Ordnance Survey®

www.ordnancesurvey.co.uk

Bringing the 1:250,000 Map into the 21st Century

John Dancy

Small Scale Cartography Production Manager

Overview

- What is Ordnance Survey (1 slide!)
- A Short History of the 1:250 000 map
- The Production System as it is/was
- The Production System as it will be
- Anecdotes

- Followed by questions?

Ordnance Survey - Overview

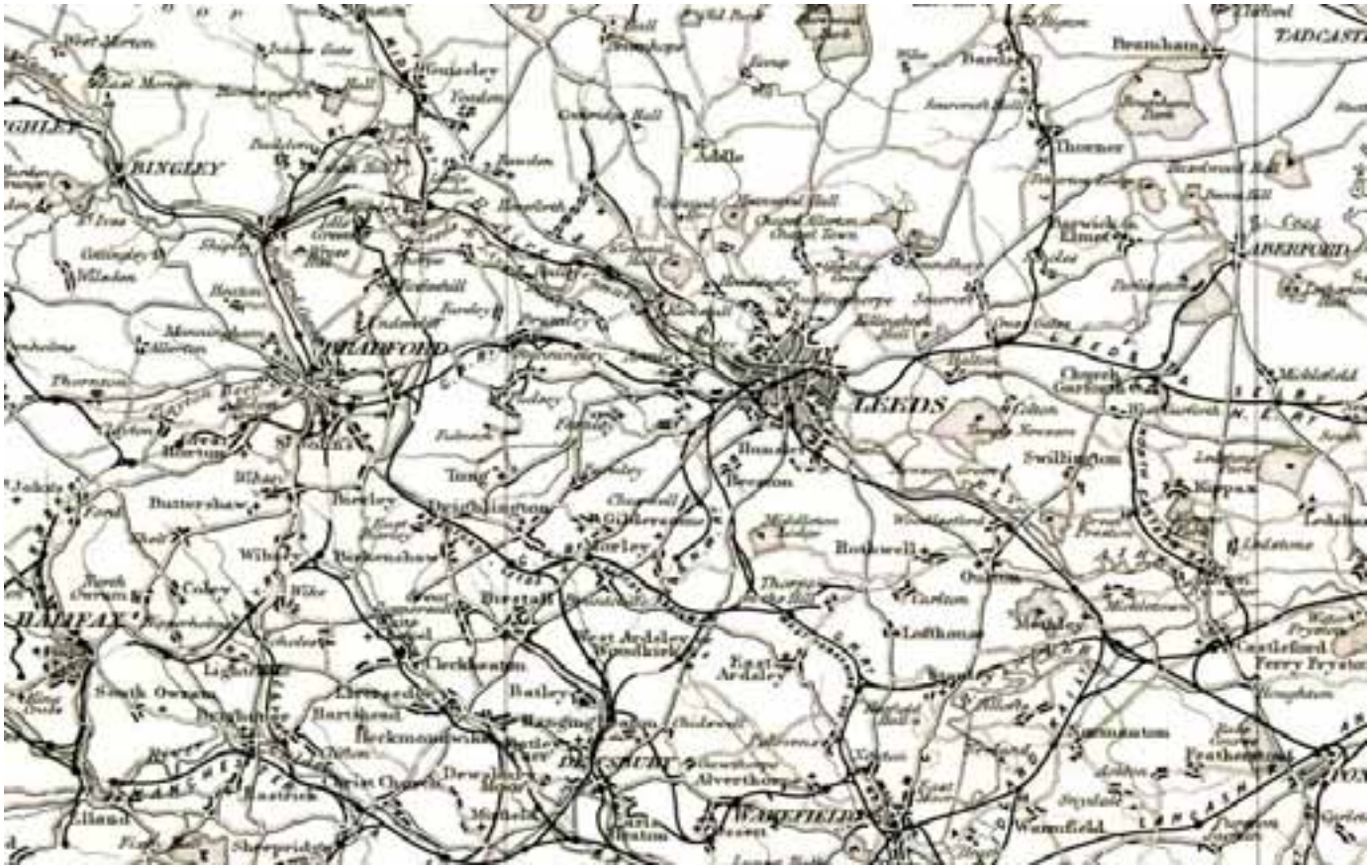
- United Kingdom's National Mapping Agency
- Founded 1791, we are an Executive Agency within a Government Department
- Annual operating turnover of $235 million
- 1450 staff
- Based in Southampton – Field offices around the country

for more please see me later!

