



## Hydrographic Services and Standards Committee

Michael Bergmann,

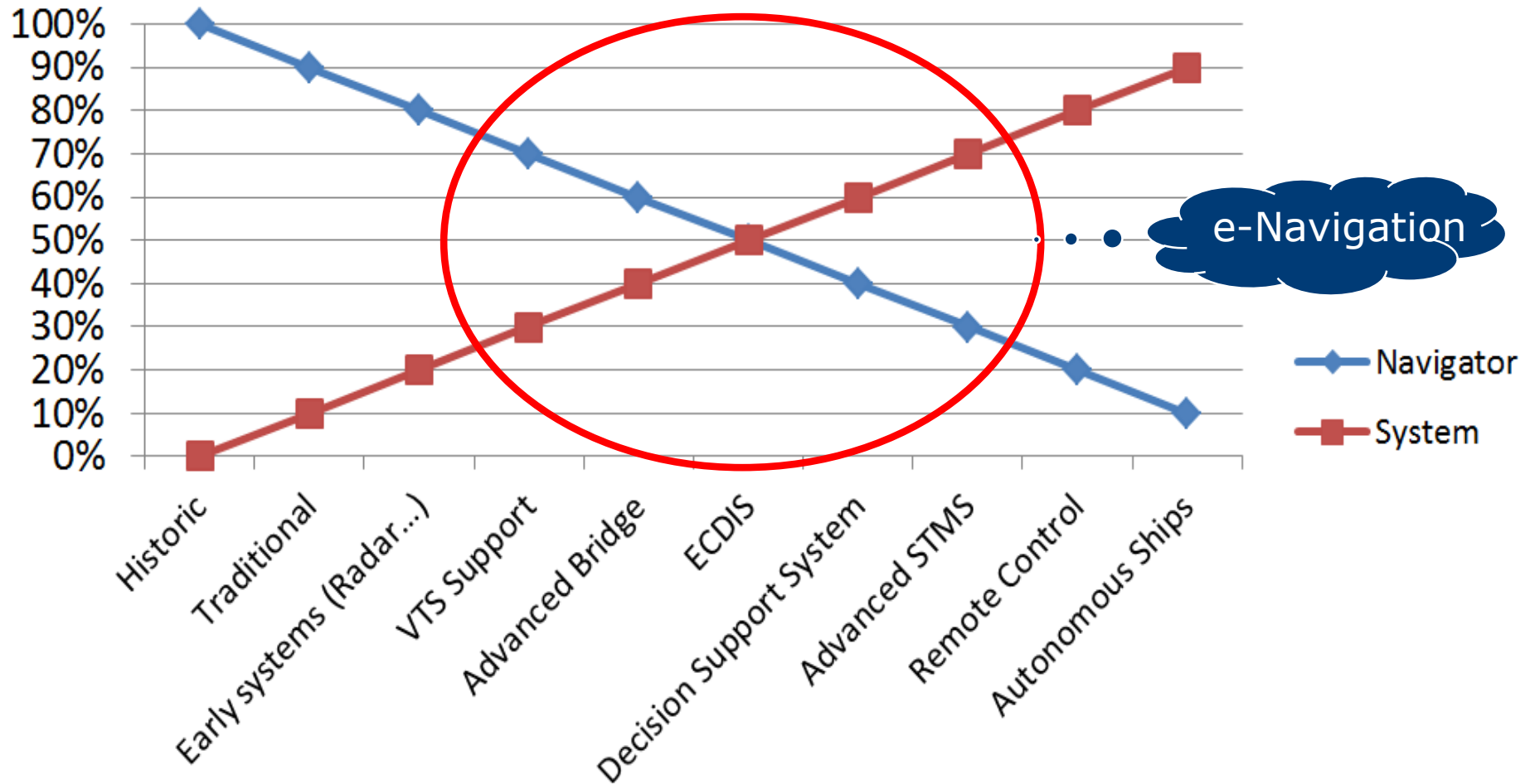
Director Jeppesen 

Observer from RTCA 

President CIRM 

# Data Quality Assurance in light of S-100 and e-Navigation

