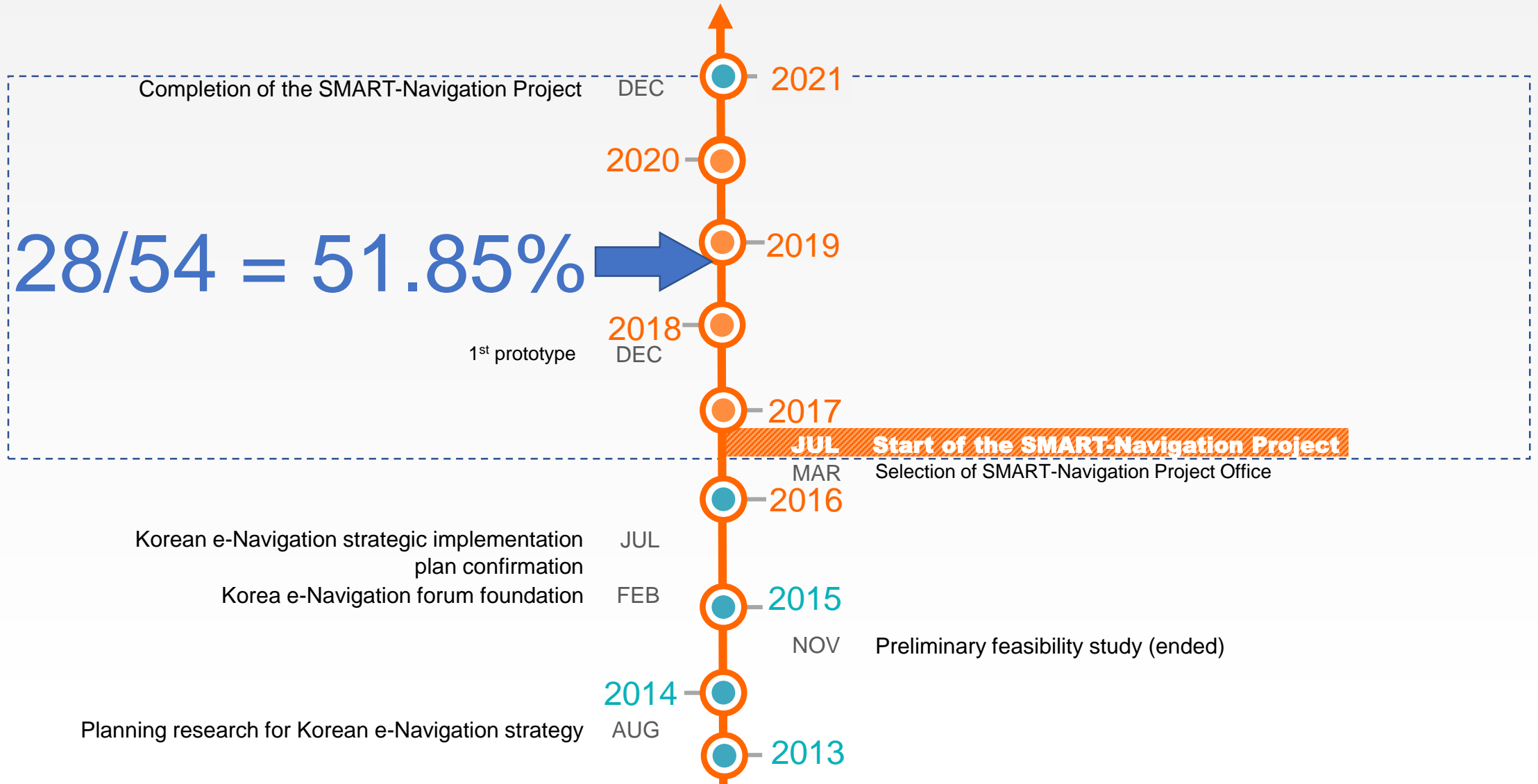


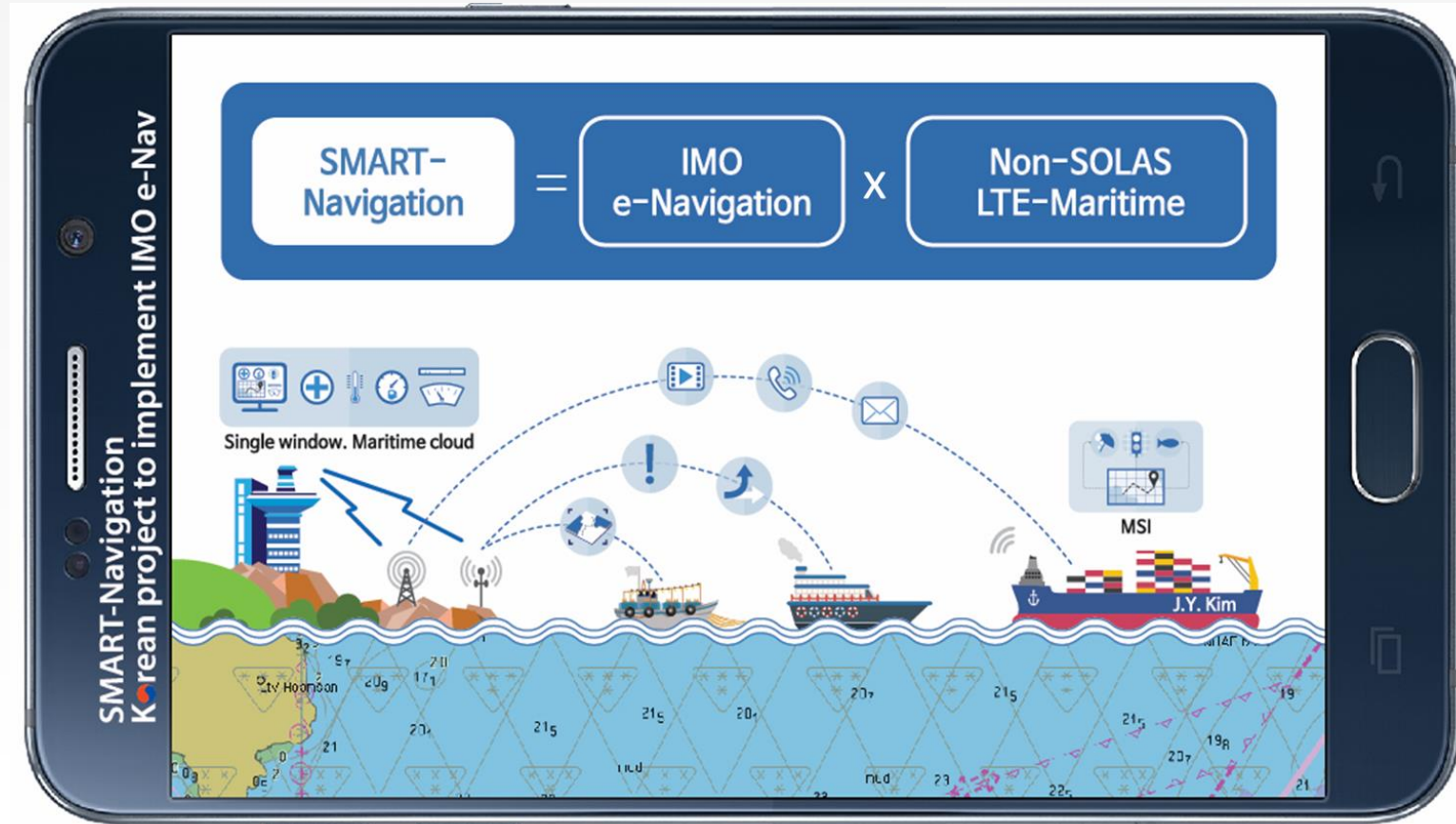
SMART-Navigation Project

Jin H. PARK, Ph.D.

