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COPY TO:

Oslo, 1st January, 2018

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The Costa Concordia accident after 6 years:

**PETITION FOR PARDON FOR CAPTAIN SCHETTINO, SERVING TIME 16+ YEARS IN PRISON.
ITALY MUST STOP THE UNFAIR CRIMINALISATION OF THE CAPTAIN.**

This open letter to the Maritime Administration of Italy and to the president of Carnival Cruise is instigated by a group of professional mariners, seafarers and people concerned with the general safety aspect of the growing worldwide cruise ship industry. We are afraid that Italy's handling of the captain of *Costa Concordia* may have a demotivating effect upon the recruitment of qualified cruise ship officers and crew, and further have a detrimental effect upon the future marketing of the cruise ships services for the future

Finally, we feel that the unbalanced criminalisation of the captain, alone judged to be solely responsible for the total operation of the ship, is undermining the basic intention of IMO's ISM Code, the international code for safety management of ships and for pollution prevention.

New information changes the legal status of the accident and the accusations against the captain

The Italian cruise liner *Costa Concordia*, with 4.229 persons on board, capsized and partially sank after a grounding near the island of Giglio on 14 January 2012. The accident resulted in the loss of 32 lives. Attached please find our SAFETY MANAGEMENT VIEW of the new analyses of the *Costa Concordia* case.

Captain Schettino was sentenced to 16 years+ of imprisonment by the criminal court of Grosseto, without any reference to the IMO's ISM Code, the international code for safety management and operation, and in the absence of the required qualified independent safety investigation (see below).

Captain Schettino finally appealed to the Italian Supreme Court, which refused to re-open the case. Captain Schettino has now served 5 ½ years in house arrest/restricted area, and 4-5 months in prison.

The shipping company Costa Crociere, a brand of the Carnival Group, avoided any legal sanctions against the company, by entering into a plea bargain with the court of Grosseto, by the payment of a fine of 1 million Euros. In practice, by the granting of the plea bargain, the company paid themselves free of any management and operational responsibility, and the court thereby delegated the sole responsibility for the ship's management and operation to the captain. Furthermore, also the members of the bridge team were released by the granting of plea bargains. We claim that the transfer of the operational responsibility from the company to the captain by plea bargains, is a clear breach of the requirement of the ISM Code. Captain Schettino is now preparing his case for further appeal to the European Human Rights Court.

The indictment against Captain Schettino specifies a great number of accusations, which the Italian court stated as criminal liability. The indictment refers to the SOLAS and STCW conventions, but gives no reference to the ISM Code. Italy has formally ratified the ISM Code, but we question whether Italy has implemented the ISM Code in the national judicial legislation. We fail to understand that the ISM Code is fully implemented by the Italian Maritime Administration, when the Italian Courts is transferring the sole responsibility of the ship operation from the shipping company/management to the captain.

No criminal court actions against the captain or any crew member should be taken by any court without the statutory investigation and the full knowledge of **what** happened and **why** it happened. We refer to the attached "SAFETY MANAGEMENT VIEWS" of the 1st of January, 2018, for more details.

REQUESTS

We request the Italian Maritime and Judicial Administration to pardon captain Francesco Schettino for the verdict of 16+ years of imprisonment, for his command of Costa Concordia during the accident the 13th and 14th of January 2012.

Alternatively, we make the following plead to president Arnold Donald of the Carnival Company

If the Italian Maritime and Judicial Administration do not accept to permit a pardon to Captain Schettino, we sincerely request the president of Carnival Company, as the owner of Costa Concordia, to remunerate to Captain Francesco Schettino the necessary funds to provide the required legal support to appeal his case to the European Court of Human Rights in Strasbourg.

We feel it is highly unworthy that proud cruise ship captains have to go street-begging to finance the cost of the necessary judicial services of conflicts related to the captain's function as the commander of the ship. (Such legal support was first promised to captain Schettino by the company, but was later withdrawn.)

Yours sincerely,
SAFETY MANAGEMENT AS

Arne Sagen, FNI
(Sign)

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Ex Shipping company superintendent
Seafarer

The company Safety Management AS has no economic interests in the Costa Concordia case. Our concern is only to give support to ship's passengers and seafarers, based upon ideal basic



Safety Management Views

Editor: Arne Sagen
Accident Investigator

Oslo 01.01.2018

The Italian trial and conviction of Costa Concordia's captain Schettino:
Italian report reveals serious breach of IMO and EU directives by the Italian Court.

New information from Italian accident report vindicates captain Schettino:

1. Italy failed to provide Safety Investigation in accordance with EU Directive 2009/18/EC
2. Italy failed to implement the ISM Code in the Italian legislative system
3. The *Costa Concordia* performed illegal operation ECDIS electronic navigational system.
4. The captain's final evasion turn failed because of the helmsman's linguistic problems
5. After the failure of the launching of 3 port lifeboats, all of the 32 lives lost were caused by the rescue officers ordering some passengers to cross the ship to starboard side.

Status of today:

The company avoided criminal charges by entering a "plea bargain" with the court of Grosseto by paying a fine of 1 mill. Euro. The bridge team members also entered "plea bargains", and were released with provisional sentences only. However, the captain's request for a similar "plea bargain" was refused.

The captain was given the sole responsibility for the accident, and was sentenced to 16+ years in prison. This verdict was appealed to the Italian Supreme court, who refused to re-open the case against captain Schettino. Captain Schettino is now serving his 16+ years of imprisonment in Rebibbia Prison in Roma.

By a new scrutinizing elaboration of the Italian MIT Accident Investigation Report, together with various Italian court proceedings and case documentation available in English text, and by the free interpretation of available documents from Italian text to English text, it seems clear to us:

- The Investigation Report is inappropriate and not in accordance with EU directive 2009/18/EC
- Several new items of crucial information from the report gives evidence to vindicate captain Schettino.

Conclusion

A Norwegian private analysis of the Italian MIT Accident Investigation report of *Costa Concordia*, reveals crucial new information which is a significant contribution to the clarification of various new elements and possible causes behind the *Costa Concordia's* accident. This is to the benefit of the cruise ship industry's continuous struggling to improve the safety aspects of the worldwide cruise ship industry, and to vindicate captain Schettino from an unfair criminalization by the Italian Maritime Administration and the Italian criminal Court. The court may have been misled by the inappropriate Accident Investigation report.

Safety Management Views

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1. Breach of EU's directive 2009/18/EC for safety accident investigation of ship accidents

Claim: The Italian MIT Accident Investigation Report is not complying with the EU directive 2009/18/EC for statutory Accident Investigation of serious ship accidents. The main requirement of the EU directive is to clarify what happened, when it happened, and why it happened. The MIT report failed this clarification. No seafarer (or any other citizen), should be convicted without the comprehensive factual informations.

