



Corso di laurea in Informatica Umanistica

RELAZIONE

Verso un'Applicazione Web per la costruzione di una base di conoscenza per documenti digitali, basata su Linked Data



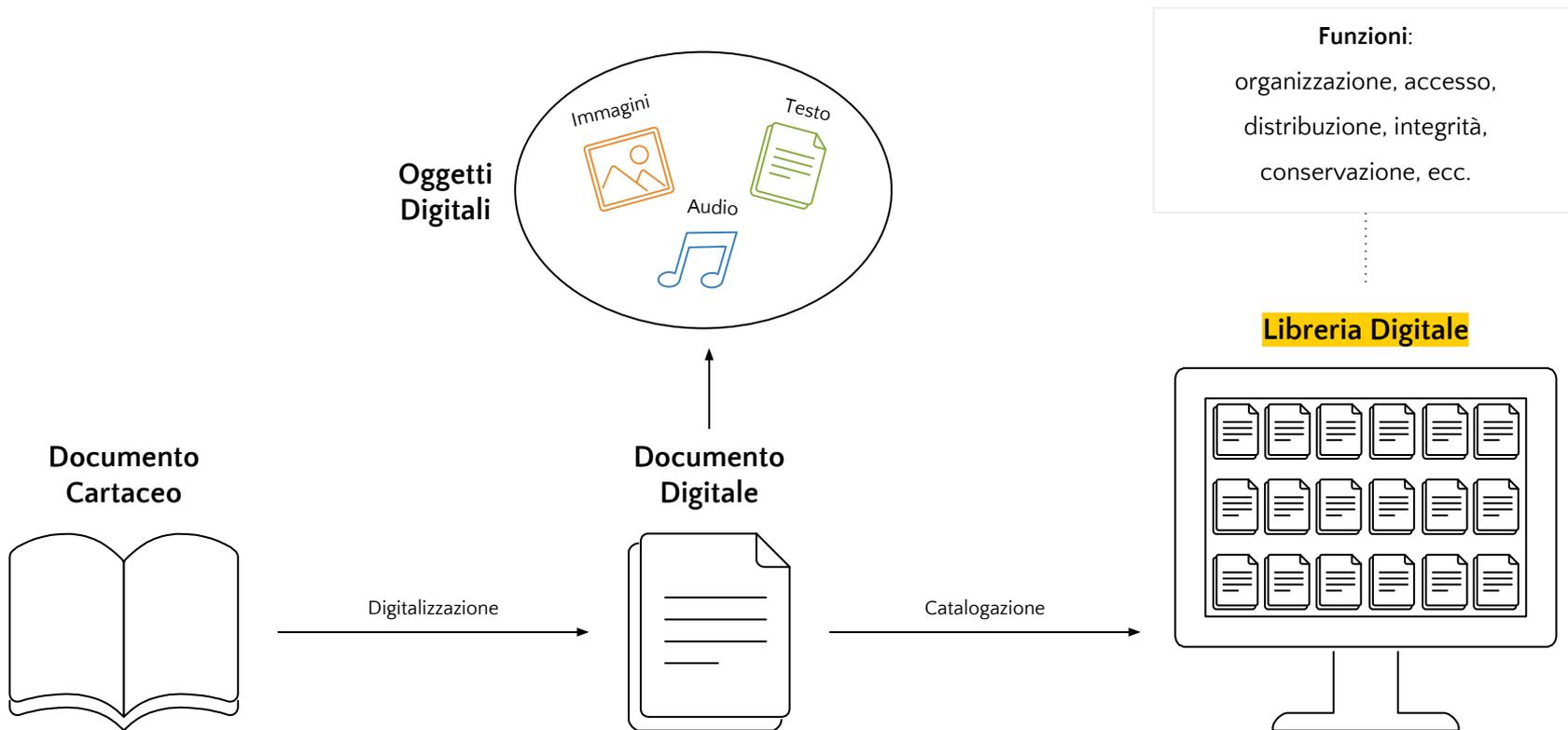
Relatori: ing. A. Lo Duca e prof. A. Marchetti
Correlatore: prof. A. Ambrosini

