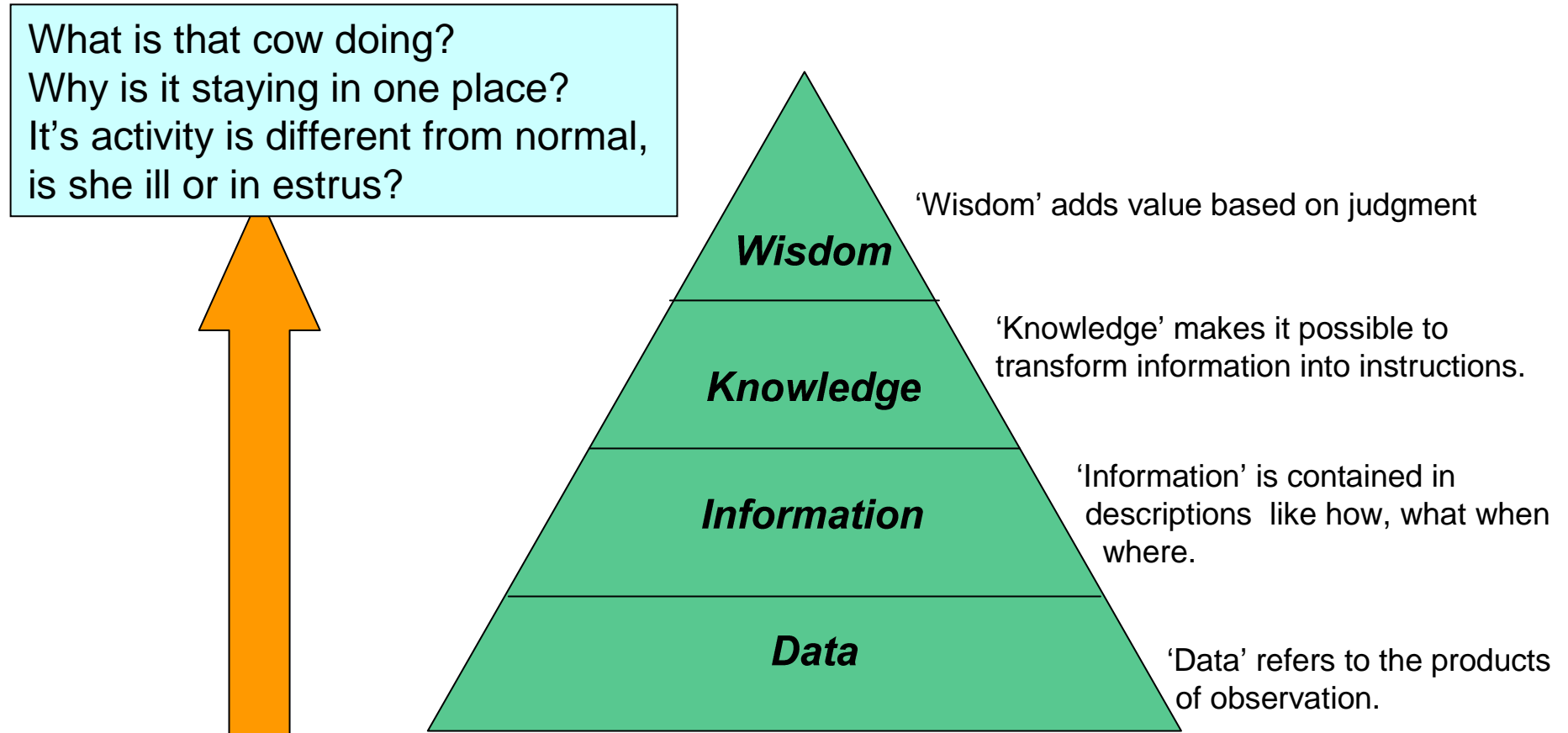


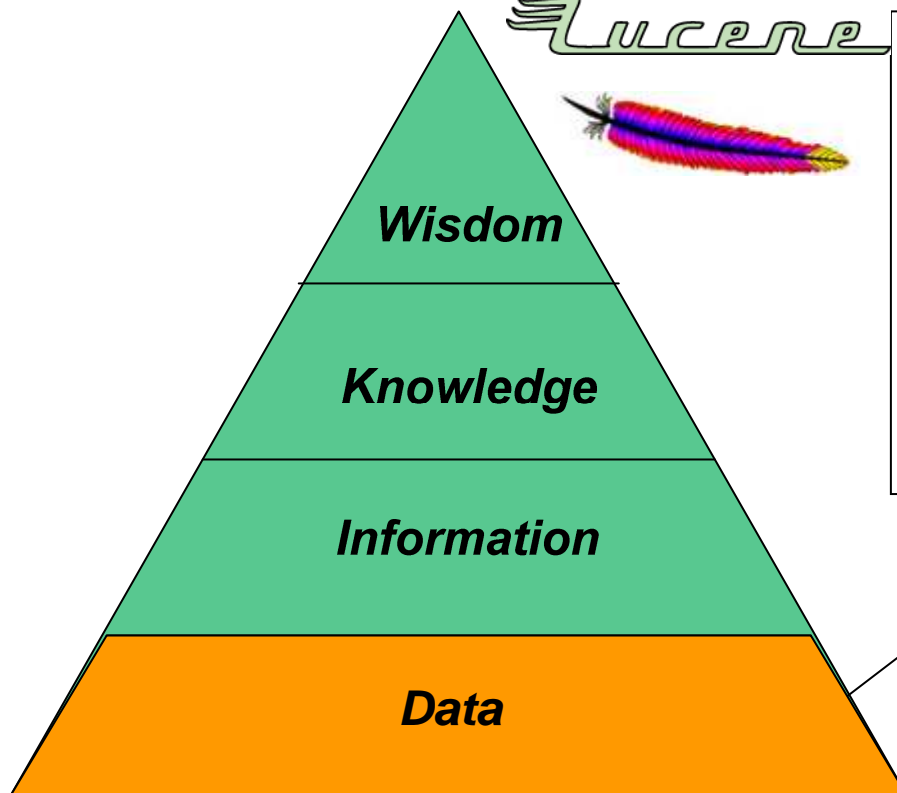
GPS and other waveband devices produce tracking data from moving animals. In order to learn what behavior is hidden in this data we need to step up in the DIKW (Data, Information, Knowledge, Wisdom) Hierarchy [1].



