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RECENT DEVELOPMENTS AT IGN FRANCE

ICA/EUROSDR NMA WOKSHOP: DESIGNING MRDB AND MULTI-SCALE DCMS

3-4 december 2015, Amsterdam

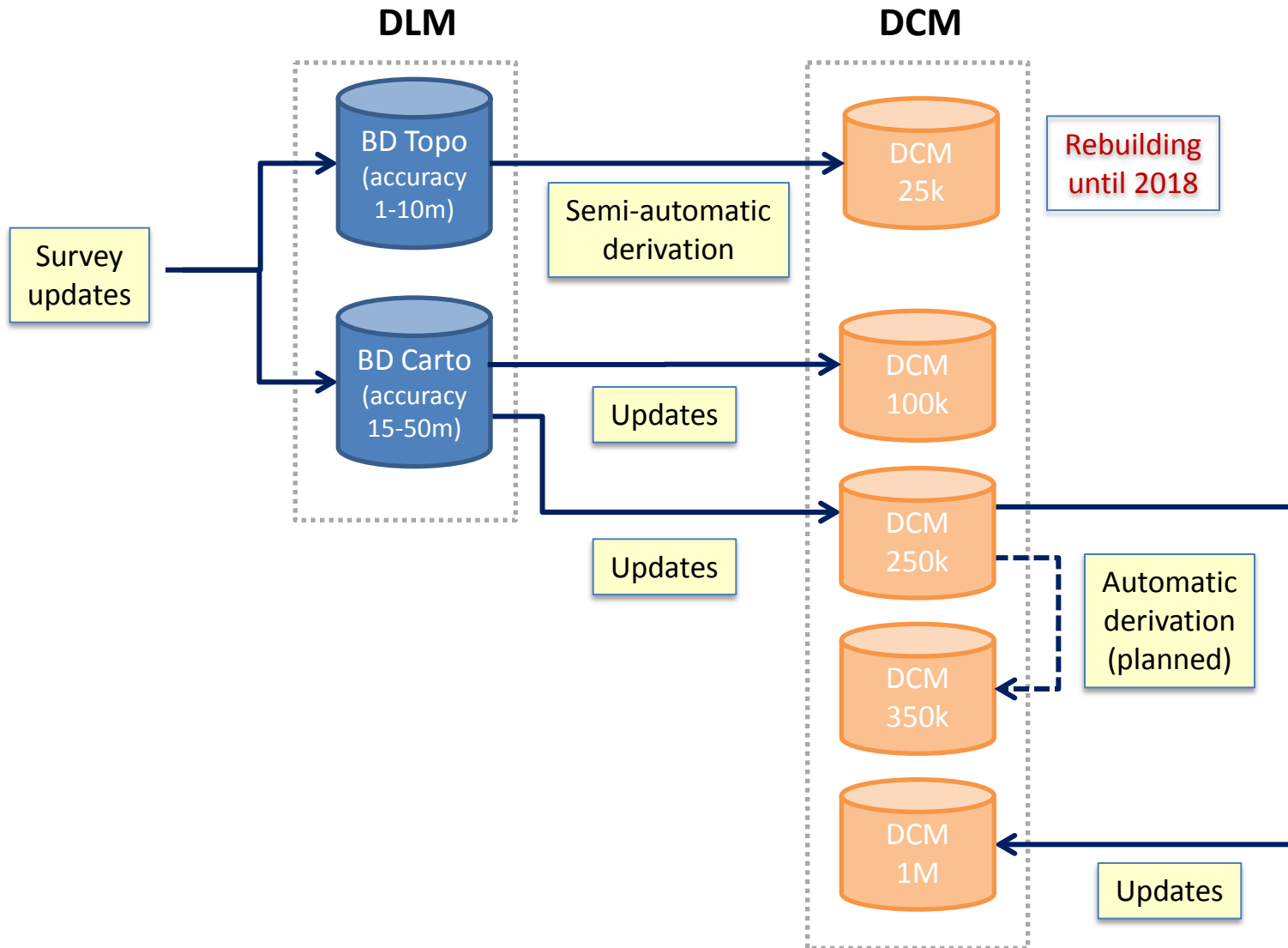**Pierre-Yves CURTINOT**
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01. DERIVATION SCHEMA AT IGN FRANCE

