

BeGeo

27-10-2020

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A web portal to gather and analyze heterogeneous spatial data about social economy

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Geografisch
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IGN
Institut
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National

.AGORIA
co-founding partner

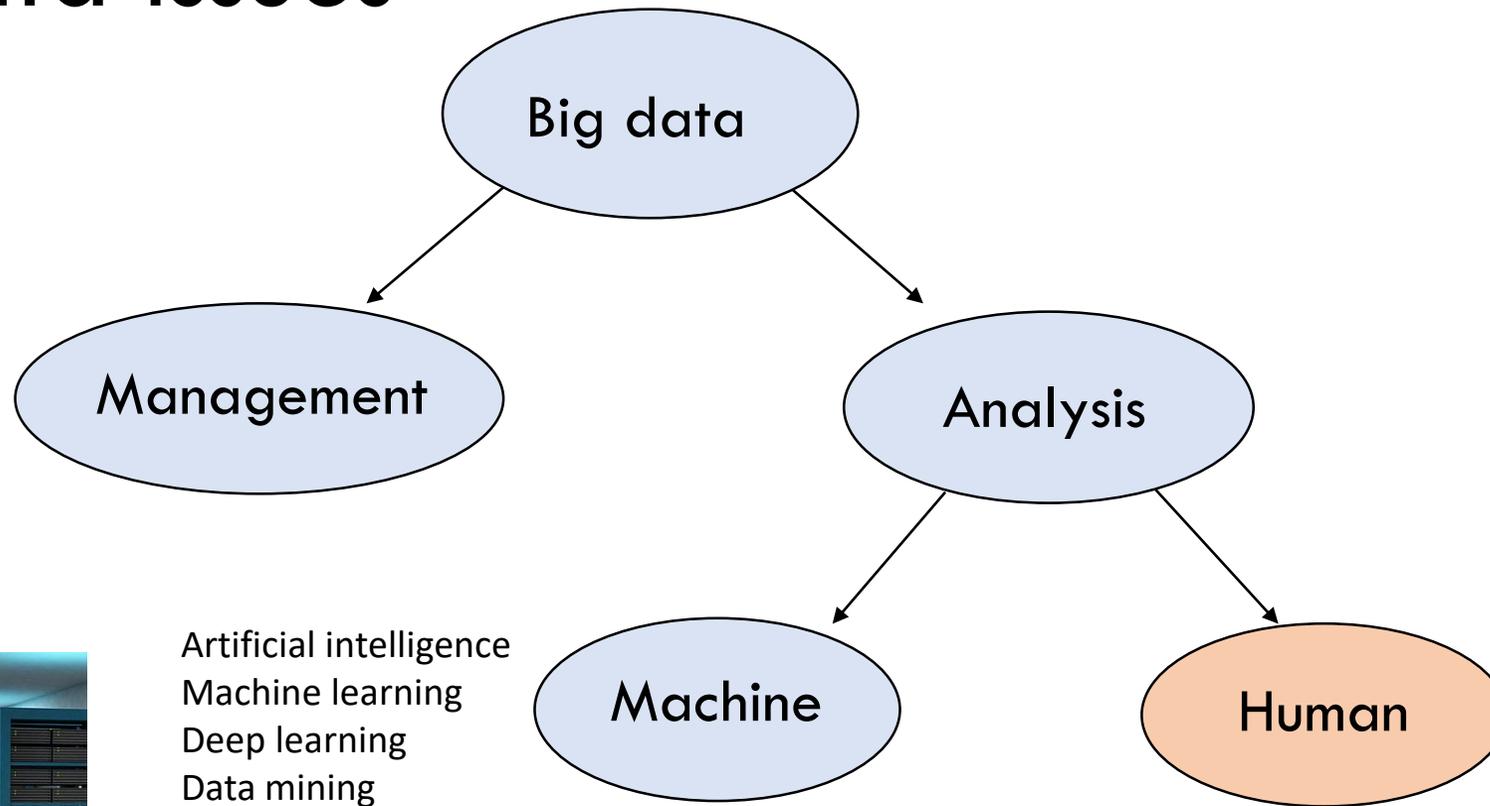
INTRODUCTION

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Big data issues



Databases
Document stores
Graphs
Data warehouses,
Data lakes,
Clouds,
Semantic web,
...



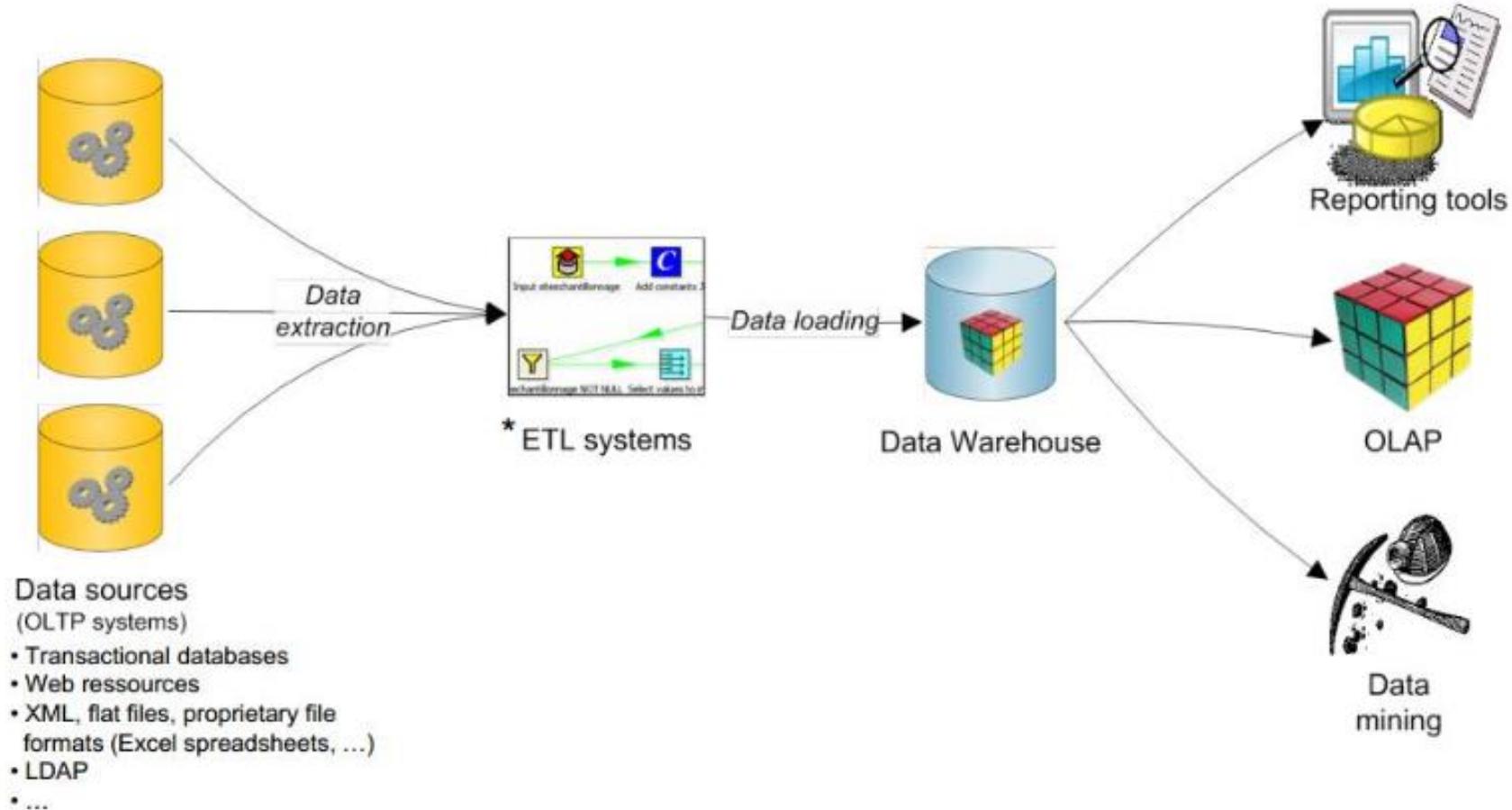
Artificial intelligence
Machine learning
Deep learning
Data mining
...

