Integration of e-Navigation data in S-100

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Integration of e-Navigation data into an information architecture

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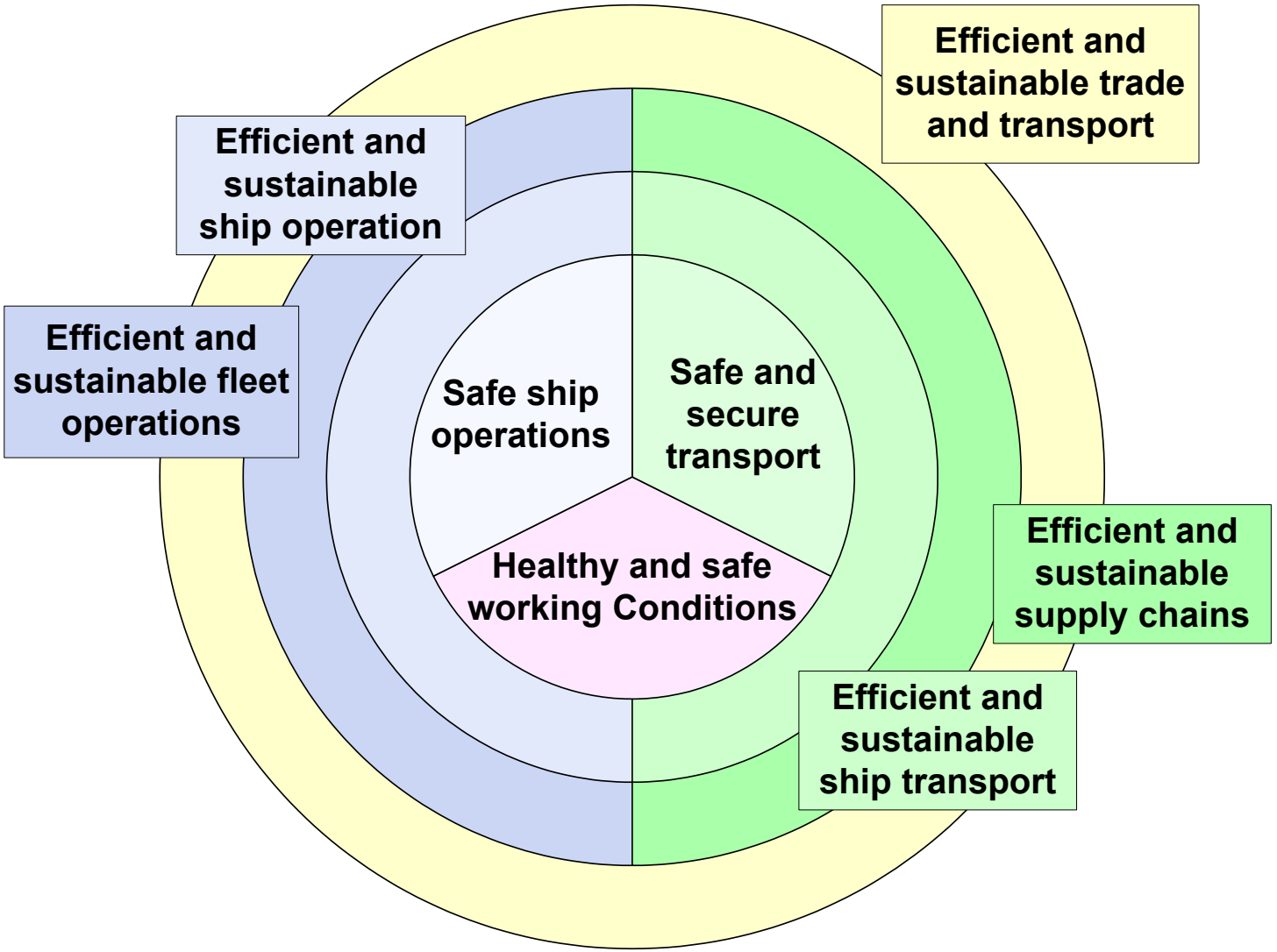
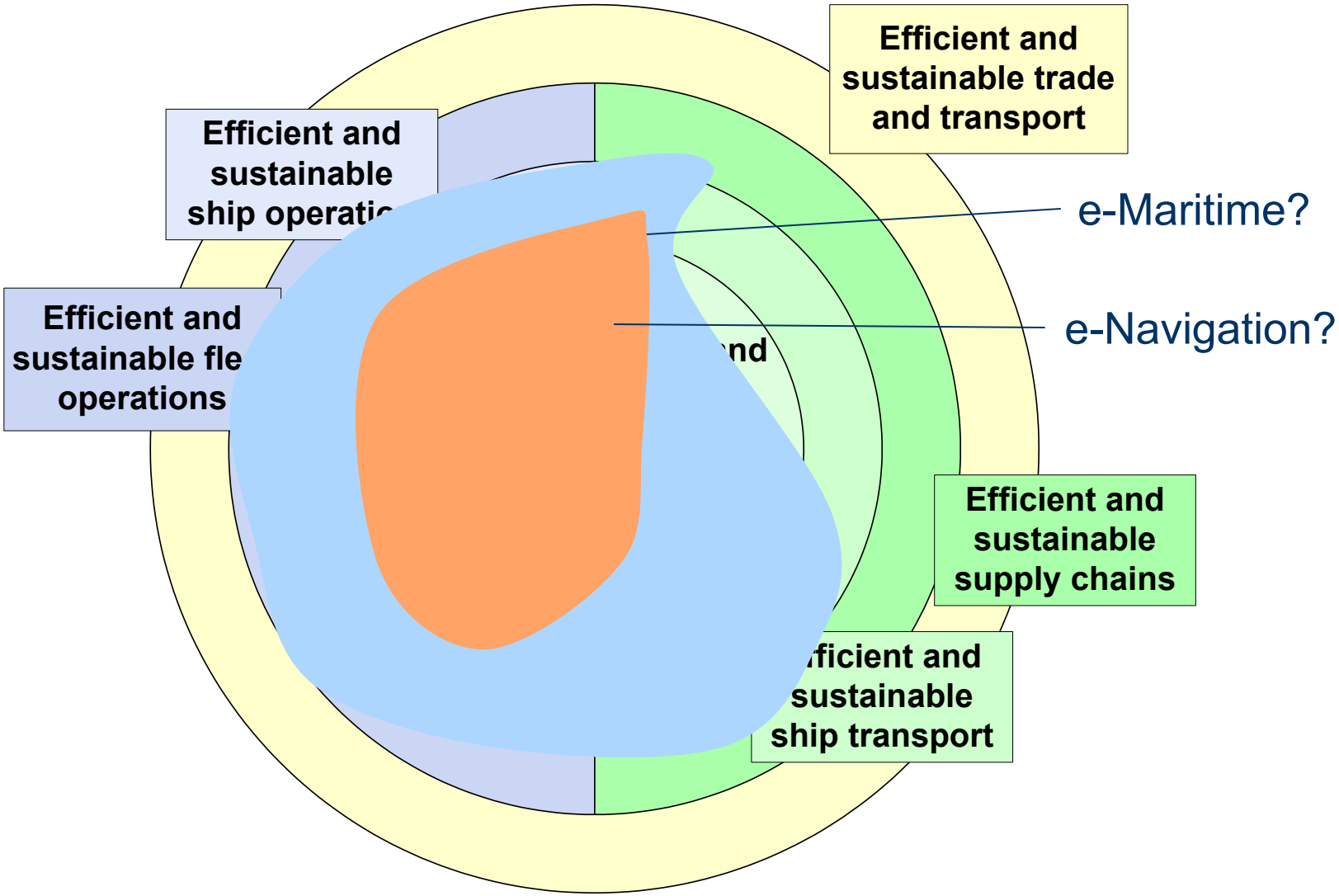
Contents

