POLITECNICO DI MILANO

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"GEOGRAFIE MEDIEVALI" – A GEOPORTAL FOR THE HISTORIC RESEARCH

Milano, 14 March, 2016

OVERVIEW

Research project of national interest (PRIN) financed by the Italian Ministry of University and Scientific Research :

«TERRITORIAL ORGANIZATION, LAND EMPLOYMENT AND SPATIAL AWARENESS IN MEDIEVAL SOUTHERN ITALY (XIII-XV CENTURY). INFORMATION SYSTEMS FOR A NEW HISTORICAL CARTOGRAPHY»

INTERDISCIPLINARITY

- **Medieval Historians:** harvesting and analysis of historical data
- **Geomatics experts:** data elaboration and database structuring

OBJECTIVES

- Application of innovative methodologies for the historic research, revealing changes over the years at various levels of spatial analysis
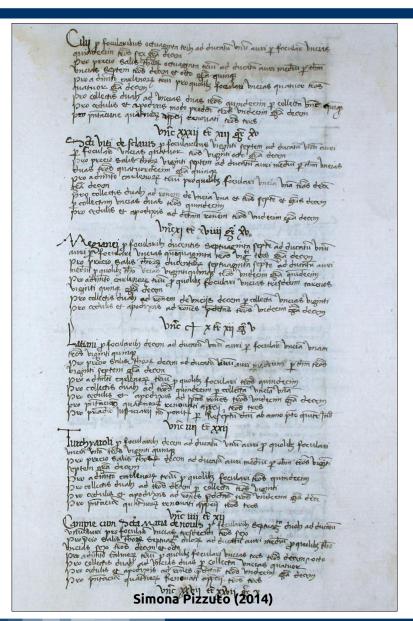- Cartographic representation of spatial distribution of historical data

HISTORICAL SOURCES: QUATERNI DECLARACIONUM

Register revenues (*introitus*) and expenses (*exitus*) of the **Principality of Taranto**, dating from the **years 1446-1463**

Compiled by the leading Treasury officials (*magistri rationarum*) of the last Prince of Taranto, **Giovanni Antonio Orsini del Balzo**

They provide a series of significant data:

- Number of **places** which were fiscally dependent on the prince
- Administrative organization in **tax collecting districts**
- Name and status of the central state **officials** responsible for tax collection
- Number of **hearths** for each centre
- Amount paid by each place for the direct taxation

Simona Pizzuto (2014)

HISTORICAL SOURCES: LIBER FOCORUM

Registers the hearths (*fuochi*), that were the family nuclei subject to **Hearts Tax** (*focatico*), and the consequent sum of taxes due

Produced by the financial officials of **Alfonso V of Aragon** in the **1440s**, after his conquest of the **Neapolitan kingdom**

Kingdom's communities (*universitates*) are organized in provinces and placed in the area of the feudal property or of the Crown property to which they belong

Simona Pizzuto, Francesca De Pinto (2014)

POLITECNICO DI MILANO
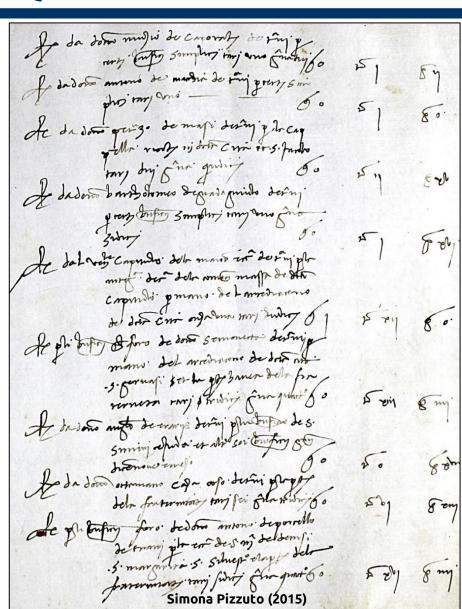
HISTORICAL SOURCES: QUATERNUS DECIMARUM

Registers the payments of the *Decima*, a tax related to ecclesiastical **benefits**