As requested by the EU directive 2009/18/EC for safety investigations of serious ship accidents, the Italian maritime administration is required to carry out a safety investigation of *Costa Concordia's* accident of the 13th January 2012. The Italian administration failed to do that, but made only a rudimentary investigation.

As German citizen passengers were among the victims, the German Accident Investigative body BSU participated as a «substantially interested state». However, according to the Italian law, such a safety investigation is in conflict with the Italian law, as the criminal investigation of the accident have priority over safety investigations. Consequently, the criminal court's prosecutor refused the investigative body free access to the wreck, to the «blackbox» (VDR), and to the ship's officers and crew for interviews. The BSU protested about this restriction from the Italian prosecutor's office, and finally decided to pull out of the investigation, referring to the EU-directive EU 2009/18/EC, which states the following in article 4:

“Member States shall ensure, in accordance with their legislation and, where appropriate, through collaboration with the authorities responsible for the judicial inquiry, that the safety investigations are

- a) ***Independent of criminal or other parallel investigations held to determine liability or apportion blame, and***
- b) ***Not unduly precluded, suspended or delayed by reason of such investigations.”***

U directive 2009/18/EC

On 18th of May 2012 the Italian Ministry of Infrastructure and Transport reported on the *Costa Concordia* accident at the 90th session of the Maritime Safety Committee in London. The Italian accident report is correctly confirming this situation by the following references to the restricted safety investigation in Italy :

“Legal Pre-eminence of criminal Investigation above the other ones”

“Cooperation between the Criminal and Technical Inquiries, however some due dates provided by the law are to be respected”

“Next 21st July, the Experts of the Prosecutor will provide the outcome of the VDR analysis and the Investigative body will have complete access to the data”

MIT Italian Maritime Investigative Body on Marine Accidents, Report to MSC90 of 18 May, 2012, page 5

These quoting clearly illustrate the inferior status of the Italian safety investigation of *Costa Concordia*. Furthermore, the controversy between the requirements of the EU-directive 2009/18/EC and the Italian practice is further elaborated in the Germany BSU Annual Report of 2015, presenting this conflict as follows:

“The cause of this enormous obstruction to marine casualty investigation is the Italian legislation, which states that the investigative proceedings of the public prosecutor's office and later the judicial proceedings have full and absolute priority over marine casualty investigation.

Marine casualty investigation authorities have virtually no rights of their own. This is made all the more surprising by the fact that with effect from 17 June 2011, European legislation (in the form of Directive 2009/18/EC) has required that Member States ensure marine casualty investigations can be carried out independently of criminal investigations and that they are neither precluded, suspended, nor delayed by reason of such criminal investigations.

Why the European Commission has not insisted on a remedy remains a mystery. In the given circumstances, the BSU had no option but to withdraw from the investigations into the COSTA CONCORDIA (and the NORMAN ATLANTIC to). As a result, the COSTA CONCORDIA disaster remains largely unexplained from the perspective of the marine casualty investigation.”

Bundesstelle für Seeunfalluntersuchung – BSU, 2015 Annual Report, page 7

We find that this restriction of safety investigation, imposed by the Italian court prosecutor's office, clearly demonstrates the conflict between the Italian national legislation and the EU directive 2009/18/EC, and leads us to question if the EU directive 2009/18/EC really is implemented in the Italian legislative framework.

We fully agree with the above critical comments from the Germany BSU, that there is a mystery why the European Commission has accepted that the Italian national administration is neglecting to comply with the EU directive 2009/18/EC. This problem remains unsolved and is not commented by the EU, to our knowledge.

Examples of grave faulty or inaccurate items of the MIT *Costa Concordia* accident report.

1. Primarily, the Italian MIT Accident Investigation Reports is not complying with the requirements of the IMO Standard and Recommended Practices for Safety Investigations into a Marine Casualty or Marine incident (IMO Resolution MSC.255(84), nor with the EU Directive 2009/18/EC of the European Parliament and of the Council.

2. The report is not impartial, as it should be. The report is extremely inaccurate, incomplete and is biased in disfavour of the captain and in favour of the Company. The report is partly contradictory and partly false.

3. As per the EU directive 2009/18/EC, Investigations shall not at all be concerned with “*determining liability of apportioning blame*”. On the contrary, the report is quite frequently stating that the captain is the cause of the accident. Here are some examples from the summary, page 3-10, where the following statements are clearly concluding that the accident is the fault of the captain.:

*“The ship was sailing too close to the coastline, under the Masters command.” (Correct: by the bridge team)
“after the casualty, caused by the Master in combine with the officer's staff, present with him on the bridge
“the Masters unconventional behaviour, which represents the cause of the shipwreck”
“the focus is on the behaviour of the Master and his decision to make a hazardous passage in shallow waters”.*

4. It is not clear from the report that the “black box” (VDR), uncritically used as the evidence for very strict sentences of the captain, was partly out of service prior to the first navigational event. Furthermore, most of the VDR voice recordings were of an extremely poor quality, some part of it was not even readable, and some of the interpretations of the bridge communication had to be improvised by linguistic specialists.

The “black-box” (VDR) failed to inform about the ships listing, thereby causing very inaccurate information about the rate of increased listing during the various phases of the rescue work. This fact is not taken into

consideration in the description of several parallel events, as cross-references show a difference up to 5-10 degrees.

5. A possible technical system failure of the telescopic davits, causing the failure of launching of six lifeboats (3 port and 3 port starboard), released by pressurized gas bottles, should be properly investigated.

6. The elaboration and critical assessment of the pre-provided voyage plan seems to be inappropriate and false, and should be carried out by impartial professional navigational experts, supported by all nautical information from these waters, as several of the accusations against the captain alone, seems to be incorrect. Some examples of possible misunderstanding are:

Page 162: Description of the master's behaviour: *"about errors as false hypothesis, pressure, decision, mistake, he applied a bad rule to the manoeuvre "lapse" (he omitted the handover)".*

The captain's action by taking the con, when he saw the white foam in front of the vessel, was absolutely not a regular handover of duty, but an emergency takeover of the con with one purpose only, to get the ship out in open water as soon as possible by turning to starboard. He made that clear by his crying, *"we are sailing ashore, I take the con."* This is not the time for a several minutes correct handover of the bridge duty. This emergency situation should be understood by any qualified marine operator or investigator.

Page 30: *"The instrumentation of the bridge is almost entirely in function thanks to the dedicated batteries (UPS) that can guarantee a certain degree of independence."* This is not correct, see below.

