DELIVERABLE

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1.2	09/01/14	Casarosa, Mambrini	DAI, CNR	Sections 4-5 edited

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LIST OF ABBREVIATIONS

EDB   Epigraphic Database Bari, Università di Bari

EDH   Epigraphic Database Heidelberg, Heidelberger Akademie der Wissenschaften

EDR   Epigraphic Database Roma, Università di Roma – La Sapienza

FMA   EAGLE Flagship Mobile Application

FSA   EAGLE Flagship Storytelling Application

HE   Hispania Epigraphica, Universitad de Alcalá

For D4.1, D6.1, D3.1 see Bibliography

EXECUTIVE SUMMARY

The document provides the list of the functional requirements for the user-dedicated services of the EAGLE project.

The sections of the Introduction provide a general description of the whole EAGLE architecture and of the three services that the users will be able to interact with.

Sec. 1.3 is dedicated to outline the content that will be made available and introduces the terminology that will be used to refer to the contents of the EAGLE collection.

Sec. 1.4 presents the rationale of the EAGLE Portal, Flagship Mobile Application and Flagship Storytelling Application.

In sec. 1.5 we discuss the methodology that was followed in eliciting the requests for functions, and how we selected the requirements that were chosen to be included, at some point in time, in the EAGLE system.

Sec. 2 introduces the main components that form the backbone of the EAGLE user-dedicated system, and discuss the model of interactions between them. This section must not be read as a set of finalized guidelines for the implementation of the architecture. Rather at this stage, the section aims to represent the model according to which the EAGLE system will function as a whole, and to provide the reader with the information she needs to understand requirements and use-cases.

While sec. 2 attempts a preliminary description of the EAGLE system in terms of its components, in sec. 3 we shift the perspective to that of the user: this will be the dominant point of view in the rest of the deliverable. In this section, we will provide a description of the target users of the EAGLE services and proceed to define the user groups for the different functions.

Finally, sec. 4 contains a list and a discussion of the functional requirements, organized according to the three EAGLE services (query and search the EAGLE data base, mobile application and storytelling application) and by the target user.

Conclusions and future work are briefly mentioned in sec. 5

1 INTRODUCTION

1.1 DOCUMENT PURPOSE

The aim of this document is to provide a comprehensive list of the functional requirements that will guide the development of the user-dedicated services of the EAGLE project.

In the proposal and the documentation of the project that has been disseminated, we have already outlined a series of services that we envisioned to provide to the public[1]. A preliminary list of the potential stakeholders and a first model of interaction between future users and the EAGLE collection were also highlighted.

With the present deliverable, we aim to translate these visions into a series of operative instructions, which will serve as guide for the design, implementation and test phase of the whole service architecture.

1.2 INTENDED AUDIENCE

The Deliverable D5.1 is directed both to an internal and a more general audience.

Within the circle of the EAGLE project, the document plays the standard role that functional requirement specifications have in the development phase of user services. The features of the end-users services that were agreed by the project members are presented in natural, non-formal language.

For the general public and the professionals (working in education, cultural heritage and tourism) that are addressed by EAGLE, the document provides an important occasion to verify the functionality of EAGLE; more importantly, functional requirements already design the shape of the software to come, illustrating the model of interactions between the system and the users that we have in mind, as well as the main features of each software. Moreover, all the functions are described from the point of view of the user, and the main stress is laid on what users shall be able to do.

By consulting this document, every potential user of the EAGLE services can thus get some knowledge about the main functionality of EAGLE already at this early stage. We hope therefore that as many of them as possible may read it and we invite them to engage in the discussion.

1.3 THE EAGLE COLLECTION: SHORT SUMMARY

The EAGLE project aims to create a comprehensive resource for the study of ancient inscriptions by integrating the materials of a network of content providers. The EAGLE User Services that we will discuss in details are designed precisely to be a user-friendly access point to this unique collection of inscriptions and epigraphy-related materials, both for the

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[1] See e.g. "EAGLE to make classical European inscriptions accessible". Europeana Professional Blog, Posted February 20, 2013. Accessed December 4, 2013.

general public and the scholars.

In order to understand the requirements that we will introduce, it is therefore useful to make a brief summary of the kind of objects that will constitute the EAGLE collection, as well as of the actors that will populate it. At the same time, this section will serve as a reference for a number of words related to inscriptions that will be henceforth used in the requirements. Such terms are written in bold type in the paragraphs that follow.

EAGLE is a best-practice network that reunites a number of projects throughout different countries of the European Union. A list of the partners, specifying which of them will also play the role of **content providers**, is available online on the EAGLE portal[2].

The project aims to include the vast majority of the surviving inscriptions from the Greek and Roman world. In the context of this document, the word **inscription** will be used to point to the document engraved on non-perishable materials whose text, along with a complex set of metadata (on its history, preservation, present location, dating etc.), is stored in the collections of our content providers.

The same document can be preserved and edited in more than one repository among the many partners that adhere to the EAGLE network. The same inscription, that is, can be represented in multiple **instances**. For example, a votive inscription presently in the collection of "Lapidario Zeri" in Nomentana (Roma) is available in two different repositories of the EAGLE network, namely in EDH (HD000052 in the inscription data base of the University of Heidelberg) and in EDR (EDR078767 in the inscription data base of the University of Roma La Sapienza). In the requirement list, we will speak for such cases of two instances of the same inscription.

The task of identifying the multiple instances of a single text will be carried out with the help of a unique numeric identifier, the **Trismegistos ID** number, that will be assigned to inscriptions via a de-duplication service run by Trismegistos[3], one of the EAGLE partners; this ID will be referred to by the document instances.

As a part of the effort towards the definition of a common terminology [D2.1: 23-25], EAGLE partners have undertaken a comprehensive effort to align the terms used by members of the network in seven different fields of information: object-type, type of inscription, material, writing technique, decoration, dating criteria, and state of preservation. This effort has led to the creation of seven aligned controlled **vocabularies** that are constantly being updated; entries in the vocabularies posses a stable URI that will be referenced in the corresponding metadata of the documents included in the EAGLE collection (e.g. for Monument Type see [D3.1: 14]).

The EAGLE database will also include a vast repertoire of related content, and primarily of images. Only a part of the images that will be part of the EAGLE collection represent specific inscriptions; many illustrate monuments, decorative elements or topographic contexts that

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[2] http://www.eagle-network.eu/about/partners/

[3] For more information see: http://www.trismegistos.org/about_identifiers.php

help readers contextualize the documents. The images that share the same unique identifiers for geographic provenance, object type, and monument type with an inscription will be referred to as **related images** of that given inscription. Such contents are an invaluable help both to the scholars and the general public, since they provide a meaningful historical context for each inscription. For instance, users who visualize the record of an inscription that have "Altar" as object type may be interested in viewing also pictures of all the other altars in the collection, that is pictures of other EAGLE materials that share the same "object type" as the starting inscription. These monuments should be made accessible to the user who visualizes the inscription record, in addition to images of the inscription itself and of the monuments where the document is preserved. The same is also true for shared identifiers of geographic provenance: the readers of our hypothetical inscription on an altar of the previous example shall greatly benefit from having direct access to pictures of other monuments coming from the same location as the inscription.

The interaction between inscriptions and related content is thus potentially very fruitful.

1.4 USER DEDICATED SERVICES: OVERALL DESCRIPTION

1.4.1 EAGLE Portal

The EAGLE web portal is the main gateway into the world of the EAGLE services and initiatives. On the portal, users can already find all the background information about the project, the partners and the collections. It hosts a section where news related to the content providers or of interest for the community of epigraphists will be posted. A comprehensive presentation on the visual identity of the EAGLE website and of the and branding strategy for the dissemination of the project has been offered in the [D6.1, D6.2], and will be discussed also in the forthcoming [D6.3].

The portal is also the main access to the complex of the EAGLE user services.

Firstly, the users who want to find information about inscriptions will have access to a search interface that is at the same time friendly and sophisticated, allowing the more expert users to perform complex queries on the collection. It will be possible to perform both full-text searches using a simple interface, or to launch more advanced queries. The seven controlled multilingual vocabularies on types of inscriptions, object types, material, writing, decoration, state of preservation and dating criteria, that were created to help in the alignment process of the multilingual metadata of the inscriptions from the different content provider, will help users to create their search strings.

Secondly, the users that are interested in getting access to the more advanced functionality will be able to use the EAGLE portal to register an account and manage their personal space (see below, sec. 3.1). In this area, the registered users will have access to the items they have saved after their searches (queries, query results, single records, annotations on the records), as well as the notes and pictures taken with the Flagship Mobile Application (see sec. 1.4.2).

1.4.2 Flagship Mobile Application

The EAGLE Flagship Mobile Application (FMA) is a cross-platform software running on mobile devices (IOS and Android) that enables users to perform image searches on monuments and to match them against the EAGLE collection. Users that inspect a monument "in situ"

and wish to retrieve information on the text inscribed on it will be able to search the database using just the camera and the internet connection of their mobile device. They will start by taking a picture of the monument via the FMA. The image is then sent to a dedicated service, where it is processed by image-recognition technologies and matched against the EAGLE database of images. A brief description of the recognized monument and of the text, including some of the most relevant information available, will be returned to the end user and displayed on the mobile device.

The Flagship Mobile Application can be easily used to get information on monuments without any prior knowledge on inscriptions and epigraphy; it is therefore an ideal tool for tourist and visitors. At the same time, the application has features that appeal also to specialists. Users that have registered an EAGLE account will be able to create simple-text notes for the inscriptions in the mobile application. Comments on an inscription can be taken and saved with the mobile application, and will be visible and editable in the personal page of the registered user in the EAGLE portal. Registered users will also be able to upload the pictures that they have taken of each object.

Thus, the mobile application can become a useful help for the scholar working on the field.

1.4.3 Flagship Storytelling Application

The EAGLE Flagship Storytelling Application (FSA) is a web-based application that will enable users to develop epigraphy-related narratives, as well as to enjoy stories created by others. Thanks to this software, users will be able to write text and include items from the EAGLE collection or from other external resources for Ancient History into their stories.