Data representation
Data exploration
Reporting
Business Intelligence
OLAP
...

Data become information



Business Intelligence (BI)



CASE STUDY

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VICES project



Objective:

Implementation of a web platform (RACINES) to **evaluate the impact of social economy in France and Belgium**

- Centralization of global data about social economy
- Efficient exploration and representations of data including cross-border comparisons
- Sharing of information by company users

VICES project

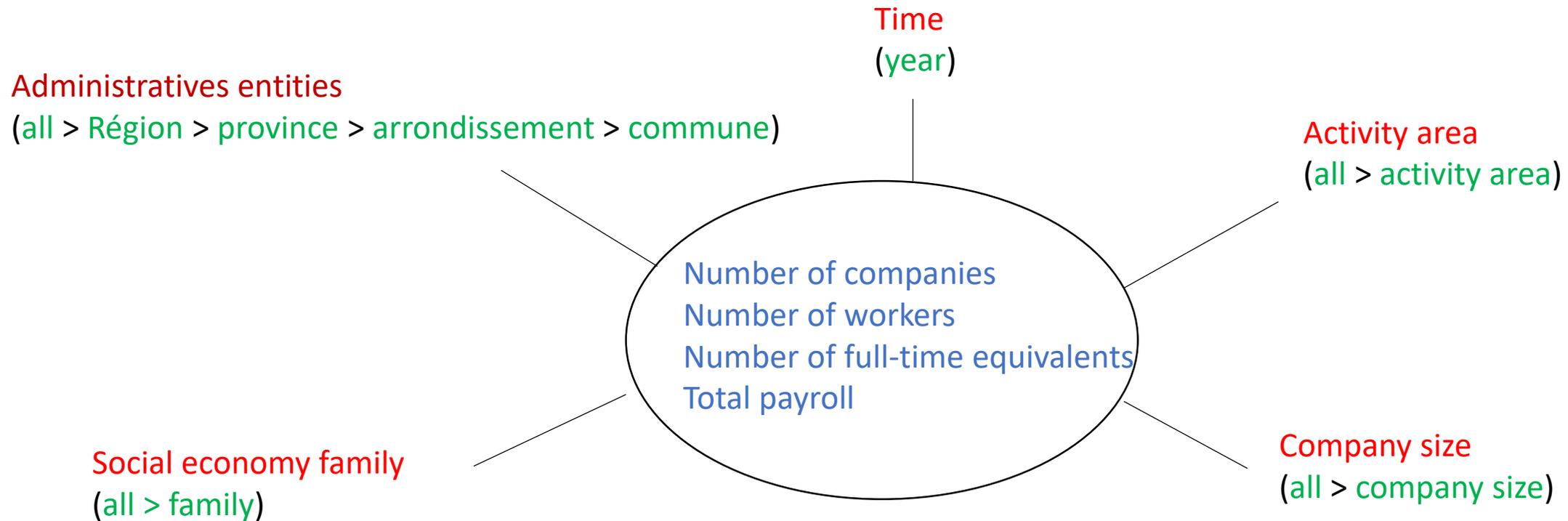


Issues

- Integration of **heterogenous** and **large** multidimensional datasets
 - Semantic and structure variations
 - Between France and Belgium
 - In time (evolution of data structure)
 - Between geographic levels (departments, regions, ...) due to statistical secret
- Free and easy **data exploration** for any user
- **Data integration** and platform administration **by non IT specialists**

METHODOLOGY

Multidimensional data model (star schema)



Dimension

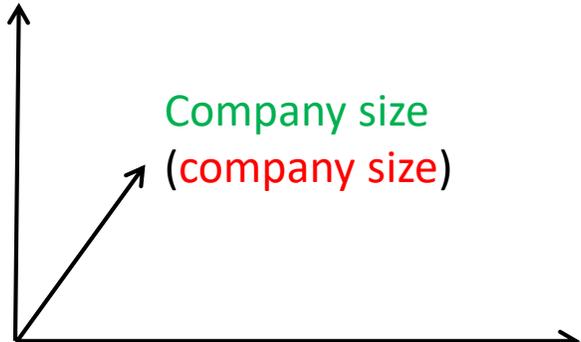
Geographic dimension

Dimension level

Measure

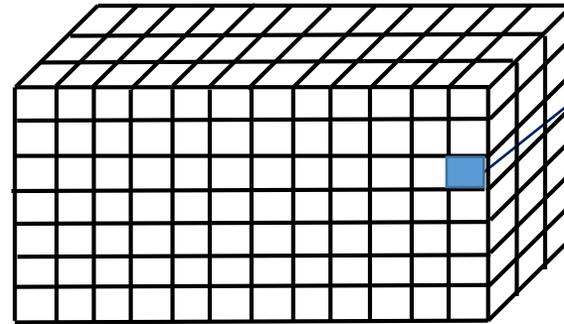
Data (hyper) cube

Activity area (activity area)



Company size
(company size)

Commune
(administrative entity)



FACT :

Number of companies

in Liège (commune),
with more than 1000 workers (size)
in construction sector (activity area)

(including all families for year 2019)

