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COLLABORATION BETWEEN FRENCH NMA AND NSI (FROM NMA POINT OF VIEW)



ISN/16.203

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COMMUNALITIES: WE ARE ALSO STATISTICIANS!

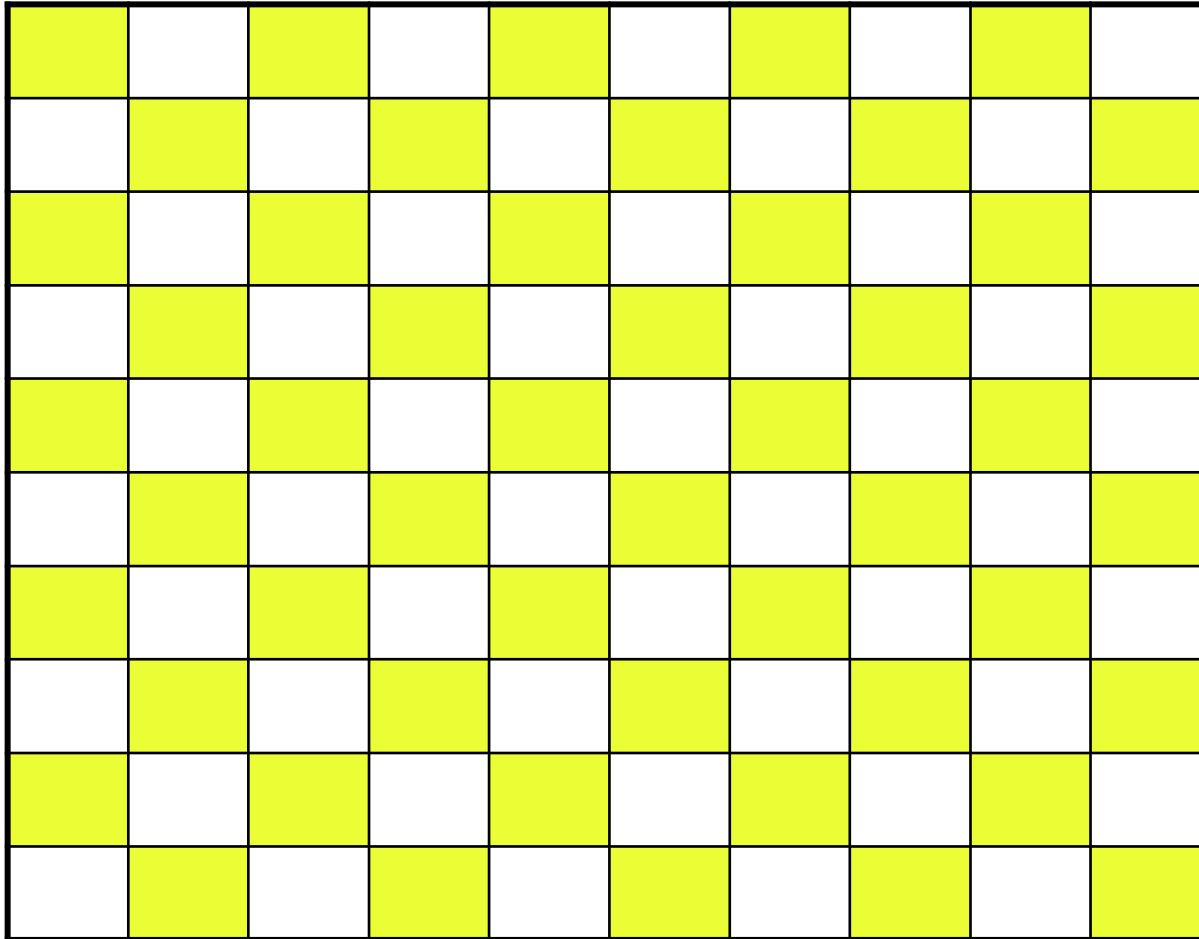


Statistics in IGN

- In 2012, IGN (National Geographic Institute) merged with IFN (National Forestry Inventory)
- We have become National Institute for Geographic and Forestry Information (but still IGN)
- And IFN is dealing with statistics



Sampling



Data collection on sample areas

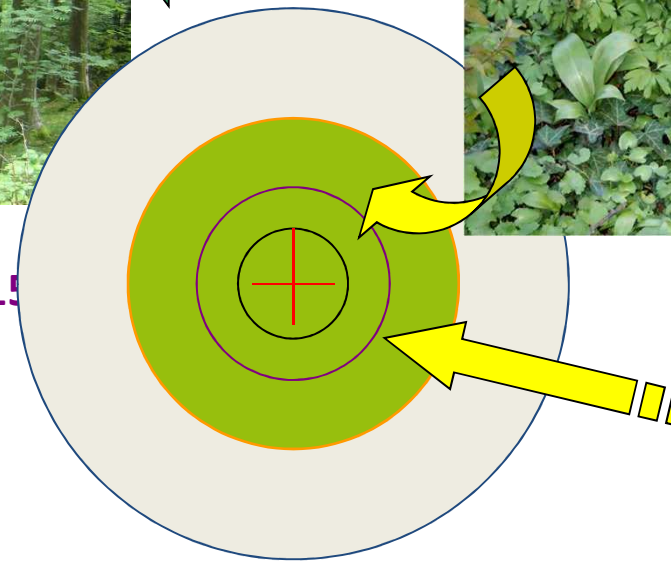
Description



Flora



Tree measurements (6, 9, 15)