The storytelling interface will be accessible on the EAGLE portal. It will include a starting page, where it will be possible to browse, read and search the stories that have been published. From there, the registered users (after logging in to their EAGLE accounts) will be able to access the storytelling writing interface to start working at their own stories. This interface will be designed so as to make the process of writing text, searching and including multimedia content as fluent and intuitive as possible. Users will be able to move objects (text paragraphs, videos, images, inscriptions and excerpts of texts) by dragging and dropping them to the intended location within their stories.

The application aims to provide a decisive illustration of the general aim of EAGLE. It is the ideal environment to unleash the users' creativity in showing how different, apparently unrelated inscriptions can be linked together in scholarly as well as introductory narratives.

The process of storytelling is inherently free and creative, so that everybody who has a story to tell can be a potential stakeholder in the project. However, we have in mind two areas where professionals will profit from the software and of its multimedia capabilities:

- Education; the storytelling application may especially suit the following professional figures:
    - Lecturers and professors: stories featuring textual as well as visual content can be used as a support to teaching activity in seminars or classes;
    - Students: students may be invited to write stories as class assignments, or may select the "story" as a format for their essays;
    - Scholars and researchers: the storytelling application can be used as a

"blogging" platform to disseminate preliminary results or, more generally, to inform the public about ongoing research activities.

- Cultural heritage professionals: the storytelling application is an excellent medium that curators of museums and exhibitions can use to promote collections or events, or to guide the visitors through the different monuments in display.

1.5 METHODOLOGY

Several channels were exploited in order to elicit functional requirements from the content providers and representative sample of other potential stakeholders of the EAGLE project.

A preliminary discussion between the content providers took place on the mailing lists of the EAGLE network, and resulted in a wish list of functions for the search interface of the portal. These features, along with the main functionality outlined in the "Description of Work", were listed in a dedicated page on the EAGLE wiki, which is accessible to the project partners from the reserved area of the portal.

Forms for requesting new functions for each of the applications were also publicized among the partners. These preliminary forms were structured in a deliberate open format: partners could suggest whatever function they might be interested in by entering a description in a free text paragraph. Interviews were also conducted with our content providers and a group of experts in the field of (digital) epigraphy not directly involved in the EAGLE network.

This brainstorming phase culminated in the drafting of a collection of "user stories" for the EAGLE Portal, FMA and FSA. User stories are short written descriptions, told from the perspective of a user, that verbalize the expectations of each user in the form: "as [user role] I want to [functionality], so that [benefit]". The list of the user stories was disseminated to the partners, and was left open for comments and new suggestions. The project partners were subsequently asked to rank the stories by voting them with a form published in the reserved area of the EAGLE portal. The list of the collected user stories can be read in the Annex I.

For the FMA, on the other hand, we chose to adopt an approach based on "agile development" methodologies. Starting from the core requirements that were listed in the "Description of Work", a prototype of the application was produced at an early stage. Subsequent refinements of the functionality and the "look and feel" are produced based on the feedback of "test users".

The project meetings provided the most important opportunity to advance the work from a brainstorming phase to the definition of the functional requirements to be included in this document. In particular, at the EAGLE general meeting held at the CNR-ISTI in Pisa (Italy), on October 24 and 25 the functions and use cases based on the user stories, as well as the prototype of the FMA were presented to the partners. The preliminary list of user story (that can be read below in Annex I) was thus discussed and some of the collected stories were screened out. The discussion allowed us to elaborate the final set of user requirements for the EAGLE user dedicated services that readers will find in the next sections.

2 MAIN COMPONENTS
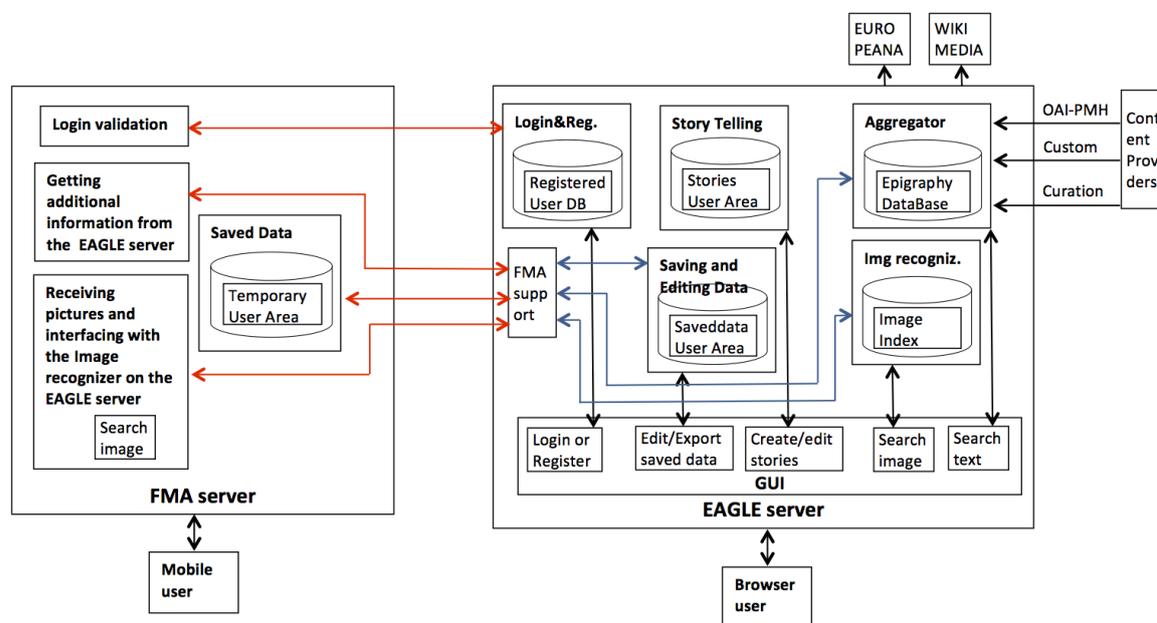
Figure 1: Summary view of the system architecture

Figure 1 shows the main components of the EAGLE user-service system, along with a view of the different modules that will be implemented in each of them. It also displays a schema of the interactions between the two main components (the EAGLE server and the FMA server) and the end users of the EAGLE services. For convenience reasons, it has been decided to implement the EAGLE portal through two separate servers, which will be located in close proximity (possibly on the same physical server) in order to make the exchange of information between the two servers as quick as possible, and in any case completely transparent to the end user. The EAGLE server will be dedicated to provide services to the users accessing it with any device (PC, tablet or smart phone) but always through a browser. The FMA server will be dedicated to the support of the Flagship Mobile Application, and will capitalize on the experience that Eureva, one of the EAGLE technology partners, has gained in developing the Blinkster application.

2.1 THE EAGLE SERVER

The **EAGLE server** is where the content provided by the different partners is aggregated and stored and where it will be primarily made accessible to the users. The main user interface (the GUI) will grant access to the available functions, like managing and creating user accounts, use the storytelling application, search the collection. The ingestion and curation of data on the part of the Content Providers will be done through a separate dedicated interface.

The **Graphical User Interface** implemented on the portal will be the point of interaction between the end users and the EAGLE collection. The GUI will provide the following

functionality to the public:

- Perform text searches with both Simple and Advanced Search interfaces

- Perform image searches on the EAGLE collection

- Export (download) query results for saving and further processing on the user's PC

- Create, access and manage the user account in order to access the functions reserved to the registered users

- For registered users, save results of queries and annotations in the private area (e.g. records of inscriptions, search results, queries); edit and export content saved in the user area, including content saved through the Flagship Mobile Application

- Access the collection of stories and (for registered users) create new epigraphy-related narratives with the EAGLE Flagship Storytelling Application

In terms of design, the GUI will adhere to the elements of EAGLE visual identity presented in the [D6.1, D6.2, D6.3].

The ingestion module for data is implemented in the **Aggregator**, which will provide the services used through all the phases of the aggregation workflow, as described in the deliverable 4.1 [D4.1]. In order to harvest the metadata from a wide spectrum of providers, the interface will include a series of methods for data ingestion, such as the Open Archive Initiative Protocol for Metadata Harvesting (OAI PMH), or FTP upload/download. The module will integrate the functionality for importing, indexing, enriching and managing the harvested metadata. It is important to note that the external interface of the Aggregator will be available only to registered Content Providers. The general users will be able to access the search interface of the Aggregator only through the GUI.

The components for image search and recognition are implemented in the **Image recognizer**. This module provides the following functions:

- Image feature extraction

- Image indexing

- Content Based Image Retrieval (CBIR)

- Creation of a training image database

- Image recognition

2.2 THE FLAGSHIP MOBILE APPLICATION SERVER

The Flagship Mobile Application server (largely based on the Blinkster[4] application developed by the EAGLE partner Eureva) is responsible for the exchange of data between the user's mobile device and the EAGLE collection.

The **Search image** module handles the interaction with the Image recognizer of the EAGLE

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[4] http://www.blinkster.eu

service. This component supports the functionality of receiving the images from the mobile devices of the users, sending the requests to the recognizer and serving the responses to the users. The FMA server will be able to access also the search interface of the Aggregator, in order to get detailed information about a specific inscription, when the user navigates thorugh the results of an image search.

Users of the Flagship Mobile Application will be able to save the pictures taken and the results of an image search, together with simple text notes, in a **Temporary user area,** maintained by the FMA server. In order to do that users will need to be registered on the EAGLE server, as this functionality is basically the same as the one available when logging in directly to the EAGLE server. Therefore, the EAGLE and the FMA servers will implement a Single Sign On (SSO) method of access control. The data saved by the users via the mobile application (pictures, results and text notes) will be temporarily saved in the FMA server. At any time a registered user can login to the EAGLE server and upload into the user dedicated area in EAGLE the data collected during a "mobile session".

