DTEC Task Register 2023-2027

Working Group 2

Note – this is a living document, to be reviewed and updated at each meeting.

# TASK ### Develop guidance on The implementation of the digital fairway

IALA Work Programme 2023-2027 reference: S1070, 7.1

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| **Standard** | S1060 – Digital Communication Technologies  S1070 – Information Services | | |
| **Topic Area** | Digital Fairway | | |
| **Task** | Develop guidance for IALA members on the digitalisation of waterways. | | |
| **Objectives of the task** | To provide guidance on the development and implementation for digitalisation of waterways.  The development will:   * Define what is meant by digitalisation of waterways * Provide guidance on identifying digital maturity of waterways * Review guidance on the use of simulation as a tool in waterway design and AtoN planning (IALA G1058 (and G1097, noting this has been superseded by G1058 Ed 3.0)); * Identify best practice in development and use of digital twins; * Provide guidance on the use of digital twins for fairways / aids to navigation provision; * Identify uses of digital twins for planning, monitoring and maintenance * Identify options to share information on the fairway infrastructure and services in a digital format with users * Link with, for example, IMT-2030 and beyond for data exchange, AI/ML, S100, * Identify opportunities to enhance sustainability through the use of technology / digital twins for fairways and AtoNs.   Develop a migration path *(Describe the objective/s of the task)* | | |
| **Expected outcome** | New IALA guideline on developments of digitalisation of waterways.      *(Describe the expected outcome: e.g. Recommendation, Guideline or Other)* | | |
| **Compelling need** | Existing IALA guidance on the use of simulation as a tool for waterway design and aids to navigation planning was last revised in 2011, with technical features and technology relevant for simulation of AtoN in 2013.  Through the past years IALA has been reviewing existing and emerging technologies of relevance to the work of the IALA membership. The results of those reviews have highlighted a number of opportunities for making best use of these technologies.  Developments in MASS includes changing requirements for the provision of AtoN, including data exchange and display.  The developments in Artificial Intelligence and Machine Learning, along with digitalisation in the maritime environment, provide unique opportunities to support sustainable design, implementation and monitoring of AtoN to support changing requirements.  *(Describe briefly why this task should be included in the Work Programme)* | | |
| **Strategic Alignment**  *(See IALA Strategic Vision)* | **Goal** [confirm with most recent IALA strategic plan]  G1 - Marine Aids to Navigation are developed and harmonised through international cooperation and the provision of standards.  G2 - All coastal states have contributed to a sustainable and efficient global network of Marine Aids to Navigation through capacity building and the sharing of expertise.  **Strategy**  S2 Position IALA as the source of standards, knowledge, and expertise that will enable States to provide Marine Aids to Navigation, in accordance with relevant international obligations and recommendations.  S3 Coordinate the further development of Marine Aids to Navigation, taking into account evolving operational and functional requirements, new techniques, new technologies and sustainability.  S5 Harmonise the information structure and communications for future navigation by creating standards, and by cooperation with other international organisations, to achieve worldwide interoperability of shore and ship systems.  S6 Improve and harmonise the delivery of VTS globally and in a manner consistent with international conventions, national legislation and public expectations, to ensure the safety and efficiency of vessel traffic and to protect the environment. | | |
| **Scope** | **In Scope:**   * Identify international best practice for digitalisation of waterways * Review existing IALA documents and determining suitable approach to update / consolidate or provide input into revisions (Specifically G1058, G1113, G1114) * Liaise with ARM Committee for operational input * Develop a Guideline on the digitalisation of waterways.   *(Describe key items that are in scope/out of scope)* | | |
| **Brief and concise description of the work to be undertaken and programme mile­stones** (where appropriate). | Key milestones include:   |  |  | | --- | --- | | Scope Task and prepare outline | Oct 2023 (DTEC01) | | Sharing of best practices in digital twins (presentations / demonstrations); initial review of existing IALA documentation that may be relevant to the task | Mar 2024 (DTEC02) | | Review / Revise scope based on presentations. Follow up on the review of existing IALA documentation, liaise with ARM and VTS | Oct 2024 (DTEC03) | | Draft Guidelines, forward draft to ARM, VTS | Mar 2025 (DTEC04) | | Revise Guidelines with input from ARM, VTS | Oct 2025 (DTEC05) | | Finalise Guidelines, send for final review | Mar 2026 (DTEC06) | | Final Guidelines to IALA Council for approval | Oct 2026 (DTEC07) | | | |
| **Expected numbers of sessions for completion** | Session number:  01 02 03 04 05 06 07  X  X  X  X  X  X  X | | |
| **Committee notes** | **Origins** |  | |
|  | **Agreed by session** | **TD#** | **Comments** |
| XX |  |  |
|  | **Approved by Council** | *(Council Session)* | *(Date)* |
|  | **Revision Notes:** |  | |