Candidato: Francesco Sacchini

Anno Accademico 2015/2016

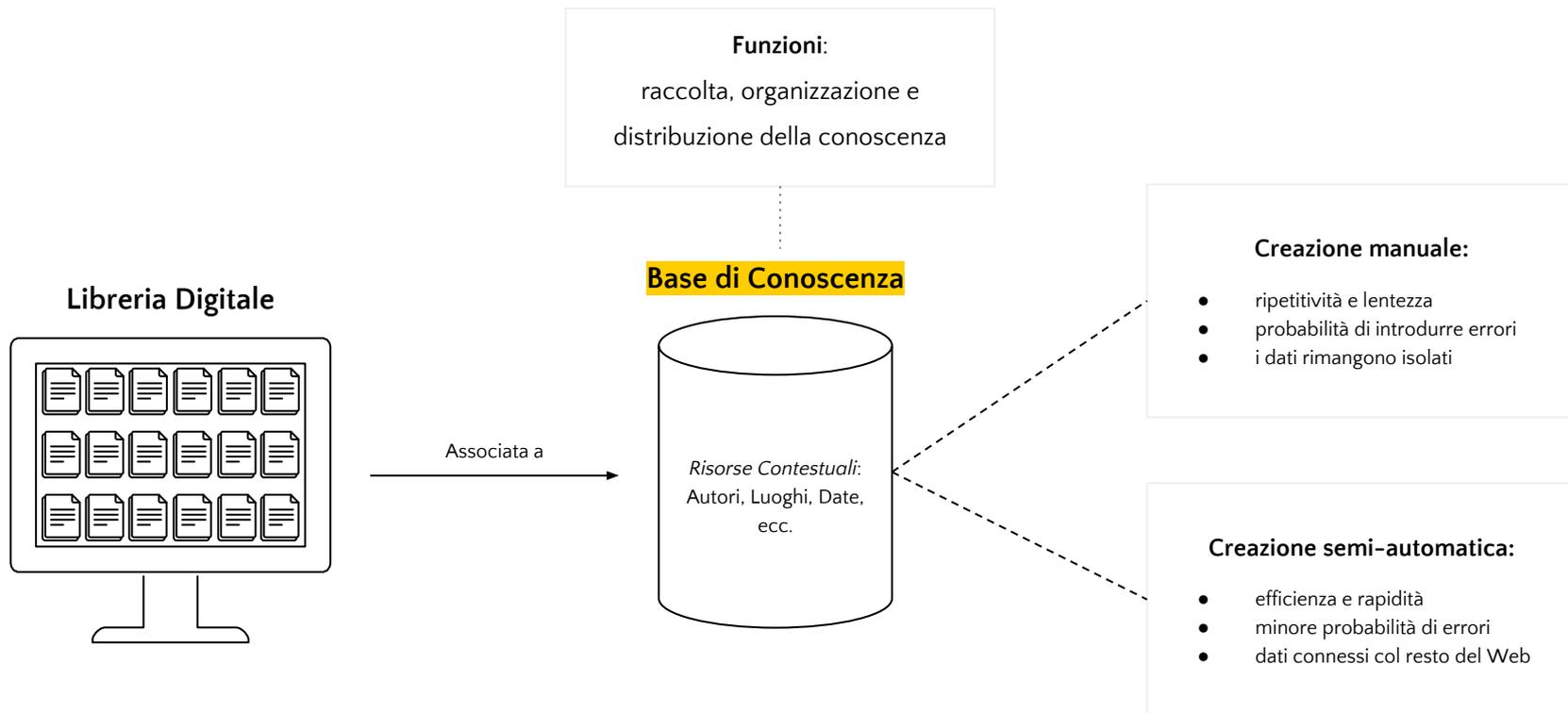


Digitalizzazione e catalogazione





Digitalizzazione e catalogazione





Digitalizzazione e catalogazione



Web Metadata Editor (WeME)

Applicazione Web *user-friendly*
per la costruzione semi-automatica
di una base di conoscenza

Vantaggi:

- *velocità ed efficienza*



estrazione di dati da varie fonti Web

- *diminuzione di errori*



inserimento automatico di dati
provenienti da fonti affidabili

- *connessione col resto del Web*



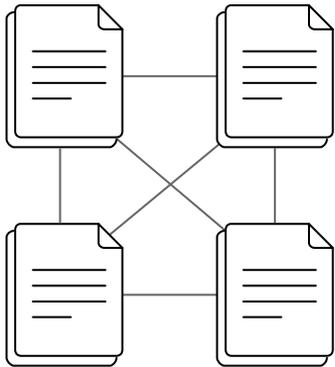
utilizzo della tecnologia Linked Data



Il Web Semantico

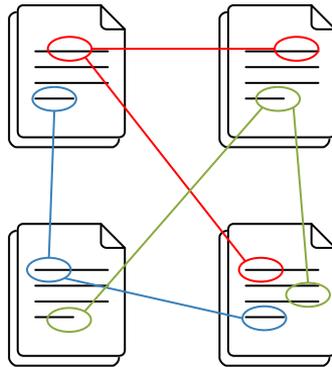
Web 2.0

Documenti collegati da
link ipertestuali



Web 3.0

Dati collegati da
link semantici



Elementi portanti del Web Semantico:

