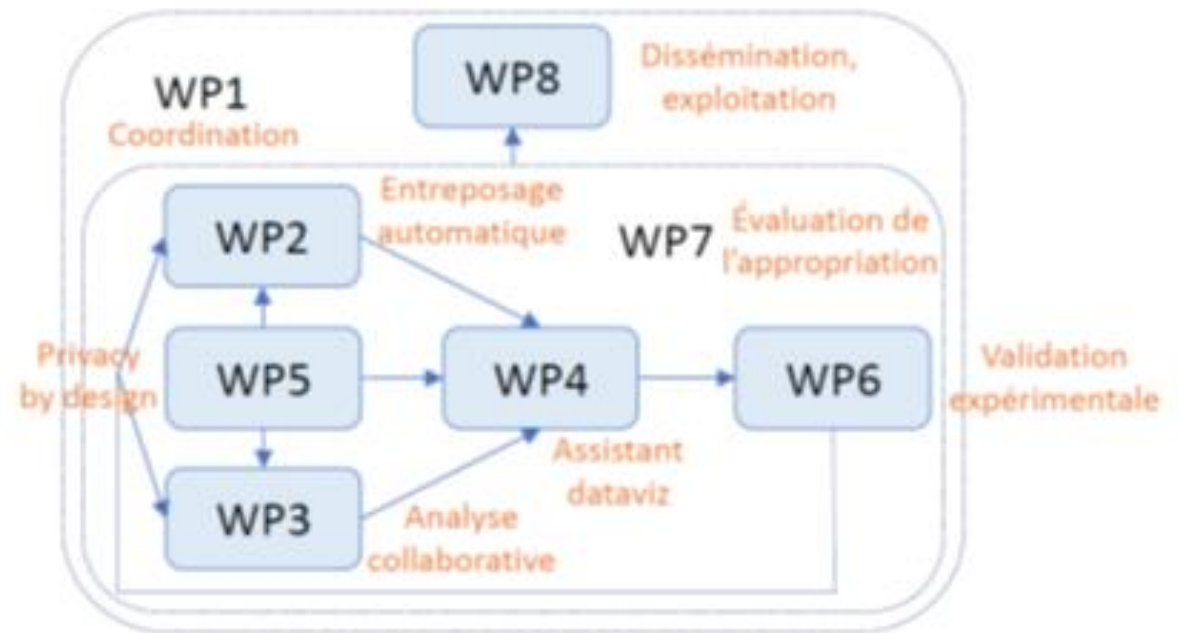


## WP3 - Analyse Collaborative

Présentation par :

- Cécile FAVRE
- Fahad MUHAMMAD
- Olga CHEREDNICHENKO
- Oleksandr SUTIAHIN

## Présentation du WP3





## Objectifs du WP3

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### → Initialement

“On top of analytics tools, a **collaborative layer** must allow analysis sharing, mashup, annotation, comparison and publication. The literature very little addresses such joint analyses and proposes no technical solution. While the Web 2.0 allows mobilizing users to generate data (crowdsourcing), our goal is also to help them analyse data and co-construct knowledge. We plan to tackle this issue by modelling such knowledge and its production process as **communities of practice** do.”

### → Finalement

Exploration de différentes façons d’envisager la collaboration

## Résultats du WP3

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- Développement de prototypes (POC) pour mettre en œuvre l'exploration de possibilités d'analyse collaborative avec 2 volets complémentaires :
  - Permettre l'enregistrement d'une démarche d'analyse et des résultats par l'utilisateur/trice pour un cas, qui peut ensuite être partagé aux autres personnes, qui à leur tour peuvent enrichir cette démarche (démarche itérative dans une perspective de construction commune d'analyse)
  - Proposer la mise en œuvre d'un agent conversationnel dédié à l'aide dans la démarche d'analyse :
    - **collaboration avec un assistant virtuel**
    - prise en compte de l'accessibilité de la BI à des **utilisateur/trices novices**
- Pour ces deux propositions :
  - Appui sur la définition d'une ontologie représentant les informations nécessaires pour permettre l'analyse collaborative