Soil



Data processing

idp	la	veget	acci	espar	on	lb	forme	lige	mortb	sfui	sfgebr	sfped	sfforge	ct3	lfs
300012	1	1	0	0	12V		1	2	1	1	0	0	0		49 12.3
300012	2	0	0	0	3		1	2	1	1	0	0	0		145 5.4
300012	3	0	0	0	12V		0	0	1	1	0	0	0		27 10.9
300012	4	0	0	0	12V		1	2	1	6	0	0	0		43 9.3
300012	5	0	0	0	3		1	2	1	1	0	0	0		139 11.8
300012	6	0	0	0	3		1	2	1	1	1	0	0		112 4.4
300012	7	0	0	0	3		1	2	1	1	0	0	0		158 9.2
300019	1	0	0	0	2		1	0	1	1	0	0	0		43 2.2
300019	2	0	0	0	2		1	0	1	1	0	0	0		44 1.1
300019	3	0	0	0	2		1	2	1	1	0	0	0		71 5.0
300019	4	0	0	0	2		1	2	1	1	0	0	0		52 2.2
300019	5	0	0	0	2		3	0	0	1	1	0	0		42 2.2
300019	6	0	0	0	2		3	0	1	1	0	0	0		76 21.4
300019	7	0	0	0	3		1	2	1	1	0	0	0		125 4.1
300019	8	0	0	0	2		1	2	1	1	0	0	0		126 9.0
300019	9	0	0	0	3		0	0	1	1	0	0	0		57 0.0
300019	10	0	0	0	3		1	2	1	1	0	0	1	3	129 1.9
300019	11	0	0	0	3		0	0	1	1	0	0	0		62 1.9
300019	12	0	0	0	3		1	0	1	1	0	0	0		44 0.9
300019	13	0	0	0	3		1	2	1	1	0	0	0		54 8.6
300019	14	0	0	0	3		0	2	1	1	0	0	0		75 9.4
300019	15	0	0	0	3		0	2	1	1	0	0	0		75 7.9
300019	16	0	0	0	3		0	0	1	1	0	0	0		37 1.0
300051	1	0	0	0	3		1	2	1	1	0	0	0		55 9.0
300051	2	0	0	0	3		1	1	1	1	0	0	0		48 2.4
300051	3	0	0	0	3		0	2	1	1	0	0	0		70 12.8
300051	4	0	0	0	3		0	2	1	1	0	0	0		100 7.7
300051	5	0	0	0	3		0	2	1	1	0	0	0		64 6.6
300051	6	0	0	0	3		0	2	1	1	0	0	0		56 7.4
300051	7	0	0	0	3		0	2	1	1	0	0	0		90 9.8
300051	8	0	0	0	3		0	2	1	1	0	0	0		76 12.4
300051	9	0	0	0	2		1	2	1	1	0	0	0		74 2.6
300051	10	0	0	0	3		0	2	1	1	0	0	0		73 9.3
300051	11	0	0	0	3		0	2	1	1	0	0	0		54 7.2
300051	12	0	0	0	3		1	2	1	1	0	0	0		118 13.3
300055	1	0	0	0	64		1	2	1	1	0	0	0		37 28.0
300055	3	0	0	0	64		1	2	1	1	0	0	0		47 22.8
300055	5	0	0	0	64		1	2	1	1	0	0	0		56 27.6
300055	7	0	0	0	64		1	2	1	1	0	0	0		39 24.0
300055	9	0	0	0	64		1	2	1	1	0	0	0		45 24.7
300055	11	0	0	0	64		1	2	1	1	0	0	0		54 28.4

CALCUL PERSONNALISE Résultats Nouvelle méthode

Localisation: Domaine d'étude Variables à calculer Données de ventilation Modalités de ventilation Résultats

Méthode: Nouvelle méthode

Domaine géographique: France entière [Modifier](#)

Valeur du domaine géographique: FRANCE

Années de référence: 2008, 2007, 2009, 2009, 2010

Domaine d'étude: Forêt de production hors peupleraie [Modifier](#)

Variables: Volume [Modifier](#)

Ventilation géographique: France entière [Modifier](#)

Séparation levé / non levé: Oui

Ventilation de niveau arbre: Dimension des bois (4 classes: 7,5/22,5/47,5/67,5 cm)

- Page d'aide
- Méthodologie
- Lequel
- Contact
- Réinitialiser

Site	Dimension des bois (4 classes: 7,5/22,5/47,5/67,5 cm)	Volume x 1 000 000 m ³
FRANCE	Petit bois	608 ± 11
FRANCE	Moyen bois	1 242 ± 20
FRANCE	Gros bois	430 ± 10
FRANCE	Très gros bois	133 ± 8
	Total	2 413 ± 36

- Exporter au format CSV
- Exporter au format PDF

Les résultats sont exprimés sous la forme : x ± y. Cela signifie que la valeur estimée est comprise dans l'intervalle [x - y ; x + y] avec une probabilité de 95 %.



From raw data to assessments, indicators, reports





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URBAN UNITS



Urban units

- Objective: redefine urban units (adapting international recommendations to French context)
- The principle is to define **continuous areas of residential buildings**.
 - Urban area composed of one or several **municipalities** with continuous built-up area. Each municipality must have more than half of its population in the urban area.
 - distance between 2 **residential buildings** < 200 m
 - each urban unit must have more than **2 000 inhabitants**



