil, since we have lost touch for a while so thank you for connecting us.

1. What do you consider as the main intention by the development of the ISM-code? – I believe that the ISM Code was established with the view to prevent and mitigate the risks of high consequence but low probability accidents in the maritime sector. All the major accidents up to the time that the Code was implemented were suggestive of a lack of control and ownership from the management ashore and the intention was to control major accidents from recurring.
2. How will you describe the status for the ISM-code in international ship operations today? – as with most policy intentions, the intention is good to start with but the outcome of the implementation is not always in line with the original intentions. The ISM Code has become a nightmare for many companies for a number of reasons – the methodology of the Code only focuses on 'unsafety' (ie accidents, incidents, near misses, non-conformances etc.) which by the way is morally, ethically, and both from an economic and reputational view very disturbing to accept. I have been for example told many time that how could you issue a 'clean audit report' to a company. All the negative reporting becomes the basis of 'continuous improvements'. The methodology also implicitly believes that safety sits in isolation from the wider activities of an organization. How could we think of establishing a 'SMS' that deals with safety and environment issues only when safety is a matter of compromises and trade-offs in every decision we make.
3. Is the intention of the ISM-code fulfilled in 2017? – We have come a long way in managing safety when it comes to low consequence and high frequency incidents; in fact in many trade sectors such as the tanker and LNG segment we have now reached the peak of personal safety. But that is not because we have addressed safety genuinely, it is largely due to being able to control the weakest and the most vulnerable segment of the maritime labour market by instilling fear in their minds. But the original intention was to prevent major accidents from happening – fire, grounding, collisions etc. I am not sure we have been successful at managing high profile risks but I do not have data in hand to support this.
4. What is the matter objections that eventually are creating a gap between the intention of the ISM-code, and the status of the ISM-code in 2017? 1) Lack of ownership and accountability of senior management 2) tenuous relationship between safety and certification (based on minimum compliance) 3) methodological limitations of the ISM Code based on quality standards (for example proceduralisation of safety, negative reporting, risk identification and assessment) 4) serious lack of expertise (most inspectors and HSEQ staff either have engineering background or very superficial understanding of social sciences) 5) speculative investments and short termism in global shipping which makes serious commitment to investing in people extremely difficult for companies.

You can view profile at nippinanand.com

Jan H. Harsem

Fra: Arne Sagen <a.sagen@online.no>
Sendt: 20. april 2017 20:46
Til: 'Jan H. Harsem'
Emne: SV: SKAGERRAK ISM CODE

Scandinavian Star kommisjonsjon 2017.

Jeg har følgende svar og kommentarer til de forelagte spørsmål:

1. Overordnet ansvar for skipets drift:

Den historiske utviklingen av skipsdrift var at hvert enkelt skip var en selvstendig enhet under kommando av kapteinen. Dette var nødvendig av hensyn til begrensede kommunikasjoner mellom skip og evt. eiere.

I den moderne tid har denne praksis blitt videreført, med det synspunkt at kapteinen alene hadde det fulle ansvaret for skipets operasjon, også under kriminelle, assurancemessige og erstatningsmessige forhold.

Dette skapte til dels store forviklinger med hensyn til hvem som hadde det operasjonelle ansvar. Flere hendelser som brannen på Scandinavian Star, oljeforurensningen fra Exxon Valdes, og kantringen av bilfergen Herald of Free Enterprise i slutten av 1987, med tap av 190 mennesker skapte stor uklarhet i ansvarsforholdet, og bisto til at IMO tok definisjonen av ansvar opp til ny vurdering

Det egentlige veiskillet kom i lyset etter kantringen av Herald of Free Enterprise, da fem av mannskapet ble ført frem for dommeren i Old Baily i London. Han spurte hvem disse mennene var, og fikk opplyst at det var de fem overlevende av offiserer og mannskap som hadde ansvaret for ulykken. Han kommenterte at rederiet hadde vel også noe ansvar for skipets drift, og frikjente alle fem av mannskapet fra straff, d.v.s. de fikk alle hyrenektelse for en begrenset tid.