# TASK ### Develop guidance on digital VHF

IALA Work Programme 2023-2027 reference: S1060, 6.2 (note – update based on outcomes of DTEC1)

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| **Standard** | S1060 – Digital Communication Technologies  S1070 – Information Services | | |
| **Topic Area** | Digital Communication | | |
| **Task** | Develop a guideline and roadmap for migrating current analogue VHF voice communications to digital maritime voice communications. | | |
| **Objectives of the task** | To provide guidance on the development of digital VHF and the migration of existing analogue VHF communications to digital VHF by:   * Developing a roadmap with logical steps with future vision of current and upcoming technologies for voice communication between shore – ship and ship – ship consistent with the specific needs and requirements of the maritime environment ~~and comply to IMO performance standards~~. * Defining the elements within current analogue VHF voice communications; * Defining the new possibilities with digital VHF voice communication systems; * Developing guidance to assist Contracting States and Competent authorities to migrate their current analogue VHF voice system to a mixture of analogue VHF communications and digital voice VHF communications; * Establishing links to existing IALA documentation; * Liaising with other bodies such as IMO, ITU, IHMA, IMPA, CIRM, ETSI, RTCM, CEPT on this matter. * Liaising with IALA VTS Committees as appropriate * Considering outputs from related IALA workshops and seminars * Considering the impact and implications of MASS with regards to communications and data exchange within the AtoN environment. * Developing a working document towards a preliminary draft new ITU-R Recommendation for digital VHF marine radio to be submitted to ITU-R WP5B as a proposal.   *(Describe the objective/s of the task)* | | |
| **Expected outcome** | New and/or amended IALA guidelines providing guidance to Contracting States and Competent Authorities in regard to migrate to digital communications, including voice communications. The guidelines to include infrastructure requirements, integration of future voice networks with other digital networks, and related requirements as may be identified during the work.  Inform IMO and ITU about the proposed roadmap for a future view on operational maritime digital communications including voice.  Dependencies for work related to draft new ITU-R Recommendation:   * ITU to accept the proposal on preliminary draft new ITU-R Recommendation for digital VHF marine radio and start the work. * Agenda item on digital (VHF) marine radio communications for WRC-27. * Radio Regulations revised to accommodate digital VHF marine radio communication.   *(Describe the expected outcome: e.g. Recommendation, Guideline or Other)* | | |
| **Compelling need** | The voice radio telephony in the VHF maritime mobile band is important for communications in shipping. The current congestion in the VHF maritime mobile band has become a serious problem not only in CEPT countries and is continuing to grow. The move to implement digital VHF capabilities for DSC, AIS and VDES means the number of voice channels in the VHF maritime mobile band has been reduced.  Expand the capacity for maritime digital communications including voice.  This will be discussed further at the ITU World Radio Conference 2023 (WRC-23). Input will be required at WRC-23 to support this item on the agenda for WRC-27. There is a requirement for focus work in advance of WRC-23 on the digitalisation of the maritime mobile band to highlight the importance of for future radiocommunications to support IALA membership.  The initial intent was to reduce the 12.5 kHz/6.25 kHz bandwidths as indicated in Recommendation ITU-R M.1084-5, but this has never been implemented. Also splitting duplex channels into simplex does not lead to the doubling of available voice channels due to the fact that AIS receiver sensitivity will be degraded in the “upper legs” unless the antennas are separated significantly. This is not always possible on ships.  