Drawn up in **1478** by **Paolo Vassallo**, bishop of Aversa

For each benefit are indicated:

- **Tipology** (church, chapel, monastery, etc.)
- **Place** (town, land or hamlet)
- **Entitling**
- Name of the **holder** or name of the person making the payment
- Amount to be paid

Simona Pizzuto (2015)

FROM SPREADSHEETS…

✓ Store information persistently on a digital support

✗ No tools to protect data consistency

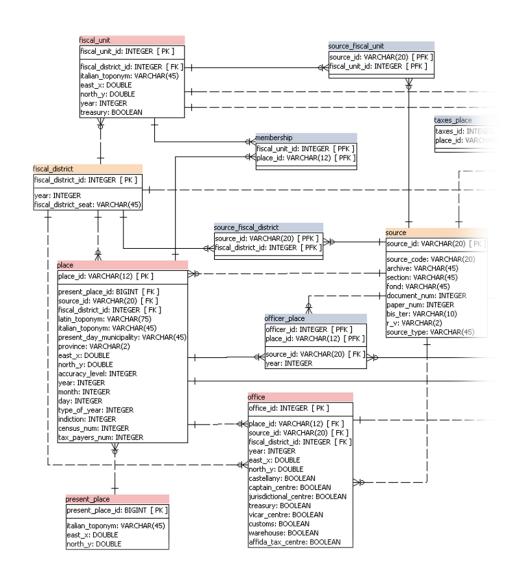✗ No data sharing and concurrent access among different users or applications

