18th CHRIS MEETING

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Cairns, Australia, 25-29 September 2006

e-NAVIGATION PHASE 1 PROJECT COMPONENTS
(Department for Transport, UK)

1.   It would be helpful to agree with members of the correspondence group, an understanding of what the key elements of the e-Navigation phase 1 work programme should be (phase 1 being the remit agreed at MSC and NAV) and what the key products or outcomes should be.

2.   We see phase 1 comprising eight components:

   i)   define the core objectives of a secure, effective, economic and reliable e-Navigation system

   ii)   deriving from (i), define the core system architecture (including hardware, communications and software) needed to achieve those objectives

   iii)   assess the level of competency needed for operators and type of training that would be required

   iv)   assess which elements of this architecture exist in some form today and affirm their status (covering functionality, reliability, operational management responsibilities, regulatory status as to specification, fitment and use, generational status and integration)

   v)   comparing (iv) with (ii) and (iii), assess what and where the gaps are between current capability and desired capability

   vi)   assess broadly what would be needed to fill those gaps, including options or alternatives if appropriate

   vii)   identify which bodies/mechanisms/processes could most aptly be used to fill those gaps

   viii)   consider how responsibilities and timetables can be assigned and progress monitored in order to be able to integrate outcomes within a coherent overall project framework.

3.   Actions in respect of these eight components should deliver <u>four</u> main products or outcomes for Phase 1:-

   i)   agreement on a core system architecture for e-Navigation (at a strategic level)

ii)   a gap analysis product, with broad assessment of the nature/extent of gaps, including regulatory gaps, and actions needed to bridge them

iii)   a responsibility map for the gaps identified in (ii)

iv)   recommendations on overall project governance for subsequent phases of e-Navigation development

4.   As regards component (i) (core objectives), we offer the following as an initial draft:-

The core objectives of an integrated e-Navigation system are:-

"Using electronic data capture, communication, manipulation and display, to:-

i. facilitate safe and secure navigation of vessels having regard to geophysical risks (coastlines and subsea geology), structural hazards (including fixed and floating structures such as quays, jetties, breakwaters, piers, offshore energy structures, fish farms etc), navigational instructions (traffic lanes, exclusion zones etc), weather conditions, hydrographic conditions and vessel movements

ii. facilitate vessel traffic observation and management from shore/coastal navigational facilities where appropriate and in harbours and approaches

iii. facilitate ship to ship, ship to shore and shore to ship communications as needed/desirable to achieve the above

iv. facilitate the effective operation of distress assistance, search and rescue services and use of data for the purposes of risk analysis and accident investigation

v. integrate and display information on ship and ashore in a format which, when supported by appropriate training for operators, maximises navigational safety benefits and minimises risks of confusion or mis-interpretation

vi. having regard to the global scope of marine navigation, ensure broad coverage, consistent standards and mutual compatibility and interoperability of equipment, fitment, systems and operational procedures, so as to avoid potential conflicts between vessels or between vessels and navigation/traffic management agencies

vii. demonstrate levels of accuracy, integrity and continuity appropriate to a safety-critical system (under all operating conditions and having regard to risks of malicious or inadvertent interference)