Dimension

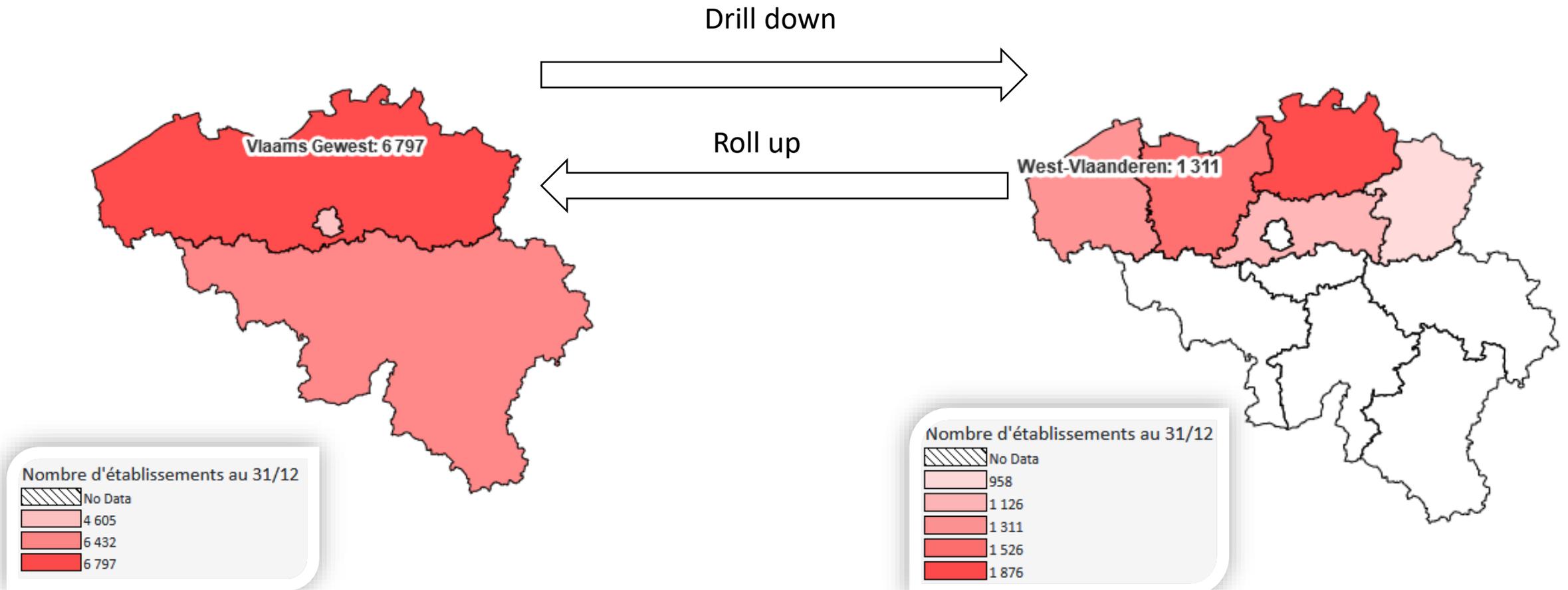
Geographic dimension

Dimension level

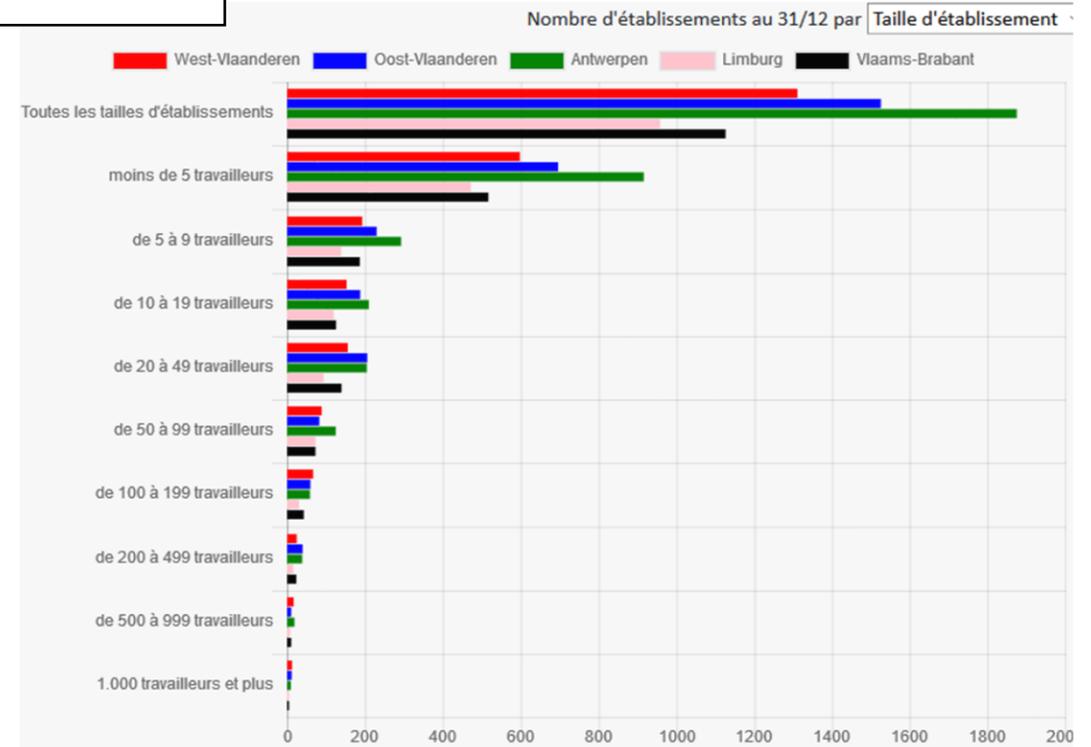
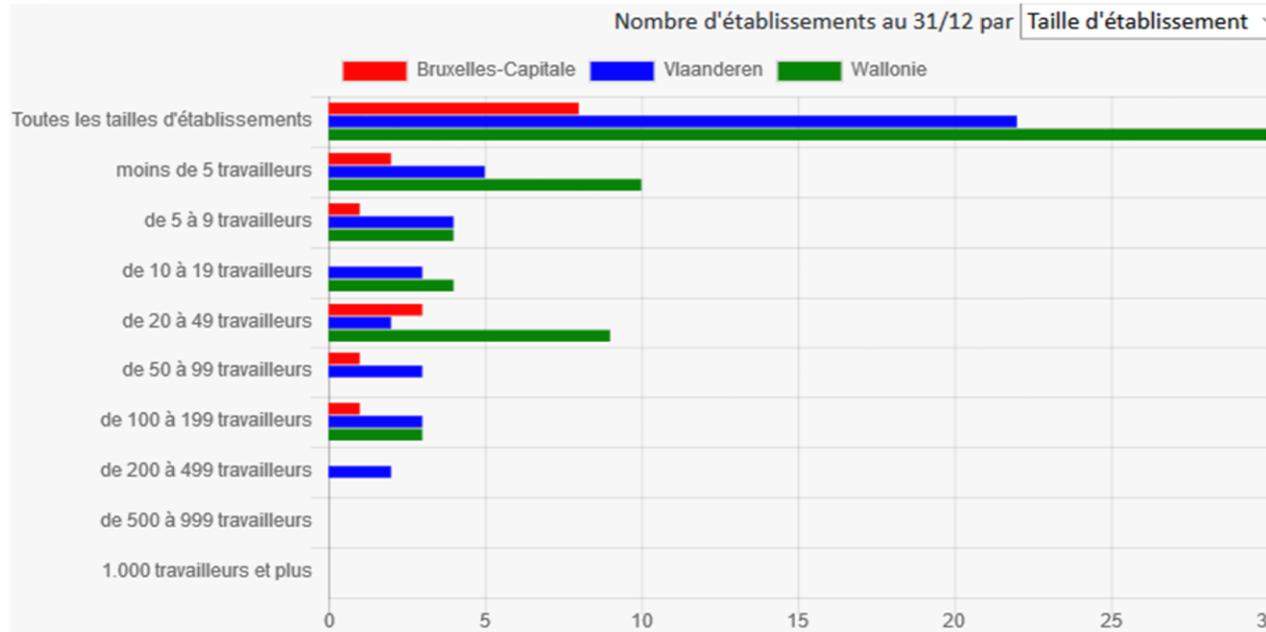
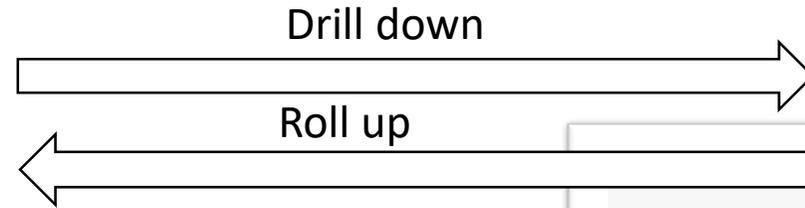
Level member