- What are the requirements ?
- A bit about communication
- What is an information architecture ?
- What is the contents of the information model ?
- How does S-100 fit into it ?

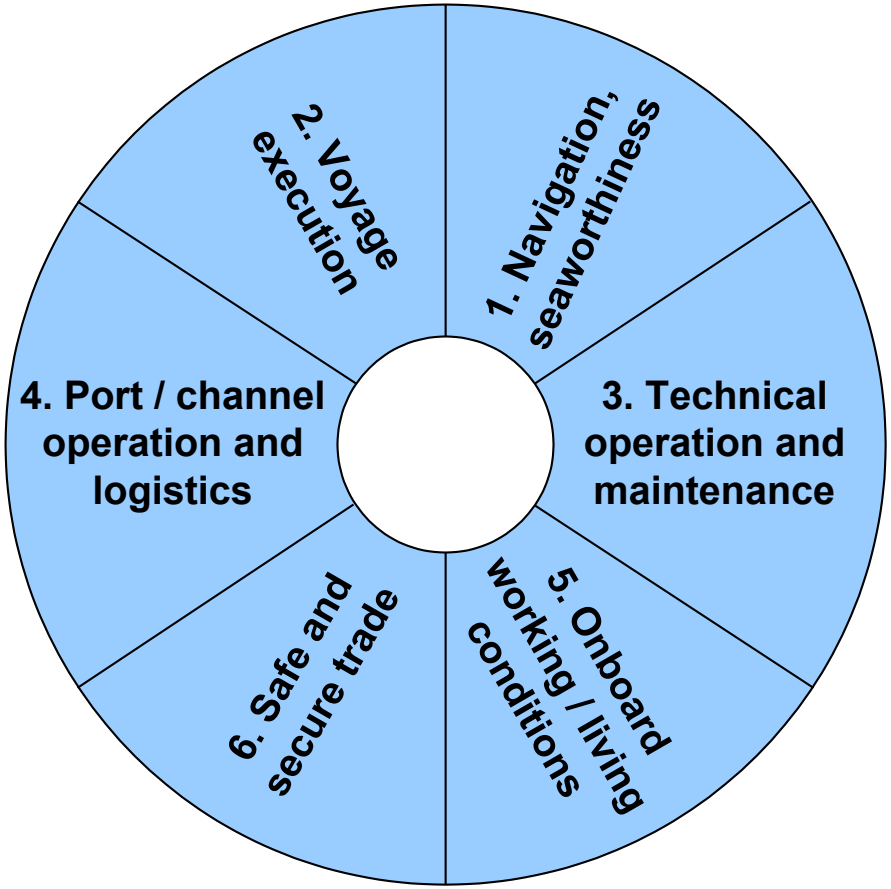
e-Navigation domain



e-Navigation domain

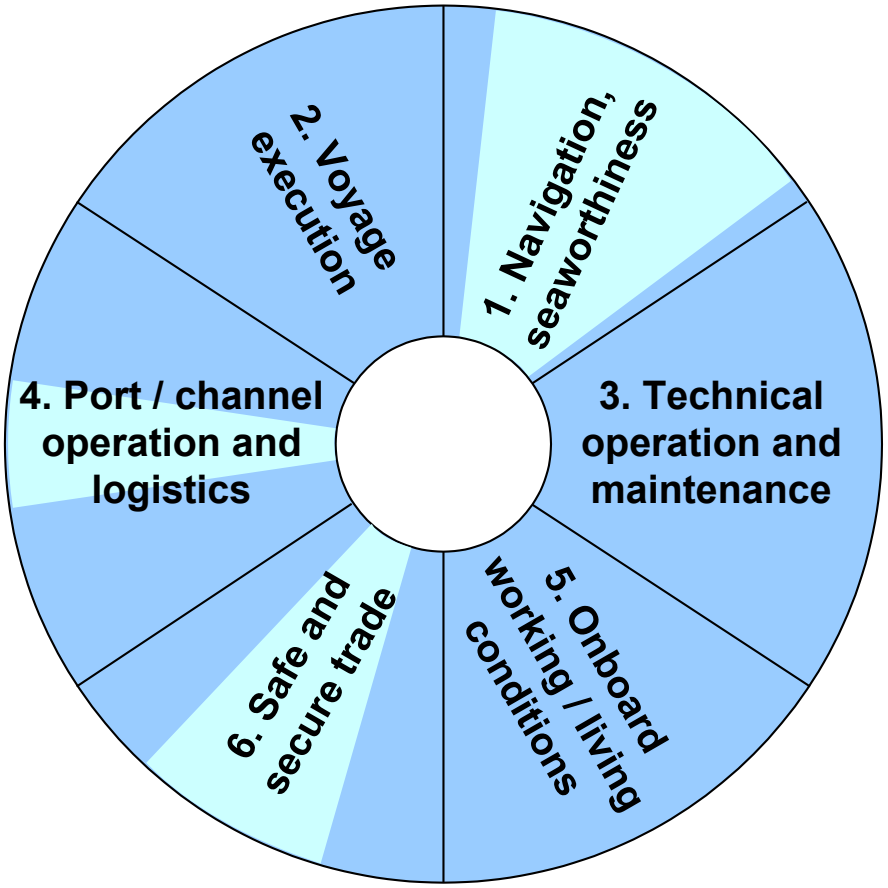