A Short History of the

1:250 000 Map

First Series - 1891

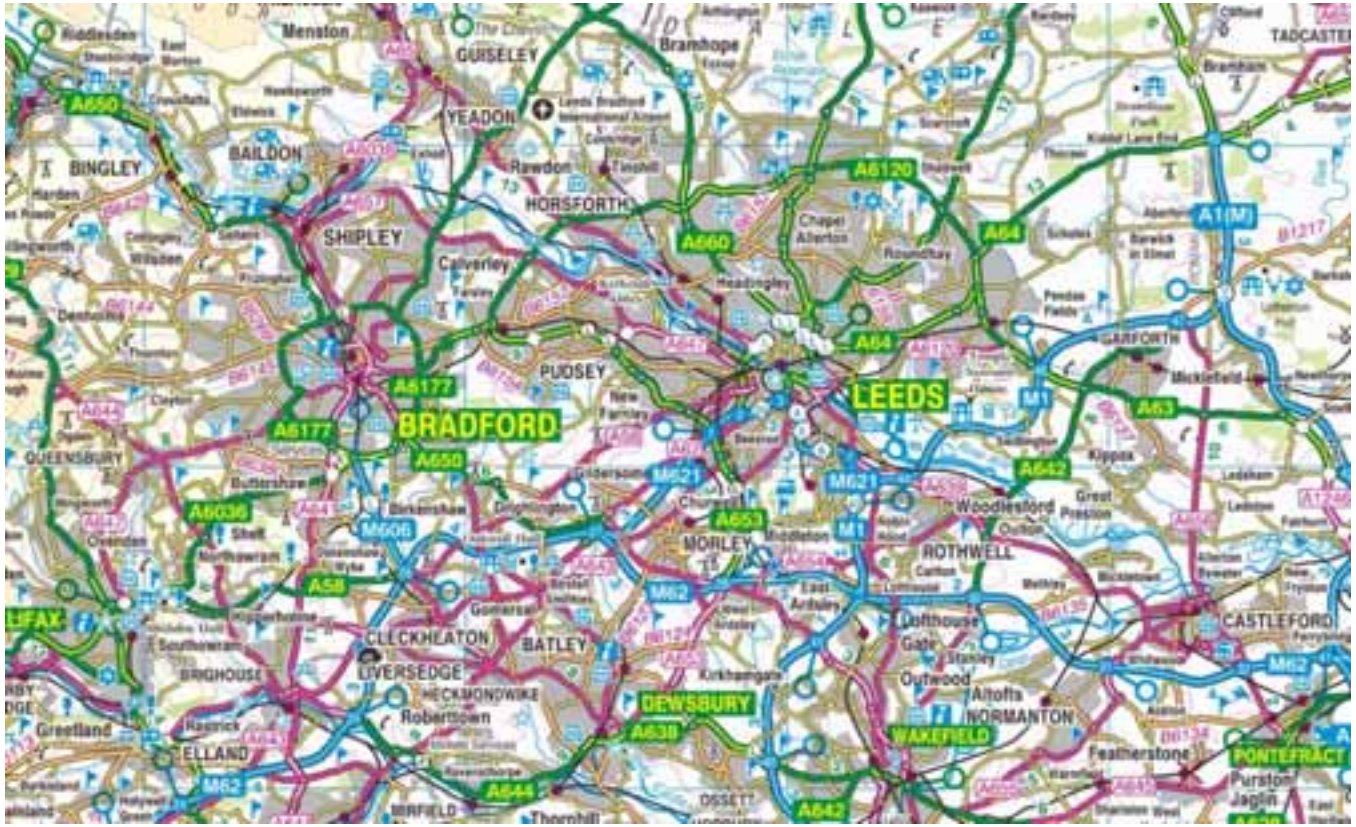


- Only available as black and white

Colour – 1903 and 1926

- Experiments with colour gave interesting results

Current Paper/Raster Edition



- Less garish but somewhat busy

The Production System as it is

1:250k Core Data

Road Map Series

Data for Readers Digest

1:250k Core Data

Road Map Series

Data for Readers Digest

1:250k CAA Database

ICAO Aeronautical Charts

1:250k Core Data

Road Map Series

Data for Readers Digest

1:250k CAA Database

ICAO Aeronautical Charts

1:250k Core Data