Page 31: *"At 22:10:36 the NAPA (software stability) is running and will operate the Radio Officers and 3rd Deck Officer, however, is not constant"*. This statement is false, as the NAPA stability computer was not working at all after the black-outs, as the computer was wrongly not connected to the continuous power supply (UPC), and had to be provisionally connected by the crew. Furthermore, the stability computer was of the "passive" type, i.e. all information had to be manually loaded, as the relevant open compartments (WTC) had no level sensors installed. This operation of the stability computer was of no use in this accident, but according to the captain, a big waste of time and effort for the bridge team, who was desperately striving to get the picture of the ship's survivability in a very urgent situation,

The captain's statement is confirmed by the following information about the NAPA stability computer on page 131, by the quoting some excerpts as follows:

«The (NAPA) software cannot supply a dynamic/progressive indication on the ship's stability in damage condition as it is not able to automatically monitor the water ingress and levels into the compartments; even though had the crew sounded the flooded compartments – action not possible to undertake in the casualty we are dealing with – the information would not have been so relevant for NAPA. As a matter of fact, as already explained, the manual introduction of one compartment flooding percentage produces stability criteria wholly divergent from the reality because the compartment is considered intact.

«The software does not provide information on the actions to be taken in case of flooding,»

Correctly, the MIT report chapter "Recommendations" (page 170) is recommending (for the future) the installation of an extended installation of stability computer:

" P3. Provision of computerized stability support for the master in case of flooding

P4. To provide “Interface between the flooding detection and monitoring system and the onboard stability computer, taking into consideration regulations II-1/8-1 ...”

7. Impartial presentation of the captain’s role: The treatment of the captain is dominated by defamation and a total lack of authority and respect for his command, which is granted the captain by the ISM code, ch. 5.5.

“The Company should establish in the SMS that the master has the overriding authority and the responsibility to make decisions with respect to safety and pollution preservation, and to request The Company’s assistance as may be necessary.”

The ISM code, ch. 5.5

Some parts of the report is written in an ironic way, disgracing the captain’s own will or mind, such as:

“From this moment the Master starts giving the orders no more for the bows, but for rudder angles” (p. 28). This sentence indicates, wrongfully, that the captain deliberately took the con to extend the “bow”. According to the evidence of the VDR recording, this is not correct, as the captain took the con to make an evasive manoeuvring to avoid grounding, after he observed white foam ahead. This is documented by the VDR’s recording of the captains crying out *“we are sailing aground”*, before he took the con. In this respect, it is also a paradox that the report is criticizing the captain for not having prepared ample time to establish his “night sight” before he entered the bridge, but he was the first one to spot the white foam ahead of the ship, and thereby avoided an even bigger catastrophic outcome of the navigational blunder.

7. The MIT accident Investigation reports are neither dated nor signed, and state as follows:

“This hypothesis will be submitted to EC by a special request for a formal approval, also to be used in similar exceptional cases through i.e. specific resolution amending the EU Directive 2009/18/EC.”

It is not clear whether the MIT accident report is finally received or approved by the IMO and the EU Bodies.

Conclusions: The MIT Accident Investigation report is inappropriate as a safety investigation

Summing up, the MIT Accident report is presented in an extremely unprofessional way, not at all in conformance with the basic terms of any accident or police investigation, and is not written in an impartial way by qualified maritime professionals, unbiased of the determination of liability or apportioning blame.

The purpose of this accident investigation report should be to clarify the circumstances of a serious ship accident, causing a great number of deaths and injuries, to be a guidance for the necessary amendments of the maritime and environmental regulations, and establishing the foundation for the trial and judgement of the involved professional seafarers. However, it must be characterized as an insult to the entire shipping profession to be presented with some of the reports highly unprofessional statements as:

“Orders progressive left (up to hard left) were probably given with the intention to “stop” the rotation of earth to the stern.” (Page 55)

2. Inappropriate implementation of the ISM Code in the Italian judicial system.

Claim: The Italian court’s practice of granting Plea Bargains to the Company, by delegating the total responsibility for ship operation to the captain, is a breach of the basic intention of the ISM Code.

The ISM Code (IMO's International Safety Management Code) seems to be formally ratified by the Italian Maritime Administration, but the ISM Code is not implemented in the Italian legislative and criminal law system:

The ISM Code is the internationally agreed convention for maritime safety management. It is considered to be a paradigm shift for international maritime safety when the ISM Code was developed by IMO, and became mandatory from 1 July 1998. The ISM Code states that the overall safety culture, routines, and procedures established for ship operation are first and foremost the responsibility of the ship operating company.

This company responsibility is defined by the ISM Code chapter 3.1, as follows:

"If the entity who is responsible for the operation of the ship is other than the owner, the owner must report the full name and details of such entity to the Administration.

The ISM Code, chapter 3.1

As no such statement, that the captain is the "sole responsible for the operation of the ship", exists, it must be the Company who has the final responsibility for the operation of the ship. The ICS International Chamber of Shipping's "Guidelines on the application of the ISM Code" gives the following definition of the difference between the captain's responsibility, versus the Company's responsibility, by the introduction of the ISM Code:

"In the final analysis, while the master is clearly responsible for the safety of the ship and her crew, the final responsibility for the administration and safe operation of each ship rest with the Company"

ICS "Guidelines on the application of the ISM Code", Introduction

This matter is further clarified by the ISM Code's chapter 1.4.3, the functional requirements for a Safety Management System (SMS) :

"Every Company shall develop, implement and maintain a Safety Management System (SMS) which includes the following functional requirements:

"1.3: define levels of authority and lines of communication between, and amongst, shore and shipboard personnel."

The ISM Code, chapter 1.4, Functional requirements:

However, The Italian court proceedings and accusations against the captain gives the impression that the captain is delegated the sole responsibility of the *Costa Concordia's management and administrative operation*. This is a grave misconception of the ISM Code, the intention of the code is that the captain has *the ultimate responsibility onboard the ship*, while the Company have the overall and final responsibility for *the administration and safe operation of the ship*.

The trial of captain Schettino by the Italian criminal court indicates that in spite of the ratification of the ISM Code by the Italian Administration, the code is not implemented in the *judicial system*.

The indictment against Captain Schettino contains a great number of issues which the Italian court has defined as criminal liability. These indictments refer to breach of the SOLAS, STCW conventions and even the breach of the company's internal procedures, without any reference to the ISM Code's requirements to the Company. Italy seems to have ratified the ISM Code, but simultaneously practices an outdated interpretation of national legislation which is freeing the Company from their responsibilities under the ISM Code.

The development and provisions of the procedures and systems required by the ISM Code are the Company's responsibility. If the responsibility should be delegated to the captain, the classification society, this

organisation's function and responsibility, this must be clearly defined. Possible failures in such routines and systems should not be blamed solely on the captain.

