



IHB File No. S3/3055

**CIRCULAR LETTER 52/2014
21 July 2014**

**PROPOSED SUBMISSION ON E-NAVIGATION TO THE 94TH SESSION OF THE IMO
MARITIME SAFETY COMMITTEE (MSC 94)**

References:

- A. IHO CL 42/2014 dated 11 June - *Report on the 93rd Session of the IMO Maritime Safety Committee*
- B. IHO CL 50/2014 dated 9 July - *Report on the 1st Session of the IMO Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 1)*

Dear Hydrographer,

1. As reported in Reference B, the 1st session of the Sub-Committee on Navigation, Communications and Search and Rescue (NCSR 1) of the International Maritime Organization (IMO) considered the draft e-navigation Strategic Implementation Plan (SIP) proposed by the Correspondence Group on e-navigation and agreed to forward it to the MSC for approval at its 94th session (MSC 94, 17-21 November 2014 - see Reference A).
2. Reference B also reported that an informal group of representatives from interested Member States and International Organizations, including the IHO Secretariat, had met and agreed to coordinate relevant submissions on e-navigation to MSC 94, with the Comité International Radio-Maritime (CIRM) acting as the Coordinator.
3. The informal group agreed to draft a proposal aimed at ensuring that the tasks identified in the SIP are allocated, progressed and monitored in accordance with sound project management practices, and reflected in the IMO Work Programme in accordance with the relevant IMO procedures.
4. The draft proposal prepared by the informal group is provided in Annex for the information of IHO Member States (in English only). Concurrently, the draft proposal has been passed for the consideration of IMO Member Governments and Observer Organizations which are invited to consider sponsoring the submission.
5. The Directing Committee participated in the drafting of the proposal and fully supports it. Therefore, it is the intention of the Directing Committee to co-sponsor the proposal on behalf of the IHO.

6. Considering that the deadline for submission of proposals to MSC 94 is 15 August 2014, IHO Member States are invited to inform the Directing Committee **not later than Monday 11 August 2014, close of business, UTC**, of any significant comment or objection that they may have in relation to the proposal.

On behalf of the Directing Committee
Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Gilles Bessero', with a long horizontal stroke extending to the right.

Gilles BESSERO
Director

Annex: Draft proposal on the development of e-navigation – MSC94/18/X (*in English only*)

MARITIME SAFETY COMMITTEE
94th session
Agenda item 18

MSC 94/18/X
15 August 2014
Original: ENGLISH

WORK PROGRAMME

Development and implementation of e-navigation

[Sponsors, ...]

SUMMARY

Executive summary: This submission proposes that for IMO to take a leading and coordinating role for the harmonised future development of e-navigation, the Committee approve the inclusion of “Monitoring and Managing the Implementation of E-navigation Solutions” in the Organization’s future HLAP for the next two biennia after 2015, i.e. 2016-17 and 2018-19.

This submission also seeks approval for an intersessional working group between MSC 94 and NCSR 2, to review the finalised SIP in detail, and develop the appropriate measures to allocate, progress and monitor the tasks in accordance with the Organization’s goals and requirements.

Strategic direction: 5.2

High-level action: 5.2.6

Planned output: 5.2.6.1

Action to be taken: Paragraph 41

Related documents: Resolution A.1061(28);
MSC-MEPC.1/Circ.4/Rev.2;
MSC 81/23/10, MSC 85/26/Add.1, MSC 90/28, NAV 58/14, NAV 59/INF.8, NCSR 1/9 and NCSR 1/9/1.

Introduction

1 This document is submitted in accordance with paragraphs 4.1 to 4.5 of MSC-MEPC.1/Circ.4/Rev.2, *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies*, on the submission of proposals for planned outputs.

2 This submission proposes that IMO take measures to ensure that the Organization maintains a leading and coordinating role in the harmonised development and management of the implementation of e-navigation solutions. It is therefore suggested that the tasks identified in the finalised e-navigation Strategy Implementation Plan (SIP) be captured in the

Organization's high level action plan (HLAP) in continuation of the current high level action 5.2.6 "Development and implementation of the e-navigation strategy" as planned outputs of the next two biennia after 2015 (i.e. 2016-17 and 2018-19). This submission also seeks approval for an intersessional working group between MSC 94 and NCSR 2, to review the finalised SIP in detail, and develop appropriate measures to allocate, progress and monitor the tasks and associated outputs in accordance with the Organization's goals and requirements.

