



# BIG MULTILINGUAL TERMINOLOGICAL DATA SPACE

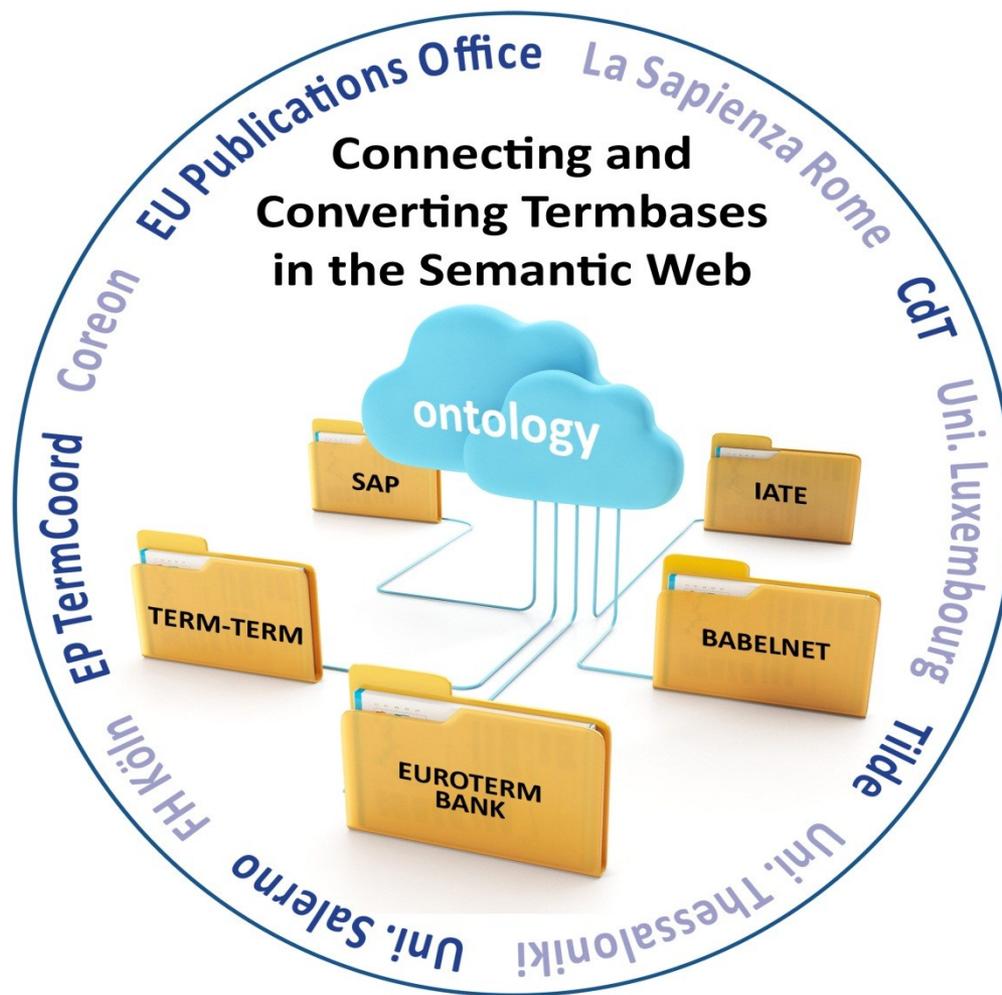
---

Riga Summit – 29 April 2015



# Partners of the project

## Big Multilingual Terminological Data Space



# A common ontology..

- ..converts terminology databases
- (explanation by Roberto)



# A metasearch engine

(explanation by Roberto)



# Language barriers in EU

- It is a fact that the European Union is made up of 28 member states and EU citizens have the privilege to commute from one state to another without major issues **except from the possible language barriers**, as there are 24 official languages.

# Online information access

Online information access can sometimes be cumbersome.

Multilingual information clearly limits the amount and type of information that certain user can access.



