



**HEIG**  
Human Element  
Industry Group

The Human Element Industry Group – raising awareness of the human element in the maritime world.

Improving understanding of the human factors will ensure these are fully addressed in the work of the International Maritime Organization.

Internationally supported by key industry bodies at the IMO.



# The human element checklist – what it means for you

# Agenda

- What is the HEIG?
- The new checklist/Circ.5 project
- Outline of Resolution A.947 and MSC/MEPC-Circ.5.rev3
- Human element considerations
- Hierarchy of controls
- Application procedure
- Detail of checklist
- Examples from different committees
- Conclusions

# The Human Element Industry Group

- NGOs with consultative Status at the IMO
- Dedicated maritime professionals
- Work outside the box – driving best practice and raising awareness
- Helping you improve maritime safety, today, tomorrow and every day.

Sailors deserve to go  
'safe home'



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**BIMCO**

**IACS**



IGP&I



**INTERCARGO**  
International Association of Dry Cargo Shipowners

**International Chamber of Shipping**  
The Future of Shipping





# Background of MSC-MEPC.1/ Circ.5/Rev.3, Annex 5, The HE Checklist

- In accordance with Principles defined by IMO in Resolution A.947(23) on Human Element vision, principles and goals for the Organization the human element is:
- *“Complex multi-dimensional issue that affects maritime safety, security and marine environmental protection. It involves the entire spectrum of human activities performed by ships crews, 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.”*



# Human Element Considerations

## Human resources considerations

### Recruitment

- Crew nationality
- Language onboard
- Selection criteria
- Physical characteristics for the tasks to be done
- Terms & conditions of service
- Appropriate competencies
- Appropriate experience
- Disciplinary & complaints process
- Leave & travel arrangements
- Medical screening

### Manning

- Minimum safe manning compliance
- Tasks, duties & responsibilities
- Numbers, grades & roles
- Watchkeeping patterns
- Hours of work & rest
- Fatigue management
- Retention measures
- Continuity at handover
- Succession planning
- Promotion paths

### Education & Training

- Required knowledge, skills & abilities
- STCW competencies
- System-specific training
- In-house/onboard training facilities
- Management/leadership training
- Technical training
- Safety & security training
- Induction
- Onboard familiarisation
- Safety drills
- Onboard construction training
- Distance learning
- CPD

## Social & organisational considerations

### Organisational Configuration

- International conventions & regulations
- Industry best practice
- Company structure
- Roles & responsibilities
- Company standing orders
- Organisational culture
- Staffing
- Communication & connectivity
- Job design
- Career development

### Social environment

- Intended role
- Security as practiced
- Safety as practiced
- Trust
- Ethics, core values, pride, allegiance
- Individual habits & personality
- Leadership styles
- Health & wellbeing awareness – mental & physical
- Risk awareness
- Communication/working language
- Team dynamics

### Ways of working

- Environmental/capability stressors
- Impact of fatigue/homesickness
- Degree of automation
- Policies, processes & procedures
- Guidelines & practices
- Working hours
- Methods of communication
- Information sharing
- Recording, reporting & feedback procedures
- Easy to understand operating instructions & procedures

## Human factors considerations

### Achieved through Human Factors Engineering (HFE)

#### Habitability

- Religious & cultural differences
- Need for privacy
- Bathroom facilities
- Messing arrangements
- Facilities for personal recreation & study
- Communications connectivity
- Need for natural light
- Storage space for personal effects
- Furnishing, interior design & decoration
- Cleanability
- Surface coverings

#### Maintainability

- Shipboard maintenance policy
- Through-life support
- Onboard expertise
- Accessibility
- Provision & location of tools
- Location of heavy spare parts
- Bench space
- Removal routes
- Noise protected communications
- Policy for onboard spares
- Storage of spare parts and supplies
- Handling of heavy parts
- Disposal of parts & equipment