Road Map Series

Data for Readers Digest

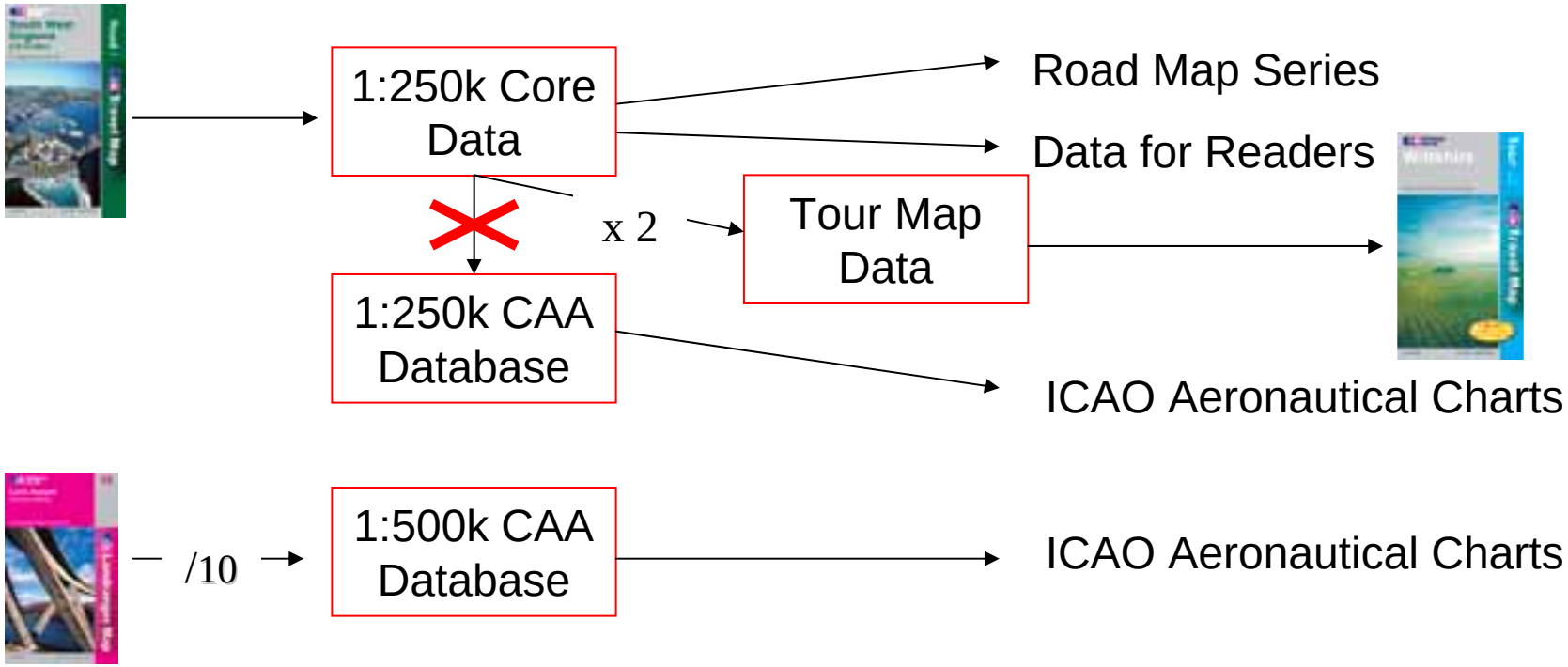
1:250k CAA Database

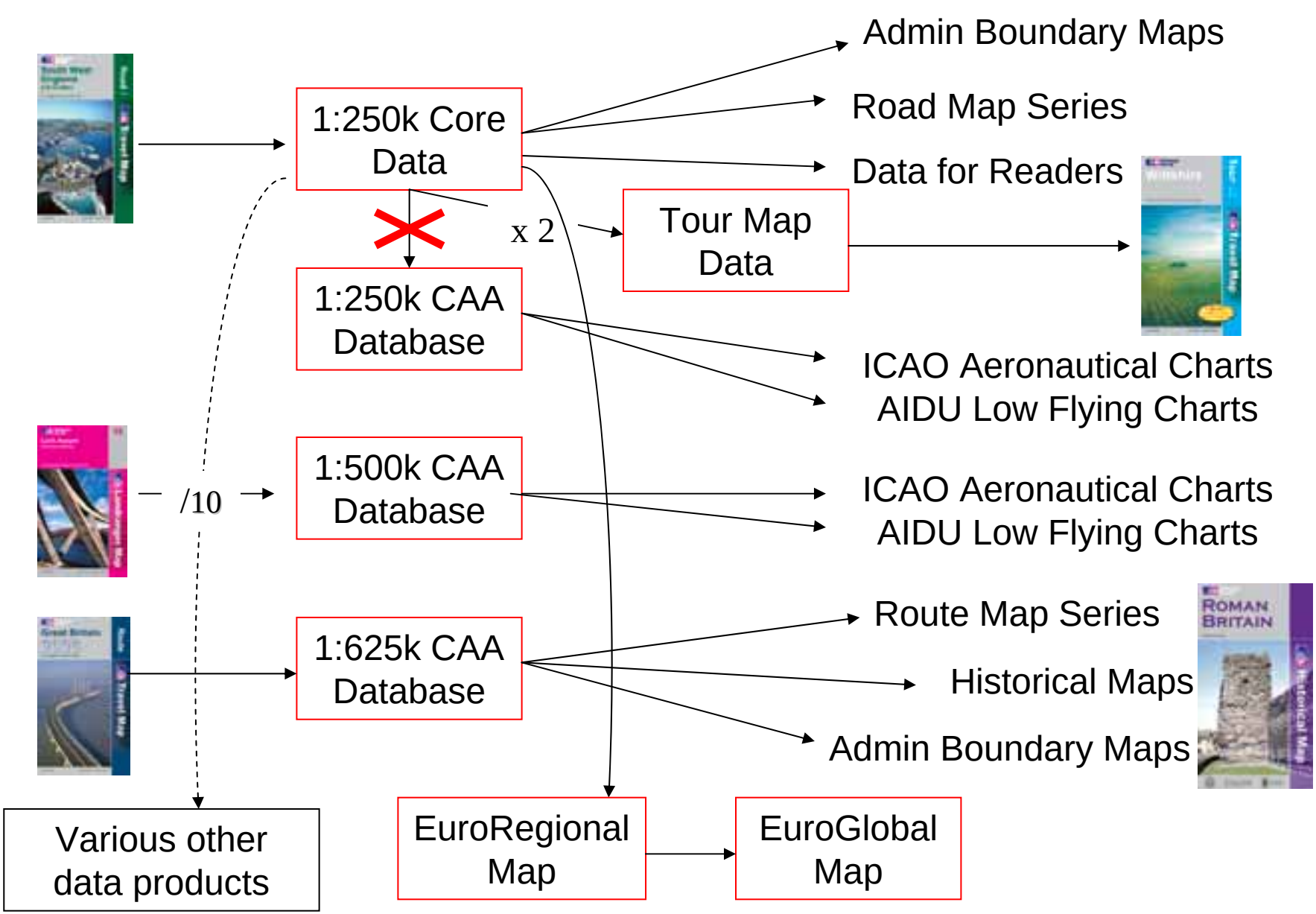
ICAO Aeronautical Charts

/10

1:500k CAA Database

ICAO Aeronautical Charts





Also

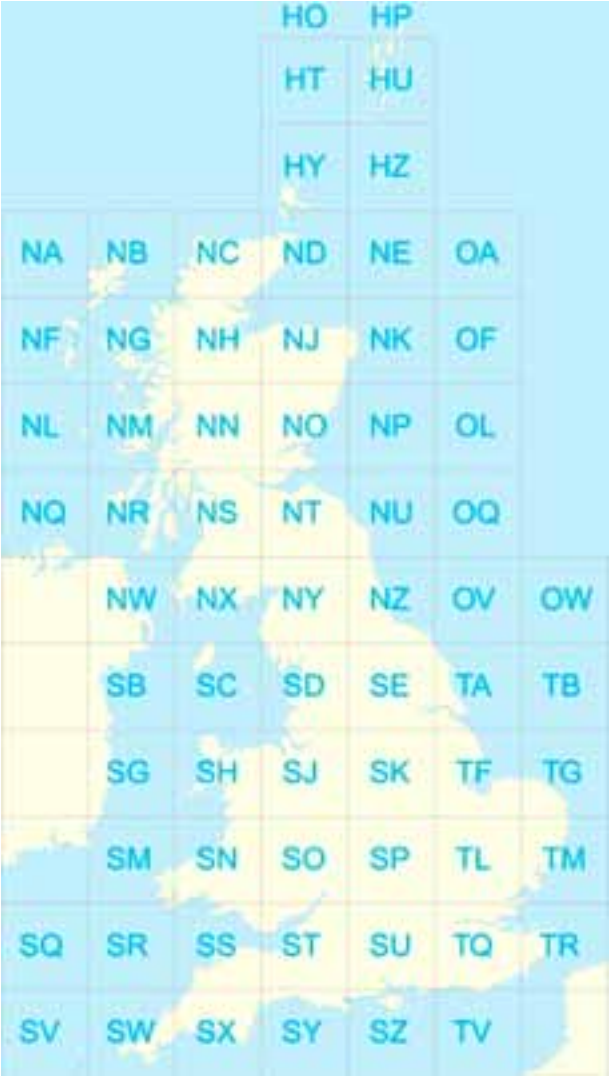
Old Equipment

Not exactly WYSIWYG

~~Software Support~~ – finished April 2006

Hardware Support – if we can we will

(but it might not work)

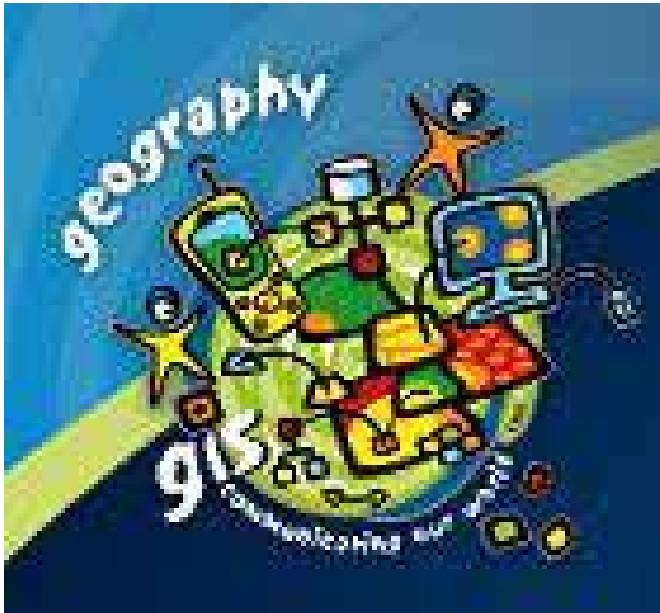


Data for each database is held in up to 55 tiles

And

It is Spaghetti data

The Production System as it will be



ArcGIS 9.2 to the Rescue

- Especially:

