AN OBSERVATORY OF EPIGRAPHIC RESOURCES ON THE WEB: THE OPEN DIGITAL EPIGRAPHY HUB

1. Digital Epigraphy in the Humanities and cultural Heritage Italian Open Science Cloud (H2IOSC)

An increasing number of digital projects and initiatives have been sprawling in the field of epigraphy since the years 2000, with an exponential growth over the past decade. While this is certainly good news, as fresh technological solutions and more data become available and searchable every year, the highly fragmented nature of this landscape often makes it difficult for epigraphists – whose work intersects with various disciplines such as linguistics, philology, literature, history, geography, archaeology and art history – to stay up-to-date with evolving digital methods and techniques, not to say with the amount of available sources to be consulted on the web. As a result, scholars and researchers are frequently unaware of tools that could greatly benefit their work, ultimately undermining the very purpose of these initiatives.

In this paper, we present the Open Digital Epigraphy Hub, or EpiHub for short, a new open access platform seeking to respond to the epigraphy community's call for improved accessibility and organization of digital resources, thereby facilitating scholars and practitioners in navigating this evolving field with greater ease and efficiency. Developed as a pilot project within the Humanities and cultural Heritage Italian Open Science Cloud for the E-RIHS infrastructure (H2IOSC; www.h2iosc.cnr.it)[1], it will offer a reasoned catalogue of national and international initiatives, including – but not limited to – datasets and services offered by the four Research Infrastructures involved in H2IOSC (i.e. CLARIN, DARIAH, E-RIHS and OPERAS), which cover the fields of linguistics, digital philology, cultural heritage studies, and open access editions.

2. Monitoring the Digital Epigraphy landscape

2.1 *Digital Epigraphy as a discipline? A state of the art*

Over the last fifteen years, almost anyone working on inscriptions, published and unpublished, has used epigraphic digital archives for historical

and linguistic research, or has sought for methodological and technological solutions to store and disseminate their own corpora. The pressing need to exchange thoughts about the different experiences in creating and maintaining digital epigraphical tools has brought the community together on multiple occasions to discuss, both in person and virtually, the progress made and the challenges encountered. The proceedings and collective volumes published over the past decade as a result of these discussions highlight the diverse interests and concerns within the epigraphy community, while also providing a starting point for anyone wishing to gain an overview of current methods and potential obstacles in the field.

The 2014 Proceedings of the First Europeana network of Ancient Greek and Latin Epigraphy (EAGLE) International Conference (ORLANDI *et al.* 2014), focuses on the technical aspects of epigraphic data management, including data encoding and querying for effective research use, and harmonization through the establishment of controlled vocabularies. The growing importance of translations for both research and didactic purposes along with the need to cater to a wide range of audiences of both experts and non-experts is also emphasized to foster broader engagement with epigraphic materials.

These themes are also central to the 2016 volume *Digital Classics Outside the Echo-Chamber* (BODARD, ROMANELLO 2016). This book advocates for the public engagement of non-specialists and highlights the role of digital humanities in enhancing pedagogy within classics, archaeology, and digital humanities. It encourages the creation of online resources for studying ancient languages, texts, and history, and promotes the teaching of text encoding and linguistic analysis, while also calling for closer collaborations between scholars and practitioners from outside traditional academic disciplines.

The contemporary volume edited by FELLE and ROCCO (2016), also arising from the EAGLE Project, addresses the challenges of digitizing and encoding inscriptions with unusual features, such as non-standard scripts, images, or symbols alongside texts. It broadens the perspective to encompass inscriptions that do not conform to classical Greek and Roman epigraphic models, such as medieval vernacular inscriptions and graffiti. These types of inscriptions challenge conventional tools like EpiDoc, which struggle to accommodate them, highlighting the necessity for tailored solutions.