	A	B	C	D	E	F	G	H	I	J
1	ITALIAN TOPONYM	LATIN TOPONYM	PRESENT-DAY MUNICIPALITY	PROVINCE	FISCAL UNIT	EAST_X	NORTH_Y	ACCURACY LEVEL	SOURCE CODE	SOURCE NAME
2	Acaya	Segine	Vernole	LE	Acaya	780,074	4,470,154	3	ASN, DS II, 248, c. 52	Quaternus Declaracionum
3	Acquarica del Capo	Acquarica Capitis	Acquarica del Capo	LE	Acquarica del Capo	777,643	4,422,787	3	ASN, DS II, 248, c. 42v	Quaternus Declaracionum
4	Acquarica di Lecce	Acquarica Licii	Vernole	LE	Acquarica di Lecce	781,773	4,467,076	3	ASN, DS II, 248, c. 42	Quaternus Declaracionum
5	Alessano	Alexanum	Alessano	LE	Alessano	784,798	4,420,690	3	ASN, DS II, 248, c. 42v	Quaternus Declaracionum
6	Alliste	Liste	Alliste	LE	Alliste	763,879	4,426,689	3	ASN, DS II, 248, c. 46v	Quaternus Declaracionum
7	Andrano	Andranum	Andrano	LE	Andrano	788,716	4,431,603	3	ASN, DS II, 248, c. 42	Quaternus Declaracionum
8	Arigliano	Arellianum	Gagliano del capo	LE	Arigliano	787,604	4,416,143	3	ASN, DS II, 248, c. 42v	Quaternus Declaracionum
9	Arigliano	Arellianum	Gagliano del capo	LE	Montesardo	787,604	4,416,143	3	ASN, DS II, 248, c. 47v	Quaternus Declaracionum
10	Arnesano	Arnesanum	Arnesano	LE	Arnesano	762,640	4,469,645	3	ASN, DS II, 248, c. 42v	Quaternus Declaracionum
11	Avetrana	Vetrana	Avetrana	TA	Avetrana	731,483	4,470,149	3	ASN, DS II, 248, c. 34v	Quaternus Declaracionum
12	Bagnolo del Salento	Balneolum	Bagnolo del Salento	LE	Bagnolo del Salento	785,587	4,449,680	3	ASN, DS II, 248, c. 45	Quaternus Declaracionum
13	Barbarano	Barbaranum	Morciano di Leuca	LE	Barbarano	784,654	4,417,847	4	ASN, DS II, 248, c. 42v	Quaternus Declaracionum
14	Barbarano	Barbaranum	Morciano di Leuca	LE	Montesardo	784,654	4,417,847	4	ASN, DS II, 248, c. 47v	Quaternus Declaracionum
15	Borgagne	Burbaneum et Pasolum	Melendugno	LE	Borgagne	782,216	4,459,769	3	ASN, DS II, 248, c. 43	Quaternus Declaracionum
16	Botrugno	Butrunium	Botrugno	LE	Botrugno	783,480	4,440,265	3	ASN, DS II, 248, c. 43	Quaternus Declaracionum
17	Brindisi	Brundusium	Brindisi	BR	Brindisi	748,915	4,502,684	3	ASN, DS II, 248, c. 36v	Quaternus Declaracionum
18	Campi Salentina e Novoli	Campie cum Sancta Maria de Novis	Campi Salentina e Novoli	LE	Campi Salentina e Novoli	756,157	4,476,392	3	ASN, DS II, 248, c. 35	Quaternus Declaracionum
19	Cannole	Cannule	Cannole	LE	Cannole	786,591	4,451,743	3	ASN, DS II, 248, c. 45v	Quaternus Declaracionum
20	Caprarica del Capo	Caprarica Capitis	Tricase	LE	Caprarica del Capo	787,147	4,424,330	3	ASN, DS II, 248, c. 45	Quaternus Declaracionum
21	Caprarica di Lecce	Caprarica Licii	Caprarica di Lecce	LE	Caprarica di Lecce	775,961	4,461,747	3	ASN, DS II, 248, c. 43	Quaternus Declaracionum
22	Carmiano	Carmianum	Carmiano	LE	Carmiano	758,679	4,470,629	3	ASN, DS II, 248, c. 45	Quaternus Declaracionum
23	Carovigno	Carovineum	Carovigno	BR	Carovigno	724,524	4,509,591	3	ASN, DS II, 248, c. 35v	Quaternus Declaracionum
24	Carpignano Salentino	Carpignianum	Carpignano Salentino	LE	Carpignano Salentino	784,349	4,454,989	3	ASN, DS II, 248, c. 44	Quaternus Declaracionum
25	Casamassella	Casamassella	Uggiano la Chiesa	LE	Casamassella	794,144	4,446,169	4	ASN, DS II, 248, c. 45v	Quaternus Declaracionum
26	Casarano	Casaranum	Casarano	LE	Casarano	769,813	4,433,629	3	ASN, DS II, 248, c. 44	Quaternus Declaracionum
27	Castiglione	Castillionum	Andrano	LE	Castiglione	785,793	4,431,092	3	ASN, DS II, 248, c. 45	Quaternus Declaracionum
28	Castrì di Lecce	Castrum de Guarino	Castrì di Lecce	LE	Castrì di Lecce	777,421	4,463,235	3	ASN, DS II, 248, c. 43	Quaternus Declaracionum
29	Castrì di Lecce	Castrum Franconi	Castrì di Lecce	LE	Castrì di Lecce	777,421	4,463,235	3	ASN, DS II, 248, c. 45	Quaternus Declaracionum
30	Castrignano dei Greci	Castrignianum de Maramonte	Castrignano dei Greci	LE	Castrignano dei Greci	780,646	4,452,308	3	ASN, DS II, 248, c. 44	Quaternus Declaracionum
31	Castrignano dei Greci	Castrignianum de Sopno	Castrignano dei Greci	LE	Castrignano dei Greci	780,646	4,452,308	3	ASN, DS II, 248, c. 44v	Quaternus Declaracionum
32	Castrignano dei Greci	Castrignianum de la Barliera	Castrignano dei Greci	LE	Castrignano dei Greci	780,646	4,452,308	3	ASN, DS II, 248, c. 44v	Quaternus Declaracionum