SMART-Navigation Project Office



“More focus on Non-SOLAS ships”



Composition of domestic vessels

Type	# of vessels	GT (kilo tons)	GT/vessel (tons)
Cargo carrier	323	484	1,499
Tanker	293	380	1,298
Tug & Float	1,455	1,031	708
Etc.	12	23	1,955
Total	2083	1,919	921

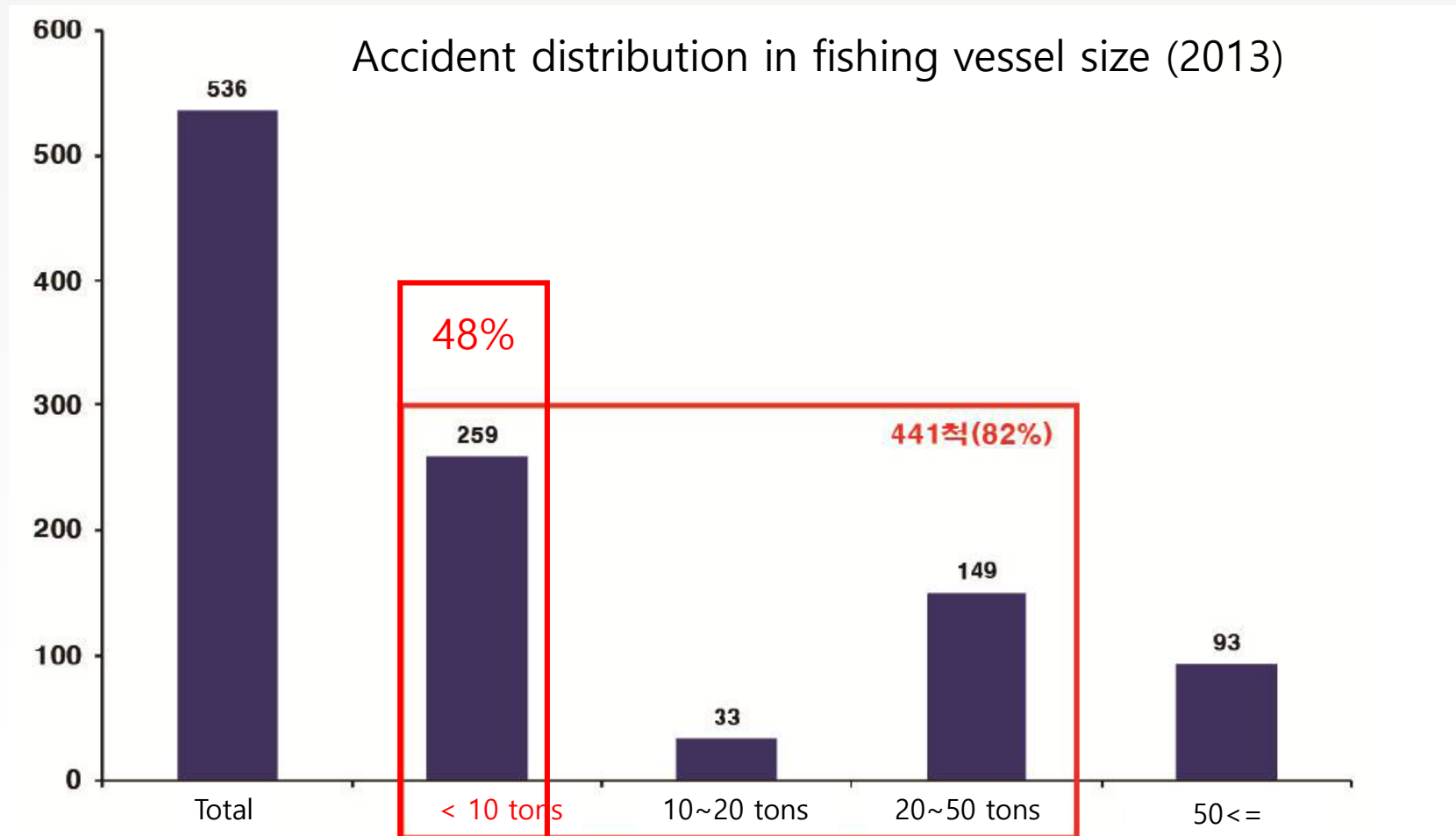
Size distribution of fishing vessels (tons)

<2	2~5	5~10	10~30	30~50	50~100	100<=	Total
38,498	18,235	6,541	1,652	399	762	408	66,495

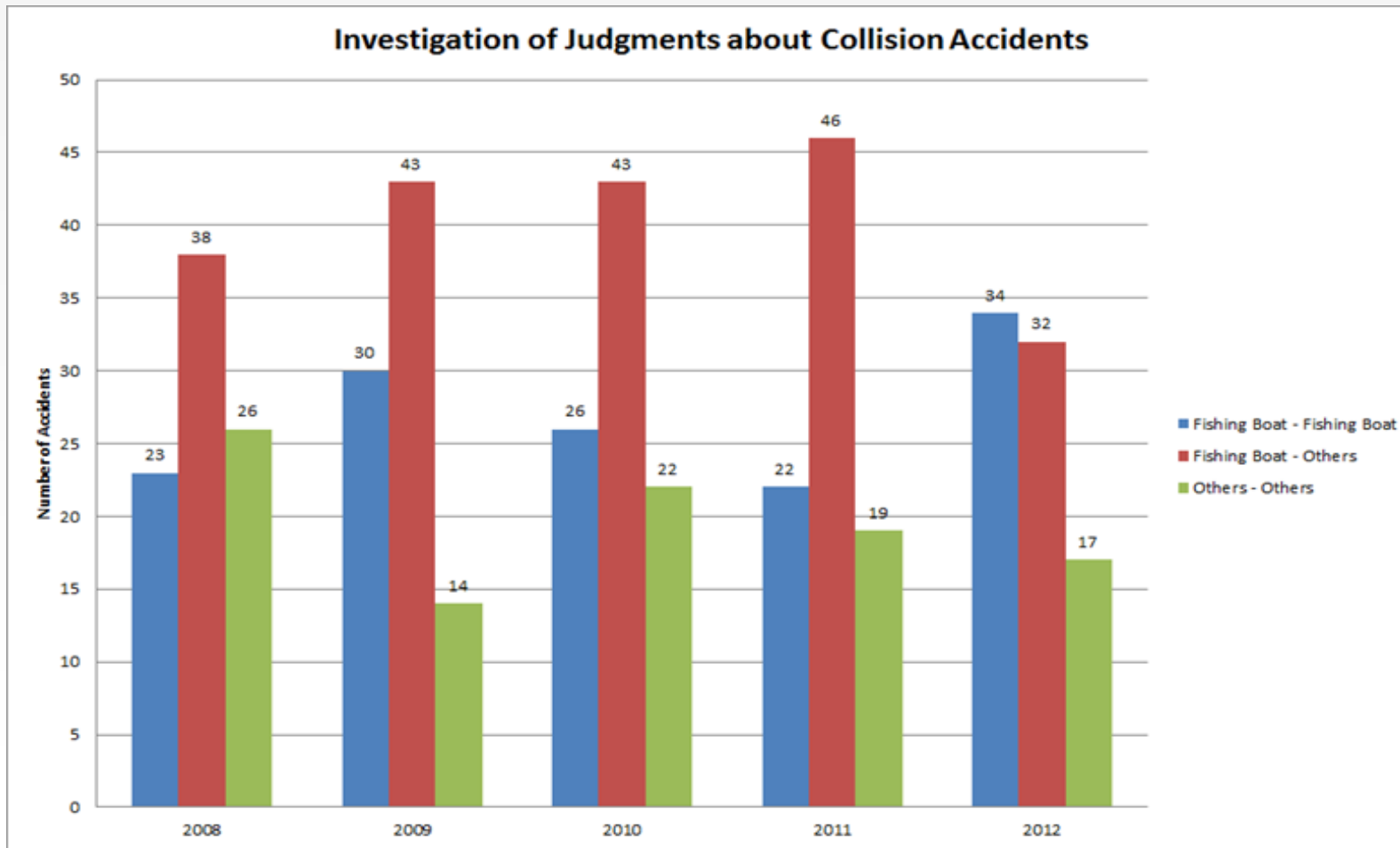
Age distribution of fishing vessels (years)