Urban units

- **NSI contribution:**

- population data
- funding

- **NMA contribution:**

- topographic data (mainly Building)
- delineation work





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PRODUCING IRIS DATA

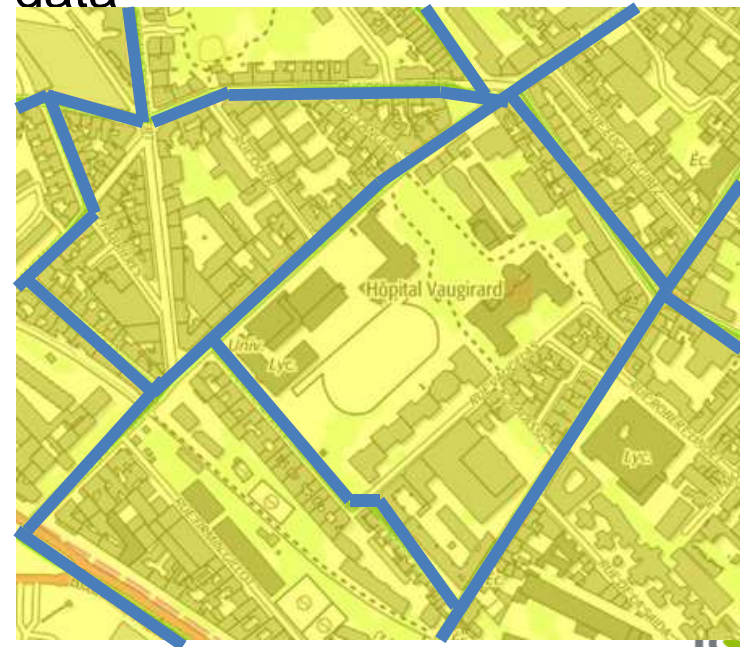


IRIS data

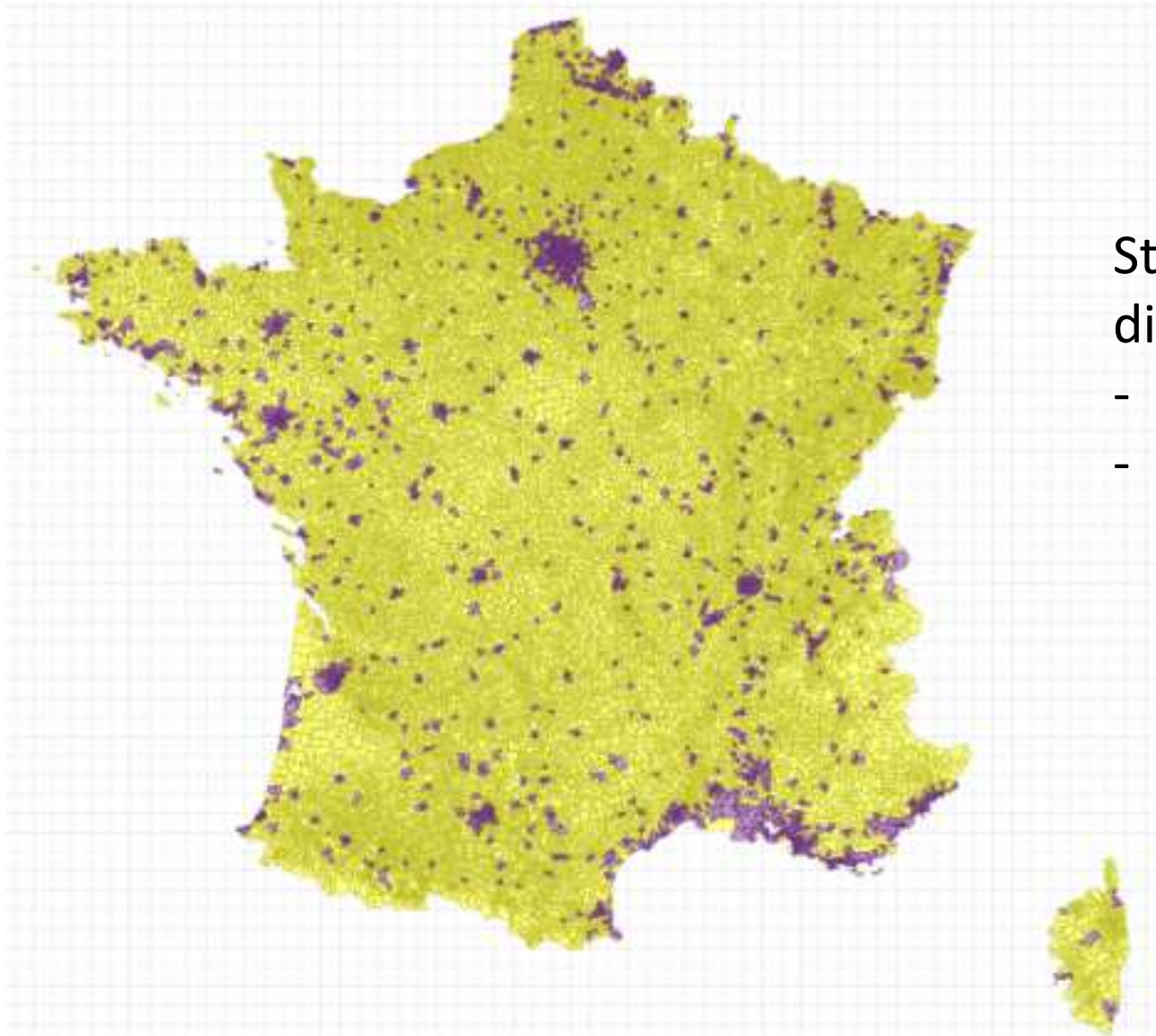
■ What is IRIS ?

- « Ilots Regroupés pour l'Information Statistique »
- Grouped Blocks for Statistical Information
- In urban areas
- Target population: 2 000 inhabitants
- Smallest area to disseminate statistical data (privacy)