A high level functional model



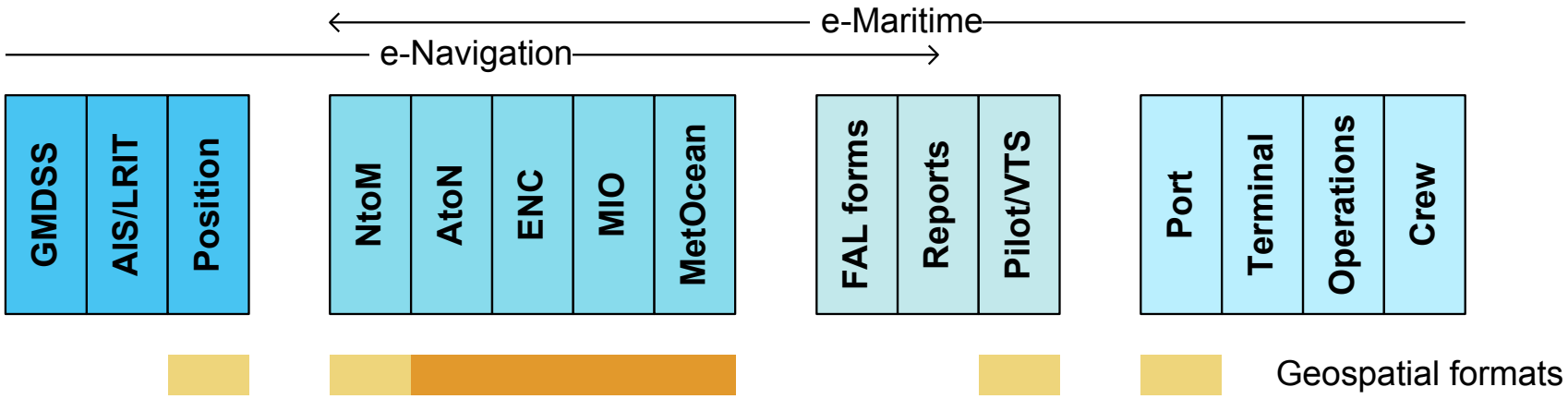
- A wide range of functions need to be covered

A high level functional model



- Of which e-Navigation is only a part

Legacy systems



- Many already defined systems with specific data formats
- Only some of them are geospatial by nature

Requirements ?

