New Map Production Environment
- optimizing map production

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Data Visualization
In the Danish Geodata Agency, we are app. 300 employees.
Until 2013 we were called The National Survey and Cadastre (KMS).
We’re the Danish national mapping agency and produce topographical maps for the Defence and for public use.
We’re the Danish national hydrographic office and produce sea charts and ENC for Danish waters (incl. Greenland).
We’re the Danish cadastral authority and keep the cadastre registry and process cadastral survey.
In the department of Data Visualization we produce maps for many purposes. Sometimes it must be done quickly!
Maps for many purposes:

Danish Geodata Agency
What if we had:

1 data model

1 database

1 method

1 tool

for producing 25 different topographical maps out of always updated data worldwide?
Aim:

• robust and flexible production environment
• common environment for development and production
• change to ESRI-ArcGIS platform
• DGA has a limited amount of applications and providers
• common platform = less dependency on key persons
• automatic continuous updating = ”map alert”
Maps without hands
Effects:

- better quality assurance: better quality of maps
- production time reduced: efficiency
- reduced use of resources: efficiency
- automation, reuse of data and cartography: homogenous products
- shared knowledge: teamwork
Major change:

† rule-based automatic map production
2 main principles:

Base Data

- MPEdb

Visualization

- including introduction of cartographic representations
But input data have to be valid and complete!
KPM is worldwide
MPE has a common data model
FME workflow for mapping of base data to MPE
Content of the database

<table>
<thead>
<tr>
<th>Schema</th>
<th>No. rows</th>
<th>Size (MB)</th>
<th>Extent</th>
<th>Featureclasses</th>
<th>Representations</th>
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<td>19.687</td>
<td>global</td>
<td>297</td>
<td>2</td>
</tr>
</tbody>
</table>
Automatic updating, +/- corrections
What are representations?
Symbols

Creating a common, customized DGA-font:

• with all the symbols, that are needed in the different topographical products

• for every product there has to be a symbol database (styles, representations, rules for colors, rotation etc.)
Illustration of MPE-process:
- check representations (and edit if necessary), replication in file-gdb, generating rastertiles/PDF’s

- Check representations, edit where needed, create rasterfiles
- Check out: replica into gdb
- Check back in

MPE (ArcSDE/Oracle)

Replica File-gdb

Visual_spec *.mdb
Symbol database, Styles

Gridfile
Predefined map extents

GeoPDF
GeoTiff
Distribution

Printing
Standing Operating Procedure for

Series Transit Flying Chart (Low Level)

Scale 1:250,000

Produced by
Danish Geodata Agency, Denmark

- Map frame
- Data content
- Text placement
- Workflow
- Export/printing specifications
Production example: 50k defence map

Development of

- frame
- mapsheets, content
- texts
- grid
- legend
- SOP
Production example: 50k defence map

- Using Data Driven Pages to make a complete map series containing 115 map sheets

- Issue with overlapping UTM zones
Modernising 50k defence map

2010 (Maps without hands)

Total DK production from base scale (1:10.000) to end product (1:50.000)
1 1/2 years (from start to print)
10-15 employees involved

Cartographic production time:
average 36 hours pr. map sheet

Generalization process:
9 months for all of DK

2014 (Maps without hands 2.0)

Total DK production:
1 1/2 years (but fewer resources)
5 employees involved

Cartographic production time:
4 1/2 hours pr. map sheet

Can potentially be improved

Danish Geodata Agency
Why map production alert?

Support for the Defense and Emergency Management

Effectively and quickly produce maps

TLM 1:50.000 all over the Earth

Max 1 hour per map

Map production fully automated
Total: 4 hours, 26 minutes, 12 seconds
Per map: 1 hours, 6 minutes, 33 seconds
MAP PRODUCTION ENVIRONMENT – PROJECT PLAN

- **2013**
  - KPM datamodel test
  - KP datamodel completed
  - First load of test data, DK and global

- **2014**
  - M718-setup, beta

- **2015**
  - Concept for symbol database, new font
  - Concept for +/- update developed
  - New font and concept for symbol database established
  - M718 produced and delivered
  - DK S.10 in KPM
  - DK S.50 in KPM
  - DK Scale 500 in KPM
  - DK S.250 in KPM
  - DK S.500 in KPM
  - DK S.1Mio in KPM
  - Setup for other products implemented
  - TLM setup implemented
  - Check-out, check-in tested and implemented
  - TLM setup developed
  - Backup/restore tested
Transfer all map production to MPE

GEODATASTYRELSEN
Conclusion:

Rule based automatic map production enables:

- a standardized production platform for products and services nationally as well as internationally
- products updated centrally and continuously (in MPEdb), thus always synchronised with updates in base data
- we avoid dependency on key persons
- minimal need for "handwork", when product-workflow developed
- each product can be produced faster and more often
Make a difference.

Produce maps faster and more effectively.
Questions?
Thank you

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