The change process to implement Esri Maritime and Workflow at the Danish Hydrographic Office (DHO)

Niels Tvilling Larsen Head of DHO

Geodatastyrelsen

[Website (eng.gst.dk)]

A part of Danish Ministry of Climate, Energy and Utilities

Geodatastyrelsen

DANISH HYDROGRAPHIC OFFICE

ORGANIZATIONAL CHART

Geodatastyrelsen
Danish Geodata Agency

Vision
To be the driving force in the digital delvelopment of the marine domains, for the benefit of all

NIELS TVILLING LARSEN
HEAD OF DEPARTMENT

ELIZABETH HAGEMANN
HEAD OF DEPARTMENT

The Danish Hydrographic Office is responsible for:

- The sale, production and development of nautical data, charts, publications
- Compiling spatial authoritative information for national waters
- Hydrographic surveyng, however the task is performed by The Royal Danish Navy

There are 65 full time employees and 7 students in DHO and 14 full time navy surveyors

Status – we still have a lot of work to do

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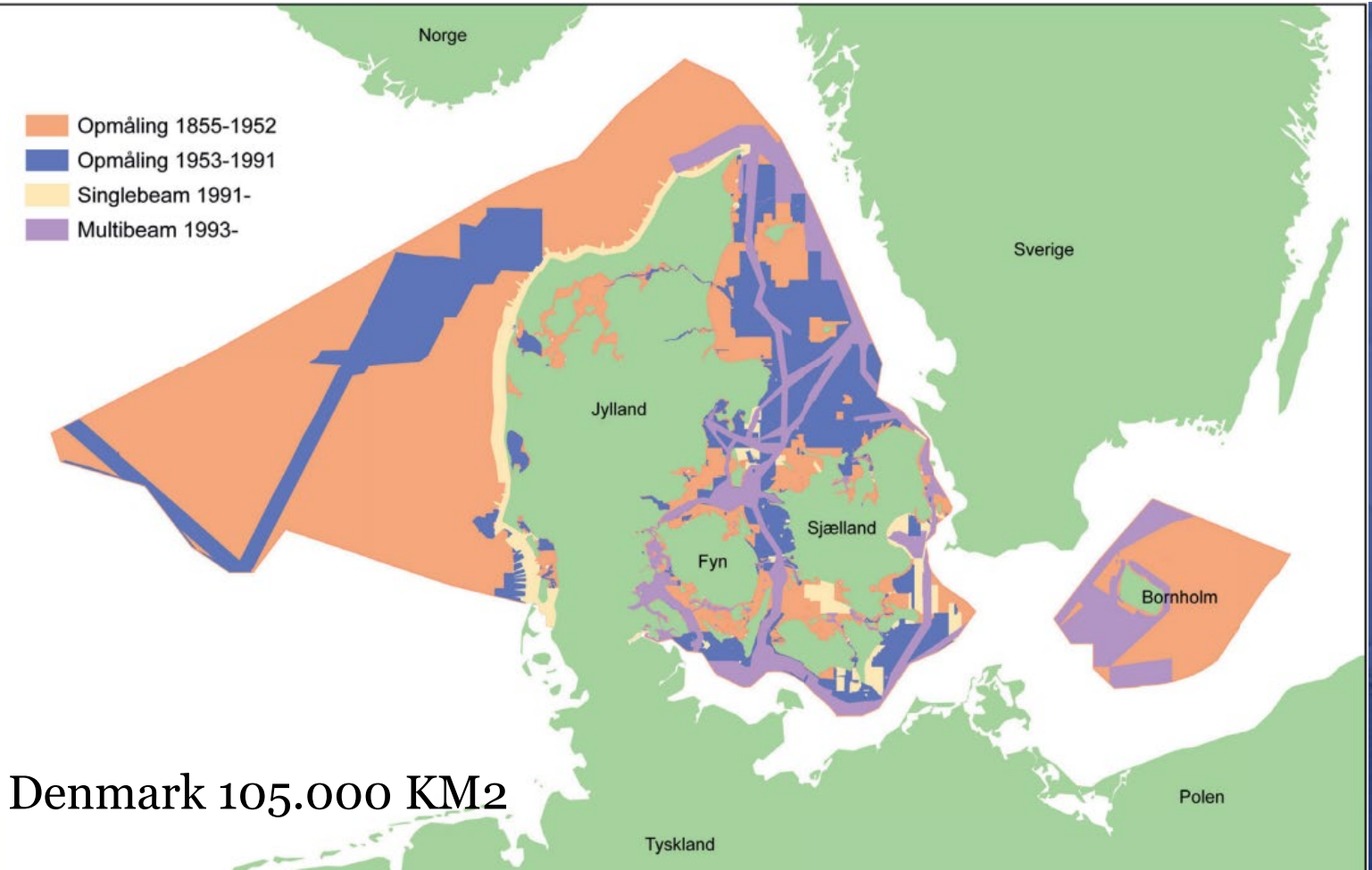
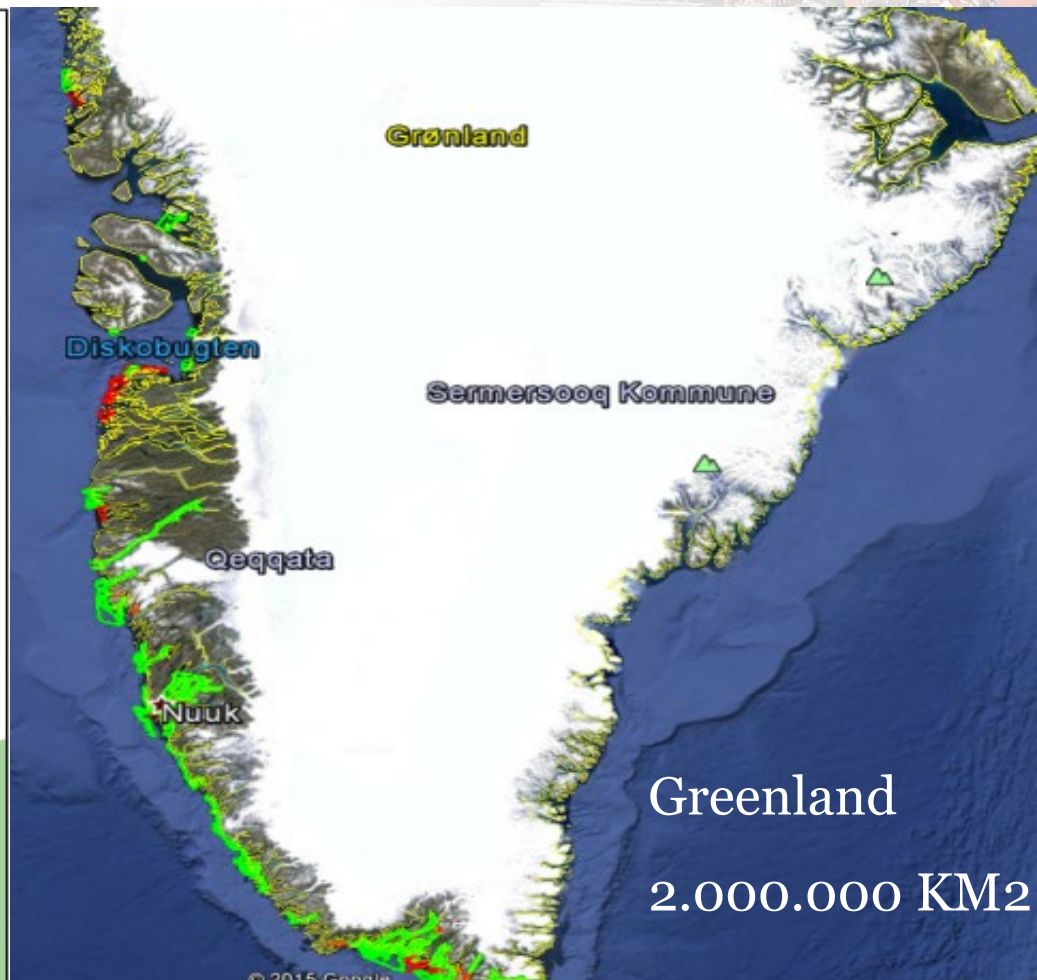
Only have new survey data and Charts from Diskobugten to South tip and Greenland – less than 25% of the coast

Old survey data in DK and GRL (+100 year) The west coast of Denmark is not covered by multibeam.