} Enumeration district



IRIS data

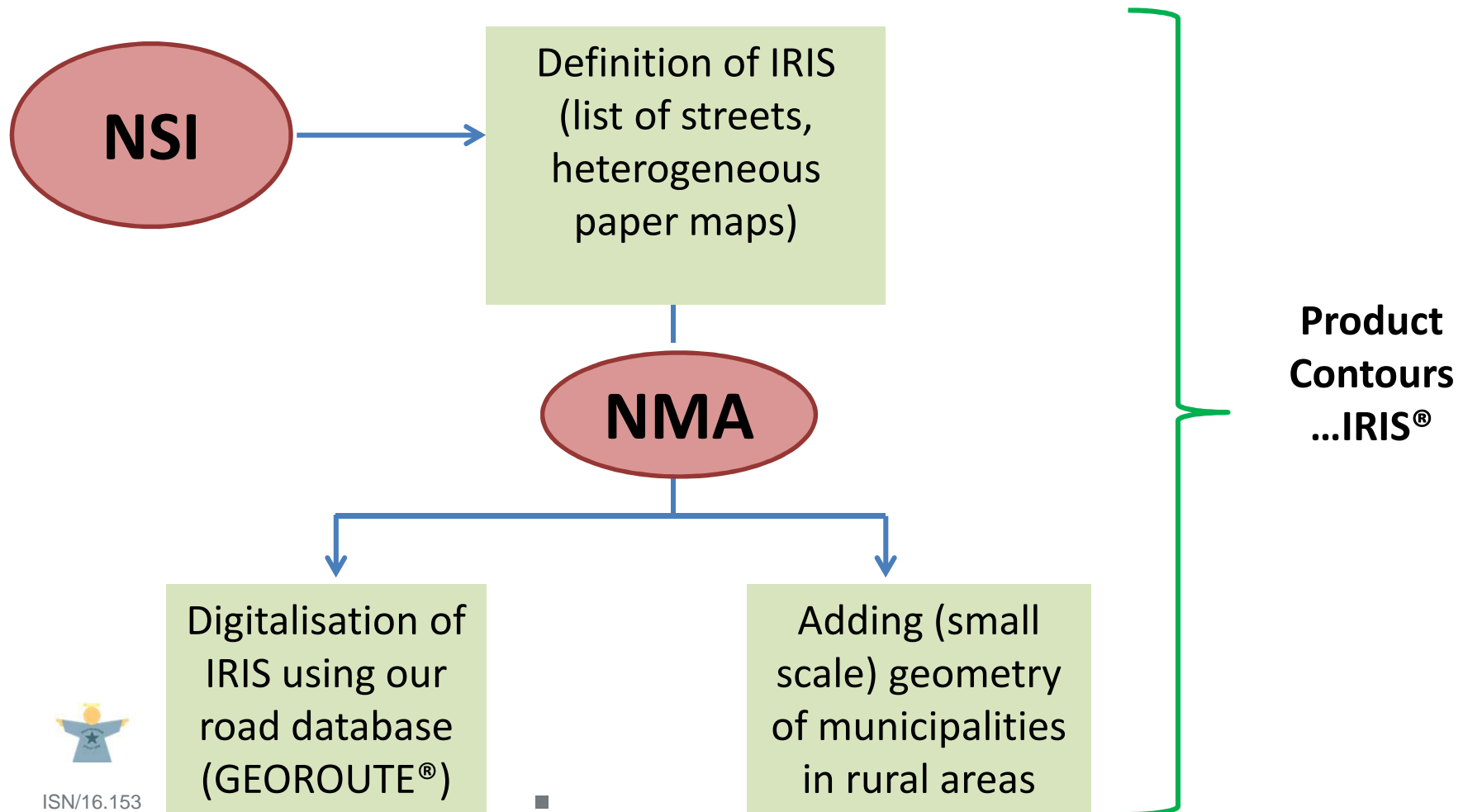


Statistical data is disseminated by:

- IRIS in urban areas
- Municipalities (administrative units) in rural areas

IRIS data production

- First generation (2000 – 2005): digital data



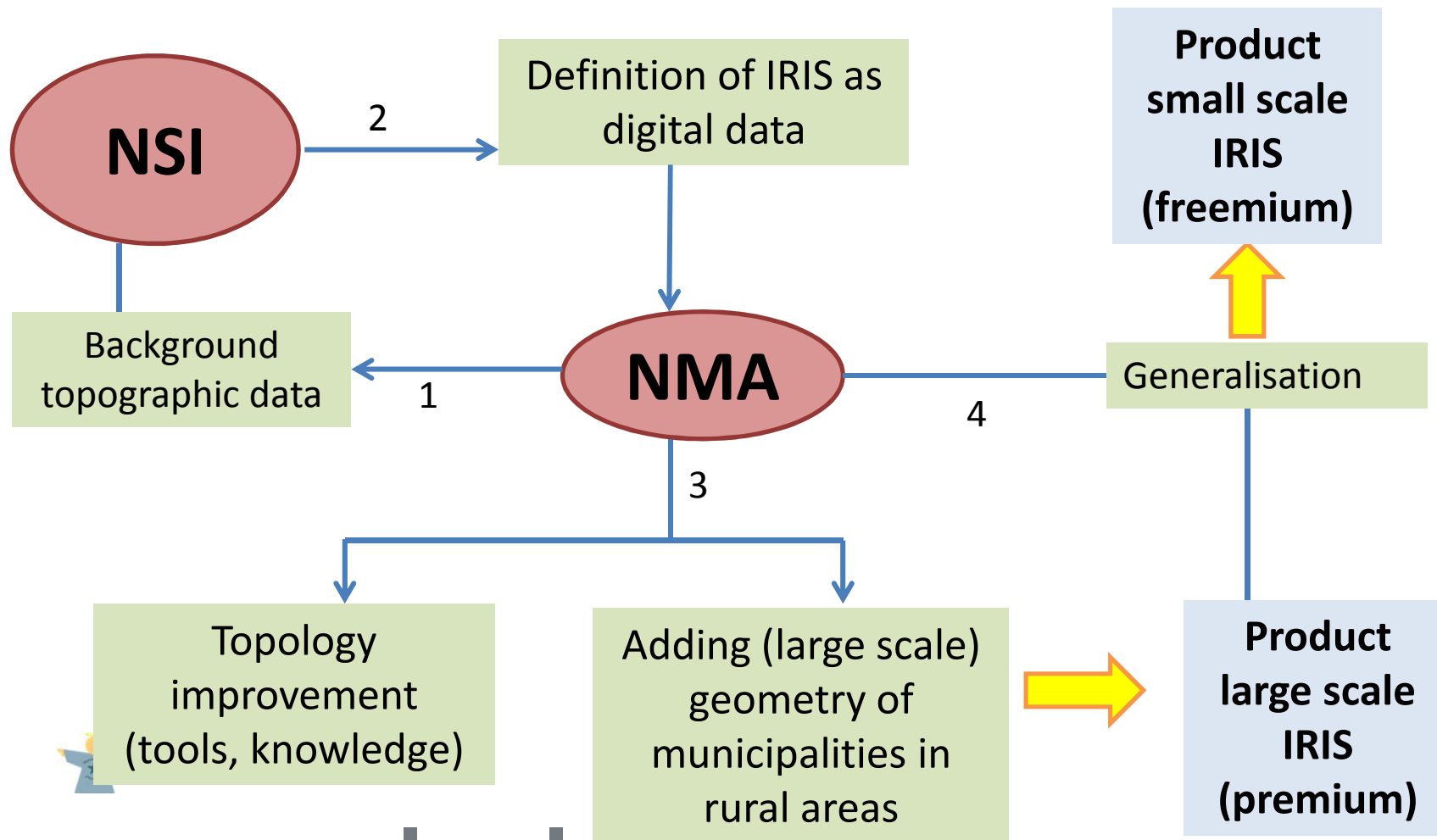
IRIS data production

- **Contour... IRIS® not so good**
 - Heterogeneous scales (rural / urban)
 - Errors
 - From geographic data (improvements in road data since 2005)
 - From interpretation of IRIS definition
- **=> Need for upgrade**