Measure

SOLAP: Drill geographic dimension



SOLAP: Drill geographic dimension

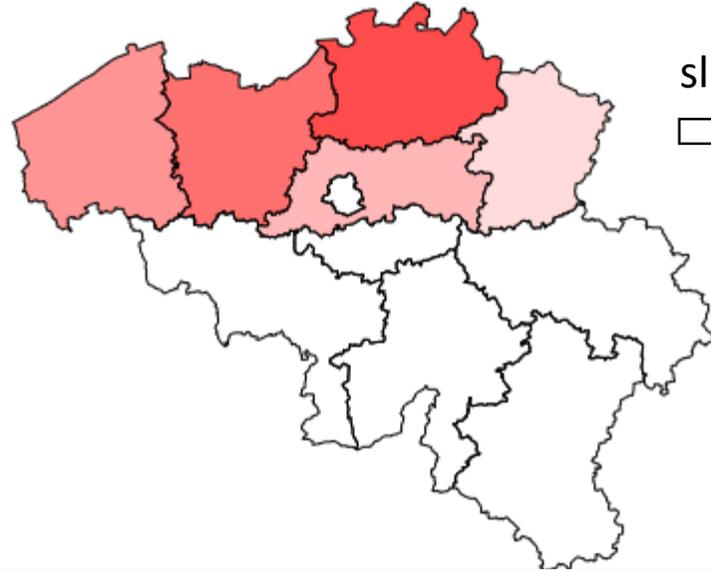


SOLAP: Slice dimensions

Famille:
Toutes les familles

Secteur:
TOUTES LES SECTIONS

Taille d'établissement:
Toutes les tailles d'établissemen

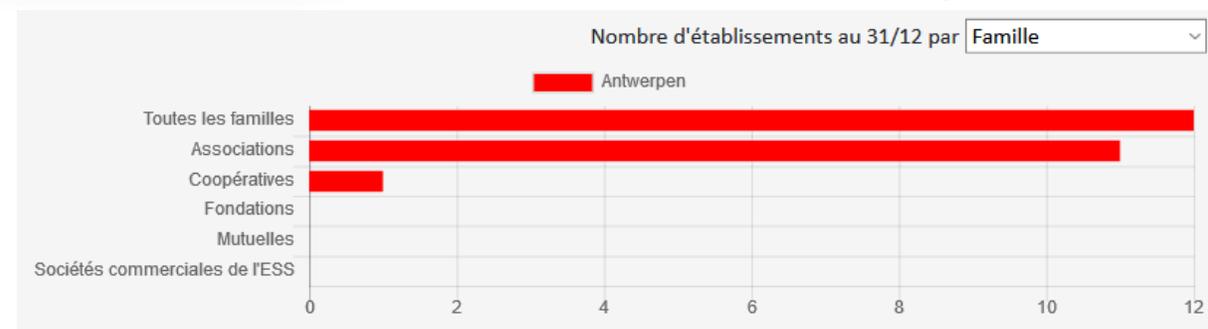
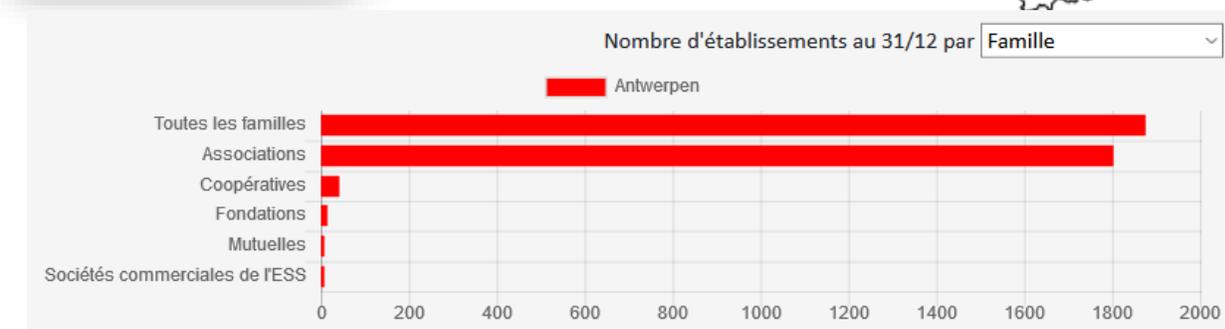
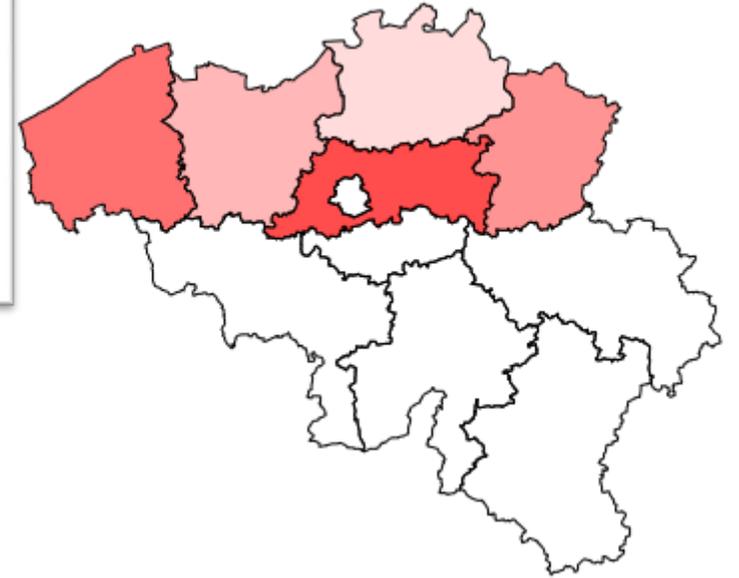