In the following year, the Proceedings of the second and final EAGLE International Conference were published (ORLANDI *et al.* 2017). Alongside previously addressed themes such as the importance of data harmonization and public engagement, two key cross-cutting issues stand out: the potential and ongoing challenges of integrating contextual data – geographic, topographic, material, and figurative – into digital editions of epigraphic corpora to provide a more comprehensive understanding of inscriptions; and the recurring issue of balancing between objective and interpretative descriptions

of data – whether material, decorative, or textual – which is particularly significant in cases where inscriptions are difficult to comprehend or subject to multiple interpretations.

A substantial broadening of horizons towards non-classical epigraphy is offered by the volume *Crossing Experiences in Digital Epigraphy: From Practice to Discipline* (DE SANTIS, ROSSI 2018a). The volume addresses digital epigraphy issues related to Ancient North and South Arabian, Runic, Mayan and Egyptian hieroglyphs, and Palaeohispanic languages, among others. While revisiting themes like the challenges in text encoding, modelling the dual nature of inscriptions as textual and physical artifacts, and the need for interoperable epigraphic data – central to the EAGLE Project – the book adapts these topics for non-classical epigraphists, who work with under-resourced and fragmentarily attested languages. The development of different technological solutions to partially shared challenges underscores the need for closer collaboration within the non-classical epigraphy community around a centralized platform. The book includes an appendix with a webliography of digital epigraphy resources mentioned in the volume, which are described according to the Dublin Core Metadata Initiative specifications (DE SANTIS, ROSSI 2018b). This effort offered the initial foundation and inspiration for the reflections that later led to the development of the Open Digital Epigraphy Hub described in this article.

In 2018, the landscape of non-classical digital epigraphy was further enriched by the release of the volume *CyberResearch on the Ancient Near East and Neighboring Regions: Case Studies on Archaeological Data, Objects, Texts, and Digital Archiving* (BIGOT JULOUX *et al.* 2018). While addressing themes partly covered in the aforementioned volumes – such as the need for better communication between digital humanities practitioners and traditional humanists, and the importance of accessibility of digital data for research dissemination and preservation – this volume emphasizes the potential of digital tools, such as network graphs and software for data visualization, to uncover new information and support novel interpretations. In the section on texts, for instance, the application of text-mining techniques and natural language processing (NLP) tools to large, yet sparsely annotated, digital cuneiform corpora reveal meaningful patterns that might otherwise remain undetected through traditional analysis. More broadly, the book demonstrates the effective use of quantitative methods in analysing corpora that are either too vast or too fragmentary for traditional approaches.

The most recent collective volume on digital epigraphy, *Epigraphy in the Digital Age: Opportunities and Challenges in the Recording, Analysis, and Dissemination of Inscriptions* (VELÁZQUEZ SORIANO, ESPINOSA ESPINOSA 2021) reflects on topics, such as the importance of quantitative and computational methods to analyse large and fragmentary corpora, the ongoing issues with

data harmonization across platforms to enhance interoperability and research accessibility, and the importance of closer collaboration across disciplines, demonstrating that themes extensively explored in the previous volumes continue to remain highly relevant. Additionally, the book calls for long-term institutional support and funding to sustain and update digital epigraphy databases, as the absence of ongoing financial backing jeopardizes their sustainability.

To sum up, this literature review reveals that the user needs of epigraphists today encompass a variety of aspects, reflecting both the demands of the discipline and the evolving landscape of technology and research methodologies.

2.2 *Striving to meet the community needs: how the Open Digital Epigraphy Hub took shape*

Apart from these volumes focusing – in the whole or in great part – on digital epigraphy and related practices, epigraphists seeking to explore digital resources or to keep up to date with advancements in digital practices must currently step outside their comfort zone and consult journals specializing in digital humanities and digital cultural heritage studies, in which digital epigraphy appears as a domain intersecting the main disciplinary focus of the journal, be it digital archaeology, philology, linguistics, history, etc. «Archeologia e Calcolatori», for instance, has given space to digital epigraphy articles since its very first issue as emerges from searching the journal for articles tagged with the Subject parameter 'Epigraphy and numismatics' (see Caravale, Moscati, Rossi in this volume)[2]. Digital epigraphy articles now begin to timidly appear also in volumes or conference proceedings dealing with research on specific civilisations or textual corpora, acknowledged for their contribution to historical and textual reconstructions.