#### Security

- Company/ship physical, documentary & cyber security policies
- Human threat landscape (error, misuse and abuse)
- Relationship between security and safety
- Updating of security knowledge
- Separator role in protective measures
- Training for confidence and knowledge
- Awareness of and response to threat
- Team cohesion
- Management of security risks

#### Occupational Health and Safety

- Company/ship occupational health & safety policies
- Health & wellbeing
- Personal health
- Health awareness – mental & physical
- Short/long term hazards to health
- Safe working practices
- Tripping/falling/bumping/crushing hazards
- Provision, maintenance, access & use of PPE
- Accident recording, reporting, investigation & feedback

#### Manoeuvrability

- Potential weather conditions
- Communications
- Minimum/maximum/manoeuvring speed
- Propulsion/manoeuvring systems configuration
- Critical system redundancy
- Available harbour services
- Through-life costs
- Protection of the environment
- Fuel economy

#### Controllability

- Controlroom, workstation, display screen layout
- Computer dialogue design
- Controls & switches
- System integration
- Communications
- Alarm philosophy & management
- Direct & peripheral vision
- Daytime/high-time vision
- Dazzle
- Reflection
- Glare

#### Survivability

- Availability of manpower
- Emergency response systems & procedures
- SNIP layout & equipment fit
- Finishing & damage control systems & equipment
- Lifesaving appliances
- Personal Survival & medical kits
- Search & rescue communications
- Escape & evacuation routes
- Crisis management plans

#### System safety

- Hazards to/from crew
- Human element in analysis of risks
- Human element in treatment of risks
- Ability to respond
- Ability to monitor
- Ability to learn
- Ability to anticipate
- Business Impairable
- Potential for human & organisational error
- Potential for environmental damage & pollution
- Training & familiarization

#### Workability

- The users
- Tasks
- Fitness for task
- Equipment
- Accessibility
- Communications
- Signage
- Protective equipment
- Size, shape & gender
- Strength & stamina
- Posture

Human element considerations will raise human element issues which if not addressed can become system hazards.

In ship design and operation this list of Human Element considerations should be examined for issues.

Where these are identified the potential hazards to effectiveness, efficiency, safety and user satisfaction should be assessed and addressed as appropriate.

To download this e-newsletter together with associated e-newsletters go to [www.the-alert.org/docs/publications/01355](http://www.the-alert.org/docs/publications/01355) or scan the QR Code





To significantly enhance maritime safety, security and the quality of the marine environment by addressing human element issues to improve performance.