Background

3 At MSC 81 (2006), seven Member States first proposed the development of an e-navigation strategy, as outlined in document MSC 81/23/10.

4 After consideration, MSC 81 decided to include this in the work programmes of the then NAV and COMSAR Sub-Committees who would then also report further progress of this task to MSC 85.

5 At MSC 85 (2008), the Committee approved the Strategy for the development and implementation of e-navigation, as set out in document MSC 85/26/Add.1 (Annex 20). The Committee also agreed that the COMSAR, NAV and STW Sub-Committees should jointly develop a coordinated approach to implement the proposed e-navigation strategy.

6 At the request of IMO, Norway undertook coordination of an intersessional correspondence group (CG) on e-navigation. Work of the CG has culminated in drafting a proposal for an e-navigation SIP. Many other Member States, intergovernmental organisations and non-governmental organisations supported IMO's initiative and actively participated to progress the development of the e-navigation SIP.

7 Subsequently, NCSR 1 (2014) finalised the e-navigation SIP as set out in the Annex of the report of the correspondence group NCSR 1/9 and agreed to forward it to the Committee for approval.

Scope of the proposal

8 During the consideration of the draft SIP by NCSR 1, views were expressed that the proposal of a single planned/unplanned output to address the work of all tasks contained in the SIP could be diverging from the methods of work of the Organization. This has been taken into account in the set-up of this proposal.

9 It is also recognized that the planning for the implementation and further development of e-navigation may not seamlessly match with the *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies*. (MSC-MEPC.1/Circ.4/Rev.2).

10 Nevertheless the co-sponsors of this proposal are convinced that the implementation and further development of e-navigation is an exceptional matter that should be regarded in a long-term perspective, requiring a long-term approach. The arguments for such a long-term approach are abundantly reflected in the (MSC approved) Strategy for the development and implementation of e-navigation, as set out in document MSC 85/26/Add.1 (Annex 20).

11 In order to streamline the work of the Organization, mindful of the workload of the Organization, and to ensure global implementation of e-navigation solutions in a structured,

harmonised and coordinated manner, the sponsors of this submission propose the inclusion of a work programme, “Monitoring and Managing the Implementation of E-navigation Solutions”, in the Organization’s future HLAP for the next two biennia after 2015, i.e. 2016-17 and 2018-19.

12 Given the magnitude of the work programme, this would facilitate a project-management style approach for monitoring and managing implementation of the already identified e-navigation solutions during the next two biennia after 2015. The value of IMO leadership, particularly for coordination of the interdependencies between tasks in the SIP, cannot be overemphasised. It would also ensure that regional implementations, once past the initial test bed stages, are developed within a global framework of e-navigation, avoiding non-compatibility issues with uncoordinated regional solutions.

Output

13 Annex 1 of this submission provides the list of tasks identified in the SIP which have been clearly determined to implement prioritized e-navigation solutions, are based on agreed gap analysis of user needs (NAV 58/14 Annex 7) and have been subject to a Formal Safety Assessment (NAV 59/6) making a compelling case for their further development under a specific high level action.

14 Furthermore, in order to maintain momentum in the implementation of e-navigation, and in order to keep pace with the prioritized implementation schedule of the SIP, a comprehensive and coherent plan of work is proposed to be developed by the working group requested.

(Compelling) Need

15 The clear and pressing need to ensure future work on e-navigation solutions are conducted in a structured and coordinated manner under the ongoing leadership of IMO was identified in the IMO e-navigation strategy (MSC85/26/Add.1, Annex 20, paragraph 9.4):

“In order to capture evolving user needs, it is important that the implementation strategy elements remain under review. A structured approach will be required to capture evolving user needs, making use of the existing agreed methodology, to take into account any ensuing changes.”

16 The initial proposal (MSC 81/23/10) for the development of an e-navigation strategy, while progressing with comprehensive gap analyses, identified that a lack of standardization on board and ashore will lead to increased and unnecessary levels of complexity and incompatibility between systems and that coordination is central to ensure that the implementation of e-navigation solutions is harmonised globally, the very tenet of the proposed e-navigation concept.