From the court of Grossetto's document "THE ACCUSATIONS" against captain Schettino (11.02.2015), the accusations are including several breach of the Company's internal SMS Manual. This is a grave misconception of the ISM Code.

The ISM Code is not expressing any specific requirements to the quality and adequacy of the requested procedures for key shipboard operations (as per ISM Code ch. 7), but common sense should make no doubt that the intention of the requested procedures and plans for shipboard operations, is that the various procedures are suited and adequate for the purpose, are complying with the relevant laws and regulations and should be kept simple and adequate for the purpose, in a language and vocabulary adapted for the relevant crew for each individual ship (ship-specified).

It is a quite common understanding that the final certification of the shipboard or company SMS Manuals is an assurance that the adequacy and suitability of the procedures are controlled and approved by the relevant administration or classification societies. This is again a common misconception of the ISM Code, as no such thing is within the scope of external verification of the ISM Code certification. It is the Company who is primary responsible for the suitability and the adequacy of the SMS procedures. The captain's responsibility is restricted to frequently carry out a reviewing of the SMS ("the captains audit"), and reporting possible deficiencies to the shore based management (ISM Code chapter 5.1.5).

We don't dispute the Italian Maritime Administration's sovereignty for their ships sailing in Italian waters, but we are very concerned about of the fact that Italian flagged ships are also sailing in other territorial waters (as USA, European and Nordic waters) without an appropriate controlling of compliance with the ISM Code.

3. Illegal use of electronic navigation system (ECDIS), and inappropriate training of navigators

We refer to the following excerpt of the MIT Costa Concordia Accident Report, section 4.3.2, "Nautical charts and publications updating, use of ECDIS", page 46-47:

Start of quoting -----

«The ship, as described in "safety certificate for passenger ships", has of "ECDIS" (Electronic chart display and information system), this equipment is accepted by the SOLAS Convention to replace the charts and nautical publications and ensure the travel planning and monitoring of navigation.

The ECDIS is mandatory as established by Solas - Chapter V - Rule 19 (amended 2009) for existing passenger ships over 500 GT (like the ship in question) the installation is mandatory from 1 July 2014.

In order to use the system is asked by the STCW Convention Regulation A-II / 1 - as rewritten by the amendments of "Manila" entered into force January 1, 2012 - that the on duty on the bridge have supported a specific training; the courses for that purpose have been established in Italy, in the light of these amendments, by Decree of the Ministry of Infrastructure and Transport on December 5, 2011.

Although we think not applicable at the time, the disposition of the Decree 5 December 2011 that should be considered complementary to the technical standard that requires the installation of ECDIS, however, is applicable a general rule that the deck officers are provided familiarization with the equipment to be used (STCW A-VIII / 2 - Part 4 (Para 36) - STCW A1/14).

The ECDIS installed on board the "Costa Concordia" is therefore "voluntary" does not mean that the same can not be used for its intended purposes subject to compliance with the general regulations regarding familiarization.

The procedure "P.14-MAN 01 SMS - Procedures for the bridge", while underlining that "integrated navigation systems" (a component of which is the ECDIS) does not replace the traditional paper charts (Para 4.3.4.) considers them a navigation aid, recognizing the need for deck officers to receive general information on the use of electronic charts, so a proper familiarisation

Please also understand that the use of ECDIS is required to obtain the "integrated navigation system", the planned voyage must be loaded in order that the navigation mode TRACK-MODE can be carried out.

With regard to the familiarization of deck officers with the ECDIS, the objective evidence in this regard would be the procedure with ISM P.5.03.03 MAN1 MO SMS COP 8 (Annex 30), despite it does not show that there is a specific reference ECDIS equipment.

By the investigation, although not resulting in the ISM procedures specific documentary evidence on familiarization with the ECDIS can be considered, from the evidence acquired, that deck officers had received familiarization with the ECDIS installed on board.»

End of quoting -----

NOTE: We regret that we, by the above quoting, failed to understand the status of the ECDIS navigational equipment of *Costa Concordia*. We assume that the quoted text is based upon a not happy translation from Italian to English text, and in order to avoid misunderstanding, we take the liberty to make a short summary of our understanding of the quoted text in plain "shipping-English" text:

1. Costa Concordia was navigating with the illegal use of an integrated electronic navigational system (ECDIS). The status of the ECDIS is described as "Navigational Aid" and "Voluntary".
4. The operation of the ECDIS equipment was not included in the Bridge Procedures
5. None of the navigators, not even the captain, had the IMO required ECDIS training in accordance with the STCW requirement (by STCW Manila Amendment 2010)
6. According to Costa Concordia's Bridge Procedures, the traditional paper charts were stated as the primary system for planning and monitoring of navigation in close coastal waters.

Consequently, the captain's advice to the SOOW at his arrival on the bridge, to shift from ECDIS primary navigation to company standard paper chart and manual helm, was correct.

7. After the change to manual steering at the bridge, the final system of navigation became a compound of paper charts with helmsman as the primary means of navigation, combined with the illegal ECDIS system as an "navigational aids", and this is a very knowledge-demanding combination of navigation, which has caused several ship accidents (as *KRONPRINS HARALD* (1999) and *MV Rocknes* (2004) in Norway)

Summing up, by this use of the ECDIS system, without the IMO/STCW required training for the navigators, the use of ECDIS is illegal after the STCW Manila 2010 amendment.

NOTE: The installation of the non-approved ECDIS on the bridge is a breach of the relevant SOLAS/STCW/ISM Code regulations for the use of ECDIS. Any active operation of ECDIS on the bridge, either as “the primary navigation”, or as an “navigational aid”, without the IMO-based required training qualifications of the navigators, is not accepted. Furthermore, the ECDIS equipment should have been clearly labelled “For training purposes only” and be banned from use in any active navigation.

This new information is indicating that the installation and use of ECDIS onboard the Costa Concordia was illegal, and the Bridge procedures, as required by SOLAS, STCW and ISM Code, were not existing or inappropriate to give safe guidance to the bridge team navigators.

Furthermore, the inadequate Bridge Procedures present contradictory information, which may be further confusing to the team of navigational officers on the bridge.

Conclusion: New information requires an independent and qualified Accident Investigation:

This new information and clarification of the state of navigation prior to the first collision with the reef, sets several other aspects in MIT Accident Investigation Report in a completely new light, and the relevant sections of the MIT report must be corrected and re-edited.