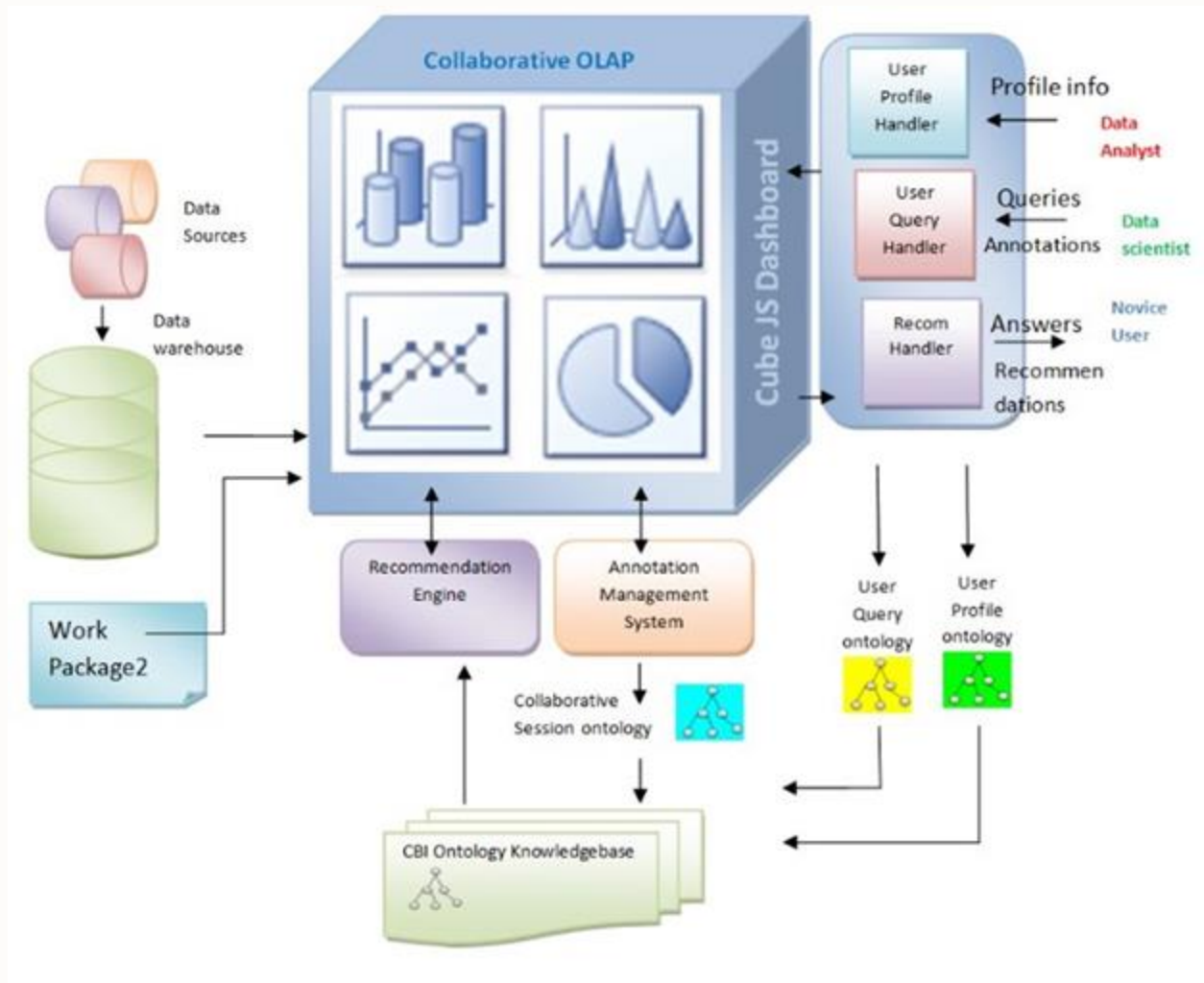
## Plan de la présentation

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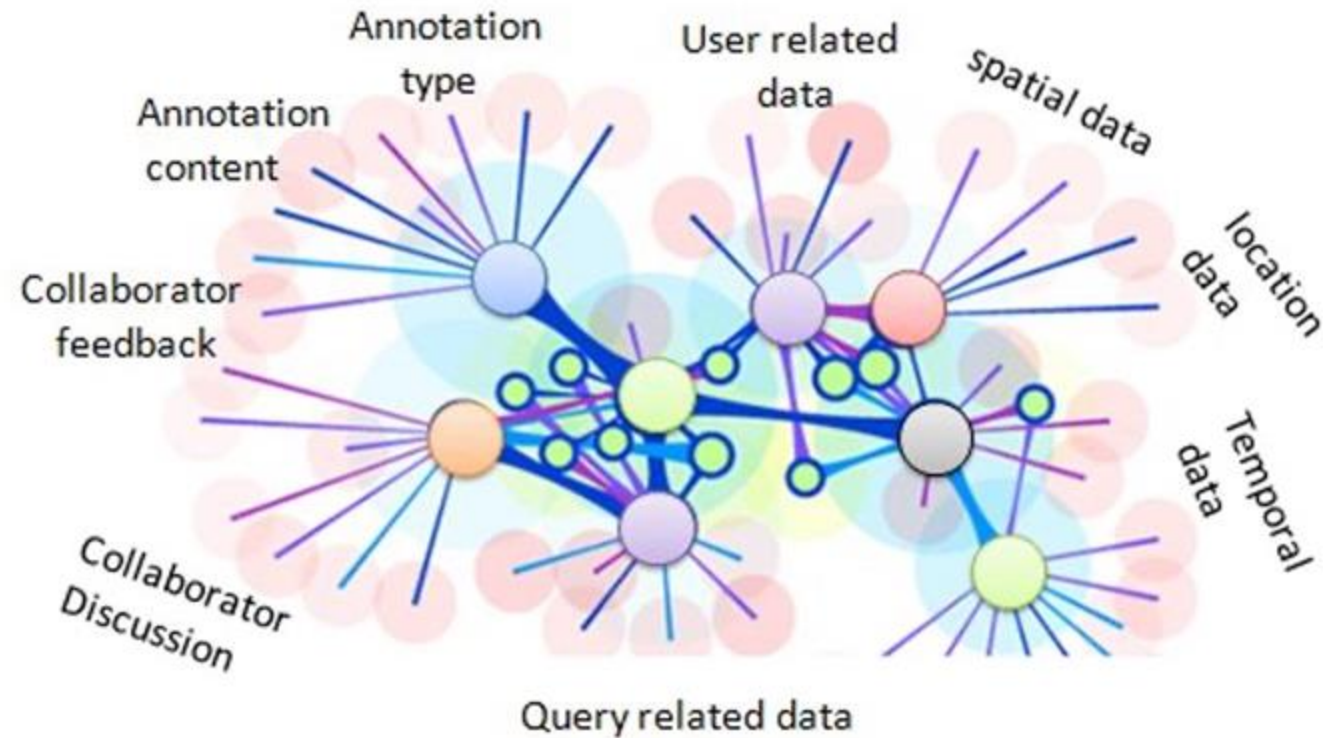
- Fahad MUHAMMAD :
  - Framework pour la BI collaborative
  - Collaborative BI Ontology
  - Case study et aperçu des résultats
- Olga CHEREDNICHENKO :
  - Un framework pour la BI collaborative étendue à des agents conversationnels
  - Case study sur le tourisme
  - Prototype (video of Oleksandr SUTIAHIN)
- Cécile FAVRE :
  - Bilan réflexif
  - Perspectives