# Monolingual Search Engines

**Search engines** in use today are mostly monolingual.

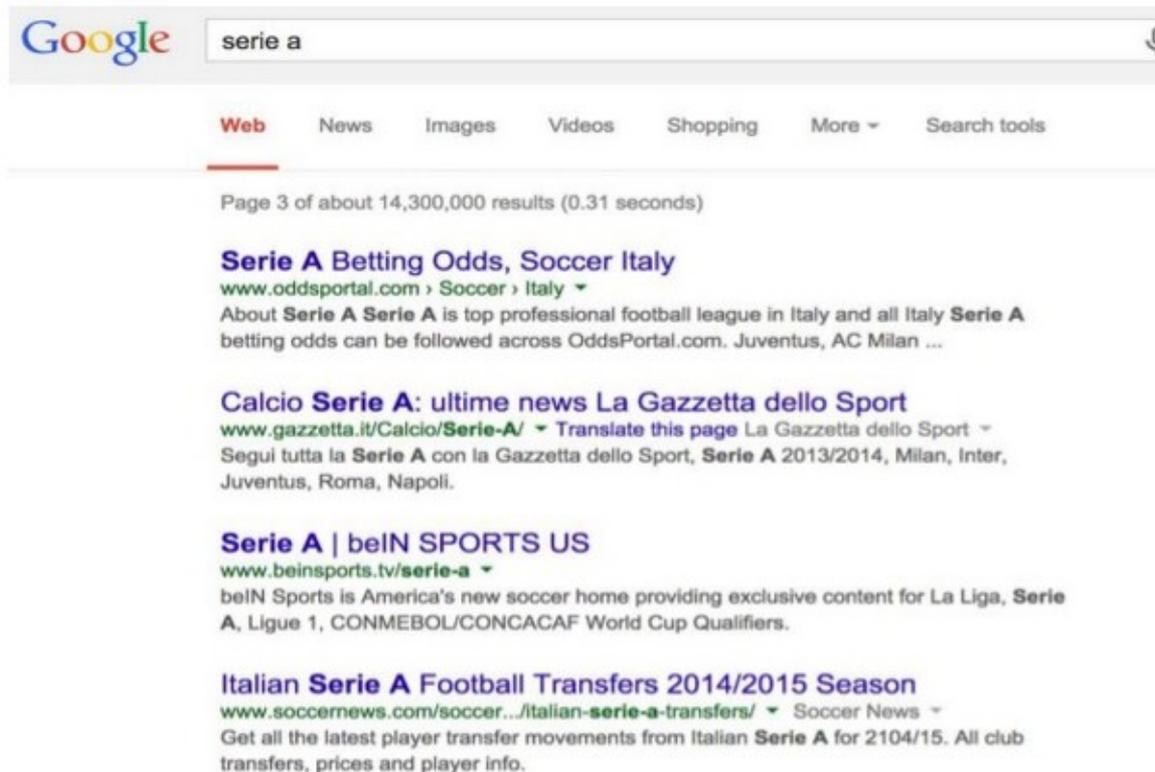
They allow users to enter a search query in one language but the **results are given only for that same and only language.**



# Open-door access to information

- It is self-explanatory in this “**open-door**” context of the EU that users need **access to information in any of these 24 languages** no matter in which language a query is done.

# A Multilingual Search Example



Google serie a

Web News Images Videos Shopping More Search tools

Page 3 of about 14,300,000 results (0.31 seconds)

**Serie A Betting Odds, Soccer Italy**  
[www.oddsportal.com](http://www.oddsportal.com) › Soccer › Italy  
About **Serie A** **Serie A** is top professional football league in Italy and all Italy **Serie A** betting odds can be followed across OddsPortal.com. Juventus, AC Milan ...

**Calcio Serie A: ultime news La Gazzetta dello Sport**  
[www.gazzetta.it/Calcio/Serie-A/](http://www.gazzetta.it/Calcio/Serie-A/) › Translate this page La Gazzetta dello Sport  
Segui tutta la **Serie A** con la Gazzetta dello Sport, **Serie A** 2013/2014, Milan, Inter, Juventus, Roma, Napoli.

**Serie A | beIN SPORTS US**  
[www.beinsports.tv/serie-a](http://www.beinsports.tv/serie-a)  
beIN Sports is America's new soccer home providing exclusive content for La Liga, **Serie A**, Ligue 1, CONMEBOL/CONCACAF World Cup Qualifiers.

**Italian Serie A Football Transfers 2014/2015 Season**  
[www.soccernews.com/soccer.../Italian-serie-a-transfers/](http://www.soccernews.com/soccer.../Italian-serie-a-transfers/) › Soccer News  
Get all the latest player transfer movements from Italian **Serie A** for 2104/15. All club transfers, prices and player info.