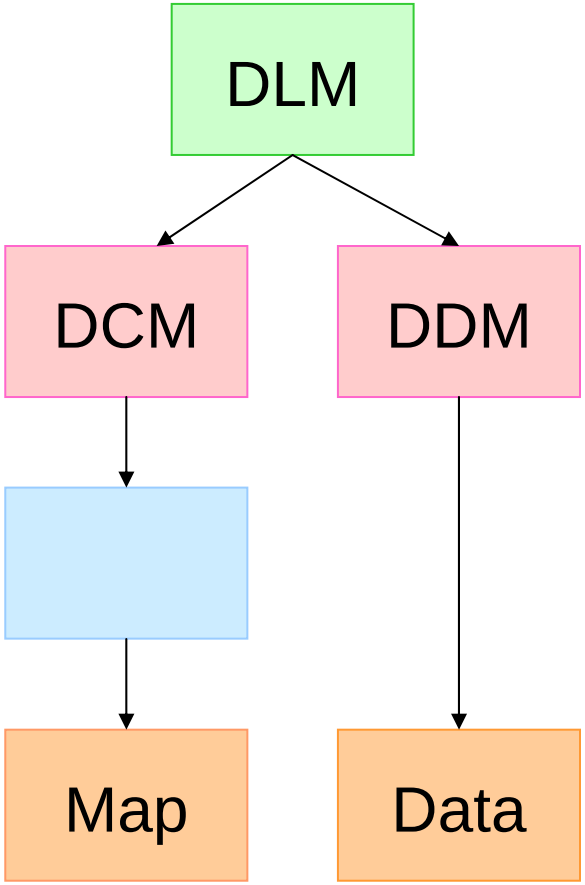
ArcGIS Interoperability Extension
ArcGIS SDE and
ArcGIS PLTS

Digital Landscape Model

Digital Carto/Data Model
One per product

Representation Layer

Product



Final Data Model (?)

Translation of 1:250k data

- 1. Analyse the existing feature classification.

Translation of 1:250k data

- 1. Analyse existing feature classification

251 relevant feature codes comprising:

45 contours

86 line codes

78 point codes

11 polygon codes

31 text features

2. Identify the database structure.

2. Identify the database structure

Using the Digest and EuroRegionalMap specifications for

7 themes and 52 feature classes

Establish themes and feature classes required.

Allocate lines, points and polygons to feature classes.

3. Translate existing data into these feature classes.

2. Identify the database structure

Using the Digest and EuroRegionalMap specifications for

7 themes and 52 feature classes

Establish themes and feature classes required.

Allocate lines, points and polygons to feature classes.

3. Translate existing data into these feature classes.

3. Translate existing data into these feature classes.

Lines transfer as lines or polygons

Polygons transfer as lines or polygons

3. Translate existing data into these feature classes.

Lines transfer as lines or polygons

e.g. Road centre lines can go round in a loop

Polygons transfer as lines or polygons

e.g. Polygons might not be closed, and there are 55 tile edges to break

3. Translate existing data into these feature classes.

Lines transfer as lines or polygons

e.g. Road centre lines can go round in a loop

Polygons transfer as lines or polygons

e.g. Polygons might not be closed, and there are 55 tile edges to break

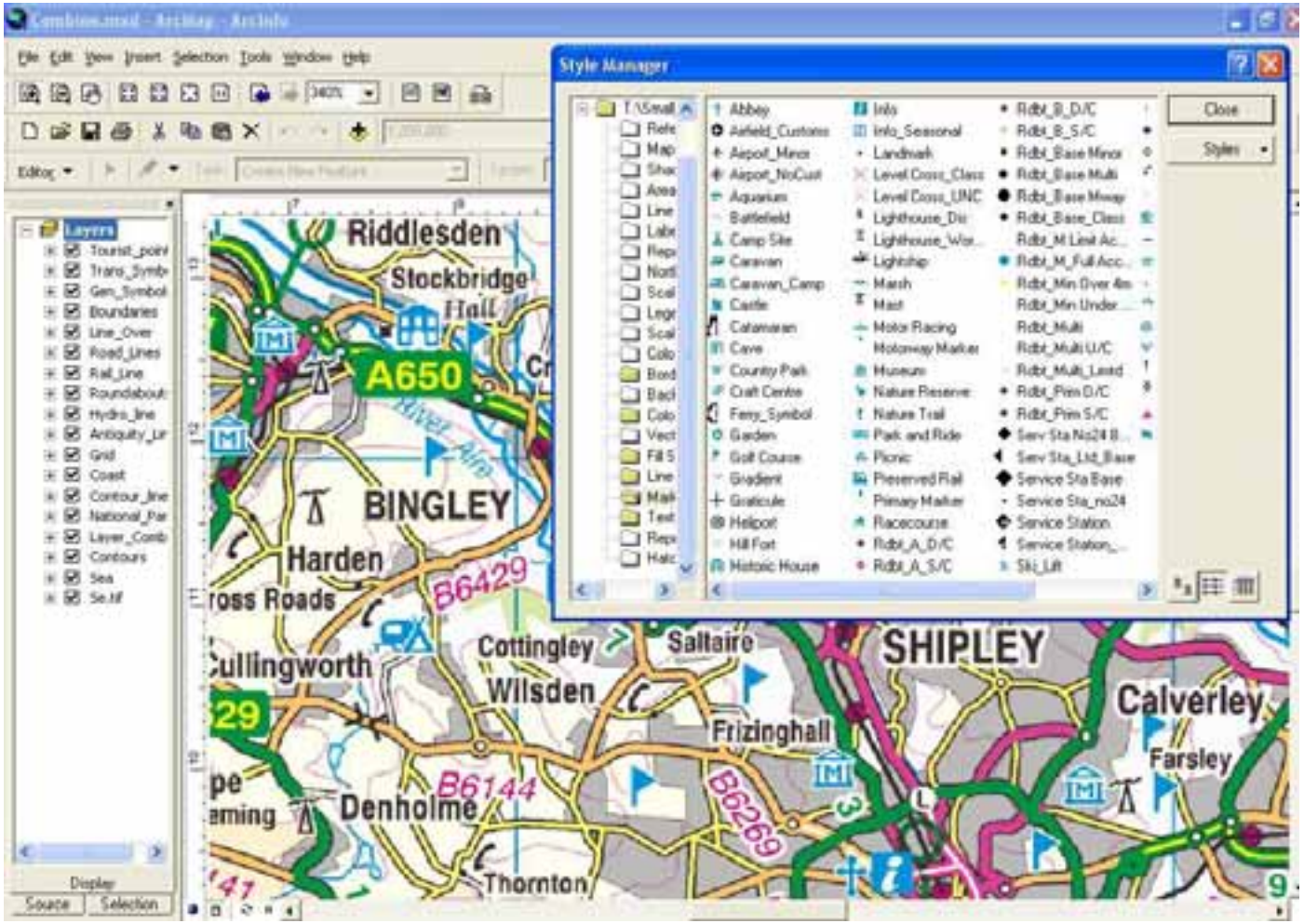
The Interoperability Extension makes it easier

4. Merge detail across tile edges.

One contour, 962,000 metres long,
had a 14 metre gap at the end.

