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QUALIFICATION OF GIS DATA

Nicolas PY – Jocelyne MARC

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Summary

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1. The context

National Council for Geographic Information

Placed under the Minister responsible for sustainable development

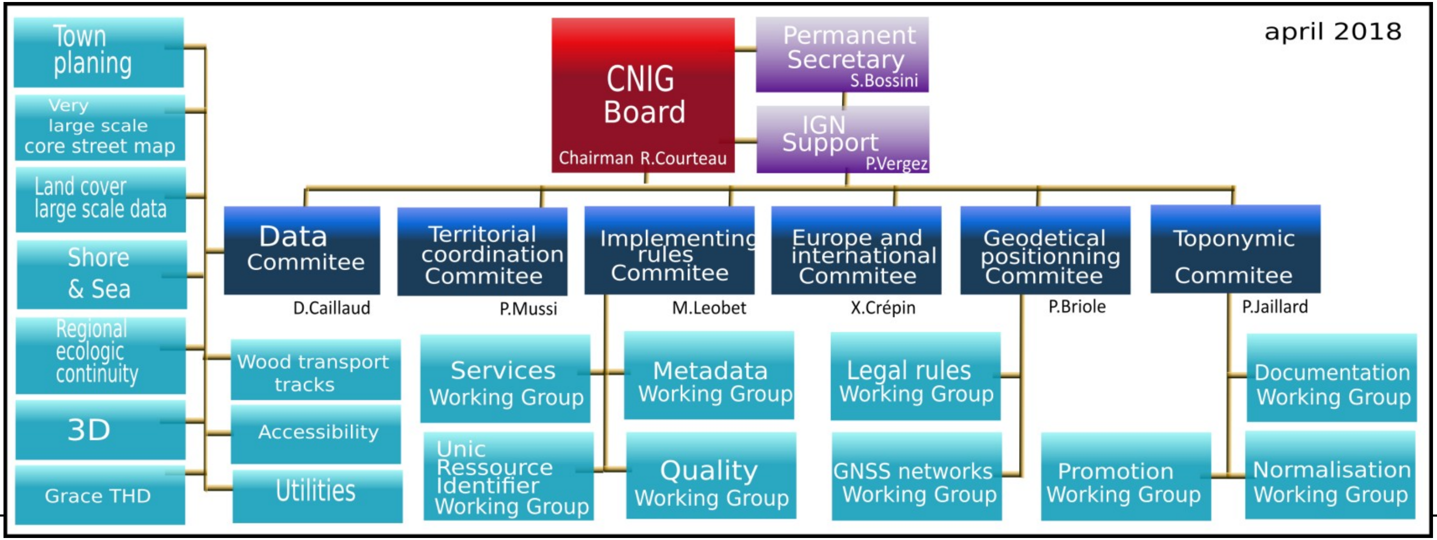
Has the role of enlightening the governement in the subject of geographic information

Coordination of the contributions of the actors concerned and the improvement of interfaces between them

INSPIRE’s national coordination structure

Consideration users needs

http://cnig.gouv.fr/



Web geographic data

Geographics open data are availables on website :

www.geocatalogue.fr   to find, see and download maps and datas producted by french public actors

www.geoportail.gouv.fr   to find geolocated data, create maps and share them

www.data.gouv.fr : Open platform for French public data

geo.data.gouv.fr : Open platform for French geolocated public data , with harvesting data and deposit

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Fundations

ISO 19113 Criterions

ISO 19114 Method

ISO 19138 Measures

ISO 19157

Sheets for ISO 19157 outreach

Seminar & WG

1997

Technical IGN's publication « Geographical DB quality, concepts and terms »

2003

precision classes for topographic survey, in french law

2006

technical guidance on geographic data quality (CERTU was a referent in urban public policies)

2010

report on geographic data quality (CERTU)

2013

ISO 19157

2017

CEREMA is the Centre for Studies and Expertise on Risks, Environment, Mobility and Development

2019

Data quality, a never ending story (to tell)

