

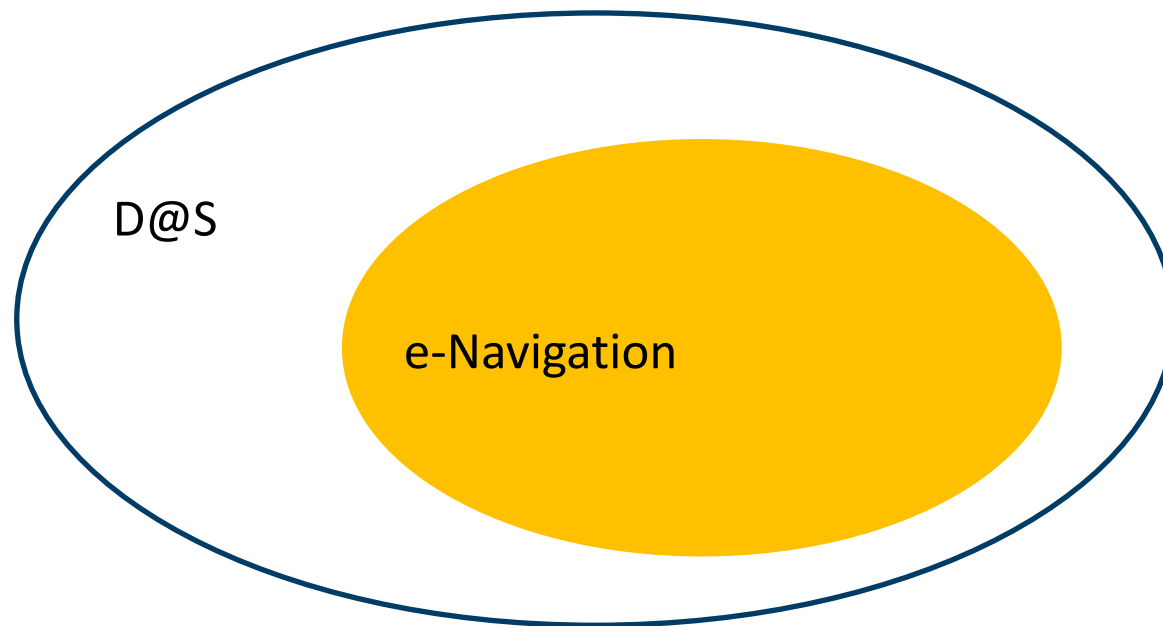


Basic concept of e-Navigation

Minsu JEON, Technical Manager
minsujeon@iala-aism.org



Digital@Sea and e-Navigation





Developments in the maritime domain

IALA Strategy - Current drivers and trends, Ed 2.0

- Increased Digitalization, including big data and future communication;
 - Development of autonomous, automated and unmanned vessels;
 - Need for increased connectivity and interoperability;
 - Cyber-crime vulnerability and cyber security;
 - Changes in trade patterns due to global economic developments;
 - Large cruise ships going to remote locations like the Arctic;
 - Competing use of the oceans (Marine Spatial Planning); and
 - Demand for efficiency in the transport chain.
 - High demand for sustainable and environmentally friendly operations and development.
 - The world's changing climate.
-



