HUMAN ELEMENT INDUSTRY GROUP

WELCOME – WHO WE ARE





International Ship Managers' Association Promoting Excellence In Ship Management





International Chamber of Shipping



WELCOME – WHO WE ARE

Non-Governmental Organisations at IMO holding a special interest in <u>people</u>, including:

- International Chamber of Shipping
- Oil Companies International Marine Forum
- International Marine Pilots Association
- International Federation of Ship Masters' Associations

- Institute of Marine Engineering Science and Technology
- InterManager
- International Christian Missions
 Association
- International Transport Workers
 Federation
- The Nautical Institute

WELCOME – WHAT WE DO

- Lead discussions considering how people in the workplace can enhance safety and effectiveness.
- Step 1 A review of the Human Element Checklist

WHAT'S BEHIND HUMAN ERROR?

For presentation and associated documents website https://www.nautinst.org/en/forums/index.cfm Mr. Martin L Shaw Chair IMarEST Human Element Working Group

Dr. Jonathan V Earthy Member IMarEST Human Element Working Group



- Human Error or Human Element?
- Context
- Organisational Factors
- Technical Factors
- Conclusion

HUMAN ERROR OR HUMAN ELEMENT?

HUMAN ERROR

1. Human Error

- a. Skill Based Errors
 - *i.* Slips of Action
 - *ii.* Lapses of Memory
- b. Mistakes
 - *i.* Rule Based Mistakes
 - *ii.* Knowledge Based Mistakes

2. Violations

- a. Routine
- b. Situational
- c. Exceptional

Human error is an *unintentional* action or decision.Violations are *intentional* failures – *deliberately* doing the wrong thing

(Source James Reason and UK HSE)

Do we now treat all human errors as malevolent violations?

ACCIDENT MODEL WHAT'S BEHIND HUMAN ERROR?



After James Reasons Swiss Cheese Model

'Rather than being the main of an accident, instigators operators tend to be the inheritors of system defects created by poor design, incorrect installation bad and management decisions. Their part is usually that of adding the final garnish to a lethal brew whose ingredients have been long in the cooking'

Human Error by James Reason (1990)

SO WHO IS PRONE TO HUMAN ERROR?

a) the human element is a complex multi-dimensional issue that affects maritime safety and marine environmental protection. It involves the entire spectrum of human activities performed by

shore based management, regulatory bodies, recognized organizations, shipyards, legislators,

.....and other relevant parties, all of whom need to cooperate to address human element issues effectively

IMO Resolution A 947 (23) Human Element Vision Principles and Goals for the Organisation

other relevant parties.... equipment designers, system designers, programmers, port operators, terminal operators, charterers, vetting organisations, industry bodies etc etc......ME

WHAT ELSE DOES A947 (23) SAY?

(b) the Organization, when developing regulations, should **honour the seafarer by seeking and** respecting the opinions of those that do the work at sea;

(c) effective remedial action following maritime casualties requires a sound understanding of human element involvement in accident causation. This is gained by a **thorough investigation and systematic analysis of casualties for contributory factors and the causal chain of events;**

(d) in the process of developing regulations, it should be recognized that adequate **safeguards must be in place to ensure that a "single person error" will not cause an accident** through the application of these regulations;

(e) rules and regulations addressing the seafarers directly should be simple, clear and comprehensive;

(f) crew performance is a function of individual capabilities, management policies, cultural factors, experience, training, job skills, work environment and countless other factors;

(g) dissemination of information through **effective communication** is essential to sound management and operational decisions; and

(h) consideration of **human element matters should aim at decreasing the possibility of human error** as far as possible.

ITS ALL 'JOINED UP'-THE HUMAN ELEMENT



After Thomas Koester and Michelle Grech ... Human Factors in the Maritime Domain

SEAFARER HAZARD OR HERO?

Hazard

- Ships are correctly designed, reliable and with minimal flaws
- Management systems reflect the operating environment perfectly
- The only problem is people not following the procedures or making other egregious errors
- Focusing on those errors will prevent incidents
- Work as imagined .. Safety 1 (references Safety I and Safety II Erik Hollnagel)

Hero

- Ships contain errors and compromises in specification, design, construction, system integration, build, testing and classification.
- Management systems contain errors and compromises in procedures, resource allocation, maintenance planning.
- The only way ships operate is because of those onboard who 'join the dots'
- Focus on what goes right
- Work as actually done ... Safety 2

'After studying human unsafe acts within hazardous enterprises for more than three decades, I have to confess that I find the heroic recoveries of much greater interest and in the long run, I believe potentially more to the pursuit of improved safety in dangerous operations'

The Human Contribution, Unsafe acts, accidents and heroic recoveries James Reason 2008.



CASUALTY TRENDS



STEPS TO IMPROVEMENT



Time

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Risk

DID THE PROCEDURAL PARADIGM WORK?



Source Intertanko

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ORGANISATIONAL FACTORS

LAW OF DIMINISHING RETURNS

INCREASING JEOPARDY





THE VIEW ONBOARD



TECHNICAL FACTORS

THE HUMAN-SHIP INTERFACE



DESIGN THE TOTAL SYSTEM





WHERE ARE WE NOW?



Time

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CONCLUSIONS

- Human Error applies to us all across the industry
- Human Error cannot be considered in isolation we need to consider the Human Element
- People are the organisations final safety barrier. Their contribution and success is your success
- As the industry and ships become more complex then organisational and technical factors contributing to human success becomes more important.
- Addressing these factors will reduce the potential for human error and increase the effectiveness of training and procedures.

HEIG WHERE NEXT?



HEIG WHERE NEXT?

TOR 1 HE Promotion	TOR 3 Training & Education	TOR 4 Fatigue	TOR 5 Organisation	TOR 6 Technology
 IMO Human Element Knowledge IMO Human Element Checklist Just Culture 	 Accident Investigation Education & Training Power Distance 	 Fatigue 1200 Laydays Manning 	 Admin Burden PM Systems Business Model Coms. Op Risk Management ISM Implement. Resilient Organisations Complexity Safety 2 	 Human Centred Design Reliable Equipment Body Size Bridge Design Equipment Default Standardistn.

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Any Questions?

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