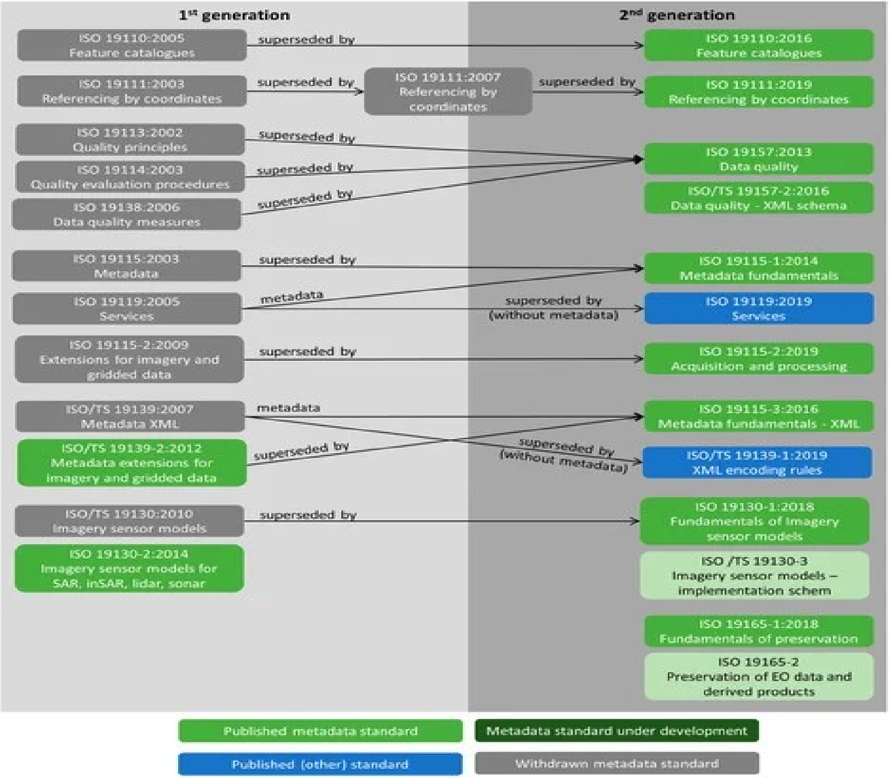
Already an history

Geographic Information Metadata—An Outlook from the International Standardization Perspective

https://www.mdpi.com/2220-9964/8/6/280

“This paper **traces an illustration of the development and evolution** of the requirements and international standardization activities of geographic information metadata standards, profiles and resources, and **how these attest to facilitating the discovery, evaluation, and appropriate use** of geographic information in various contexts.”

15th june 2019

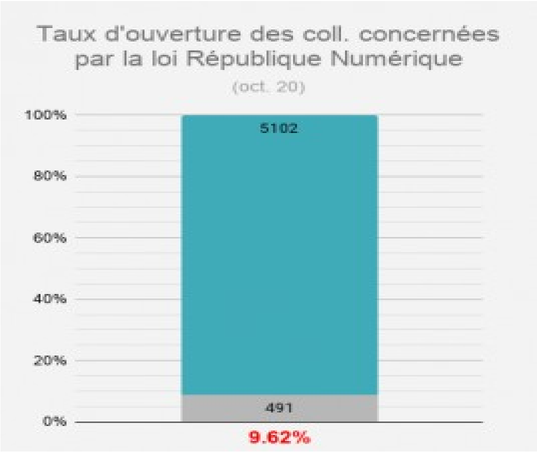


Data quality, a never ending story (to tell)

[« Open data » (FR): already many datasets and more to open]

The digital republic law (2016-1321 october 2016) mandate Open Data for administrative units > 3.500 hab.

~10% of conformance in 4 years



And data quality

or standards just

begin to be

considered

...

h
t

Seminar of (re, RE, RE)birth

https://www.cerema.fr/fr/actualites/seminaire-quadogeo-mise-pratique-qualification-donnees

Working more on the external quality, the consumer problems, than on the producer’s ones !

- Historical abstract
- Share of experiences, practices, points of view
- Which tool could help, design workshop:
  - Goal of the tool
  - Symbology of data quality
  - Tool’s packages
  - Communication + governance

=> a partnership roadmap for the working group QuaDoGeo

2. WG QuaDoGeo

WG QuaDoGeo : Mandate

Mission

Helping the open data consumer by providing better data quality information

Organisation

Conformance to the CNIG’s internal reglement

Belong and reporti to the RMO (aka executing rules) CNIG’s commission

Open to every interested actor

Method: 3 workstreams

Support for data producer: which measure best for which data, metadata completio, data quality reporting

Support for data user: giving ability to determine if that data is compatible with that usage, sharing the data quality information the right (visual, textual, notation, dataviz, …) way him