# A Collaborative BI Framework

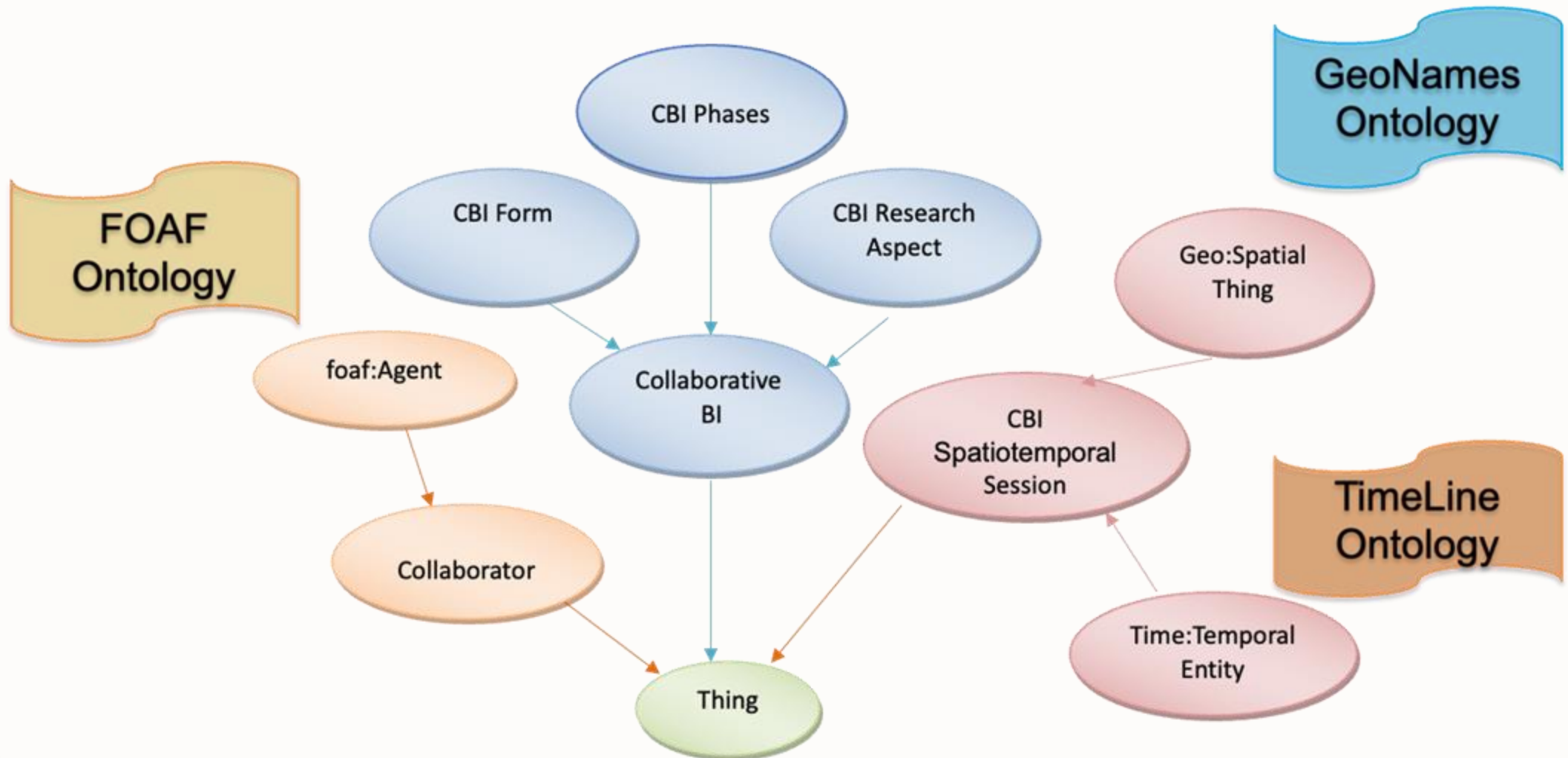


## Data to store



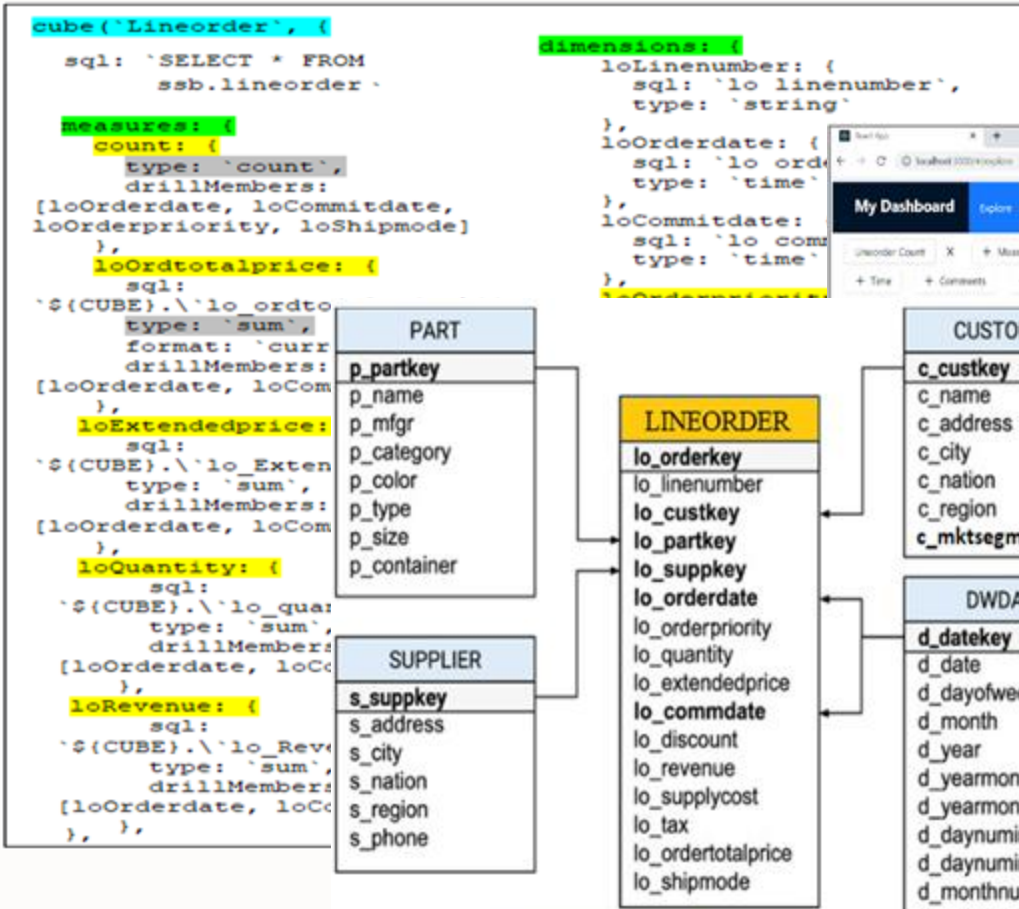
Collaborative Session Data

## Collaborative BI Ontology (CBIOnto)





# Case-study



Fact Table: **LINEORDER**

Dimension Tables: **CUSTOMER, SUPPLIER, PART, DWDATE**

The dashboard displays several data visualizations:

- Bar Chart:** Shows 'LineOrder Cost' for different order priorities: 1-URGENT, AIR (856998), 1-LOW, TRUCK (857324), and 1-LOW, AIR (857401).
- Pie Chart:** Shows 'LineOrder Cost' by shipment mode: TRUCK, SHIP, MAIL, FOB, AIR, REG AIR, and RAIL.
- Bar Chart:** Shows 'LineOrder Cost' by order priority: 1-HIGH, 1-URGENT, 1-LOW, 1-MEDIUM, and 1-NOT SPECIFIED.
- Pie Chart:** Shows 'Order wst Order Priorities' by customer market segment: HOUSEHOLD, BUILDING, FURNITURE, MANTENANCE, and AUTOMOBILE.
- Comments Panel:** Lists 6 comments regarding shipment modes and order priorities.