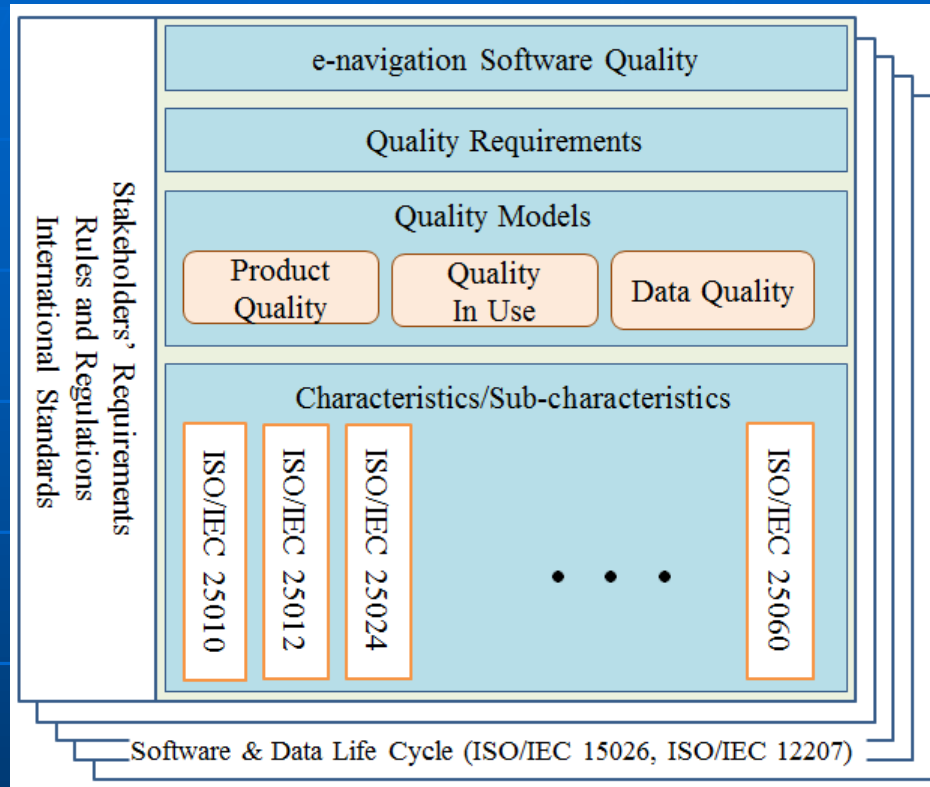
# % of Reliance: Navigator vs System



Michael Bergmann, HSSC7, 12 Nov 2015



# SQA



Guidelines for Software Quality Assurance (SQA) in e-Navigation has been approved by IMO.

