

AN OPINION MINING APPLICATION ON OSINT FOR THE REPUTATION ANALYSIS OF PUBLIC ADMINISTRATIONS

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*Choice and preference
analysis for quality
improvement and seminar
on experimentation*

10/07/2015 - BARI

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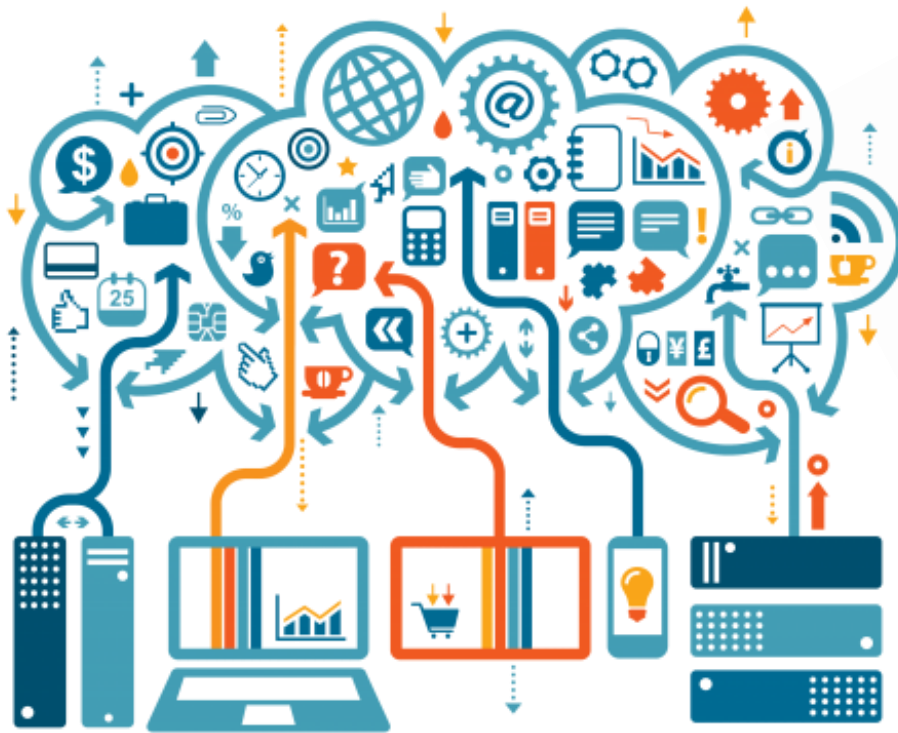
OSINT

United States Department of Defense defines the Open Source Intelligence (OSINT) as “The intelligence discipline that pertains to intelligence produced from publicly available information that is collected, exploited, and disseminated in a timely manner to an appropriate audience for the purpose of addressing a specific intelligence and information requirement”.



BIG DATA

Big data means large and heterogeneous datasets obtained from web and local systems.



OPINION MINING

- OSINT is also strictly related to Opinion Mining (also known as Sentiment Analysis), a **discipline aiming at retrieving the opinion of a subject from web contents**, reaching also the **reputation analysis scope**.