- Not quite clear what e-Navigation will be
  - Navigational data only ?
  - Include all of SOLAS ?
  - Include FAL Convention ?
- E-Maritime and other initiatives will build on e-Navigation
  - Ship efficiency / GHG reduction
  - Trade and transport systems
- Legacy standards must be supported

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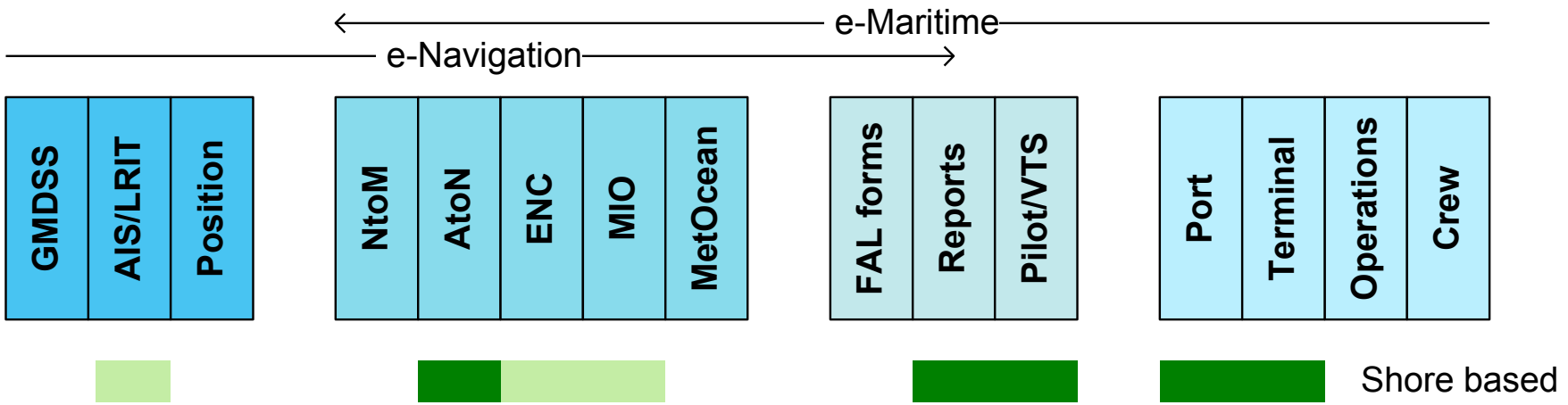
Different carriers have different coverage and quality

Table 1 – Geographic coverage for different carriers

	Ship/Ship	In port	Coast	Fjord	SO Sea	Open sea	Arctic	Sub-arctic
Inmarsat C								
Inmarsat Fleet77								
VSAT K_u								
VSAT C								
Iridium								
AIS								
Digital VHF								
WiMAX/LTE								

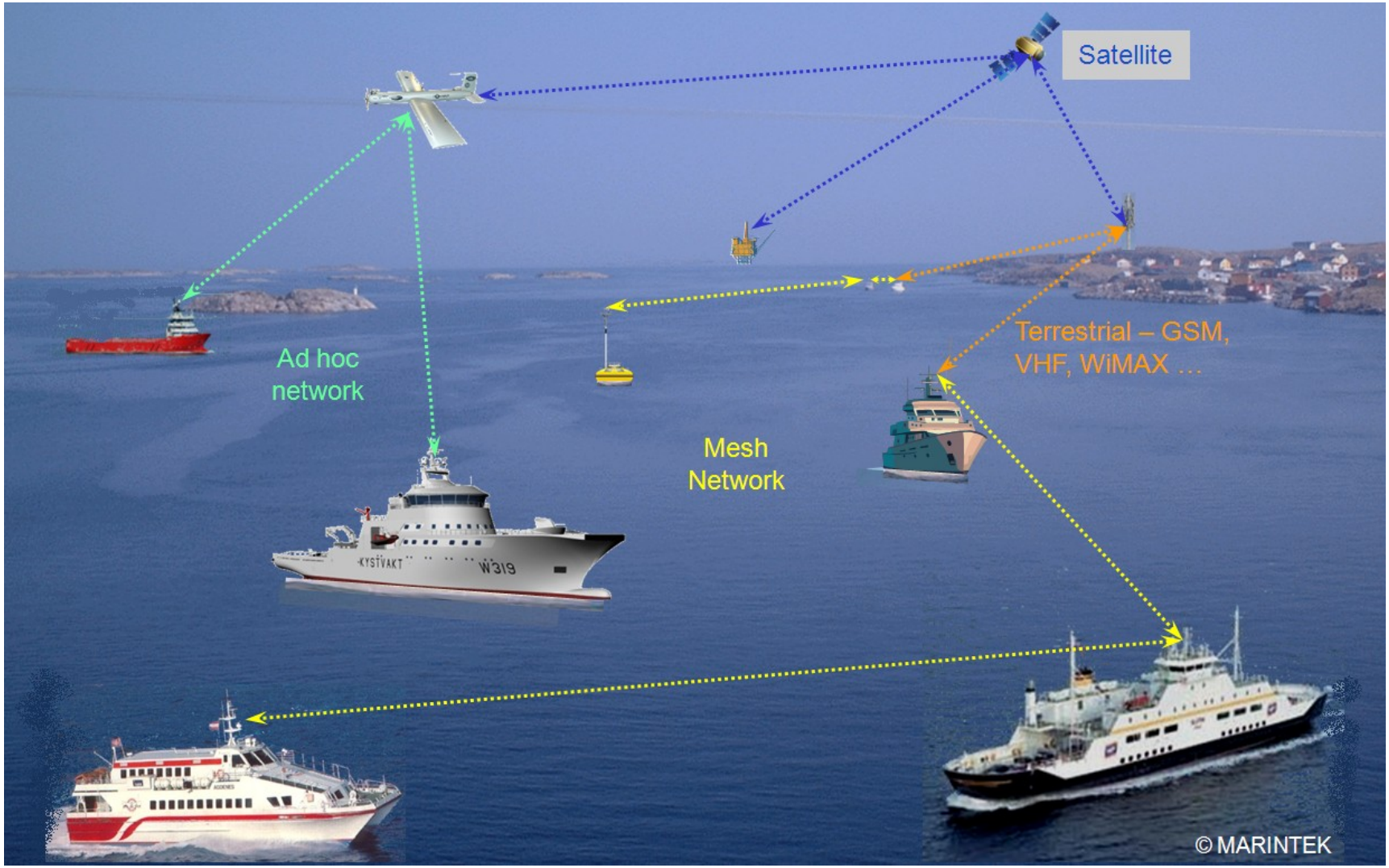
Flagship D-D1.3 report (www.flagship.be)