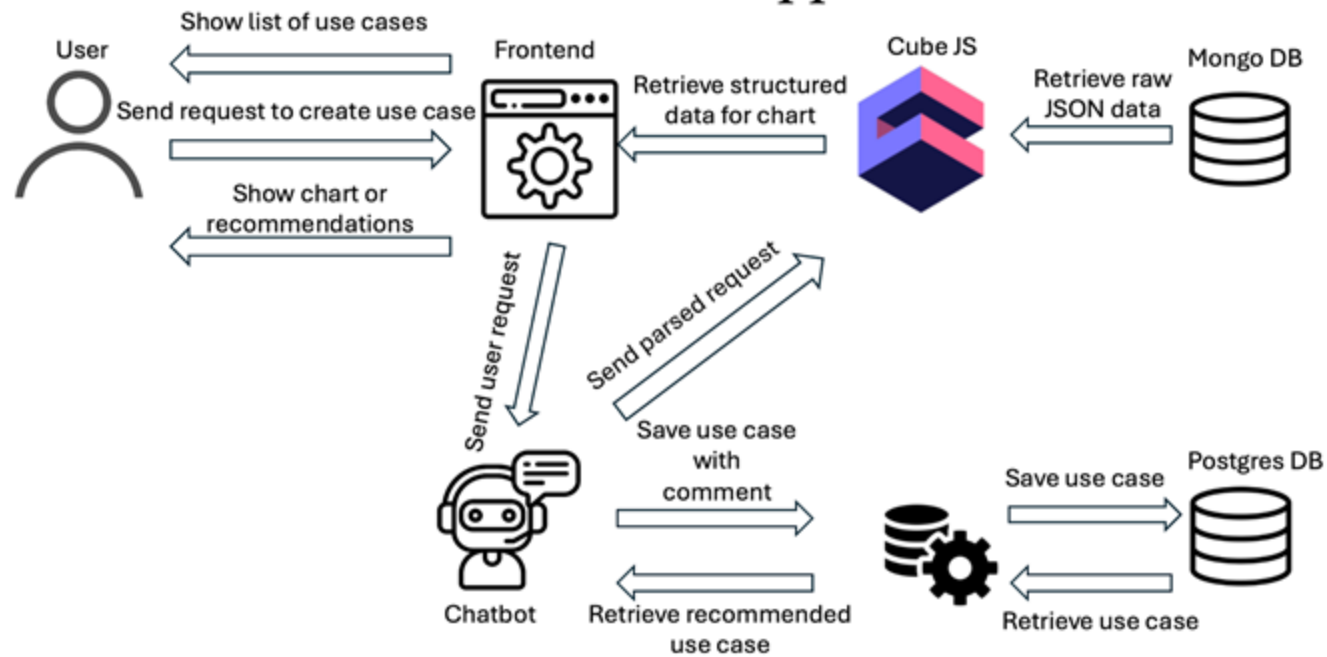
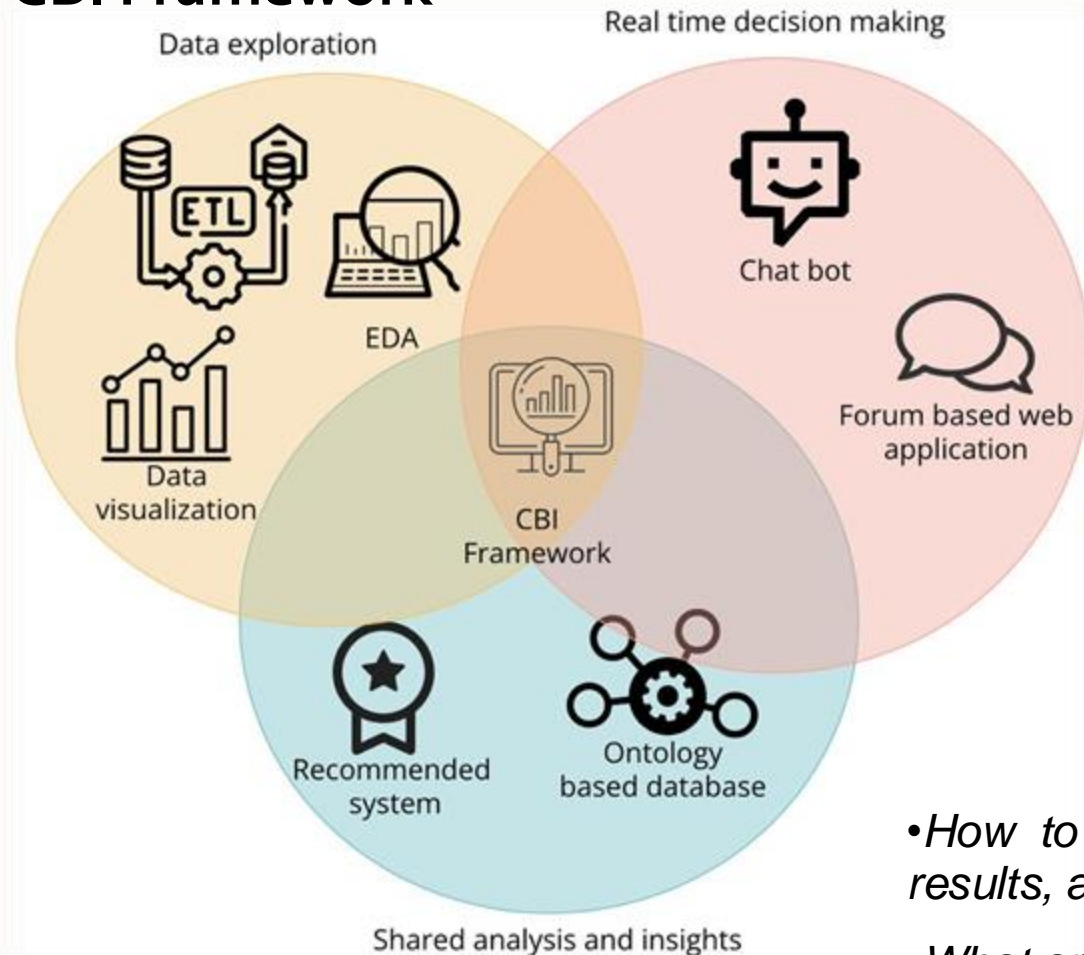
## Publications liées au WP3