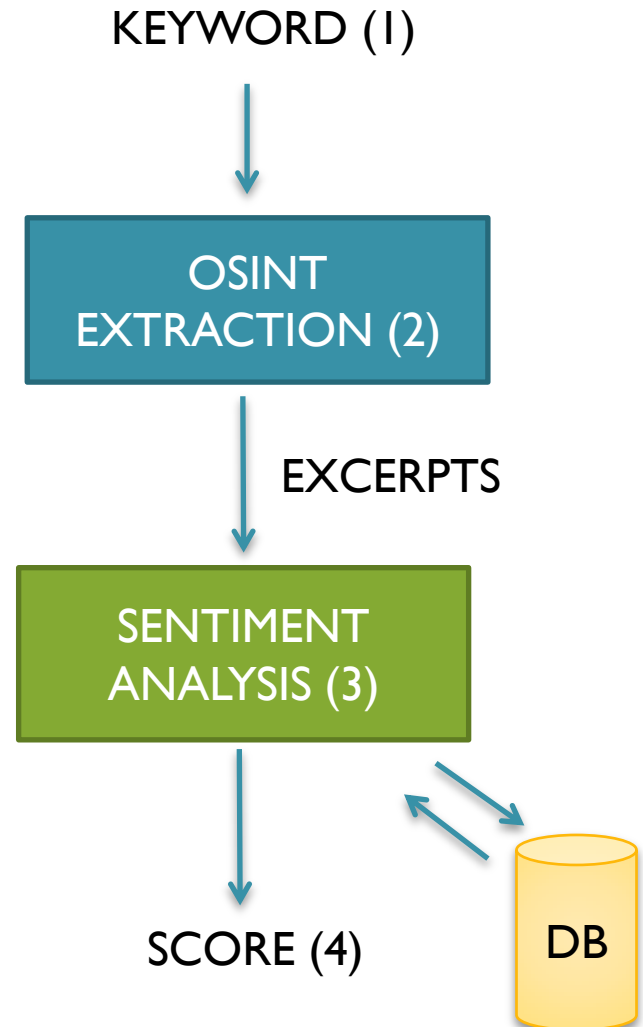
OPINION MINING SYSTEM

STEPS:

- Target Definition (1)
- OSINT Extraction (2)
- Sentiment Analysis (3)
- Score Return (4)

After choosing a keyword/phrase (1), a crawler extracts contents related to the user input from OSINT data (2).

Sentiment Analysis (3) examines the polarity of the filtered data extracted thanks to the use of a Sentimental Thesaurus, associating a polarity (negative, neutral, positive) for each term of the extracted excerpts, determining the Score (4).

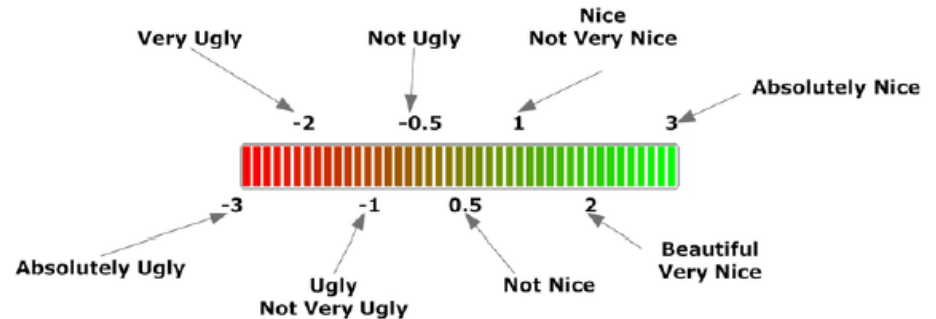


AIN APPROACH

ADJECTIVES (A), INTENSIFIERS (I) and NEGATIONS (N)