The Recommendation ITU-R M.1084-5 provides ways to improve efficiency in the use of the band 156-174 MHz by stations in the maritime mobile service; specifically describes technical characteristics when using channels spaced by 12.5 kHz and 6.25 kHz, migration to narrow-band channels, an example method for implementing interleaved narrowband channels at 12.5 kHz or 6.25 kHz offset spacing and assignment of channels numbers to interleaved channels and simplex operation of duplex channels.  The introduction of new techniques will provide higher quality and more voice capabilities / channels for current VHF voice radio communications. There are additional benefits such as better support for safety and security measurements and improved situational awareness for mariners, Contracting States and/or Competent authorities.  This has implications for ship and shore side, including opportunities to rationalize infrastructure requirements to support digital data exchange.  This activity relates to [proposed work item on migration plan] noting the requirement to liaise with other organisations including ITU and IMO.  *(Describe briefly why this task should be included in the Work Programme)* | | |
| **Strategic Alignment**  *(See IALA Strategic Vision)* | **Goal** [confirm with most recent IALA strategic plan]  G1 - Marine Aids to Navigation are developed and harmonised through international cooperation and the provision of standards.  G2 - All coastal states have contributed to a sustainable and efficient global network of Marine Aids to Navigation through capacity building and the sharing of expertise.  **Strategy**  S1 Develop standards suitable for direct citation by States, in areas deemed important by the General Assembly, and the related Recommendations and Guidelines.  S2 Position IALA as the source of standards, knowledge, and expertise that will enable States to provide Marine Aids to Navigation, in accordance with relevant international obligations and recommendations.  S3 Coordinate the further development of Marine Aids to Navigation, taking into account evolving operational and functional requirements, new techniques, new technologies and sustainability.  S5 Harmonise the information structure and communications for future navigation by creating standards, and by cooperation with other international organisations, to achieve worldwide interoperability of shore and ship systems.  S6 Improve and harmonise the delivery of VTS globally and in a manner consistent with international conventions, national legislation and public expectations, to ensure the safety and efficiency of vessel traffic and to protect the environment. | | |
| **Scope** | **In Scope:**   * Define key elements for voice communication and voice communication networks * Migrating from current analogue VHF voice systems to digital VHF voice systems; * Liaise with VTS Committee * Consider developments at ITU, noting the outcomes of WRC-19, preparation for WRC-23 and the decision to consider digital VHF Voice at WRC-2027. * Liaise with IMO on developments, noting implications for ship side infrastructure and developments MASS.   *(Describe key items that are in scope/out of scope)* | | |
| **Brief and concise description of the work to be undertaken and programme mile­stones** (where appropriate). | Key milestones include:   |  |  | | --- | --- | | Scope Task, review work of ITU WP5B | Oct 2023 (DTEC01) | | Review outcomes of WRC23, prepare outline, forward to ENG/ARM/VTS for comment | Mar 2024 (DTEC02) | | Draft document, monitor activity in other organisations | Oct 2024 (DTEC03) | | Improve Draft guidelines, taking into account input from other IALA Committees | Mar 2025 (DTEC04) | | Revise Guidelines with input from other IALA Committees | Oct 2025 (DTEC05) | | Complete Draft guidelines, submit to Council for approval. | Mar 2026 (DTEC06) | |  |  | | | |
| **Expected numbers of sessions for completion** | Session number:  01 02 03 04 05 06 07  X  X  X  X  X  X | | |
| **Committee notes** | **Origins** |  | |
|  | **Agreed by session** | **TD#** | **Comments** |
| XX |  |  |
|  | **Approved by Council** | *(Council Session)* | *(Date)* |
|  | **Revision Notes:** |  | |

