REQUEST FOR INFORMATION (RFI)
International Study on Remote Pilotage

1 Background

The International Maritime Pilots' Association (IMPA), established in 1970, represents pilots' organisations in over 50 countries and a professional community of over 8,000 maritime pilots. The Association is a not-for-profit organisation which uses the resources of its membership to promote effective safety outcomes in maritime pilotage as an essential public service. It achieves this objective by bringing together pilots' associations worldwide to share knowledge, expertise and experience on matters affecting maritime pilotage.

The International Maritime Organization recognises the importance of employing qualified, licensed pilots on board ships in areas where such pilotage services would contribute to the safety of navigation more effectively than other possible measures, including ports and other areas where specialised knowledge is essential.

Given the role of maritime pilotage, IMPA considers it critically important that any concept that could impact mandatory pilotage practices and systems, including remote pilotage, be carefully examined and assessed.

IMPA has launched a project to study pilotage as a socio-technical system and the readiness, risks, impacts, benefits, opportunities, and prerequisites of remote pilotage. It will consider the findings of previous shore-based pilotage projects and seek to validate the insights delivered by the project with trials of technology and protocols on conventionally navigated ships, principally in Canada.

To deliver this study, the IMPA has partnered with the Canadian Coast Guard, which is Canada's provider of shore-based systems in support of safe and efficient navigation, and which operates a fleet of 130+ vessels, and Canada's National Center of Expertise on Maritime Pilotage (NCEMP).

2 Project Objectives

The project aims to provide pilots' organisations, competent authorities and industry unbiased, science-based and authoritative insights into the readiness, risks, impacts, benefits, opportunities and prerequisites of remote pilotage on commercial ships in mandatory pilotage waters now and in the future.

IMPA, therefore, intends to trial solutions advanced by manufacturers and system integrators who believe that their solutions could enable remote pilotage in mandatory pilotage waters and make observations on the readiness, risks, impacts, benefits, opportunities, and prerequisites of remote pilotage.

3 Requirements

To conduct those trials, IMPA solicits the interests of manufacturers and system integrators who believe their technology solution(s) meet the requirements, as outlined in the following High-Level Specifications for Technology Solutions section.

IMPA believes manufacturers and system integrators can significantly gain from participating in the study. Benefits include:

- Working closely with the most concerned end-users and shore-based service providers;
- Free, rigorous technical and operational assessments in various operational environments;
- Free and rigorous comparative assessment of technology solutions capabilities and performance relative to other technology solutions submitted in response to the RFI after phases 2 – 5 of the project; and
- Being a member of the stakeholder advisory group for the project, offering exposure to regulators, pilotage authorities, pilots, shore-based service providers, and other stakeholders in mandatory pilotage.

To ensure full transparency, all technology solutions submitted in response to this RFI will be referenced publicly in reports published by IMPA.

In line with IMPA's policy on endorsement, no endorsement, approval, assurance, or certification will be issued by IMPA or any of the project partners. IMPA assures all prospective contributors a safe and unbiased assessment of the readiness of their proposed solution.

The IMPA final report will be widely distributed and is expected to inform future decision-making by pilots' organisations and competent authorities about the potential role of remote pilotage. The process and methodology used by IMPA will be disclosed in publicly available material for future re-use by pilots' organisations, competent authorities, industry and academia. This will provide a model methodology for similar evidence-based assessments to be conducted in the future.

4 High-Level Specifications for Technology Solutions

4.1 IMPA intends to trial those end-to-end commercial technology solutions ready for demonstration in an operational environment. Using the UK Science and Technology Facilities Council (Eligibility of technology readiness levels (TRL) – UKRI) readiness levels, achievement of TRL Level 6 would be required, with a clear pathway to qualification (TRL 8) and deployment (TRL 9).

Any proposed solution should be able to:

1. Deliver secure, low latency ship-shore, shore-ship exchange of data and information required by a qualified, licensed maritime pilot to direct the navigation of a ship throughout an act of pilotage, including berthing, unberthing and manoeuvring in a port, port approach, harbour, canal or river;
2. Deliver secure, low latency ship-shore, shore-ship exchange of data and information required by a master and bridge team to discharge their responsibility for the safety of a ship during an act of pilotage;
3. Deliver secure, low-latency shore-shore, ship-shore, and shore-ship exchange of data and information required for reporting and coordination of services in both normal and emergency situations; and
4. Support a master and bridge team and a pilot ashore by establishing, maintaining, and sharing situational awareness before and during an act of pilotage.

4.2 In addition to being ready for demonstration in an operational environment (achieved TRL Level 6) and for which there is a clear pathway to qualification (TRL 8) and deployment (TRL 9), technology solutions must:

1. Meet minimum compatibility requirements for the trials to be possible, including any special requirements the CCG may require; and

2. Be scalable so that they can contribute to each trial phase and be used on multiple ships.

5 Trials Phases

During the project, there will be three phases of trials:

5.1 **Simulated:** Conduct a technical performance evaluation using shore-based systems and emulation.

5.2 **Controlled:** Conduct trials on board a Canadian Coast Guard (CCG) ship (CCG ships are not subjected to mandatory pilotage requirements) operating mainly in mandatory pilotage waters.

5.3 **Near-real-life.** Conduct trials onboard a commercial vessel operated by a domestic crew, and onboard a commercial vessel operated by an international crew, both in mandatory pilotage waters. At all times, those trials would be done under the supervision of an onboard qualified, licensed pilot, to ensure all laws and regulations on maritime pilotage are met irrespective of the trials being conducted.

6 Project timelines

For manufacturers and system integrators that propose solutions for this project must agree to provide their solutions for the duration of the project, including providing technical support when required. Trials are estimated to begin early in 2025 and continue until 2028. These timelines may change at the discretion of IMPA based on the project's needs.

7 Costs

IMPA expects manufacturers and system integrators to cover the cost of their technology solutions, their deployment, and any associated costs other than those directly resulting from any special requirements or modifications requested by IMPA or its partners in the project.

IMPA will work to ensure any requirements imposed on manufacturers or system integrators for the purposes of conducting trials are kept to minimum to avoid unnecessary costs.

8 Proposals and Expressions of Interest

8.1 Manufacturers and system integrators who wish to have their technology solution(s) considered for inclusion in the trial phases of the project must submit a proposal in English detailing how their solution meets the requirements of sections 3 and 4 of this RFI. There is no prescribed format for developing the proposal. Supplementary pictures and video evidence are welcome.

8.2 Manufacturers and system integrators that have solutions in development which have not yet achieved TRL 6 but which *may* be able to meet the High-Level Specifications

for Remote Technology Solutions are encouraged to present these proposals with an anticipated timeline for achieving TRL 6.

9 Next Steps

9.1 Interested manufacturers and system integrators are invited to submit their proposals to Captain Alain Arseneault (aarseneault@pilotage-expertise.ca) by 31 December 2024. The next steps, including the assessment phase, will be determined based on the proposals received.

9.2 Captain Arseneault should also be contacted with any questions about this RFI. We are committed to responding to questions in a timely manner.

9.3 No extension to the deadlines is expected.