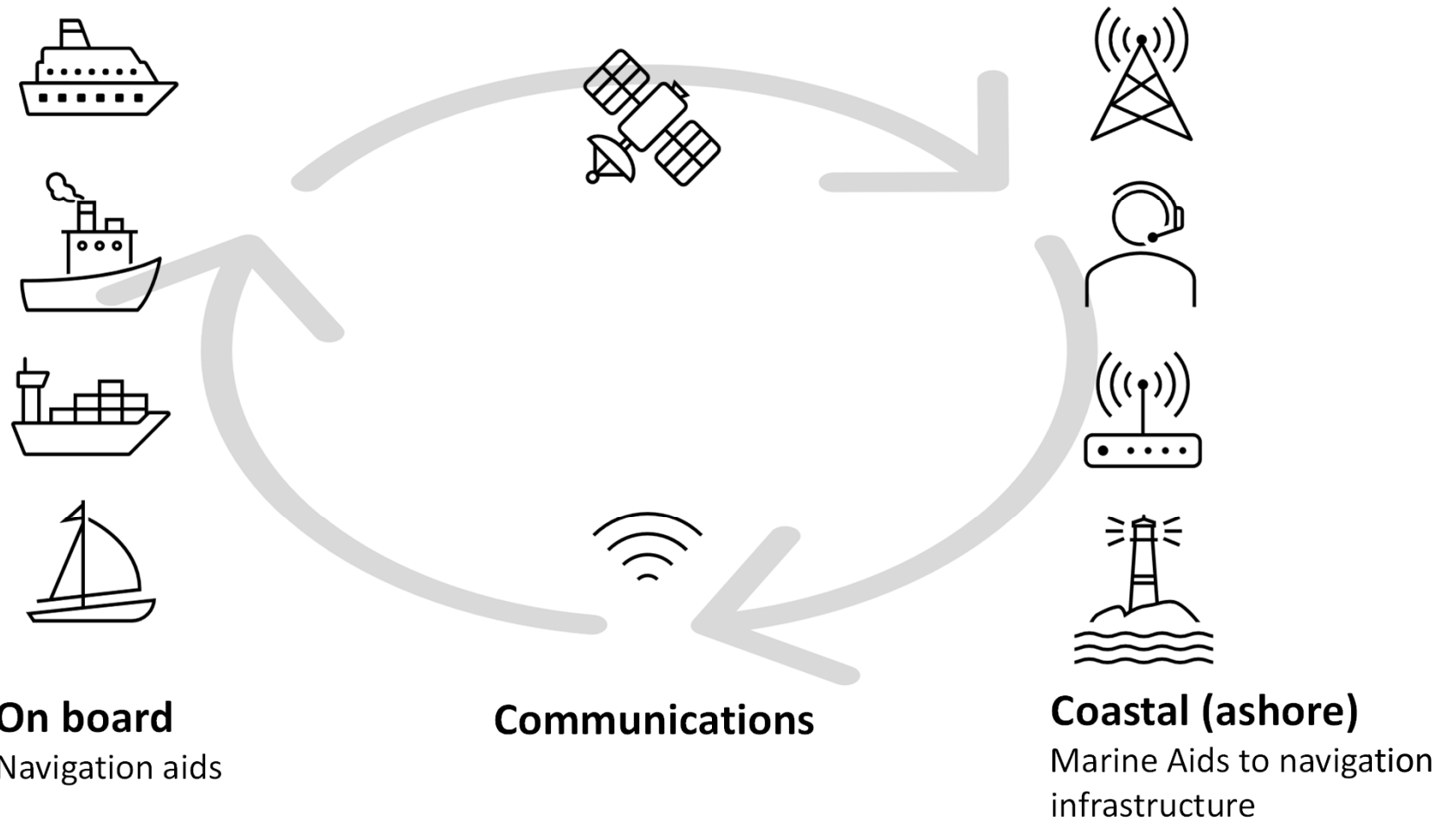
Definition of e-Navigation

“The **harmonized collection, integration, exchange, presentation, analysis** of maritime information on board and ashore by electronic means to enhance berth to berth navigation and related services, safety and security at sea, and protection of the marine environment”