# TASK ### Training on implementation of digital solutions (data analytics & maritime informatics)

IALA Work Programme 2023-2027 reference: S1050, 5.1

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| **Standard** | S1050 – Training and Certification  S1060 – Digital Communication Technologies | | |
| **Topic Area** | Training and Assessment / Training in implementation of digital solutions (data analytics & maritime informatics) | | |
| **Task** | Develop a guideline on skills related to the digital environment, such as data analytics and maritime informatics with IALA WWA.  Work with IALA WWA on content for possible model course / integration of digital intelligence into existing IALA model courses or other training solutions. | | |
| **Objectives of the task** | To develop training on the implementation of digital solutions in Maritime AtoN environment:   * Scan maritime industry / related industries and identify skill sets required in an increasingly digital environment * Review the focus of the training: risk assessment; monitoring (remote monitoring) of assets; and identify skills required * Based on developing technology, analyse new tasks that will be required * Develop a lexicon of digital terms in the Marine AtoN environment * Identify existing training on digital intelligence, data analytics, maritime informatics, data sharing Work with IALA WWA identify requirements of IALA members regarding training to address digital developments * Based on analysis / gap analysis, develop a guideline on training to support the implementation of digital technologies in waterways * If determined appropriate, work with IALA WWA to develop a model course / content to support training on digital intelligence.   *(Describe the objective/s of the task)* | | |
| **Expected outcome** | New IALA guideline on digital intelligence in the Marine AtoN environment.  Development of content on current and new and emerging technologies for possible training programs related to digital intelligence (with IALA WWA).  *(Describe the expected outcome: e.g. Recommendation, Guideline or Other)* | | |
| **Compelling need** | The digital transformation of the maritime environment continues to bring about significant change in operations and competence requirements for personnel.  While there are many developments, these require a structured approach to provide education and training for existing personnel and for new personnel. There are examples of international best practice that can be drawn upon support this work, including the work of the IALA WWA.  *(Describe briefly why this task should be included in the Work Programme)* | | |
| **Strategic Alignment**  *(See IALA Strategic Vision)* | **Goal** [confirm with most recent IALA strategic plan]  G1 - Marine Aids to Navigation are developed and harmonised through international cooperation and the provision of standards.  G2 - All coastal states have contributed to a sustainable and efficient global network of Marine Aids to Navigation through capacity building and the sharing of expertise.  **Strategy**  S2 Position IALA as the source of standards, knowledge, and expertise that will enable States to provide Marine Aids to Navigation, in accordance with relevant international obligations and recommendations.  S3 Coordinate the further development of Marine Aids to Navigation, taking into account evolving operational and functional requirements, new techniques, new technologies and sustainability.  S5 Harmonise the information structure and communications for future navigation by creating standards, and by cooperation with other international organisations, to achieve worldwide interoperability of shore and ship systems. | | |
| **Scope** | **In Scope:**   * Identifying international best practice * Working with other IALA Committees and IALA WWA to verify requirements / gap analysis * Reviewing existing IALA documents to determine where digital intelligence may sit * Develop (with IALA WWA) model courses or content for existing model courses on digital intelligence within the port / AtoN environment.   *(Describe key items that are in scope/out of scope)* | | |
| **Brief and concise description of the work to be undertaken and programme mile­stones** (where appropriate). | Key milestones include, with consultation with IALA WWA:   |  |  | | --- | --- | | Scope Task, prepare work plan to address | Oct 2023 (DTEC01) | | Research / share best practice | Mar 2024 (DTEC02) | | Review research | Oct 2024 (DTEC03) | | Verify expectations (guideline / model course), draft content | Mar 2025 (DTEC04) | | Improve draft documents, forward to IALA Committees as appropriate | Oct 2025 (DTEC05) | | --- no specific activity, await input | Mar 2026 (DTEC06) | | Finalise draft content, forward to Council for approval | Oct 2026 (DTEC07) | | | |
| **Expected numbers of sessions for completion** | Session number:  01 02 03 04 05 06 07  X  X  X  X  X  X | | |
| **Committee notes** | **Origins** |  | |
|  | **Agreed by session** | **TD#** | **Comments** |
| XX |  |  |
|  | **Approved by Council** | *(Council Session)* | *(Date)* |
|  | **Revision Notes:** |  | |

| **ENAV Committee Work Programme 2023-2027** |
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# TASK ### guidance on the provision of Marine AtoN for autonomous vehicle/vessel operations (Maritime Autonomous Surface Ship, MASS)