# APPLICATION SCENARIOS

---

Application scenarios of the multilingual search Engine

# Cross-language search

A **cross-language search service** could be an effective mean for accessing in the unstructured big data, information in an unconventional but logical way:

- **Enter a query X in one official EU language and get results in one of the other 23 official EU languages.**

# Application scenarios



## 2lingual

Come trovare il numero di serie di un prodotto hardware Apple

2lingual Google Search

Search pages written in: Italian and English

powered by Google™

92900 Italian results for **Come trovare il numero di serie di un prodotto hardware Apple**

[Come trovare il numero di serie di un prodotto hardware Apple](#)

6 mar 2015 ... Scopri come trovare il numero di serie di un iPhone, iPad, iPod, Mac o di un altro prodotto Apple.  
<https://support.apple.com/it-it/HT1349>

[Prodotti AppleCare - Contatta il supporto - Supporto Apple](#)

Se intendi registrare un nuovo contratto, dovrai disporre del numero di ... di acquisto (ricevuta di acquisto) e del numero di serie del prodotto hardware interessato. ... Se necessiti di supporto tecnico, dovrai fornire il numero di serie del prodotto ...  
<https://www.apple.com/it/support/applecare/contact/>



[iMac: come individuare il numero di serie - Supporto Apple](#)

20 feb 2015 ... Sulla confezione originale del prodotto ... Scopri come individuare il numero di serie di altri prodotti hardware Apple. ... Risparmia tempo avviando la richiesta di assistenza online e verrai messo in contatto con un esperto.  
<https://support.apple.com/it-it/HT201718>

[Prodotti AppleCare - Registra - Supporto Apple](#)

Quando registri un contratto AppleCare, assicurati l'aggiornamento costante dei dati. ... di avere il numero di registrazione AppleCare e i numeri di serie dell'hardware a portata di mano. ... APP: come trovare il numero di registrazione AppleCare.  
<https://www.apple.com/it/support/applecare/register/>



[Come trovare il numero di registrazione AppleCare - Supporto Apple](#)

20 feb 2015 ... Per trovare il numero di registrazione di un qualsiasi contratto ... Talvolta i numeri di registrazione e i numeri di serie dei prodotti hardware ...  
<https://support.apple.com/it-it/HT201653>

[Prodotti AppleCare - Acquista - Supporto Apple](#)

Tutti i prodotti hardware Apple vengono forniti con garanzia limitata di un anno ... all'AppleCare Protection Plan, inserisci il numero di serie del prodotto. ... Come posso scoprire se dispongo dell'idoneità per acquistare un contratto AppleCare?  
<https://www.apple.com/it/support/applecare/purchase/>



[MacBook Air Manuale utente](#)

522000 English results for **How to find the serial number of an Apple hardware product** - [ Translated **Come trovare il numero di serie di un prodotto hardware Apple** from Italian to English ] -  
[Deactivate automatic query translation](#)

[Find the serial number of your Apple hardware product - Apple](#)

5 days ago ... Learn how to find the serial number of an iPhone, iPad, iPod, Mac, or other Apple product.  
<https://support.apple.com/en-us/HT204308>

[HT1349: Find the serial number of your Apple hardware product](#)

HT1349: Find the serial number of your Apple hardware product ... Macbook on craigslist but I do not have my serial number, is there anyway to prove its mine?  
<https://discussions.apple.com/article/HT1349>



[MacBook Air: How to find the serial number - Apple Support](#)

Mar 10, 2015 ... On the original product packaging. If you still have the original packaging for your MacBook Air, you can find the serial number on the barcode ...  
<https://support.apple.com/en-us/HT201665>



[Check Your Service and Support Coverage: Apple - Support](#)

Review your Apple warranty status and eligibility for support and extended coverage. Enter your hardware serial number: ... Finding your serial number is easy.  
<https://selfsolve.apple.com/>



[How to find the serial number of your Apple hardware product](#)

How to find the serial number of your Apple hardware product - If you need to locate the serial number for your Apple product Click Here.  
[www.welovemacs.com/fisenu.html](http://www.welovemacs.com/fisenu.html)

[iCloud - Contact Support - Apple Support](#)

\*Support for iCloud is based on the Apple hardware product with which you are using iCloud. Please have your product serial number available. Learn how to ...  
<https://www.apple.com/support/icloud/contact/>

[Where is the serial number on the apple earpods? | Apple Support](#)

# Thematic cross-lingual search engine

- The **labour market domain** can be a sector of application of the cross-lingual thematic search engine.
- In an ideal scenario, such a terminology tool can enable EU citizens to seek online for jobs (domain of interest: labour market > job mobility, job vacancy) in a language barrier-free environment.

