Quality control process for the updating of our roads and constructions (scale 1:10k)

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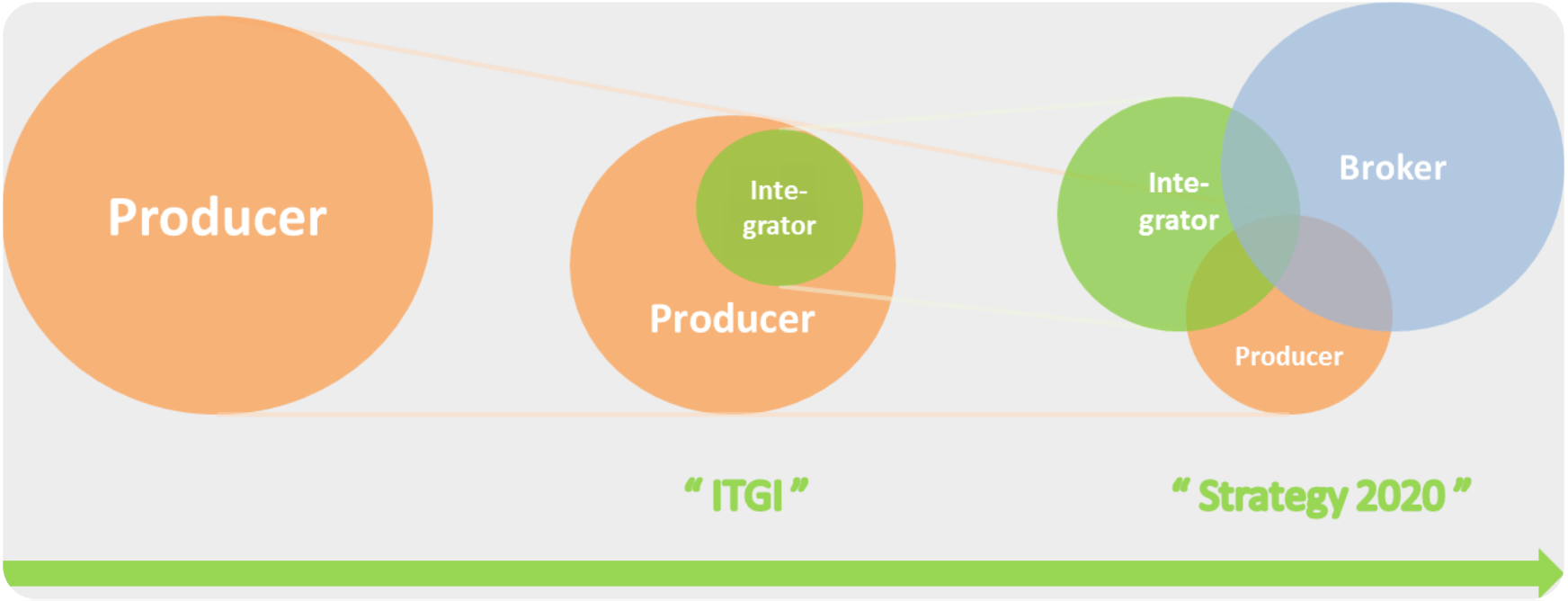
Content of this presentation

- Context information
- Production Process
- Quality Control Process for the updating of our roads and constructions