IALA Work Programme 2023-2027 reference: S1010, 1.1

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| --- | --- | --- | --- |
| **Standard** | S1060 – Digital Communication Technologies  S1070 – Information Services | | |
| **Topic Area** | Providing guidance on the certification of technical equipment, information systems and technical infrastructure related to MASS in the domain of IALA | | |
| **Task** |  | | |
| **Objectives of the task** | [text]:   * [text].   *(Describe the objective/s of the task)* | | |
| **Expected outcome** | New IALA guideline on digital intelligence in the port and AtoN environment.  Development of content for possible training programs related to digital intelligence (with IALA WWA).  *(Describe the expected outcome: e.g. Recommendation, Guideline or Other)* | | |
| **Compelling need** | *[text]*  *(Describe briefly why this task should be included in the Work Programme)* | | |
| **Strategic Alignment**  *(See IALA Strategic Vision)* | **Goal** [confirm with most recent IALA strategic plan]  G1 - Marine Aids to Navigation are developed and harmonised through international cooperation and the provision of standards.  G2 - All coastal states have contributed to a sustainable and efficient global network of Marine Aids to Navigation through capacity building and the sharing of expertise.  **Strategy**  S2 Position IALA as the source of standards, knowledge, and expertise that will enable States to provide Marine Aids to Navigation, in accordance with relevant international obligations and recommendations.  S3 Coordinate the further development of Marine Aids to Navigation, taking into account evolving operational and functional requirements, new techniques, new technologies and sustainability.  S5 Harmonise the information structure and communications for future navigation by creating standards, and by cooperation with other international organisations, to achieve worldwide interoperability of shore and ship systems. | | |
| **Scope** | **In Scope:**   * [update] * .   *(Describe key items that are in scope/out of scope)* | | |
| **Brief and concise description of the work to be undertaken and programme mile­stones** (where appropriate). | Key milestones include:   |  |  | | --- | --- | |  | Oct 2023 (DTEC01) | |  | Mar 2024 (DTEC02) | |  | Oct 2024 (DTEC03) | |  | Mar 2025 (DTEC04) | |  | Oct 2025 (DTEC05) | |  | Mar 2026 (DTEC06) | |  | Oct 2026 (DTEC07) | | | |
| **Expected numbers of sessions for completion** | Session number:  01 02 03 04 05 06 07  X  X  X | | |
| **Committee notes** | **Origins** |  | |
|  | **Agreed by session** | **TD#** | **Comments** |
| XX |  |  |
|  | **Approved by Council** | *(Council Session)* | *(Date)* |
|  | **Revision Notes:** |  | |

| **ENAV Committee Work Programme 2023-2027** |
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# TASK ### Contribution to the development of IMT-2030 by formulating user requirements for Marine AtoN