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- F. Muhammad, "Une plateforme d'informatique décisionnelle collaborative", Atelier « La place des usagers et usagers dans les outils de fouille et d'exploration de données » (**PAUL@EGC 2024**), Dijon, janvier 2024. [hal-04510198]
- F. Muhammad, J. Darmont, "An Ontology-based Collaborative Business Intelligence Framework", 12th International Conference on Data Science, Technology and Applications (**DATA 2023**), Lisbon, Portugal, July 2023, 480-487. [hal-04097009]
- F. Muhammad, J. Darmont, C. Favre, "The Collaborative Business Intelligence Ontology (CBIOnt)", 18e journées Business Intelligence et Big Data (**EDA 2022**), Clermont-Ferrand, Octobre 2022; RNTI, Vol. B-18, 61-72. [hal-03834085v1]

# Collaborative space & reusing experience

## CBI Framework

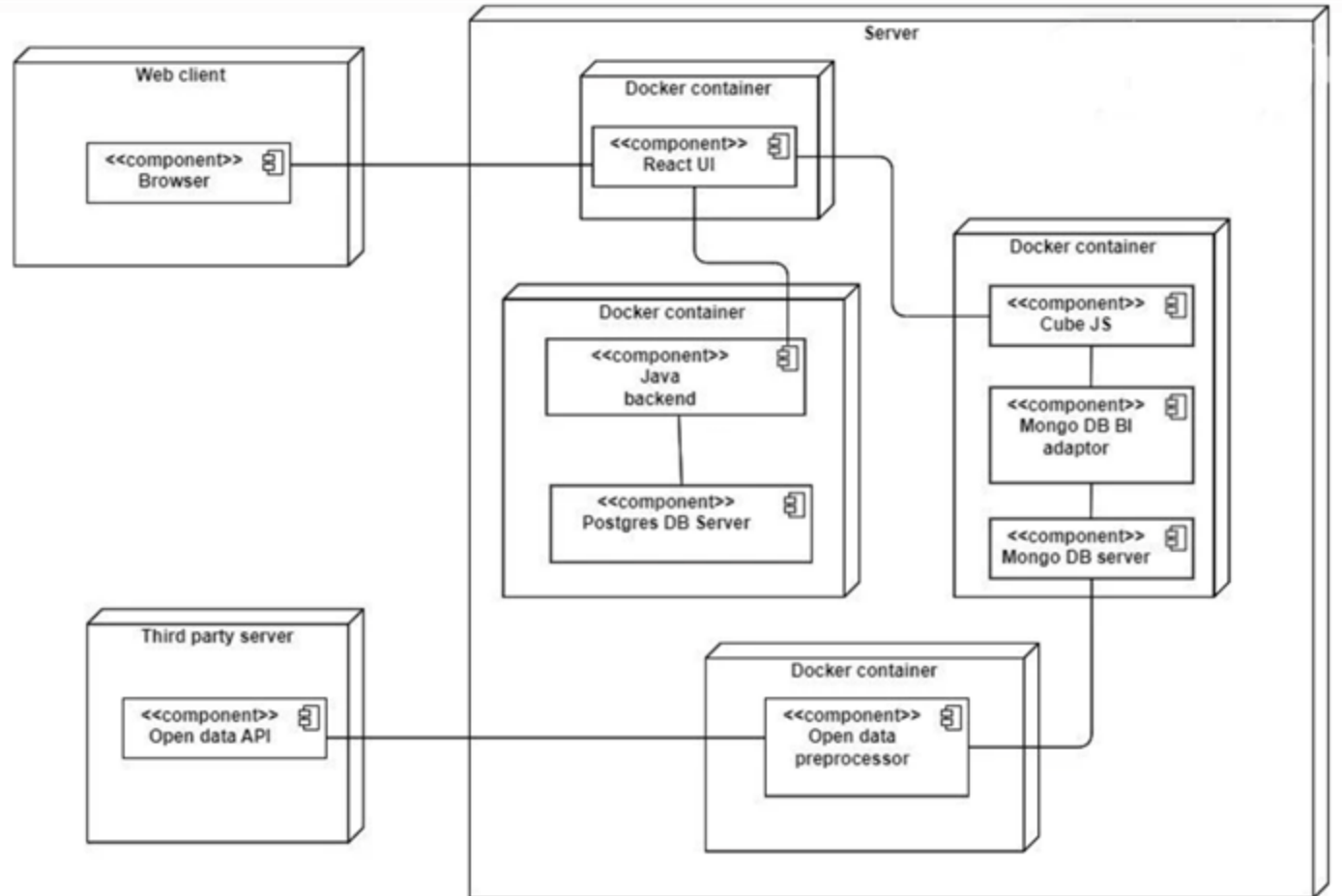


- How to help users analyze data, annotate and share analysis results, and to construct knowledge?
- What are the most important ways of achieving CBI?