Initiatives like the community Epigraphy.info (https://epigraphy.info/) have helped bring together practitioners of digital epigraphy within a collaborative environment for the exchange of data and digital solutions. Currently, the partner projects tend to focus on Greek and Latin epigraphy and on the TEI-EpiDoc markup standard, reflecting the primary research interests of the founding members. Hopefully, this and similar initiatives will see increased engagement from non-classicists, broadening their scope to encompass a wider range of epigraphic traditions.

---

[2] To mention a few other journals which have hosted a number of digital epigraphy contributions (without claiming to exhaust the list): «Digital Applications in Archaeology and Cultural Heritage» (https://www.sciencedirect.com/journal/digital-applications-in-archaeology-and-cultural-heritage), «Digital Humanities Quarterly» (https://www.digitalhumanities.org/dhq/), «Digital Scholarship in the Humanities» (https://academic.oup.com/dsh/), «International Journal of Digital Humanities» (https://link.springer.com/journal/42803), «Journal on Computing and Cultural Heritage» (https://dl.acm.org/journal/jocch), «Umanistica Digitale» (https://umanisticadigitale.unibo.it/).

Building on EAGLE's pioneering work to harmonize and aggregate diverse databases of Greek and Latin inscriptions, the FAIR Epigraphy Project pushes these efforts further by supporting an integrated digital humanities framework for epigraphy within the expanding Linked Open Data ecosystem. The project promotes shared standards, such as ontologies and controlled vocabularies, that enable interoperability across various epigraphic databases and facilitate cross-disciplinary research. Through tools for standardized data publication (using RDF/XML formats), FAIR Epigraphy enhances accessibility to a linked data environment for both researchers and the public (Heřmánková, Horster, Prag 2022), with a current focus on Greek and Latin inscriptions.

An international association was also established to continue and broaden the goals of the EAGLE project after the end of its funded period: the International Digital Epigraphy Association (IDEA), focusing on advancing and promoting the use of technologies and new methodologies for research on 'written monuments' of any era and civilization (Felle 2016; Liuzzo 2018)[3].

Additionally, online courses and symposia are becoming increasingly important venues for fostering remote collaboration and innovation on specific topics. For instance, Linked Pasts (https://linkedpasts.hcommons.org) gathers annually to explore linked data and ancient history, with occasional intersections in digital epigraphy. Likewise, the online sessions of the Sunoikisis Digital Classics open teaching programmes (https://sunoikisisdc.github.io/), which started in 2015 and are archived on Youtube, have been addressing a wide range of topics in Digital Humanities and Digital Cultural Heritage, encompassing epigraphy.

In an effort to address the dispersed nature of information on the web, various initiatives were launched years ago to compile lists of digital tools tailored to specific disciplinary domains, encompassing or intersecting the epigraphic field. One excellent example is the Digital Classicist (https://www.digitalclassicist.org/), with its active mailing list and Wiki, listing over 200 projects and resources for the study of ancient epigraphy, with a focus on Greek and Latin inscriptions, yet keeping an eye on diverse epigraphic traditions (https://wiki.digitalclassicist.org/Category:Epigraphy).

A promising bibliographical tool to specifically keep track of digital epigraphic resources such as the Zotero Group EpiDig (https://www.zotero.org/groups/148928/epidig/) has unfortunately been scarcely implemented over the past eight years[4].

---

[3] See also the 'IDEA' Zenodo community at https://zenodo.org/communities/eagle-idea/.

[4] Other digital initiatives exist that are complementary to the ones listed above as regards monitoring research on epigraphy, such as Current Epigraphy (https://currentepigraphy.org/); however, they are not specifically concerned with 'digital epigraphy' as much as they are with 'epigraphy' in general.