3   SELECTED USE CASES

3.1 TARGET USERS AND USER CLASSES

The EAGLE "Description of Work" has already provided a list of target users, based on the consolidated experience of our content providers in the field of digital collections for ancient epigraphy. The classes of target users that have been identified include:

- Education professionals:
  - o   Scholars and researchers
  - o   Professors, lecturers, students in classes and seminars
- Cultural-heritage professionals:
  - o   Curators of museums, archives and collections
  - o   Publishers of both printed and digital publications (Wikipedia and other wiki projects included)
- Leisure users, in particular tourists who visit monuments and collections

From the standpoint of the functionality, however, only two classes of users will be distinguished.

A first group includes the potential users that will access the EAGLE services primarily in order to search for inscriptions, retrieve all the available information on them and export the results of the search on their personal computer. In respect to this class, the main focus lies in the creation of search interface that will enable users at all level of expertise to identify the objects and the information they were looking for; furthermore, these users shall also be able to access all the supplementary facts that they might become interested in during the query process.

On the other hand, users who are professionally interested in inscriptions and monuments can require a series of supplementary functions, such as:

- Save specific items, in order to access them quickly without the fuss of querying the collection anew
- Take private notes on some inscriptions of images that will be lately used for seminars or publications

Therefore, users of the EAGLE services shall have the option to create a single personal account that will enable them to access the functions reserved to registered users, in addition to those already available to the generic users.

The functions for registered and generic users will be clearly distinguished in the requirement list of Section 4. In particular, registered users will be able to save objects of the EAGLE collection (records of inscriptions, images, lists of the search results), as well as personal notes and images related to item in the collection, in a personal area on the EAGLE portal; later it will be possible for them to access the saved objects and their notes, edit, delete and export them.

To sum up, the user classes that we identified and will be referred to in the following

sections are:

- **Generic users**: will have access to all the main features provided by the EAGLE portal

- **Registered users**: will have access to all the features available for the generic user, plus in addition specific functions for saving, editing and exporting data and annotations, and for creating and editing stories.

Note that in the following paragraphs, whenever reference is made to "registered users", we presuppose that the users are logged into their accounts.

3.2 LIST OF SELECTED USE CASES

This section discusses a list of selected high-level use cases for the EAGLE portal, Flagship Mobile Application and Flagship Storytelling Application. We will focus on some examples of interaction between the classes of actors that we have identified in sec. 3.1 and the different functions that we have outlined in in section 2.
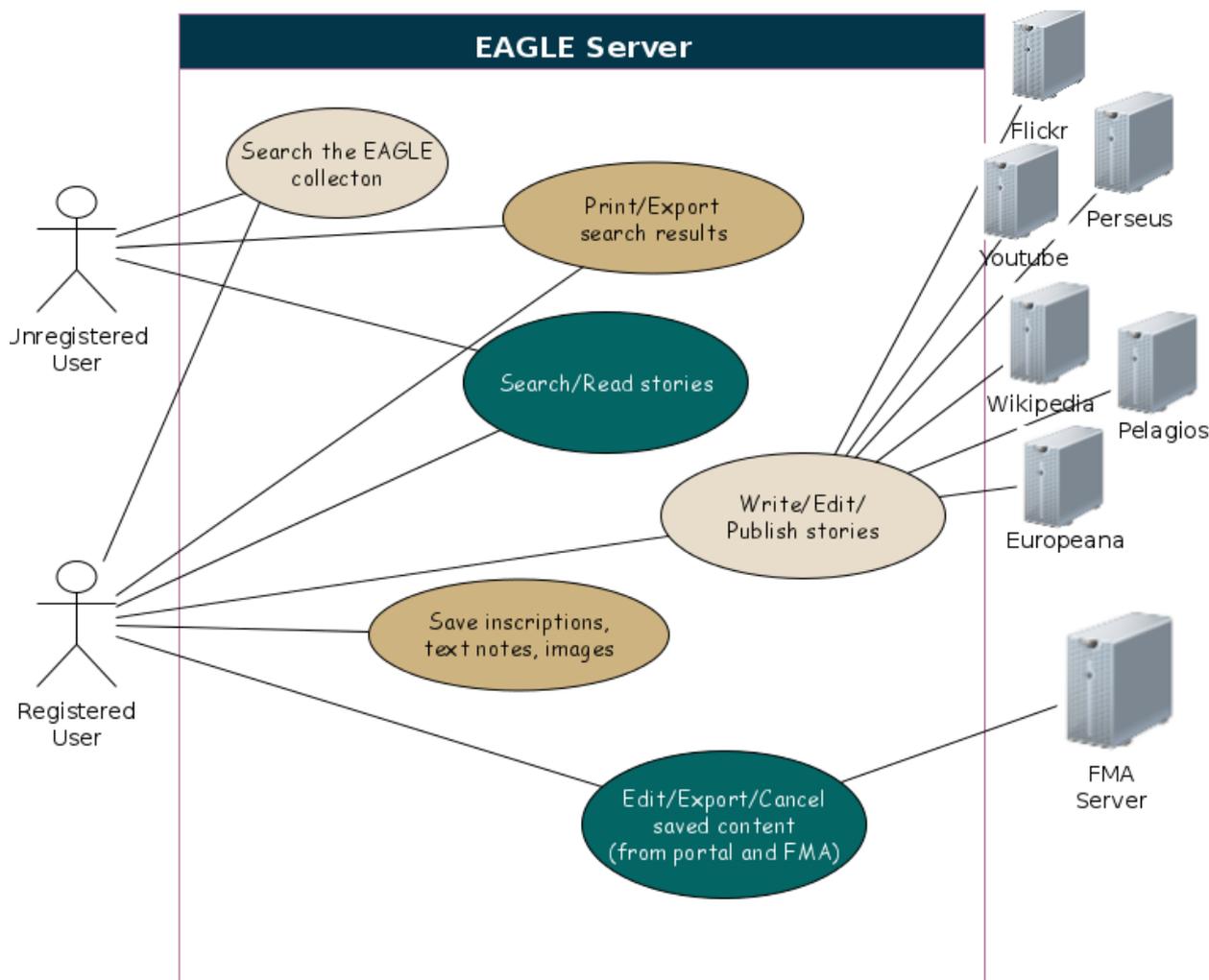
Figure 2: EAGLE Server: Use Cases

Figure 2 and Figure 3 depict a range of possible interactions between end-users and the two main components of the EAGLE architecture, the EAGLE server and the FMA server

respectively.
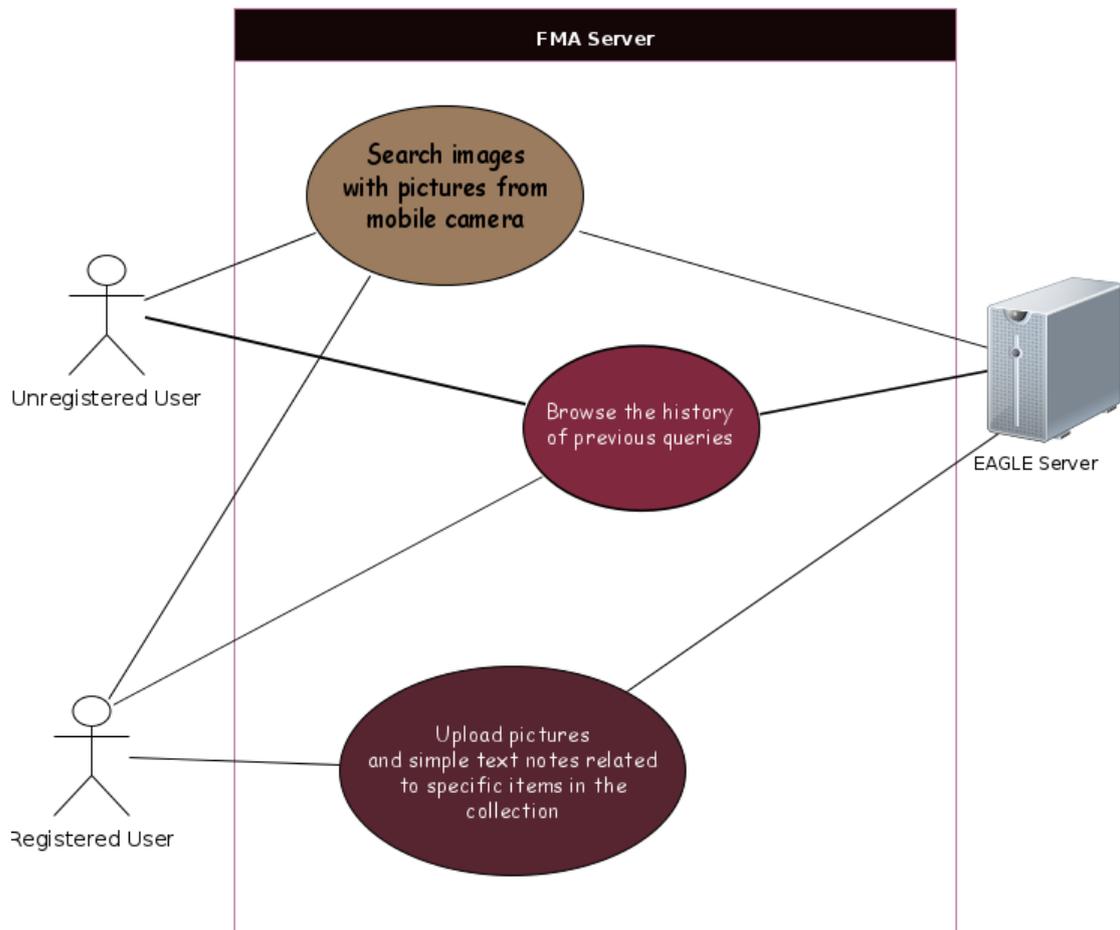
Figure 3: FMA Server: Use Cases

The aim of sections 3.2.1, 3.2.2 and 3.2.3 is to introduce the discussion of the requirements by presenting real-life scenarios using the standardized formalism of use cases. Therefore, we opted to capture a complete user's session, often including different actions and goals in a single use case (see e.g. UC.POR.01). We have preferred to keep the complete flow, as it provides a more authentic representation of a unique user experience.