17 This proposal cautions against any possible developments of e-navigation solutions through different regional forums. In the absence of international harmonisation, there is potential to create circumstances that could result in new risks for navigation, as mariners will need to change their methods and practices when travelling between regions. Such changes would increase the potential for human error, as well as increasing workload and training obligations.

18 As the implementation of e-navigation solutions involves many stakeholders and potentially impacts the entire maritime community, this proposal seeks to achieve universality and consistency towards further development of e-navigation solutions. Consistency in approach will result in a uniform level of impact on all facets of resources, training and the modification of operating procedures.

19 In many sea areas and regions worldwide, especially in those with high traffic density, coastal waters and harbour approaches, the manoeuvrable space for shipping is rapidly decreasing due to alternative use of the maritime environment (e.g. offshore oil and gas extraction, and renewable energy installations). Authorities of many coastal and port States already are aware of the future challenges and having to contend with negative consequences these developments may have for the present level of safety of navigation for ships, regardless of their type or flags. During its development it was well recognized that e-navigation, through its technical and foreseen service capabilities (especially by the provision of reliable and timeously data and information dissemination in combination with an enhanced interaction between ship and shore) could contribute to:

- a) the maintaining or even enhancement of the desired level of safety of navigation,
- b) improvement in the efficiency of shipping,
- c) bettered accessibility of sea areas and ports, and in general
- d) further development of a worldwide, sustainable maritime transportation system.

20 The implementation of e-navigation, with a focus on the prioritized solutions and tasks as reflected in the SIP, for the reasons mentioned above cannot be delayed and work on their implementation should be commenced in a coordinated and harmonized manner as proposed in this submission. During the user needs identification process it was recognized that a wide range of stakeholders in the maritime domain (mariners, shore based authorities, ports, shipowners, agents etc.) would benefit from the implementation of e-navigation.

21 Since finalisation of the SIP is not an end-point it is important that the role of the SIP be properly understood. The tasks identified in the SIP will need to be progressed with appropriate global coordination so that the development of e-navigation solutions will not suffer from a lack of harmonisation, notably to ensure that already developing regional e-navigation solutions are compatible on a global basis. The sponsors of this submission, therefore acknowledge that further work on e-navigation must be identified and coordinated in IMO's work program after 2015.

IMO's objectives

22 As a specialized agency of the United Nations, IMO is the global standard-setting authority for the safety, security and environmental performance of international shipping. As IMO measures cover all aspects of international shipping including ship design, construction, equipment, manning and operation, logically IMO is best placed to continue coordinating the e-navigation solutions for harmonised adoption and implementation world-wide.

23 As stated in the strategic plan for the Organization (for the six year period 2014-2019), one of the broad categories for enabling IMO to achieve its mission objectives in the years ahead includes:

Developing and maintaining a comprehensive framework for safe, secure, efficient and environmentally sound shipping.

This category is underpinned by several strategic directions (SDs) of which SDs 7, 8 and 10, in particular, have a direct relevance to the implementation of e-navigation.

24 IMO's role to coordinate the e-navigation solutions was confirmed in the IMO e-navigation strategy (MSC 85/26/Add.1, Annex 20, paragraph 9.2):

"The governance of the e-navigation concept should reside in a single institution that has the technical, operational and legal competences needed to define and enforce the overarching framework with implementation, operation and enforcement taking place at the appropriate level - global, regional, national or local - within that framework."

"Being responsible for establishing mandatory standards for enhancing the safety of life at sea, maritime security and protection of the marine environment as well as having a global remit, IMO is the only organization that is capable of meeting the overall governance requirement."

25 In recent years, there has been growing expectation that the international maritime community will recognise and benefit from e-navigation. More specifically, that IMO, which has been leading the international efforts, will 'deliver' e-navigation. If e-navigation is not implemented in a coordinated, timely and efficient manner, there is a risk to the credibility and reputation of the Organization.

Analysis of the issue

26 The main objective of the SIP is to implement the five prioritized e-navigation solutions as a first step. Accordingly, a number of necessary actions and tasks have been identified to implement these solutions (see Annex 1). As e-navigation implementation progresses, a specific agenda item for NCSR on e-navigation will enable reporting of progress, obtaining and informing IMO guidance and oversight.