$$M(O) = \frac{\sum_{i=0}^n m_i}{n}$$

$$M = \sum_{i=0}^k M(O)_i$$

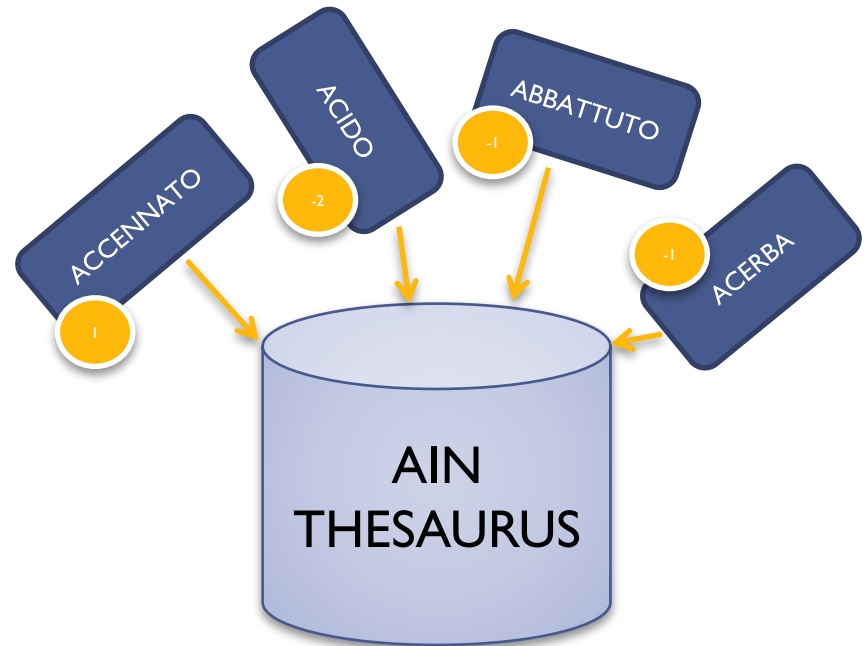


Rif. **Social Opinion Mining : an approach for Italian language**

FiCloud 2015 The 3rd International Conference on Future Internet of Things and Cloud - Workshop: The 2nd International Workshop on Social Networks Analysis, Management and Security (SNAMS 2015), At Roma

AIN - ITALIAN THESAURUS

Adjective	Polarity
Abbandonato	-2
Abbassabile	0
Abbattuto	-1
Abbiante	2
Abbinato	0
Abbondante	0
Abbronzato	1
Abominevole	-1
Abominoso	-2
Accattivante	1
Accecante	-1
Accennato	1
Accettabile	1
Accidentato	-1
Accompagnabile	0
Accondiscenden	1
Accostato	0
Accudito	1
Acerba	-1
Acido	-2
Acquisito	0
Adattabile	1
Adeguato	1
Adorabile	2



Dataset

AIN THESAURUS DEMO (LETTER A) - ADJECTIVES AND INTENSIFIERS



Maria Pilato



Gaetano Santarcangelo

ABSTRACT This is a demo of AIN THESAURUS, the Sentiment Italian Thesaurus developed for AIN System.

See the paper "Social Opinion Mining : an approach for Italian language" or visit

AIN LOGIC

$$p(E) = p(N) \times (p(I, A) + p(A))$$

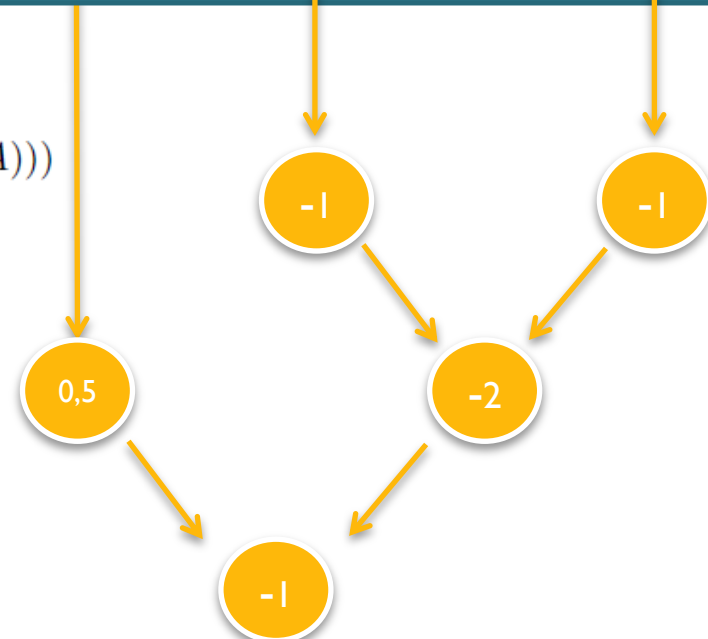
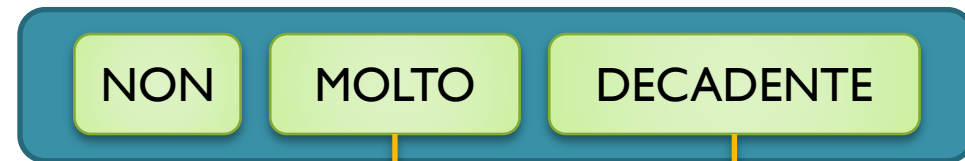