slice

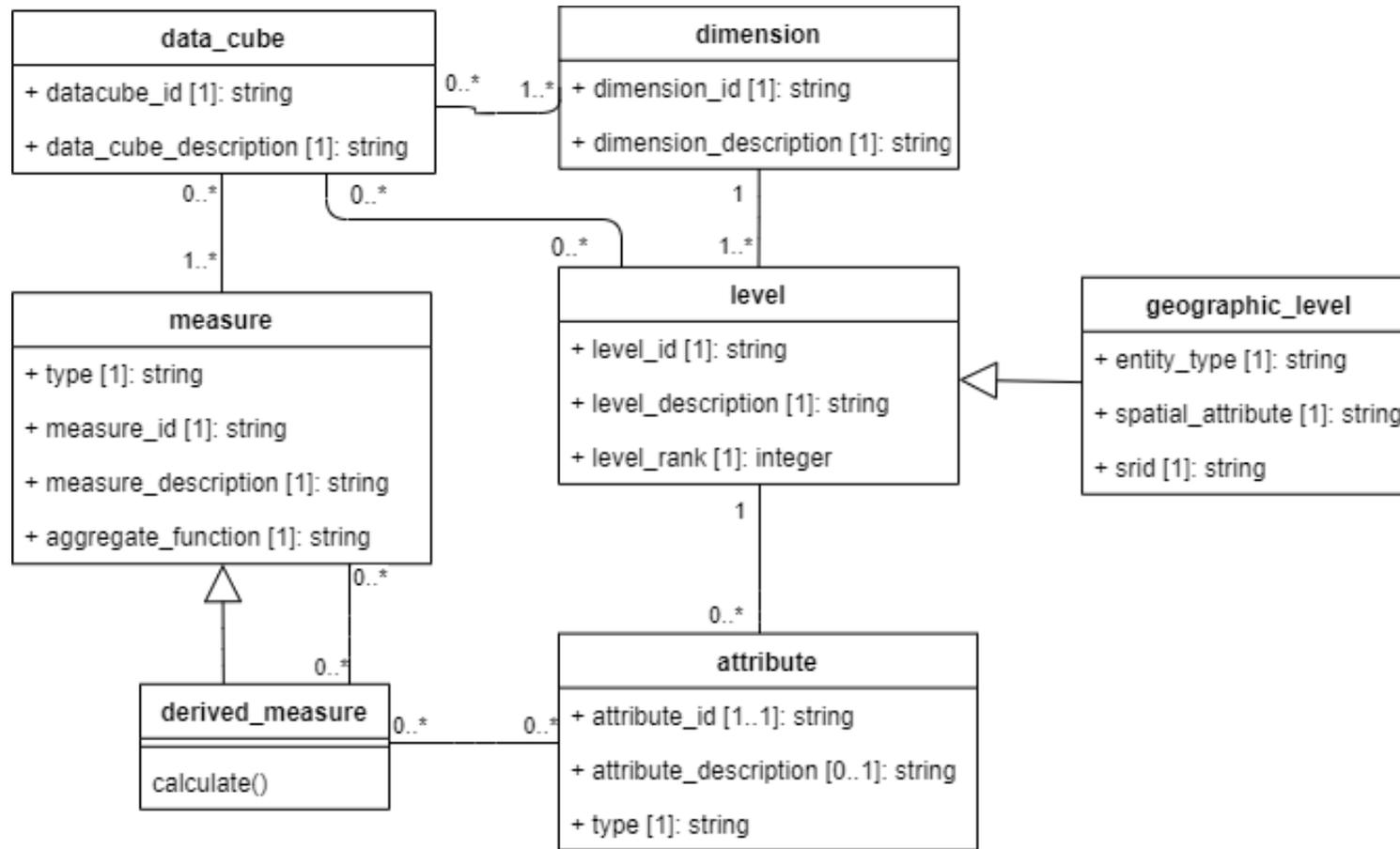
Famille:
Toutes les familles

Secteur:
AGRICULTURE, SYLVICULTURE ET

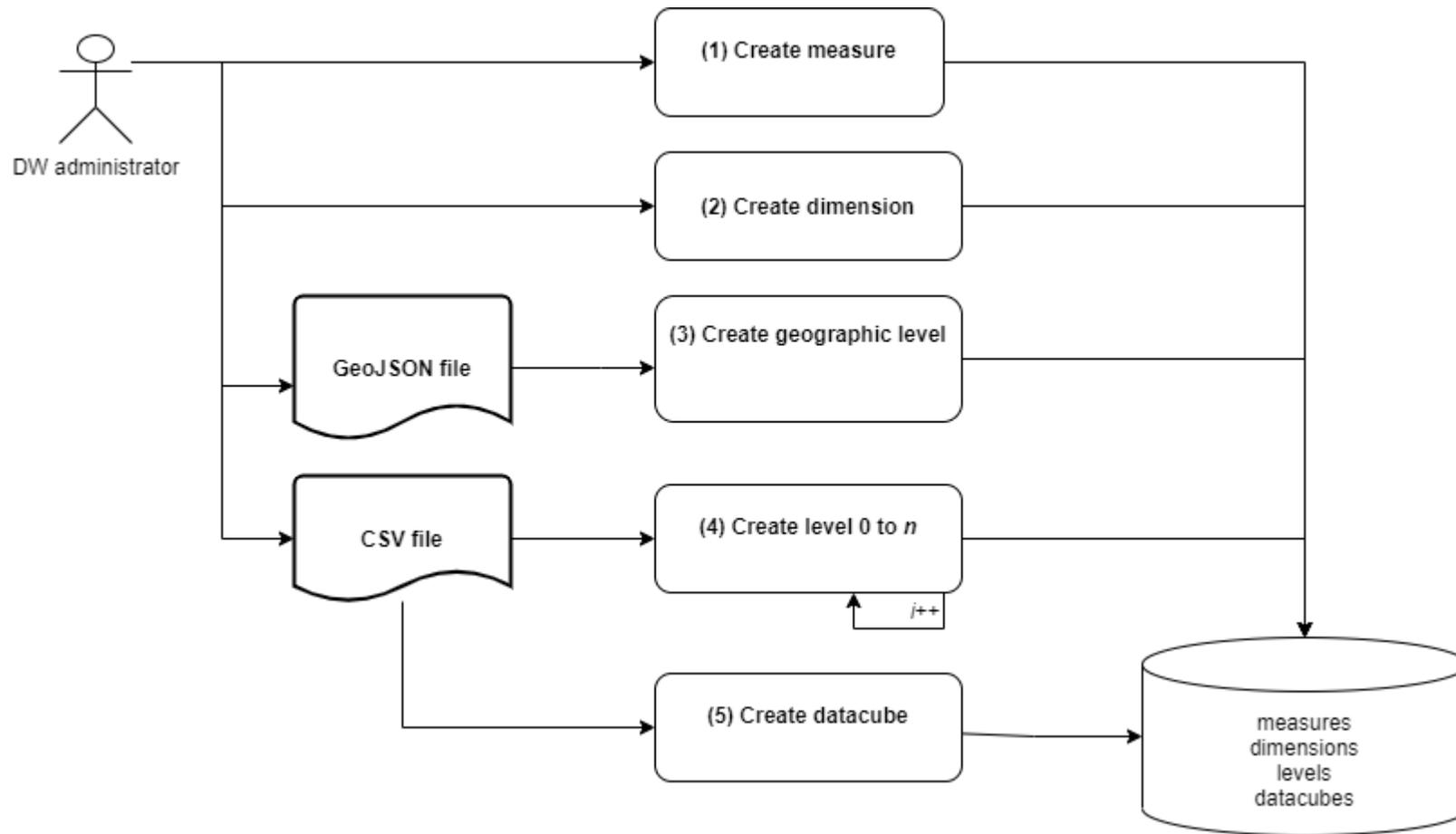
Taille d'établissement:
Toutes les tailles d'établissemen