Every use case is described with the following properties:

- ID: unique identifier

- Goal: the goal the user is trying to satisfy

- Main actor(s): list of the different user groups that are involved

- Short description: a brief verbalization of the interaction scenario between the user and the system; the perspective is always that of the user (her goals, motivations…)

- Preconditions: list of conditions whose fulfillment is presupposed at the start of the action flow

- Basic flow: detailed list of user's actions and system's responses in the successful

scenario

- Alternate flow: possible drawbacks, or alternative outcomes for each of the steps in the Basic flow

- Postconditions: the output of the flow, or the state reached by the system after the flow

3.2.1 EAGLE Portal

ID	UC.POR.01
Goal	Simple Search
Main actor(s)	All target users (registered and unregistered)
Short description	A user accesses the search page in the EAGLE portal, looking for a specific object or classes of objects. The user starts with a simple search, which she refines using faceted categories, then browse and inspects the records
Preconditions	None. User doesn't have to be registered or logged in
Basic flow	1. The user starts at the EAGLE portal and select to perform a simple search 2. The user enters one or more terms in the simple search field (a la Google) 3. The user triggers the query 4. The user is presented with a result list (ordered by relevance), structured in tabular format (one or more pages) with some basic information for every object retrieved 5. If convenient, the user can narrow the result list by selecting to view only the items that belong to a certain faceted category (e.g. inscription type) 6. The user selects one of the objects in the result list to visualize the complete record 7. The user returns back to the result list
Alternate flow	4a: No match is found for the entered string
Postconditions	A list of matching record is returned to the user. For each of these items, it will be possible to access the complete record.

ID	UC.POR.02
Goal	Advanced Search
Main actor(s)	All target users (registered and unregistered)
Short description	The user runs an Advanced Search, using fields and the EAGLE controlled vocabularies to select values; she inspects the results, then opts to refine the query
Preconditions	None. User doesn't have to be registered or logged in
Basic flow	1. The user starts at the EAGLE portal and select to perform an advanced search 2. The user is presented with a number of labeled search fields that can be selectively filled 3. By selecting fields associated with a controlled vocabulary, a drop-down menu will allow the user to limit the search to a specific object type, inscription type, material, and/or date; 4. The user can also limit the query to those objects that have a photo and/or a translation 5. The user triggers the query 6. The user is presented with a tabular list of results (as in step 4 of UC.POR.01) 7. The user decides to print the list of matches and to download it for further offline scrutiny 8. The user selects a format to export the list of results and a destination to save the file
Alternate flow	6a: No match is found for the entered string
Postconditions	A list of matching record is returned to the user. For each of these items, it will be possible to access the complete record. If the user selects to export the list (7, 8), a file (in the format chosen by the users) will be downloaded on the user's computer

ID	UC.POR.03
Goal	A user saves some records and some annotations in her personal space
Main actor(s)	Registered users

Short description	The user queries the EAGLE collection. She decides to save all or some of the retrieved records in order to access them quickly for further reference.
Preconditions	The user must be registered and logged in. The user must start from the Advanced or Simple search page

Basic flow

1. User performs a query and obtains a list of search results

2. User decides to save the results to her personal space, so that she will be able to access them quickly in the future.

3. The user will be given the opportunity to add a brief text note to the data to be saved

4. User performs a new query and a new list of search results is returned

5. User accesses the complete record of one of the returned results

6. User decides to save this object too to her personal space, possibly with some text annotation

Alternate flow	2a, 6a: the user is not logged in into her account
Postconditions	The selected objects are saved in the personal space of the user. At any time the user will be able to access all the saved data by logging in at the EAGLE portal

ID	UC.POR.04
Goal	Access, edit and export saved data
Main actor(s)	Registered users
Short description	The user access her saved data to view, browse, edit and export the inscriptions, images, and/or text notes that she has previously saved in her space using the EAGLE portal (see above UC.POR.03) or the Flagship Mobile Application (see below UC.MOB.02).
Preconditions	The user must be registered and logged in. The user must have saved inscriptions, text notes, and/or pictures during previous sessions using either the EAGLE portal and/or the EAGLE Flagship Mobile Application

Basic flow

1. User accesses her personal space on the EAGLE portal

2. System displays a list of items (images and inscriptions from the EAGLE collection, pages, simple text notes) that the user

has saved on the EAGLE Server, and a list of items that the user has saved during a "mobile session"

3. User selects which item from the mobile session have to be included in the user data on the EAGLE portal

4. Selected items are uploaded from the FMA server into the user data area on the EAGLE server, and then deleted from the temporary user area on the FMA server

5. User selects a simple text note and edits the text

6. User saves the new version of the edited text

7. User deletes the text note

8. User returns to the list of saved items

9. User visualizes a saved item and decides to export the object and its notes

10. User visualizes a saved items and decides to delete the object, together with the associated notes

11. User leaves the editing session; the system will ask if unsaved changes are to be saved

Alternate flow	2a: System cannot retrieve the information from the FMA-Blinkster server
Postconditions	Selected items saved by the user on the FMA Server during a "mobile session" are saved in the EAGLE Server. The edited versions of the saved items are saved in the private space of the user. The items selected for exporting are downloaded to the user's computer, but remain in the user data area

3.2.2 Flagship Mobile Application

ID	UC.MOB.01
Goal	Image search on the EAGLE collection via the mobile-device camera
Main actor(s)	Registered and unregistered users
Short description	Using the camera of a mobile device, a user takes a picture of an inscription either from a monument he has access to, or from a printed or digital reproduction. The picture is matched against the EAGLE collection and the information associated with the recognized

object will be returned to the user

Preconditions	The user must have a mobile device (tablet or smartphone) with a working camera and the Flagship Mobile Application installed. The user must be able to take a picture of an inscription either from a monument "on site", or from a digital or printed photograph
Basic flow	1. User takes a picture of an inscription 2. The picture is sent to the image recognizer on the EAGLE server requesting a "similarity search" 3. Result is returned to the user, as a list of images of different inscriptions, ranked in order of similarity with the picture taken; each item in the list is a thumbnail and a very brief description of the object 4. User selects a thumbnail from the list and visualizes the full image, if the image is the only one related to the inscription, or a list of thumbnails of all the images related to the same inscription 5. User selects a brief description from the list and visualizes a more detailed information about the inscription (title, type of inscription, type of object, ancient find place (region and city), present location, date, content provider) 6. User takes a picture of an inscription 7. The picture is sent to the image recognizer on the EAGLE server requesting an "exact match" 8. The system returns the "representative image" of the recognized picture, together with detailed information (same information as in point 5)
Alternate flow	2a, 3a: the connection with the server is broken 8a: no matching image is found
Postconditions	A list of result is returned to the user. The images sent to the service and the matching records returned are saved in the application history on the mobile device and will be retrievable from the "History" tab

ID	UC.MOB.02
Goal	Taking notes on search results and saving data
Main actor(s)	Registered users

Short description	At any time the user can add a simple text note to the information displayed on the screen of the mobile device and save the screen and the note in the temporary user area on the FMA server. The user can also take a picture, add a simple text note, and save both of them in the temporary user area on the FMA server.
Preconditions	The user must be able to select a "page", either from the result list of an image search (see preconditions of UC.MOB.01), or while browsing the mobile session "History"
Basic flow	1. On any screen (either when interacting with the FMA server or when browsing through the History), user selects the option to add text notes
	2. Users enters a simple text note in the text field
	3. User saves the content displayed and the associated note in the temporary user area on the FMA server
	4. Users select the option to add a picture
	5. The mobile camera is activated and the user takes a picture
	6. The user adds a note to the picture
	7. The picture and the note are saved in the temporary user area on the FMA server
Alternate flow	3a, 7a: the saving process is aborted before it is completed
Postconditions	Images, search results and simple text notes related to a specific record are saved in the Temporary User Area on the FMA server. The user can retrieve them later by logging in to the EAGLE portal (see UC.POR.04)

3.2.3 Flagship Storytelling Application

ID	UC.STO.01 – Browse and search the collection of published stories
Goal	The user enters the FSA access page and views the collection of the stories; she queries the collections and reads one of the retrieved stories
Main actor(s)	Registered and unregistered users
Short description	A generic user accesses the starting page of the FSA (henceforth: FSA access page); she is presented with a list of the most recently published stories, as well as a word cloud of keywords used for the

stories. By clicking on a word in the cloud she gets a list of all the stories that were tagged with that keyword by their author (see UC.STO.03). She has also the option to search the collection using a free text search field from the access page. When she clicks on a story she will be brought on the page where she can see the whole story (but not edit it).

Preconditions	---
Basic flow	1. The user enters the FSA access page; she is presented with a list of the most recently published stories and a word cloud of keywords provided by the author for each published story
	2. The user clicks on a keyword in the word cloud; a list of the stories that share this keyword is displayed
	3. By clicking on a story in the list she is brought to the story, where she can read the text and visualize the objects included
	4. The user returns to the FSA access page
	5. The user searches the collection of published stories by entering text in a search field; she can search words from the title, text, keyword of the story, or the ID of an EAGLE inscription that is included in the stories
	6. The system returns a list of matches, and the user has the opportunity to read the stories by clicking on them
Alternate flow	6a: no match is found for the user's query
Postconditions	

ID	UC.STO.02 – Write and publish a story
Goal	A user creates, edits, and saves a story with epigraphic content
Main actor(s)	Registered users
Short description	The user creates a new epigraphy-based story and provides some starting content to it: a title and a description. By searching the EAGLE collection and other repositories, she is able to drag and drop the retrieved content into the intended position within her story. At any moment, the user can save the draft of the story and re-edit it multiple times before publishing it.
Preconditions	Users must be registered and logged in. Users must start from the

Storytelling Application access page

Basic flow

1. User select "create a story" from the FSA access page

2. User is brought to the Storytelling Application WYSIWYG editor. A new story is created with two default text paragraphs: "title" (with the default content: "New Story") and "description" (empty by default)

3. The user enters a new title and a short description/summary of her story

4. User creates a new text paragraph and enters some text; optionally she selects a format for some words in the text (e.g. bold, or italic), or for the whole paragraph (by choosing the style "Header")

5. User selects the EAGLE tab in the Search area of the editor page. She enters a string of free text to perform a search on the EAGLE collection