Seamless data for DK and GRL. Data is now per product and not in an integrated data layer



Denmark 105.000 KM2



Greenland

2.000.000 KM2

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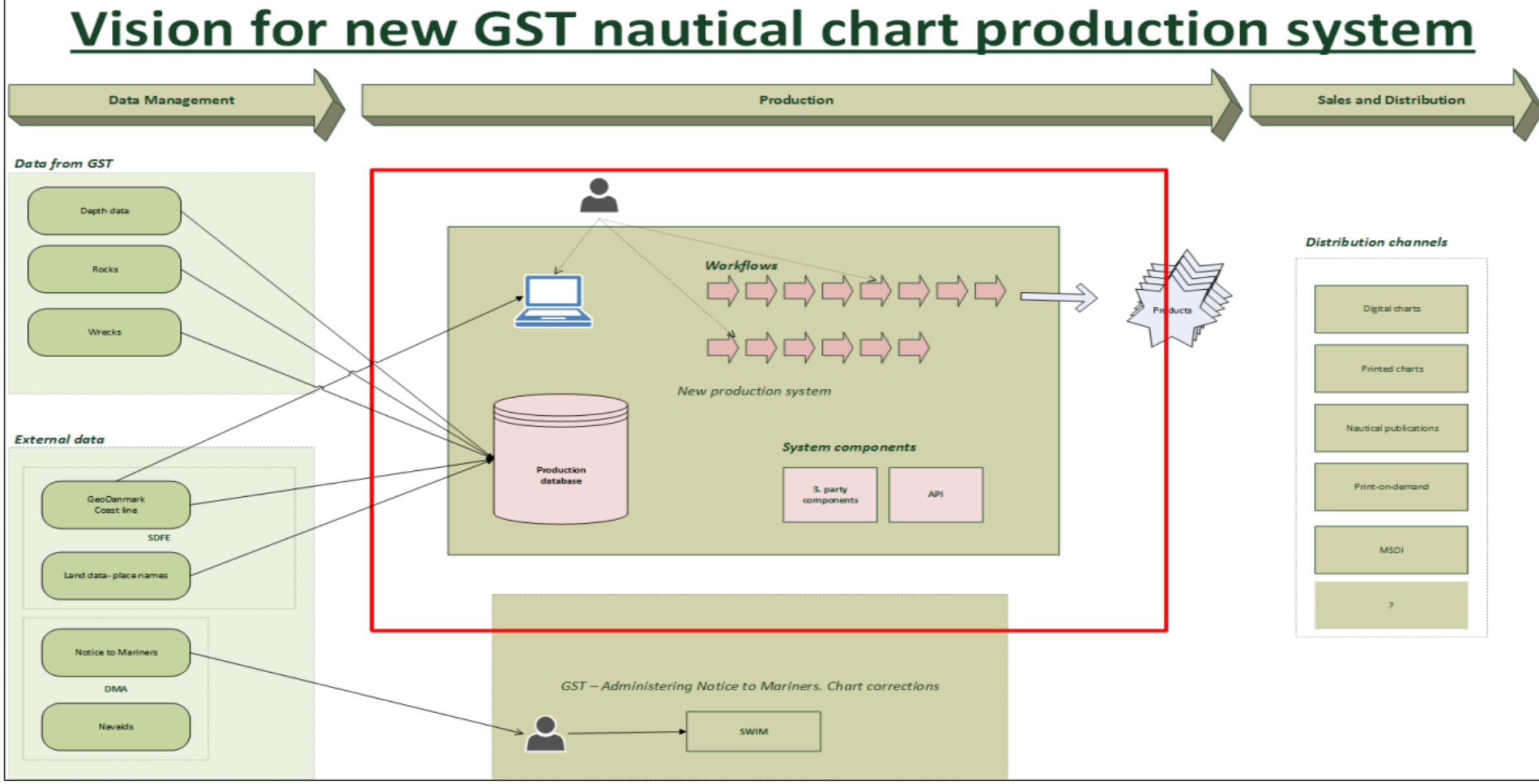
The vision at project start in 2016