IALA Work Programme 2023-2027 reference: S1050, 6.1

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| --- | --- | --- | --- |
| **Standard No** | S1060 Digital communication technologies | | |
| **Topic Area/Scope**  *(See Standard or Work Programme 2023-2028)* |  | | |
| **Strategic Alignment**  *(See IALA Strategic Vision)* | **Goal:**  **Strategy:** | | |
| **Task**  *(Proposed task name for new tasks)* | Contribution to the development of IMT-2030 by formulating user requirements for Marine AtoN | | |
| **Objectives of the task** | To ensure the safety and efficiency of Marine AtoN within the IMT-2030 (beyond 5G) communication system, the following objectives are targeted to be achieved:   1. Identify legacy use cases that must be supported by the Marine AtoN over IMT-2030. 2. Develop new use cases that are likely to find applicability in the Marine AtoN over IMT-2030. 3. Define potential service requirements, including regulatory consideration, for Marine AtoN over IMT-2030, drawing from both identified legacy use cases and newly developed use cases. 4. Formulate the input based on these use cases and potential service requirements to be submitted for 3GPP standardization. | | |
| **Expected outcome**  *(e.g. Recommendation, Guideline, Model Course)* | Guideline on the use cases and potential service requirements for Marine AtoN over IMT-2030 in terms of the communication system | | |
| **Compelling need**  *(Describe briefly why this task should be included in the Work Programme)* | ITU-R WP 5D reached a consensus in June 2023 on a draft new Recommendation titled "Framework and Overall Objectives for the Future Development of IMT for 2030 and Beyond,” which is now under consideration as a cornerstone for standardizing the next generation of International Mobile Telecommunications (IMT) standards.  In addition, 3GPP, particularly SA WG1 responsible for standardizing use cases and service requirements within the broader 3GPP ecosystem, is expected to commence discussions on the timeline and content for Stage 1 standardization for Release 20 (seen as the initial version of 3GPP specifications for IMT-2030) in the end of 2023. An approval decision for feasibility studies is anticipated in the first half of 2024, with the objective of shaping beyond 5G system aligned with IMT-2030 framework by developing pertinent use cases and service requirements within the context of 3GPP standardization.  Furthermore, 3GPP is expected to continue to cater to various industries’ demands for digital transformation through communication products and solutions based on 3GPP standards, similar to its role in 5G standardization. These efforts will incorporate inputs stemmed from insights and market demands provided by these industries, integrating them into the 3GPP standardization process.  Hence, it is imperative to promptly formulate use cases and service requirements including regulatory aspects for Marine AtoN over IMT-2030. These inputs will play a vital role in the maritime sector’s involvement in 3GPP standardization efforts, aligning with the 3GPP SA1 timeline for studies and works starting from Release 20 onward for ITU-R IMT-2030. | | |
| **Scope**  *(Describe key items to be taken into account as well as what is not included)* | **In Scope:**  Development of use cases and service requirements including regulatory aspects for Marine AtoN over IMT-2030 (beyond 5G) to formulate inputs as served for incorporating demands of Marine AtoN related stakeholders into 3GPP standardization for IMT-2030 (beyond 5G).  **Out of scope:**  [TBD] | | |
| **Brief and concise description of the work to be undertaken and programme mile­stones** | Key milestones for completing the task include:   |  |  | | --- | --- | | Initial version of use cases and potential requirements for Marine AtoN over IMT-2030 (beyond 5G) | [TBD] | | Second version of use cases and potential requirements for Marine AtoN over IMT-2030 (beyond 5G) | [TBD] | | Draft approved by Council | [TBD] |   NOTE1: The specified milestones are aimed at developing crucial inputs that will actively engage the maritime sector in 3GPP's standardization efforts for IMT-2030 (beyond 5G). The timeline within IALA may require synchronization with 3GPP's timeline.  NOTE2: This task may need to be conducted in phases to yield task outcomes that provide pertinent inputs for Marine AtoN over IMT-2030 (beyond 5G) into 3GPP's standardization process, aligning with the release timeline. | | |
| **Expected numbers of sessions for completion** | Session number:  01 02 03 04 05 06 07  x  x  x  x  x  x  x | | |
| **Committee notes** | **Origins /Input paper**  **Who proposed the task?**  **Forwarded from previous work period:** | *(name of file)*  *(name of organisation)*  Yes No  X | |
|  | **Working Group** | **WG#** | **Comments** |
| **Agreed by Committee** | *(Committee Session)* | *(Month & Year)* |
| **Approved by Council** | *(Council Session)* | *(Month & Year)* |
| **Revision Notes:** |  | |