#### Principles

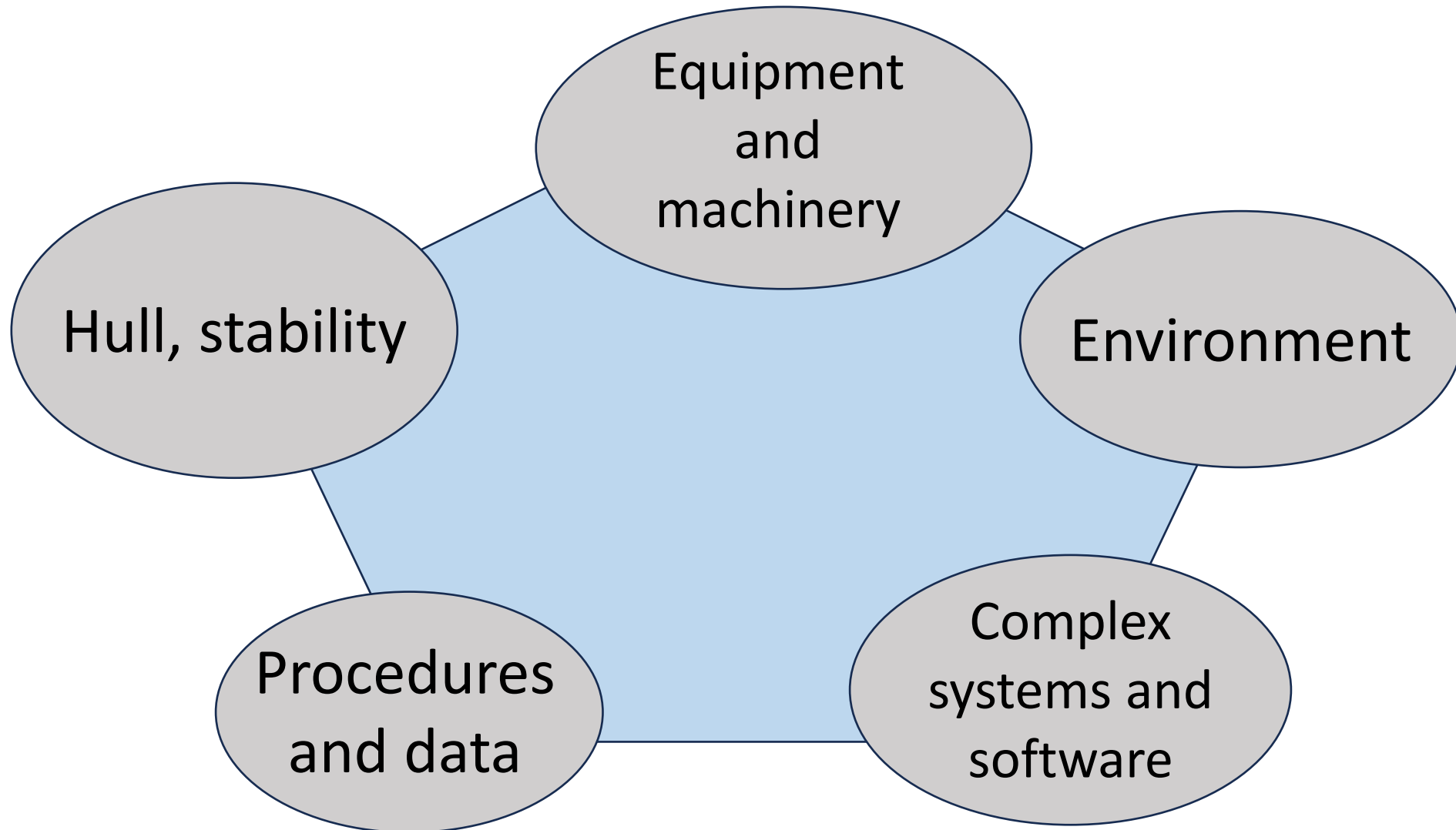
- a) The human element is a complex multi-dimensional issue that affects maritime safety, security and marine environmental protection. It involves the entire spectrum of human activities performed by ships crews, shore-based management, regulatory bodies, recognized organizations, shipyards, legislators, and other relevant parties, all of whom need to cooperate to address human element issues effectively.
- 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 thorough investigation and systematic analysis of casualties for the contributory factors and the causal chain of events.
- d) In developing regulations, it should be recognized that adequate safeguards must be in place to ensure that a single human or organizational error will not cause an accident through the application of these regulations.

# Human Element Considerations for IMO today

IMO has reviewed **the most important considerations for the safety of modern shipping** and reduced the list to 33 grouped under five headings. This provides the first step in the development of any new resolutions and recommendations (Ref, MSC-MEPC.1/Circ.5/Rev.3, Annex 5)

- Workload onboard and ashore
- Decision making
- Living and working environment
- Operation and maintenance
- Measures to address the Human Element