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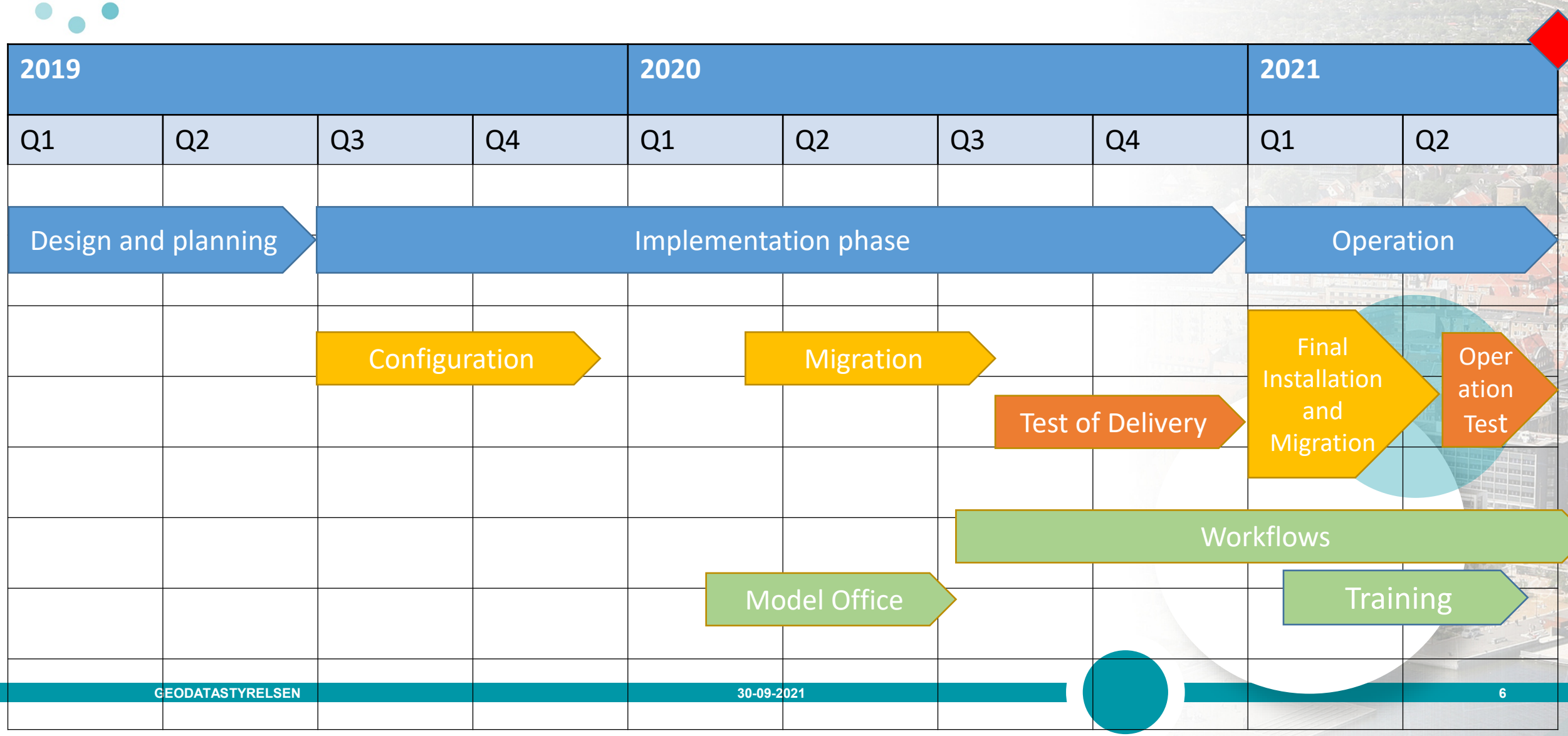

The paradigm - shift of mentality with focus to data

- Shift of focus from chart products to marine data.
- Learn to change - the office didn’t have a culture of change/optimization of production.
- Merging of 2 offices into one with a shared production process.
- System switch from old specialized chart production software program to standard GIS analysis software.
- Ready for change from S-57 standard to new standard S-101 and S-102 in 2024.