Ideation & Vision

Concept

Plan

Develop & Qualify

Launch

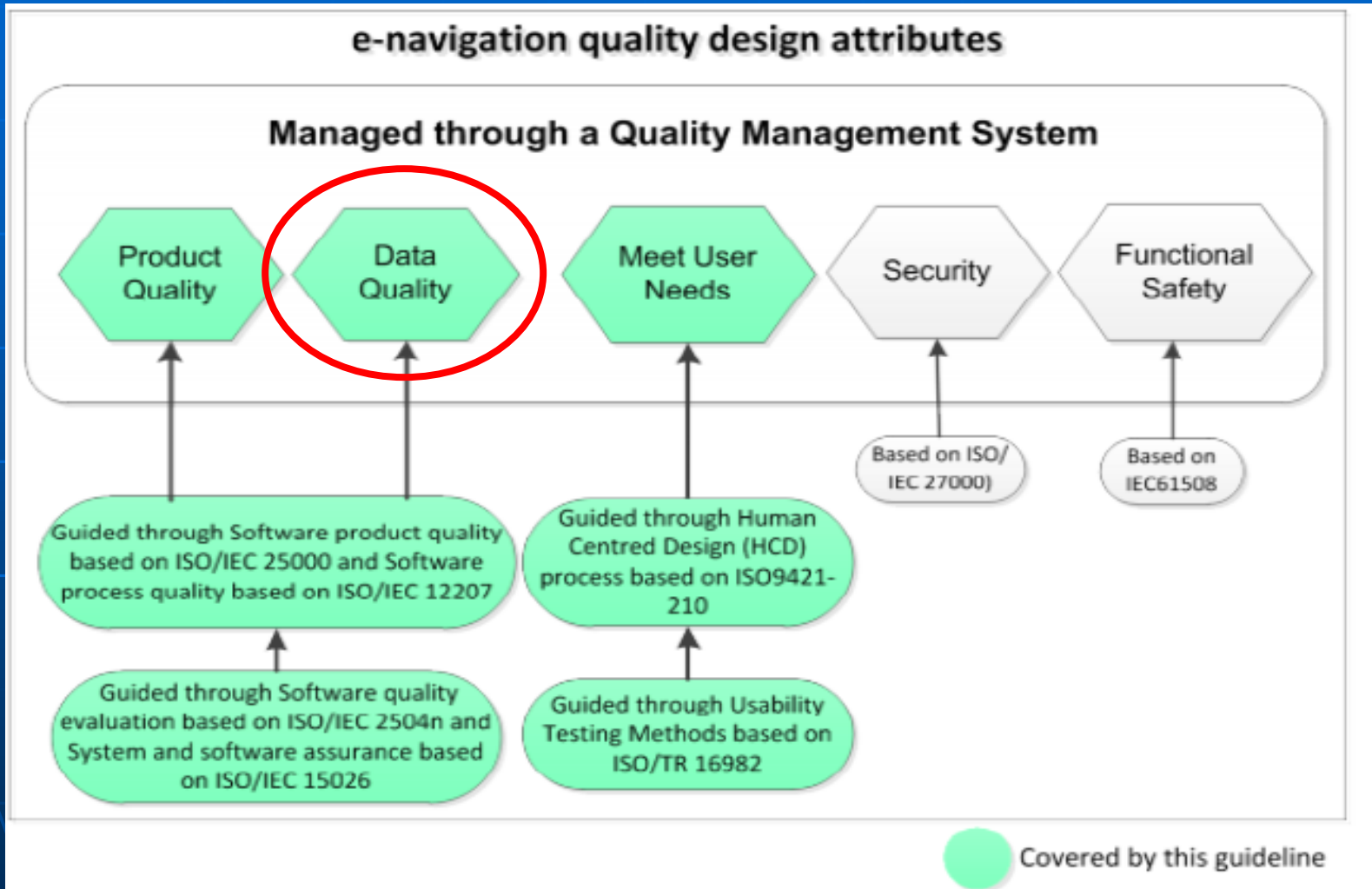
Maintain

Sunset

SLM is suggested as the framework, within that SQA is a key aspect. It is supported by various key players



# HCD and SQA Guidelines



# Data Quality – Part of the Guideline

## 3. Definitions

**3.1 Data Quality:** The degree to which quality characteristics of data have the intrinsic potential to satisfy stated and implied needs when data is used under specified conditions. It also refers to the degree to which data quality is reached and preserved within a computer system when data is used under specified conditions.

**3.2 Data Quality Assurance (DQA):** A set of processes, that ensures that shore and shipboard based data used by e-Navigation systems meets and complies with required quality specifications. It is recommended that DQA is performed using a quality management system such as ISO/IEC 90003:2014 or relevant standards.



# IMOs position on data Producers:

- ✦ 5.9 Producers of input data should have lifecycle management practices in place to handle possible data format changes during the lifecycle. These lifecycle management practices should include timely announcements to software producers and end users about such changes. As part of the DQA producers of input data should test all data in service for conformance with relevant international standards.



# Further IMO Specifications:

Software quality is also dependent on the quality of input data, which should conform to relevant international standards. ... (i.e. ... IHO standards for nautical information including Electronic Navigation Charts (ENC))...