Capacity of systems (producer, portals, …) to receive feedback about the data (by crowdsourcing, notation, ...)

http://cnig.gouv.fr/wp-content/uploads/2018/12/QuaDoGeo_MandatCNIG_v3.1.pdf

#SEASON 1, 2019 (http://cnig.gouv.fr/?page_id=18183)

Episode 1

- Mandate's adoption, experience share
- Decision to work collectively on a practical synopsis on data qualification

Episode 2

- Launch reflexion on which ISO’s mesure for which data
  - First synopsis about adresses data base and collective facilities
- (French) registry concept: selection of ‘fondamental’ ISO’s measure, linkable registry

Episode 3

- schema.data.gouv.fr/
- Explanation of the IGN’s data control unit ; dedicated to gather a 2nd time (independtly of the production’s units) the information in order to control the production
- Explanation on the Geospatial User Framework (https://www.ogc.org/standards/guf)

Episode 4

- Experiences share on the data preparation (for) and use (from) the legal town planning documents portal (‘Geoportail de l’urbanisme’/'urban planning geoportal')
- Open Data France report : need to organize the governance of standards, platforms, tools, methods

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#SEASON 2, 2020 (http://cnig.gouv.fr/?page_id=18183)

Episode 1

Experience share : Qualification of data bases on the Marine Environment

A qualification reference system common to all SIMM data (geographic and no-geographic) ?

How to correspond to the data qualification standards international (NOAA ou de SeaDataNet) ?

=> Write the general principles for the qualification of SIMM data (marine environment information system)Episode 2

Episode 2

Experiences share : qualification of large-scale land use/land cover in the Nice Côte d'Azur metropolis

Closing explanation on the work of selection and priorization of data quality measures for a certain type of data, here adress and collective equipement (which DQ measure for which data)

Geographical Data quality vizualisation

Data quality feedback : A rather free quality feedback in general, without real structuring or standardization, but sources of inspiration (github concepts for reporting errors or feedback, Toronto and the data quality score - medals)

Internal quality	External quality
- accuracy - consistency - precision - confidence (reliability) - no redundancy	- quality depends on the degree to which data fits its intended purpose - dimensions or metrics significant today can change or new ones can arise

#SEASON 2, 2020 (http://cnig.gouv.fr/?page_id=18183)

Episode 3

- Lecture on « Reducing Consumer Uncertainty: Towards an Ontology for Geospatial User-Centric Metadata”, https://doi.org/10.3390/ijgi9080488
- Experiences share (adress)
- Demo of the prototype’s tool on data quality dataviz (data quality indicators in xml to html page with graphics)

3. the QuaDoGeo's products

Seminar’s products

Simultaneous to the publication of the CEREMA’s sheets for ISO 1957 outreach

sharing 11 sheets to explain the norm,
https://www.cerema.fr/fr/centre-ressources/boutique/qualifier-donnees-geographiques

- Sheet n°01 : Pronouncement: knowing data quality ensure reliable usages
- Sheet n°02 : Data quality generalities
- Sheet n°03 : Contextual knownledge for the data quality
- Sheet n°04 : Statistical elements
- Sheet n°05 : Sample methods
- Sheet n°06 : Symbology
- Sheet n°07 : Consistency
- Sheet n°08 : Exhaustivity
- Sheet n°09 : Thematic precision
- Sheet n°10 : Spatial precision
- Sheet n°11 : Time precision