27 The SIP currently invites interested Member States to submit proposals in accordance with the *Guidelines on the organization and method of work of the Maritime Safety Committee and the Marine Environment Protection Committee and their subsidiary bodies (MSC-MEPC.1/Circ.4/Rev.2, as may be amended)* to progress the tasks that need to be performed during the coming years in order to give effect to the five prioritized e-navigation solutions. Instead of Member States bringing separate and uncoordinated proposals for each task identified in the SIP, the cosponsors believe a single planned output would be significantly more efficient and effective. It would also limit the workload of the Committee since it would not have to deliberate on each new proposal separately, especially as different tasks may be able to be combined to achieve the desired outcomes.

28 Whilst the first step in the SIP involves implementing five prioritized e-navigation solutions, the further development of e-navigation solutions will continue as additional previously identified user needs are addressed. As user needs evolve and experience is gained with newer generation systems (on board and ashore), industry-led initiatives also need to be monitored and coordinated, to assure that the aims of e-navigation continue to be addressed.

29 At NCSR 1 (30 Jun-4July 2014), the Secretary General of IMO stated:

“On e-navigation, ... I would like to emphasise the importance of prompt finalization of the strategy implementation plan in order to start with the implementation of e-navigation as soon as possible. I am sure that both the industry and users are eager to see the real, tangible results of our discussions on e-navigation after 8 years of consideration.

Upon finalization of the strategy implementation plan, I would also like to encourage interested Member States to submit proposals for new planned/unplanned outputs to the Committee in order to progress the e-navigation-related tasks that would need to be performed during the coming years in accordance with the strategy implementation plan.”

Analysis of the implications

30 This proposal does not introduce any significant additional burden (legislative or administrative) to the maritime industry. It merely proposes to ensure that future work on e-navigation SIP solutions is undertaken in a structured, harmonised and coordinated manner under the ongoing leadership of the Organization. A completed checklist for “Identifying administrative requirements and burdens” in accordance with MSC-MEPC.1/Circ.4/Rev.2 is provided in Annex 2.

Benefits

31 The main benefits of e-navigation are to promote improved safety of navigation, enhance efficiency through better integration of shipboard and shore-based systems and to provide better protection of the marine environment. By the end of the next decade, a growingly globalised and hyper-connected world will need to respond to the needs of some eight billion people. More energy, food and leisure resources will be required to satisfy this growing population. Most of these demands will be met in some form using maritime transport, on cargo ships - where e-navigation is expected to equip shipboard users and those ashore responsible for the safety of shipping with effective, user friendly, proven tools that are optimized for effective decision making in order to make marine navigation and communications more reliable, resilient and user friendly.

32 Recent studies in economics, such as the G20 e-Trade Readiness Index which deals with preparedness of G20 countries to capitalise on global e-trade opportunities, are identifying that existing inefficiencies in shipping can detract from the ability of economies to take advantage in newly emerging e-Trade opportunities.

33 Further, some significant economic benefits of e-navigation are becoming evident from the findings of recent e-navigation related test-bed projects. Higher efficiency and reduced costs enabled by dynamic route planning, sea traffic coordination, reduction of distances traversed, and adjusted arrival times are some examples whereby e-navigation will contribute to the benefit of the global economy (NAV59/INF.8 refers). These benefits will depend heavily on regional implementations of e-navigation solutions being compatible with each other.

34 This proposal aims to facilitate a project management approach to ensure future work on e-navigation is conducted and progressed in a structured, harmonised and coordinated manner, under the ongoing leadership of IMO. Such an approach will streamline the work of the Organization, limit the workload of the Organization, and enable a globally harmonised implementation of e-navigation solutions in bringing in the full benefits of e-navigation to all

stakeholders, and as such contribute efficiently to the aims and objectives of the Organization.

Industry standards

35 The IMO/IHO Harmonization Group on Data Modelling (HGDM) was established by MSC 90 (MSC 90/28 refers) to ensure the ongoing management and maintenance of the Common Maritime Data Structure (CMDS) in order *to provide a framework for data access and information services under the scope of SOLAS, using as a baseline IHO's S-100 standard*. This group is expected to progress with the task T14 of the SIP (see Annex 1).