More recently, further initiatives have begun to emerge also in other domains. One such example is the Zotero library (https://doi.org/10.5281/zenodo.10691756), announced in February 2024 via the Egyptologists' Electronic Forum (EEF) (https://www.egyptologyforum.org), providing a list of Egyptological databases and datasets that cannot be found in traditional Egyptological bibliographies, such as the Online Egyptological Bibliography (https://oeb.griffith.ox.ac.uk). A review of these initiatives highlights the lack of – and the need for – a comprehensive and searchable catalogue of digital epigraphic resources and tools that could support the community of digital epigraphists, crossing different disciplinary boundaries, an issue clearly emerging from the literature review in §2.1.

This is what the H2IOSC's Open Digital Epigraphy Hub pilot project aims to achieve: addressing the challenge of discovering and navigating the vast array of digital initiatives by providing a gateway to the available resources relevant to the study of epigraphy, monitoring the constant evolution of this varied landscape.

3. The Open Digital Epigraphy Hub: the back-end

3.1 *Modelling choices*

In designing the EpiHub, we aimed to tackle the research needs of the 'typical epigraphist' – someone who might use it to discover which tools provide information on corpora in a specific language, script, or from a particular geographical area and historical period. This web resource aims to gather comprehensive descriptive metadata about datasets – epigraphic corpora and their aggregators, chronological and geographical gazetteers, etc. – semantic artefacts, such as thesauri and ontologies[5], best practices, and software currently in use in digital epigraphy.

The conceptual model of the EpiHub has been intentionally kept simple, pivoting around a single, overarching entity named 'Resource'. This entity supports relationships among records of the same type and includes a set of descriptive attributes that can be selectively populated depending on the specific nature of the resource. A first-level categorization attribute ('Resource type') allows for distinctions among a variety of resource types, be they epigraphic databases and other related datasets – such as palaeographic resources, dictionaries, and geospatial data – software, applications, best practices, and more. Additional, 'external' information about these resources, such as

---

[5] On the term 'semantic artefact', see Le Franc *et al.* 2020, 11-17. For a catalogue of semantic artefacts of the Heritage domain, which has been compiled in the frame of Activity 4.10 of the H2IOSC Project and includes also resources relevant to epigraphy, see https://h-setis.cnr.it/ (Scarpa, Valente 2024).

related projects, people and organizations, are managed as attributes of the Resource rather than as separate entities, directing users to those external resources within a linked data framework. This simple yet flexible structure ensures that all resources can be managed without the need for complex schema adjustments. Whenever possible, we have prioritized controlled-term lists to maintain internal consistency, avoiding varied descriptions of the same concepts. This choice facilitates mapping to existing vocabularies and formalized lists.

To meet the needs of the epigraphy community, emphasis has been placed on the descriptive fields of a resource, rather than on its technical details. However, the latter, which may be of broader interest to digital humanists and are relevant to interoperability and reuse, are still addressed by formally describing the resources available on the web in terms of data formats, accessibility, and licensing. This approach makes the EpiHub a valuable toolkit for the digital epigraphy community while promoting FAIR practices.

The following sections outline the attributes of the Resource, which can be subsumed under three broader thematic categories: those formally describing the resource, those relevant to the scope of its content, and those providing information on external – but related – entities. In designing them, we drew upon our firsthand experience as epigraphists – both in the field and in digital contexts – and as creators and users of epigraphic archives[6], as well as users of software supporting epigraphic work[7], while also bearing in mind the interests and priorities in digital epigraphy that emerged from the literature review. Additionally, as participants in FAIR-based initiatives, we were guided by the principles of the H2IOSC project, which promotes reuse practices and encourages ongoing efforts toward FAIRification.