# 2lingual

cameriere lavoro

2lingual Google Search

Search pages written in: Italian and Greek

powered by Google™

176000 Italian results for **cameriere lavoro**

[Lavoro - Cameriere, Offerte lavoro | Indeed.com](#)

Trova **lavoro: Cameriere** su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo **lavoro** ideale tra più di 300.000 offerte di **lavoro** pubblicate da portali **lavoro**, ...  
[it.indeed.com/offerte-lavoro-Cameriere](http://it.indeed.com/offerte-lavoro-Cameriere)



[Cameriere - Lavoro - Kijiji: Annunci di eBay](#)

4751 offerte di **lavoro** e richieste di impiego: trova **lavoro** su Kijiji. Trovi anche **cameriere**.  
[www.kijiji.it/offerte-di-lavoro/cameriere/](http://www.kijiji.it/offerte-di-lavoro/cameriere/)

[Lavoro - Cameriere Di Sala, Offerte lavoro | Indeed.com](#)

Trova **lavoro: Cameriere Di Sala** su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo **lavoro** ideale tra più di 300.000 offerte di **lavoro** pubblicate da portali **lavoro** ...  
[it.indeed.com/offerte-lavoro-Cameriere-Di-Sala](http://it.indeed.com/offerte-lavoro-Cameriere-Di-Sala)

[Offerte di lavoro cameriere con vitto e alloggio - Italia | careerjet.it](#)

Trova sul motore di ricerca Careerjet tutte le offerte di **lavoro** per **cameriere** con vitto e alloggio in Italia pubblicate su tutti i siti di annunci di **lavoro**.  
[www.careerjet.it/lavoro-cameriere-con-vitto-e-alloggio.html](http://www.careerjet.it/lavoro-cameriere-con-vitto-e-alloggio.html)

[Lavoro - Cameriere - Roma, Lazio, Offerte lavoro | Indeed.com](#)

Trova **lavoro: Cameriere - Roma, Lazio** su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo **lavoro** ideale tra più di 300.000 offerte di **lavoro** pubblicate da portali ...  
[it.indeed.com/Roma,-Lazio-offerte-lavoro-Cameriere](http://it.indeed.com/Roma,-Lazio-offerte-lavoro-Cameriere)



[Cameriere - Offerte di lavoro a Milano - Kijiji: Annunci di eBay](#)

1 giorno fa ... Sai che a Milano cercano 320 esperti lavoratori? Su Kijiji trovi tanti posti di **lavoro**, anche subito, con ogni forma contrattuale. Trovi anche ...  
[www.kijiji.it/offerte-di-lavoro/offerta/annunci-milano/cameriere/](http://www.kijiji.it/offerte-di-lavoro/offerta/annunci-milano/cameriere/)

[Lavoro - Camerieri, Offerte lavoro | Indeed.com](#)

Trova **lavoro: Camerieri** su Indeed.com. una ricerca. tutti i lavori. Cerca il tuo **lavoro** ideale tra più di 300.000 offerte di **lavoro** pubblicate da portali **lavoro**, giornali ...  
[it.indeed.com/offerte-lavoro-Camerieri](http://it.indeed.com/offerte-lavoro-Camerieri)



[Offerta di lavoro Cameriere](#) Annuncia di reclutamento in

17800 Greek results for **σερβιτόρος θέσεις εργασίας** - [ Translated **cameriere lavoro** from Italian to Greek ] - [Deactivate automatic query translation](#)



[Μπάρμαν-Σερβιτόροι-DJ - Διάφορες Ειδικότητες - Άγγελιες για εργασία](#)

Άγγελιες για **εργασία** Μπάρμαν-Σερβιτόροι-D.J. - Διάφορες Ειδικότητες - Αναζητούν εργαζόμενους. Βρέθηκαν 720 αποτελέσματα. Ταξινόμηση κατά: προεπιλεγμένα ...  
[www.xe.gr/jobs/evresi,mparman-servitoroi-d.j.,34511.html](http://www.xe.gr/jobs/evresi,mparman-servitoroi-d.j.,34511.html)

[θέσεις εργασίας - εργασία σερβιτορος - Ελλάδα | careerjet.gr](#)

Όλες οι **θέσεις εργασίας σερβιτορος** στην περιοχή Ελλάδα.  
[www.careerjet.gr/θεσεις-εργασια-σερβιτορος.html](http://www.careerjet.gr/θεσεις-εργασια-σερβιτορος.html)