Excerpt	P(E)	P(I,A)	P(A)
fortemente bello	+3	+2	+1
davvero brutto	-3	-2	-1
davvero bello	+3	-2	-1
non comodissima	+1	0	+2
non decadente	-0.5	0	-1
non molto decadente	-1	-1	-1

where if $p(I) \neq 0 \Rightarrow p(I, A) = p(I) \times (\text{sign}(p(A)))$
 else $p(I, A) = 0$

where if $\exists N$:
 if $p(I, A) + p(A) \geq +1$
 and $p(I, A) + p(A) \leq -1 \Rightarrow p(N) = 0.5$
 else $p(N) = 2$

EXCERPTS



AIN + SEMANTIC - ITALIAN THESAURUS

AIN THESAURUS DEMO (LETTER B) - ADJECTIVES WITH SEMANTIC

DATASET - JUNE 2015



Maria Pilato
· ilinformatica S.r.l.s., Tra...

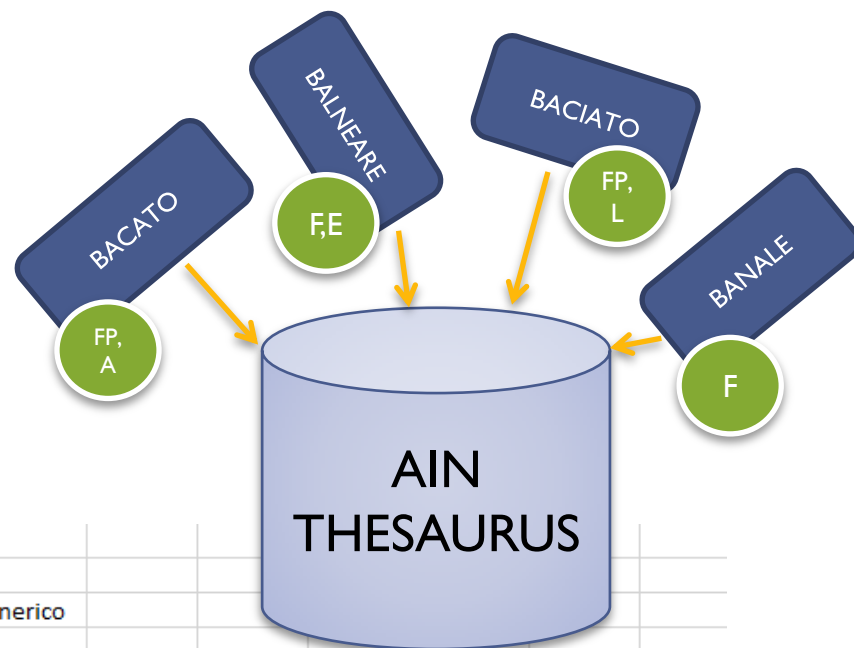


Gaetano Santarcangelo