# Human Element issues vs. output

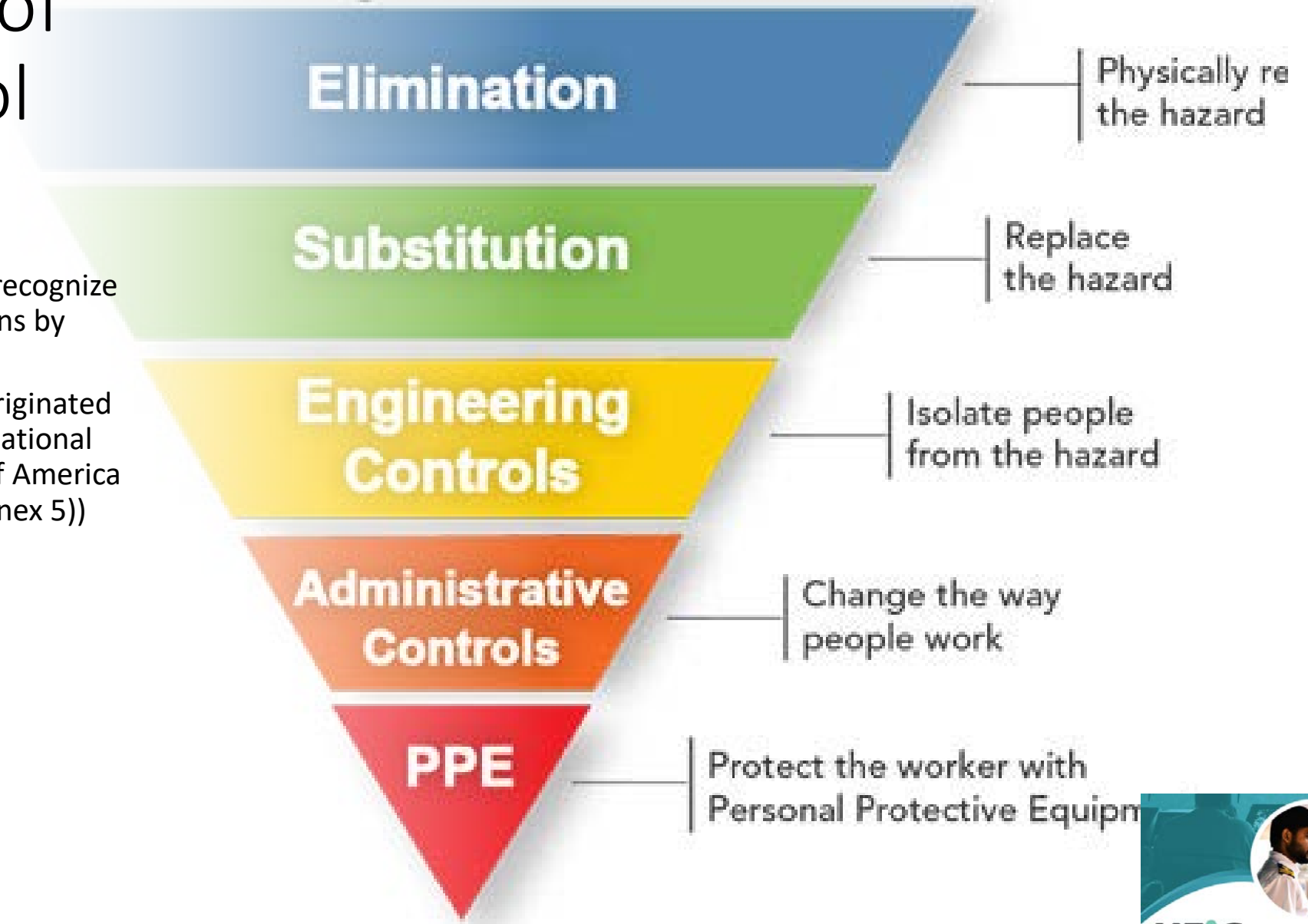




# Hierarchy of Controls

## Identification of Hazard Control Measures

- Working out what to do about hazardous considerations should recognize that there may be alternative means by which hazards may be addressed.
- Hierarchy of Hazard Controls (originated by the National Institute for Occupational Safety and Health, United States of America (Ref. MSC-MEPC.1/Circ.5/Rev.3 Annex 5))
- Elimination
- Substitution
- Engineering controls
- Administrative controls
- Personal protective equipment