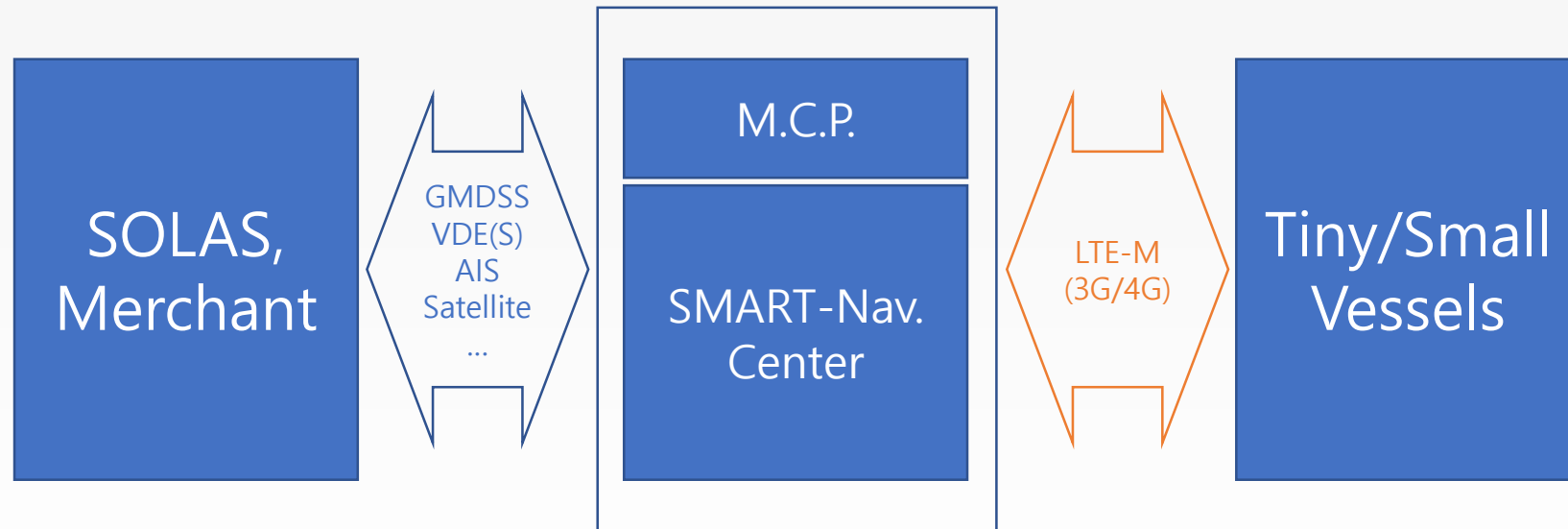
<5	5~10	10~15	15~20	20<=	Total
10,754	13,012	15,888	11,587	15,254	66,495

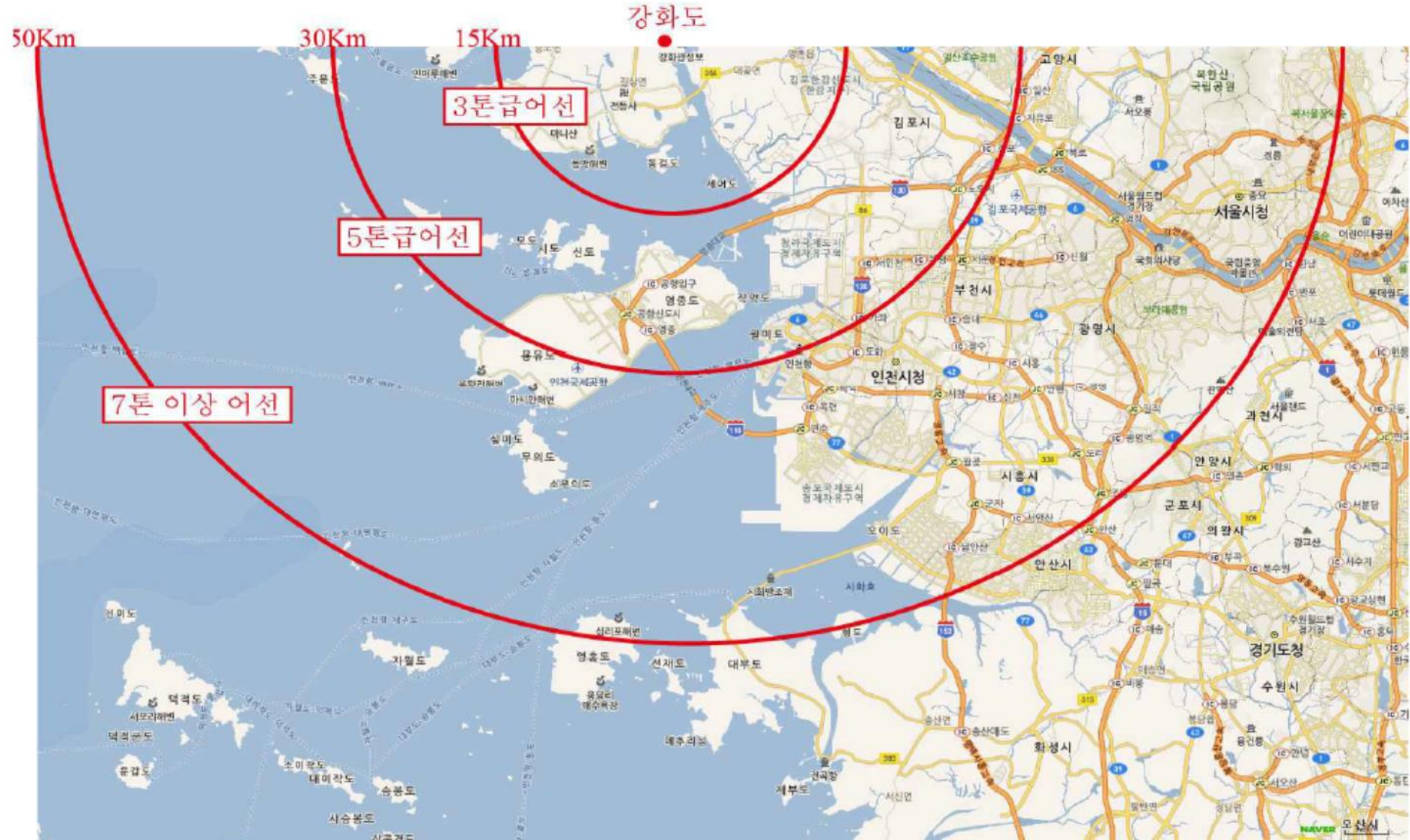
Maritime accident profile in Korean waters (1/2)



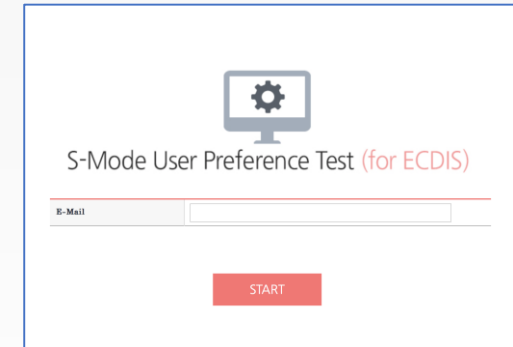
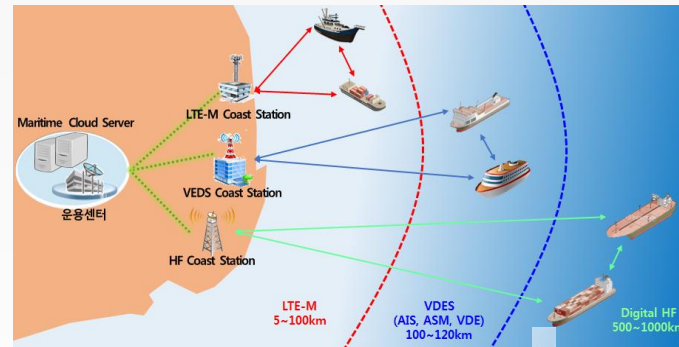
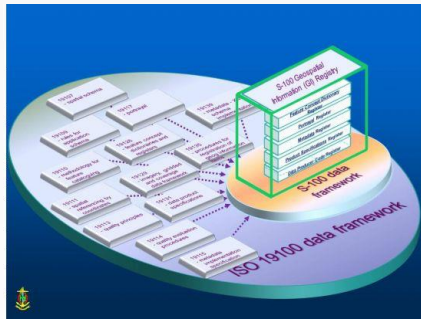
Maritime accident profile in Korean waters (2/2)