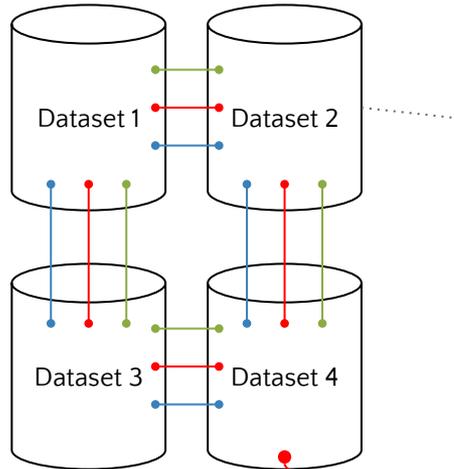
- i **metadati**: meta-informazioni che specificano il contesto semantico dei dati
- **RDF** e **SPARQL**: i due standard di comunicazione e di scambio dei dati
- le **ontologie**: schemi di metadati per definire concetti e relazioni appartenenti a una certa area di interesse
- i **Linked Data**: linee guida per la pubblicazione di dati strutturati e collegati tra loro sul Web



Il Web Semantico

Linked Data

Dati strutturati pubblicati in *datasets* collegati tra loro

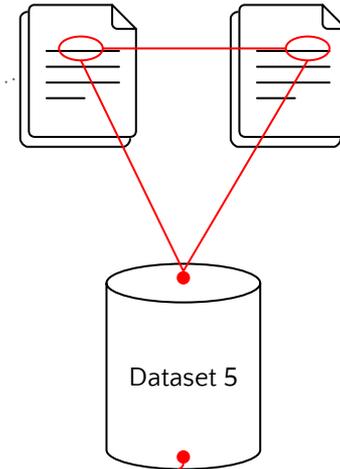


Principi basilari dei Linked Data:

- **URI**: identificatore univoco per ogni oggetto
- **HTTP**: protocollo da utilizzare
- **RDF** e **SPARQL**: formati standard per la descrizione delle informazioni
- **Links**: collegare i dati con altri dati correlati

Interoperabilità

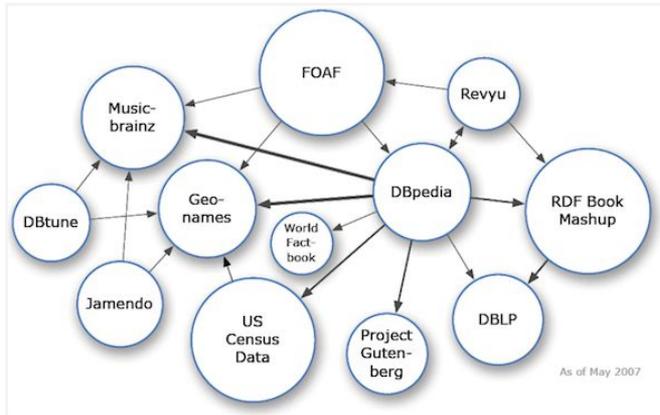
Possibilità di incrocio e aggregazione di dati



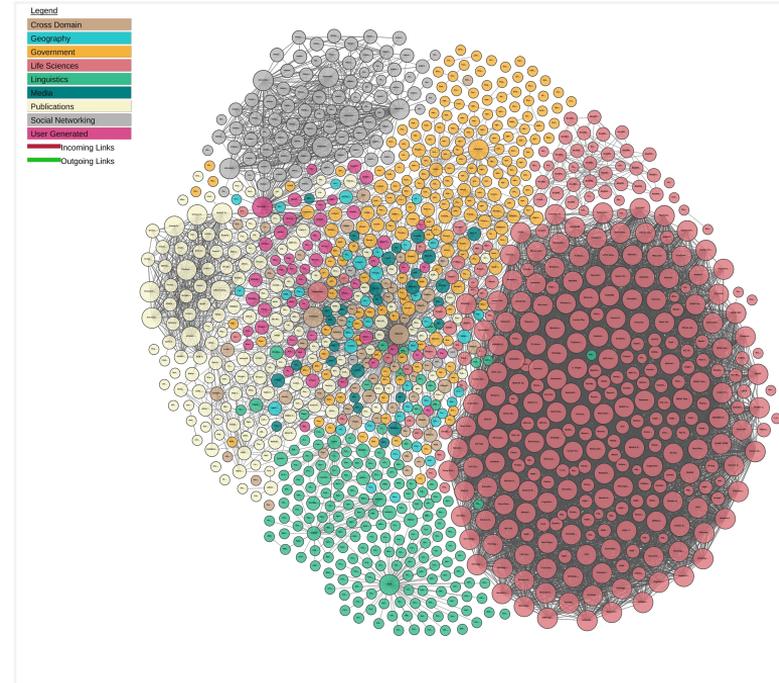


Il Web Semantico

Linked Data Cloud nel 2007



Linked Data Cloud nel 2017





Strumenti per la *gestione di basi di conoscenza*

Strumento	Open-source	Automatismo	Versione Online	Versione Locale
Dacura	No	No	Si	n.a.
CULTURA	No	No	Si	No
FREME	Si	No	No	Si
Cold Start KBP	No	Si	n.a.	Si
Watson WI	Si	Si	Si	Si
WeME	Si	Si	Si	Si