[εργασία: Σερβιτόροι | Indeed.com](#)

**Σερβιτόροι** Διαθέσιμες δουλειές στο στο Indeed. ένα κλικ. όλες οι **θέσεις εργασίας**.  
[gr.indeed.com/Σερβιτόροι-jobs](http://gr.indeed.com/Σερβιτόροι-jobs)

[Σερβιτόρος/Μπάρμαν | proson.gr - Εύρεση εργασίας](#)

-**Σερβιτόρος/Μπάρμαν**. -Τεχνολόγος Τροφίμων ... **Θέσεις εργασίας** για το κατάστημα Mikel στον Κολωνό. Τελευταία ενημέρωση: ... Jooble. **Εργασία**, δουλειά ...  
[www.proson.gr/κατηγορια/σερβιτορος](http://www.proson.gr/κατηγορια/σερβιτορος)

[θέσεις εργασίας - εργασία σερβιτοροι - Ελλάδα | careerjet.gr](#)

Όλες οι **θέσεις εργασίας σερβιτοροι** στην περιοχή Ελλάδα.  
[www.careerjet.gr/θεσεις-εργασια-σερβιτοροι.html](http://www.careerjet.gr/θεσεις-εργασια-σερβιτοροι.html)

[Σερβιτόροι - Jobs in Cyprus](#)

Nippon Japanese Lounge Bar - **Σερβιτόροι** / Σερβιτόρες / Καθαρίστρια - Λεμεσός ... 29880, Αμερικάνικη αλυσίδα εστιατοριών SUBWAY - **Νέες Θέσεις Εργασίας**  
[www.ergodotisi.com/jobs/servitoroi](http://www.ergodotisi.com/jobs/servitoroi)



[Front Office Manager και σερβιτόροι στην Tresor Hotels - Εργασία ...](#)

22 Οκτ. 2014 ... Προσωπικό για τη στελέχωση ξενοδοχείων της στο Νότιο Αιγαίο αναζητά η εταιρεία Tresor Hotels, με τις "ανοικτές" **θέσεις** να αφορούν έναν Front ...  
[www.ergasia.gr/front-office-manager-ke-servitori-stin-tresor-hotels/](http://www.ergasia.gr/front-office-manager-ke-servitori-stin-tresor-hotels/)



# PROJECT DESCRIPTION

---

# Project description

- The Big Data of linguistic corpora (queries) in different EU languages will be tagged using semantic approach: combining words according to their meaning into families belonging to a domain and subdomain.
- The identification is made by using Natural Language (NL) understanding techniques capturing the meaning of phrases.

# Project description

- The selected data would be tagged –by combining portions of unstructured data– with terms (in EN) according to their meaning into families belonging to the labour market domain and subdomains respectively.
- Those terms would then be semantically associated with equivalent terms in other EU languages through their common concept.
- The reference terms used for tagging data could be retrieved from different EU databases that are already available –making the most of the particular characteristic of reuse that lies under the concept of ontologies– such as **IATE**, **EUDAT**, **EuroVoc ontology**, etc.

# Scope of the project

- With such a thematic search engine it would be easier for EU citizens to find job opportunities across Europe.
- One of the biggest problems in this sector is actually the difficult matching of labour demand and supply due to language barriers.
- It is a fact that some citizens from a certain member state are **not aware of possible job opportunities** in another member state.

# Conclusion

- A multilingual thematic search engine could not only open up new worlds to qualified workers seeking for a challenge in another member state, but also open up new possibilities for employers who look for qualified workers across Europe but do not necessarily find them.

# Conclusion

- In order to further promote and contribute to a barrier-free EU setting, the metasearch engine could enable EU citizens to seek online for all sorts of information that will help them to enrich their academic qualifications, improve their employability or for EU companies to extent their visibility.

# **ROLE OF TERMINOLOGY**

---

# Role of terminology in this project

- The role of terminology in this project: **disambiguation of search results and query consistency.**
- An **autosuggest** feature could help to improve the **input by the user and refine the search results.**
- Terms used for tagging the unstructured data could be also reused for improving consistency in CVs as well as for improving the use of **keywords** to boost **CV indexing.**
- The same would account for **job descriptions** by recruiting companies.

# Terminology is key

- The key element in this project is terminology, as **data cannot be properly explored without terminology resources** and therefore multilingual **terminological resources are the only way to disambiguate big data sets**