Changing Strategy

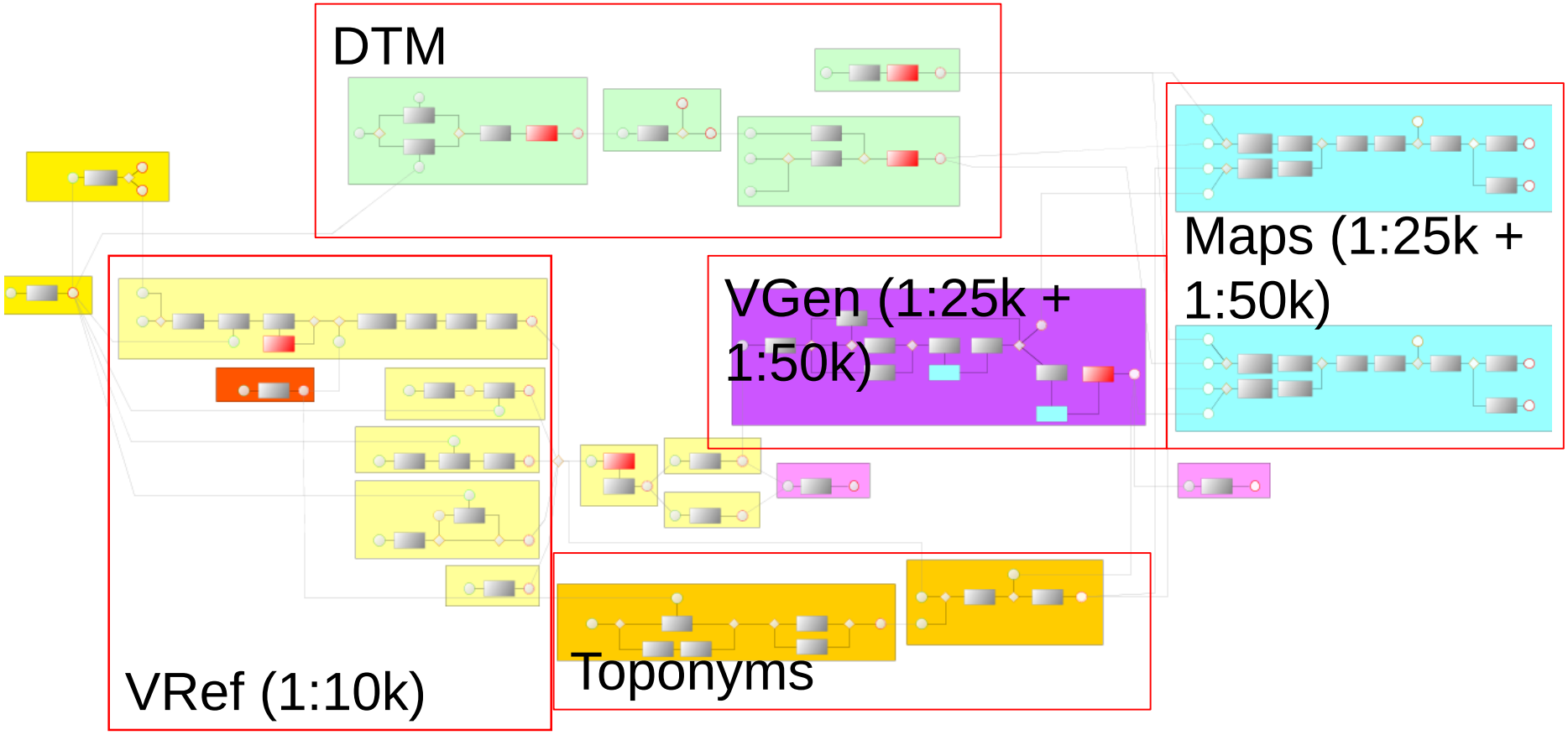
- World of mapping has changed
- Less time to update
- Less resources