… TO DATABASE

Relational database (RDBMS) populated with data obtained from historical sources

- ✓ Execution of complex data queries

- ✓ Data selection on the basis of one or more criteria

- ✓ Simple and efficient archive consultation

- ✓ Cartographic representation of information

SOME ENTITIES IN THE MEDIEVAL DATABASE

PLACE: an historical place as recorded in the source

FISCAL UNIT: centre from which a toponym depended from the fiscal point of view

OFFICE: administrative office that receives taxes

FISCAL DISTRICT: a cluster of fiscal units

SOURCE: historical document from which information is obtained

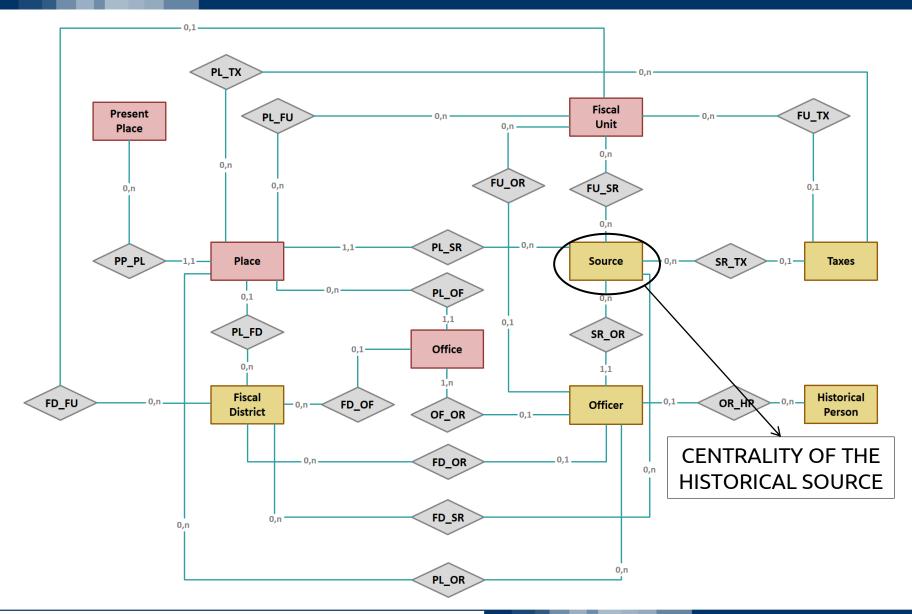**TAXES:** information about typology and amount of taxes

OFFICER: name of officer found in historical documents, exerting one or more functions

…

ENTITY-RELATIONSHIP DIAGRAM

CENTRALITY OF THE HISTORICAL SOURCE

GEOREFERENCING HISTORICAL DATA

QUATERNI DECLARACIONUM

Manually georeferenced toponyms

ACCURACY: based on a qualitative index,
the **level of precision**

#	LEVEL OF PRECISION	DESCRIPTION
1	Very low	Toponyms with poor information
2	Low	Uncertain toponyms
3	Medium	Towns
4	High	Small built-up areas
5	Very high	Isolated buildings

CARTOGRAPHIC AND REFERENCE SYSTEM: **UTM WGS84**
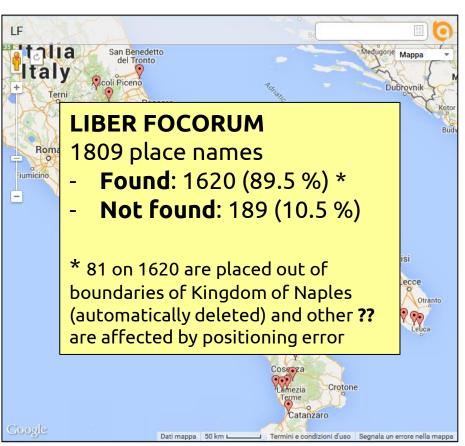
GEOREFERENCING HISTORICAL DATA

QUATERNUS DECIMARUM & LIBER FOCORUM

Automatically georeferenced with **batchgeo**

LIBER FOCORUM
1809 place names
- **Found**: 1620 (89.5 %) *
- **Not found**: 189 (10.5 %)