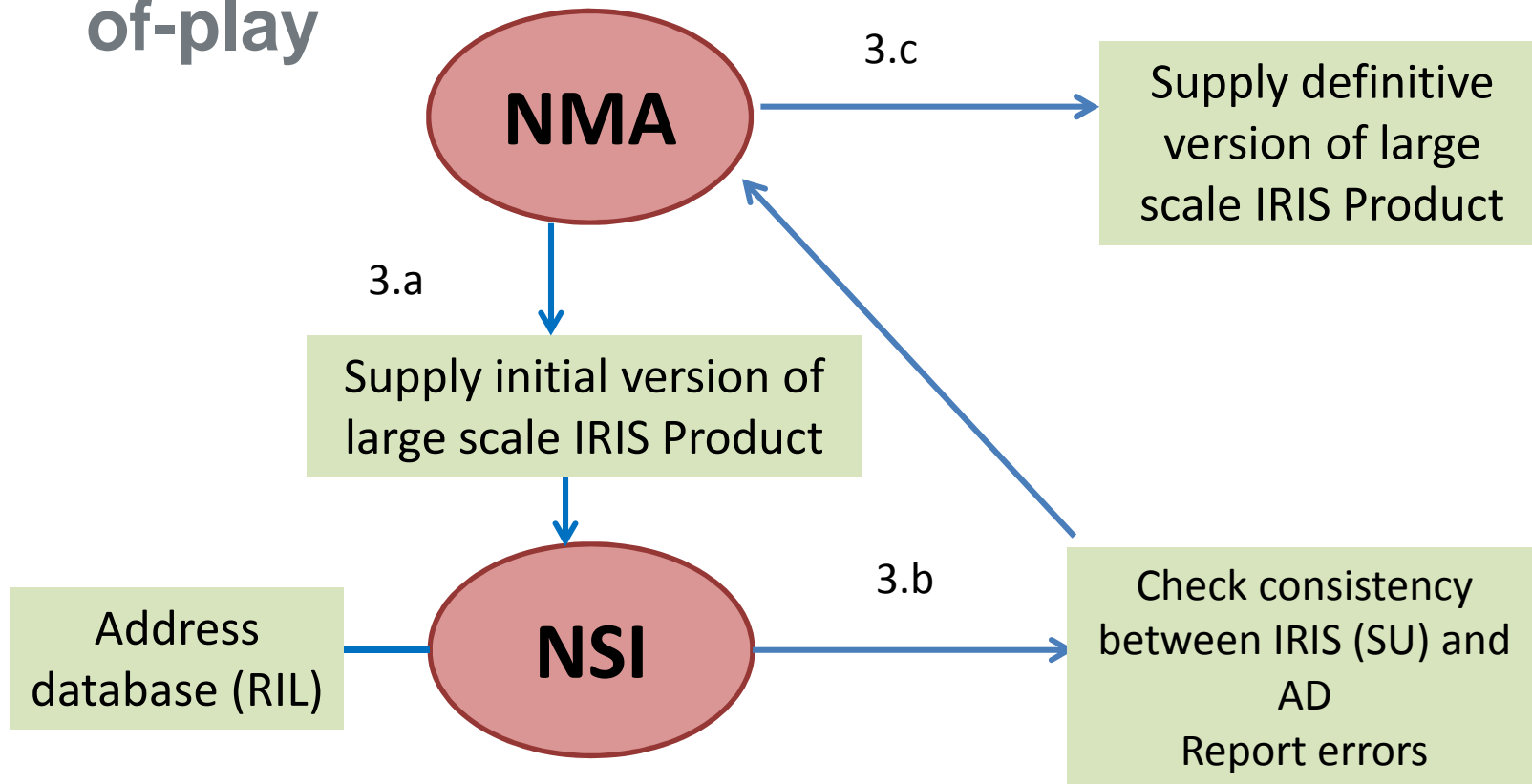
IRIS data production

- Second generation (2015 – 2016): upgrade principle



IRIS data production

- Second generation (2015 – 2016): upgrade state-of-play



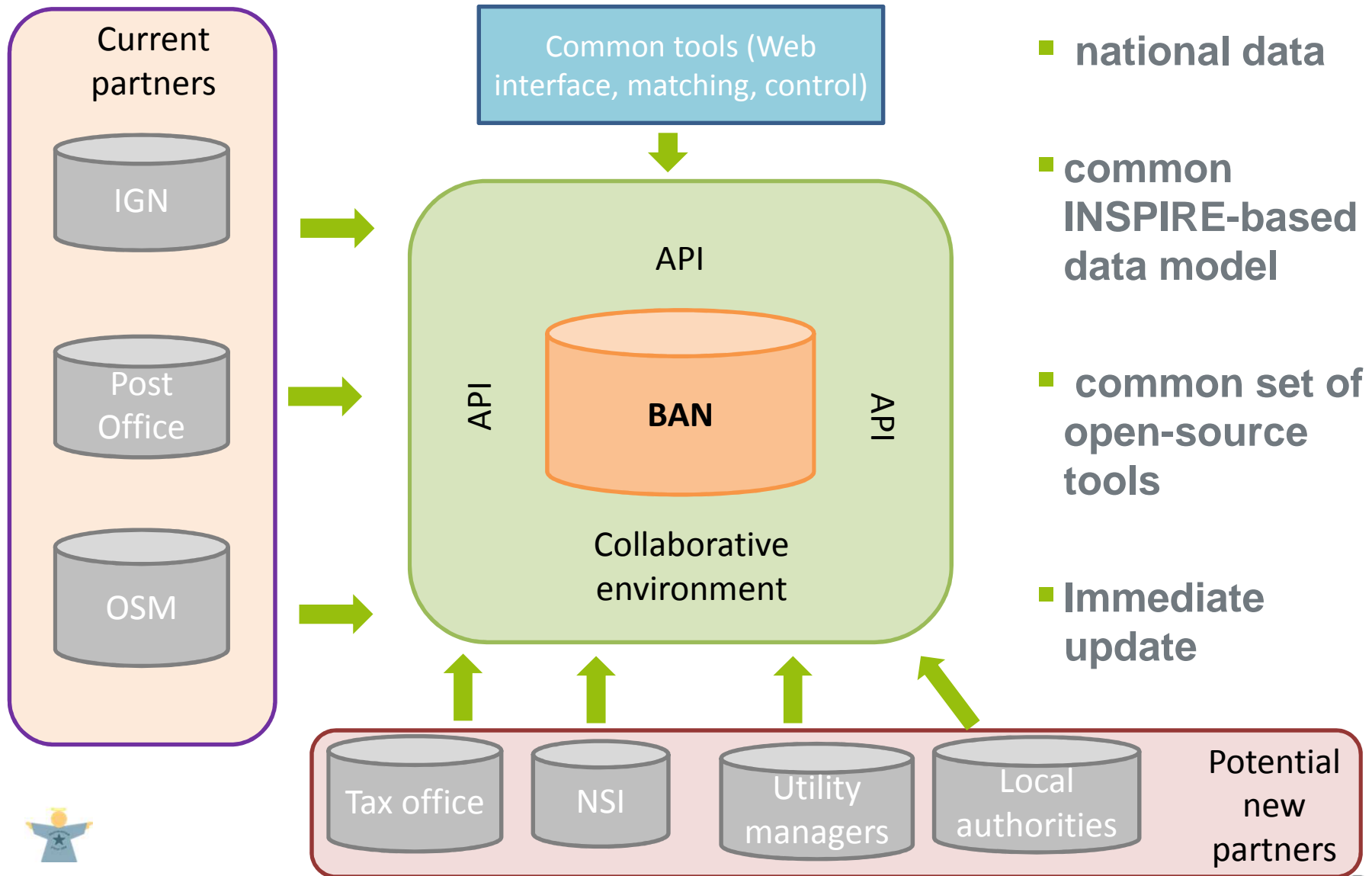


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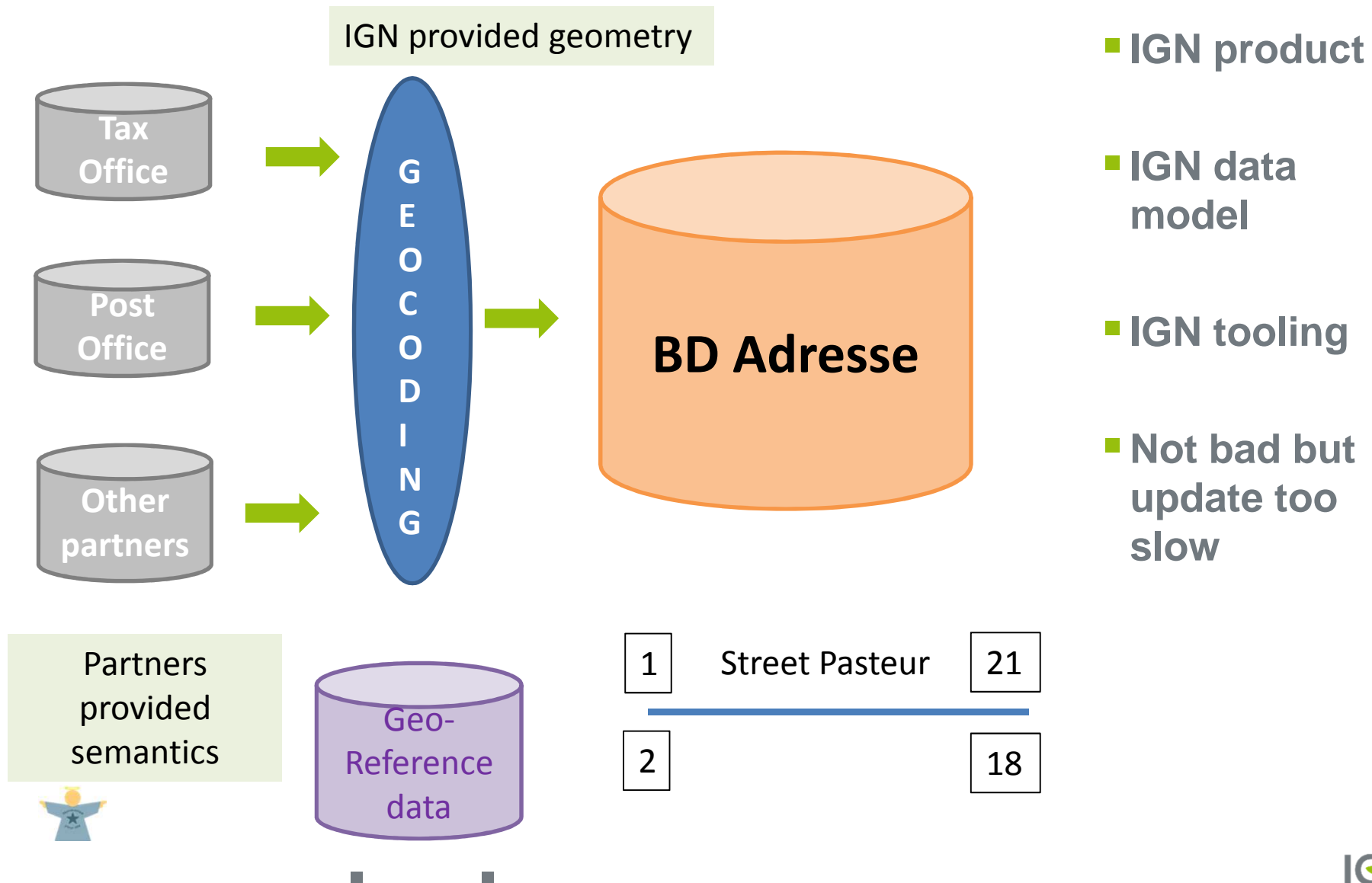
NATIONAL ADDRESS DATABASE (BAN)



Project : National Address DataBase



IGN contribution: BD ADRESSE



NSI contribution

- NSI has an address database
 - for census purpose
 - on residential buildings
 - on municipalities with more than 10 000 inhabitants
 - 5,6 M addresses - quite reliable