A systematic approach to ensure data quality is recommended, and can include:

defining and evaluating data quality requirements in data production, acquisition and integration processes;





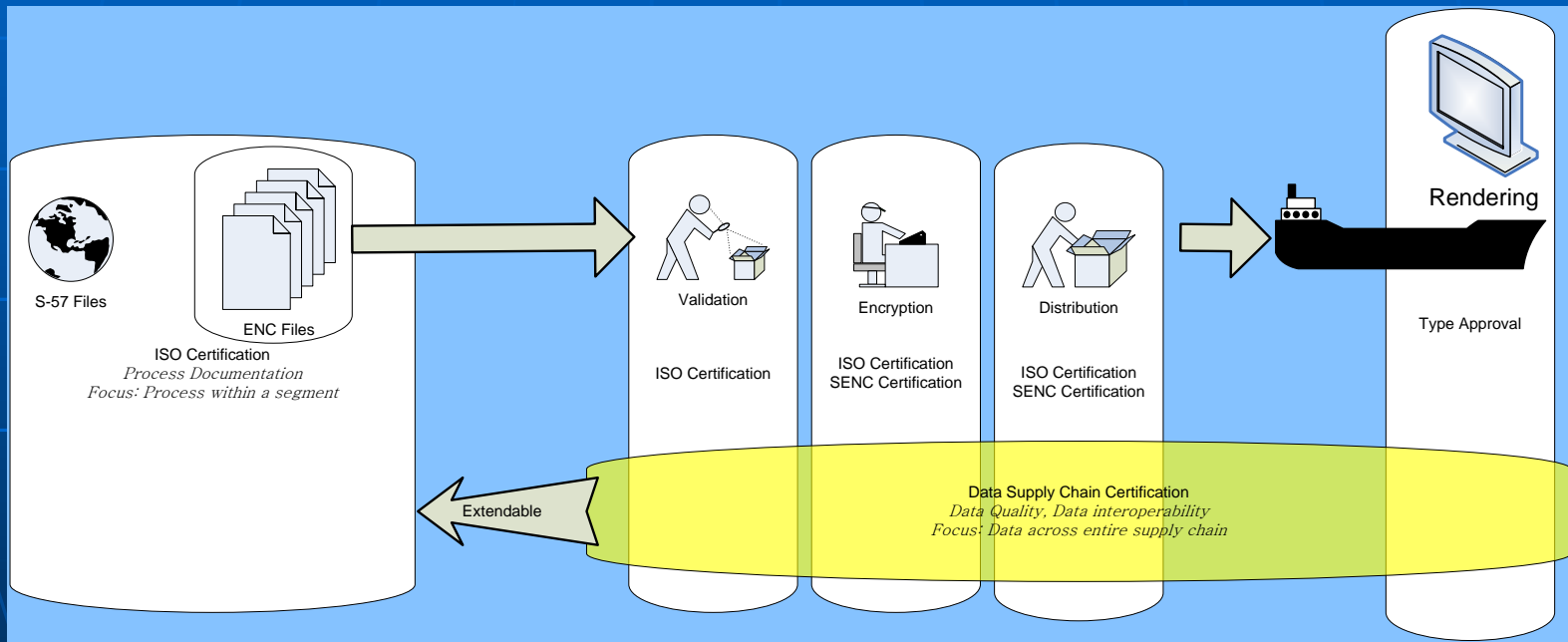
# A reminder: Data Supply Chain Certification

- ✦ Presented at WEND 11, 2008
- ✦ Presented at CHRIS 20, 2008
- ✦ Both invited members to participate in a correspondence group
- ✦ HSSC1 invited further work from the DSCC-CG and invited it. (HSSC2 Action 2)
- ✦ The DSCC-CG had 36 members from HOs, IHO-WGs, related organizations and experts