* 81 on 1620 are placed out of boundaries of Kingdom of Naples (automatically deleted) and other **??** are affected by positioning error

POSITIONING ERRORS

Field	Value
ID_TOPONIM	731
TOPONIMO_I	SAN DEMETRIO
TOPONIMO_L	SANCTUS DEMETRUS
VARIANTE_T	SANCTUS DEMETRIUS
EST_X	380783.84789
NORD_Y	4682900.29841
COMUNE_ATT	SAN DEMETRIO NE' VESTINI
PROVINCIA_	L'AQUILA
CIRCOSCRIZ	CALABRIA ULTRA

A GEOPORTAL FOR HISTORIC RESEARCH

GeoNode is an Open Source web-based application and platform for developing geospatial information systems and for deploying spatial data infrastructures
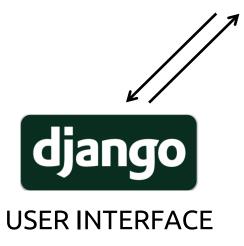
MAIN FEATURES

- Upload spatial data in shapefile format
- Upload documents and images
- Create maps
- Edit metadata
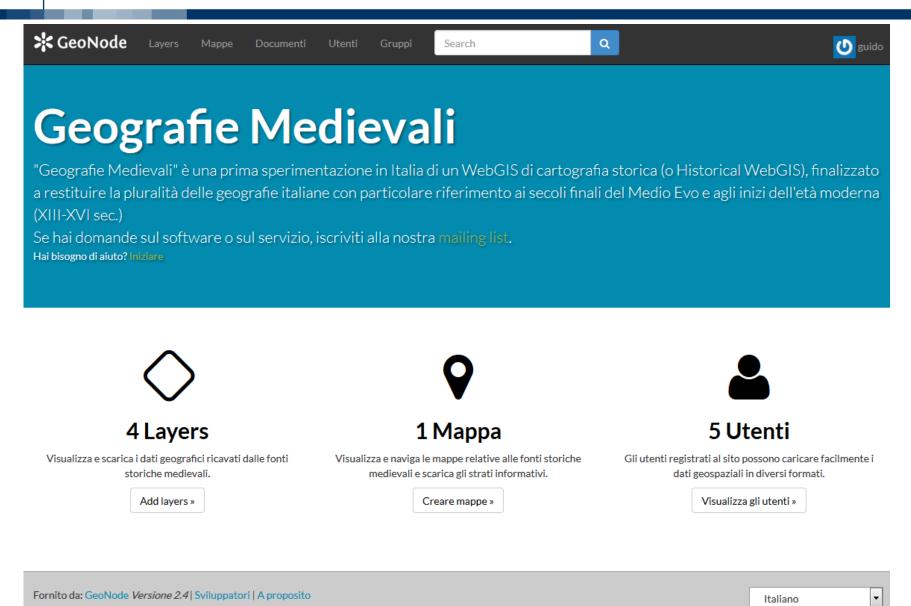- Change permissions of view/download/edit for different users