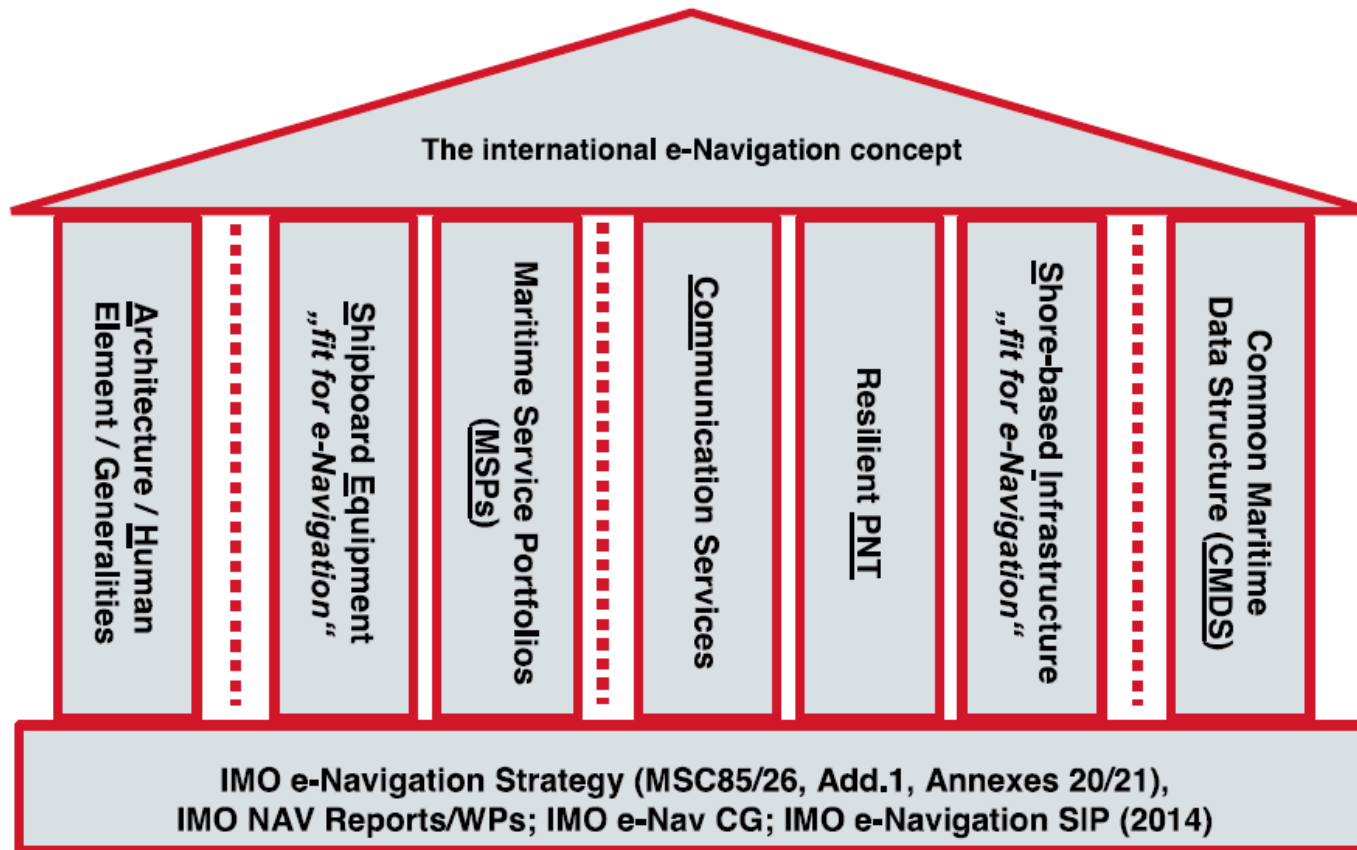


The vision of e-navigation





e-Navigation 7 Pillars



IMO overarching e-Navigation Architecture represented as “7 Pillars”



The e-navigation Strategy Implementation Plan (SIP)

5 prioritized solutions;

- improved, harmonized and **user-friendly bridge design**;
 - means for **standardized and automated reporting**;
 - improved reliability, resilience and integrity of **bridge equipment** and navigation information;
 - **integration and presentation of available information** in graphical displays received via communication equipment; and
 - improved **Communication of VTS Service Portfolio** (not limited to VTS stations).
-