6. A list of objects from the EAGLE collection is returned, formatted as a thumbnail of the object with a title on the top-right side of the image and some basic information below (date, finding place, excerpts from the text)

7. User drags the object into the story in the desired place

8. User selects one of the other tabs (Wikipedia, Youtube, Pelagios, Europeana, Flickr, Perseus) from the Search area and enters a string of text to search e.g. the Wikipedia website

9. A list of result is returned, formatted as a thumbnail with e.g. the Wikipedia logo, a title on the right side of the image and an excerpt of the first paragraph

10. User drags the relevant item into the story, and positions it to the intended locations relative to the other items or paragraphs

11. User moves the selected object in a different place within the story. She selects it and drags it on top or below the other paragraphs or objects in her story

12. User saves the draft

13. Users exits the editor with the intention to resume the work in the future

Alternate flow

6a, 9a: the search yields no result

6b: the matching inscription(s) has/have no images associated with them

13a: the users introduces unregistered changes before exiting the editor

Postconditions	A new story is created; the title, username, text, unique Trismegistos ID of the EAGLE inscriptions included in the story are registered in a database of stories

ID	UC.STO.03 – Publish a story
Goal	After creating and editing a story, a user publishes it, so that the story becomes accessible to the general public from the FSA access page on the EAGLE portal
Main actor(s)	Registered user
Short description	A user who has written a story wants to make it visible to the other users. She enters a series of comma-separated free text keywords (tags). She has also the option to share the newly published story in her favorite social network
Preconditions	The user must be registered and logged in. She must have created the story and must have opened it in the story editor
Basic flow	1. The user selects the command "publish the story" in the story editor
	2. The user is asked to optionally provide series of comma-separated keywords to define the story
	3. The user is informed that the story has been published and it is now accessible to the public
	4. The user has the option to share the link to the story on her favorite social network (Facebook, Twitter, Google+)
	5. The user will have the option to make further edits on the story, unpublish it (i.e. reverting the story to the draft status, not accessible to the public) or delete it
Alternate flow	4a: it is impossible to login into the user's account on the selected social network (account doesn't exist or wrong credential given)
	5a: there are unsaved changes when the user leaves the story editor
Postconditions	The keywords are registered and associated with the story in the database. The story is visible in the FSA access page in the list of the recently published stories. In the FSA access page, the word cloud with the keywords used for published story is updated with the

tags that the user has just provided for her story (step 2)

4 USER REQUIREMENTS

4.1 INTRODUCTION

4.1.1 Structure of the requirement list

In this section, we list the functional requirements for the EAGLE portal (section 4.2), the Flagship Mobile Application (4.3), and the Flagship Storytelling Application (4.4).

We have planned different stages in the release process of each one of the three applications. A first and second release of the Flagship Mobile and Storytelling applications are scheduled to be completed by month 21 and 30 of the project. An upgrade of the Portal is in program for month 18. The priority rank that will be assigned to the requirements is linked with this schedule:

- High priority: the functionality will be implemented in the first release (FMA, FSA) / first upgrade (Portal)

- Medium priority: the functions will be implemented by the second release (FMA, FSA) / after the first upgrade (Portal)

- Low priority: the functions will be considered for possible implementation before the final release or they will be listed as candidates for a future upgrade

For each application, we will provide a full description of the requirement with the following features:

- **ID**: unique identifier

- **Requirement**: description of the requirement

- **Notes**: additional details or comments

- **Priority**, ranked as high, medium, low

4.1.2 Terminology

In the requirement description, the verb form **shall** is used to dictate the provision of a functional capability; "shall"-statements contained both in the "requirement" and in the "notes" field must be read as imperatives that command the presence of some feature or function. Occasionally, the form **should** is used to suggest features that could beneficially impact such aspects as accessibility, exploitability or performance. On the other hand, the form **will** is used to describe matter-of-factly how the system is expected to behave once the requested feature is implemented.

In the lists of the following sections we constantly make reference to these typologies of users:

- **Generic users**: users regardless of their status (registered or unregistered, logged in or off).

- **Registered users**: users that have registered an account with the EAGLE services; these users are assumed to be logged in their account when accessing specific services and functions.

- **Unregistered users**: users that haven't registered an account with the EAGLE services.

Registered and unregistered users are subsets of the "generic user" group. Therefore, what applies to the generic user applies also to both.

For the terms **inscription, instance, related image** see the discussion in Section 1.3.

4.2 EAGLE PORTAL

Requirements for the EAGLE portal are listed in full in the following sections. Sec. 4.2.1 groups all the requirements of functions intended for the **generic user**; 4.2.2 lists the functions for **registered users**. A summary is presented in

ID	Sec.	User	Requirement	Priority
PSE01	4.2.1	Generic	Create account to access all EAGLE user services	High
PSE02	4.2.1	Generic	Help menus for search and result pages	High
PSE03	4.2.2	Generic	Simple and advanced search	High
PSE04	4.2.1	Generic	Full-text query on simple search	High
PSE05	4.2.1	Generic	Simple search interface with one text field	High
PSE06	4.2.1	Generic	Search fields for advanced search	High
PSE07	4.2.1	Generic	Boolean operator AND, OR, NOT or exact phrase match	High
PSE08	4.2.1	Generic	Include and exclude diacritics	High
PSE09	4.2.1	Generic	Switch to polytonic Greek and Hebrew keyboard	Medium
PSE10	4.2.1	Generic	Limit search to inscriptions that have images and/or translation	High
PSE11	4.2.1	Generic	Vocabularies for advanced search	High
PSE12	4.2.1	Generic	Expansion of simple search	Medium
PSE13	4.2.1	Generic	Results split in pages	High
PSE14	4.2.1	Generic	Table for list of matches	High
PSE15	4.2.1	Generic	Print and export the list of results	Medium

PSE16	4.2.1	Generic	Access the detailed record of each item of the result list	High
PSE17	4.2.1	Generic	Related content for the records	Medium
PSE18	4.2.1	Generic	Download the EpiDoc file of each item	Medium
PSE19	4.2.1	Generic	Avoid duplicate record	High
PSE20	4.2.1	Generic	Access the portal from mobile devices	Medium
PSE21	4.2.1	Generic	Interface text available in multiple languages	Medium
PSE22	4.2.1	Generic	Add instances of search fields	Low
PSE23	4.2.1	Generic	Faceted browsing	Low
PSE24	4.2.1	Generic	Refine search with faceted categories	Medium
PSE25	4.2.1	Generic	Map to browse the inscriptions	Low
PSE26	4.2.1	Generic	Content from the Pelagios Network	Low
PSE27	4.2.1	Generic	Search by image	Medium
PSE28	4.2.2	Registered	Private space for registered users	High
PSE29	4.2.2	Registered	Save items from search results	High
PSE30	4.2.2	Registered	Save queries	Medium
PSE31	4.2.2	Registered	Add notes to records	High
PSE32	4.2.2	Registered	Edit, delete, download saved objects	High
PSE33	4.2.2	Registered	Edit records and submit the modified data	Low

Table 1 here below.

ID	Sec.	User	Requirement	Priority
PSE01	4.2.1	Generic	Create account to access all EAGLE user services	High
PSE02	4.2.1	Generic	Help menus for search and result pages	High
PSE03	4.2.2	Generic	Simple and advanced search	High

PSE04	4.2.1	Generic	Full-text query on simple search	High
PSE05	4.2.1	Generic	Simple search interface with one text field	High
PSE06	4.2.1	Generic	Search fields for advanced search	High
PSE07	4.2.1	Generic	Boolean operator AND, OR, NOT or exact phrase match	High
PSE08	4.2.1	Generic	Include and exclude diacritics	High
PSE09	4.2.1	Generic	Switch to polytonic Greek and Hebrew keyboard	Medium
PSE10	4.2.1	Generic	Limit search to inscriptions that have images and/or translation	High
PSE11	4.2.1	Generic	Vocabularies for advanced search	High
PSE12	4.2.1	Generic	Expansion of simple search	Medium
PSE13	4.2.1	Generic	Results split in pages	High
PSE14	4.2.1	Generic	Table for list of matches	High
PSE15	4.2.1	Generic	Print and export the list of results	Medium
PSE16	4.2.1	Generic	Access the detailed record of each item of the result list	High
PSE17	4.2.1	Generic	Related content for the records	Medium
PSE18	4.2.1	Generic	Download the EpiDoc file of each item	Medium
PSE19	4.2.1	Generic	Avoid duplicate record	High
PSE20	4.2.1	Generic	Access the portal from mobile devices	Medium
PSE21	4.2.1	Generic	Interface text available in multiple languages	Medium
PSE22	4.2.1	Generic	Add instances of search fields	Low
PSE23	4.2.1	Generic	Faceted browsing	Low
PSE24	4.2.1	Generic	Refine search with faceted categories	Medium
PSE25	4.2.1	Generic	Map to browse the inscriptions	Low
PSE26	4.2.1	Generic	Content from the Pelagios Network	Low

PSE27	4.2.1	Generic	Search by image	Medium
PSE28	4.2.2	Registered	Private space for registered users	High
PSE29	4.2.2	Registered	Save items from search results	High
PSE30	4.2.2	Registered	Save queries	Medium
PSE31	4.2.2	Registered	Add notes to records	High
PSE32	4.2.2	Registered	Edit, delete, download saved objects	High
PSE33	4.2.2	Registered	Edit records and submit the modified data	Low

Table 1: EAGLE portal requirements

4.2.1 Functions for Generic Users

The following functions are intended for all types of users, registered and unregistered.