# The BI4Tourism

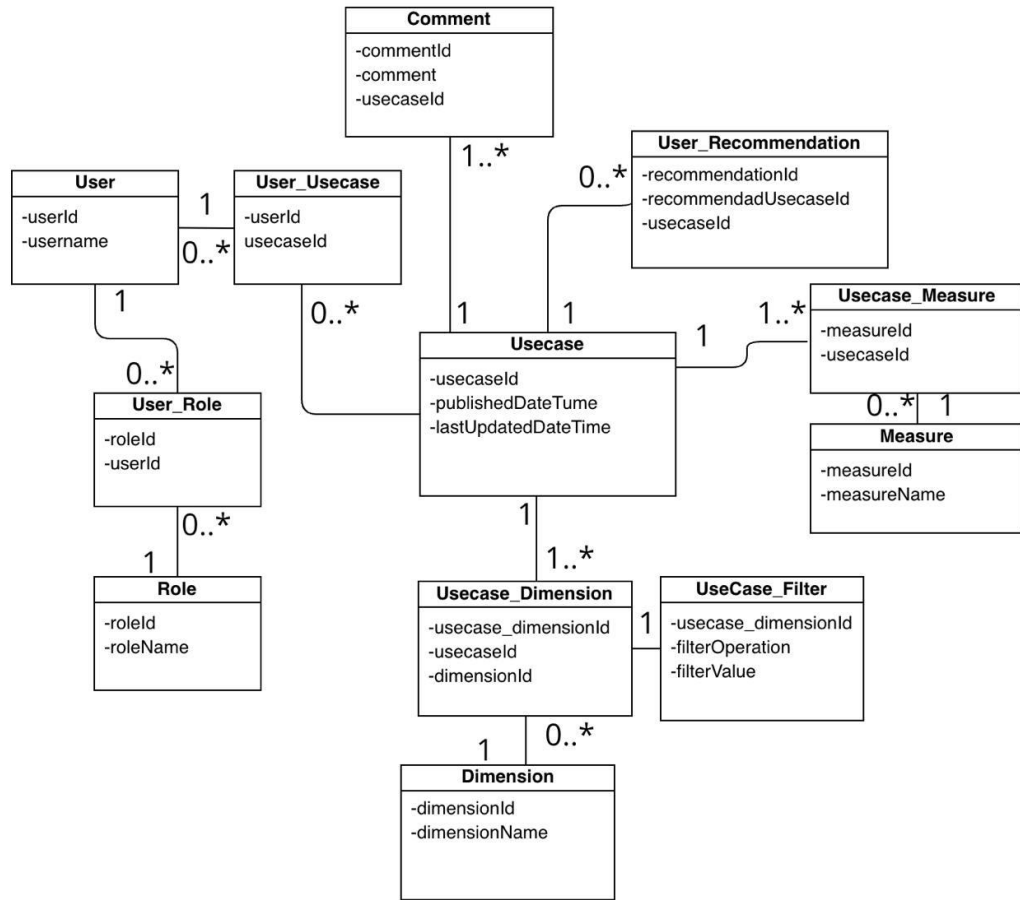
Create playground for Collaborative Business Intelligence (CBI) within the tourism domain.

This playground will serve as a dynamic platform for organizing collaborative BI processes, collecting valuable data, and exploring the possibilities of providing personalized recommendations

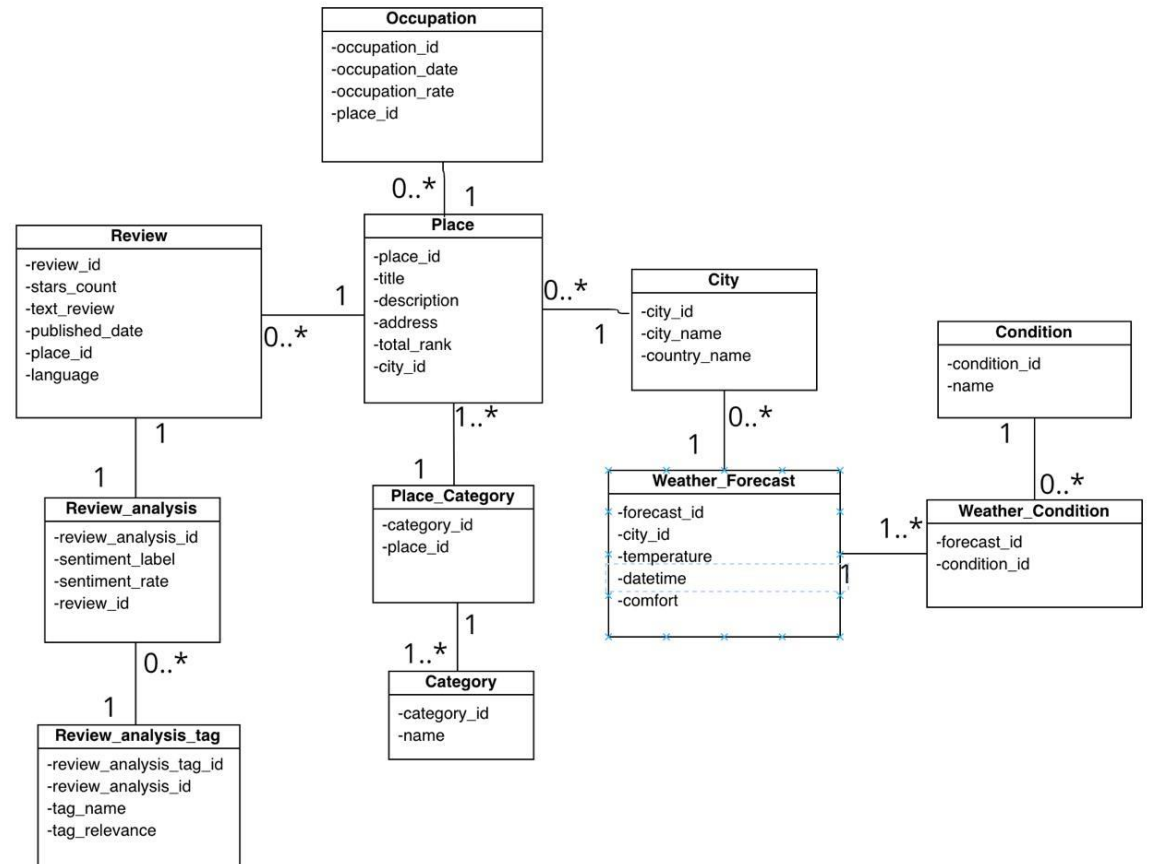




# Data in the playground for Collaborative BI



- **Data Exploration:** tourism data, encompassing various sources and datasets



- **Shared Analysis and Insights:** shared access to data and visualization, explore, interpret, and derive insights

# Prototyping



<https://github.com/olddeer/bifortourism-web>  
<https://github.com/olddeer/usecase-app>

### Tourism Data Analysis

Helps you to analyse touristic information  
Search here to get analysis to your request

Suggested Search: average temperature this week | most reviewed cafes | most visited museum

Chat gpt | Query builder | List of users' requests | Search by already created usecases