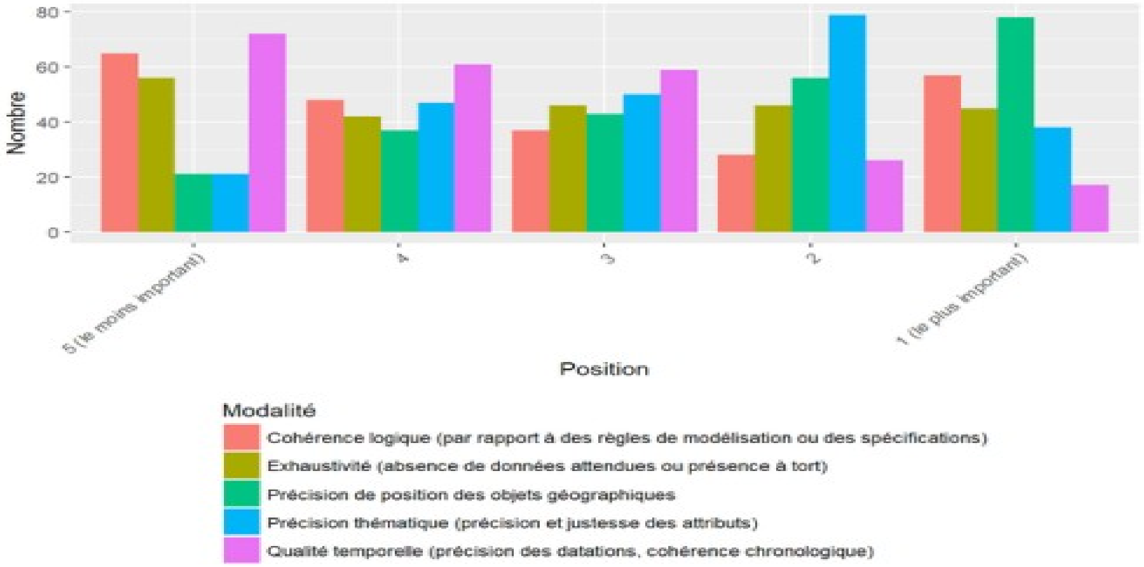
reuse these sheets in a learning and formation course, https://eformation.cerema.fr/enrol/index.php?id=33

(providing procedures and methods upon selected softwares to help in building data quality reports)

Survey

Results published in june 2018 https://www.cerema.fr/fr/actualites/qualification-donnees-geographiques-retour-enquete

n=273 ; Answers (rank the importance of quality items from 5 (least) to 1 (primest)) illustrate thematic and spatial precisions needs



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REGISTRY PROPOSAL

Based upon the CEREMA’s sheets
https://www.cerema.fr/fr/centre-ressources/boutique/qualifier-donnees-geographiques

Subset of the ISO19157 measures
+
With extension (Kappa, range precision in french law for topographical acquisitions)
+
Quality element;s from the ISO19115 (genealogy, spatial resolution, topological consistency)

Into a registry

https://data.geocatalogue.fr/ncl/mesuresQuaDoGeo

Table des matières

Also

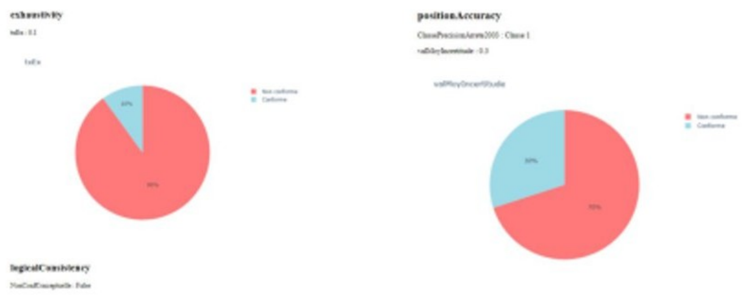
MindMap who illustrate/reformulate the ISO19157 measures

Method/workflow (to consolidate) on measures selections and priorization (which measure best for whic data)