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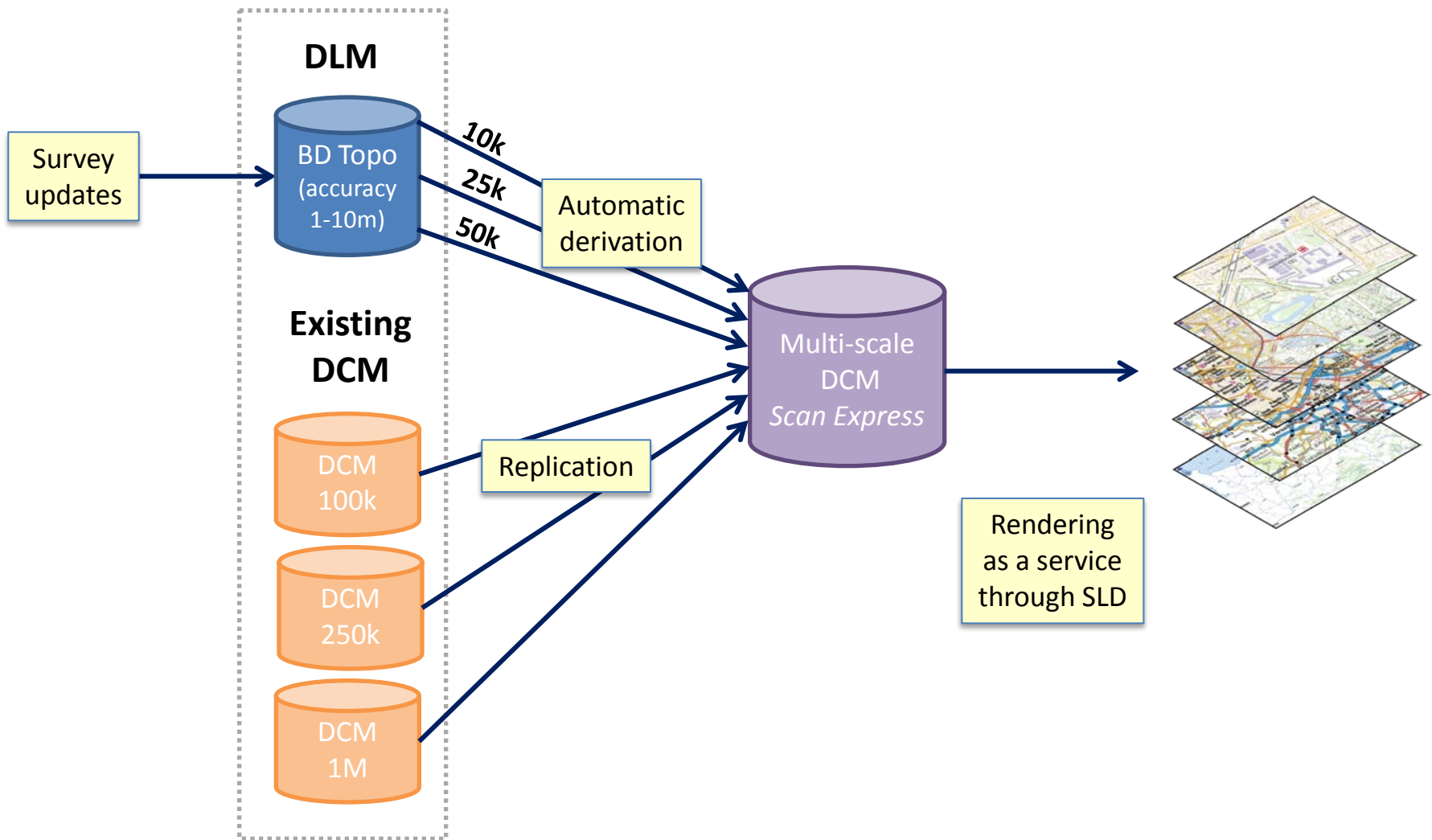# 01. DERIVATION SCHEMA

- **DIFFERENT FAMILIES OF PRODUCTS**

  - Reference national maps managed as multiple cartographic databases
    - Scales: 1:25k, 1:100k, 1:250k, 1:350k, 1:1000k
    - One DCM per scale
    - Some consistency accross DCMs, but no explicit relationships between data
    - Use: paper maps, digital maps for general or professional use (eg. visualization on a portail)

  - Multi-scale database *SCAN Express*
    - Scales: 1:10k, 1:25k, 1:50k, 1:100k, 1:250k, 1:1000k
    - Unique DCM aggregating different levels of resolution
    - Shorter updating cycles at larger scales (6 months)
    - Use: digital maps for professional use

  - Other map series derived from reference DCMs
    - Thematic maps, such as aeronautical charts
    - Tourist or event maps, city plans, etc.