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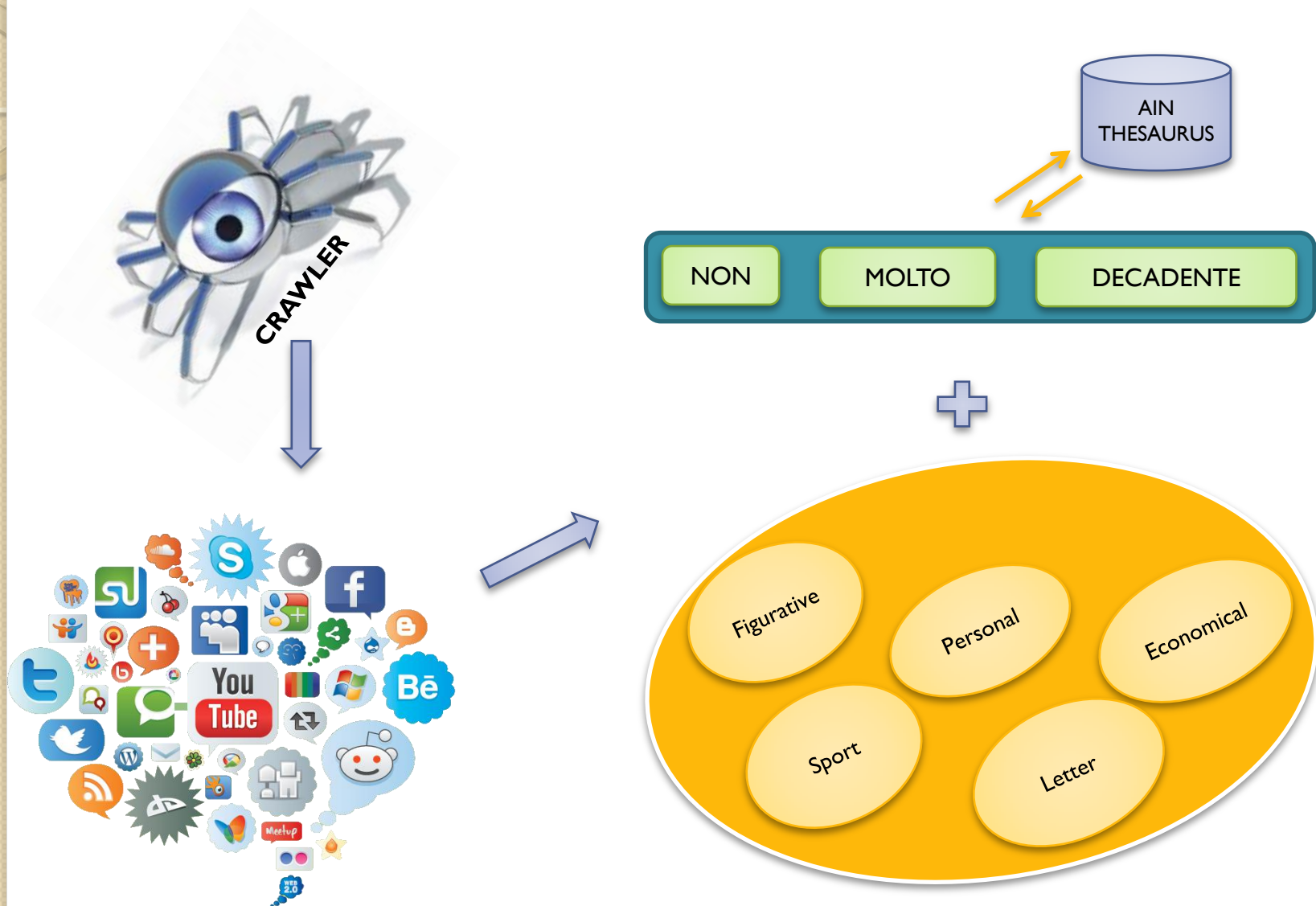
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Aggettivo	Semantica	Legenda
Babbeo	FP	
Bacato	FP, A	F Figurato/Generico
Baccante	F, L	FP Persona
Bacellone	A	A Agricoltura/Allevamento
Bacchico	F	E Economico/Giuridico/Burocratico/Politico
Baciato	FP, L	S Scientifico (es. chimica, botanica, anatomia, medicina, informatica, agraria)
Bacucco	FP	L Letterario (poetico, filosofia, arte, musica)
Bagnato	FP	T Assoluto
Balbuziente	FP	R Sport
Baldanzoso	FP, L	G Geografico
Ballerino	FP	
Balneare	F, E	
Balordo	FP	
Balsamico	F, S	