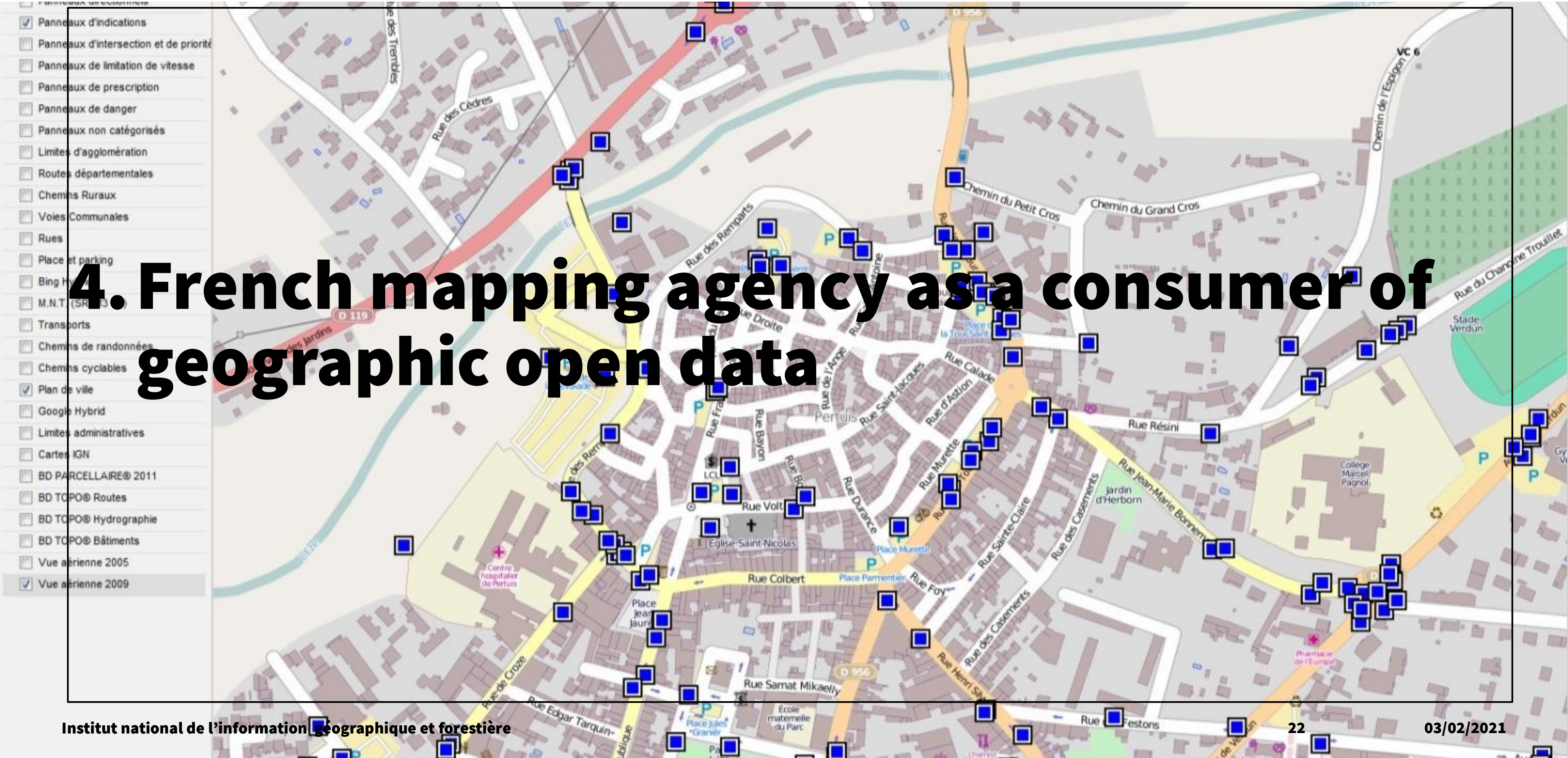
Sommaire

Also

Dataviz prototype, xml data quality indicators to html representation



4. French mapping agency as a consumer of geographic open data



The strategy

Facts / constraints

- Subsidiarity principle
  - The nearest authority/reference level know best
  - Public finances should not be used to multiple data captation for a same terrain object
- Need for mutual and / or participatory data production

Part of the solution is to consume open data, which also means

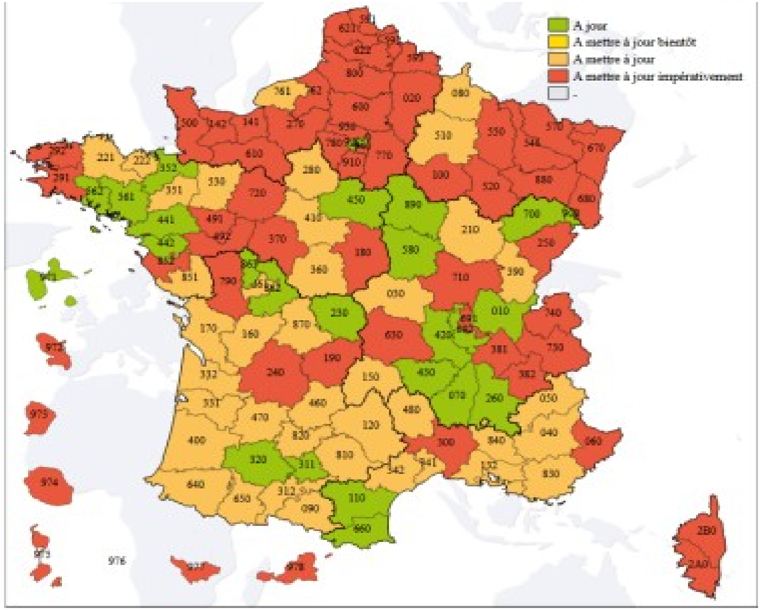
- Elaborate our (IGN) user needs
- Analyse the available/external open data, to check if our needs are covered (qualification)
- integration/conflation of that available/external open data

Another part consists of making organizations collaborate around the management of a specific data (collaborative productions), in order to build community sourcing with trusted actors.