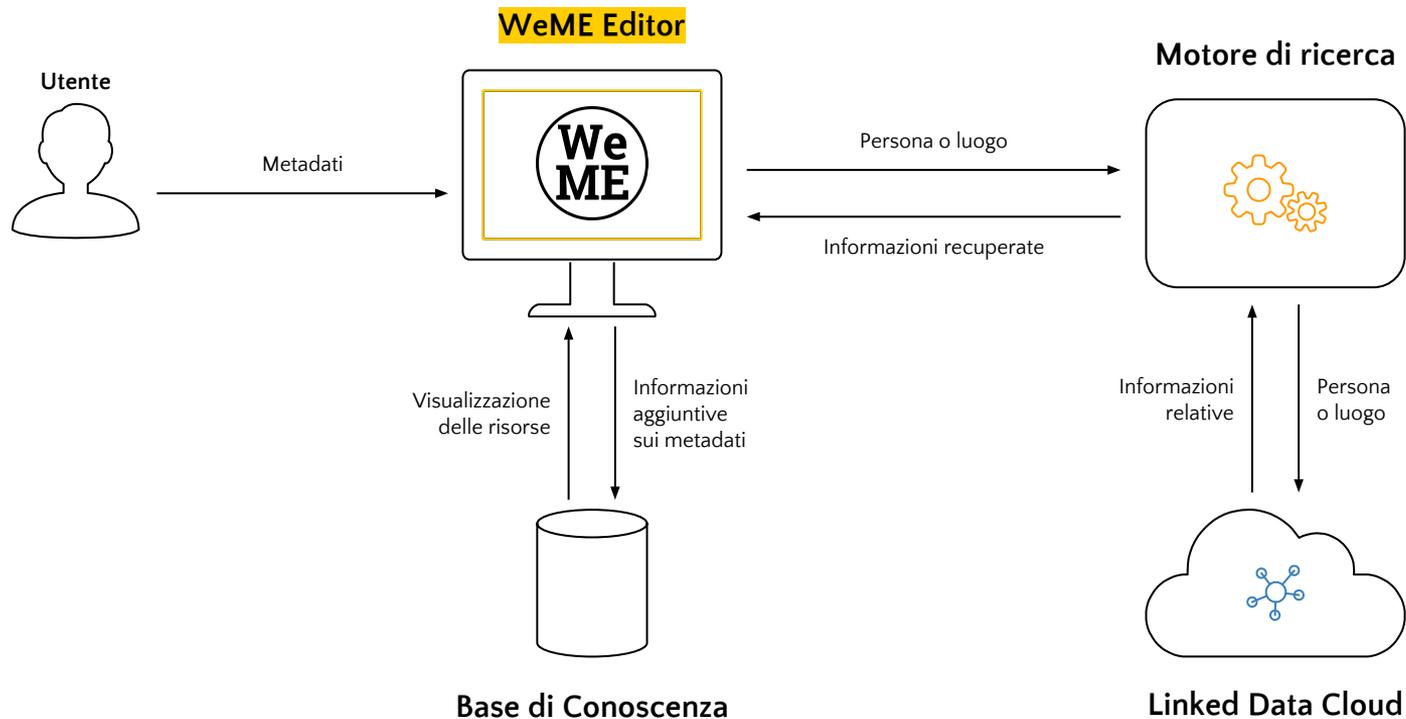


Strumenti per la *catalogazione di documenti*

Strumento	Open-source	Automatismo	Versione Online	Versione Locale
CONTENTdm	No	No	Si	n.a.
Omeka	Si	No	Si	Si
Collective Access	Si	No	No	Si
CollectionSpace	Si	Si	No	Si
WeME	Si	Si	Si	Si



Web Metadata Editor (WeME)

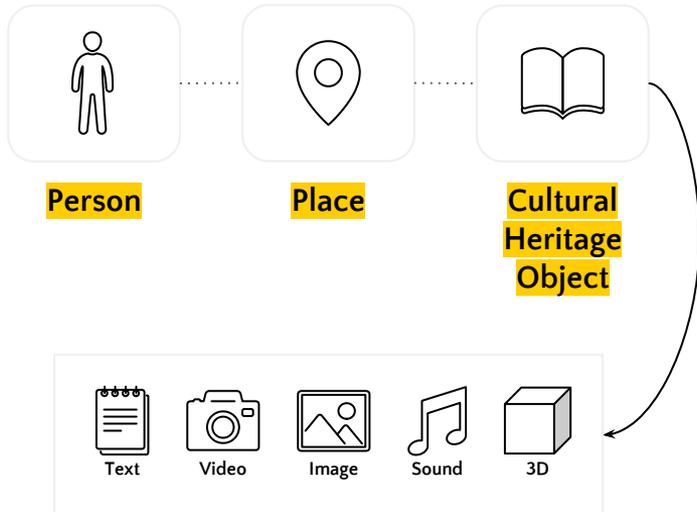




Web Metadata Editor (WeME)