ARCHITECTURE

USER INTERFACE

MANAGEMENT OF
GEOSPATIAL DATA

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xubuntu 14.04 LTS (Virtual Machine)
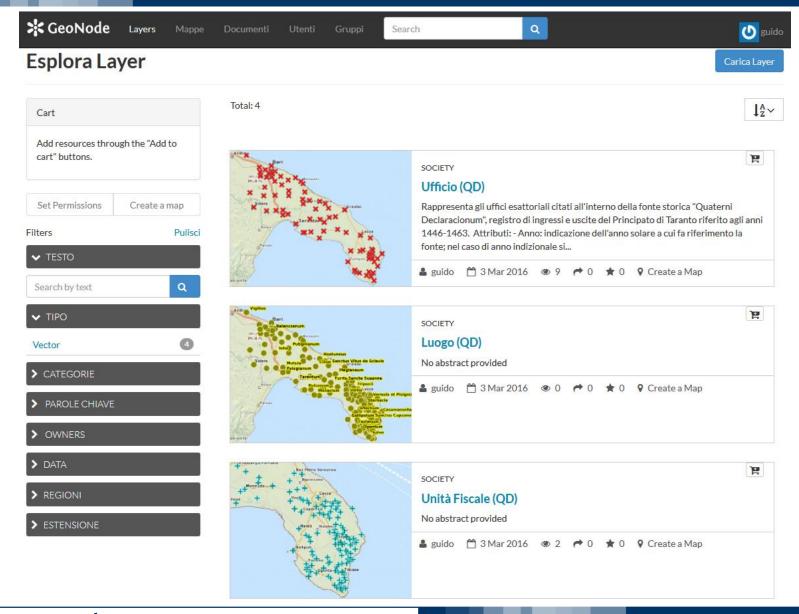
Easy installation, configuration and use

```
$ sudo add-apt-repository ppa:geonode/stable

$ sudo apt-get update

$ sudo apt-get install geonode

$ sudo geonode-updateip 131.175.29.87

$ geonode createsuperuser
```
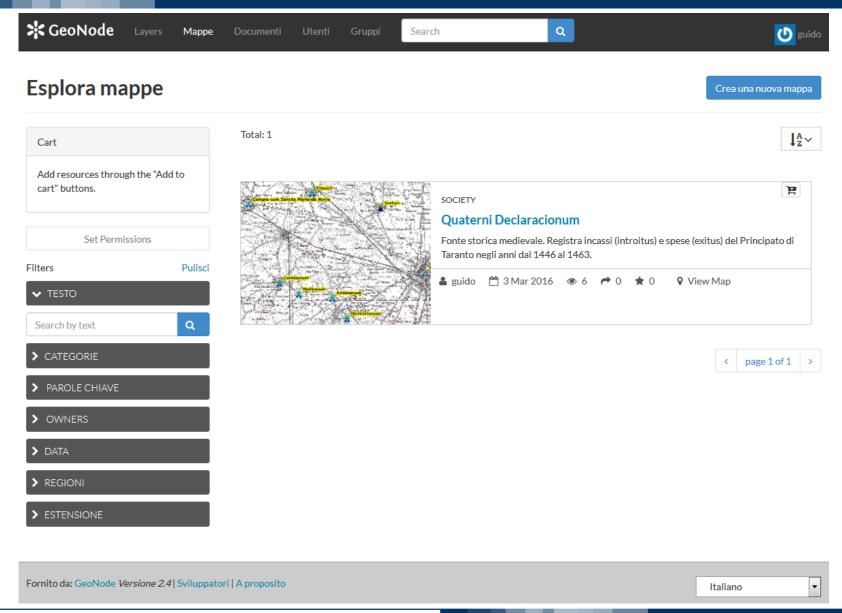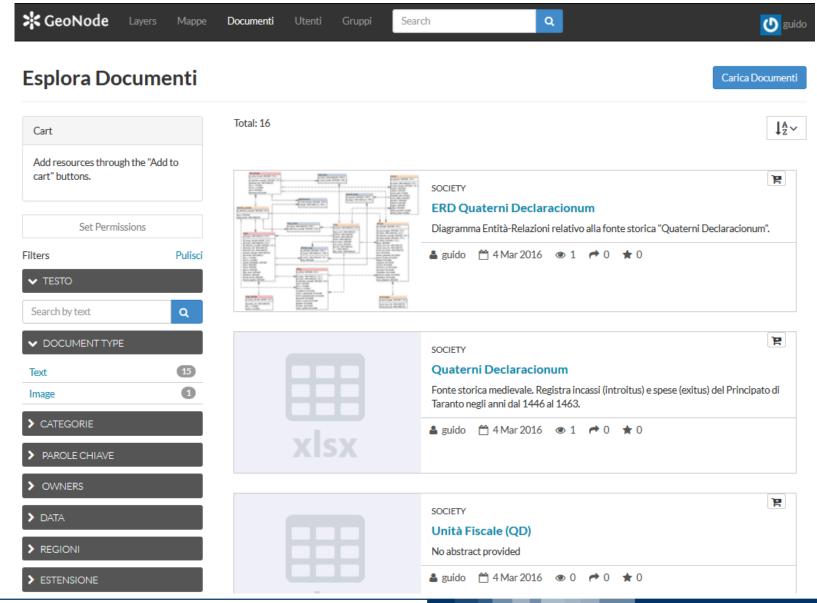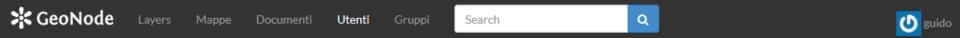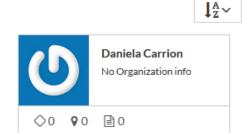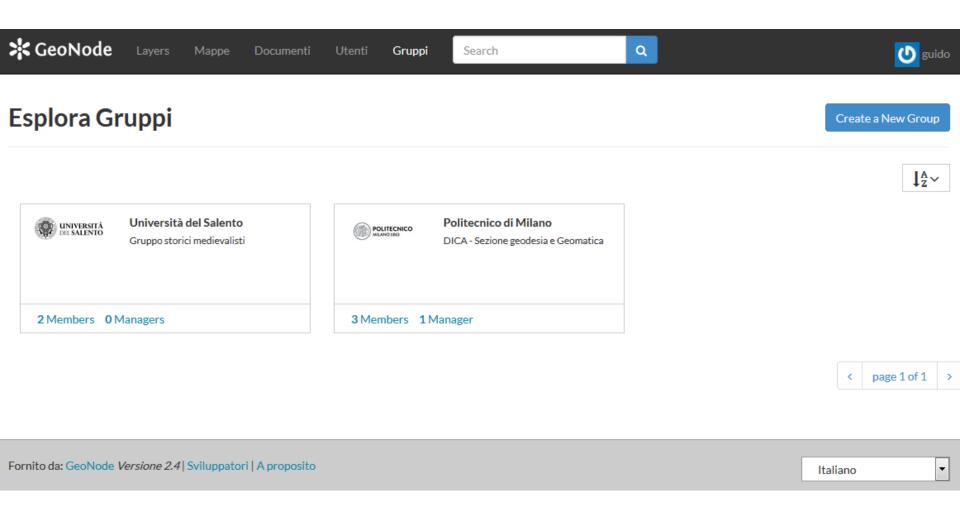
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CUSTOMIZATION