ID　　　　　PSE01

Requirement　Every page in the portal shall provide a menu that will enable users to:

- Login or create an account if not already registered (Generic Users)
- Logout (Registered Users logged in)

Notes　　　After successful login the user will enter her private area in order to:

- Edit or export saved data
- Edit the user profile

Priority　　High

ID　　　　　PSE02

Requirement　Users shall be able to access help pages from all the search and result pages of the portal

Notes　　　The pages for advanced and simple search, as well as the search result list and the inscription records, shall provide access to a help menu that will explain all the functions and fields to the users

Priority   High

ID   PSE03

Requirement   Users shall be able to select between simple search or advanced search

Notes   Two search pages shall be created. A "Simple search", that should be easily usable by non-specialists, and an "Advanced search", dedicated especially to the scholarly community

Priority   High

ID   PSE04

Requirement   Users shall be able to use a "Simple search" interface to perform a full-text search on the documents

Notes   ---

Priority   High

ID   PSE05

Requirement   The simple search interface shall have one single free text field (à la Google)

Notes   ---

Priority   High

ID   PSE06

Requirement   For the advanced search, users shall be able to use the following search fields:

- Find spot (ancient)
- Find spot (modern)
- Find spot, detailed (village, street, building...)
- Date
- Present location

- Bibliography

- Text of the inscription

- Type of inscription

- Decoration

- Object type

- Material

- Type of writing

- State of preservation

- Social status of the persons mentioned in the text

Notes	Those fields that are connected to the EAGLE controlled vocabularies (type of inscription, object type, type of writing, material, date, state of preservation, decoration) shall provide drop-down lists: see also PSE11. All the others shall be text fields. By default, the Advanced search interface shall display the following fields: Text of the inscription, Object type, Find spot (ancient), Type of inscription, Date, Bibliography. It will be possible to add the other search fields: see PSE22
Priority	High

ID	PSE07
Requirement	Users shall be able to use Boolean operator AND, OR and NOT and to search for the exact phrase in the text fields of both simple and advanced search
Notes	Users shall be able to use AND, NOT or double quotes "" (for matching the exact phrase) in simple search; they shall also be able to combine the search fields in the advanced search with the AND, OR, NOT operators and to search for exact matches of the whole phrase
Priority	High

ID	PSE08
Requirement	In the "Text" field of the advanced search and in the simple search field, users shall have the options to include or exclude diacritics (including brackets and other symbols adopted by the Leiden convention) in their queries
Notes	Default should be to exclude brackets and diacritics. E.g. "consul" should

match "co(n)s(ularis)", unless the contrary is explicitly requested by the user

Priority   High

ID   PSE09

Requirement   Simple and advanced search shall provide a command to switch to polytonic Greek and Hebrew keyboard

Notes   This option shall be available for the search field of the Simple search and the "Text" field of the Advanced search

Priority   Medium

ID   PSE10

Requirement   Users shall be able to limit their search to inscription that have images and/or translation

Notes   ---

Priority   High

ID   PSE11

Requirement   In the fields where they are available, the Advanced search shall be guided by the 7 EAGLE controlled vocabularies (Type of inscription, Object type, Material, Writing, Decoration, State of preservation, Dating criteria)

Notes   For the aforementioned fields, the Advanced Search interface shall provide users with drop-down lists, with values taken from the appropriate EAGLE controlled vocabulary (see PSE06 and, for the vocabularies, sec. 1.3). All the other shall be text fields

Priority   High

ID   PSE12

Requirement   Simple search shall be expanded to include synonyms and related terms (based on the EAGLE controlled vocabularies)

Notes	---
Priority	Medium

ID	PSE13
Requirement	Search results shall be split in pages, each with a limited number of records
Notes	---
Priority	High

ID	PSE14
Requirement	The users shall see the search results as a list of matches formatted in a table with the following columns:

- Unique identifier (Trismegistos ID)
- Text of the inscription
- Ancient find spot (region)
- Date
- Number of instances (i.e. number of items in the database that share the same Trismegiston ID) of the inscription

Notes	In case of multiple instances of the same inscription (i.e. multiple records that share the same Trismegistos ID), the result list shall not include all the records: only one instance will be listed; the instance will be chosen according to the criteria discussed in PSE20
Priority	High

ID	PSE15
Requirement	Users shall be able to print the result list and to export it as PDF, Simple text or CSV file
Notes	---
Priority	Medium

ID	PSE16
Requirement	For each result in the result list, users shall be able to access a detailed view containing further information for all the instances of the inscription

Notes By clicking on a result in the list, users shall access a page that will present one expanded record for each of the instances of an inscription (i.e. all the records that share the same Trismegistos ID). These records shall be clearly distinguished graphically (e.g. they could be displayed in different tabs). For each record, the following information shall be visualized:

- Title
- Trismegistos ID
- All thumbnails of the inscription
- Type of inscription
- Type of object
- Material
- Ancient find spot: Region
- Ancient find spot: City
- Current Location
- Text
- Date
- Bibliography
- Content provider, with link to the record in the original database

Users shall also have a command to display the complete record, with all the other data that are not included in the list provided above

Priority	High

ID	PSE17
Requirement	For every record in the detailed view, users shall be able to see a list of related images

Notes "Related images" are those images that are not directly linked to the inscription (i.e. they do not portray the inscription or the inscribed monument); however, they share one or more value with the inscription.

For every instances of an inscription, users shall be able to see a series of thumbnail lists. These lists will group the related images that share

values with the record, one list for each of the following values:

- Object Type

- Date

- Material

- Decoration

- Ancient and modern find spot

- Type of inscription

- Material

The lists should include a limited number of images and be expandable. For more information on the "related images" see section 1.3

Priority   Medium

| **ID** | PSE18 |

Requirement   For every record in the detailed view, users shall be able to display the EpiDoc file for each instance of an inscription on their browser

Notes   From the detailed view of the search results, it shall be possible to access and save the EpiDoc xml version of each instance of an inscription

Priority   Medium

ID   PSE19

Requirement   Duplicated instances of the same inscription shall be avoided in the result list. The appropriate match shall be selected according to the content provider, following a preference order based primarily on the find spot of each item

Notes   This order of precedence, based on the find spot of each inscription and on the religion of the patrons, should be followed:

- Inscriptions from Hiberia: HEP, EDH, others

- Inscriptions from Italiae, Sardiniae and Sicilia: EDR, EDH, others

- Inscriptions from Rome:

    o Of Christian patronage: EDB, EDR, EDH, others

    o Others: EDR, EDB, EDH, others

- All other inscriptions: EDH, others

Priority   High

ID   PSE20

Requirement   User shall be able to access the portal, perform searches and visualize the results on mobile devices (tablets or smart phones)

Notes   ---

Priority   Medium

ID   PSE21

Requirement   User shall be able to select the interface language among those supported by the EAGLE portal

Notes   The list of available languages shall include: English (default), French, German, Italian and Spanish.

By "interface language" we mean primarily: navigation menus, buttons and commands, the labels of search fields. The content of the help pages should also be available in multiple languages. The object metadata and the options in the controlled vocabulary menu are **not** part of the interface text.

Priority   Medium

ID   PSE22

Requirement   In the advanced search interface users shall be able to add instances of search fields

Notes   The advanced search interface shall start with 6 default fields:

- Text of the inscription
- Object type
- Find spot (ancient)
- Type of inscription
- Date
- Bibliography

Users shall be able to add instances to these default fields, and to select

the field to add among those listed in requirement PSE06

Priority   Low

ID   PSE23

Requirement Users shall be able to browse the EAGLE collection using faceted categories

Notes   The following facets shall be used:

- Date
- Object type
- Inscription type
- Ancient find spot
- Modern find spot
- Material
- Decoration
- State of preservation

Priority   Low

ID   PSE24

Requirement Users shall be able to refine the search results using faceted filters

Notes   The result page shall include a "Refine" where users shall be able to browse the faceted categories and the constraint values for each of them; facet counts will show how many results match each constraint value. See PPSE23 for a list of the facet categories to use.

Priority   Medium

ID   PSE25

Requirement User shall be able to see a map with all the find spots of the inscriptions in the collection

Notes   By clicking on the location in the map, users shall be able to get a list of all the inscriptions found in that particular place

Priority   Low

ID   PSE26

Requirement   In the page of the detailed view of a record, users shall be able to access a list of the resources linked to the find spot of the inscription in the Pelagios network

Notes   For all the inscriptions that have a unique identifier for the ancient and modern find spot (see [D3.1: 21]), it shall be possible to obtain the list of the online resources in the Pelagios network that are linked to that geographical information. A list of the hyperlinks to these resources (retrievable via the dedicated Pelagios API) will be displayed to the users

Priority   Low

ID   PSE27

Requirement   Users shall be able to upload an image to perform an image search on the collection

Notes   Users shall be able to use the EAGLE image recognition service (see sec. 1.3 and 4.3.1) to upload an image from her computer and perform an image search on the collection. Users shall also be able to select whether to perform a "similarity search" or an "exact match" (see also sec. 4.3.1, MBE02 and MBE03). For the "similarity search", the results will be a list of matching inscriptions ranked in order of similarity with the image used for the search. For the "exact match" it will be either the matching inscription or an "image not found" error

Priority   Low

4.2.2 Functions for Registered Users

Registered users have access to the functions of the generic users (see sec. 4.2.1) and also to the following features.

ID   PSE28

Requirement   Registered users shall have a private space, where they will be able to store selected items and to retrieve them

Notes	This space shall remain private and shall not become visible to other users. After login, users shall be able to view the list of saved items and of the stories created by them in the Flagship Storytelling Application (see sec. 4.3)
Priority	High

ID	PSE29
Requirement	Registered users shall be able to save items to their private space from the list of matches (tabular result list), as well as from the complete record of each object
Notes	When a list of results is returned after a query, the users shall have an option to select the whole list or a limited subset of record and save them. Users shall also be able to save a specific item from the full record
Priority	High

ID	PSE30
Requirement	Registered users shall be able to save their queries
Notes	---
Priority	Medium

ID	PSE31
Requirement	Registered users shall be able to write and save simple-text annotations associated with saved items
Notes	The notes shall be available on the personal space of the user. They shall not be visible to other users. It will be possible for the author to edit or cancel them
Priority	High

ID	PSE32
Requirement	Registered users shall be able to edit the text of the annotations, delete

saved items and download to their PC selected items

Notes	The limited editing capabilities for the saved data that are available on the EAGLE portal can be overcome by downloading items of interest to the user PC and interacting with them with more sophisticated tools
Priority	High

ID	PSE33
Requirement	Registered users shall be able to edit the text and metadata of items in the collection and to submit the edited record to have it possibly included in the EAGLE collection through the normal ingestion channel, if approved by the editorial board
Notes	There should be an appointed editorial board to review and possibly accept the records submitted by the users. Modified records should keep track of the original record they were based upon and the name of the registered user who is responsible of the editing should also be recorded as the curator
Priority	Low

4.3 FLAGSHIP MOBILE APPLICATION

In the present section, we list and discuss the functional requirements of the EAGLE Flagship Mobile Application in full. Sec. 4.3.1 introduces the functions for Generic Users; Sec. 4.3.2 lists the functions for Registered Users. A general overview of the requirements is provided in Table 2 here below.