# DSCC view in 2010



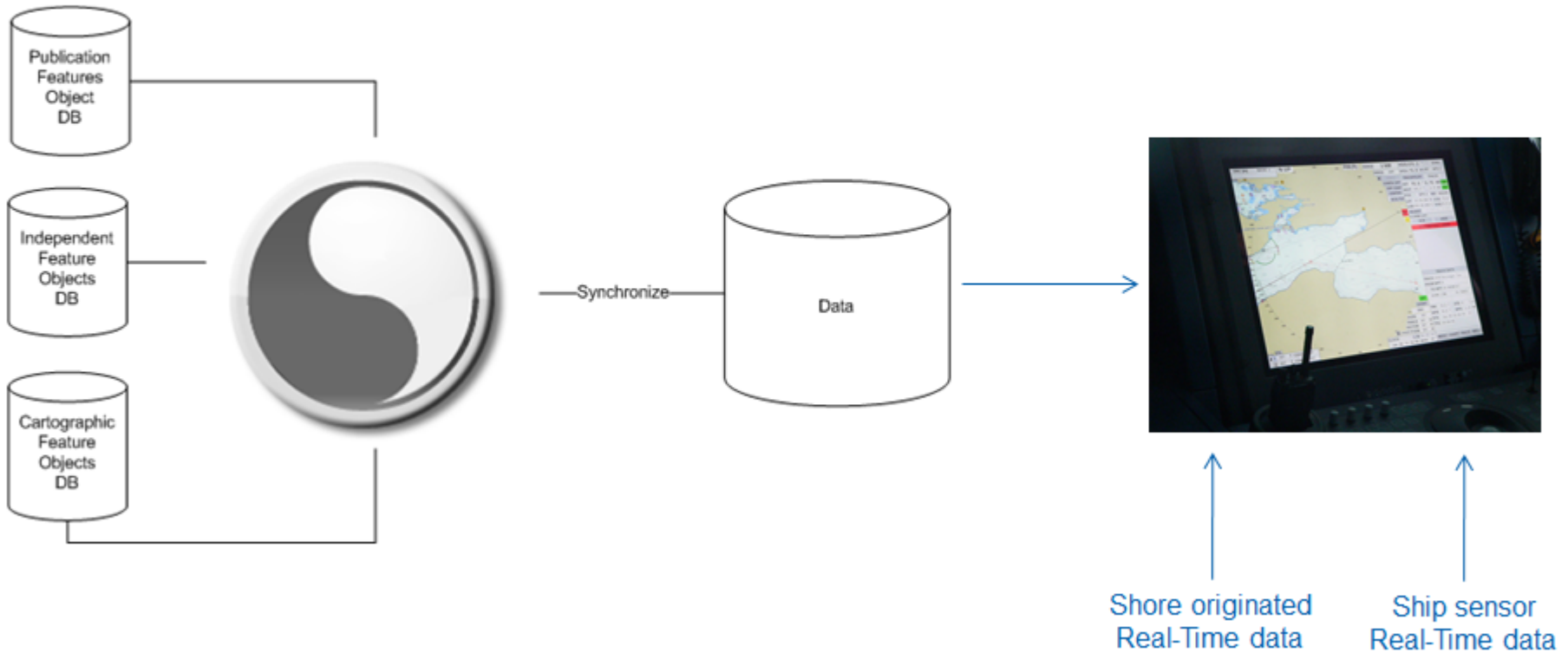
# The e-Nav Data-Integration

Data Production

Data Integration

Data-Product Implementation

Information Visualization



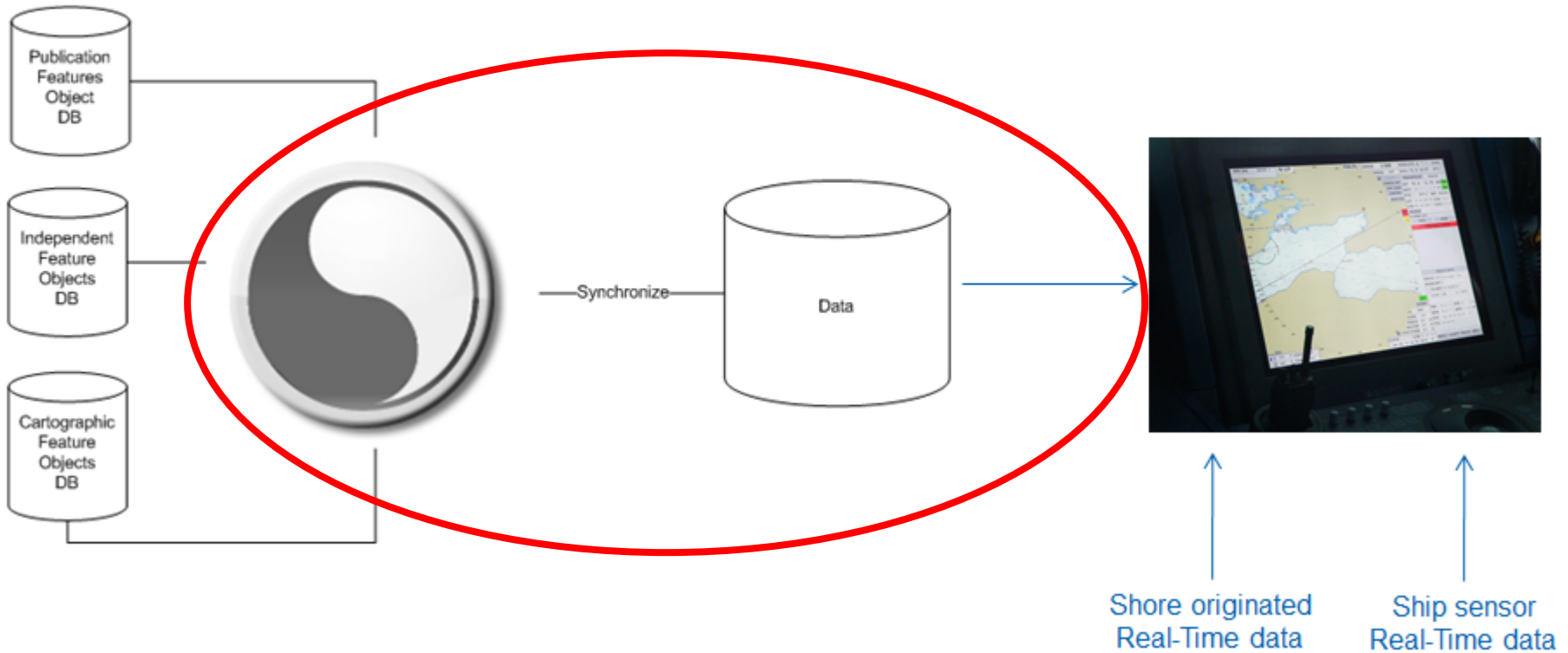
# DSCC in e-Navigation

Data Production

Data Integration

Data-Product Implementation

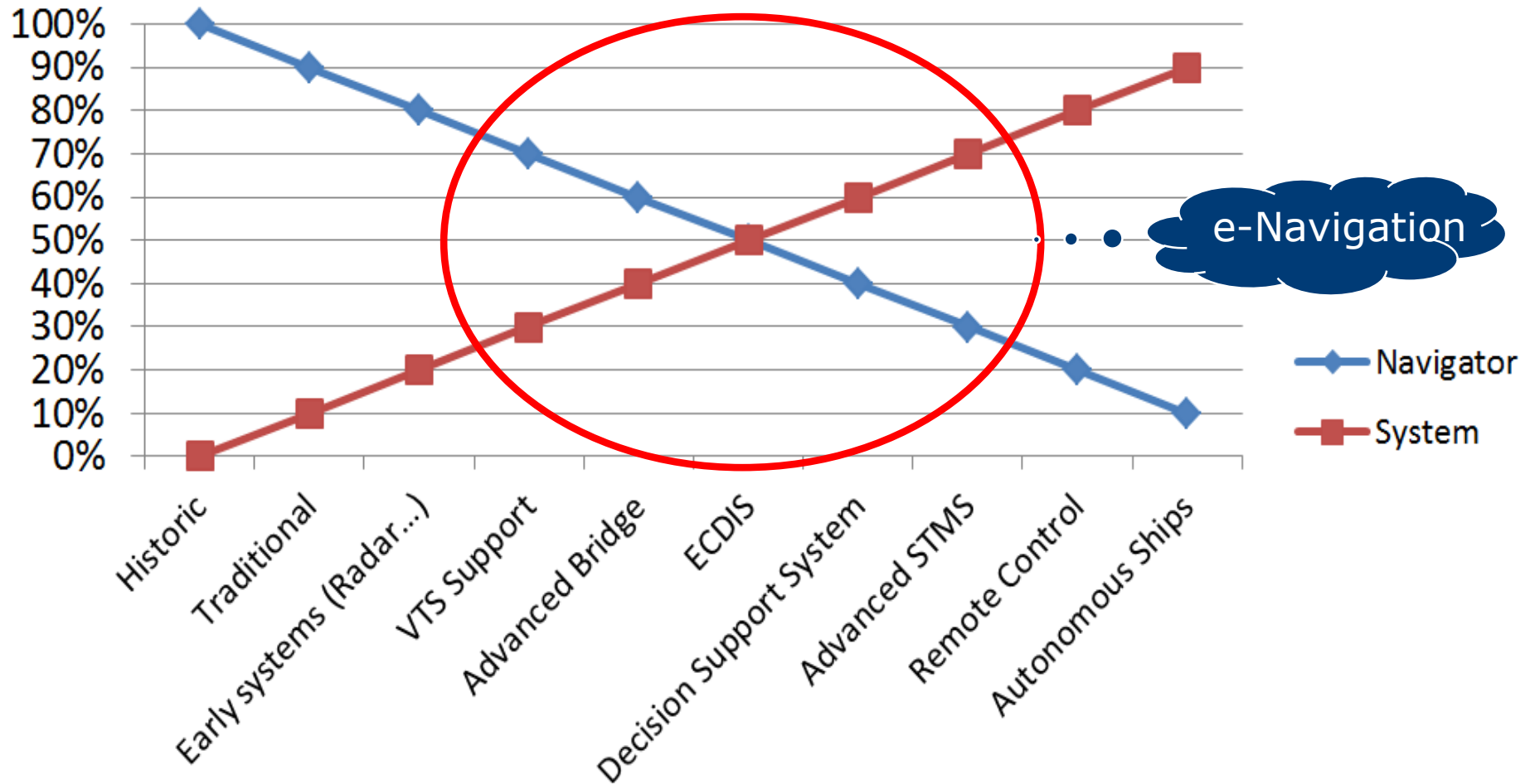
Information Visualization



**Spanning full supply chain:  
Data Producers -> End systems**