3.2 *Resource description*

The 'Name' and the 'Alternative name' are recorded as free-text attributes, allowing flexibility to capture both the full name and any commonly used abbreviation or acronym associated with the resource. Additionally, a free-text 'Description' attribute offers space to outline the main elements of the resource, providing an overview of its purpose, structure, and functionality. All descriptions are written from an epigraphist's perspective, highlighting the relevance of each resource to epigraphy; that is, even for resources that are not strictly epigraphic, their relevance to epigraphy will be highlighted. One of the essential descriptive attributes of the resource is 'Links', which

---

[6] Such as the Digital Archive for the Study of pre-Islamic Arabian Inscriptions (https://dasi.cnr.it).

[7] See e.g. the AKU-PAL (Altägyptische Kursivschriften. Digitale Paläographie und systematische Analyse des Hieratischen und der Kursivhieroglyphen) platform that supports the study of the palaeography of hieratic and cursive hieroglyphic inscriptions (https://aku-pal.uni-mainz.de).
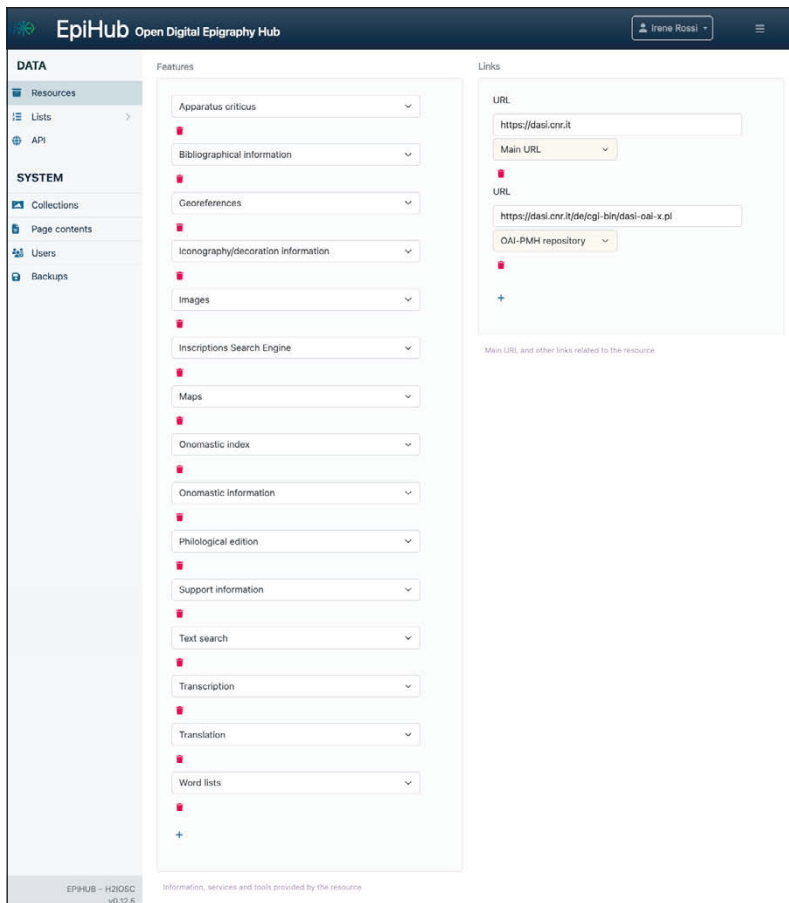
Fig. 1 – Example of 'Features' and 'Links' fields in a record of EpiHub back-end (DASI-Digital Archive for the Study of pre-Islamic Arabian Inscriptions).

includes the primary URL of the resource as well as additional links, such as URLs for the data and source code repositories or documentation if available, each accompanied by an explicative label from a controlled-term list (Fig. 1).

As mentioned above, the 'Resource type' indicates whether the resource is, for instance, a digital corpus, an aggregator of corpora, a software application, or a thesaurus. This categorization aids users quickly identify the nature of each resource at a glance. This and all attributes described below, unless otherwise specified, are managed as controlled-term lists to ensure structured information. The term list for this attribute is currently in progress and may include new values as the survey advances.