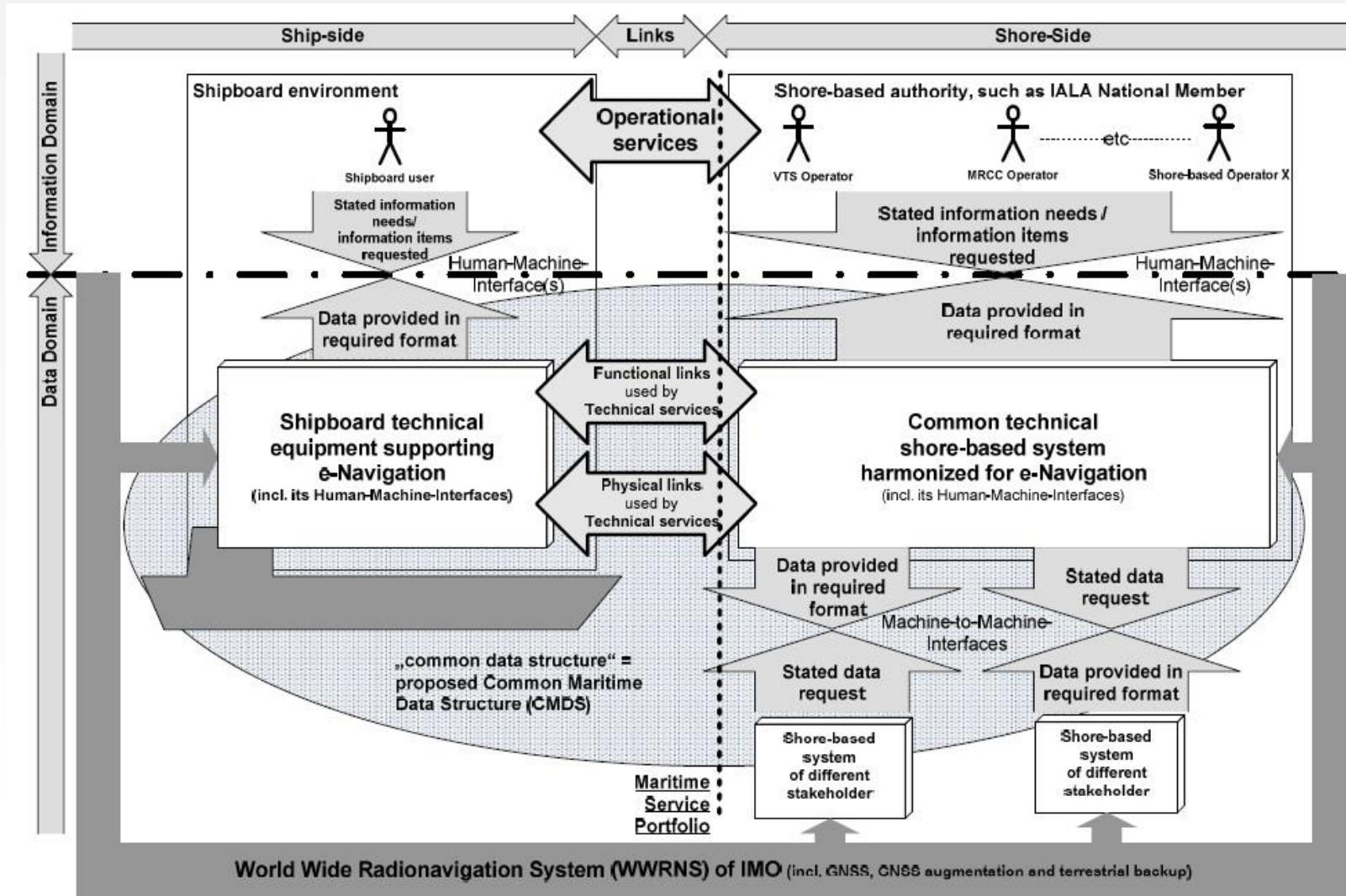






"Harmonization with International Standards"





Maritime Service Portfolios (MSPs)		Associated e-navigation Technical Services	Related S-100 Product Specifications (interim)
MSP1	VTS Information Service (IS)	NAMAS	S-124, S-125,
MSP2	Navigational Assistance Service (NAS)		S-125
MSP3	Traffic Organization Service (TOS)		S-127
MSP4	Local Port Service (LPS)		S-xxx (marine services, harbor infrastructure)
		MESIS	S-412
MSP5	Maritime Safety Information Service (MSI)	MESIS	S-124, S-201, S-412
MSP6	Pilotage Service	PITAS	S-xxx (marine services, harbor infrastructure)
MSP7	Tugs Service		
MSP8	Vessel Shore Reporting	N/A	N/A
MSP9	Telemedical Assistance Service (TMAS)	N/A	N/A
MSP10	Maritime Assistance	NAMAS	S-xxx (marine services)
		SBSMS	
MSP11	Nautical Chart Service	REDSS	S-101, S-102,
MSP12	Nautical Publication Service	REDSS	S-101, S-201
MSP13	Ice Navigation Service	N/A	N/A
MSP14	Meteorological Information Service	MESIS	S-412
MSP15	Real-time Hydrographic and Environmental Information Service		S-104, S-111, S-112, S-201
MSP16	Search and Rescue Service	N/A	

Drafting S-10x PS for SMART-Nav Svcs.

[Voyage Risk]			
Type	Class Name	Description	위치정보 포함여부 및 내용
Feature Type	Ship	자선과 타선의 위치와 방향등을 관리하며, identifier로 자선과 타선을 구분함	○ (선박의 위치)
	Voyage Risk	자선과 타선의 충돌위험도 계산 결과를 관리하기 위한 정보	○ (예상충돌지점의 위험도)
Information Type	Ship Spec	선박의 일반적인 정보를 모은 것으로, 확장을 고려하여 포함되어지며, 필수정보(MMSI, IMO No, Ship Name 등)를 제외한 나머지정보는 nullable함	X

[Accident Management]			
Type	Class Name	Description	위치정보 포함여부 및 내용
Feature Type	Accident	사고난 선박의 위치정보를 비롯한 상황파악에 필요한 정보를 관리	○ (선박사고 위치)
	Route Prediction	사고 후, 사고선박의 이동경로와 유출물의 이동경로를 관리함	○ (하위 클래스가 위치를 가지며, 표현하지 않음)
	Vessel Route Prediction	사고 선박의 이동경로를 관리	○ (사고선박 예상 위치)
	Spilt Oil Route Prediction	유출물의 이동경로를 관리	○ (유출물 예상위치)
Information Type	WeatherInfo	사고해역에 대한 기상정보	X
	Ship Spec	선박의 일반적인 정보를 모은 것으로, 확장을 고려하여 포함되어지며, 필수정보(MMSI, IMO No, Ship Name 등)를 제외한 나머지정보는 nullable함	X

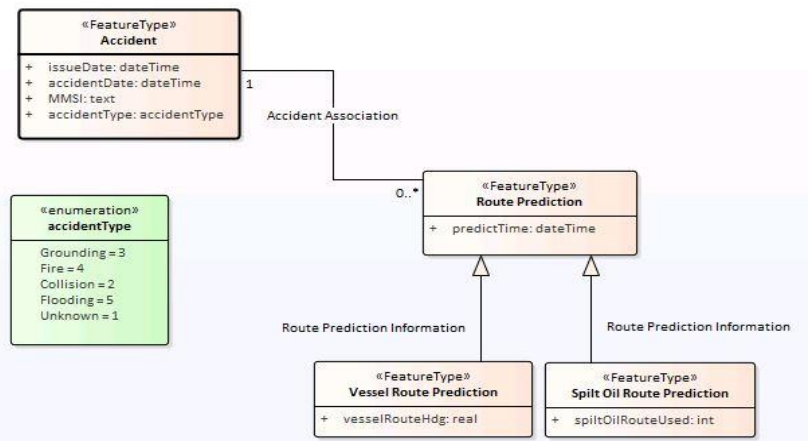
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S10 Feature Catalogue										
Type	Feature Information	Data Function	Data Access	Navigation	Display/Alert	Alert	Info/Basic Information	Alert/Status/Condition	Alert/Response/Action	Alert/Status/Condition
	예측 가능	예측 가능	예측 가능 없음	예측 가능 없음			예측 가능 없음	예측 가능 없음	예측 가능 없음	예측 가능 없음
	예측 가능 없음	예측 가능 없음	예측 가능 없음	예측 가능 없음			예측 가능 없음	예측 가능 없음	예측 가능 없음	예측 가능 없음