ID	Sec.	User	Requirement	Priority
MBE01	4.3.1	Generic	Change default values of basic parameters	High
MBE02	4.3.1	Generic	Search images by "similarity search"	High
MBE03	4.3.1	Generic	Search images by "exact match"	High
MBE04	4.3.1	Generic	Browse history of previous queries	High
MBE05	4.3.1	Generic	Login to the EAGLE system	High
MBE06	4.3.2	Registered	Create and save simple-text notes on records	High
MBE07	4.3.2	Registered	Upload and save pictures of an inscription	High
MBE08	4.3.2	Registered	Browse history of saved images and text	Medium

Table 2: EAGLE Flagship Mobile Application requirements

4.3.1 Functions for Generic Users

ID MBE01

Requirement Users shall be able to set some of the basic parameter to values different from the default.

Notes The parameters that can be changed are: enable/disable geo-location, image resolution, number of items in the result list (within a min and max), number of items saved in the history(within a min and max)

Priority High

ID MBE02

Requirement Users shall be able to perform an image search on the EAGLE collection,

based on "similarity", using images taken with the camera on the mobile device.

The result will be a list of thumbnails ranked in order of similarity with the images taken by the mobile device

Notes	Users shall be able to use the FMA to take a picture of an inscription, upload it to the image recognition service and get a list of thumbnails, each associated with some brief summary information. Touching one of thumbnails the user will receive more detailed information about that specific image.
	See the use case UC.MOB.01
Priority	High

ID	MBE03
Requirement	Users shall be able to perform an image search on the EAGLE collection, based on "exact match", using images taken with the camera on the mobile device.
	The result will be either the detailed information associated with the recognized image (same as the information received in MBE02 after touching a thumbnail) OR an error message saying "image not recognized".
Notes	Users shall be able to use the FMA to take a picture of an inscription, upload it to the image recognition service and get in response the detailed information associated with the "recognized" image. For a selected subset of inscriptions, each one associated with several different images, the image recognizer will build "classes" and will assign the received image to be recognized to one unique class. If the confidence in the assignment is above a certain threshold, then the image will be "recognized", otherwise the message "Image not recognized" will be generated.
	See the use case UC.MOB.01
Priority	High

ID	MBE04
Requirement	Users shall be able to access their previous queries and results from a search history menu
Notes	The FMA will keep on the mobile device a history of the interactions (images sent for recognition and results received), up to a certain limit

(see MBE01), and the user will be able to navigate through it

| **Priority** | High |

ID	MBE05
Requirement	User shall be able to login to the EAGLE system
Notes	A user already registered in the EAGLE system will be able to login to the FMA in order to use its advanced functionality (see below).
	The user will provide her ID and password to the FMA, which will validate them (in a secure way) against the database of registered users kept on the EAGLE server
Priority	High

4.3.2 Functions for Registered Users

ID	MBE06
Requirement	Users shall be able to create and save simple-text notes associated with queries and their results
Notes	On any screen, the user will be able to open a text box, input some text (up to a max number of characters) and save the screen and the note in her "user temporary area" kept on the FMA server.
	At any time, when the user will login to the EAGLE server, she will be able to review the data saved in the temporary area, upload it to the "user permanent area" on the EAGLE server, or delete it.
Priority	High

ID	MBE07
Requirement	Users shall be able to take a picture and save it with an annotation
Notes	The user will be able to take a picture (of anything), open a text box, input some text (up to a max number of characters) and save the picture and the note in her "user temporary area" kept on the FMA server.
Priority	High

ID	MBE08
Requirement	Users shall be able to browse and delete images and text saved in the "user temporary area"
Notes	The user will be able to browse through the images and annotations saved, and decide to delete one or more of them.
Priority	Medium

4.4 FLAGSHIP STORYTELLING APPLICATION

In the present section, we list and discuss the functional requirements of the EAGLE Flagship Storytelling Application in full. Sec. 4.4.1 introduces the functions for Generic Users; sec. 4.4.2 lists the functions for Registered Users. A general overview of the requirements is provided in Table 3 here below.

ID	Sec.	User	Requirement	Priority
STE01	4.4.1	Generic	Perform full text search on stories	High
STE02	4.4.1	Generic	Browse stories with a keyword word-cloud	Medium
STE03	4.4.1	Generic	List of recently published stories	High
STE04	4.4.1	Generic	Share stories on social networks	Low
STE05	4.4.2	Registered	Create new stories	High
STE06	4.4.2	Registered	Create paragraph in WYSIWYG editor	High
STE07	4.4.2	Registered	Use title and description paragraph	High
STE08	4.4.2	Registered	Retrieve and add content from the EAGLE database and from selected external repositories	High
STE09	4.4.2	Registered	Retrieve and add content from the Perseus Project	Medium
STE10	4.4.2	Registered	Format of the search results	High
STE11	4.4.2	Registered	Single window for the story editor interface	High
STE12	4.4.2	Registered	Drag and drop content	High
STE13	4.4.2	Registered	Save drafts	High
STE14	4.4.2	Registered	Publish a story	High
STE15	4.4.2	Registered	Edit, unpublish, delete published stories	High
STE16	4.4.2	Registered	Access and include saved items	Medium
STE17	4.4.2	Registered	Generic EpiDoc XML reader	Medium
STE18	4.4.2	Registered	Add tags to a story	Medium

Table 3: EAGLE Flagship Storytelling Application requirements

4.4.1 Functions for Generic Users

ID	STE01
Requirement	Users shall be able to search for published stories
Notes	Users shall be able to enter text strings into a simple search field to trigger a full text search on the stories. The following fields shall be searched:

- text of the story
- keywords set by the author
- user name of the creator
- TM id of the EAGLE inscriptions included in the story

Priority	High

ID	STE02
Requirement	Users shall be able to browse stories using a word-cloud of assigned tags
Notes	The FSA access page shall display the list of the assigned keywords in the form of a word-cloud; the words in the cloud shall have different size, according to the number of stories that share the same keyword. For each keyword, users shall be able to access a page displaying the list of the stories associated with it.
Priority	Medium

ID	STE03
Requirement	The FSA access page shall display a list of the most recently published stories
Notes	The list should include a limited number of stories (e.g. between 5 and 10). For each story, the list should display the title, the author's user name and the text of the description paragraph (see STE07). These items shall work as hyperlink: by clicking on them, users shall be directed to the corresponding story.
Priority	High

ID   STE04

Requirement Users shall be able to share stories by posting them in their favorite social network

Notes   It should be possible to share stories with Facebook, Twitter and Google+

Priority   Low

4.4.2 Functions for Registered Users

ID   STE05

Requirement After logging in, a user shall be able to create new stories via a story editor interface. The stories will be visible to other users only after they are published (see STE14)

Notes   ---

Priority   High

ID   STE06

Requirement Editor interface shall allow users to write text paragraphs in a WYSISYG story editor with basic formatting commands

Notes   The following command for formatting text shall be made available:

- header: for paragraphs serving as unnumbered section headers
- bold
- italic
- underlined

Priority   High

ID   STE07

Requirement Stories shall have a title and a description paragraph by default

Name	When a new story is created, two default paragraphs shall be automatically added to it in the editor:

- title: set by default to "New story", editable

- description: empty by default, editable

Titles and descriptions should both be formatted with a specific text style, different from default paragraph and header.

Priority	High

ID	STE08
Requirement	The editor interface shall allow users to search for objects from the EAGLE collection and external repositories and to include them into their stories
Notes	Users shall be able to search and include content (inscriptions, images, videos, geodata) from the EAGLE collection and a number of non-EAGLE repositories, which should include:

- Europeana

- Wikipedia

- Youtube

- Flickr

- Europeana

- Pelagios

Priority	High

ID	STE09
Requirement	Users shall be able to search and include passages of Ancient Greek and Roman texts from the Perseus Digital Library
Notes	---
Priority	Medium

ID	STE10
Requirement	The items returned by the Search interface of the story editor and

displayed in the search result area shall be formatted as:

- a thumbnail image
- a title, positioned on the top-right side of the image
- basic information about the object below the title

Notes	The thumbnail shall be one image associated to the object or, whenever this is not available or in the case of Perseus and Wikipedia, the logo of the website. Basic information should include:

- date, find spot, first words of the text for inscriptions
- upload date, username for content on Flickr and Youtube
- author, title, reference, first words of the text for ancient works from Perseus Digital Library
- first words of the text for Wikipedia article

Priority	High

ID	STE11
Requirement	Users shall be able to write a story, search for objects and see the result list on a single window
Notes	The window of the editor interface shall include the following three sections: the WYSISWG story editor, a search area, an area to display the search results.
Priority	High

ID	STE12
Requirement	The editor interface shall allow users to move objects and text paragraphs to the desired position in the WYSIWYG story editor by dragging and dropping them
Notes	Users shall be able to:

- drag and drop objects from the search result lists to the WYSIWYG editor
- reorder objects and text paragraphs in the WYSIWYG editor by moving them up or down

Priority	High

ID	STE13
Requirement	Users shall be able to save drafts of their stories, as well as to resume their work and edit the drafts at any time
Notes	Drafts shall not be accessible or visible to other users
Priority	High

ID	STE14
Requirement	Users shall be able to publish their stories, so that they become accessible to the public
Notes	A story shall be made searchable, browsable and accessible by other users only after the author has explicitly decided to publish it; a dedicated "publish" command shall be made available in the interface.
Priority	High

ID	STE15
Requirement	Users shall be able to edit, unpublish, or delete the stories they have published
Notes	Unpublishing a story will revert it to the "draft" status; deleting a story will delete it from the user area
Priority	High

ID	STE16
Requirement	Users shall be able to access items stored in their personal space (see PSE28) and include them into their stories
Notes	See requirements of sec. 4.2.2
Priority	Medium

ID	STE17

Requirement	The FSA editor shall provide a generic EpiDoc XML reader, that will allow users to include any EpiDoc-compliant inscription as object into their stories
Notes	Users shall be able to use any EpiDoc-compliant inscription not included in the EAGLE collection via a generic EpiDoc reader. Users will insert the URL of the inscription into the search field of the generic reader and the inscription will thus be displayed in the result section like any other; it will be possible to drag and drop it into the story like any other EAGLE-related object
Priority	Medium

ID	STE18
Requirement	Users shall be able to enter free-text tags to classify the content of their stories
Notes	When publishing their stories, users shall be able to provide as many comma-separated tags as they want. Tags shall be indexed and it shall be possible to search them
Priority	Medium

5 CONCLUSION

We have provided a comprehensive discussion of the functional requirements for the EAGLE end-user dedicated services. Readers can find a list of the functions that will be implemented in the EAGLE Portal, Flagship Mobile and Flagship Storytelling Application during the different development stages that are scheduled for the project.