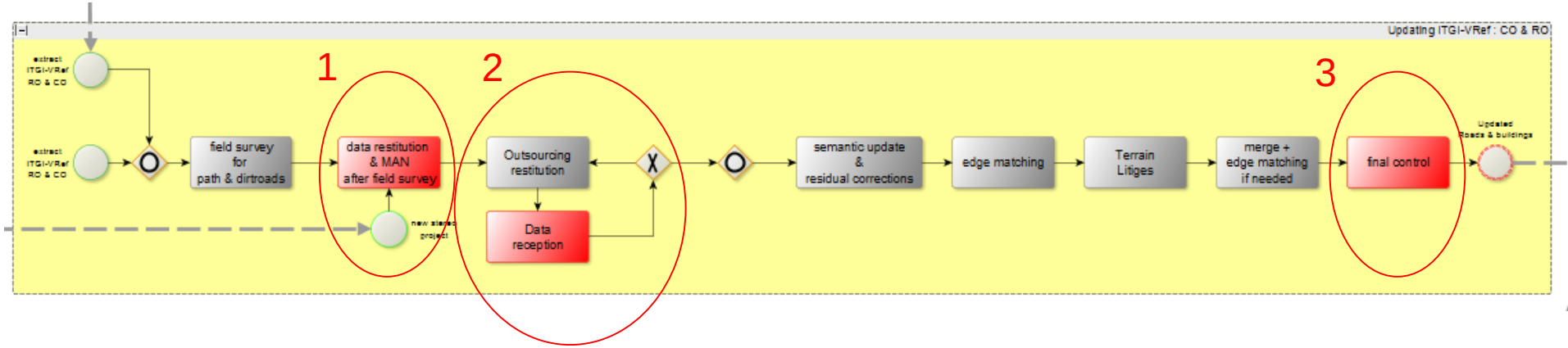
Transitional Production

- New datamodel (maintainable) by 2020
- Transitional production 2014-2019:
  - Update main data themes 1:10k (2 x 3years)
  - Create 1:25k (6 years)
  - Update 1:50k (6 years)
  - Update derived products 1:25k and 1:50k
  - Update of Cartoweb.be
    - www.ngi.be/topomapviewer/public?lang=nl
    - WMS & WMTS

Production Process of the Transitional Production



Updating Process of our Roads and Constructions



Quality Control 1 and 3

Production Process

- Internal updating (NGI)
- Updating in house and on the field

Control Process

- Automatic controls
  - Domain consistency (100%)
  - Combination of attribute values (100%)
  - Topological consistency (100%)
- Visual check up (orthophotos)

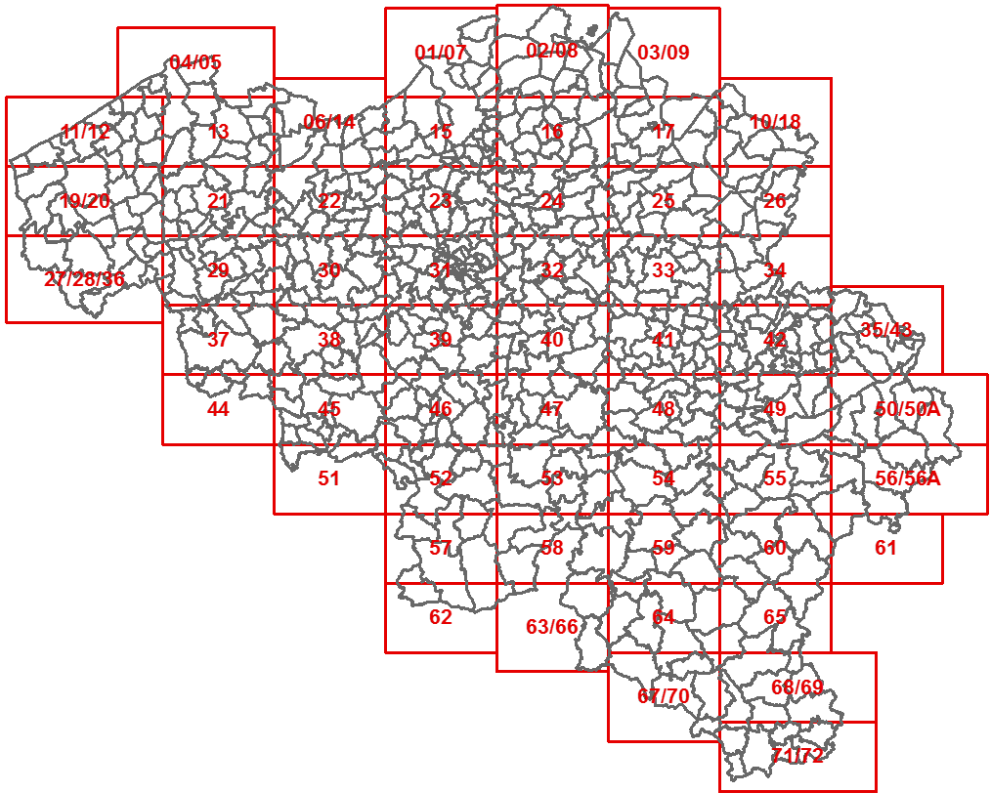
Correction Process

  - In house (orthophotos, aerial pictures)
  - In the field

Quality Control 2

Production Process

- External updating (contractor – India)
- Different themes
- Per sheet
- Aerial pictures (stereo)
- Orthophotos
- Deleted items