# DQA using DSCC – necessary for reliability

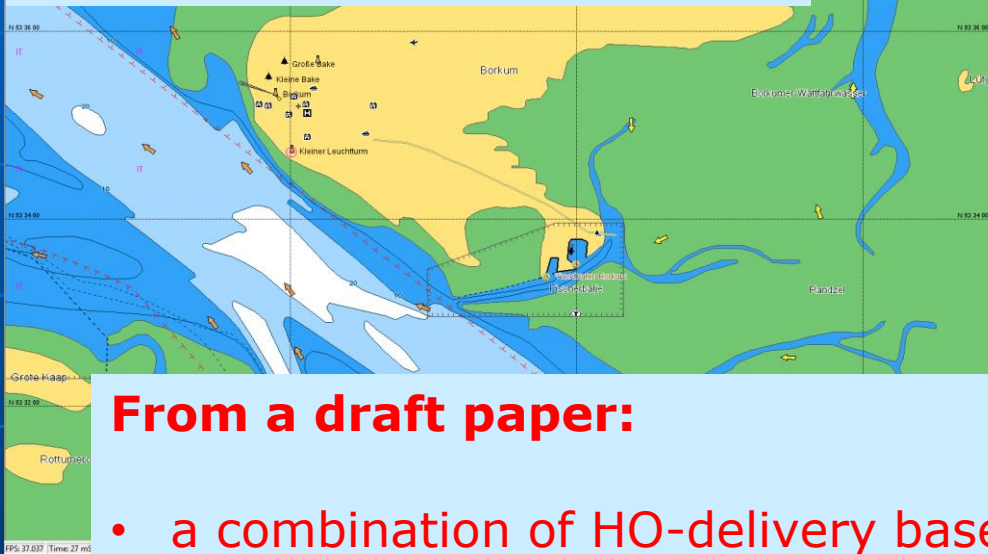


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# Supporting non-SOLAS initiatives

## Certification of integrated Data products in relation to official data



### From a draft paper:

- a combination of HO-delivery based data in proprietary format which keeps a status as being “official” after certified transformation.
- a certified portrayal of these data.
- a clear visual separation between the official portion of the portrayed data and the private supplements made on top.



# Suggestion from an Industry viewpoint:

- ✦ A coordinated approach to DQA under the leadership of IHO in partnership with Industry and other key stakeholders
- ✦ Utilizing the work of the CG-DSCC
- ✦ Taking into account:
  - Data quality aspect
  - Data security aspect
  - Supplementary data aspect



**THANK YOU !**

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