36 NCSR 1 agreed to establish a correspondence group (CG) on harmonization of guidelines related to e-navigation under the coordination of Australia. This CG has been tasked to consolidate the draft *Guidelines on Human Centered Design (HCD) for e-navigation systems*, the draft *Guidelines on Usability Testing, Evaluation and Assessment (UTEA) for e-navigation systems* and the draft *Guidelines on Software quality assurance (SQA) in e-navigation* as contained in annexes 1, 2 and 3 of document NCSR 1/9/1, respectively, into a single and harmonized guideline. This consolidation of guidance addresses three tasks (T1, T2 and T11) of the SIP (Annex 1).

37 A draft guideline for the harmonisation of test bed reporting (task T18) was presented to NCSR 1 (NCSR 1/9/1 refers). The Sub-Committee endorsed the draft guideline and agreed to invite the Committee to approve it.

Human Element

38 This proposal is not expected to impinge significantly on human element issues. However, a checklist contained in MSC-MEPC.7/Circ.1, to demonstrate that the human element has been sufficiently addressed, is attached as Annex 3.

Priority/urgency

39 As the current HLAP for 2014-15 already includes "Development and implementation of the e-navigation strategy" (A.28/Res.1061, Table 1, 5.2.6 refers), this proposal should be considered for the next two biennia after 2015 (i.e. 2016-2017 and 2018-2019). This timeline also aligns with the timeline set out in the SIP for the implementation of the prioritized e-navigation solutions during the period 2015-2019.

40 In order to develop the relevant planned outputs in a coordinated manner, this submission further seeks approval for an intersessional meeting between MSC 94 and NCSR 2, to review the finalised SIP in detail and develop further the appropriate measures to allocate, progress and monitor the tasks in accordance with the Organization's requirements.

Action required

41 The Committee is invited to:

.1 approve the addition of a new item on NCSR's agenda termed 'Monitoring and Managing the Implementation of E-navigation Solutions';

.2 include relevant tasks listed in the finalised e-navigation SIP in the Organization's HLAP for the biennia 2016-2017 and 2018-2019;

- .3 approve an intersessional working group between MSC 94 and NCSR 2, to review the finalised SIP in detail, and develop the appropriate measures to allocate, progress and monitor the tasks in accordance with the Organization's requirements;
- .4 take any further action it considers appropriate.

DRAFT

Annex 1

Table 7 (NCSR1-9)

Tasks, expected deliverables, transition arrangements and implementation schedule

Task No	Task	Expected Deliverable	Transition Arrangements	Prioritized Implementation Schedule
T1	Development of Draft Guidelines on Human Centered Design (HCD) for e-navigation systems.	Guidelines on Human Centered Design (HCD) for e-navigational systems.	None	2014/2015
T2	Development of Draft Guidelines on Usability Testing, Evaluation and Assessment (UTEA) of e-navigation systems.	Guidelines on Usability Testing, Evaluation and Assessment (UTEA) of e-navigation systems.	None	2014/2015
T3	Develop the concept of electronic manuals and harmonize the layout to provide mariner with an easy way of familiarization for relevant equipment.	Guidelines on electronic equipment manuals.	Provide existing manuals as .pdf	2019
T4	Formulate the concept of standardized modes of operation, including store and recall for various situations, as well as S-mode functionality on	Guidelines on S-mode.	None	2017
T5	Investigate whether and extension of existing Bridge Alert management Performance Standards (PS) is necessary. Adapt all other alert relevant PSs to the to Bridge Alert management PS.	(a) Guidelines on implementation of Bridge Alert Management. (b) Revised Performance Standards on BAM.	None None	2016 2019
T6	Develop a methodology of how accuracy and reliability of navigation equipment may be displayed. This includes a harmonized display system	Guidelines on the display of accuracy and reliability of navigation equipment.	None	2017

