

# A Semantic Big Biodiversity Data Integration Tool

*Taysir Soliman, Alsayed Algergawy,  
Birgitta König-Ries, Majid Askar and  
Marwa Abdelreheim*

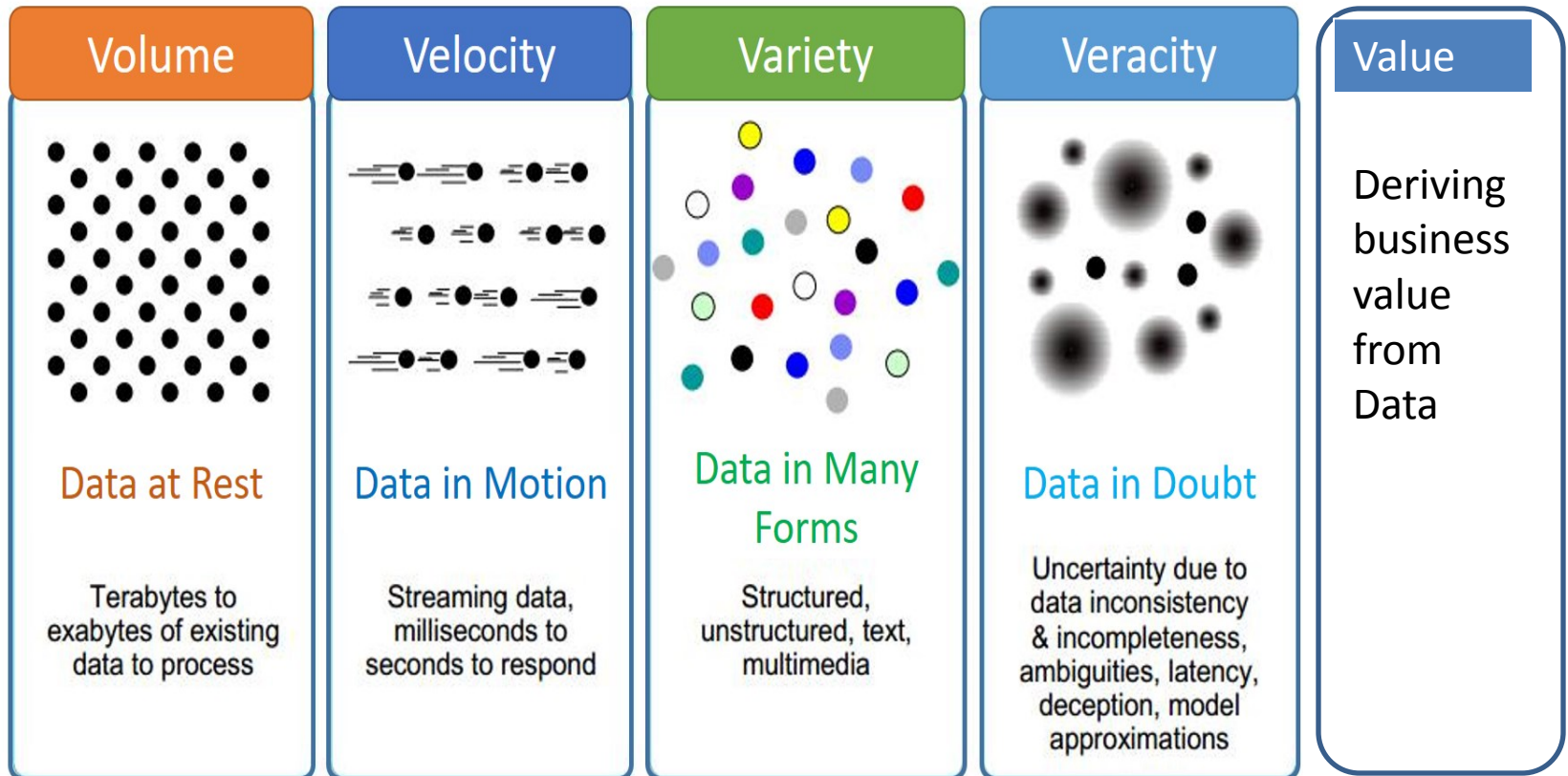


# Outline

- Big Data
- Big biodiversity Data
- Current Semantic Big Biodiversity Data integration tools
- Proposed tool
- Conclusion



# Characteristics of big data









## PRESS RELEASE



### **Big data for biodiversity: Global Biodiversity Information Facility surpasses one billion records**

- *Global Biodiversity Information Facility provides open access to data about all life on Earth*
- *Records provide researchers and policy makers with unrivalled information resource, bringing together evidence on where and when species have been observed or collected*
- *Information result of the collective efforts of more than 1,200 institutions in 123 countries.*

**9 JULY 2018** - A global platform for sharing information about the world's biodiversity has passed a major milestone, with the publication of the one-billionth record of where species live, through the Global Biodiversity Information Facility (GBIF).