Europeana Data Model (EDM)

Classi di metadati:



Web Services Utilizzati:

- **DBpedia:** Database di informazioni semistrutturate provenienti da Wikipedia
- **VIAF:** Database contenente voci di autorità controllate in più lingue
- **GeoNames:** Database mondiale di informazioni geografiche



Web Metadata Editor (WeME)

The screenshot shows the WeME web application interface. At the top left, the header reads "<WeME> | The Web Metadata Editor". At the top right, there is a welcome message "Welcome! Can you tell us about you?" and a green "Login" button. The main content area features the "<WeME>" logo, a search bar with the placeholder "Search in the Database", and three filter buttons: "Person", "Place", and "CHO". Below these is a large grey search input field and a yellow "Search" button. At the bottom, there are navigation links: "Database", "Info & Credits", and "Tutorial".

Callout boxes highlight specific features:

- Consolle di ricerca**: Points to the search bar and filter buttons.
- Header con pulsanti principali**: Points to the top navigation area, including the "Login" button and the user profile area.
- Pulsanti secondari**: Points to the bottom navigation links: "Database", "Info & Credits", and "Tutorial".

Additional details in the user profile area:

- Text: "Welcome, Francesco!"
- Buttons: "Add Record" (green), "Collections" (yellow), "Logout" (red).



Web Metadata Editor (WeME)

<WeME> | The Web Metadata Editor Welcome, Francescol Add Record Collections Logout

Results for 'Dante Alighieri'

Here you can visualize, modify, delete the record you selected and visualize the associated ones.

Dante Alighieri

Info
Birth Date: 1265
Birth Place: Florence
-
Death Date: 1321
Death Place: Ravenna

Bio

Durante degli Alighieri (du'raunte deM all'igieri); simply called Dante (['dante], /dæntei/, /'dæntei/; c. 1265–1321), was a major Italian poet of the late Middle Ages. His Divine Comedy, originally called Comedia (modern Italian: Commedia) and later christened Divina by Boccaccio, is widely considered the greatest literary work composed in the Italian language and a masterpiece of world literature. In the late Middle Ages, the overwhelming majority of poetry was written in Latin, and therefore accessible only to affluent and educated audiences. In De vulgari eloquentia (On Eloquence in the Vernacular), however, Dante defended use of the vernacular in literature. He himself would even write in the Tuscan dialect for works such as The New Life (1295) and the aforementioned Divine Comedy; this choice, although highly unorthodox, set a hugely important precedent that later Italian writers such as Petrarch and Boccaccio would follow. As a result, Dante played an instrumental role in establishing the national language of Italy. Dante's significance also extends past his home country; his depictions of Hell, Purgatory, and Heaven have provided inspiration for a large body of Western art, and are cited as an influence on the works of John Milton, Geoffrey Chaucer, William Shakespeare, and Lord Alfred Tennyson, among many others. In addition, the first use of the interlocking three-line rhyme scheme, or the terza rima, is attributed to him. Dante has been called "the Father of the Italian language". In Italy, Dante is often referred to as il Sommo Poeta ("the Supreme Poet") or il Poeta; he, Petrarch, and Boccaccio are also called "the three fountains" or "the three crowns".

Associated Places

Associated Cho

Links

- Wikipedia
- Viaf

Collections

- + Add to a collection

Immagine

Pulsanti di modifica ed eliminazione

Risorse correlate

Informazioni sulla risorsa

Menu delle collezioni

Links esterni



Web Metadata Editor (WeME)

Pulsanti per la ricerca su
DBpedia, VIAF e
GeoNames

<WeME> | The Web Metadata Editor Welcome, Francesco! Add Record Collections Logout

New Person

Insert the data manually or click the buttons below to check for linked data.

[Check with DBpedia](#) [Check Viaf ID](#)

Name* Surname*

Birth Date* (yyyy-mm-dd) Birth Place

Death Date (yyyy-mm-dd) Death Place

Still Alive

Bio

Image Link

Wikipedia Link Viaf Link

Send

New Place

Insert the data manually or click the buttons below to check for linked data.

[Check with DBpedia](#) [Check with Geonames](#)

Original Name* English Name

Country Region Population

Latitude Longitude

Description

Image Link

Wikipedia Link Geonames Link

Send

Campi da compilare con
le informazioni

Pulsante per
l'inserimento nel
Database



Web Metadata Editor (WeME)

<WeME> | The Web Metadata Editor Welcome, Francesco! Add Record Collections Logout

Your Collections

Here you can visualize, edit, export and delete your collections.