[1] The wisdom hierarchy: representations of the DIKW hierarchy- J. Rowley, Journal of Information Science, Vol. 33, No. 2, 163-180 (2007)

(Geo)-ICT and Artificial Intelligence provide us with methods and tools used to move up in the DIKW pyramid

Web Services  
Activity

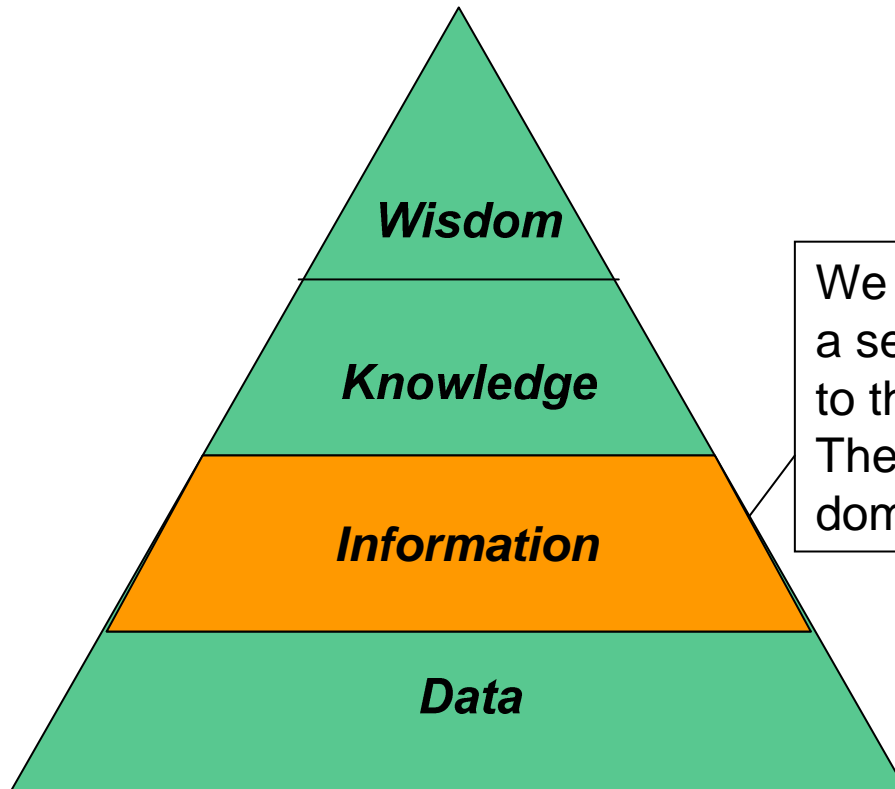
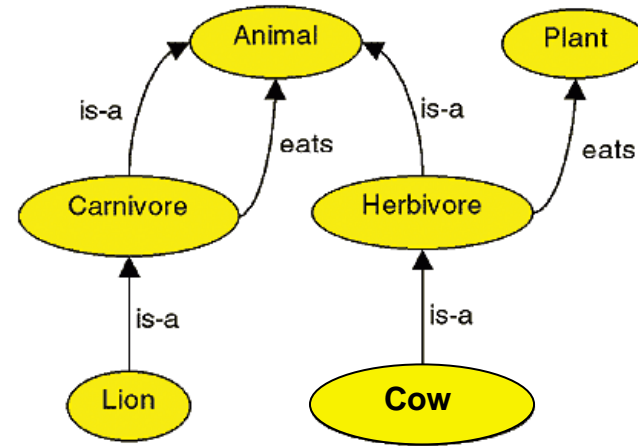