As the navigational situation on the bridge, before and after the captain took the command over the navigation, is the core of the criminal case of the captain, resulting in imprisonment of 16+ years for the captain, seems to be based upon inaccurate or false information, all of the relevant sections of the MIT Accident Report should be corrected, and consequently, several of the accusations against the captain, probably most of them, should be should be revoked.

4. The captain’s final evasion turn failed because of the helmsman’s linguistic problems

The following part is quoted from the MIT report (page 63):

At 21 44 30, that is when the ship is still in turn gradually to reach 350 heading, the Scole are exactly 150 meters far from the bow (the ship is 809 mt off course.). Therefore, if we consider that the first half hull is then disengaged from the rocks before they spent the 37 "missing impact (occurred at 21 45 07), it is plausible that if in the last 32 deg rudder was left in the center, or slightly to starboard, the stern could have overcome the Scole without significant damage. As proof, it can be noted that from the ordinate nr. 150 till extreme stern exist 120 mts and that this distance is made in 15 secs, so it's just in the last 32 secs that hull feels the strong effect of the rudder to starboard, impacting violently with the ship's side, from the second half of the ship (the engine room then hits the rocks at exactly 21 45 15, in respect to the area of the ordinate 130, which collides at 21 45 07).

It should be pointed out, moreover, that wrong execution of the rudder order to all starboard, just few seconds before the impact, that was immediately corrected by the same helmsman initiative, has been showed to result not influent. (Focused by he author.)

• *A computer simulation has been developed, taking information from various sources, such as witness statements, survey reports and VDR recording data available into account, to obtain a reconstruction of the manoeuvring before the event and the ship's behaviour after the event. This is a reconstruction of the track according to the data extracted by the VDR that was used to make a real simulation of the contact moment that we are going to see in few seconds . It shows the last minutes of navigation before and after the contact against the rocks. Again, to make this simulation, the engaged Company used the official data recovered from the VDR, that's why it is possible to have an actual knowledge of what exactly happened in terms of course/speed/rudder. In particular, the course is reconstructed by simulating manually the track made by the ship during the event and it demonstrates actually how close to the shoreline the course was held and how slow and soft was the related turn. The simulation of the contact was reconstructed by using a reconstruction of the scenario and the track we have just seen, as created into the simulator and the orders given by the Master to the helmsman as recorded and extracted by the VDR. The simulation is done in daytime in order to make visible how close to the shoreline the ship was and that , until the last moments, during the course, the Scole rocks are at starboard, rather than port. However a simulation in night time was made as well (see the video – Appendix no. 4 and statement in Annex no.16).*

End of quoting -----

According to the Italian investigation of the VDR (the black box), there was a misunderstanding in command between the captain and the helmsman, as the helmsman did not understand the final order to «hard left», and first gave rudder in the opposite direction (starboard), before he, at his own initiative, again corrected the rudder position. The court (?) ordered a simulation to be done at an Italian simulation centre, and this simulation report estimated that the loss of time caused by the language misunderstanding of the helmsman, was app. 8 seconds.

As indicated by the above quotation, the court made the conclusion that as the first incorrect rudder application to starboard, while the order was hard to port», «*was immediately corrected by the same helmsman's initiative*», that the helmsman's fault was of no influence to the collision.

The court made the final conclusion as when Schettino's final manoeuvre to avoid the collision failed, the collision was only the captain's responsibility, and consequently made him guilty of shipwrecking and manslaughter, qualifying to a verdict of 16 years in prison for manslaughter.

We have not been able to study the details and premises for the simulation, but we feel that simple arithmetic indicates the following result:

The damages of the hull shows that the 8 meters stabilizer fin passed clear the reef. If we assume that the fin is located midships, quite close to the gravity point of the ship, and the pivot turning point was in the order of 1/3 from the bow, the gravity point (midships) passed the rock by at least 3-5 meter. If a possible alignment of the ship could be done, making the ship in parallel with the ship's movement, the entire hull would pass clear, possibly with damage to the stabilator fin, which would be of no influence to the total safety of the ship. The technical investigation shows that only a couple of inches added in the parallel position would be decisive for the outcome.

We claim that the entire premises and conditions for the simulation of Costa Concordia's final manoeuvres should be the subject of a new impartial investigation. In fact, we think that the

captain's final evasion manoeuvre to save the ship by the final order to «hard port» as the bow passed the reef, in fact was a masterpiece of ship handling, and should be studied more closely by all the maritime academies around the world.

NOTE 1: The Costa Concordia standard practice of manual steering by the use of helmsman should be reconsidered by all of the megasize cruiseships, as the use of helmsman may introduce a weak point in all critical operations. The helmsman should be replaced by the navigator's using joystick operations, preferably combined with the use of Azipod propulsion systems.

Note 2: According to information from Nautical Institute's Command Seminar in London in May 2017, (by captain Nick Nash) the Carnival Company have, quite recently, carried out a rather extensive full-scale research project about the helmsman's role on the bridge of a cruise ship, and concluded with the not surprising statement that the traditional helmsman has no place in the bridge of a cruise ship. We fully commend and support Carnival in this conclusion.

Note 3. The MIT report is not clarifying that a compound navigation system was used, with the paper chart as the primary navigation and ECDIS as an (illegal) navigational aid. This is confirmed by the Grosseto Court's transcript "Part 3, the appeals of the defends attorneys of Francesco Schettino and of the accused himself". On page 3 it is stated "*The Tribunal also had exact reproduction of the charts on which the original route had been traced the changed route made at the captain's request. The second shows the way-points for the turns of 278* to approach Giglio and of 334* to cruise toward the north. **This route was entered into the electronic chart system used aboard the Concordia.***" (...from the 2nd. Mate's statement))

The scale of the electronic chart is not stated in the transcript.

5. The Rescue phase:

The loss of lives (32) caused by wrong instructions from ship's officers to the passengers:

The failure of launching the 3 lifeboats port side resulted in a shortage of 450 passenger rescue seats, and the failure of launching ab. 26 main life rafts caused a shortage of 300-400 rescue seats for the crew; in total there was a lack of up to 700 rescue seats for passengers and crew.

The real causes of the failure of the launching of the three lifeboats and the 28 life rafts have not been formally investigated. As the technical operation of launching of lifeboats is considered to be rather simple, we fear that the three failed lifeboat launches were caused by mechanical failures.

Only 23 of the 26 lifeboats and about 6 of the 34 life rafts were successfully launched. All together a total capacity of around 3.500 rescue seats was launched, according to the Maritime Investigative Report. This means that there was a shortage of up to 700 rescue seats, and as a or miss-operation of the telescopic davit arms. But this problem is disregarded by the MIT report.

As a consequence of this, there is reason to assume that many of the crew members probably occupied the lifeboat seats designated for the passengers.