With national providers

National providers, reference or authoritative data

ACID	Source
PR	CD ou métropole
Administration et service	Données laposte /données dila
Routier structurant	Données CEREMA
Sport	Données MMS/FFME/FFVL/
Aéronautique	Donnée/internet
Enseignement	Envoi fichier MEN
FFRandonnee	Livraison FFRandonnée
Administration principale	Annuaire de l'administration
Montagne	données STRMTG
Santé	Donnée FINESS
Equipements	données STEU
Ferrée	données SNCF
Touristique	muséofile
Hébergement	internet



Integration reporting

WITH REGIONAL PROVIDERS : The Method

Awareness campaign

- Explain the IGN’s position

Sourcing of the data with ‘authoritative’ producers

- Products, specifications, what is released or not
- We look for exhaustive and actual data (exhaustivity can be partial, eg. all regional roads)

Product mapping beetween IGN and the partner

Data quality analysis of the partner’s products

Decision of IGN’s use

Secure the procurement (convention)

Conflation or use processes implementation

THE TOOLS : softwares and humans

FME

IGN’s plugin to Geoconcept for conflations processes

Skilled people

Experience the user of data point of view

- Give IGN the hability to deeply understand & mix producer and user considerations
- Useful to the QuaDoGeo WG

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The tools : « la BDGC »

WIP, database on parterships

Can reuse or inspiration of QuaDoGeo discovery/elucidations/experiences

Goals

- Listing of the providers
- Promote a generic external data harvesting workflow, from the gathering to the conflation after analyze and qualification regarding our needs
- Managing the workflow with tasks (owner, beginning, end)
- Store the data qualiy indicator/measure values
- Registering the gathering effort, does the external data reduce the work of internal teams ?
- Compliance with the quality management system of the NGI
- **Ability to give feedback to the external data providers**
- Ability to document where an external data has been used in place of in internal gathering
- Provide reduced gathering instructions to the teams, considering the decisions of using local external data

THE TOOLS : now« l'espace collaboratif » and tomorow the « GeoPlateforme »

The goal of this tool is a shared datacare,

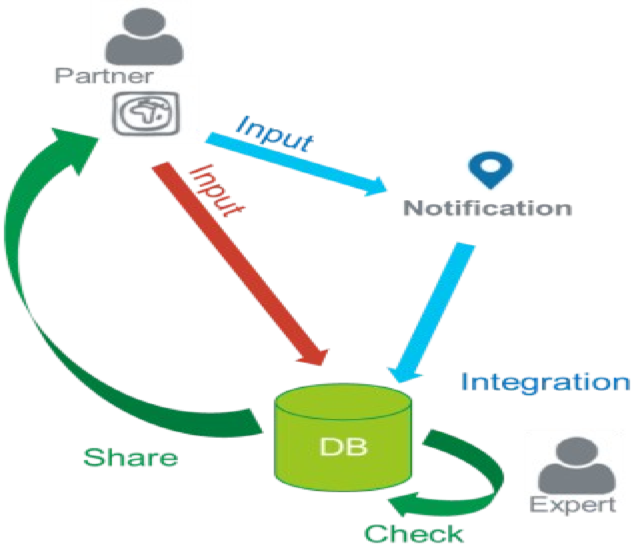
a data for which many organization feels in charge, and choose, to contribute into a shared database (data partnership)

A web site for group, rules, security, … management

An API

Plugins

A smartphone app



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THE TOOLS : now« l'espace collaboratif » and tomorow the « GeoPlateforme »

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ACCESS & AUTHORIZATION MANAGEMENT

COLLABORATIVE FUNCTION

- REPORT
- DIRECT DATA MANAGEMENT
- DATA QUALIFICATION

COMMUNITY MANAGEMENT

- MANAGEMENT OF TECHNICAL USERS
- CRÉATION OF THEMATIC PORTALS

DÉVELOPMENT OF SERVICES

- RECHERCHE
- LOADING AND HOSTING
- TECHNICAL VALIDATION
- TREATMENT
- DIFFUSION

GEOPLATEFORM SUPPORT

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