Different services have different communication requirements



- Some have higher requirements close to shore and can use shore based communication channels.

Integrated Coastal Network - WiCAN



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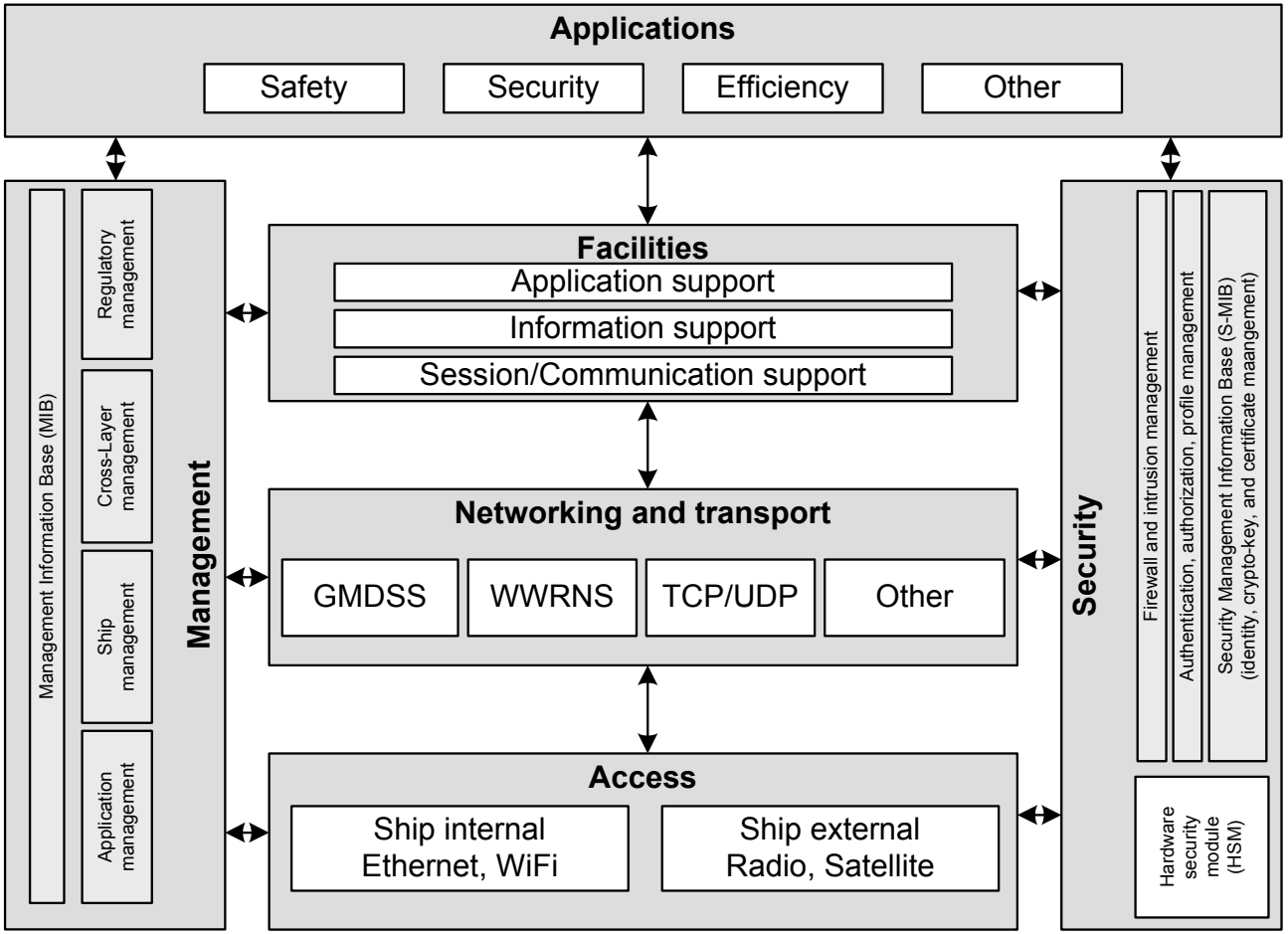
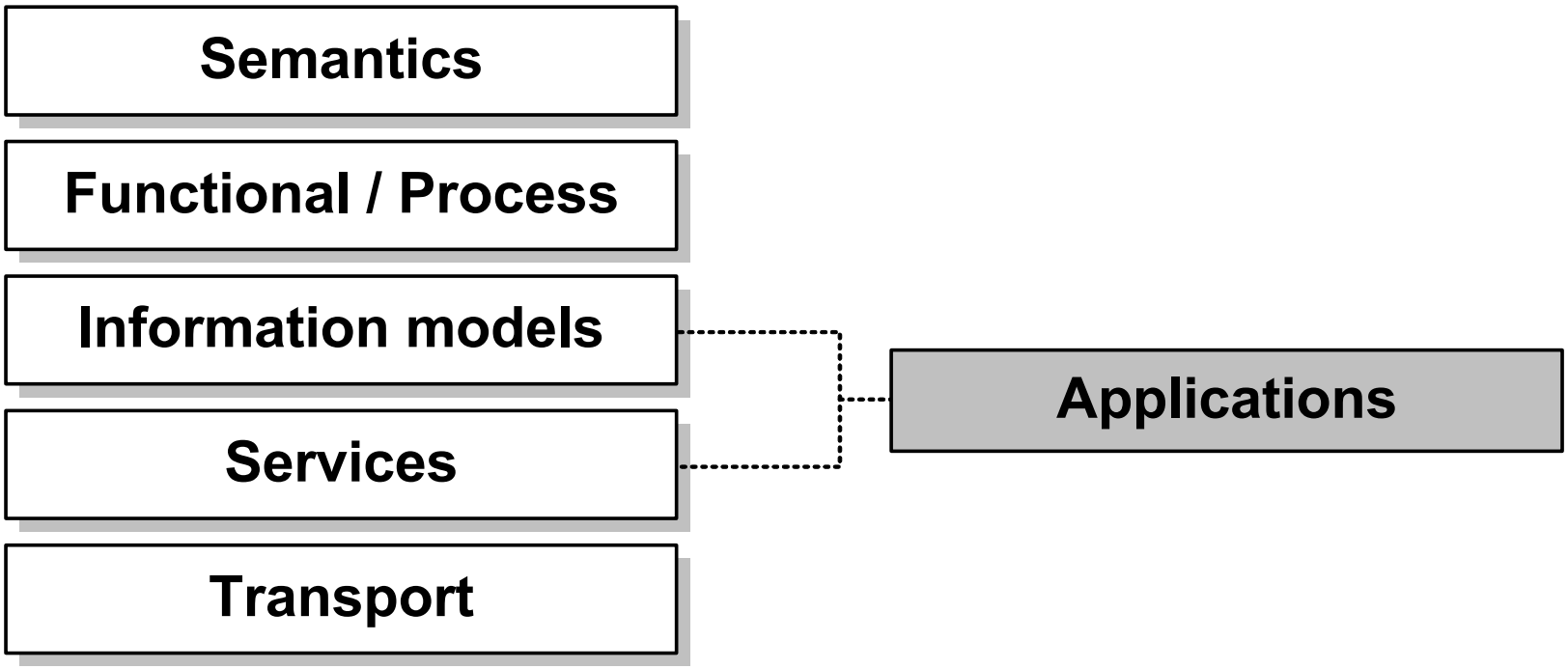
General ITS[1] Architecture