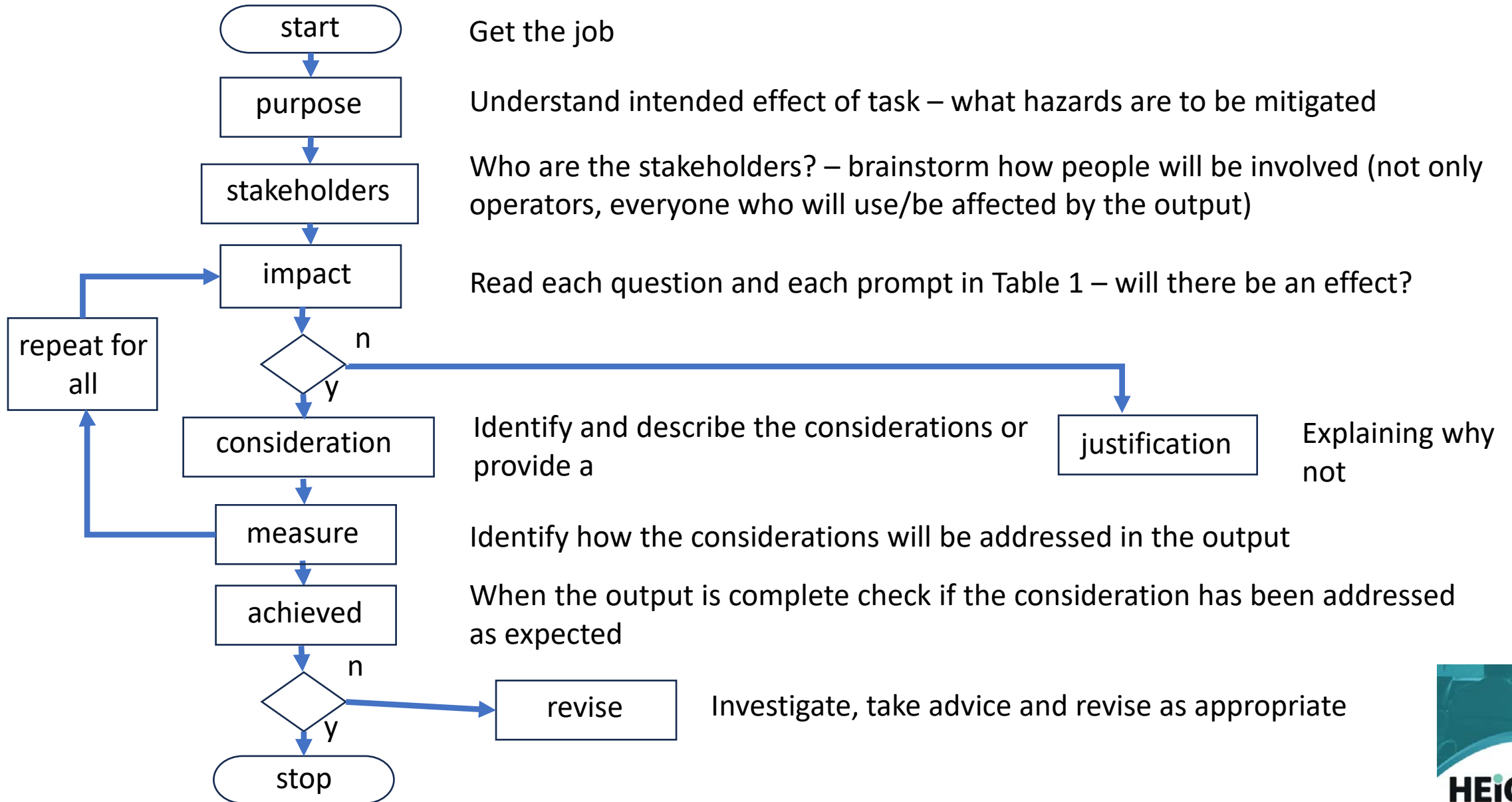
An example...