# TASK ### guidance on the process to implement developments of innovation

IALA Work Programme 2023-2027 reference: S1010, 1.1

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| --- | --- | --- | --- |
| **Standard** | S1060 – Digital Communication Technologies  S1070 – Information Services | | |
| **Topic Area** | Providing guidance on the process to implement developments of innovation. | | |
| **Task** | Develop guidance for IALA members on going from development test bed/ trial reporting to implementation. | | |
| **Objectives of the task** | The objectives of the task are to:   * Identify best practice in the implementation of innovative solutions; * Define the process to move from ‘development’ to ‘implementation’; * Develop guidance to assist IALA members in the implementation of solutions developed through test beds noting technology readiness levels; * Establish links to existing IALA documentation; * Review existing documentation (i.e. ACCSEAS work) * Identify a way to share lessons learned in implementing innovative solutions (IALA ‘body of knowledge’ or similar); * Identify when liaison with other competent authorities and / or organisations may be required; * Assist IALA and IALA members when technology is mature enough to recommend implementation *(Describe the objective/s of the task)* | | |
| **Expected outcome** | New IALA guideline on implementing the results of test beds, with a sample ‘template’ roadmap – implementing existing technologies / new technologies to meet a need. | | |
| **Compelling need** | Identification of a body of knowledge / sharing of best practices within the IALA membership. | | |
| **Strategic Alignment**  *(See IALA Strategic Vision)* | **Goal** [confirm with most recent IALA strategic plan]  Goal 1:  G1 S2 Improve and harmonise the delivery of VTS globally and in a manner consistent with international conventions, legislative frameworks and public expectations.  G1‐S3 Harmonise the information structure, Maritime Service Portfolios, and communications for e‐Navigation by creating standards, and by cooperation with other IGOs, to achieve worldwide interoperability of shore and ship systems, including IMO sustainability goals for a maritime transport system.  Goal 2:  G2 S1 Position IALA as the source of standards, knowledge, and expertise that will enable States to undertake and share the technical development of aids to navigation, in accordance with UNCLOS, SOLAS, and other obligations.  G2 S3 Coordinate the further development of VTS, e‐Navigation, and short range aids to navigation, taking into account new technologies and sustainability.. | | |
| **Scope** | **In Scope:**  Creating guidelines for:   * Identifying international best practice * Developing a template process/roadmap * Reviewing existing IALA documents to determine if updates are required   *(Describe key items that are in scope/out of scope)* | | |
| **Brief and concise description of the work to be undertaken and programme mile­stones** (where appropriate). | Key milestones include:   |  |  | | --- | --- | | Scope Task and prepare skeleton | Oct 2023 (DTEC01) | | Research and share best practice / roadmaps | Mar 2024 (DTEC02) | | Draft guideline | Oct 2024 (DTEC03) | | Improve Draft guidelines – forward to other IALA Committees for review | Mar 2025 (DTEC04) | | Complete Draft guidelines forwarding to Council for approval. | Oct 2025 (DTEC05) | | Additional session if required | Mar 2026 (DTEC06) | |  | Oct 2026 (DTEC07) | | | |
| **Expected numbers of sessions for completion** | Session number:  01 02 03 04 05 06 07  X  X  X  X  X  X | | |
| **Committee notes** | **Origins** |  | |
|  | **Agreed by session** | **TD#** | **Comments** |
| XX |  |  |
|  | **Approved by Council** | *(Council Session)* | *(Date)* |
|  | **Revision Notes:** |  | |