Massive storage and retrieve facilities enable us to use and combine all the data that we need.

Search engines sort and filter the data.

Webservices deliver AI functions to the central data storage facility.



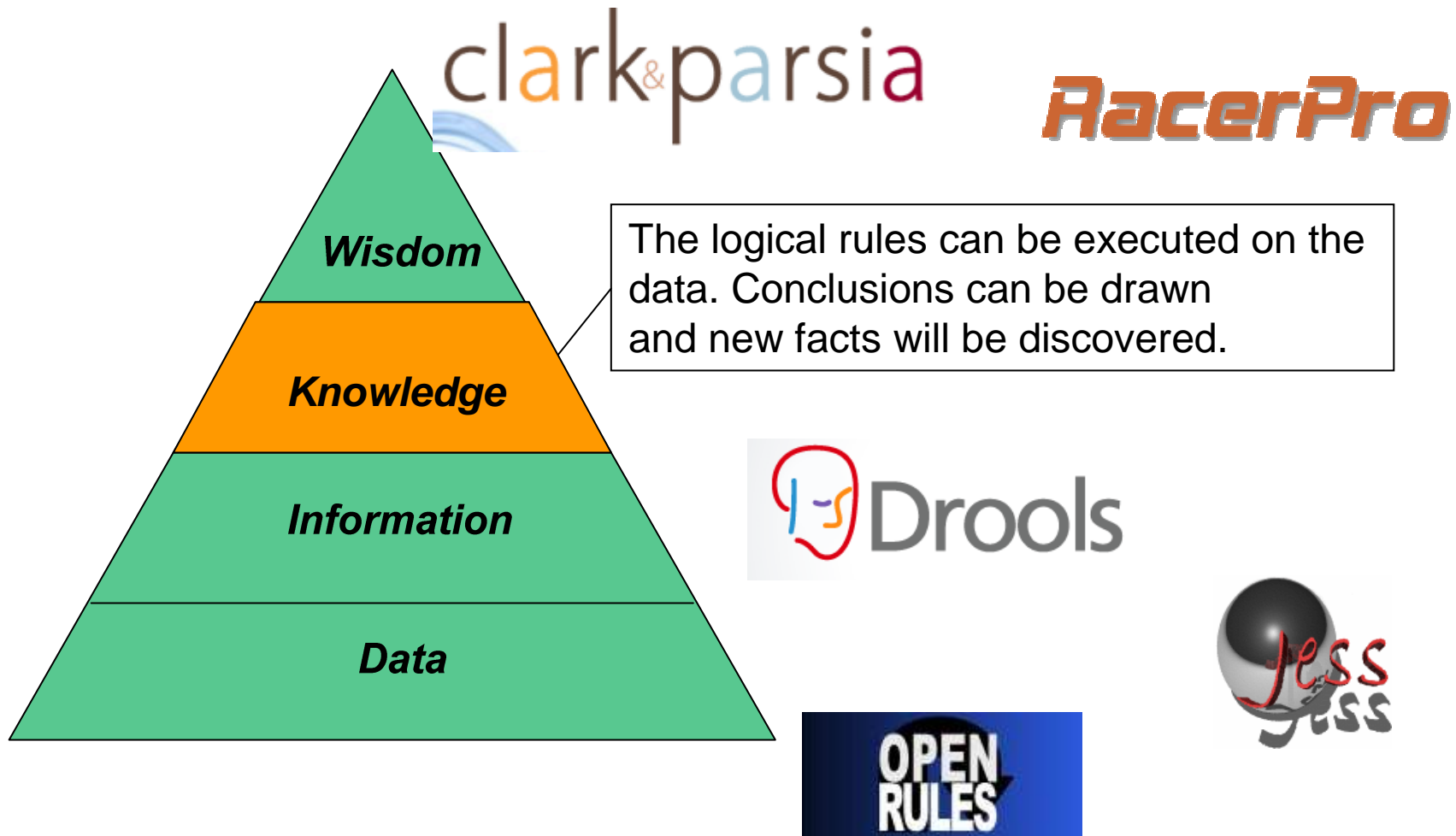


We can make data meaningful by connecting a semantic framework (ontology) to the data. The ontology contains both descriptions of domain concepts and logical rules (axioms).