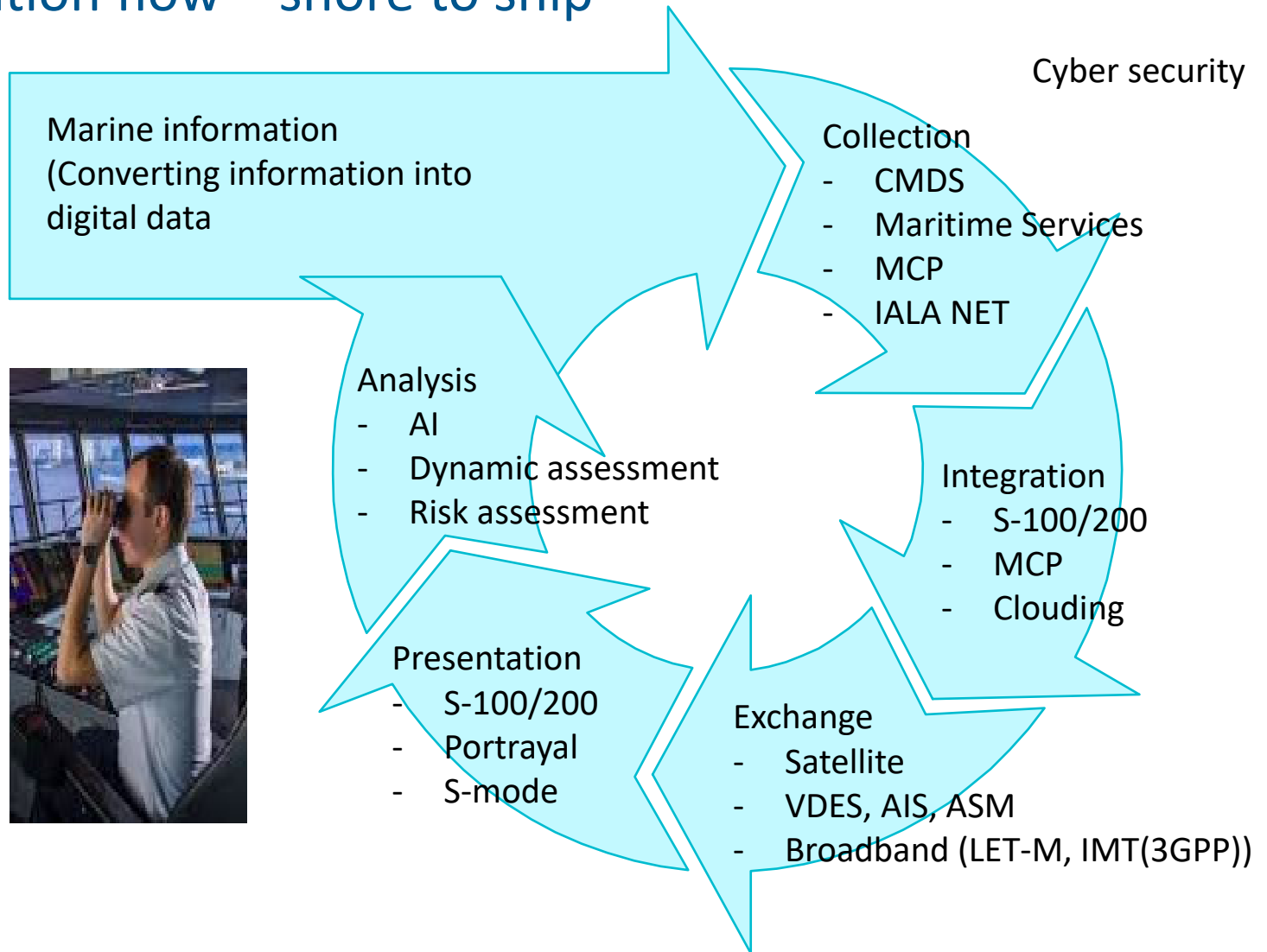


Multiple Initiatives

- STM Validation
 - IHO S-100 and IALA S-200
 - Smart Navigation
 - VDES development
 - FERNS role and reach
 - R-Mode using VDE signals and MF
 - VDE trials, in E2 etc.
 - RTZ
 - VTS IMO A.857(20) revision
 - EfficienSea 2
 - SBAS
 - IMO HGDM, description of MS
 - IMO SIP
 - Maritime Single Window initiatives
 - **MASS** projects and study groups
 - International PortCDM Council
 - **MRN**
 - Maritime Connectivity Platform (MCP)
 - VDES Satellites already in orbit
 - AMRDs and MAtONs
 - BalticWeb and APPweb
 - Etc.
-