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LINKING DATA



Datalift project

■ What is datalift

- research project supported by ANR (National Research Agency)
- that began in 2010
- whose objective was to “lift” existing data to the ★★★★★ of W3C
- With French NSI and NMA as partners



Datalift project

NSI data (AU)

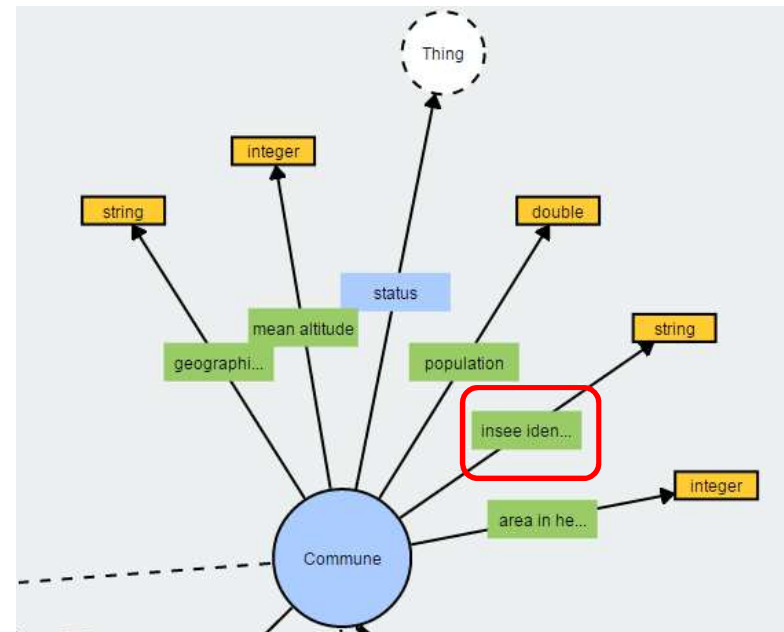
COG
Name
code
Population 2010
.....

Same as

NMA data (AU)

GeoFLA
Name
Code (INSEE-identifier)
geometry
.....

Data model as ontology



Datalift project



Requête SPARQL

Format de la réponse : HTML RDF/XML N3/Turtle NTriples TriG TriX CSV

Requête :

```
SELECT ?id ?ppte ?val WHERE {
?id ?ppte ?val .
?id a <http://data.ign.fr/def/geofla#Departement>.
?id rdfs:label ?l
Filter regex(?l, "MARNE").
}LIMIT 100
```

Requêtes prédéfinies :

Nombre maximum de résultats :

Pour plus d'information sur Datalift, voir <http://www.datalift.org>



Step 1 : query to find “department MARNE » in IGN data « Geofla » using Web language request « SPARQL”

Datalift project

id ↕	ppte	val
http://data.ign.fr/id/geofla/departement/51	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://data.ign.fr/def/geofla#Departement
http://data.ign.fr/id/geofla/departement/51	http://www.w3.org/2000/01/rdf-schema#label	"MARNE"@fr
http://data.ign.fr/id/geofla/departement/51	http://data.ign.fr/def/geometrie#geometrie	http://data.ign.fr/id/geofla/departement/Multipolygon_52
http://data.ign.fr/id/geofla/departement/51	http://www.w3.org/2002/07/owl#sameAs	http://id.insee.fr/geo/departement/51
http://data.ign.fr/id/geofla/departement/51	http://data.ign.fr/def/geofla#codeDpt	"51"
http://data.ign.fr/id/geofla/departement/51	http://data.ign.fr/def/geofla#region	http://data.ign.fr/id/geofla/region/21
http://data.ign.fr/id/geofla/departement/51	http://data.ign.fr/def/geofla#chefLieu	http://data.ign.fr/id/geofla/commune/51108
http://data.ign.fr/id/geofla/departement/51	http://data.ign.fr/def/geofla#siegeDuChefLieu	http://data.ign.fr/id/geofla/departement/Point_51108

*Feature « MARNE
department » in IGN
data*

*List of attribute
names
(in IGN data)*

*List of attribute
values
(in IGN data)*

Step 2 (automatic) : get results to query in Web formalism "RDF" (with URI everywhere)

Step 3 : look for "sameAs" attribute => linked data



Datalift project

Sujet ↕	Prédicat	Objet
http://id.insee.fr/qeo/departement/77	http://www.w3.org/1999/02/22-rdf-syntax-ns#type	http://rdf.insee.fr/def/qeo#Departement
http://id.insee.fr/qeo/departement/77	http://www.w3.org/2002/07/owl#sameAs	http://nuts.geovocab.org/id/FR102
http://id.insee.fr/qeo/departement/77	http://www.w3.org/2002/07/owl#sameAs	http://fr.dbpedia.org/resource/Seine-et-Marne
http://id.insee.fr/qeo/departement/77	http://www.w3.org/2002/07/owl#sameAs	http://data.ign.fr/id/geofla/departement/77
http://id.insee.fr/qeo/departement/77	http://rdf.insee.fr/def/demo#population	http://id.insee.fr/demo/populationLegale/departement/77/2010
http://id.insee.fr/qeo/departement/77	http://rdf.insee.fr/def/demo#population	http://id.insee.fr/demo/populationLegale/departement/77/2011
http://id.insee.fr/qeo/departement/77	http://rdf.insee.fr/def/demo#population	http://id.insee.fr/demo/populationLegale/departement/77/2012
http://id.insee.fr/qeo/departement/77	http://rdf.insee.fr/def/demo#population	http://id.insee.fr/demo/populationLegale/departement/77/2013

*Feature « MARNE
department »
(in INSEE data)*

*List of attribute
names
(in INSEE data)*

*List of attribute
values
(in INSEE data)*

Step 4 (automatic) : get results to query in Web formalism “RDF”

Step 5 : look for “sameAs” attribute => linked data



In this example, INSEE offers link to IGN data (GeoFLA), to NUTS data (from EuroGeographics) and to DBPedia.