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2010. 10. 20. <Data modeling>

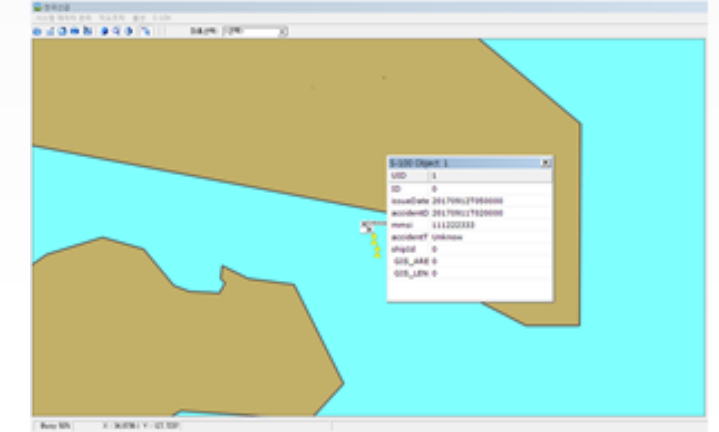
Data Classification and Encoding Guide

Product Specification SV10
Accident Management

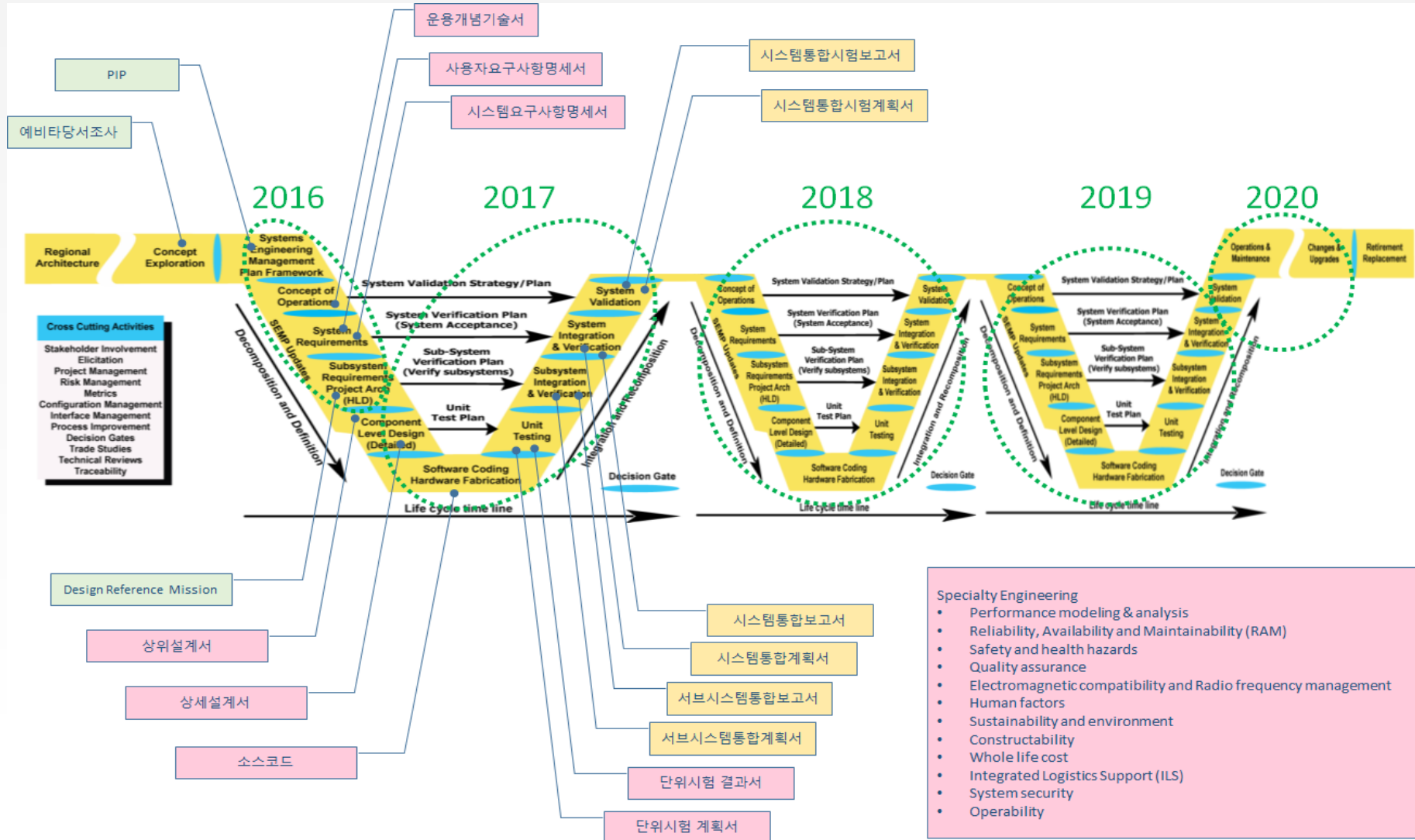
Data Classification Encoding Guide (DCEG)