Of the 52 crew members assigned to launch the lifeboats (2 on each lifeboat), only 35 of them had the required lifeboat competency certification, and of the 48 crew members assigned for the deployment of the life rafts, only 17 of them had the required training and certification.

According to the MIT report, the launch failures were probably caused by the lack of sufficient training of the emergency crew. However, we feel that there is a need for a closer investigation of possible technical problems with the telescopic type davits.

All of the passenger deaths seem to be traceable to the shortage of seats in the lifeboats at the port side. When the 3 lifeboat launches failed, with the total loss of 450 seats, the “seat-less” passengers *were directed by the rescue crew* to transfer across the ship, to the starboard side. While they were underway, crossing the ship, they were taken by the water rush as the ship capsized. Nine of those passengers fell into the elevator shaft, because the elevator’s door opened, or was open, and they drowned there. In hindsight, these passengers would have been better off by staying at the port side, which was the “dry side”, and later on being guided and rescued by the embarkation ladders to the rescue boats.

This serious situation with the shortage of up to 700 rescue seats could have become catastrophic if the abandoning of the ship had been carried out in open water, which was later recommended by the Grosseto court proceedings. However, this critical situation was partly compensated for by the captain’s and the coast guard’s coordination of the vessel’s lifeboats and external rescue vessels, in a shuttle operation between the ship and the shore.

The MIT report is not commenting the fact that the passengers and crew that lost their lives was caused by the ships officers/rescue crew’s advice to cross the ship to get seats on the starboard side. The following statement is summarized and quoted from the Grosseto court’s document, “THE ACCUSATION”, of February 2015, by the specifying of the following accusations against captain Schettino (excerpt from page 6):

“ Caused the shipwreck and partial sinking of the Costa Concordia, which at 21:45:07 hit bottom in shallow waters near the rocks known as le Scole, , and also caused the death of: (Specifying the death of 32 persons)”

“The passenger (XX), “not finding room on the lifeboats on deck 4, port side, was directed by a crew member to the starboard side of the deck...”, and

“fell into the abyss that was created by the final overturning of the ships starboard side, falling into the flooded area, and died from drowning.”

Of the 32 individuals specified, 27 are passengers and 5 are crew members:

We assume that the passenger’s crossing the ship to the starboard side was initiated by the order of the ships officers/rescue crew, or following the first persons who was directed, to start crossing. We think that the lives of all passengers that were directed to cross the ship to the starboard side, could have been saved if they had stayed at the port side, for later to be guided down the embarkation ladders and taken care of by the lifeboats and the rescue boats.

Considering the very long chain of events from the first navigational blunder, interrupted or broken by the many coincidences and circumstances related to the ship technical design and conditions, to the company’s failure to provide effective evacuation procedures and ensuring of the appropriate training of the officers and crew — we feel it is wrong that the unfortunate loss of lives should be blamed on captain Schettino. Before the ship finally tilted there was no loss of life at all.

Finally, the serious accusation of manslaughter against captain Schettino also raises questions about the captain’s contractual agreement with the company with respect of the captain’s responsibility and liability; such as the time at which the captain abandoned the ship, and how long his responsibility for the wreck is lasting. When the captain left the ship the 14th of January, after the ship had started to accelerate the final capsizing at 2400, at that time no lives had been lost. All loss of lives happened when the ship finally capsized sideways, reaching 80 degree at ab.

00:40.

6. The initial triggering of the accident: The navigation of the passing by of Giglio Island.

6.1. The Safety Accident Report is intended to make the foundation of any possible criminal prosecution against captain Schettino. The MIT accident report is expected to reconstruct the marine casualty or incident through an impartial presentation of the relevant events in a chronological order, prior, during and following the casualty or incident, and to give a description of the involvement of each actor or persons, equipment, or possible external involvement. We claim that the MIT Accident report fails to accomplish these requirements.

However, the description of the most crucial part, the navigation blunder prior to the first collision with the reef, is more of a rudimentary summary of the events, not at all sufficient to provide the court with the basic information required for a trial against the captain and his staff.

The MIT reports describe what happened on the bridge in the crucial minutes before and after the captain entered the bridge, a selectively summing up some events that took place, without any clarification of what really happened on the bridge from the captain's entry (21:34:36), to the time when he took the command 21:39:14, up to the reef collision 21:45:07. And do not mention *why* the captain took the command (after the sighting the white foam right ahead).

The planned voyage shows the changing of the course from 278 to 334 degrees (W/O) at 21:40. But at 21:39:14, when the captain took the command, the vessel was already far off the planned course. The report indicates that the ship then was 807 meters off the planned course. The correct turn should take place at 21:38, when the bridge team still was in command of the bridge team. Did the bridge team start the turn, and if not, why didn't they start the turn as planned? What is the VDR's record of ship's position before and after the waypoint (21:38). Such factual events is not clarified. What happened?

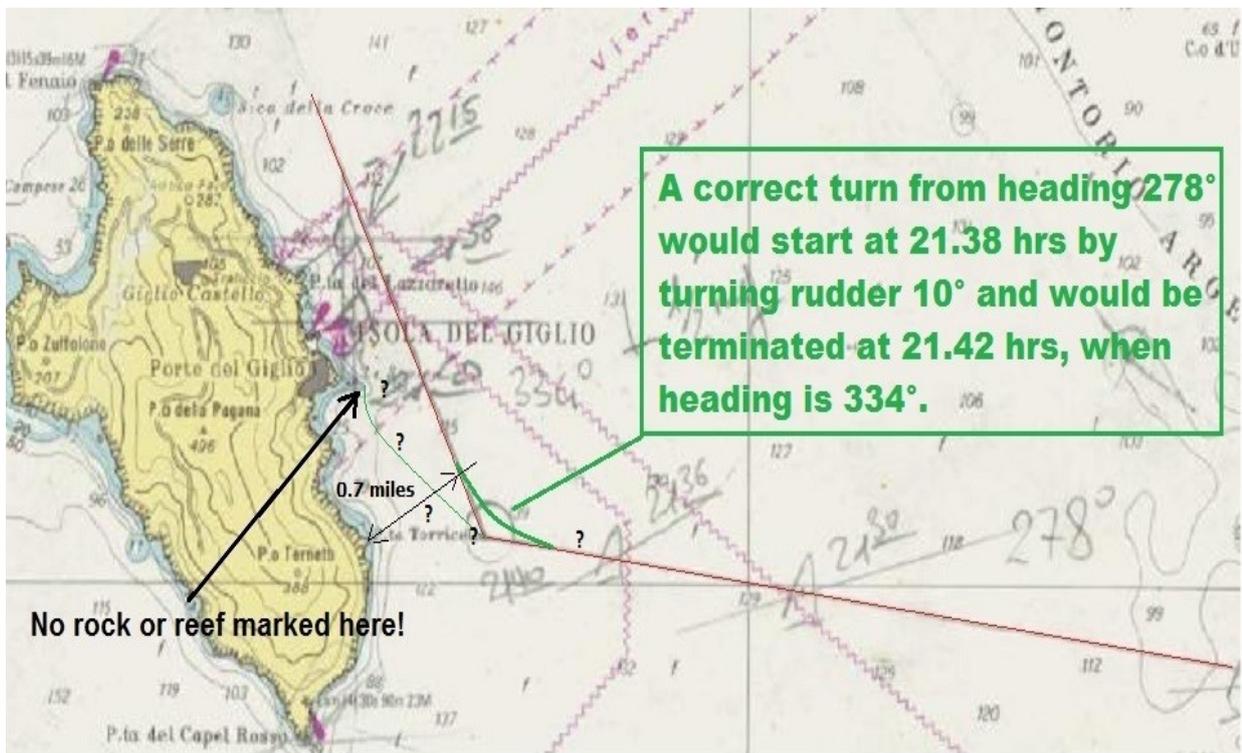
We know the helmsman did not execute the helm orders, but not to what extent. Was the steering gear working properly, were the hydraulic pumps working properly, were there any extreme currents or drifting winds, was the gyro compass working properly, was the ECDIS and the radars working properly, had the ECDIS system been properly controlled by external expertise (none of the bridge team was qualified to control the ECDIS). Is the ECDIS's internal recording devices taken care of for the voyage reconstruction, etc. These questions are not properly presented.