- Italian Renaissance
- English Renaissance
- Italian Actors
- German Painters

Create a new collection +

Menu di gestione delle collezioni

Elementi nella collezione

Elementi che possono essere aggiunti

<WeME> | The Web Metadata Editor Welcome, Francesco! Add Record Collections Logout

Edit 'Autori Fiorentini':

Here you can add/remove records to/from your collection.

2 Persons

Name	Birth Date	Birth Place	Death Date	Death Place	Remove
Francesco Petrarca	20/07/1304	Florence	19/07/1374	Italy	
Dante Alighieri	16/05/1265	Florence	14/09/1321	Ravenna	

1 Places

Name	Region	Country	Population	Lat,Long	Remove
Firenze, Florence	Tuscany	Italy	381,037	43.783, 11.250	

Add elements to the Collection

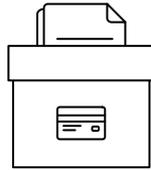
Persons

Name	Birth Date	Birth Place	Death Date	Death Place	Add
Dante Alighieri	01/01/1265	Florence	01/01/1321	Ravenna	+
János Arany	02/03/1817	Nagyszalonta	22/10/1882	Budapest	+
Obama Barack Hussein	04/08/1961	Honolulu, Hawaii, United States	--	--	+
Eugen Barbu	20/02/1924	Bucharest	07/09/1993	Bucharest	+
Michelangelo Buonarroti	06/03/1475	Caprese	18/02/1564	Rome	+
Miguel de Cervantes Cervantes	01/01/1547	Alcalá de Henares	01/01/1616	Madrid	+
Noam Chomsky	07/12/1928	Philadelphia, Pennsylvania, United States	--	--	+
Christopher Clavius	25/03/1538	Holy_Roman_Empire	02/02/1612	Rome	+
John Connolly	31/05/1968	Dublin, Ireland	--	--	+
Lyonel Feininger	17/07/1871	New York City, New York, U.S.	13/01/1956	New York City, New York, U.S.	+
John Fitzgerald Kennedy	29/05/1917	Brookline, Massachusetts, U.S.	22/11/1963	Dallas, Texas, U.S.	+
Galileo Galilei	15/02/1564	Pisa, Duchy of Florence, Italy	08/01/1642	Arcevi, Grand Duchy of Tuscany, Italy	+



Web Metadata Editor (WeME)