Working Draft 0.0.1 – October 2017

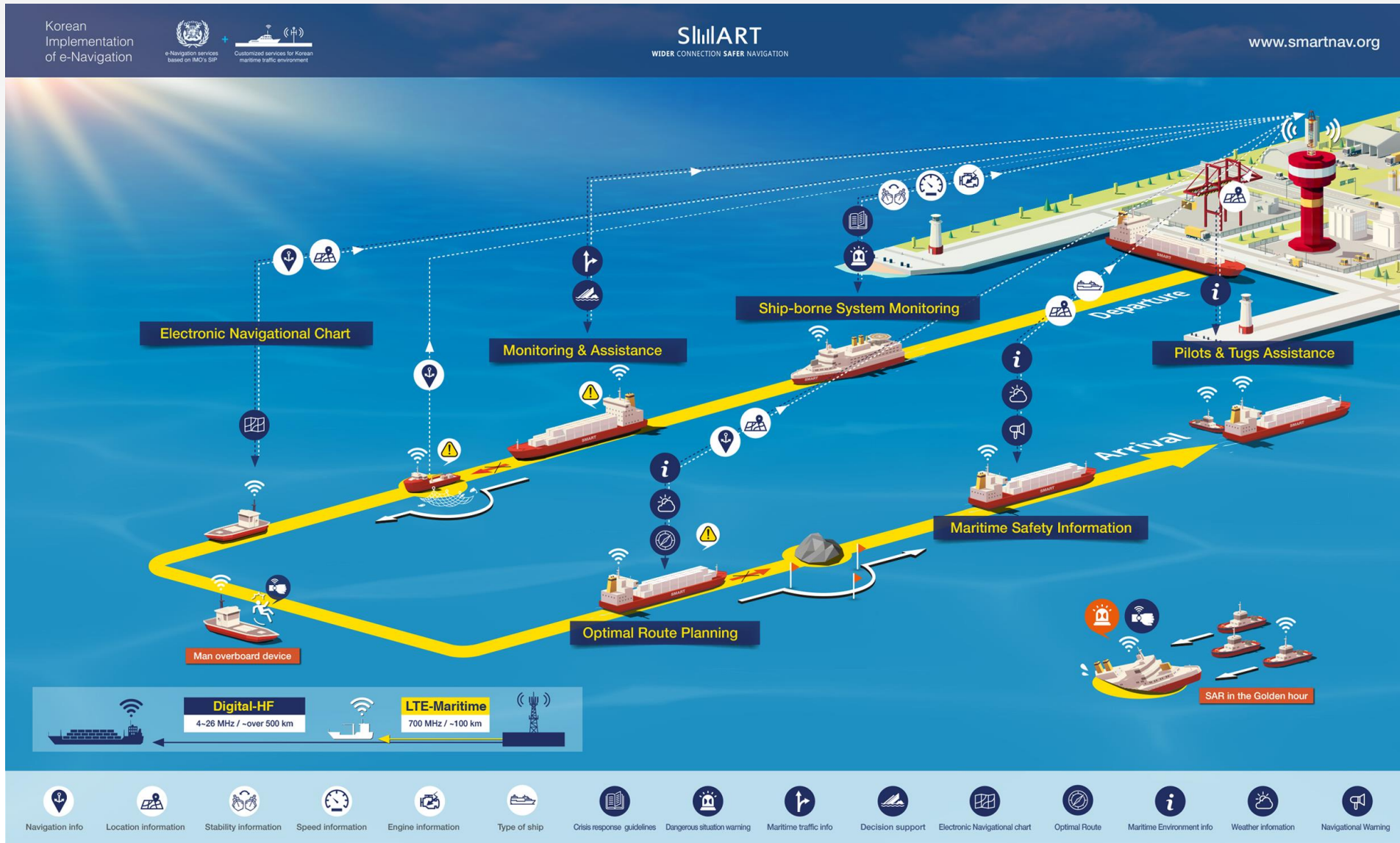
<SV10 DCEG >



"Systems Engineering Process"







Service Name	Target User	Physical Link
Navigation Monitoring & Assistance Service (NAMAS)	High risk ships	LTE-M / VDES



Service Name	Target User	Physical Link
<p>Ship-borne System Monitoring Service (SBSMS)</p>	<ul style="list-style-type: none"> • Passenger ships Korean Flag(Int'l, Domestic) • Ships requiring service 	<p>LTE-M, VDES, etc</p>



Service Name	Target User	Physical Link
<p>Safe & Optimal Route Planning Service(SORPS)</p>	<ul style="list-style-type: none"> • Passenger ships Korean Flag • Ships requiring service 	<p>LTE-M, VDES, etc</p>



Service Name	Target User	Physical Link
Real-time Electronic Navigational Chart Distribution & Streaming Service(REDSS)	Non-SOLAS ships	LTE-M



Service Name	Target User	Physical Link
Pilots/Tugs Assistance Service(PITAS)	Pilot / Tug boat	LTE-M

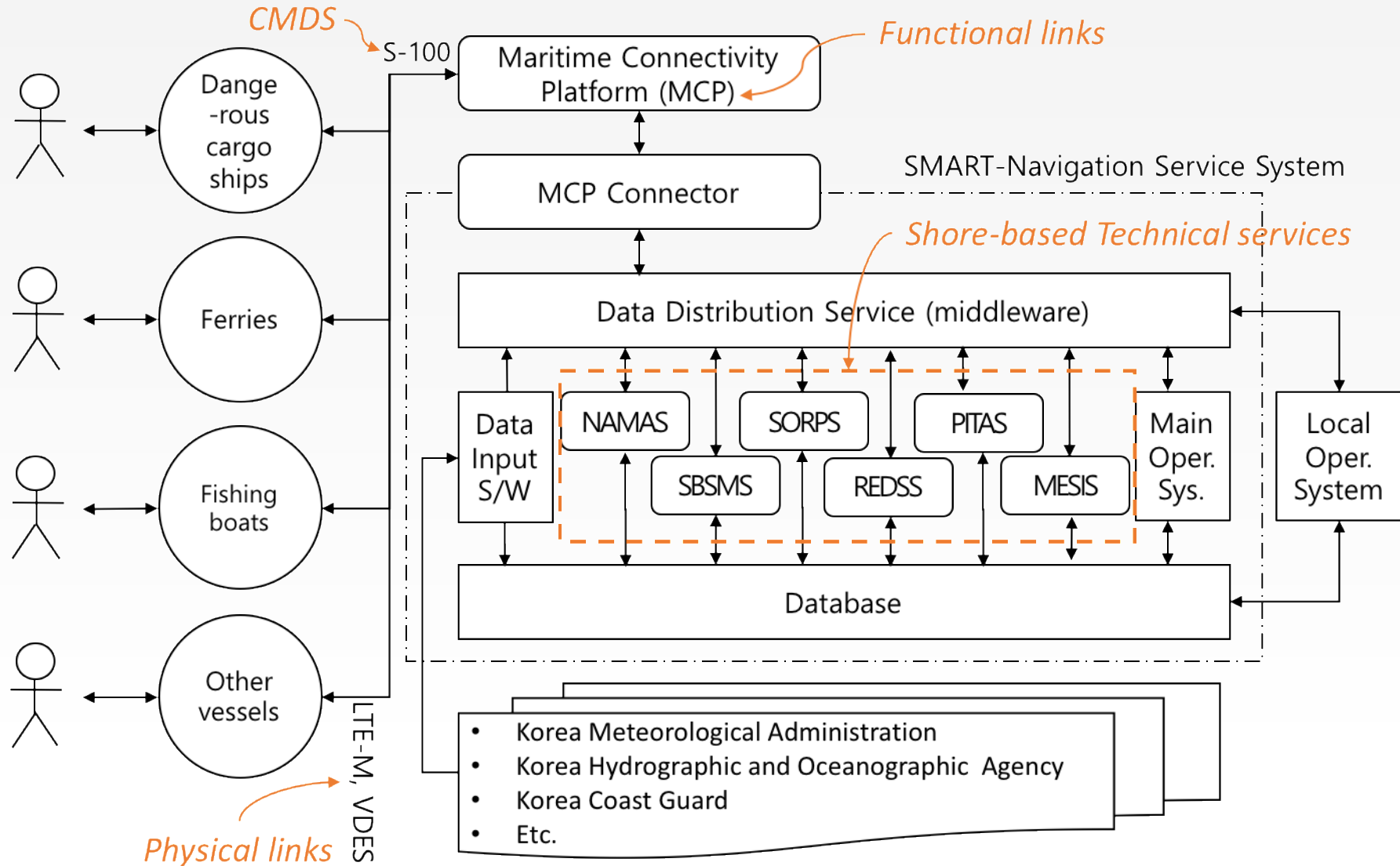


Service Name	Target User	Physical Link
Maritime Environment and Safety Information Service(MESIS)	Ships requiring the service	LTE-M, VDES, etc





Overall Architecture





“A lot of times, people don't know what they want until you show it to them.”

Thank you very much!
감사합니다.
/Gham-Sah-Hab-Ni-Da/

jin.h.park@kriso.re.kr

Maritime Connectivity Platform

Thomas Christensen
Special adviser
SMART-Navigation Project Office

Maritime Connectivity Platform - MCP

What is it?

Where did it come from?

Why do we need it?

Who will run/govern it?

What is the current status?