Themes for External Updating

- Roads
- Dirthroads
- Paths
- Cross roads (CRS)
- Kilometermarkers
- Obstructions
- Brunnels (Bridges & Tunnels)
- Buildings
- Other Constructions (Stadium, Open constructions, Silo, ea)
- Extra point and polygonal geometries

Quality Control 2

Control Process

- Schema / format (100%)
- Automatic Controls
  - Geometry
  - Topological consistency
  - Domain consistency
  - Thematic Accuracy of non measurable attributes
- Visual Controls
  - Completeness
  - Positional Accuracy
  - Compliancy to the updating rules
  - Thematic Accuracy of measurable attributes

Automatic Controls

Geometry (GeoMedia scripts)

Geometric rules	Norm
Simple geometry (simple point, simple linestring, simple polygon)	100%
Polygon does not close properly	
No curves	
Minimal length of the line elements > 1m Minimal surface of the polygonal elements > 1m^2	100%
No double vertices	100%
No neighbouring vertices within a distance < 15cm	100%
No spikes	100%
No loops	100%
No not-neighbouring vertices within a distance < 20 cm	

Topological Consistency (1Integrate)

Topological Rule	Norm
No_gap_in_road_network	100%
Short_road_links_roads	99.9%
Overlapping_CRS	100%
No_building_on_building	100%
No_ppc_on_ppc	100%
No_ppc_on_building	100%
No_CRS_on_building	100%
No_CRS_on_PPC	100%
Building_must_not_tot_surimpose_building	100%
Building_must_not_tot_surimpose_PPC	100%
PPC_must_not_tot_surimpose_PPC	100%
CRS_must_not_tot_surimpose_CRS	100%
Building_must_not_tot_surimpose_CRS	100%
PPC_must_not_tot_surimpose_CRS	100%
No_roadsegment_in_building	100%
No_dirtroad_in_building	100%
No_path_in_building	100%

Domain Consistency (SQL scripts)

Domain consistency	Norm
Percentage of objects with attribute values that corresponds with the domain values to the total amount of objects	100%

Thematic Accuracy of the Non Measurable Attributes (SQL, GeoMedia, FME)

Thematic Accuracy	Norm
Number of objects with an empty attribute value that should have been filled or with a filled atrribute value that should have been empty compared to the total amount of objects	0%
Number of unchanged objects with a revised attribute value compared to the total number of unchanged objects	0%
Number of added or changed objects of which the attribute are not correctly filled compared to the total amount of added and changed objects.	0%
Number of changed objects of which the inheritage of the attribute values is not correctly performed compared to the total amount of changed objects.	0%
Number of new objects of which the non measurable attribute values are not correctly filled compared to the total amount of new objects.	0%

Visual Controls

Completeness

- Method that is described in ISO 2859-1.
- Test zones per (sub-) theme
- Different AQLs per (sub-) theme

Theme	AQL
Roads (Large)	0,4
Roads (Small)	2,5
Brunnels	0,4
Constructions (>50m²)	0,4
Constructions (<50m²)	4
Extra polygonal geometries	2,5

Positional Accuracy

- ISO 3951-1:2013 standard
- Points are randomly chosen
- New and updated objects

- Point position X,Y < 0,70 m
- Point position Z < 1m

- Percentage of mistakes < AQL
- AQL = 2,5

Compliancy to the updating rules

- ISO 2859-1 standard
- Testzones per theme
- AQL = 1

- Example: Updating of the geometry of the roads should be done if the difference in X,Y between data and aerial imagery is > 2m.

Thematic Accuracy of Measurable Attributes

- ISO 2859-1 standard
- Randomly chosen
- AQL = 1

- Example of measurable attributes: Roadwith, Building Use

Quality Control 2

Correction Process

- Data will be send back to the external contractor
  - Completely
  - Partially (few themes)
- Quality controle 2 will be rerun with the updated data

Updating Process of our Roads and Constructions

Questions?