Tipologie di utenti



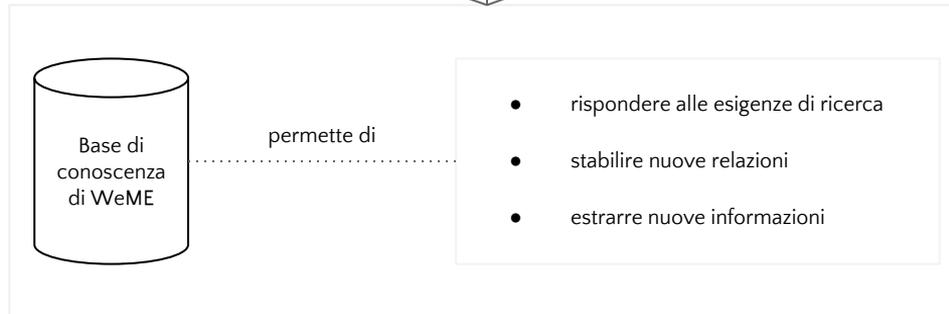
Archivisti



Ricercatori



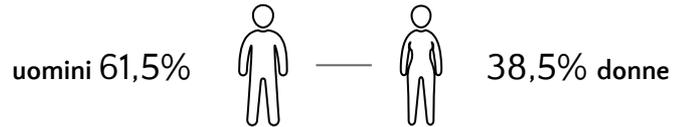
Utenti Generici





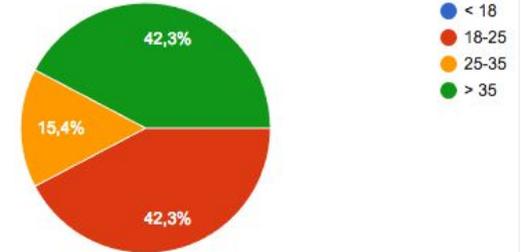
Test di Usabilità

Partecipanti totali: 26



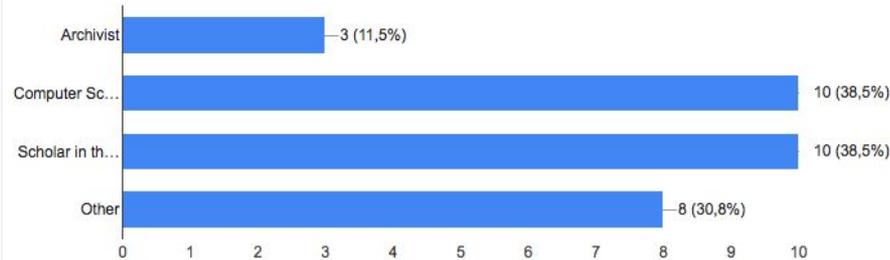
Please select your age

26 risposte



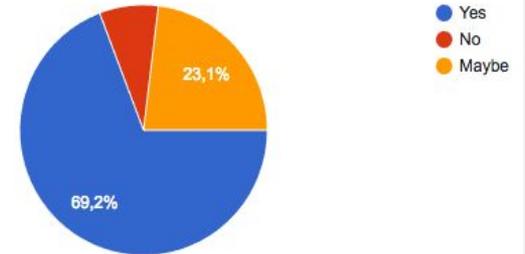
Please indicate your competences (more than one answer is allowed)

26 risposte



Are you interested in Cultural Heritage?

26 risposte





Task 1: creazione dell'account

Creazione manuale di un nuovo account
e accesso alla piattaforma





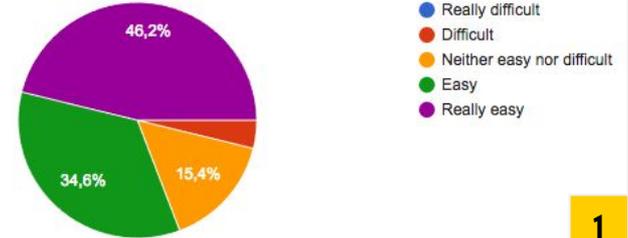
Test di Usabilità

Task 2: gestione di una collezione

1. creazione di una nuova collezione
2. aggiunta di elementi alla collezione
3. esportazione della collezione

How easy was it to create a collection?

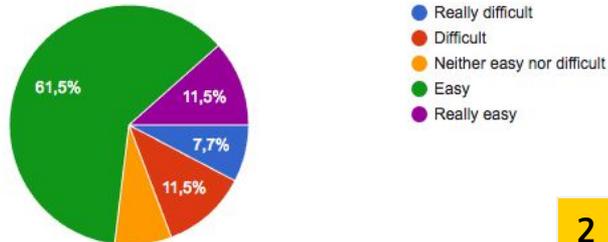
26 risposte



1

How easy was it to add elements to a collection?

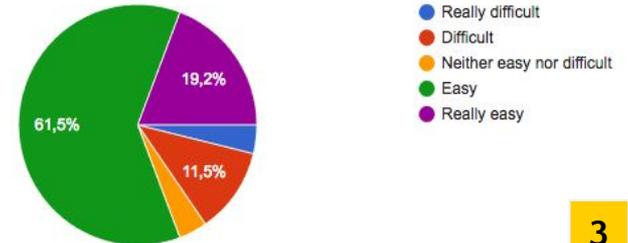
26 risposte



2

How easy was it to export a collection?

26 risposte



3



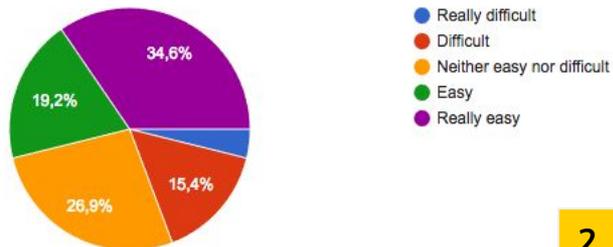
Test di Usabilità

Task 3: gestione di nuove risorse

1. aggiunta di risorse tramite una ricerca con DBpedia, VIAF e GeoNames
2. visualizzazione delle risorse aggiunte
3. giudizio sull'organizzazione della base di conoscenza

How easy was it to search for an element?

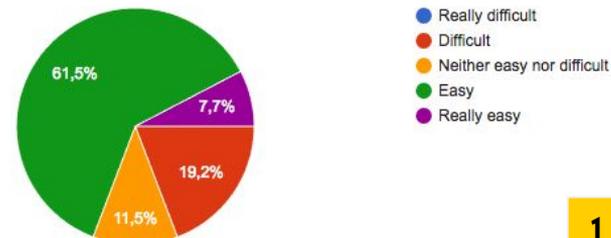
26 risposte



2

How easy was it to add new elements to the Database?

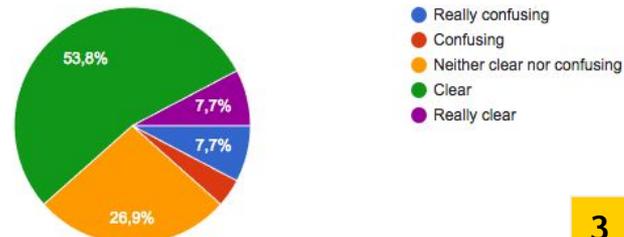
26 risposte



1

What do you think about the organization of the knowledge base?

