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**Input paper for the following Committee(s):** **Purpose of paper:**

ARM  ENG  PAP  Input

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**Author(s)/Submitter(s)** IALA Secretariat and PAP53

The Open Digital Incubator initiative

# Introduction

At PAP47 the PAP Chair introduced a late input paper that explained the Open Digital Incubator initiative.

The paper explained that while e-navigation has been on the agenda for a long time, global harmonization of data products and in particular technical services carrying data products, has not yet been fully achieved. Instead, data products are being delivered via local or regional proprietary technical services without any significant harmonization taking place.

The paper explained further that there is a need to identify promising solutions to this problem and placing them in a suitable environment where they can be further developed, benchmarked and tested with other solutions to ensure interoperability and harmonization in a global perspective.

At PAP47, the Open Digital Incubator initiative was discussed at length, and some concerns were raised, including how to ensure equal opportunity to participate in this initiative as well as the need to invite the IMO and IHO and other e-navigation stakeholders to cooperate on these matters.

Following these discussions, the PAP agreed that this was a feasible and positive initiative, it was noted that there are many wider challenges surrounding this idea particularly with consensus for such innovation at IMO. The PAP were content that if and when invited, the IALA Secretariat will participate in meetings related to this initiative in an advisory role, providing clarification and advice on how to conform to relevant IALA standards, recommendations and guidelines.

It was agreed also that an input paper sent to all committees, informing them on the Open Digital Incubator initiative, would be welcome.

# Action requested from The Committee

The committee is invited to note the information provided in appendix 1 of this document.

AppendiX 1

**The OPEN Digital Incubator initiative**

**Introduction**

The maritime community has discussed the development of e-navigation services for more than a decade. Data products are being delivered via local or regional proprietary technical services.

Global harmonization of data products and in particular technical services has not yet been achieved.

The diversity of local and regional services hinders large scale global uptake in a similar way as during the videotape format war between VHS and Betamax in the 1980´s. Stakeholders do not know which solution will win the race and their investment appetite is reduced.

There is a need to boost end user confidence in the most promising solutions and shed light on their business cases, to improve stakeholder investment appetite.

This can be achieved by identifying the most promising solutions and placing them in a suitable environment where they can be further developed, benchmarked and tested with other solutions to ensure interoperability and harmonization in a global perspective. It should also be ensured that sufficient focus is given to building solid business cases.

The Digital Incubator Initiative aims at achieving this.

**Principal aim**

The principal aim of the Digital Incubator initiative is to act as a kind of innovation funnel which:

*facilitates development, prototyping and testing*

*of promising solutions for the maritime domain by providing*

*an operational environment including a globally harmonized connectivity framework*

*which enables full scale end to end testing of digital technical services.*

It is a non-profit, open-source initiative, aimed at facilitation global harmonization of maritime digital technical services worldwide.

**What, How, and Who?**

The operational environment provided by the Digital Incubator will be based on existing projects who have their own resources and interest on interoperability and global harmonization. It will consist of a suite of open-source, operational and prototype instances of systems, representing both provider and consumer systems.

At the outset, the Digital Incubator is expected to consist of:

* *Njord*A prototype/demonstrator system operated by GLA in the UK that provides a technical service for AtoN related information (S-125 and Navigational Warnings).
* *Maritime Connectivity Platform* (MCP)   
  A decentralized public demonstrator of MCP operated by members of the MCP consortium consisting of
  + An MCP service registry operated by GLA
  + An MCP identity registry and service registry operated by KRISO
* *E-navigation Prototype Display (EPD)*

A prototype Navigation/ECDIS display maintained and operated by DLR

It is expected that Fintraffic in Finland will make different VTS services available for the Digital Incubator, once fully established.

Once established, the Digital Incubator will be an asset for those who are developing and implementing technical services.

The services included in the Incubator will include, but not be limited to, technical services in the context of e-Navigation, i.e., those technical services referenced in the IMO description of Maritime Services.

Sister organizations such as the IHO, CIRM, and other international initiatives, such as the Global Maritime Digital Route Test Bed (GMDRT) recently initiated by South Korea can benefit from and contribute to the operational environment provided by the Digital Incubator Initiative.

A dedicated website with information about the different components and activities, as well as information on how to engage / contribute to the incubator initiative, is envisaged.

**Governance and Funding**

A steering group with representatives from each of the participating organisations will be established, together with a small administrative and coordinating secretariat.

The steering group would decide on which new solutions/projects are admitted to the incubator. This should be based on an evaluation of the potential and maturity of each solution.

The steering group should also evaluate at regular intervals the utility and relevance of the Digital Incubator initiative and decide on the way forward.

Each participating organization is expected to fund their own costs related to their contribution to the Digital Incubator.

**Relations with current work programme of IALA**

Several technical service specifications are currently being developed, such as:

* Technical service for the provision of Navigational Warnings (IHO)
* Technical service for the provision of AtoN information (IALA and IHO)
* Technical services for VTS (individual services not yet identified) (IALA)

These are all candidate solutions to be included in the initial stage of the Digital Incubator, with VTS services likely to follow soon.

**IALA participation in the Digital Incubator Initiative**

If and when invited, the IALA Secretariat will participate in meetings related to this initiative in an advisory role, providing clarification and advice on how to conform to relevant IALA Standards, recommendations and guidelines.

**Relevant publications**

Annex 1 lists several relevant publications which should be considered when developing technical services.

**ANNEX 1 Relevant publications**

Publications relevant to the development of technical services:

*G1107 - Planning Testbeds and Reporting of Testbed Results*

Guidance on the planning and reporting of results from e‐navigation testbeds.

*G1128 - The specification of e-Navigation technical services*

This is the overall technology agnostic guideline that the specifications should follow

*G1143 - Unique identifiers for maritime resources (MRN)*

Everything (Data, the services them selves, etc) needing a unique identifier will be given an (one or more) MRN

*G1157 - Web Service Based S-100 Data Exchange*

Describes how to make G1128 services using internet technology - i.e. less technology agnostic.

*G1161 - Evaluation-of-Platforms-for-the-Provision-of-Maritime-Services*

A guideline that established the need for a platform that facilitates authentication of service provider/consumer and service discoverability among other things, i.e. the Maritime Connectivity Platform (MCP). The MCP is compatible with the identity registry and service registry mentioned in SECOM (below)

*IEC 63173-2 SECOM - Secure exchange and communication of S-100 based products*

A standard that follows both G1128 and G1143, and in detail describes how to specify a service that facilitates data exchange between a shore entity and a ship (ECDIS)

It is the expectation that a revised ECDIS performance standard will make reference to this IEC standard - and thus make it possible to deliver S-100 data (including VTS) directly to the ECDIS.