[1]Intelligent Transport Systems - EN 302665

Somewhat simplified …



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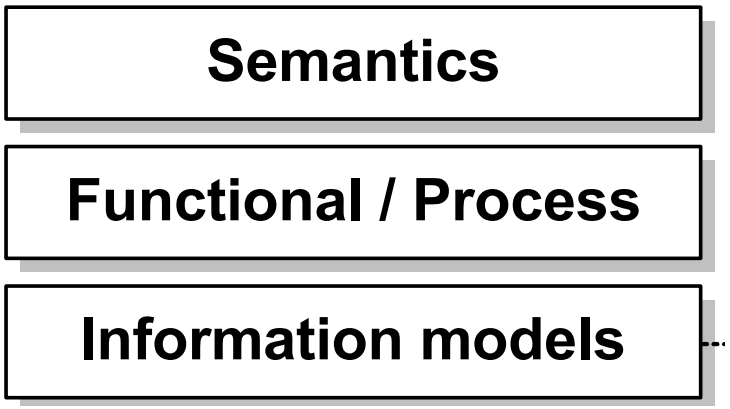
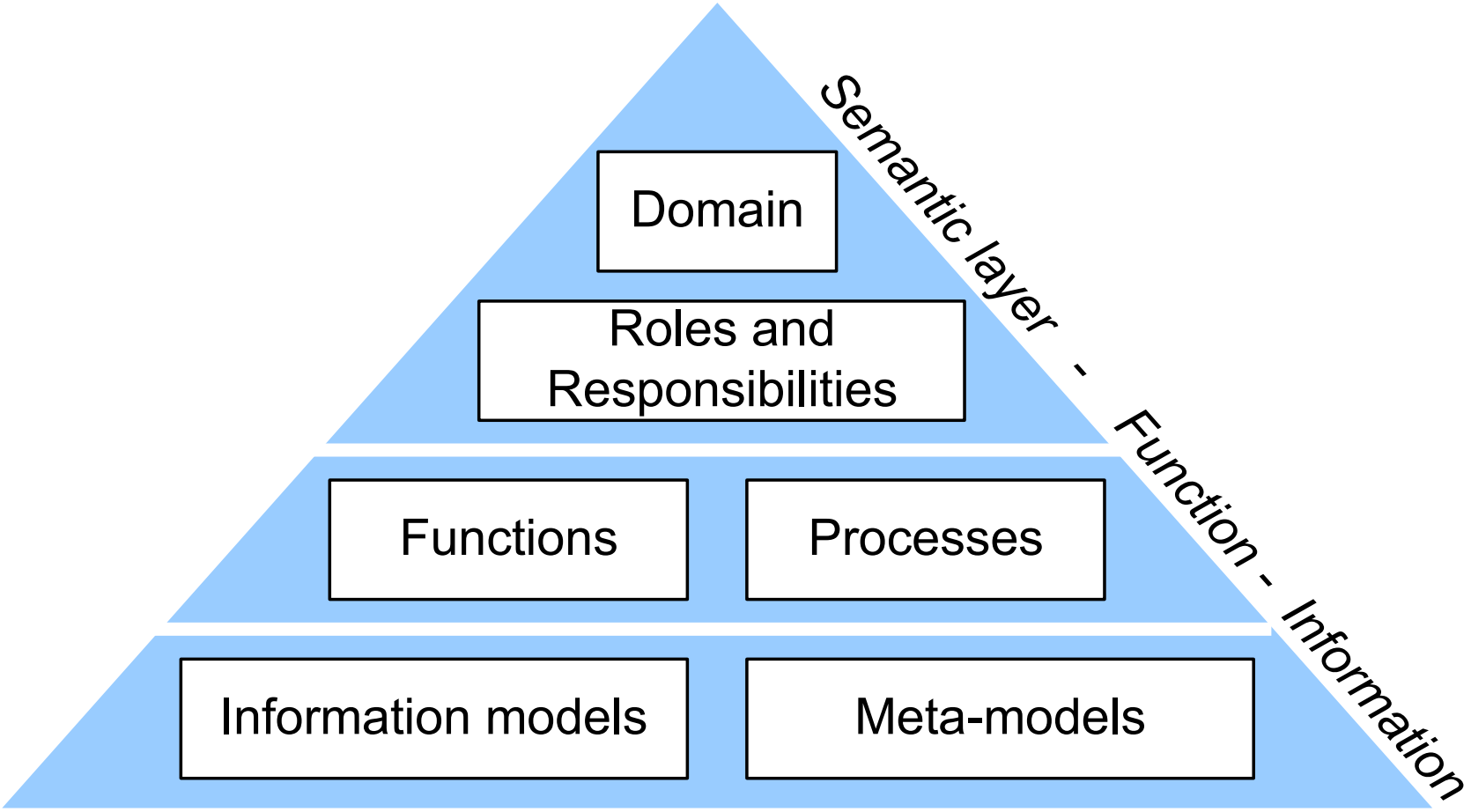
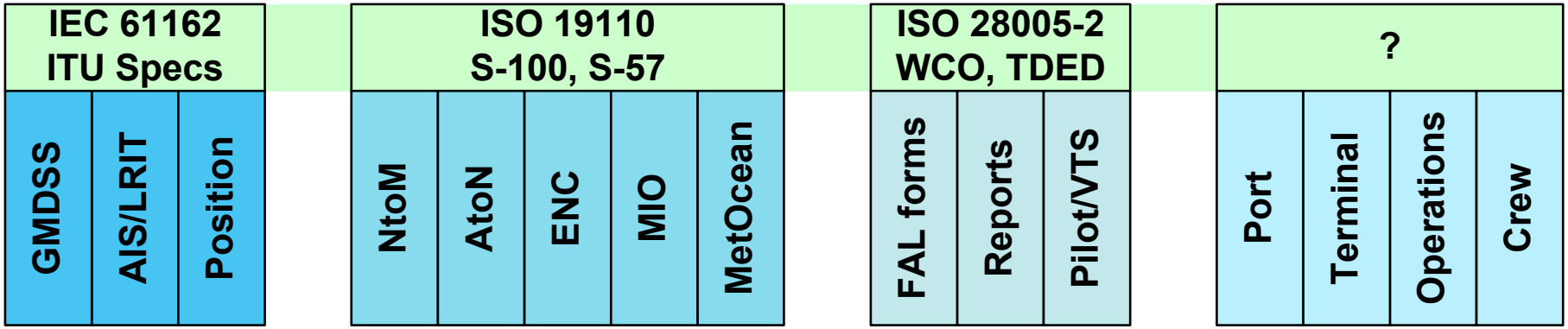