Task No	Task	Expected Deliverable	Transition Arrangements	Prioritized Implementation Schedule
T7	Investigate if an INS as defined by resolution MSC.252(83) is the right integrator and display of navigation information for e-navigation and identify the modifications it will need, including a communications port and a PNT module. If necessary, prepare a draft revised performance standard. Refer to resolution MSC.191(79) and SN/Circ.243	(a) Report on the suitability of INS. (b) New or additional modules for the Performance Standards for INS.	None None	2016 2019
T8	Member States to agree on standardized format guideline for ship reporting so as to enable "single window" worldwide (SOLAS regulation V/28, resolution A.851(20) and SN.1/Circ.289).	Updated Guidelines on single window reporting.	National/Regional Arrangements	2019
T9	Investigate the best way to automate the collection of internal ship data for reporting including static and dynamic information.	Technical Report on the automated collection of internal ship data for reporting.	None	2016
T10	Investigate the general requirements resolution A.694(17) and IEC 60945 to see how Built In Integrity Testing (BIIT) can be incorporated.	(a) Revised Resolution on the general requirements including Built In Integrity Testing. (b) Revised IEC Standard on General Requirements including Built In Integrity Testing.	None None	2017 2019
T11	Development of Draft Guidelines for Software Quality Assurance (SQA) in e-navigation. This task should include an investigation into the type approval process to ensure that software lifetime assurance (software updates) can be carried out without major re-approval and consequential additional costs. Refer to SN/Circ.266/Rev.1 and	Guidelines for Software Quality Assurance (SQA) in e-navigation.	None	2014/2015

Task No	Task	Expected Deliverable	Transition Arrangements	Prioritized Implementation Schedule
T12	Develop guidelines on how to improve reliability and resilience of onboard PNT systems by integration with external systems. Liaise with Administrations to ensure that relevant shore-based systems will be available.	Guidelines on how to improve reliability and resilience of onboard PNT systems by integration with external systems.	None	2016
T13	Develop guidelines showing how navigation information received by communications equipment can be displayed in a harmonized way and what equipment functionality is necessary.	Guidelines on the harmonized display of navigation information received from communications equipment.	None	2019
T14	Develop a Common Maritime Data Structure and include parameters for priority, source, and ownership of information based on the IHO S-100 data model. Harmonization will be required for both use on shore and use on the ship and the two must be coordinated (Two Domains). Develop further the standardized interfaces for data exchange used on board (IEC 61162 series) to support transfer of information from communication equipment to navigational systems (INS) including appropriate firewalls (IEC 61162- 450 and 460).	(a) Guidelines on a Common Maritime Data Structure. (b) Further develop the IEC standards for data exchange used onboard including firewalls.	None Use latest IEC standards	2017 2019
T15	Identify and draft guidelines on seamless integration of all currently available communications infrastructure and how they can be used (e.g. range, bandwidth etc.) and what systems are being developed (e.g. maritime cloud) and could be used for e-navigation. The task should look at short range systems such as VHF, 4G and 5G as well as HF and satellite systems taking into account the 6 areas	Guidelines on seamless integration of all currently available communications infrastructure and how they can be used and what future systems are being developed along with the revised GMDSS.	Use existing onboard communications infrastructure	2019

Task No	Task	Expected Deliverable	Transition Arrangements	Prioritized Implementation Schedule
T16	Investigate how the Harmonization of conventions and regulations for navigation and communication equipment would be best carried out. Consideration should be given to an all-encompassing e-navigation performance standard containing all the changes necessary rather than revising over 30 existing performance standards.	Report on the Harmonization of conventions and regulations for navigation and communication equipment would be best carried out.	None	2017
T17	Further develop the MSPs to refine services and responsibilities ahead of implementing transition arrangements.	Resolution on Maritime Service Portfolios.	National/Regional Arrangements	2019
T18	Development of Draft Guidelines for the Harmonization of test beds reporting.	Guidelines for the Harmonization of test beds reporting.	None	2014/2015

ANNEX 2

CHECKLIST FOR IDENTIFYING ADMINISTRATIVE REQUIREMENTS AND BURDENS

The Checklist for Identifying Administrative Requirements and Burdens should be used when preparing the analysis of implications required of submissions of proposals for inclusion of unplanned outputs. For the purpose of this analysis, the terms "administrative requirements" and "burdens" are defined as in resolution A.1043(27), i.e. administrative requirements are defined as an obligation arising from future IMO mandatory instruments to provide or retain information or data, and administrative burdens are defined as those administrative requirements that are or have become unnecessary, disproportionate or even obsolete.