The MIT accident report seems to make decisive conclusions –all in the captain's disfavour – even if the factual evidence is not available or not taken care of.

As an example, the report failed to mention the highly unconventional action by the navigator (2nd officer), which during a close coastal navigation, leaves the "chart desk" with the paper chart plotting, and changes her primary duty to assist the helmsman with his linguistic problems.

6.2 We have consulted the Safety at Sea expert Anders Bjorkman, with the background of sailing in the same waters (with reference to his Internet web site <heiwaco.tripod.com/news8htm>):

He has made a graphical assessment of the by-pass navigation, and is commenting the navigation planning, execution and tracking by a reconstruction of the voyage planning, as follows:



“The report does not say what events were planned and how these events were executed, but it appears that a change of course from 278 degrees to 334 degrees was planned at 21.42 hrs.

Anders Bjorkman came up with the following conclusions and questions:

- *It seems a major contributory factor of the contact that follows is the helmsman not following the orders of the Master or the rudder gear didn't function*
- *The five minutes turn seems extremely strange. I would expect the vessel would turn in less than three minutes after one rudder movement*
- *Did the vessel actually respond correctly to the rudder movements, i.e. was the steering installation in order?*

The dominating source of information is the VDR (black box) and various unauthorised recordings of sound and voices on the bridge. Some parts of the recordings are lost, other parts is of such poor quality that it is impossible to distinguish between male and female actors.

He is questioning why the basic information is based upon the voice recordings. It should be very simple to find out what really happened during the crucial five minutes by the VDR records, as:

- 1) *the speed through water or speed over ground before and after the first contact, the contact and the capsizing and final sinking*
- 2) *the gyro compass – heading before and after the contact*
- 3) *radar – gives the ship's position at any time, before and after the contact, capsizing and sinking*
- 4) *rudder – each rudder position, order and feedback response*

(NB: The VDR recorder did not record – or failed to record - the progressive heeling)

Anders Bjorkman concluded that the MIT Accident Report is incapable of describing a trustworthy and reliable presentation of the case, and of the various circumstances leading to the incident. “

6.3. We have also consulted Dr. Song-Gi Seo at the Warsash Maritime Academy (UK), a naval architect specialising in ship-hydrodynamics. He is a high performance computing expert and the world leading researcher in ship's pivot point, who responded as follows to our question about the veracity of the referred Italian simulation :

As a mariner I doubt very much that simulation and the conclusion

To me, the simulation looks reasonably good. However, since the pivot point of the simulated ship is not shown, I cannot say anything on how accurate the simulation could be.

The discrepancy between the captain's order and the actual rudder movement is a critical aspect. If the Italian Court concluded that the discrepancy was inconsequential, I cannot agree with them, unless they give a clear logical explanation with supporting evidences.

Does this simulation prove anything at all? In favour or against Schettino?

The simulation shows a strong possibility that the captain's claim is justified, although the accuracy of the simulation is to be verified (with more evidence or by a third party).

Further comment

The captain appears to be a confident ship handler with a good level of skill.

I wonder if the captain knew the ship's curved path (with the then-current-rudder angle and the pivot point position) was going into the danger zone. Did he not know? Or, if he knew the danger, why did he not change the rudder immediately after he took the control?

- ➔ I doubt the bridge team had a good working knowledge of the pivot point. If the people on the bridge had had the correct understanding of ship's pivot point, and if they had been trained how to use it, the disaster could have been avoided.
- ➔ Bridge personnel without the correct knowledge of the pivot point, and without incorporating a S/W module utilising the pivot point in ships' warning systems and emergency automation systems, we are simply waiting for the next such disaster.

Maybe we should make a test project to make a more relevant simulation?

- ➔ I think this is a good idea. Our university has a good facility to do maritime related research and simulations. We could certainly produce a more relevant simulation, if we can get access to the data.

Dr. Seong-gi Seo is concluding that his interest in this matter is twofold:

1. He would like to see that captain Schettino is given a fair tryal.
2. He will do his best to prevent such silly disasters in the future. The casualty number could have been much, much higher, if it had happened in deep sea. The case seems to have been closed without changing anything. They have not learned anything from the expensive accident. The world seems to be sitting waiting for the next such silly disaster. There are many (too many)

warning systems on the bridge, but it is obvious that they did not work in this case. I can develop something better.

7. The MIT Accident Investigation Report reveals several violations of other IMO regulations:

Our analysis is not meant to be a complete assessment of the MIT Accident Report, but is restricted to highlight the most serious errors and misinterpretations of the captain's role in the Costa Concordia accident, clarifying the captain's responsibility and authority - in light of the requirements of the ISM Code and the IMO and EU regulations. We regret that that we did not have the capacity to deal with other wrong or misleading aspects of the MIT Accident report, as the following examples:

9.1. Breach of SOLAS requirements for operation of watertight doors caused progressive leakage.

Over the last years we have observed that an unacceptable large number of cruise ships have sunk or capsized, caused by the well-known operational procedure to keep the watertight doors open for the convenience of longitudinal transportation and movement through the bottom decks.