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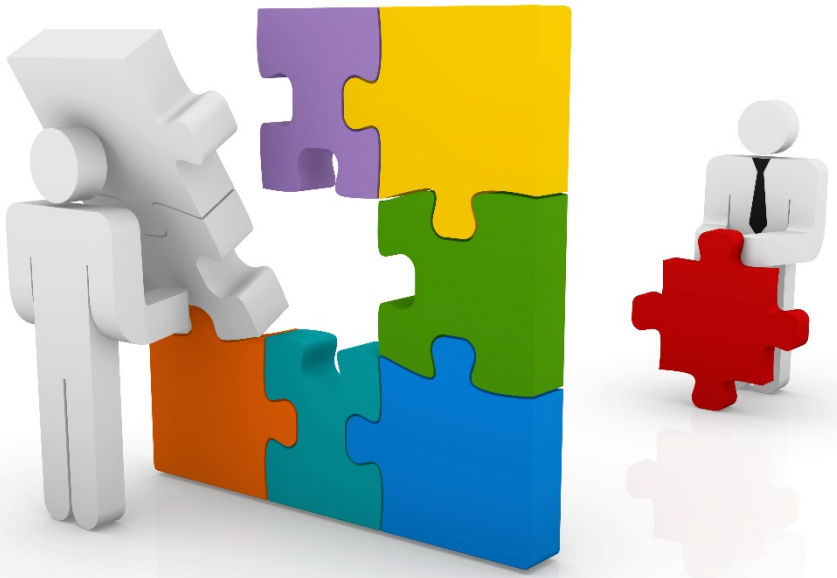
The challenge is the many pieces needed to fit together - and we don’t have the time to make a perfect project plan



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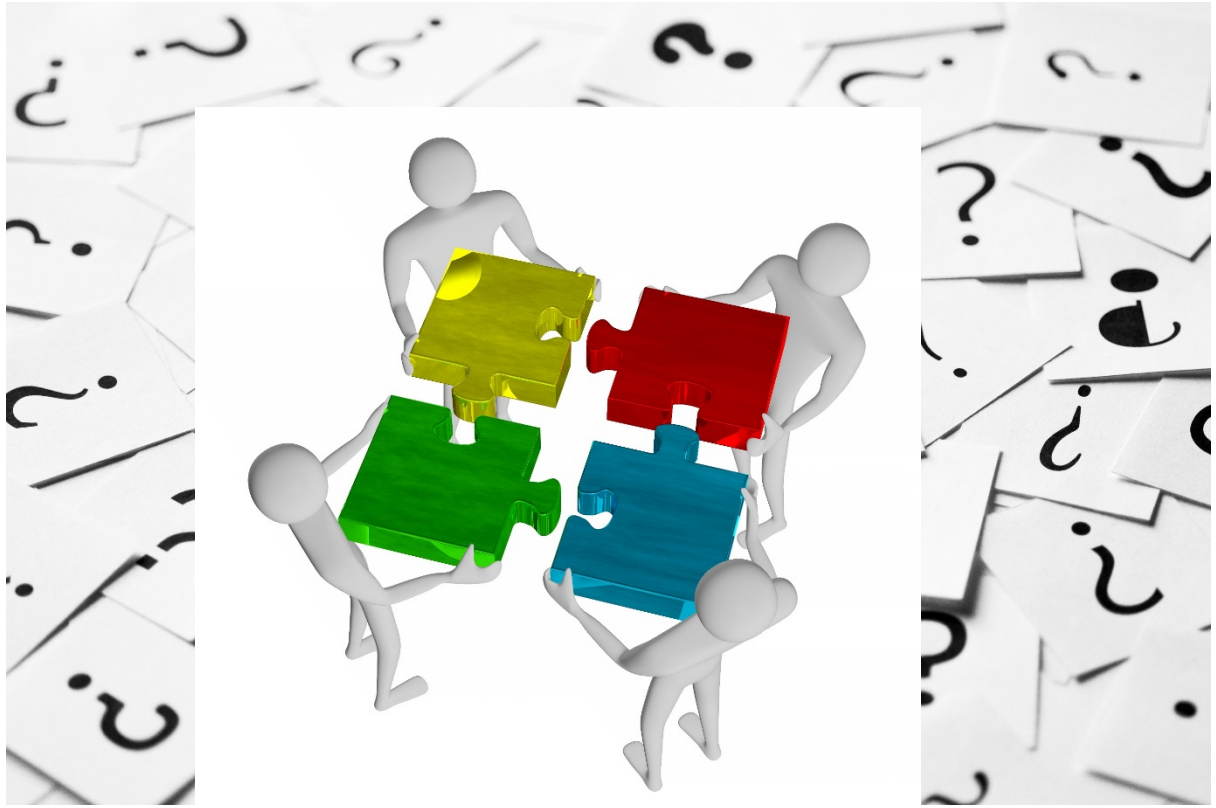
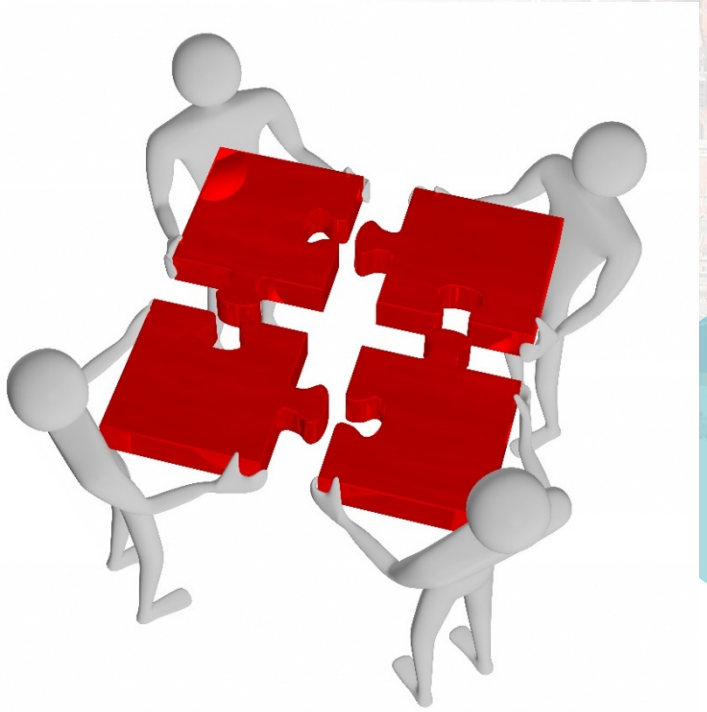
Tools used for change