At the same time, we have also provided a series of interaction scenarios between the EAGLE portal and the end users (Section 3), as well as a summary of the system architecture (Section 2).

This discussion will constitute the blueprint for the implementation of the interfaces and the following testing phase. It also provides a glimpse into the future of the EAGLE project to the community of the potential users.

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7 ANNEX I – USER STORIES

7.1 EAGLE PORTAL

7.1.1 Browse
as an end user I want to browse the inscriptions using the categories of the EAGLE controlled vocabularies.

7.1.2 Search types
as an end user I want to choose whether to perform a simple or an advanced search

7.1.3 Full-Text Search
as an end user I want to perform a full-text search on the inscription databases

7.1.4 Advanced Search
as an end user I want to perform an advanced search with the following search fields: Province and Region (ancient name), Modern country (modern name), find spot (ancient), find spot (modern), find spot - detailed (village, street, building...), chronology, present location, literature ,text of the inscription, type of inscription, type of monument, material.

7.1.5 Booleans
as an end user I want to combine the search fields using boolean operators AND, OR, NOT

7.1.6 Instances of a search field
as an advanced user I want to add multiple instances of the same search fields, so that I narrow down my search criteria

7.1.7 Greek Script
as an end user I want to enter text in Latin and Greek script, also in the same search string

7.1.8 Greek keyboard switch
as an end user I want to switch the input keyboard to polytonic Greek even if I do not know how to do it from my computer

7.1.9 Diacritics
as an end user I want to input search strings either with or without diacritics so that (e.g.) both ἔδοξε and εδοξε match the same strings in the database

7.1.10 Documentation and help
as a basic user I want to have easy access to complete documentation, how to's, tutorials, so that I familiarize quickly with the interface, the data format and the terminology

7.1.11 Print the results
as an end user I want to print the search results

7.1.12 Sort the results
as an end user I want to sort my results (ascending or descending) by the different properties of the inscriptions (date, origin, find spot, present location, type of inscriprtion etc) that are returned for each matching object

7.1.13 License
as an advanced user, potential partner, content provider I want to find the license and terms of use of the content easily and quickly, so that I know what I can do with the data I retrieve

7.1.14　Export the data

as an advanced user, potential partner I want to download the data, so that I can import them in other services (e.g Perseid) and use them or edit them

7.1.15　Return edited content to EAGLE

as an advanced user, potential partner I want to edit or annotate data downloaded from EAGLE (texts, translations, pictures), and then send them back to EAGLE

7.1.16　Versioning

as a partner, content provider I want the different versions of the data to be stored so that I see the differences introduced in the data

7.1.17　Search examples

as a basic user I want to see some examples of possible queries, or a list of previous queries run on the database, so that I can familiarize with the query interface

7.1.18　Update content

as a content provider I want to update my data so that my inscriptions are always seen in the most recent version

7.1.19　Suggest corrections and edits

as an end user I want to suggest correction to the text, metadata and translation of an inscription

7.1.20　Save queries

as an advanced user I want to save my searches so that I can easily retrieve, expand, annotate them

7.1.21　Save favorite objects

as an advanced user I want to save my favorite objects (inscriptions, images) so that I can easily retrieve items that are essential for my work

7.1.22　Export queries

as an advanced user I want to export my queries so that I can quote them and include them in my publications

7.1.23　Contacts for getting involved

as a potential partner I want to find contacts and instructions to get involved with EAGLE quickly and easily

7.1.24　Account for EAGLE services

as an advanced user I want to create an account to access the EAGLE services (create / publish a story in the storytelling app) and activities (my searches, my stories, my followers and groups)

7.1.25　Europeana account

as a user I want to use my Europeana account to register to EAGLE services

7.1.26　Inscription URI

as a user I want to retrieve the stable URI of the inscriptions that match my query, so that I can cite it in my work and also look for other information about the objects in the WWW

7.1.27　QR Codes

as a cultural heritage specialist I want to download a QR code (generated by EAGLE) for

objects in the database, so that I can include the code in my exhibitions, museums, libraries etc

7.1.28 Geo data

as a tourist I want to search for inscriptions that mentions and/or were found in a specific location, so that I retrieve information about the places I am visiting

7.2 FLAGSHIP MOBILE APPLICATION

7.2.1 Use GPS
as an advanced user, I want to take notes and pictures of a monument in the EAGLE collection and store it in a personal area, so that I can use the FMA to support my surveys on the field

7.2.2 Use GPS
as an end user, tourist I want to use my current location to know what inscriptions were found or are stored near the area I am visiting

7.2.3 Translation and edition
as a tourist I want to retrieve the translation, dating, place of finding, and optionally transcription/modern edition of the original text of the inscriptions I am looking at / I plan to see

7.2.4 Suggest corrections
as an end user I want to suggest corrections to the text/metadata of the inscriptions in EAGLE via the mobile application, so that everybody can profit of the results of my autoptic survey of a monument

7.2.5 Contribute materials
as an end user, tourist I want to use the mobile app to send the picture that I've just taken of an inscription to EAGLE

7.2.6 Stories of inscriptions in the area of interest
as an end user, tourist I want to read the stories about objects (inscriptions) that are located nearby (where nearby can be: same city, same region, custom radius 10 km, etc.) , so that I can use EAGLE content to get a better sense of the meaning of an object

7.3 FLAGSHIP STORYTELLING APPLICATION

7.3.1 Register
as an unregistered user I want to create an account, so that I can become a registered user and create stories

7.3.2 Browser-agnostic web app
as an end user I want the storytelling app to be a web application that works well on my computer, regardless of the OS or browser that I use

7.3.3 Well organized homepage
as an end user I want the sections of the storytelling service to be well organized and easily identifiable in the access page, so that, if I want to browse or search the stories, login to my account, register, or start creating content I immediately know where to go

7.3.4 Examples

as an unregistered user I want to see a list of examples and/or a list of the recently added stories, so that I understand what stories are and what I want to do with the service

7.3.5 Introduction and tutorials

as an unregistered user I want the home page to provide a brief and clear introduction (possibly with a video tutorial and a link to a special introduction story itself) so that I quickly figure out what the app does and how to get started

7.3.6 Documentation

as an end user I want the documentation to be easily accessible, so that I can quickly clarify any doubt

7.3.7 Browse stories

as an end user I want to browse the collections of published stories

7.3.8 Search stories

as an end user I want to search the collections of stories by: tags, keywords, EAGLE objects quoted

7.3.9 Sources of data

as a registered user I want to include inscriptions and other objects (text excerpts from literary sources, images, videos) by querying eagle-associated as well as external repositories.

7.3.10 External sources

as a registered user I want to access data at least from the following external sources: Wikipedia, Google, Flickr, Youtube, The Perseus Project, Pleiades

7.3.11 Suggest new repositories

as a content provider, end user I want to suggest a new repository whose content can be accessed by the app and used in the stories

7.3.12 Contribute plugins

as a content provider, end user I want to write and contribute a plugin to parse content from other repositories, so that my own/my favorite website become available to the Storytelling app users

7.3.13 Timelines

as a registered user I want to include a timeline of events in my story

7.3.14 Drag and drop

as a registered user I want to include data from the sources by drag-and-dropping the search results into my story

7.3.15 Storytelling interface

as a registered user I want to work on just one window, so that I can perform the basic operations (create/edit a story, and search the collections for data to include) easily and without changing the window, like in e.g. Storify.

7.3.16 Text-editing tools

as a registered user I want to write paragraphs of text and access a list of basic commands to format the text, including: templates for level-1 and level-2 titles, bold and italic, numbered and bulleted lists

7.3.17   Saved drafts

as a registered user I want to save drafts so that I can get back to work on my story even after I logout of EAGLE

7.3.18   Draft and published version

as a registered user I want to publish my story only when I have finished editing, so that my draft is not visible to others until I am satisfied with it

7.3.19   Remove a story

as a registered user I want to cancel a story whenever I am no longer satisfied with it or I don't want to share it in the portal anymore

7.3.20   Tags

as a registered user I want to add tags to my stories, so that my content can be found by other users interested in a specific topic

7.3.21   Editing privileges

as a registered user I want to set editing privileges to my published stories, so that I can decide whether they can be modified by every registered user, specific groups of users, or just by me

7.3.22   Social networks

as a registered user I want to share my story in my favorite social networks (Google+, Facebook, Twitter)

7.3.23   Groups and followers

as a registered user I want to create groups, add other users to them and follow other users' work, as well as be added to other user groups and be followed by others, so that I can get in touch and work together with colleagues who share my interests

7.3.24   Restore my password

as a registered user I want to reset my password easily but securely if I forget it

7.3.25   Stories for tourists

as a tourist I want to access all the stories that include inscriptions found or kept near the areas I am visiting / planning to visit