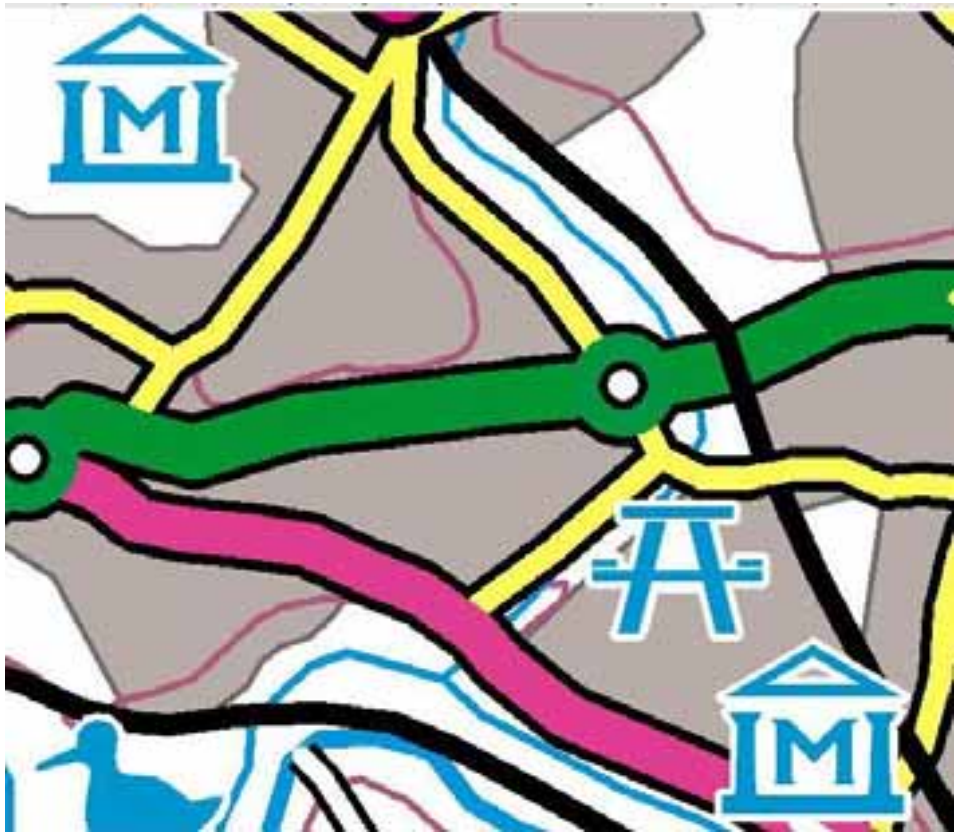
The Interoperability Extension makes it easier

4. Create a style sheet.



Layering Questions

- What features in a layer?
- Give each layer a meaningful name
- What order do they appear?
- How do we keep them to the minimum?



Road Junctions

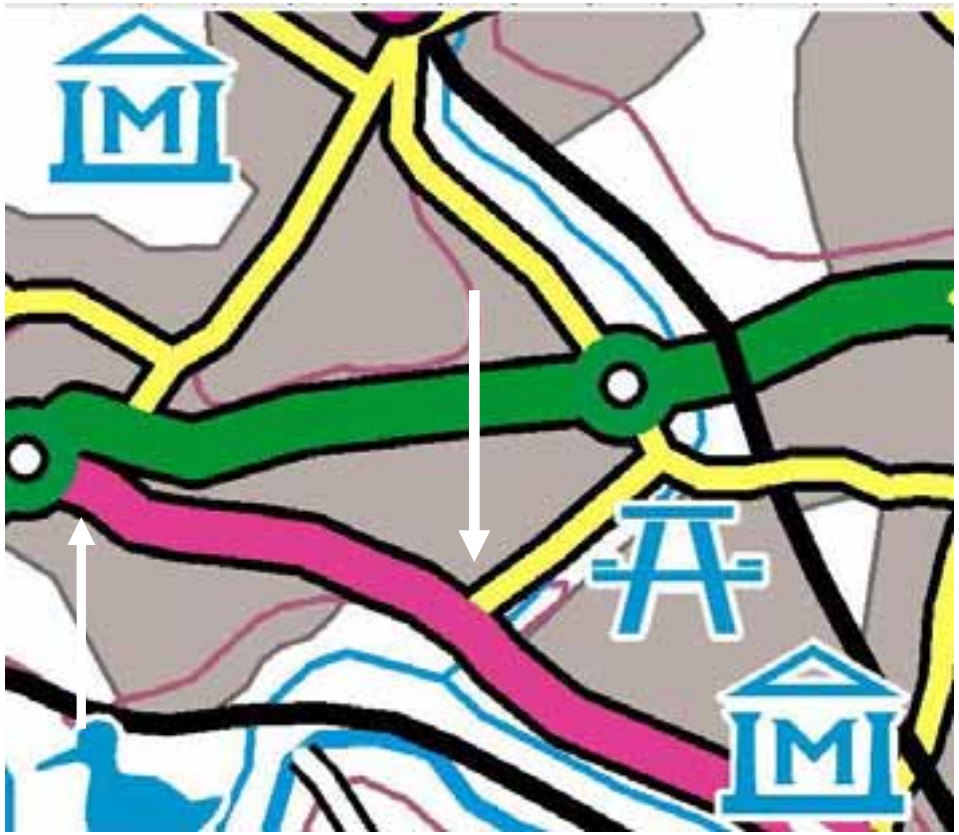
Overs and Unders

Symbol Holdout

Roundabouts

And many more!!