# Current Semantic Big Data Integration Tools

- As Semantic Web technologies have been elaborated, one of the main research areas that have become widened is semantic data integration.
- Semantic data integration is a mechanism to associate heterogeneous data resources based on the meaning of the content.

# What exactly we need ?

- In particular, we need data systems that enable us to move from ‘what is where’ questions to ‘why is it there’, ‘what does it do’ and ‘what can we do about it’.



# Current SBDI Tools

## OntoText

Graph mining, Text Mining, IR,  
Semantic tagging, Semantic  
Search

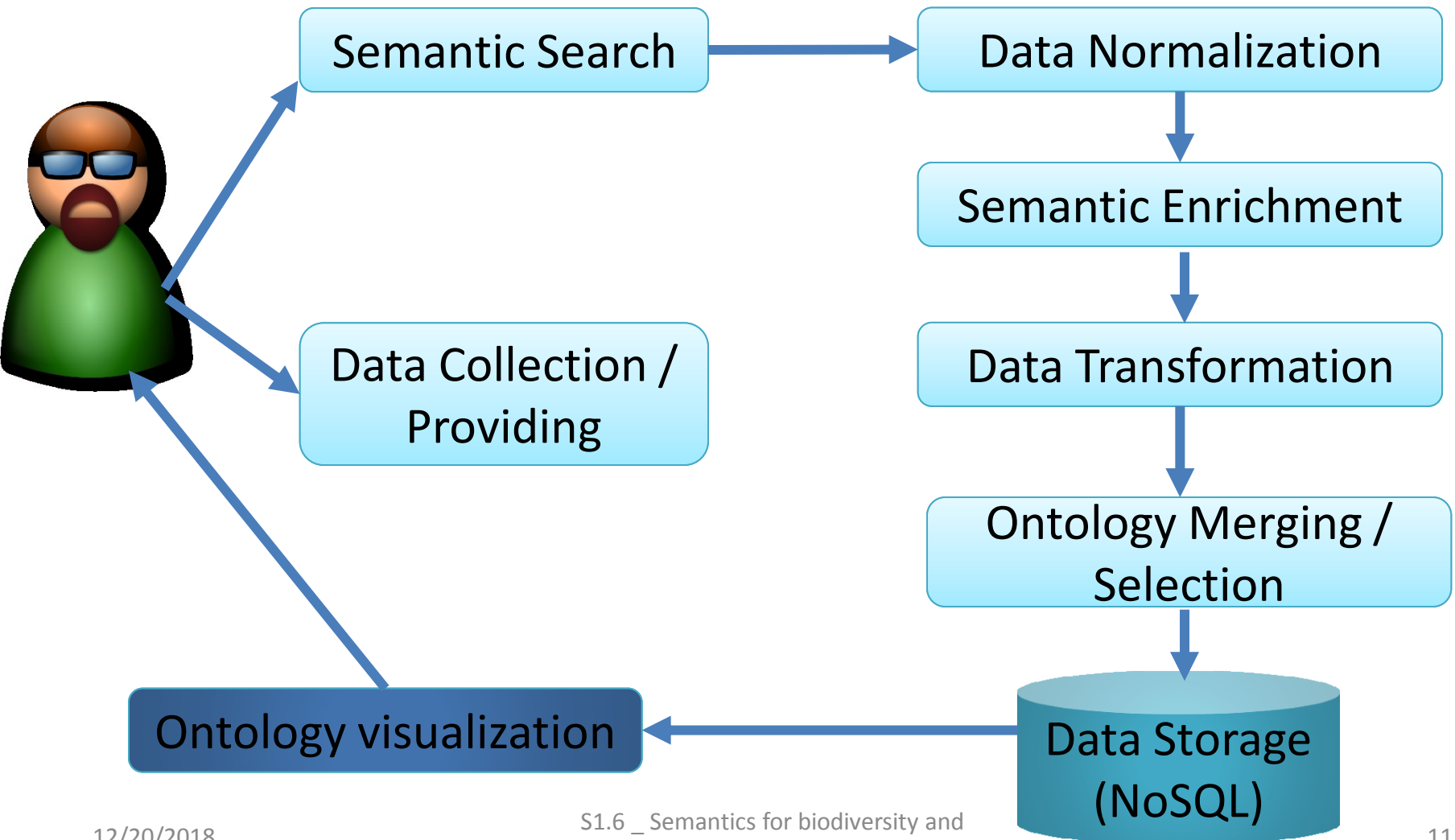
## Karma

Produces XML, KML, JSON files  
into a shared ontology

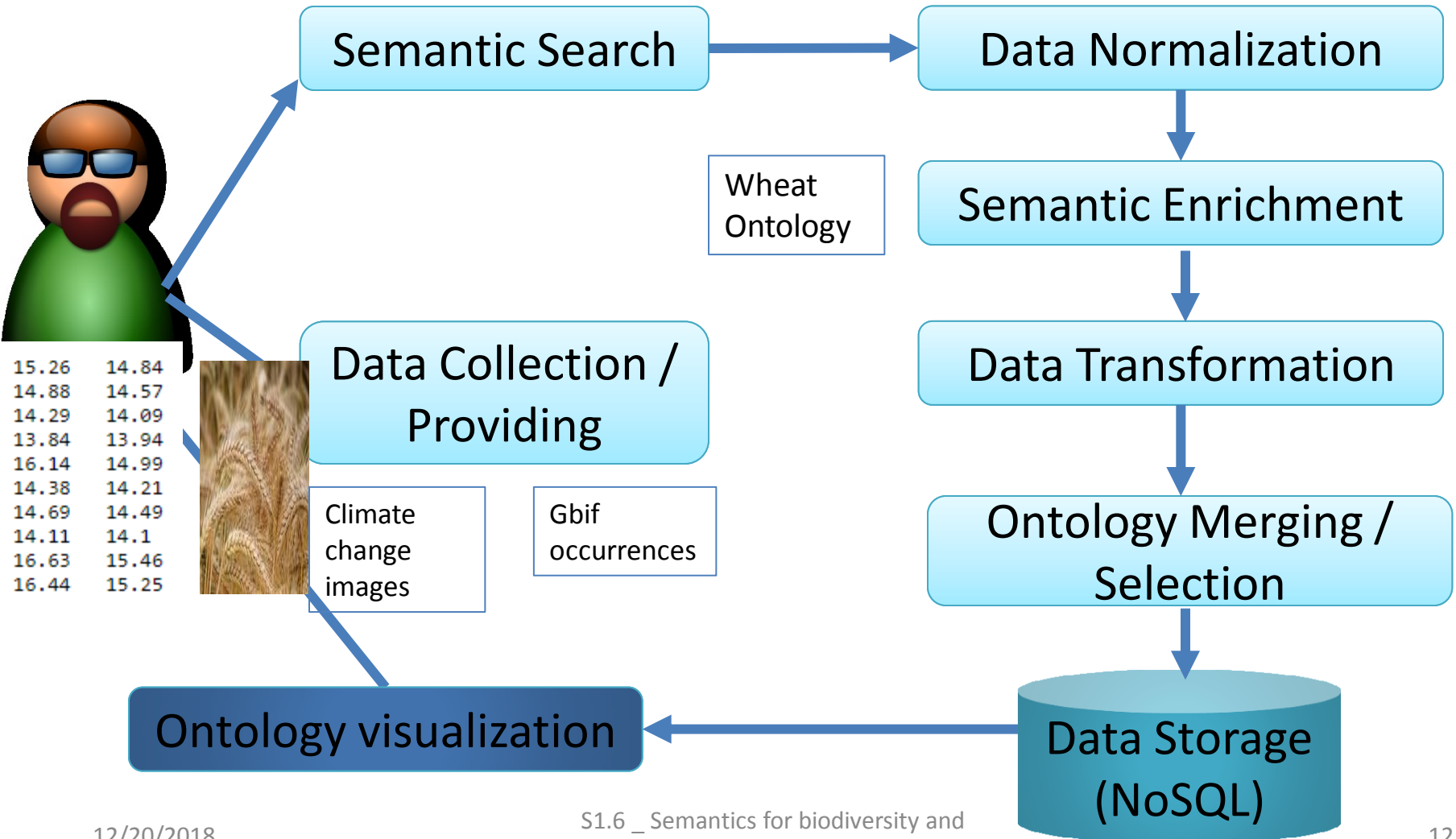
# SBDI Tools

- Prepare datasets for analytics and visualization tools
- Handle uncertainty in biodiversity & monitoring datasets
- Semantically integrate heterogeneous data
- Provide knowledge graphs to express links between data

# Proposed Tool: SBDI Architecture



# Proposed Tool: SBDI Architecture



# Conclusions

- Semantic Big Data Integration has become a necessity
- SBDI tool Architecture
- A prototype of SBDI will be developed and tested on a number of species.



**THANK YOU**