IMO startet da opp med utviklingen av et nytt regelverk for operasjon av skip, som fikk navnet ISM-koden, International Safety Management Code, og som trådte i kraft i 1998. Den overordnede momentet i ISM-koden var at det var rederiet som hadde det overordnede ansvaret, mens kapteinen hadde det høyets ansvaret om bord i skipet.

2. Status av ISM-koden i dag (2017)

ISM-koden praktiserer i hovedsak etter tre forskjellige prinsipper eller grupper:

- Ca 20 prosent av rederiene følger opp ISM-koden etter intensjonene, og viser et godt resultat
- Ca.60 prosent av rederiene praktiserer ISM-koden etter minimumskravene, de gjør det de må.
- Ca. 20 prosent av rederiene tar lite hensyn til ISM-koden, og bruker den eksterne revisjon som styringssignaler for reparasjoner og den daglige drift av skipene.

3. Oppfyllelse av intensjonene av ISM-koden

Ovennevnte svar viser at bare en fjerdedel av rederiene opererer etter intensjonene av ISM-koden, og oppnår gode resultater og en rimelig god driftssikkerhet. Utførte beregninger av classeselskapene viser at antallet ulykker for de 25 prosent dårligste skipene er fire ganger større enn for de 25 prosent beste skipene.

4. Gap mellom intensjoner og resultat

Tilsvarende gap mellom intensjoner og resultater som fremgår fra spm. 3 ville aldri kunne godkjennes i industriproduksjon, luftfart eller offshore virksomhet, idet det der krever oppfyllelse av kvalitetskontrollsystemer, som f. eks ISO 9000, som krever en langt strengere form for revisjon og dokumentasjon.

Et subjektivt syn fra undertegnede er at skipsnæringen hovedprinsipp med å rekruttere mannskap fra flere ukontrollerte og separate bemanningsselskaper etter de til enhver tid varierende overskudd eller underskudd av kvalifiserte og «sertifiserte» mannskaper ikke holder mål i de moderne industrisamfunn.

Med hilsen

Arne Sagen, FNI (Fellow Nautical Institute)

ISM revisor, ISO 9000 Quality Assessor, Flaggstatsinspektør, Havnestatsinspektør, rederiinspektør, Forskningsleder.

Fra: jan H. Harsem [mailto:jan@harsem.no]

Sendt: mandag 10. april 2017 17.27

Til: Arne Martin Sagen <a.sagen@online.no>

Kopi: jan@harsem.no

Emne: SKAGERRAK ISM CODE

Hei Arne

Renskrives og sendes til de du mener kan bidra. Skriv gjerne et notat du også

Jan

The norwegian parliament has appointed a commission which is carrying out further investigations after the Scandinavian Star disaster in 1990.

As a part of the mandate, the commission shall evaluate how the authorities have followed up the recommodations that was given by the Scandinavian investigation committee in 1990 – 91. The ISM-code was developed as a result of the Scandinavian Star recommodations, among others. The Skagerrak Safety Foundation has therefore requested the commission to evaluate the implementation of the ISM-code in the maritime industry, the Norwegian maritime port state- and flag state control, in maritime investigations and the work of the police and prosecutor authorities.

We don't know to what extent the commission is following up this request. Anyway: We consider that the status of the ISM-code is an essential issue in this respect, with consequences for the global safety at sea. Therefore we kindly ask you to elaborate your opinion. This can be done by writing a short note on the language you prefer, by answering these four questions:

1. What do you consider as the main intention by the development of the ISM-code?
2. How will you describe the status for the ISM-code in international ship operations today?
3. Is the intention of the ISM-code fulfilled in 2017?
4. What is the matter objections that eventually are creating a gap between the intention of the ISM-code, and the status of the ISM-code in 2017?

Please refer also to your background, and sign the note.

We are very grateful for your contribution, which can be sent by email to Arne or Jan

Your note will be forwarded to the parliamentarian committee.