Interaction of lines and symbols



Road Junctions

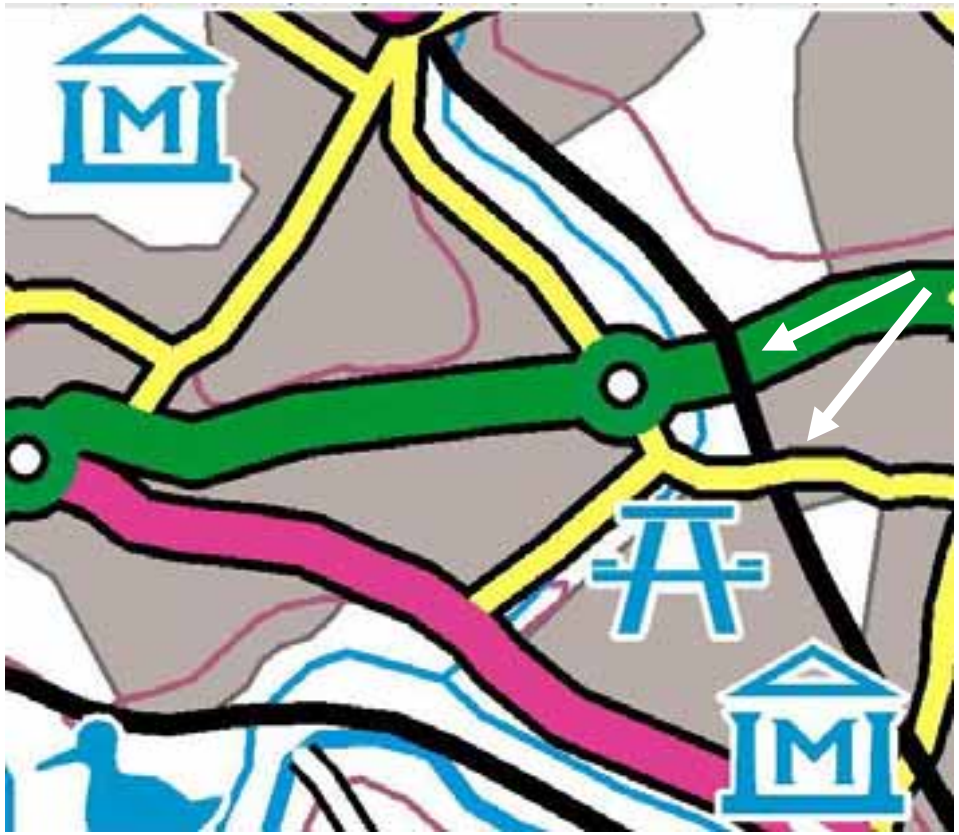
Overs and Unders

Symbol Holdout

Roundabouts

And many more!!

Interaction of lines and symbols



Road Junctions

Overs and Unders

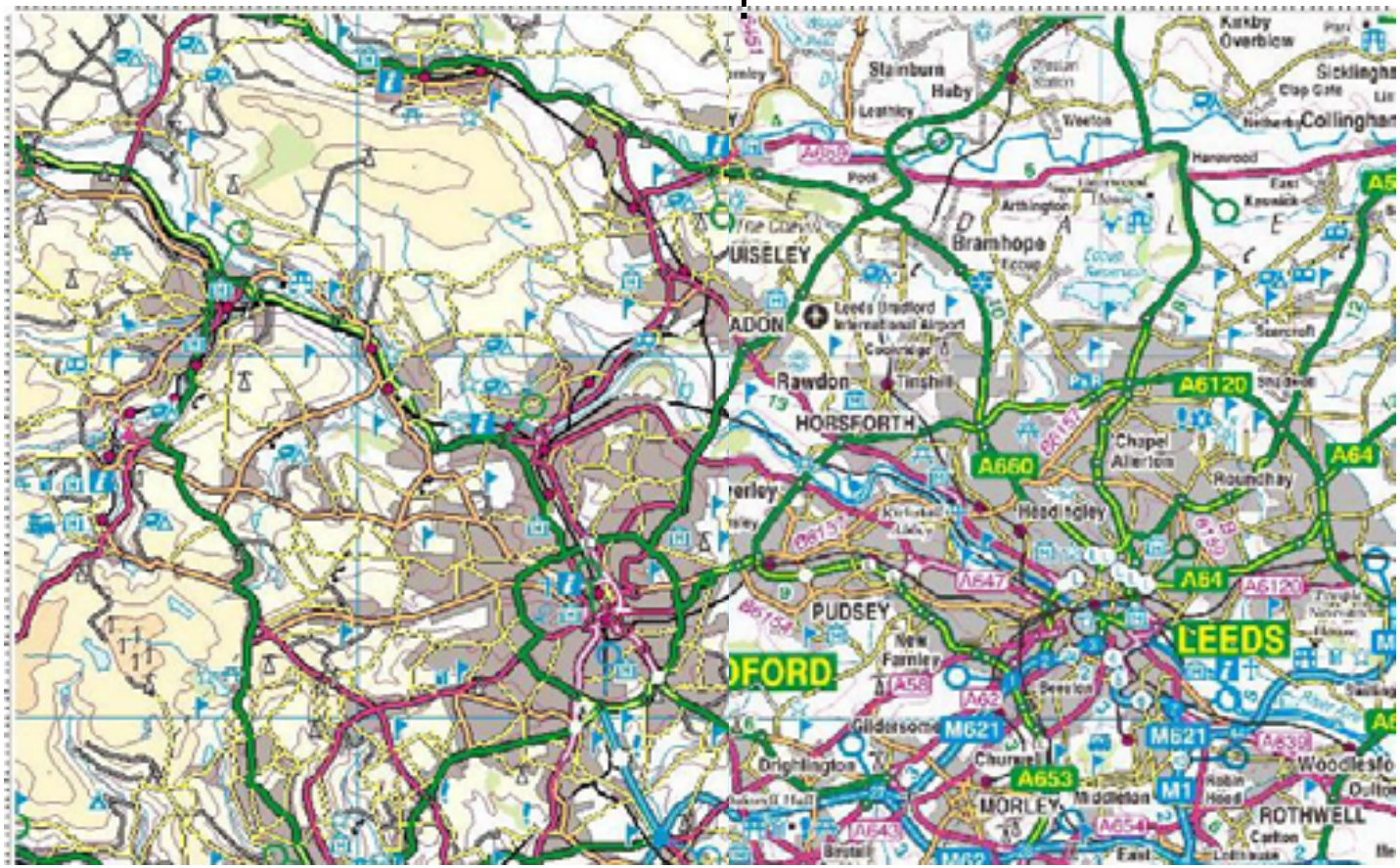
Symbol Holdout

Roundabouts

And many more!!

Interaction of lines and symbols

Everything OK – apart from no text !