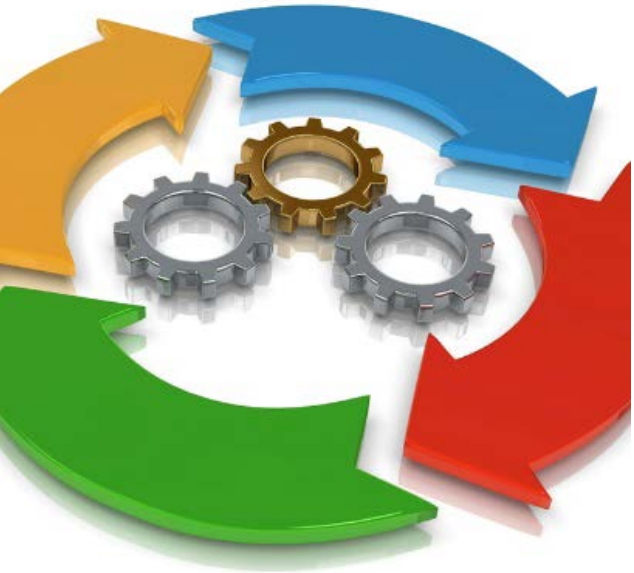
15 January 2024





# Overview of the process





# Recommendations

- At the end of this process, outputs provide information to Members, shipping companies and other interested stakeholders with a proper understanding of:
  - alternative design and materials
  - controls and protection systems including software
  - usability of systems including information design and use of alerts
  - impact on personnel, processes and organizations
  - technical requirements including maintenance
  - requirements for additional knowledge, training and familiarization and
  - hazard control measures to be adopted.



# Human Element Impact Assessment

## ANNEX 5 TABLE 1 – Human Element Impact Assessment

Table 1 details the five human element considerations:

- Workload onboard and ashore
- Decision making
- Living and working environment
- Operation and maintenance
- Measures to address the Human Element

Each consideration consist set of questions used for assessment of impact to different human element consideration.

By analyzing the impact on each consideration IACS WGs would be able to identify appropriate hazard control measures to be addressed

	Question	Yes/No	IMO References	Considerations	Instructions
	<b>Measures to address the human element</b>		Other relevant references may be added  Strikethrough references that are not relevant.	If answer to question is “yes” identify considerations. If answer is “no” make proper justification.	Identify how human element considerations should be addressed in the output.
<b>5.</b>	<b>Does the “output” require changes to:</b>		Shipboard technical operating and maintenance manuals (MSC.1/Circ.1253)  Revised Guidelines for the operational implementation of the International Safety Management (ISM) Code by Companies(MSC-MEPC.7/Circ.8)		
5.1	Training				
5.2	Practical skill development and competences				
5.3	Operating, management and/or maintenance procedures.				
5.4	Information/manuals for operation and maintenance				
5.5	Spares outfit				
5.6	Occupational safety requirements including guarding and PPE.				
5.7	Shore support.				

# Examples of considerations and measures

## EXAMPLE 1 – Machinery

- **Consideration**
  - The users and operator of a dynamically-stabilized gangway need to do different things in the event of changes to operational conditions and system capability
- **Instruction**
  - Present different sets of alerts to operator and users regarding safe behaviours

## EXAMPLE 2 – Hull Structures

- **Consideration**
  - Passengers like glass balustrades on passenger ships
- **Instruction**
  - Restrict to decks where impact damage is unlikely



# Examples from other Committees

Maritime Safety

Environment

Legal

Facilitation



# Conclusions

The checklist works

Team-based completion is better

Do it at the start of the project and check if you have implemented the recommendations in your output at the end.

Mandate to repeat this presentation at other Committee meetings?