Realising e-navigation solutions

2008

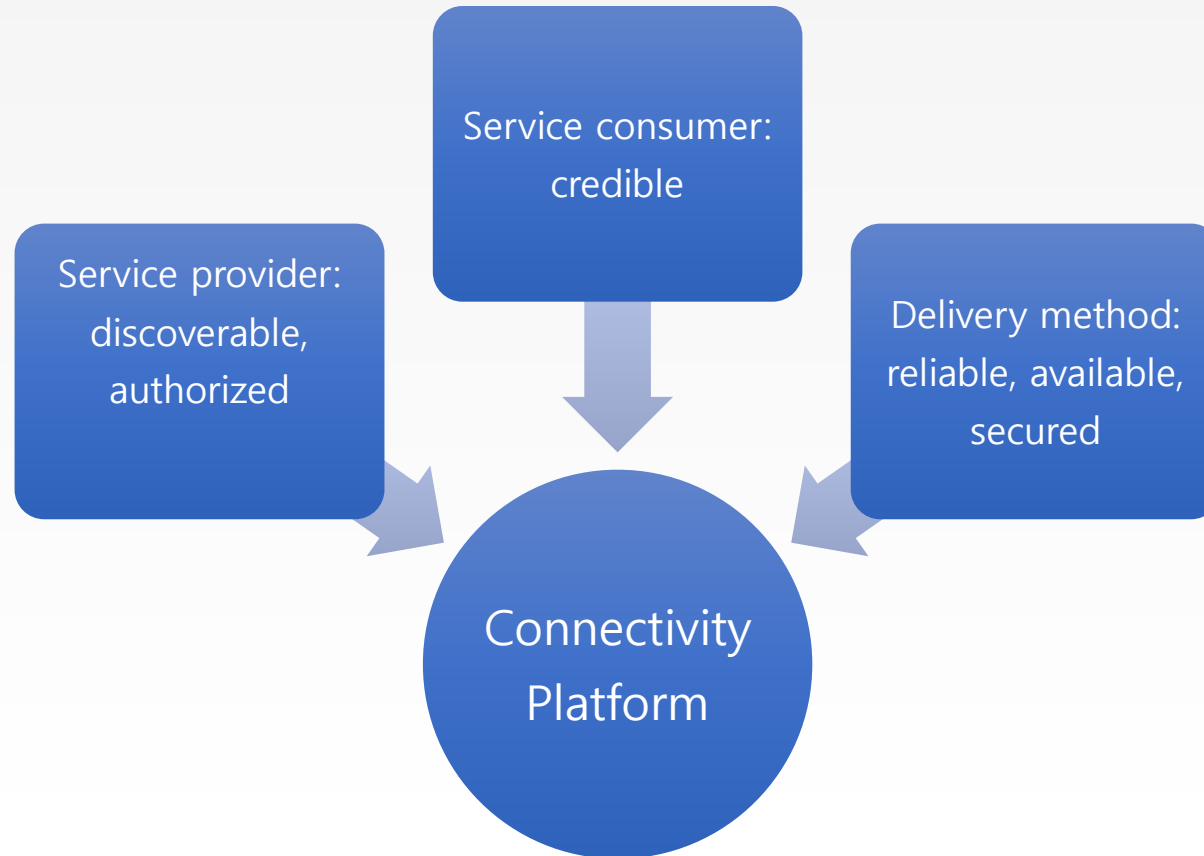
Today



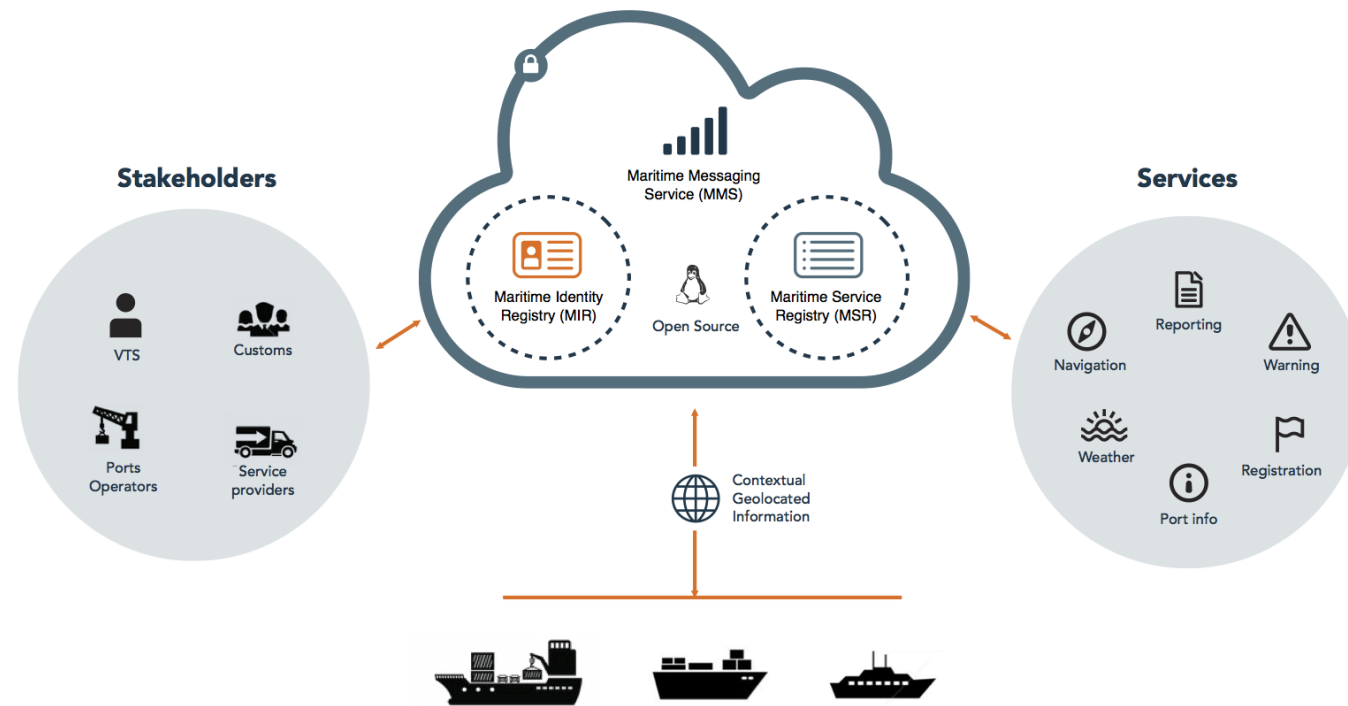
ArcticWeb



What is required to provide information service?



THE MARITIME CONNECTIVITY PLATFORM



MIR; Maritime Identity Registry



Contains identities for users, ships, devices...

Using unique identifiers (MRN; Maritime Resource Names)

Facilitates standardised single login to access services
(OpenID Connect)

Facilitates standardised secure machine to machine
communication (X.509 certificates)

Facilitates security; Confidentiality, integrity, authenticity

Facilitates federation

Identities; credentials and certificates



The MCP is for everyone!

MSR; Maritime Service Registry



Contains service specification on different levels

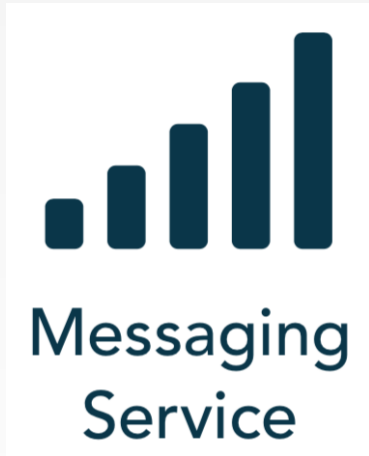
- Service specification
- Service design
- Service instance

Searchable for endpoint to services

Criteria: keywords, geographic coverage, etc

Endorsement of services

MMS; Maritime Messaging Service



Seamless communication using different physical channels
IP & non-IP

Logical roaming for point-to-point communication

Store-and-forward functionality

Geo- and multicasting

Providing single data stream from several services

MCP

A framework for digitalisation in the maritime domain

In the broadest sense:

- e-navigation
- e-maritime
- smart logistics
- autonomous shipping
- IoT
- Bridging to other domains
- ...

For all stakeholder domains:

- Ship-owners
- Ports
- Pilots
- VTS operators
- Authorities
- Service providers
- Ship builders
- Classification society
- SOLAS + non-SOLAS
- ...

MCP – Who is running it?