## Query builder

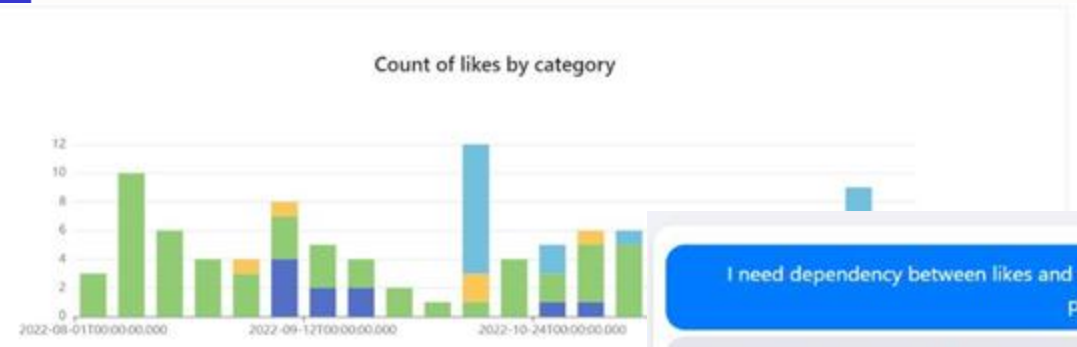
Please select dimensions, measures and filters to build chart

Please select measure

- Attractions Populartimeshistogram We Occupancy Percent Count
- Attractions Populartimeshistogrammocked Count
- Attractions Populartimeshistogrammocked Occupancy Percent Measure
- Attractions Reviews Count
- Attractions Reviews Re
- Attractions Reviews Re

### Login

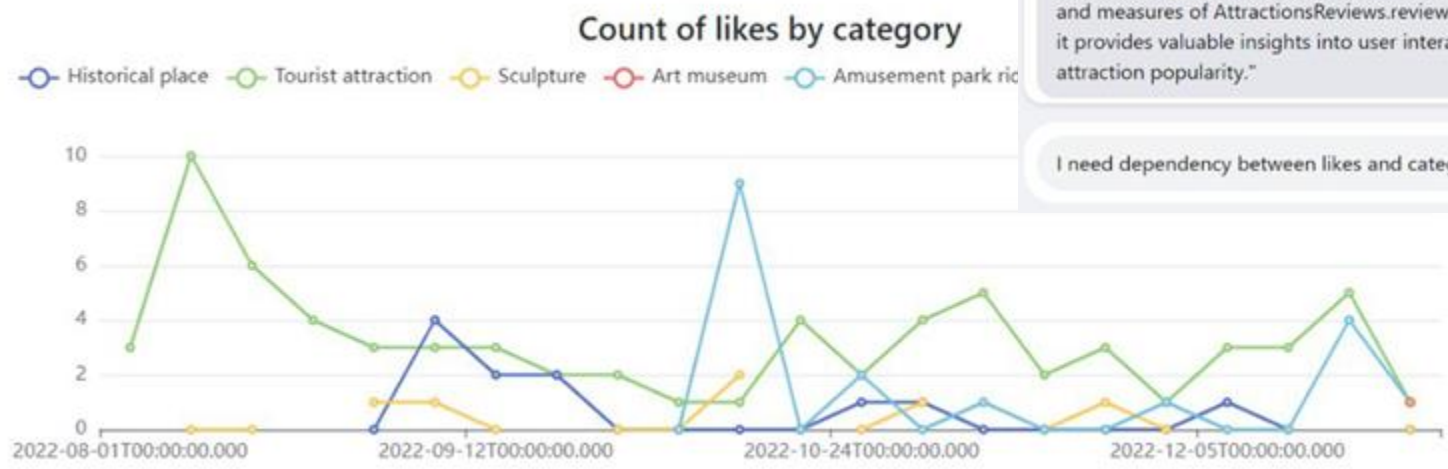




I need dependency between likes and categories in places in Paris

Based on your request for a dependency analysis between likes and categories in places in Paris, the most relevant object is "Attraction Categories and Associated Review Likes Analysis". Title: Attraction Categories and Associated Review Likes Analysis  
Description: "This analysis showcases the correlation between different attraction categories and the count of likes each attraction receives on its reviews. By utilizing the dimensions of Attractions.categoryname and measures of AttractionsReviews.reviewsLikescount, it provides valuable insights into user interaction and attraction popularity."

I need dependency between likes and categoc





# Prototyping



<https://github.com/olddeer/bifortourism-web>  
<https://github.com/olddeer/usecase-app>

localhost:3001

BI4Tourism

### Login

user2

.....

Login



# Prototyping



<https://github.com/olddeer/bifortourism-web>  
<https://github.com/olddeer/usecase-app>

localhost:3001

BI4Tourism

### Login

user1

.....