viii. incorporate sufficient functionality to be viable as a safety-critical system on a stand-alone basis, reducing reliance on external (non-eNav)
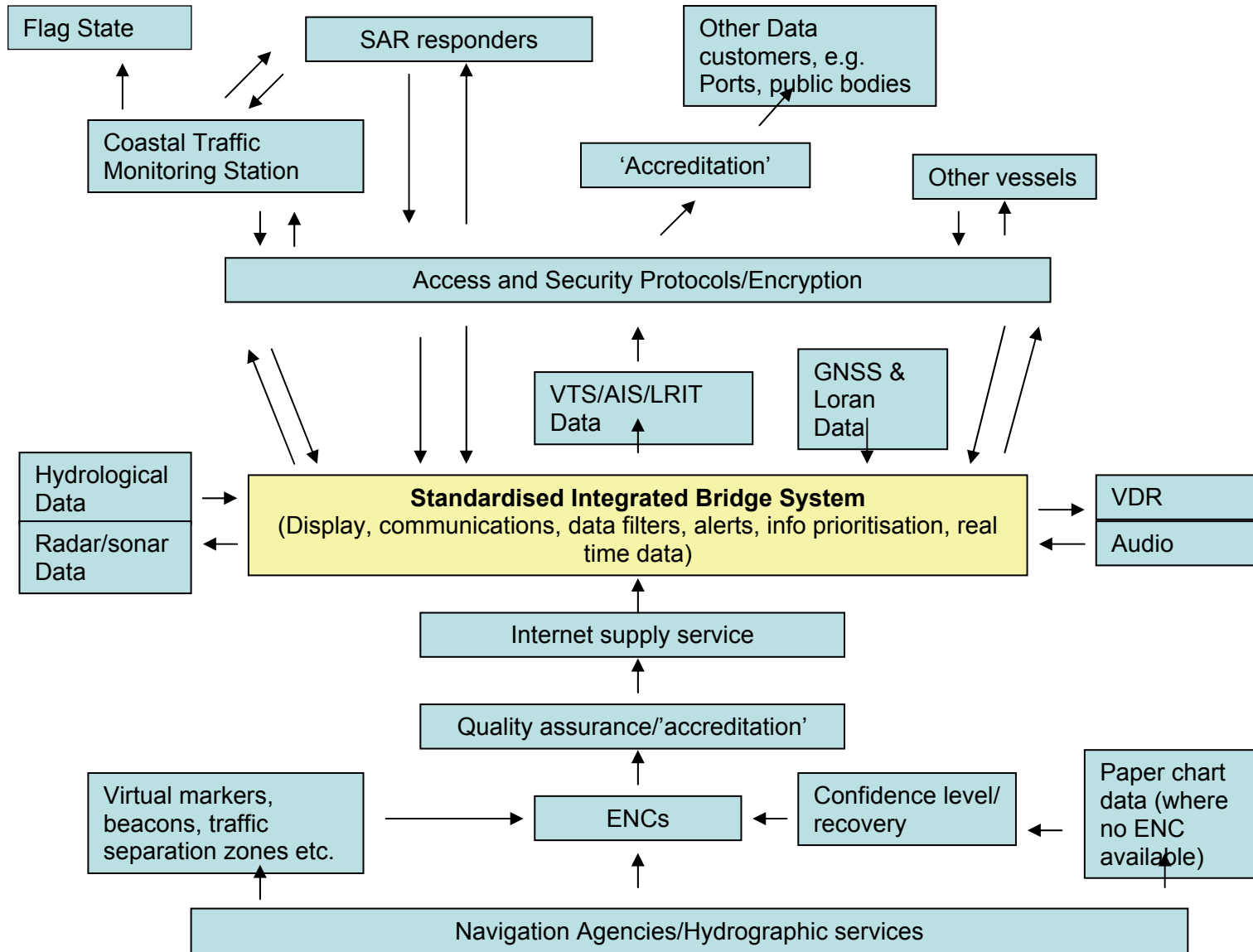
facilities, equipment, systems or procedures to the minimum necessary to ensure safety

ix. as far as practicable, integrate data and communications systems mandated for other purposes (eg. security), so as to minimise the number of 'stand-alone' systems on the bridge and ashore

x. be scalable to facilitate fitment and use, by smaller vessels (fishing, leisure), whether mandatory or voluntary

xi. having regard to the varying state of development of navigation aids and systems in different areas and sectors and the likely timescales for adoption of e-Navigation, facilitate phased migration to e-Navigation while maintaining physical aids and systems where required to ensure navigational safety

xii. be capable of development/adaptation to integrate other, value-added functionality, while avoiding any interference with or degradation of core, safety-related functions

xiii. be capable of development/adaptation to facilitate low cost generational change as new capabilities and functionality are developed, avoiding premature obsolescence risks

5.   Please let us have your comments and suggestions, having regard to the desirability of focusing on the essential, 'core' capabilities and avoiding mission creep into areas best left to the ingenuity of the commercial market.

E-NAVIGATION SYSTEM ARCHITECTURE   *Final draft - September 06*

Flag State

SAR responders

Other Data customers, e.g. Ports, public bodies

Coastal Traffic Monitoring Station

'Accreditation'

Other vessels

Access and Security Protocols/Encryption

VTS/AIS/LRIT Data

GNSS & Loran Data

Hydrological Data

Radar/sonar Data

Standardised Integrated Bridge System
(Display, communications, data filters, alerts, info prioritisation, real time data)

VDR

Audio

Internet supply service

Quality assurance/'accreditation'

Virtual markers, beacons, traffic separation zones etc.

ENCs

Confidence level/ recovery

Paper chart data (where no ENC available)

Navigation Agencies/Hydrographic services

TERMS OF REFERENCE
FOR
THE IMO CORRESPONDENCE GROUP ON e-NAVIGATION

Set up by NAV 52 (July 2006)

The Correspondence Group should consider, provide comments and make recommendations on the following:

1. the definition and scope of the concept of e-navigation in terms of its purpose, components and limitations to produce a system architecture;

2. the identification of the key issues and priorities that will have to be addressed in a strategic vision and a policy framework on e-navigation;

3. the identification of both benefits of and obstacles that may arise in the further development of such a strategic vision and policy framework;

4. the identification of the roles of the Organization, its Member States, other bodies and industry in the further development of such a strategic vision and policy framework;

5. the formulation of a work programme for the further development of such a strategic vision and policy framework, including an outline migration plan and recommendations on the roles of the NAV and COMSAR Sub-Committees and the input of other parties concerned;

The Correspondence Group has been asked to submit a document to COMSAR 11 raising specific questions that should be addressed by COMSAR and prepare a comprehensive report for submission to NAV 53.

IALA working definition of e-navigation

IALA has developed a working definition for e-navigation. This is as follows:

> e-navigation is the collection, integration and display of maritime information onboard and ashore by electronic means to enhance berth-to berth navigation and related services, safety and security and protection of the marine environment.

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