Poedit

Django.po

TEXT
LANGUAGE

Django.mo

MACHINE
LANGUAGE

CONCLUSION
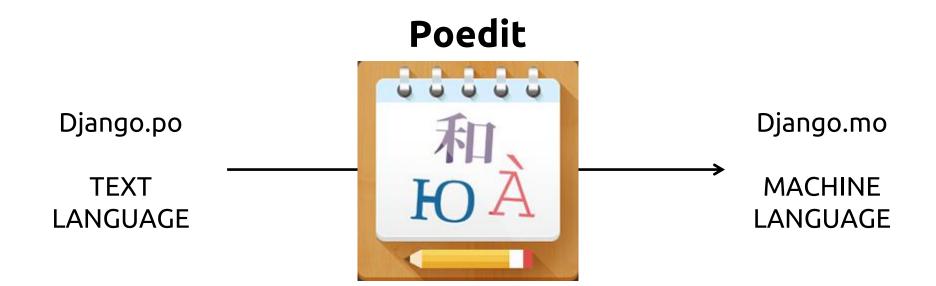
- Structuring data in a database form allows to analyze and study historical data with more innovative tools than the traditional ones, making the consultation of historical archives more efficient

FUTURE DEVELOPMENTS

- Manual georeferencing of all the toponyms into the database

- Expansion of the database with fiscal data concerning the same period

- Improvement of the Historical GIS capabilities in order to fit the needs of Historians

- Rebuilding of the relational database structure in order to integrate non spatial data

  - Creation of views

  - Table Joining Service (TJS – OGC standard)