Models and meta-models

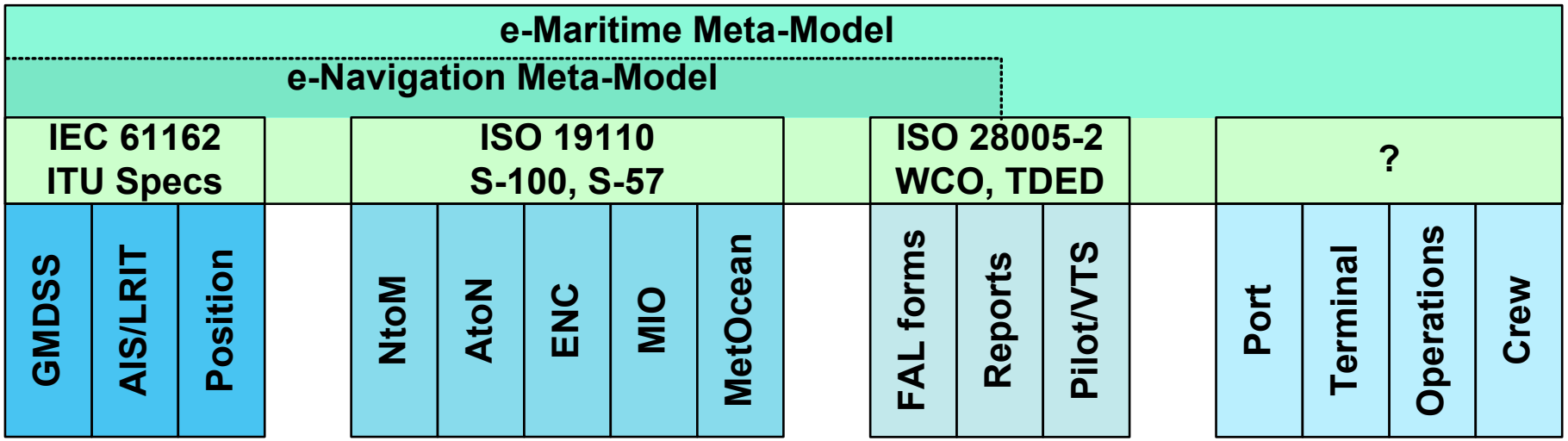


Legacy standards



- Several standards already developed and in use

The use of meta-models



- A good meta-model allows individual development of standards with coordination only of overlap
- Can also coordinate work with e-Maritime and future developments, e.g., e-Freight.

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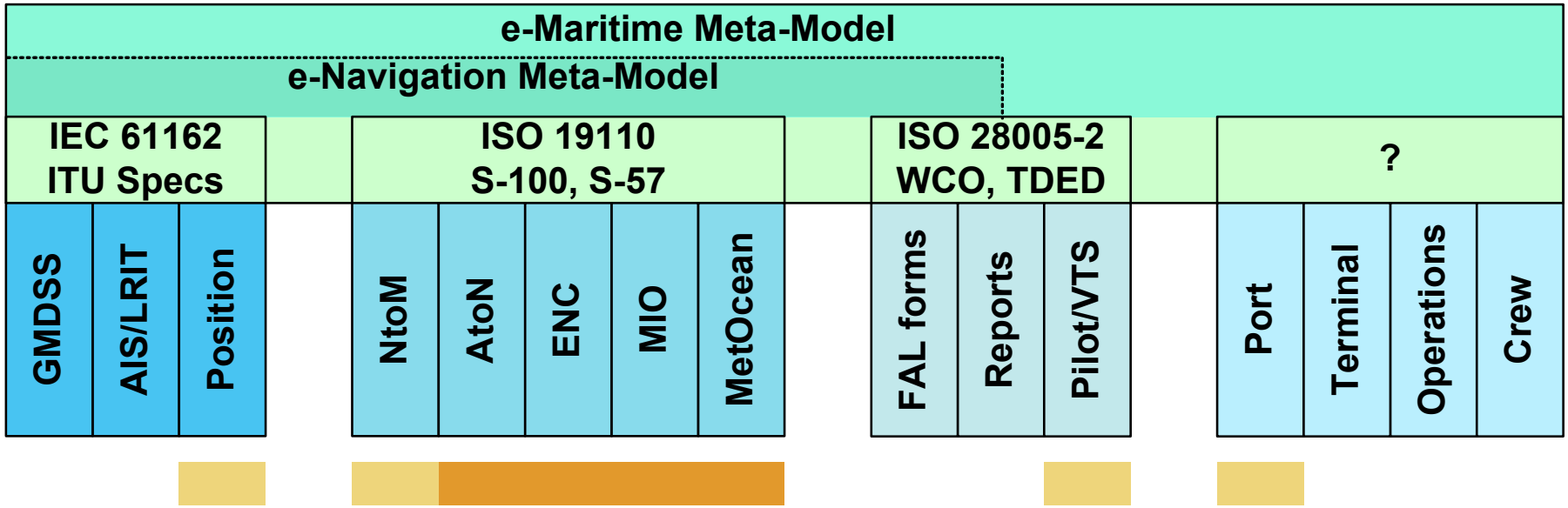
S-100 for geospatial data …



- Need delimitation of e-Navigation as well as towards legacy standards and other initiatives (MetOcean etc.)

Meta-model standards

- ISO/IEC 11179 - Metadata Registry (MDR)
- XMDR - Extended Metadata Registry
- OWL - Web Ontology Language
- …

- … or S-100

Conclusions

- S-100 is probably right for geospatial information
- We need a meta-data standard in addition
- S-100 may be used for meta-data,
- but definition of meta-data should be a separate project