AIN APPROACH + SEMANTIC NETWORK

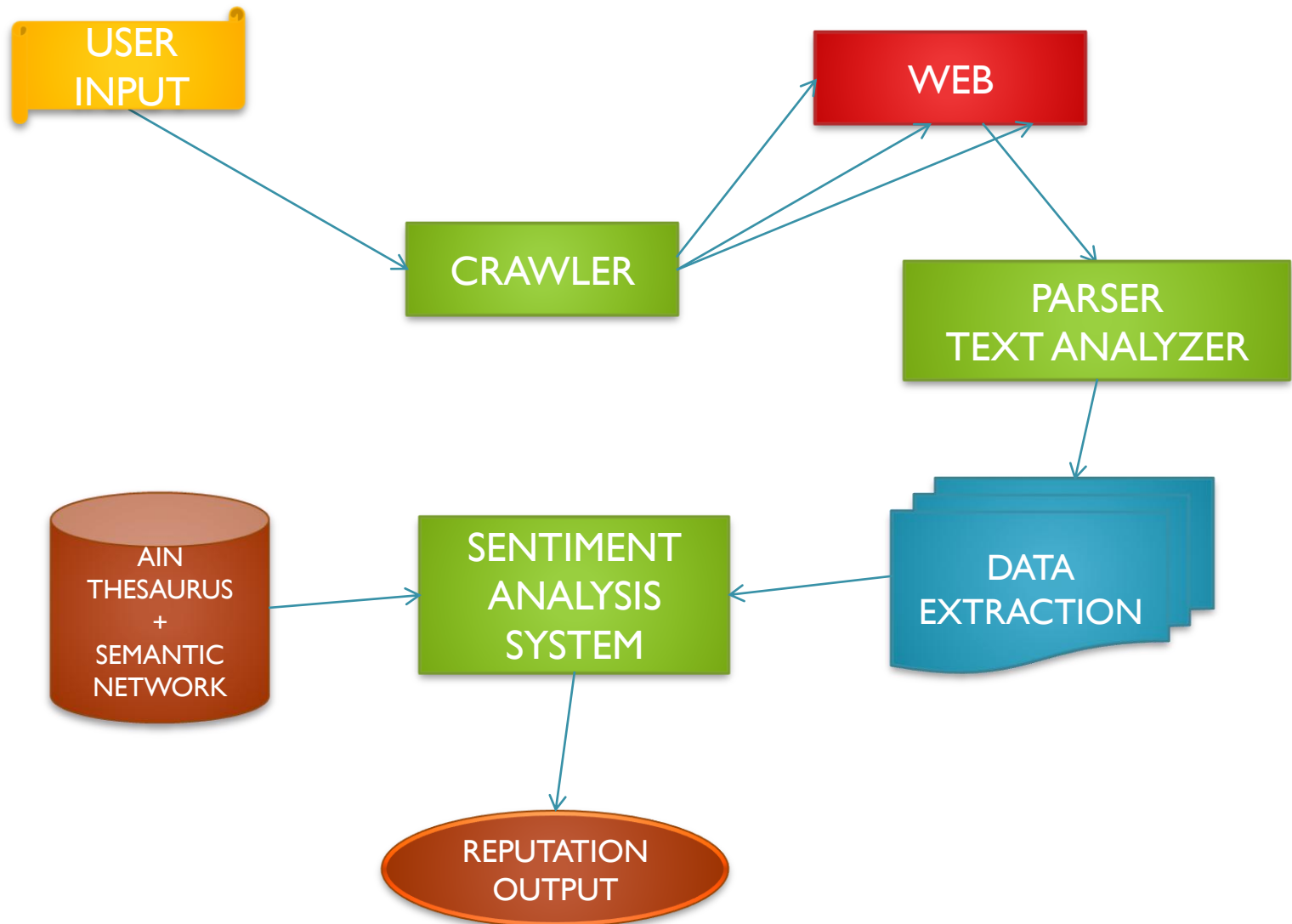


THE CASE STUDY

- An interesting innovative solution for Reputation analysis on OSINT data of Public Administrations
- We think that this application could improve the service quality level of public administrations, as it referred to people opinions of the web. It can be also useful to obtain the **reputation score about a person, an office, a project, subject, theme of Public Administration** realizing an indirect customer satisfaction system.
- The integration with public opinions of websites, blogs and social networks gives relevancy, accuracy and quality to this kind of tools.



HOW THE SYSTEM WORKS



CONCLUSION & FUTURE WORKS



It is possible to integrate the reputation analysis to the data of reporting application (as the App “Comunicamelo.it” of “Comune di Erice”).

REFERENCES

For more information
and dataset visit



- http://www.researchgate.net/profile/Giuseppe_Oddo2
- http://www.researchgate.net/publication/278685211_AN_OPINION_MINING_APPLICATION_ON_OSINT_FOR_THE_REPUTATION_ANALYSIS_OF_PUBLIC_ADMINISTRATIONS