- High level process mapping with Business Process Modeling Notation (**BPMn**) for AS-IS
- Select and hire a high performance team that creates solutions and are **pathfinders**
- Understanding the base **logic** and automation in the ”standard” software tool
- Derive the ”best” **practice** for production to an appropriate quality
- Create new high level Process mapping with BPMn for TO-BE with **NEW business model**
- Get support and **funding** from the entire management and "board" for the change
- Very clear and unambiguous **leadership** – and be agile to changes in the direction from employee input. (have a bright lighthouse but be prepared to adjust the course)
- **Change the organization** to fit the new production setup
- Build **change agents** among the loud opponents of change with practical testing in **model office**, get rid of the bad habits.
- Use resources on a “live” **production guide** to ensure alignment among users
- Employ your **own development resources** to make ongoing self-adaptation for sustainable process optimization, automation and data integration

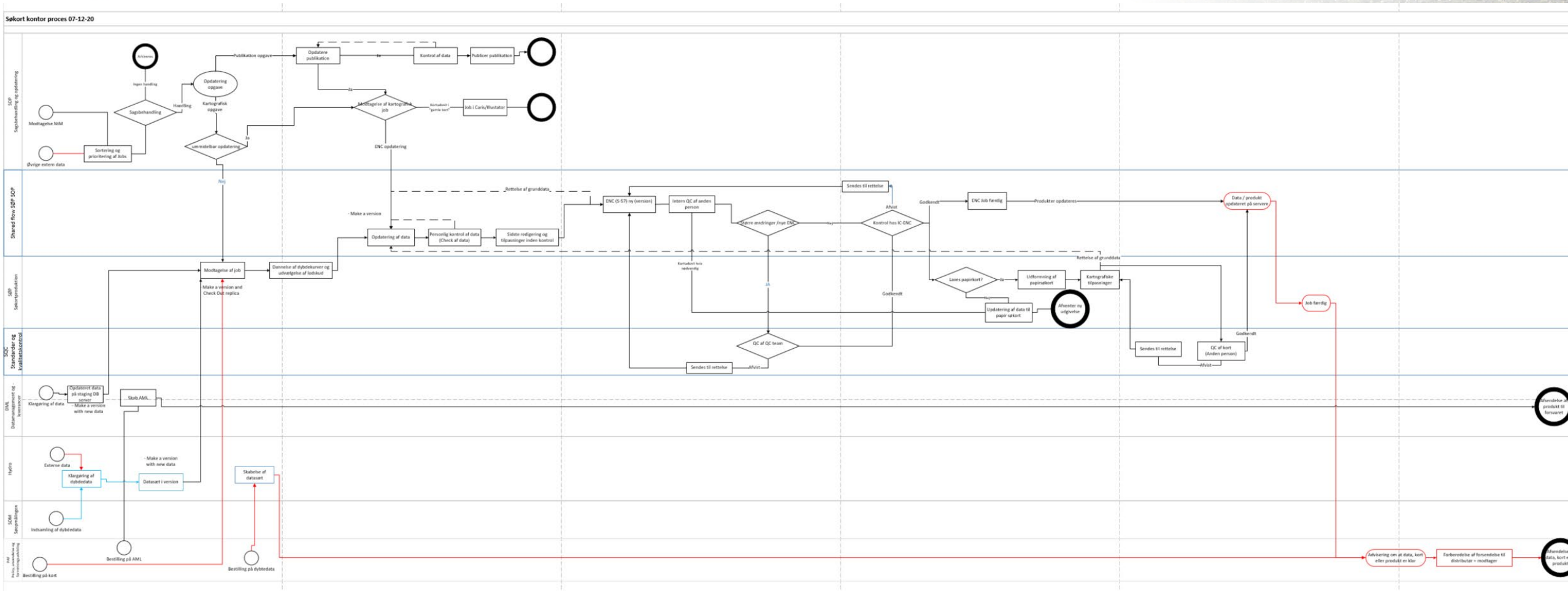
Common language is essential for people with different background