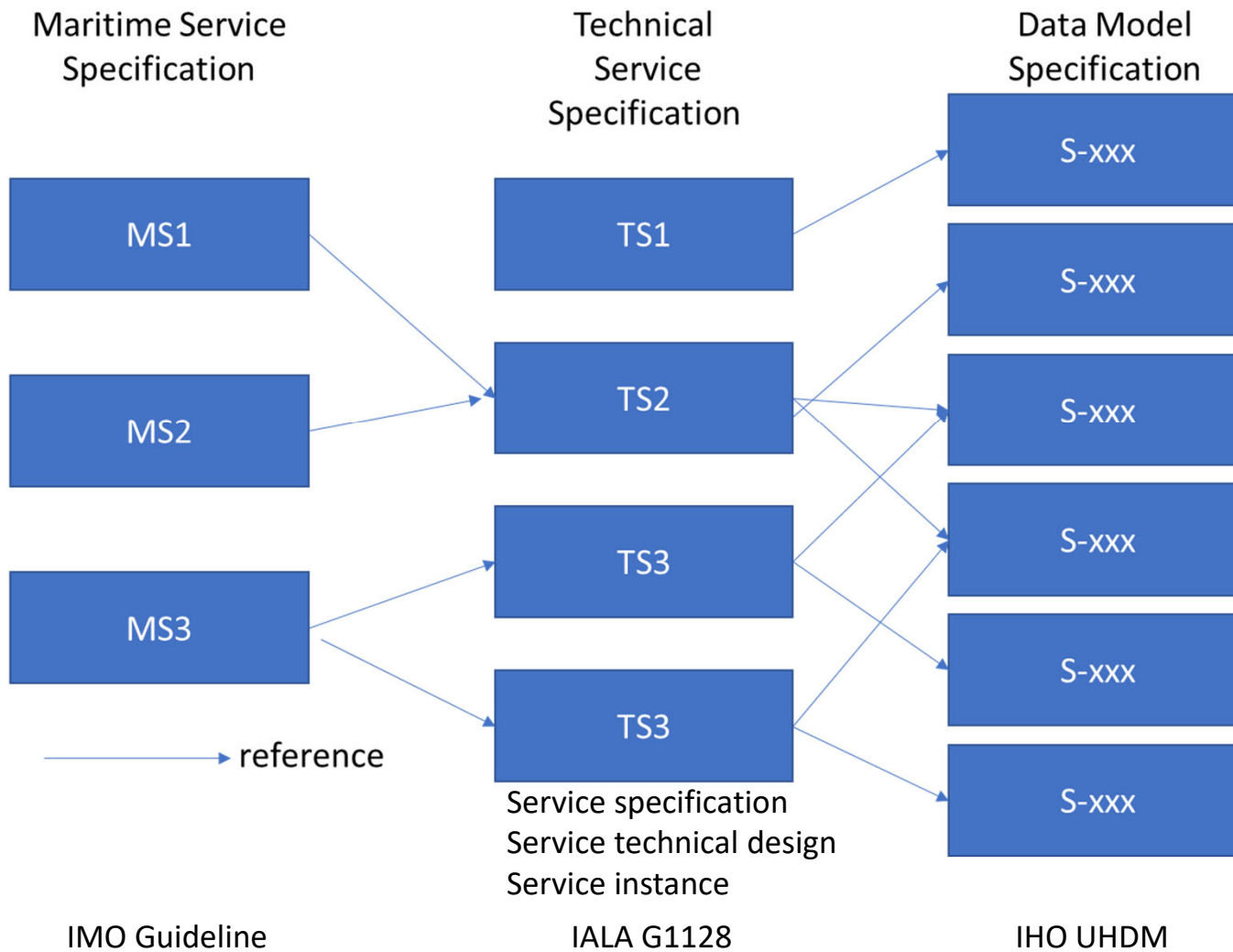
e-Navigation flow – shore to ship





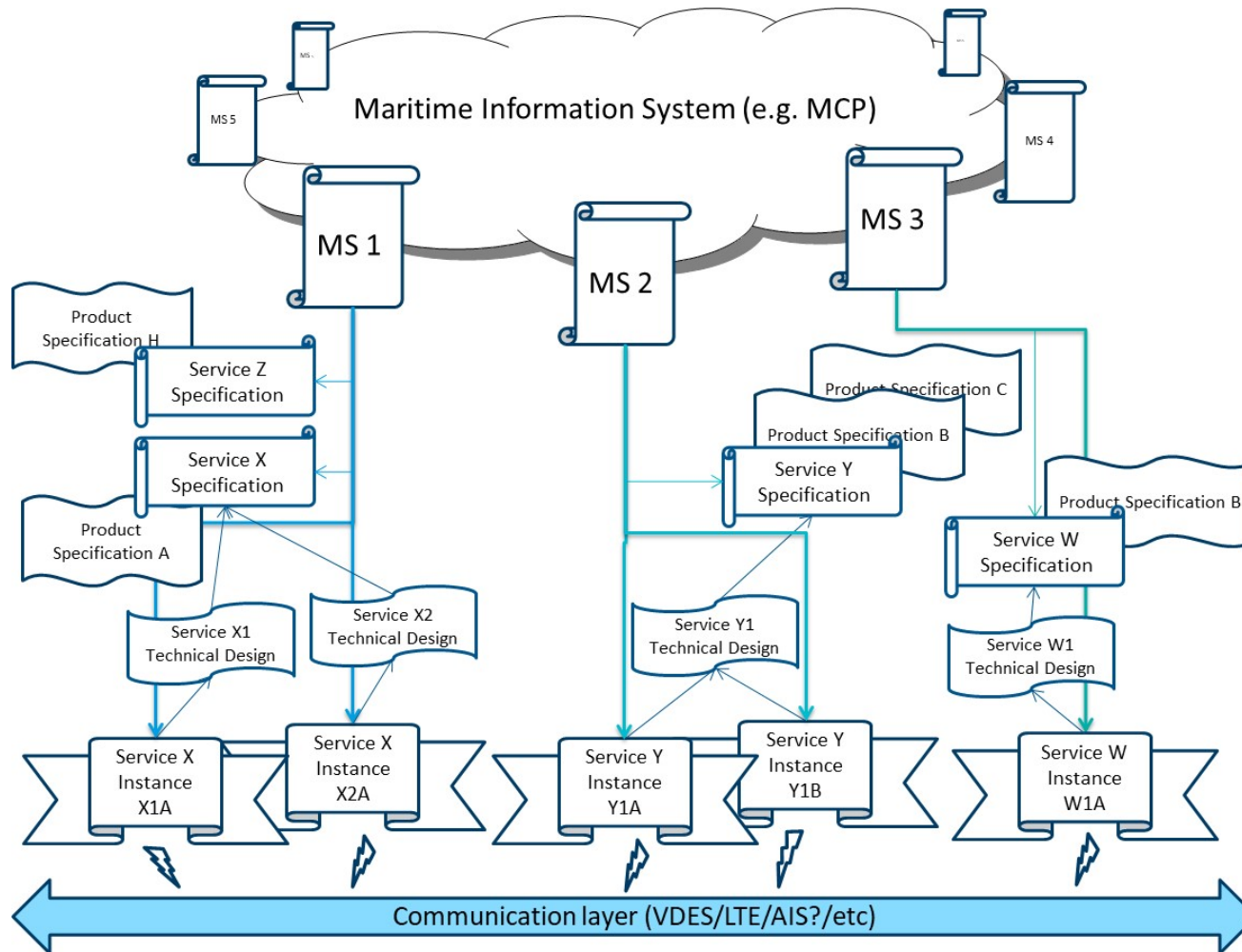