# TASK ### Monitor Development in technology [text from last work term]

IALA Work Programme 2023-2027 reference: S1070, 7.1

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| --- | --- | --- | --- |
| **Standard** | S1060 – Digital Communication Technologies  S1070 – Information Services | | |
| **Topic Area** | Digital Fairway | | |
| **Task** | Develop guidance for IALA members on the developments and implementation of the digital fairway. | | |
| **Objectives of the task** | To provide guidance on the development and implementation of digital fairways.  *(Describe the objective/s of the task)* | | |
| **Expected outcome** | New IALA guideline on implementing the development and implementation of digital fairways.  The development will:   * Review guidance on the use of simulation in fairway / AtoN (IALA G1058 and G1097); * Identify best practice in development and use of digital twins; * Provide guidance on the use of digital twins for fairways / aids to navigation provision; * Identify uses of digital fairway for planning, monitoring and maintenance * Identify options to share information on the fairway infrastructure and services in a digital format with users * Link with, for example, IMT /-2020 (5G) and beyond for data exchange, AI/ML, S100, * Identify opportunities to enhance sustainability through the use of technology / digital twins for fairways and AtoNs.   *(Describe the expected outcome: e.g. Recommendation, Guideline or Other)* | | |
| **Compelling need** | Existing IALA guidance on the use of simulation as a tool for waterway design and aids to navigation planning was last revised in 2011, with technical features and technology relevant for simulation of AtoN in 2013.  Through the past years IALA has been reviewing existing and emerging technologies of relevance to the work of the IALA membership. The results of those reviews have highlighted a number of opportunities for making best use of these technologies.  Developments in MASS includes changing requirements for the provision of AtoN, including data exchange and display.  The developments in Artificial Intelligence and Machine Learning, along with digitalisation in the maritime environment, provide unique opportunities to support sustainable design, implementation and monitoring of AtoN to support changing requirements.  *(Describe briefly why this task should be included in the Work Programme)* | | |
| **Strategic Alignment**  *(See IALA Strategic Vision)* | **Goal** [confirm with most recent IALA strategic plan]  G1 - Marine Aids to Navigation are developed and harmonised through international cooperation and the provision of standards.  G2 - All coastal states have contributed to a sustainable and efficient global network of Marine Aids to Navigation through capacity building and the sharing of expertise.  **Strategy**  S2 Position IALA as the source of standards, knowledge, and expertise that will enable States to provide Marine Aids to Navigation, in accordance with relevant international obligations and recommendations.  S3 Coordinate the further development of Marine Aids to Navigation, taking into account evolving operational and functional requirements, new techniques, new technologies and sustainability.  S5 Harmonise the information structure and communications for future navigation by creating standards, and by cooperation with other international organisations, to achieve worldwide interoperability of shore and ship systems.  S6 Improve and harmonise the delivery of VTS globally and in a manner consistent with international conventions, national legislation and public expectations, to ensure the safety and efficiency of vessel traffic and to protect the environment. | | |
| **Scope** | **In Scope:**   * Identifying international best practice for implementing digital fairways * Reviewing existing IALA documents and determining suitable approach to update / consolidate or provide input into revisions (Specifically G1058 and G1097, G1113, G1114) * Liaise with ARM Committee for operational input * Develop a Guideline on the implementation of digital fairways.   *(Describe key items that are in scope/out of scope)* | | |
| **Brief and concise description of the work to be undertaken and programme mile­stones** (where appropriate). | Key milestones include:   |  |  | | --- | --- | | Scope Task and prepare outline | Oct 2023 (DTEC01) | | Sharing of best practices in digital twins (presentations / demonstrations); initial review of existing IALA documentation that may be relevant to the task | Mar 2024 (DTEC02) | | Review / Revise scope based on presentations. Follow up on the review of existing IALA documentation, liaise with ARM | Oct 2024 (DTEC03) | | Draft Guidelines, forward draft to ARM | Mar 2025 (DTEC04) | | Revise Guidelines with input from ARM | Oct 2025 (DTEC05) | | Finalise Guidelines, send for final review | Mar 2026 (DTEC06) | | Final Guidelines to IALA Council for approval | Oct 2026 (DTEC07) | | | |
| **Expected numbers of sessions for completion** | Session number:  01 02 03 04 05 06 07  X  X  X  X  X  X  X | | |
| **Committee notes** | **Origins** |  | |
|  | **Agreed by session** | **TD#** | **Comments** |
| XX |  |  |
|  | **Approved by Council** | *(Council Session)* | *(Date)* |
|  | **Revision Notes:** |  | |