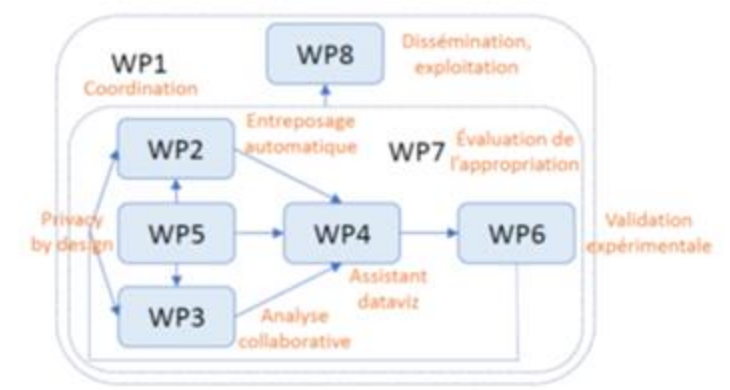
Login



## Publications liées au WP3

- Development of Collaborative Business Intelligence Framework for Tourism Domain Analysis. In 3rd Workshop on Personalization and Recommender Systems (**PeRS@ADBIS 2024**), volume 2186, pages 253–262, Bayonne, France, August 2024. Springer. URL <https://hal.science/hal-04706610>.
- Selection of Large Language Model for development of Interactive Chat Bot for SaaS Solutions. In 8th International Conference on Computational Linguistics and Intelligent Systems (**CoLInS 2024**), volume 3722, pages 66–87 (Vol. IV), Lviv, Ukraine, April 2024. URL <https://hal.science/hal-04545073>.
- Towards Collaborative Business Intelligence with Conversational Agents: A User-Centric Approach. In Atelier " La place des usagers et usagers dans les outils de fouille et d'exploration de donn'ees " (**PAUL@EGC 2024**), Dijon, France, January 2024. URL <https://hal.science/hal-04510208>.
- Recommender Chatbot as a Tool for Collaborative Business Intelligence in Tourism Domain. In 2nd Workshop on Personalization and Recommender Systems (**PeRS@ADBIS 2023**), volume 1850 of CCIS, pages 604–611, Barcelona, Spain, September 2023a. Springer. doi: 10.1007/978-3-031-42941-5\_53. URL <https://hal.science/hal-04121612>.
- Collaborative Business Intelligence Virtual Assistant. In International Workshop on Modern Machine Learning Technology & Data Science (**MoMLeT&DS 2023**), volume Vol-3426, Lviv, Ukraine, June 2023b. URL <https://hal.science/hal-04121499>.
- Towards Cross-Lingual Transfer Based on Self-Learning Conversational Agent Model. In 6th International Conference on Computational Linguistics and Intelligent Systems (**CoLInS 2023**), volume 3396 of CEUR, pages 194–205 (Volume II), Kharkiv, Ukraine, April 2023. URL <https://hal.science/hal-04121498>.
- A Reference Model for Collaborative Business Intelligence Virtual Assistants. In 7th International Conference on Computational Linguistics and Intelligent Systems (**CoLInS 2023**), volume 3403, pages 114–125, Kharkiv, Ukraine, April 2023a. URL <https://hal.science/hal-04075892>.
- Towards Collaborative Business Intelligent Framework: Crowdsourcing Approach. In 42nd International Conference on Organizational Science Development, pages 197–207, **Portoroz, Slovenia, March 2023**. University Press. doi:10.18690/um.fov.3.2023.16. URL <https://hal.science/hal-04117219>.

## Bilan réflexif



### Principales difficultés liées au WP3 :

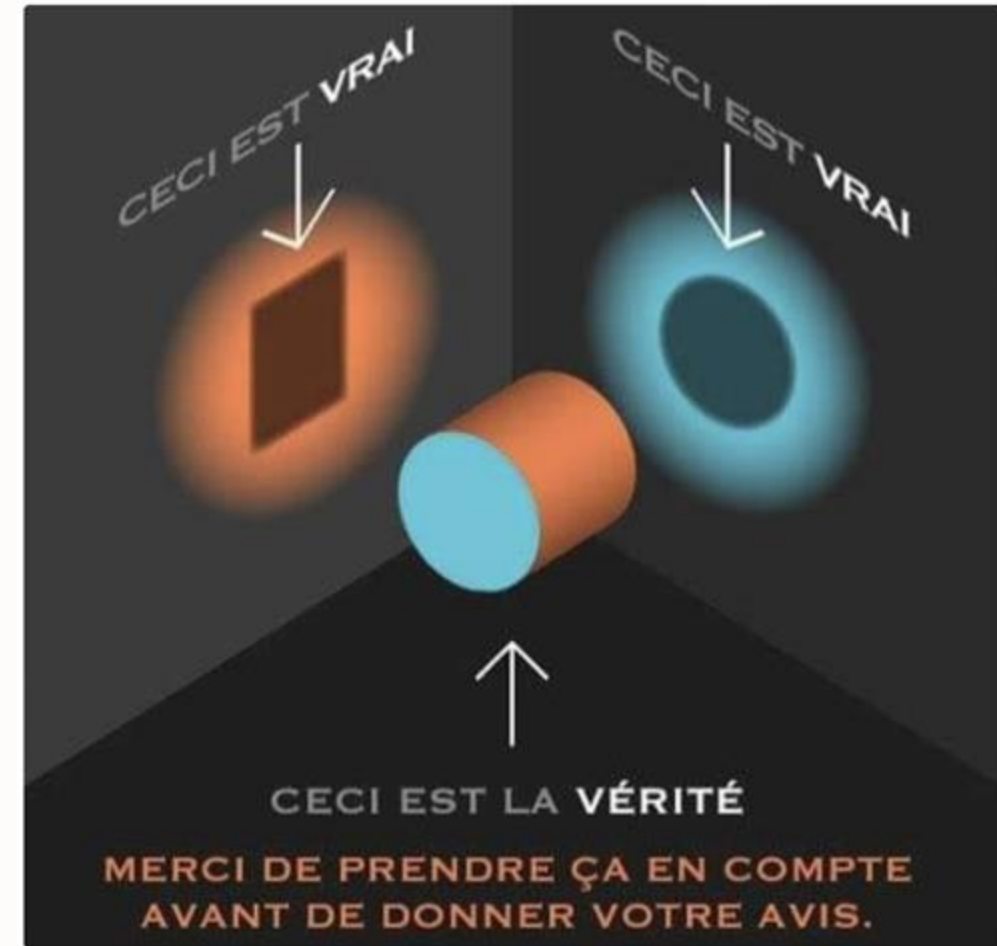
- Articulation des travaux en WP en "silos" : difficulté de la temporalité et de la collaboration inter-workpackages (quelles données ?, lien avec visualisation et construction de l'entrepôt, ...)
- Une réponse scientifique (du point de vue informatique) et technique aux enjeux de collaboration en BI (POC), mais éloignée d'une réelle perspective des usages (que pourrait apporter les sciences de l'information et de la communication) : comment se crée une dynamique autour des données ?

### Bilan des résultats :

- Opportunité d'explorer différentes formes de collaboration d'un point de vue technique (POC)
- Hétérogénéité des études de cas qui amène à questionner la généricité des approches

## Perspectives

- Perspectives directes :
  - Amélioration de l'agent conversationnel : besoin d'apprentissage pour extension à d'autres domaines d'application (au-delà du tourisme)
  - D'un point de vue technique : enjeu d'intégration des différentes propositions dans un même framework
- Plus globalement pour un accès à toutes et tous :
  - Enjeux linguistiques
  - Enjeu de génération de l'analyse semi-automatique, voire automatique à partir des visualisations
  - Intérêt d'une approche collaborative (multilingue ?) pour améliorer l'interprétation (annotations, commentaires, etc.) et construire ainsi une connaissance commune sur les données traitées.



<https://www.jeuxvideo.com/forums/42-68-70371367-1-0-1-0-dans-cette-image-ou-se-situe-la-verite.htm>