Data cube meta model

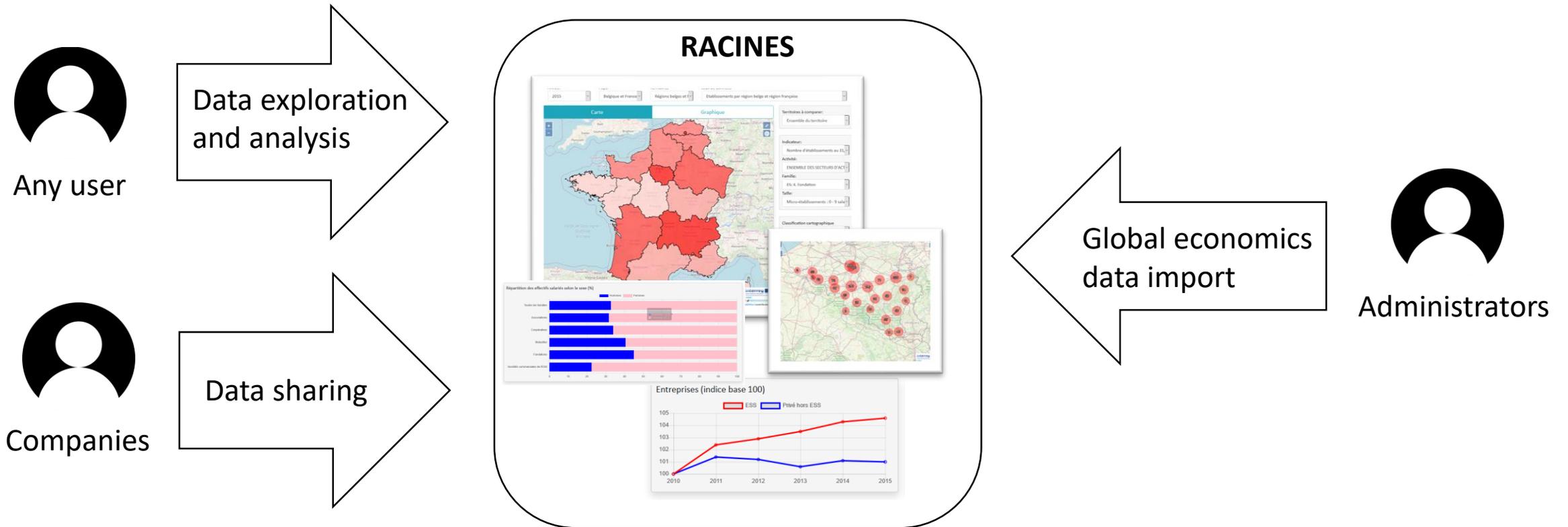


Data integration workflow



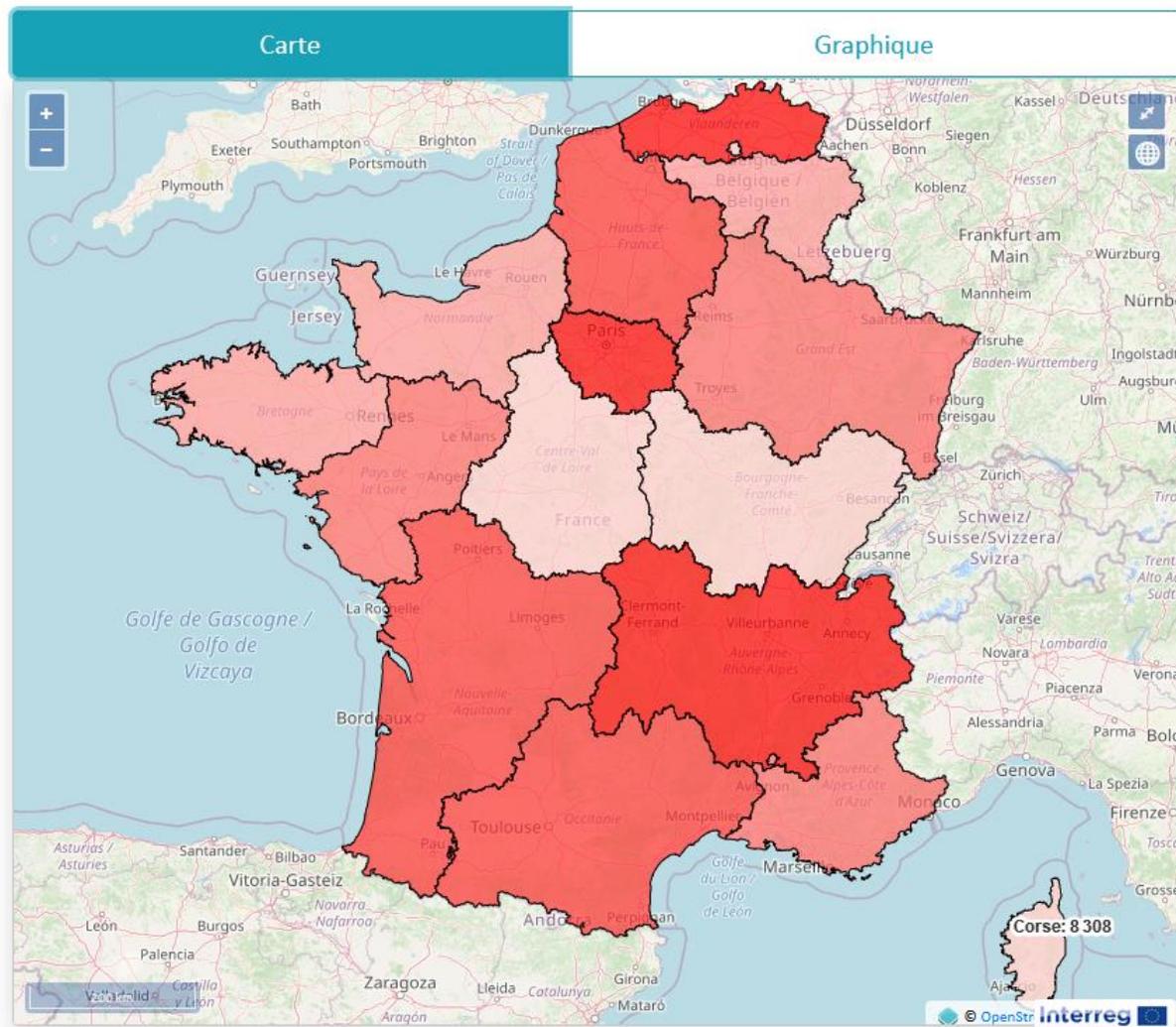
VALIDATION

RACINES web platform



SOLAP module

Année: 2015
Pays: Belgique et France
Territoires: Régions belges et f
Jeux de données: Postes de travail par région belge et région française



Territoires à comparer: Ensemble du territoire

Indicateur: Postes de travail

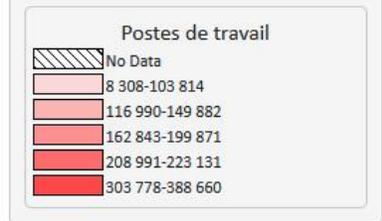
Sexe: Tous les sexes

Activité: Ensemble des secteurs d'activité

Catégorie socio-professionnelle: Ensemble des CSP

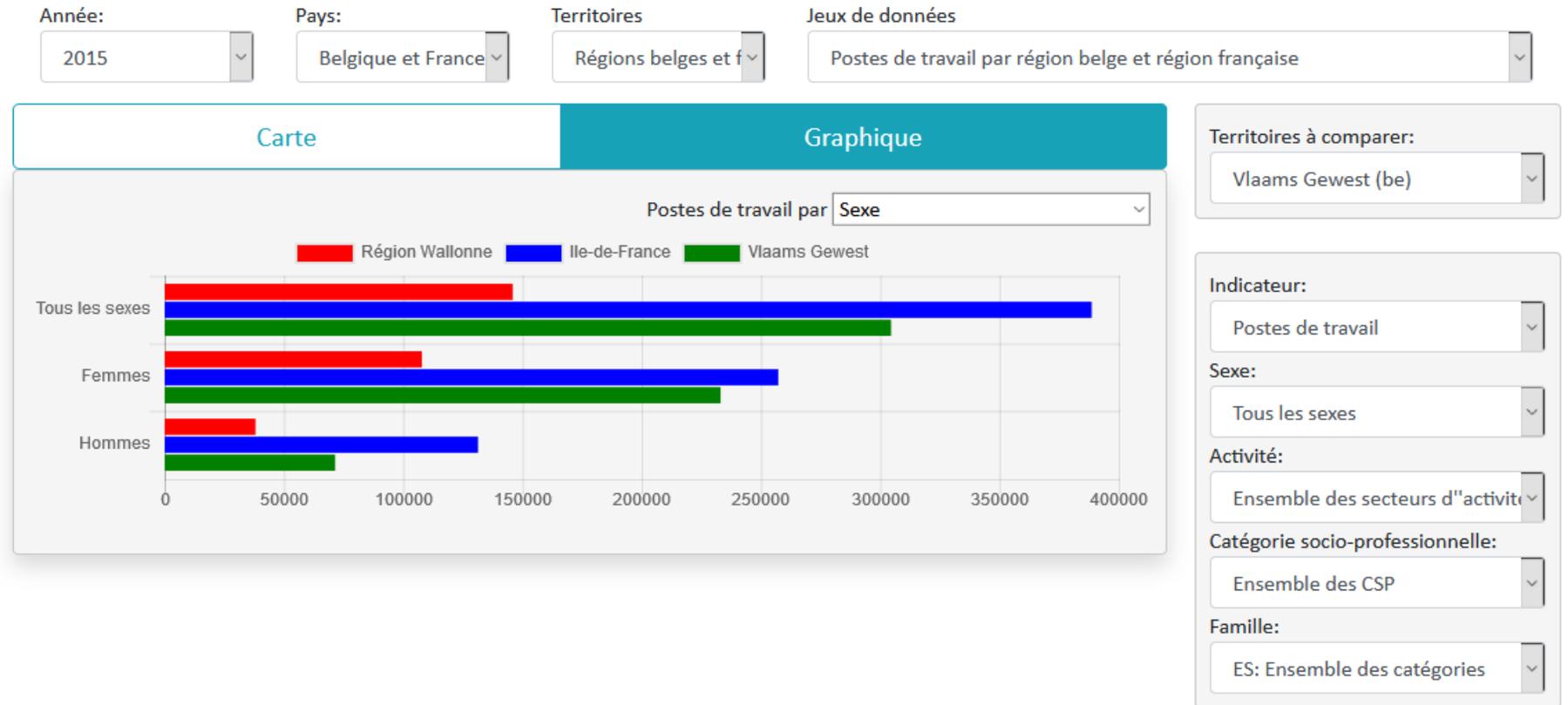
Famille: ES: Ensemble des catégories

Classification cartographique: Quintiles



Imprimer cette page

SOLAP module



Imprimer cette page

Reporting module

Rechercher dans l'arbre... Ouvrir les panoramas sélectionnés

- Belgique (> Region > Province > Arrondissement > Commune)
 - Region: Bruxelles-Capitale
 - Region: Vlaanderen
 - Region: Wallonie
 - Province: Brabant Wallon
 - Province: Hainaut
 - Province: Liège**
 - Arrondissement: Huy
 - Arrondissement: Liège
 - Arrondissement: Verviers
 - Arrondissement: Waremme
 - Province: Luxembourg
 - Province: Namur