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01. DERIVATION SCHEMA: REFERENCE MAPS

DLM

DCM

BD Topo
(accuracy
1-10m)

BD Carto
(accuracy
15-50m)

Survey
updates

Semi-automatic
derivation

DCM
25k

DCM
100k

DCM
250k

DCM
350k

DCM
1M

Rebuilding
until 2018

Updates

Updates

Automatic
derivation
(planned)

Updates

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01. DERIVATION SCHEMA: SCAN EXPRESS

DLM

Survey updates

BD Topo (accuracy 1-10m)

10k
25k
50k

Automatic derivation

Existing DCM

DCM 100k

DCM 250k

DCM 1M

Replication

Multi-scale DCM *Scan Express*

Rendering as a service through SLD

02. SPEEDING UP 1:25K MAP PRODUCTION

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02. SPEEDING UP 1:25K MAP PRODUCTION

- **CONTEXT**

  - The nominal production of the reference map at 1:25k scale was initially planned over 10 years

  - But this agenda didn't meet user requirements:
    - Need for up-to-date cartographic data
    - Need for a complete coverage over the whole country

  - How to speed up map production with a constant human potential and a quite preserved quality?

  - Identified solutions:
    - Increasing the level of automatism
    - Taking advantage of the old digital cartography, when available

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02. SPEEDING UP 1:25K MAP PRODUCTION

- **IMPLEMENTATION OF 2 ALTERNATIVE PRODUCTION PROCESSES**

  - Utilisation of the expedited cartography from SCAN Express
    - Extraction of up-to-date vector data in rural non-tourism areas
    - Completing with missing data: tourist information, secondary geographical names, more accurate contour lines, separators of divided roads, etc.
    - Interactive improvement: label placement, complex symbols, etc.
    - Production time has decreased by a factor of 4

  - Partial reuse of vector data from the previous reference edition (experimental)
    - Same process as above for 'simple' themes (hydrography, buildings, vegetation areas…) + extraction of old stored data for more complex themes (roads, altimetry, administrative borders, tourist information…)
    - Automatic reclassification and resymbolisation to the current specifications
    - Manual updating
    - Production time has decreased by half

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03. FUTURE OF THE 1:25K MAPS

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02. FUTURE OF THE 1:25K MAPS

- **CONTEXT**

  - The rebuilding phase of the reference coverage at 1:25k scale will end in the middle of 2018

  - Necessity to foresee a new production process right now for a smooth transition to the updating phase

- **ADDITIONNAL REQUIREMENTS ON THE WAY OF PRODUCING MAPS**

  - Wish to use this occasion for reaching a convergence between the streamlined *SCAN Express* workflow and the reference map workflow at 25k scale.

  - Some mapping production softwares will have to be upgraded over the next few years.

  - Need for introducing more flexibility in automatic and interactive tools
    - By making cartographic treatments more generic
    - By limiting their dependency on data models and symbolisation
    - $\Rightarrow$ Improving the reusability of generalisation components to design new products
    - $\Rightarrow$ simplifying the maintenance of tools

  - Need for new functionalities for facilitating production management like:
    - organising and monitoring production
    - Notifying defects or inconsistencies in the source database to surveyors
    - Visualising the state of DCMs at any time
    - Taking metadata into account at the heart of processes

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02. FUTURE OF THE 1:25K MAPS

- **A REFLECTION AROUND THE UPDATING ISSUE HAS BEEN LAUNCHED**

- **TECHNICAL CHOICES TO MAKE**

  - Which updating method?
    - Complete derivation: still requires costly manual editing for ensuring the same cartographic quality
    - Automatic incremental updates: the IGN's experience in this domain at 1:100k scale is not encouraging (complexity of generalisation algorithms, difficulties to maintain unique identifier on objects, etc.)
    - => Intermediate approach which combines a complete automatic derivation for 'simple' themes and a manual integration of the only evolutions for 'complex' themes, previously automatically detected

  - Which cartographic system?

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02. FUTURE OF THE 1:25K MAPS

- **A REFLECTION AROUND THE UPDATING ISSUE HAS BEEN LAUNCHED**

- **TECHNICAL CHOICES TO MAKE**

    - Which updating method?

    - Which cartographic system?
        - Keeping the existing tools and sofware solutions while concentrating on the definition of a new updating process
        - Or looking for a more integrated and modern system to best suit technical requirements

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04. WEB MAPPING

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- **ONLINE SERVICES AS OPPORTUNITIES FOR EXPLOITING AND PROMOTING MULTI-SCALE DCM**

- **HIGH EFFORTS TO IMPROVE ON-DEMAND MAPPING SERVICES**

    - Refactoring of the system architecture (back office) and provision of a reusable API Java script

    - Product diversification: posters, historical maps, mixed-data maps (eg. orthoimages + cartographic details)

    - New design of the web site

    - Introduction of tools for capturing new symbolized data on the map (points, lines, polygons, text) and importing trail features (gpx)

    - Possibility of recording and sharing the parameters for customization while designing the map

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04. WEB MAPPING