The IMO Part B-4, Regulation 22, requires that all watertight doors are to be kept closed at sea. But this requirement may be overruled by dispensation from the Flag Administration, which permit that certain doors may remain open during navigation if this is considered absolutely necessary to the safe and efficient operation of the ship.

We fear that the operation or watertight doors, for passenger ships, if kept open or closed during navigation, in reality is a conflict between operational efficiency and passenger safety, where operational efficiency seems to have priority, and this should be reconsidered by the IMO regime.

The MIT report is quite superfluous in that respect. It is first stated that 3 watertight compartment were punctured by the reef contact, and furthermore confirms that all of the watertight doors were closed at the time of the accident, but makes no questions how the total of 6 compartments finally got flooded, if all the watertight doors were closed.

The missing elaborations of the role of the watertight doors are of crucial importance, as the court accusations against the captain included the crime of "manslaughter". The vessel would probably have an acceptable survivability with the flooding of two to three watertight compartments, which was the state after the collision. But the cause of the final loss of the vessel was the flooding of five watertight compartment. The progressive flooding of the two additional watertight compartments was most likely caused by several unauthorized open watertight doors or the leakage of several watertight doors. This should not happen, but if the use of open doors during navigation is a Company standard, this can hardly be the sole responsibility of the captain.

8.2. Insufficient procedures for passenger and crew evacuation

The report is correctly stating that 3 lifeboats launching failed at the port side, but is not mentioning that also 3 lifeboats had launching problems at the starboard side, and that was why the captain decided to move to the starboard embarkation deck, where he was finally trapped, when the vessel suddenly increased the heeling to 50-60 degrees, and the captain fell or jumped on the top of a nearby lifeboat.

The report is correctly concluding that only the half of the professional rescue crew was fully certified or qualified for the lifeboat and life rafts launching, but makes no question about the total failure of the mustering process, where only 6 of the 64 life were deployed, only accommodating some 60 rescue seats. No questions are raised how the non-professional crew (hotel and catering personnel) was rescued, many of them probably by entering the passenger's seats in the lifeboats.

8.3. Problems with the operation of the telescopic davits, powered by nitrogen pressure bottles

The report is stating the problems with the launching of the lifeboats, and is jumping to the simple conclusion that the cause of this problem was the heeling of the vessel. This is not correct, during the time of the launching of the lifeboats, the heeling was well below the 20 degrees, which is the IMO accepted criteria. This is not even correct in this case, as the telescopic davits are guaranteed to perform launching at even 22 degrees. There might be some technical failure or malfunctions. As the launching of the lifeboats should be quite simple to make ready for launching, there is reason to make a closer investigation why the lifeboat launching failed.

9. The cause of the accident (technical, human or organisational factors)

The MIT report is summarizing the cause of the accident as follows (Conclusion, page 152):

*«It is worth to summarize that the **human element** is the root cause in the Costa Concordia casualty, both for the first phase of it, which means the unconventional action which caused the contact with the rocks, and for the general emergency management.»*

This conclusion is fully in line with the traditional history of maritime accident investigation, where the investigator divided the causes of accident in two main categories, technical fault and human fault. The modern approach within labour science, is founded on H. W. Heinrich thesis, "Industrial Accident Prevention" (1931), where the organisation is put in focus. The attention of the human element as the cause of the accident is not a conclusion, but the introduction to a close study of the circumstances leading to a clarification of why the human error occurred.

The MIT report's conclusion is referring to the blunders and lapses made by the captain and all categories of officers and crew. But this is a misconception, as the report, correctly, is revealing a considerable lack of qualifications, certification, training and practical drills of both the company and shipboard personnel. As examples may be mentioned that none of the navigators had the required ECDIS training, and only some 50 percent of the emergency crew had the required competence certification for lifeboat/life raft launching. This kind of discrepancies cannot be blamed the individual officers and crew, but the lack of recruitment and qualification requirements by the company, which is an organisational factor, and not any human cause.

A lot of the report is focused upon the errors of the bridge team. However, the *error-inducing* conditions of the workplace (bridge), and the organisational processes behind them, have not been addressed. This is due to the multidimensional character of these conditions, which requires context specific knowledge of the human, technical and organisational factors.

The report uses the human errors of that night as the final result, without exploring any deeper systemic analysis of the issue, and the organisational part, which is decisive for the shipboard conditions and functions.

The quality guru Reason, (1997) defines an organisational accident as a rare, but often catastrophic event that occurs within complex organisations, as a product of technological innovation. It involves multiple causes and many people operating at different levels of the organisation. Organisational accidents - as

opposed to accidents happening to individuals (human factors) – can also seriously affect uninvolved populations, assets and the environment.

We suggest that the grounding of Costa Concordia is an organisational accident, and we highly recommend:

- To provide an investigation to be used for the understanding of the pathways followed by errors and error-inducing conditions from *the Costa Concordia* accident, by the framework of the EU directive 2009/18/EC

- In general, to stimulate to a closer examination of error-inducing conditions across the whole cruising industry, and the wider maritime domain.

9. Acknowledgement

During our campaign for a fair treatment of captain Schettino, we have got invaluable support from many outstanding international shipping friends and colleagues within the many fields of maritime expertise, which is necessary for the clarification of the various fields where the Italian MIT Accident Investigation Report is inaccurate or indistinct. There are many, we regret that we can only mention a few:

- Donna Helman, USA, Lawyer and news agent secretary (Past away 4th of July, 2017) USA
- Anders Bjorkman, Sweden, Cruis eship Safety Expert Anders Bjørkman France
- Mads Ragnar Nielsen, ex Denmark AIBM (ECDIS MSc) Denmark
- Dr. Seong-Gi Seo, Simulation executive officer at Warash Maritime Academy , UK UK
- Elisabeth Juel Ramos, Navigator, lecturer Norway
- Jim Scorer, Commodore, IFSMA General secretary UK
- Siri Reimers, Chartograph, Norwegian Hydrographic Office Norway
- Nippon Anand, FNI, (Phd /ISM Code) UK
- UKVito Ito,Minado, admiral Italy
- Michael Grey, captain, Maritime Editor UK
- Ulf Sveberg, Captain, Sweden Maritime Administration Sweden
- Albert Zei, Journalist (Communicating by computerized translation) Italy
- Craig Laverick, Lecturer in Maritime Law (Phd in maritime law) UK
- Harry Gale FNI, captain, Nautical Institute UK
- Walter Madsen, former captain and superintendent Japan
- The Norwegian Maritime Proficiency Association Norway

Our deepest gratitude to those mentioned, and to the many not mentioned

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SAFETY MANAGEMENT AS

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(sign)

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