26 risposte



3



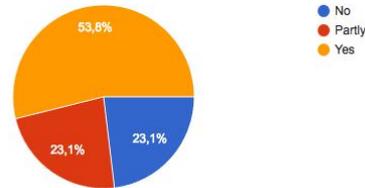
Test di Usabilità

Task 3: gestione di nuove risorse

1. ricerca di persone con DBpedia
2. ricerca di persone con VIAF
3. ricerca di luoghi con DBpedia
4. ricerca di luoghi con GeoNames

Did you find the informations about the person using DBpedia?

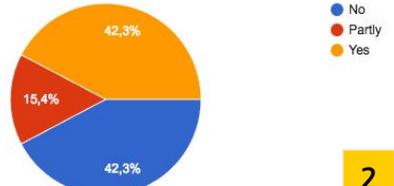
26 risposte



1

Did you find the person using VIAF?

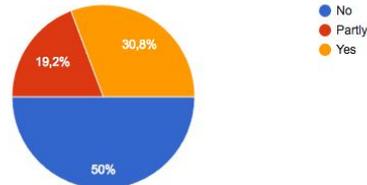
26 risposte



2

Did you find the informations about the place using DBpedia?

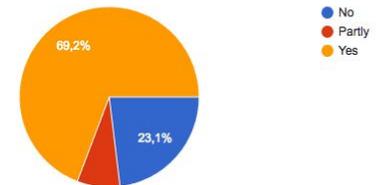
26 risposte



3

Did you find the place using GeoNames?

26 risposte



4



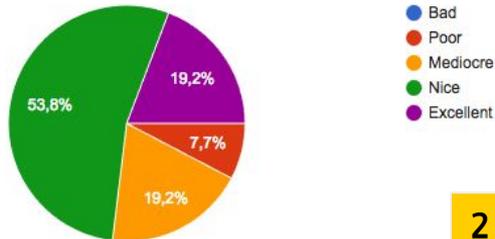
Test di Usabilità

Task 4: considerazioni generali

1. valutazione della navigazione
2. valutazione della grafica
3. valutazione sull'organizzazione delle collezioni

How do you judge WeME's graphic design?

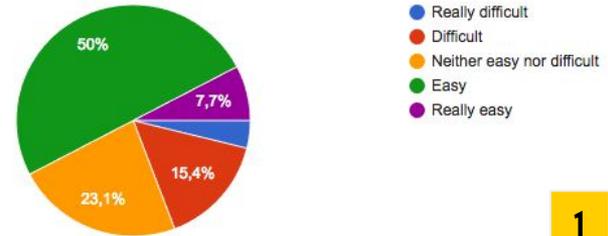
26 risposte



2

How easy was it to navigate in the application?

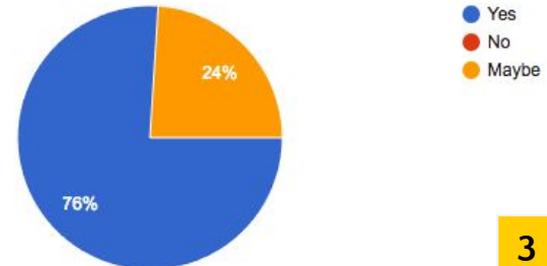
26 risposte



1

Do you think that collections are well organized?

25 risposte



3

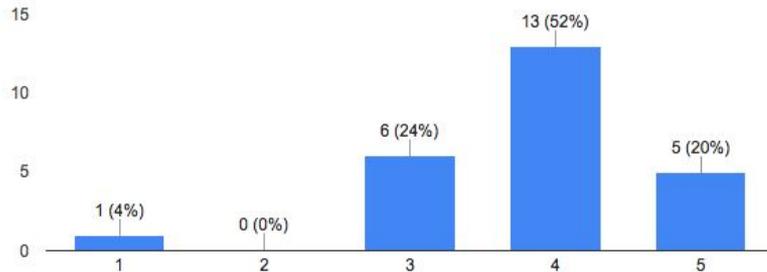


Task 4: considerazioni generali

1. valutazione generale
2. suggerimenti degli utenti

Overall score about WeME (1 poor, 5 excellent)

25 risposte



1

Suggerimenti:

- rendere l'applicazione più *responsive*
- gestione simultanea di più risorse
- ricerca anche con stringhe non esatte
- ricerca senza specificare la classe
- ecc..

2



Conclusione e Sviluppi



Sviluppi futuri:

- rendere l'applicazione più *responsive*
- disambiguazione automatica di dati
- esportazione in altri formati (es. XML)
- compatibilità con altre ontologie
- supporto di altre classi (es. eventi)
- maggiore configurabilità
- ecc..