ArcGIS Raster

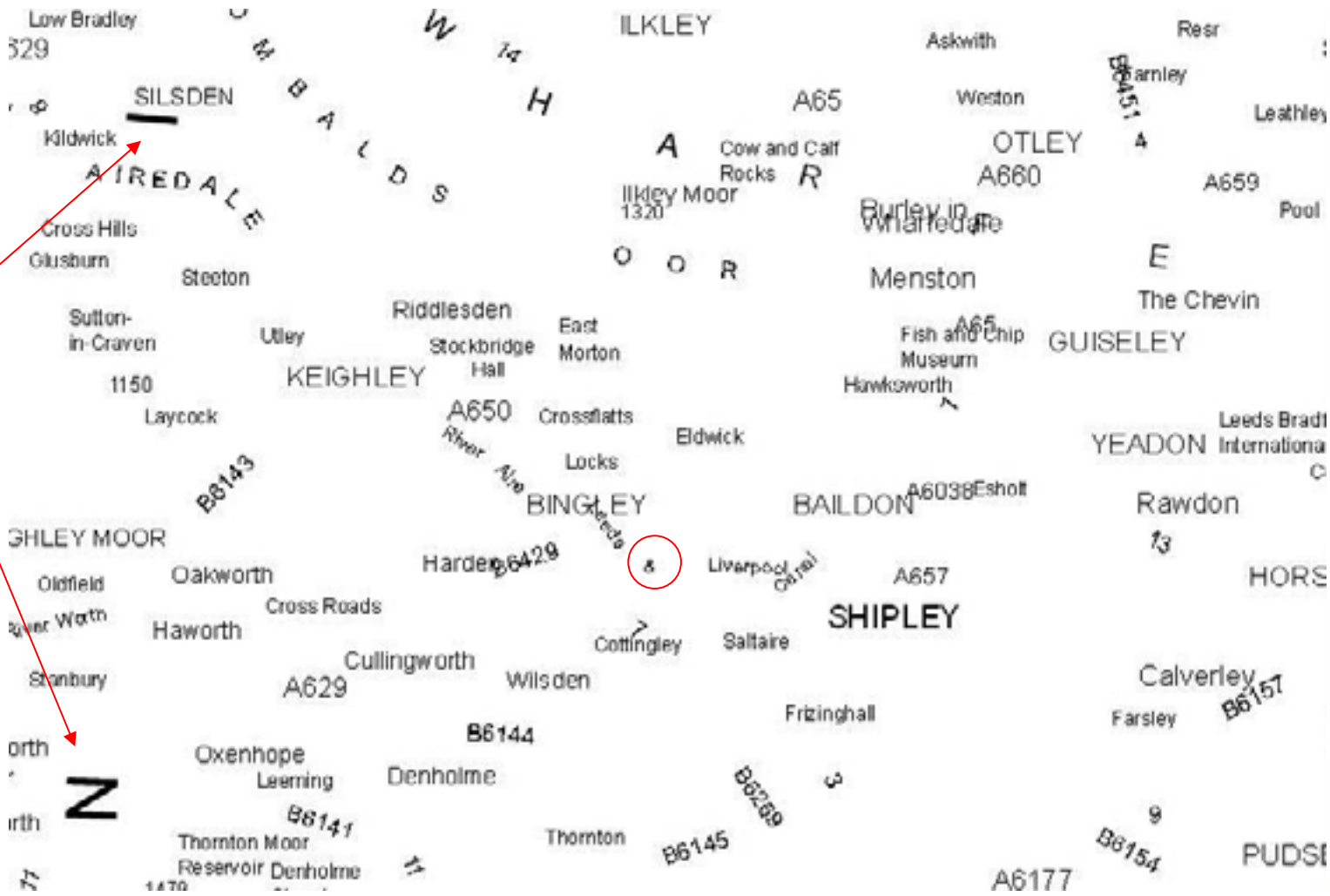
1:250 000 text

- No graphic text obtained from feature attribution
- 80,293 individual text objects
- Text boxes in which the text sits
- Varies from single letters, numbers and punctuation to multiple words

with v9.1 of the Interoperability Extension

- Transfer Scale of 1:1
- All text positions translated as bottom centre

PENNINES



V 9.1

Interop Extension v9.2

- Confirmed by developers that translation is far better than v9.1
- Did not arrive until March 2007, too late for this paper
- Suspect it will not cure all our problems

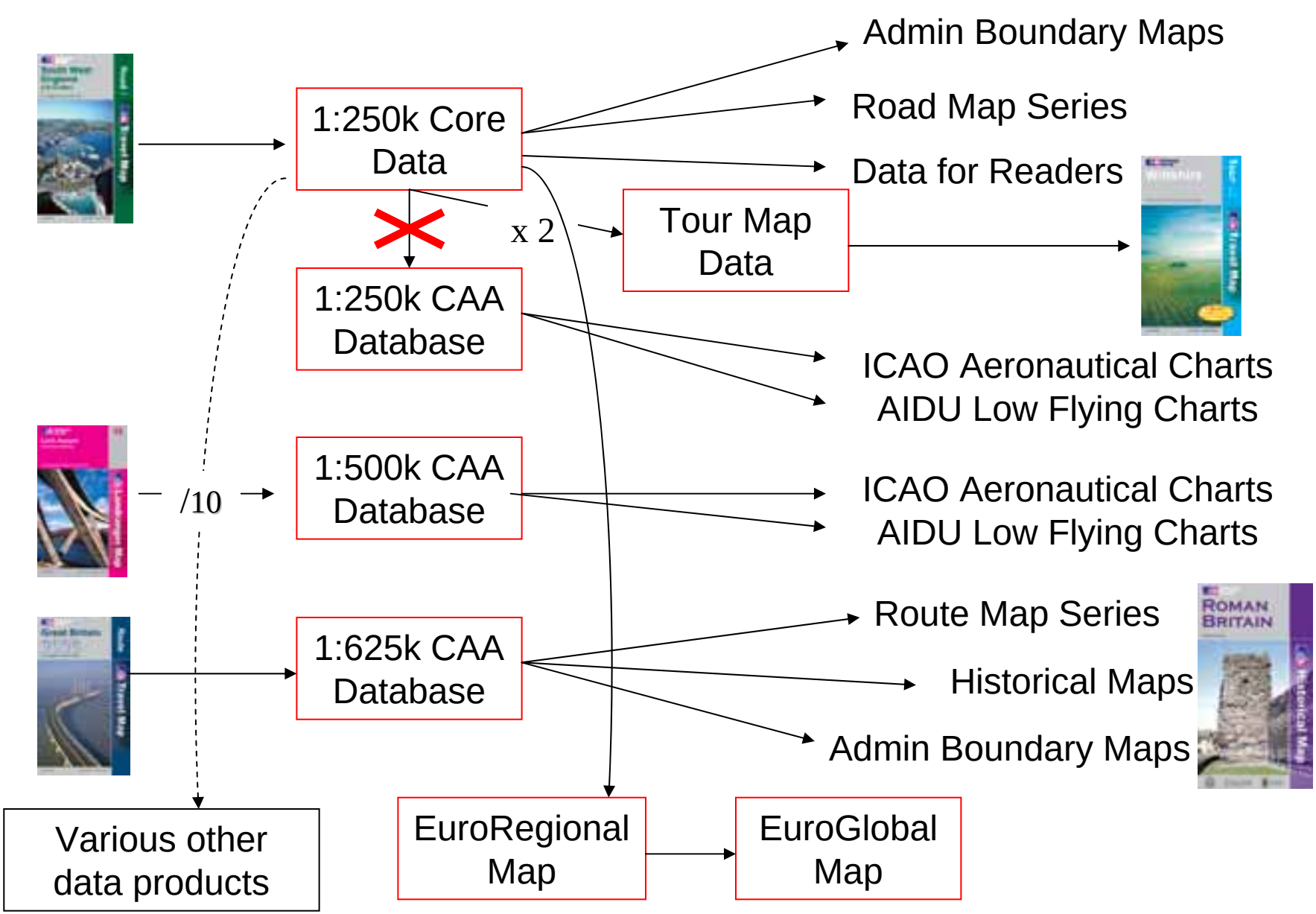
- But translation must be better.