Datalift project

■ NSI contribution

- source data : Geographic Official Code
 - Administrative units
 - With name, code, population at different dates ... but no geometry
- Deliverable “policy to identify resources (with URI)”
- Study about implementation of datalift
- Animation of yearly workshops on “statistics and semantic Web”



Datalift project

■ NMA contribution

- source data : GeoFLA
 - Administrative units at small scale
 - With name, code and geometry
- Work on “how to publish geometries?”
 - RDF ontology about geometric primitives
 - ontology for georeferencement (based on ISO 19111)
- Tool to “lift” data from .shp to RDF





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FACILITIES RECEIVING PUBLIC



Facilities receiving public (ERP)

■ Various data sources

- Key stakeholders (users + producers)
 - Firemen: security
 - Local government: accessibility to disabled persons
- National data providers
 - IGN: French mapping agency
 - INSEE: French statistical agency

Project objective:
offer a tool (as
Web service) to
make reference
data from
heterogeneous
source data



Facilities receiving public (ERP)

■ First step: agree on common data model

- A facility may have several geometric (point) representations

- Address (street) : firemen
- Building: local government

■ a set of key attributes

- Type
 - Around 25 values
 - Examples: hotels, restaurants, museum,
- Category: number of persons
- Name

J : Structures d'accueil pour personnes âgées ou personnes handicapées
L : Salles d'auditions, de conférences, de projection, multimédia, de réunions, de quartier, de spectacles ou à usage multiple
M : Magasins de vente, centres commerciaux
N : Restaurants et débits de boisson
O : Hôtels, pensions de famille, résidence de tourisme et autres établissements d'hébergement
P : Salles de danse et salles de jeux
R : Établissements d'éveil, d'enseignement, de formation, centres de vacances, centres de loisirs sans hébergement, crèches, haltes-garderies, jardins d'enfants
S : Bibliothèques, centres de documentation
T : Salles d'exposition
U : Établissements de soins, de santé public ou privé, clinique, hôpital, pouponnière, établissements de cure thermale
V : Établissements de divers cultes
W : Administrations, banques, bureaux (sauf si le professionnel ne reçoit pas de clientèle dans son bureau)
X : Établissements sportifs clos et couverts, salles omnisports, patinoires, manèges, piscines couvertes, transformables ou mixtes, salles polyvalentes sportives de moins de 1 200 m² ou d'une hauteur sous plafond de plus de 6,50 m.
Y : Musées
PA : Établissements de plein air
CTS : Chapiteaux, tentes, structures itinérantes ou à implantation prolongée ou fixes
SG : Structures gonflables
PS : Parcs de stationnement couverts
OA : Hôtels-restaurants d'altitude
GA : Gares accessibles au public (chemins de fer, téléphériques, remonte-pentes...)
EF : Établissements flottants (eaux intérieures), bateaux stationnaires, bateaux
REF : Refuges de montagne
??? : Établissements pénitentiaires



Facilities receiving public (ERP)

■ Second step: develop the tool functionalities

- Import:
 - From GIS file
 - By geocoding file of facilities with their address
- Compare facilities having same semantic
 - Distance < 5 m : merge
 - 5 m < Distance < 50 m : link (●)
 - Distance > 50 m: warn => stakeholders have to discuss in order to agree on “right “ location (●)



Facilities receiving public (ERP)

■ NSI contribution :

- Permanent facilities database (BPE)
 - Used by NSI to measure ratio of services
 - List of facilities with their nature and address (Excel spreadsheet)

■ Data processing

- Geocoding to get (X,Y) coordinates
- Matching “nature” of source data (BPE) with the “type” of target data (ERP)



Facilities receiving public

- **NMA contribution:**

- Background map (orthoimage, scanned map, vector layers)
- Tool development
- Points of activity (POA)
 - Part of large scale IGN database
 - Point geometry + nature

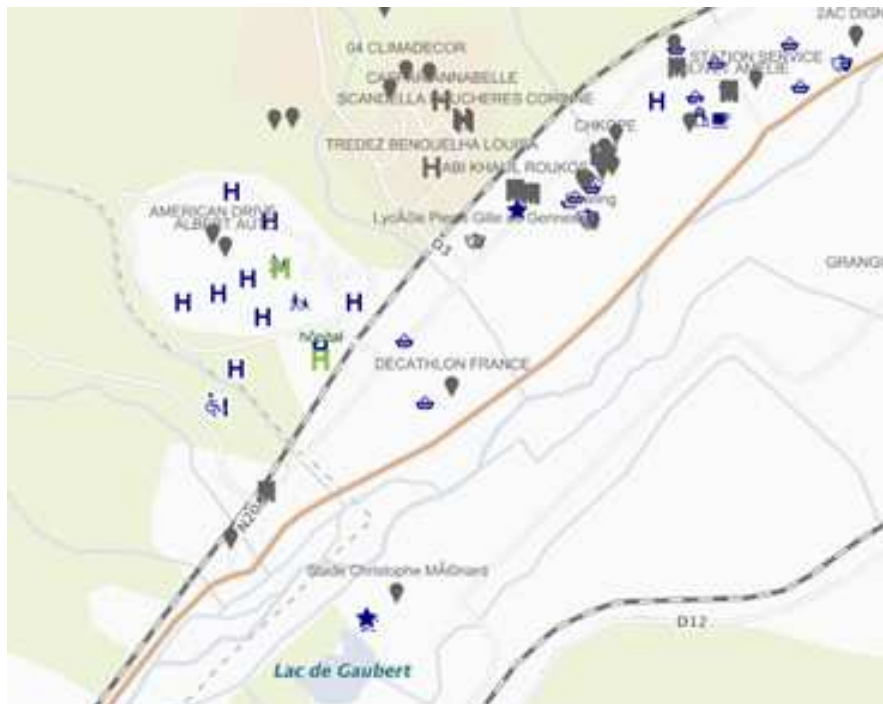
- **Data processing**

- Filtering (some POA do not receive public)
- Matching “nature” of source data (POA) with the “type” of target data (ERP)



Facilities receiving public (ERP)

- NSI and NMA data will provide version 0 of ERP
- This version 0 will offer candidates to the other stakeholders





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CONCLUSIONS



Conclusions

- **Lot of collaboration**
 - Location of Statistical units
 - Improve reference data (AD)
 - Innovative applications and projects
- **Likely and hopefully even more to do together in future!**
- **Walking together towards the first principle of the "Global Statistical Geospatial Framework" : Use of fundamental geospatial infrastructure and geocoding**