- France
- Régions (> Département > EPCI)
 - Region: Alsace, Champagne-Ardenne et Lorraine
 - Region: Aquitaine, Limousin et Poitou-Charentes
 - Region: Auvergne et Rhône-Alpes
 - Region: Basse-Normandie et Haute-Normandie
 - Region: Bourgogne et Franche-Comté
 - Region: Bretagne
 - Region: Centre
 - Region: Corse
 - Region: Ile-de-France
 - Region: Languedoc-Roussillon et Midi-Pyrénées
 - Region: Nord - Pas-de-Calais et Picardie**
 - Region: Pays de la Loire
 - Region: Provence-Alpes-Côte d'Azur
- Zones d'emplois

Reporting module

Territoire: Province Liège

Année de référence: 2015

Fournisseurs: ONSS, BCE

Liège

Dans Région de Wallonie

Population: 1 397 247 habitants

Densité: 362 habitants par km²

Poids de l'ESS dans l'économie du territoire

Nombre d'établissements: 1990

Nombre d'emplois total: 37 037

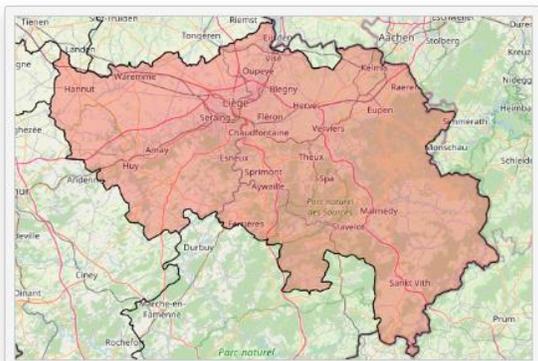
Masse salariale totale: 197 376 895 €

Indicateurs génériques

Revenu median net imposable par déclaration: 22 092 €

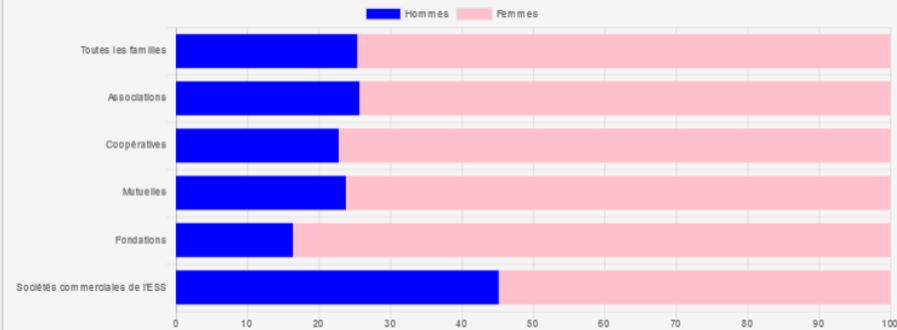
Taux de chômage (15-64 ans): 17 %

Taux d'activité (15-64 ans): 68 %

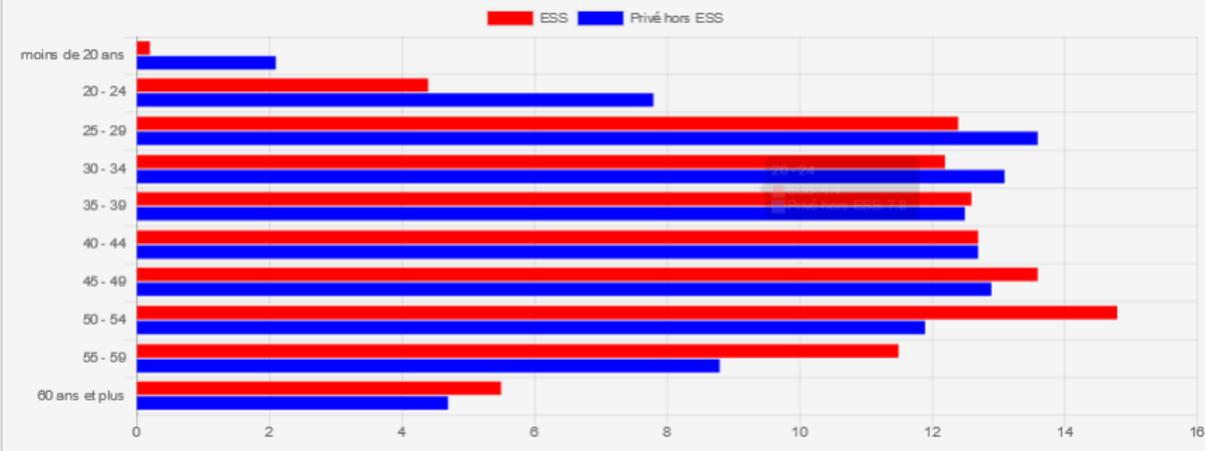


LES CARACTÉRISTIQUES DES TRAVAILLEURS

Répartition des effectifs salariés selon le sexe (%)

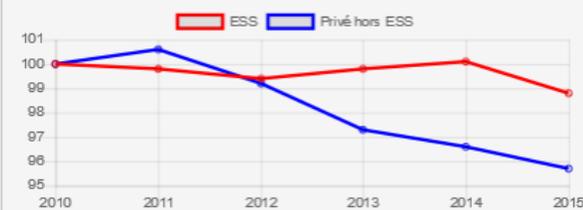


Répartition des effectifs salariés selon l'âge (%)



EVOLUTION ANNUELLE

Entreprises (indice base 100)



Emplois (indice base 100)



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CONCLUSION

Conclusion

- Presentation of a **generic data cube meta-model** allowing
 - Spatial Online Analytical Processing (SOLAP) of heterogeneous data
 - Automatic reporting
 - Easy data integration by non-specialists
- Successfully tested with socio-economic data and already in production
- Further research
 - Implementation issues still have to be solved
 - Test / adapt the model with other applications and other database management systems



Thank you for your attention

<http://racines.projetvisesproject.eu>



LIÈGE université
Geomatics



cress

Chambre Régionale
de l'Économie Sociale
et Solidaire
Hauts-de-France

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