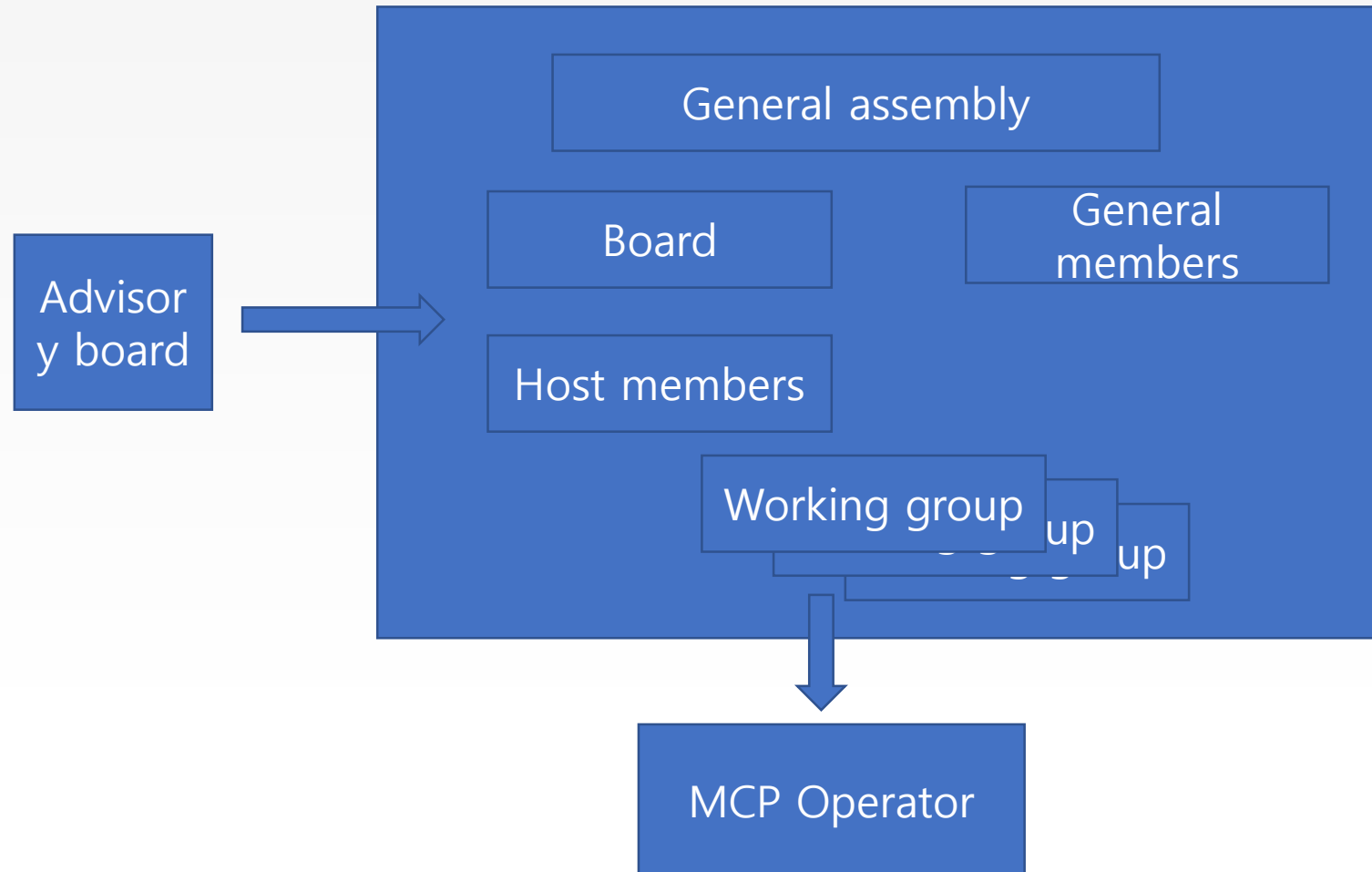
Maritime Connectivity Platform



Governance?

The Maritime Connectivity Platform

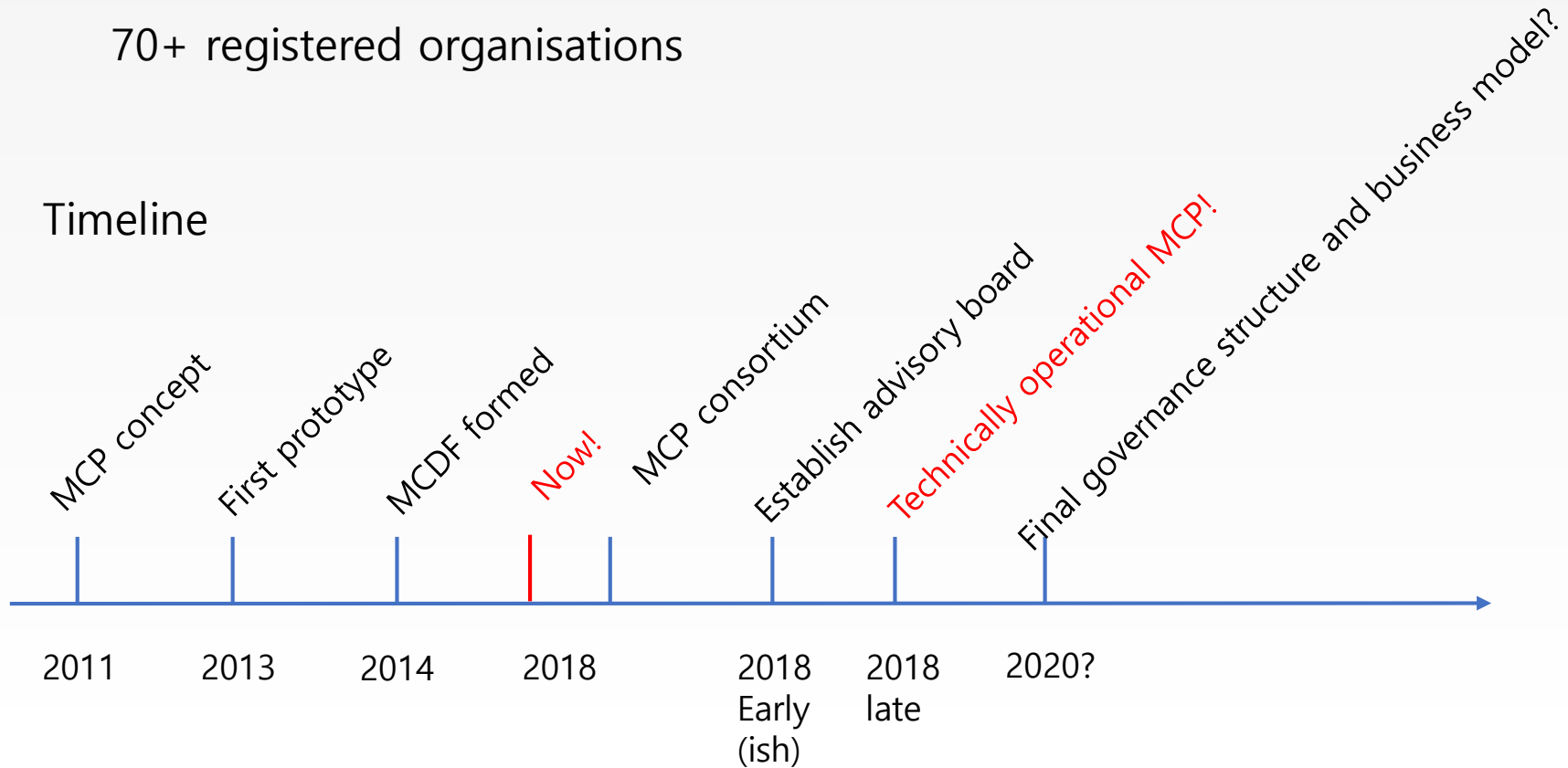
Consortium, W3C inspired



Status and prospect

Beta version 0.7 Running (semi operational) with

70+ registered organisations



MCP spinoff's

International standards

MRN (Maritime Resource Names)

Guideline on the specification of e-Navigation technical services

Examples of use of MRN in MCP

POUL LOWENORN



MRN urn:mrn:mcl:vessel:dma:poul-lowenorn

Name POUL LOWENORN

Permissions

Flag state DENMARK

IMO number 9250969

MMSI number 219997000

AIS class OTHER

Port of register COPENHAGEN

Call sign OZZX

DANISH MARITIME AUTHORITY



MRN urn:mrn:mcl:org:dma

Name Danish Maritime Authority

Address Fjordvænget 30, 4220 Korsør

Country Denmark

Email dma@dma.dk

Website <http://www.dma.dk/>

NW-NM TP MARITIME CLOUD SERVICE

MRN	urn:mrn:mcl:service:specification:dma:nw-nm
Name	NW-NM TP Maritime Cloud Service
Version	0.4
Status	released
Organization	Danish Maritime Authority

THOMAS STEEN CHRISTENSEN

MRN	urn:mrn:mcl:user:dma:b002212
First Name	Thomas Steen
Last Name	Christensen
Email	thc@dma.dk
Permissions	dma-admin

Delete user

More information

www.maritimeconnectivity.net

Thank you