Instructions:

- (A) If the answer to any of the questions below is **YES**, the Member State proposing an unplanned output should provide supporting details on whether the burdens are likely to involve start-up and/or ongoing cost. The Member State should also make a brief description of the requirement and, if possible, provide recommendations for further work (e.g. would it be possible to combine the activity with an existing requirement?).
- (B) If the proposal for the unplanned output does not contain such an activity, answer **NR** (Not required).

1. Notification and reporting? Reporting certain events before or after the event has taken place, e.g. notification of voyage, statistical reporting for IMO Members, etc.	NR <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description: (if the answer is yes)		
2. Record keeping? Keeping statutory documents up to date, e.g. records of accidents, records of cargo, records of inspections, records of education, etc.	NR <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description: (if the answer is yes)		
3. Publication and documentation? Producing documents for third parties, e.g. warning signs, registration displays, publication of results of testing, etc.	NR <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description: (if the answer is yes)		
4. Permits or applications? Applying for and maintaining permission to operate, e.g. certificates, classification society costs, etc.	NR <input checked="" type="checkbox"/>	Yes <input type="checkbox"/> Start-up <input type="checkbox"/> Ongoing
Description: (if the answer is yes)		
5. Other identified burdens?	NR <input checked="" type="checkbox"/>	Yes
Description: (if the answer is yes)		

ANNEX 3

CHECKLIST FOR CONSIDERING HUMAN ELEMENT ISSUES BY IMO BODIES

<p>Instructions: If the answer to any of the questions below is:</p> <p>(A) YES, the preparing body should provide supporting details and/or recommendation for further work. (B) NO, the preparing body should make proper justification as to why human element issues were not considered. (C) NA (Not Applicable) - the preparing body should make proper justification as to why human element issues were not considered applicable.</p>	
Subject Being Assessed: (e.g. Resolution, Instrument, Circular being considered)	
Responsible Body: (e.g. Committee, Sub-committee, Working Group, Correspondence Group, Member State)	
1. Was the human element considered during development or amendment process	NA
2. Has input from seafarers or their proxies been solicited?	NA
3. Are the solutions proposed for the subject in agreement with existing instruments?	Yes
4. Have human element solutions been made as an alternative and/or in conjunction	NA
5. Has human element guidance on the application and/or implementation of the proposed solution been provided for the following:	
• Administrations?	NA
• Ship owners/managers?	NA
• Seafarers?	NA
• Surveyors?	NA
6. At some point, before final adoption, has the solution been reviewed or considered	NA
7. Does the solution address safeguards to avoid single person errors?	NA
8. Does the solution address safeguards to avoid organizational errors?	NA
9. If the proposal is to be directed at seafarers, is the information in a form that can be	NA
10. Have human element experts been consulted in development of the solution?	NA
11. HUMAN ELEMENT: Has the proposal been assessed against each of the factors below?	
CREWING. The number of qualified personnel required and available to safely	NA
PERSONNEL. The necessary knowledge, skills, abilities, and experience levels that are needed to properly perform job tasks.	NA
TRAINING. The process and tools by which personnel acquire or improve the necessary knowledge, skills, and abilities to achieve desired job/task performance.	NA
OCCUPATIONAL HEALTH AND SAFETY. The management systems, programmes, procedures, policies, training, documentation, equipment, etc. to properly manage risks.	NA
WORKING ENVIRONMENT. Conditions that are necessary to sustain the safety, health, and comfort of those on working on board, such as noise, vibration, lighting, climate, and other factors that affect crew endurance, fatigue, alertness and morale.	NA

HUMAN SURVIVABILITY. System features that reduce the risk of illness, injury, or death in a catastrophic event such as fire, explosion, spill, collision, flooding, or intentional attack. The assessment should consider desired human performance in emergency situations for detection, response, evacuation, survival and rescue and the interface with emergency procedures, systems, facilities and equipment.	NA
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HUMAN FACTORS ENGINEERING. Human-system interface to be consistent with the physical, cognitive, and sensory abilities of the user population.	NA
Comments:	

DRAFT