MS – TS – DMS

- VTS
- LPS
- MSI
- Pilotage
- Tug
- VSR
- TMAS
- MAS
- NCS
- NPS
- INS
- MIS
- RHEIS
- SAR
- AtoN
- PNT



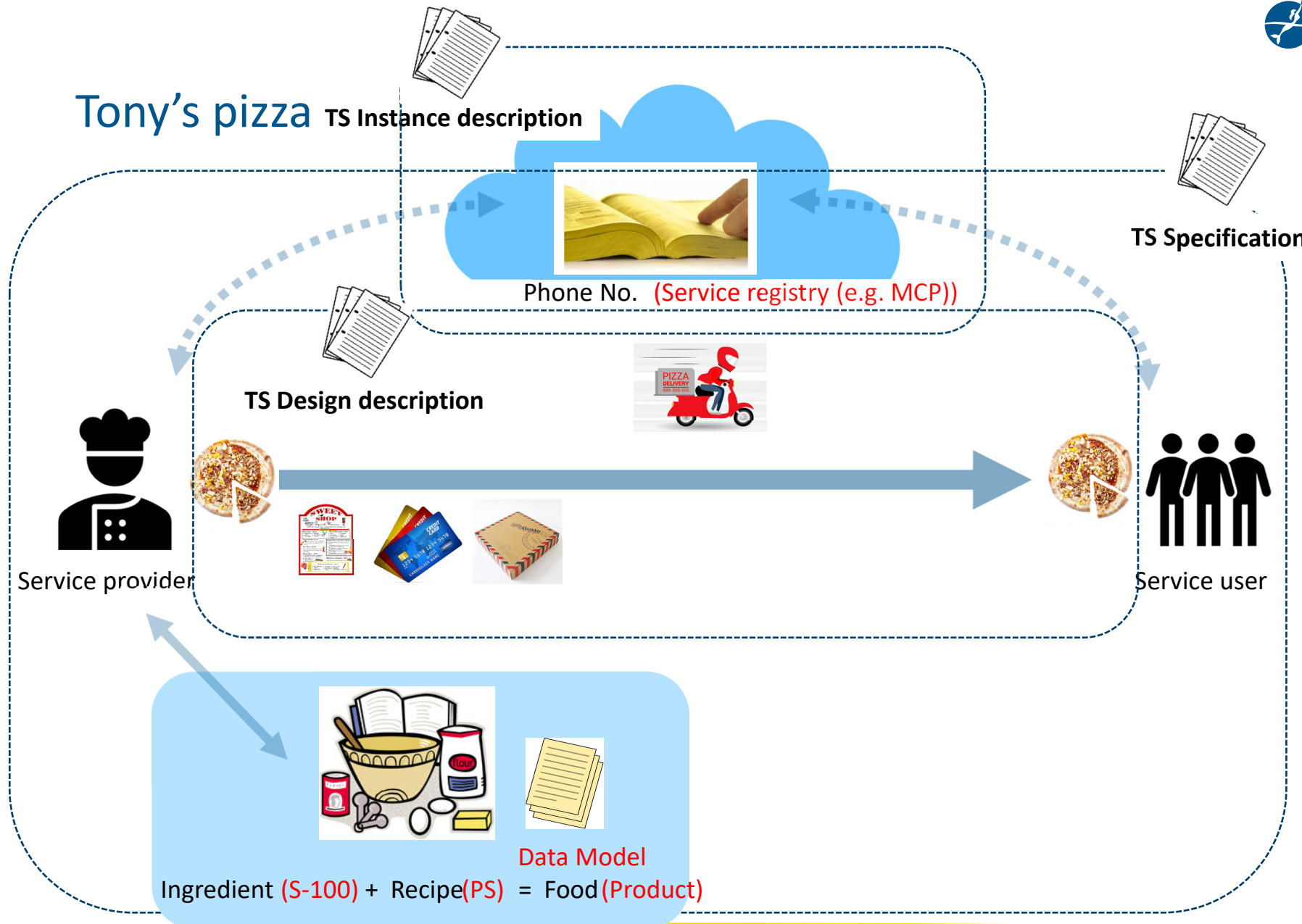


e-Navigation hierarchy



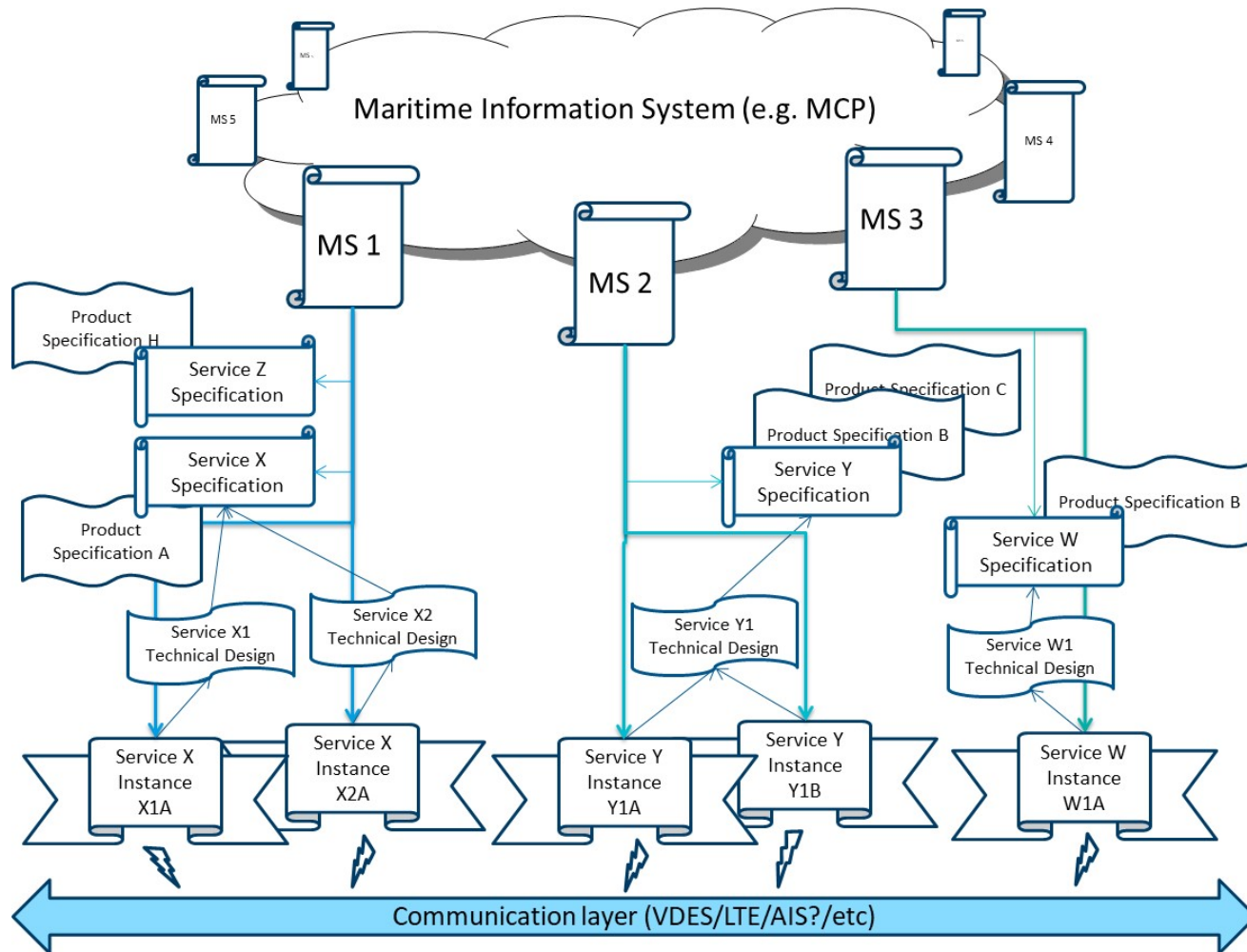


Tony's pizza TS Instance description





e-Navigation hierarchy





QUESTIONS ?

Minsu Jeon, Technical manager
minsujeon@iala-aism.org