**IF** the cow is *decelerating* **AND** its head *lowers* **THEN** she is *foraging*.

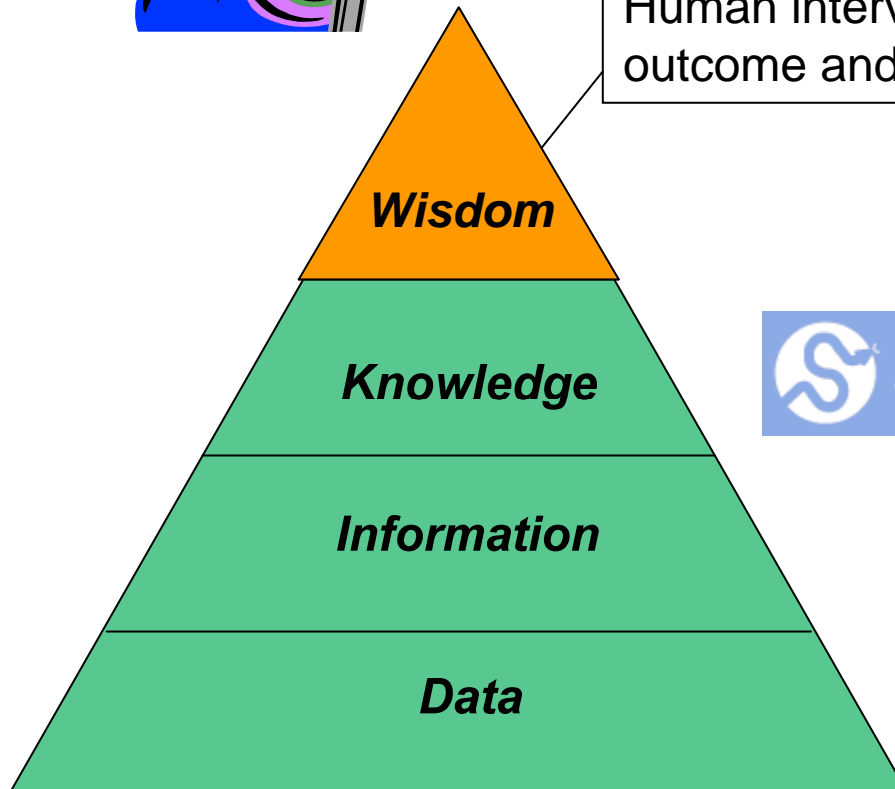
**IF** the cow's activity is *higher than average* **AND** it is eating *less than normal* **THEN** she is *in estrus*.





By adding new data and repeating the reasoning process new rules can be defined by using machine learning algorithms.

Human intervention can be necessary to judge the outcome and calibrate the cycle.



For more information  
contact:  
[lieke.verhelst@wur.nl](mailto:lieke.verhelst@wur.nl)  
+31 317 481658