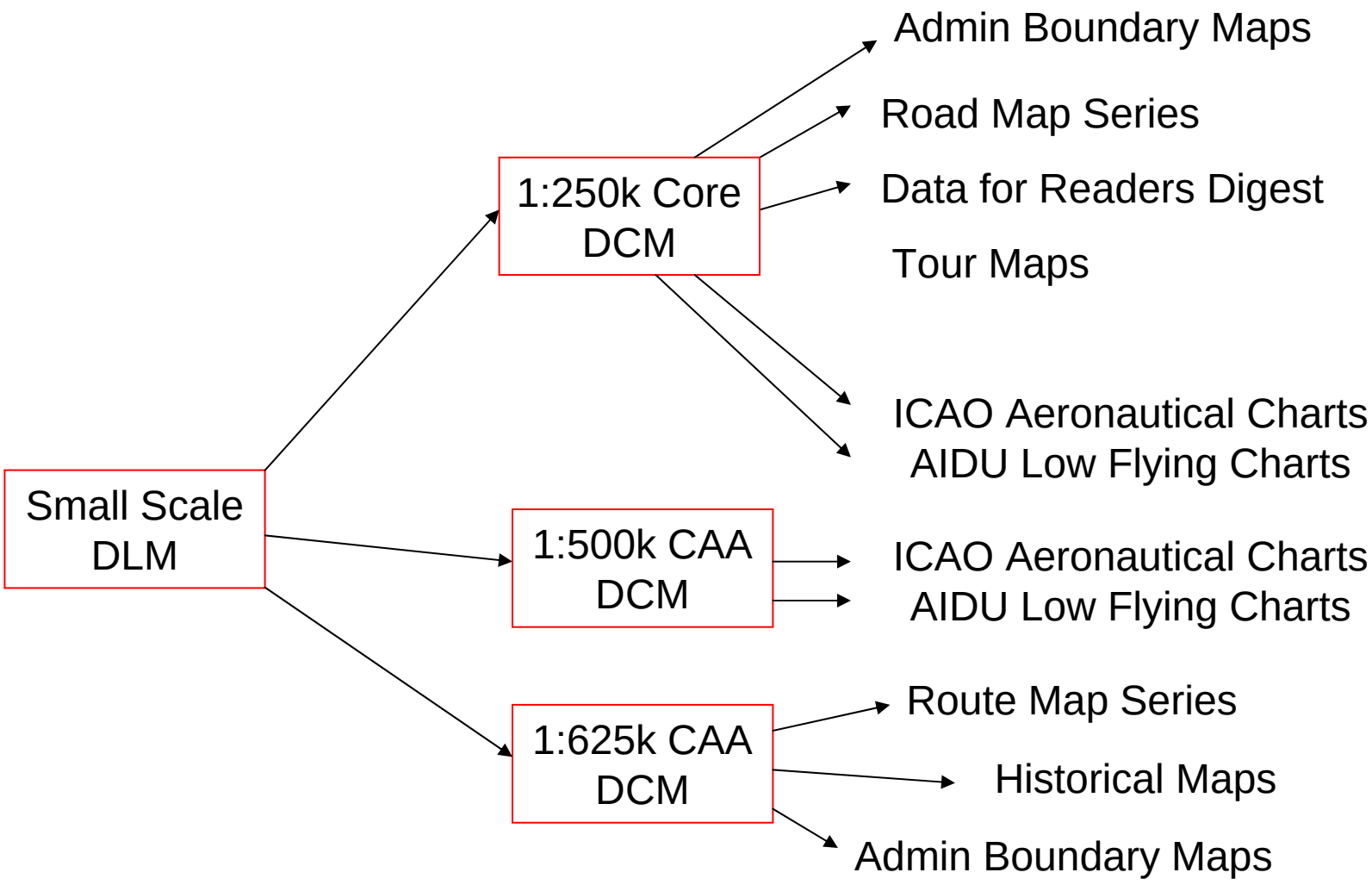
What Next ?

- Translate all seven databases to ArcGIS

What Next ?

- Translate all seven databases to ArcGIS
- Identify common features and migrate to single source of supply from core DLM





REPRESENTATIONS

What Next ?

- Translate all seven databases to ArcGIS
- Identify common features and migrate to single source of supply from core DLM
- Result is a single source, single update, and consistency between products.

What Next ?

- Translate all seven databases to ArcGIS
- Identify common features and migrate to single source of supply from core DLM
- Result is a single source, single update, and consistency between products.
- Improve attribution, especially feature naming, so that text positioning becomes more automatic.

What Next ?

- Set up multi-user environment using Arc SDE
- Replace existing sheet styling processes and pre print processes using PLTS
- Identify new product possibilities.

Problems ?

Servicing existing data customers

Servicing existing data customers

How do you get data from ArcGIS to NTF ??

Servicing existing data customers

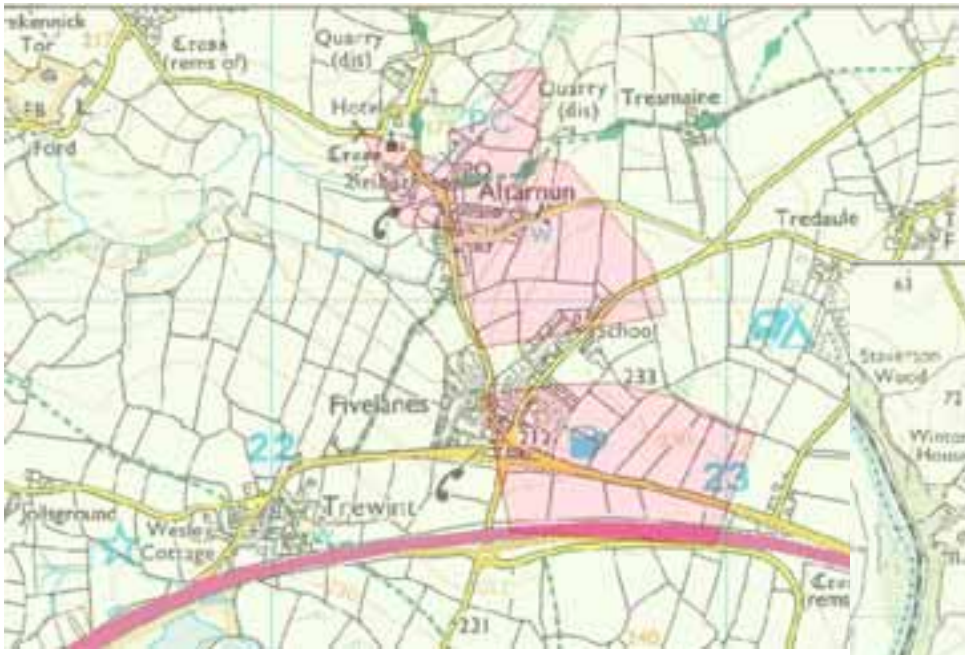
How do you get data from ArcGIS to NTF ??

If you know please see me afterwards !

Anecdotes

Improving Quality

Source data as backdrop



1:250k built up areas

In pink

Railways were shown running through the stations, contrary to specification

Old

Now

- All 102 Aqueducts had been shown as passing **under** the road or railway


Questions?