The project was broken down because developers and production did not understand each other and were not able create new and better processes with the new tools GST had invested in.

Process mapping BPMn



ONE office and organisation to fit the data process

ASO

- Survey — 13
- Hydro
  Survey data processing and Quality — 8
- Arctic chart production — 10
- Data and system — 12

SFO

- Policy, Application, Sales — 8
- Chart production Denmark — 18
- Publications — 7

NEW SETUP

SOE

- PAF
  Policy, Application, Business Development — 10
- PUK
  Process Development Quality — 8
- SAS
  System and application management — 4
- DML
  Data management, MSDI, Data deliveries — 6
- SOM
  Survey — 14
- Hydro
  Survey data processing and Quality — 9
- SOP
  Notice to mariners and case management — 9
- SØP
  Chart production — 24

Switch from product mindset with delimited charts to thinking in marine data

from delimited to seamless

- Lack of coverage - Data has been produced for specific products, not as ‘source data’
- Existing data has been digitized from raster charts in the 90’s and are not always captured in the relevant scales.
- Different scale bands in the ENCs need to be handled in the database m_cscl

Encoding Guide

Created by Nikolaj Møller
Jun 18, 2021 • 1 min read • 12 people viewed

Danish Hydrographic Office

Encoding Guide & Standards for ENC and Paper Chart Production.

This page functions as the oversight of the policies and standards used in this office, that vary from the offical policies and standards which internationally are to be followed.

Those diviations can be due to several legitimate reasons, such as:

-Regional differences.

- Special cases not captured by IHO standards.

- Political agreements.

Definition

- Definition of "policy": "
  - Our internal practise (ways of encoding and capture data in the charts) and procedures in the Danish Hyrdographic Office, which deviates from the IHO-standards.
  - Decisions are made in cooperation with SQC and the production teams.
    You can send an e-mail to sqc@gst.dk if there are topics you would like to address.

Presumptions for use

- Emplyees are already familiar with the relevant IHO-standards, and are users of the production system used in the office
- IHO standards are used i day-to-day work. Deviations from standards are only done based on policies mentioned in this handbook.

References

This list aims to supply the reader with the relevant standards and documentation:

- S-57 objects & attributes
- IHO S-57
- S-57 Use of Object Catalogue (UOC)
- S-57 Encoding bullettins

Policies

1.1 Encoding Guides

- Aggregations
- CATZOC Diagram - style and placement
- Compass rose placement
- Cutting of data in GL NIS
- Depth data processing
- Dumping & Spoil grounds
- ENC Price Band
- Label Placement and Coastline
- Language and alphabet
- M_CSCL vejledning
- Nature Reserve
- OldVersions
- Restricted Areas in General
- SCAMIN rules in GST
- SCAMIN vejledning

link