The 'Domain' attribute reflects the specific disciplinary domains covered by the resource, be they strictly epigraphic, or more linguistic, or palaeographic, or a combination of these and other domains. Particularly useful for epigraphic databases, the 'Features' attribute describes the specific information, services, and tools offered by the resource (Fig. 1). This may encompass the availability of an apparatus criticus, of transcriptions of the original texts, their translations, the presence of information about the medium bearing the inscription and its decoration, georeferenced data, onomastic indexes and more, enabling users to identify resources that align with their research needs. The 'Resource language' enhances accessibility by indicating the languages available for each resource's interface, allowing users to find resources in languages they understand and thus supporting multilingual access. It standardizes this information, making it easier for users to filter and locate resources based on language.

Within these descriptive attributes of a 'Resource', more technical details have been included, as previously mentioned, ensuring that users have access to comprehensive information about the resources available on the web. 'Media type' and 'Format' specify various types of media used in the resource, such as images and text, along with their corresponding subtypes – such as formats like TIFF for images and XML for text. This classification aligns with the specifications outlined by IANA (https://www.iana.org/assignments/media-types/media-types.xhtml) and addresses important technical details relevant to interoperability and reuse, as previously mentioned. Additionally, 'Accessibility' indicates how users can engage with the resource, highlighting any restrictions or permissions related to its use, while 'License' clarifies the legal terms under which the resource can be accessed and utilized. This structured approach to describing technical details further promotes transparency and informed usage, aligning with FAIR practices.

3.3 *Resource scope*

Attributes describing the scope of a resource refer to its application domain and content. These are especially relevant to epigraphic archives and related datasets, offering essential context for users. They stem from reflections – rooted in our epigraphic experience – on the key descriptive elements necessary for an epigraphic dataset to be easily searchable by audiences interested in discovering digital evidence of a particular epigraphic culture. Among these attributes, 'Chronology start date' and 'Chronology end date' are included as integer type fields to define the temporal range of the data contained within the resource. This feature specifically applies to epigraphic databases and related resources, such as prosopographical datasets and dictionaries. In addition, 'Temporal coverage' features terms derived from gazetteers, such as PeriodO (https://perio.do/), to represent the historical and cultural periods relevant to the texts within the resource (Fig. 2).

Fig. 2 – Example of 'Temporal' and 'Geographic coverage', 'Script' and 'Language' fields in a record of EpiHub back-end (SITH-Système d'Indexation des Textes Hiéroglyphiques).

Similarly, 'Geographic coverage' offers terms from geographic gazetteers, such as Pleiades (https://pleiades.stoa.org/), to indicate the geographic origin or provenance of the inscriptions, which is essential for understanding their cultural and historical contexts. Each term sourced from a gazetteer is

enriched with its URI, and the data source is cited accordingly. For example: Arabia (region) – [Pleiades] (https://pleiades.stoa.org/places/29475). A separate attribute 'Modern country' specifies the contemporary countries of origin or provenance of these texts – acknowledging that an inscription's find location can often differ significantly from its place of origin. These attributes allow users to understand the chronological and geographical contexts of the inscriptions contained in epigraphic databases.

Furthermore, 'Script' and 'Language' are incorporated to detail such information about the texts within the resource. While primarily intended for epigraphic datasets, these attributes can also apply to software tools that operate within or support epigraphy, such as JSesh (https://jsesh.qenherkhopeshef. org), an editor for manipulating Egyptian hieroglyphic texts. By providing this information, users gain a comprehensive view of the academic or functional scope of each resource, enhancing their capacity to engage with the materials effectively.

3.4 *Related information*

In addition to the core attributes describing each resource and its scope, supplementary attributes provide insights into the broader external context of these resources. These include 'Projects and initiatives', 'Organizations and communities', and 'People', detailing information about all funded projects as well as any unfunded initiatives that contributed to the creation of the resource, all people involved either within a formal organization or as part of a community engaged in some initiative, and the individuals contributing to the development or maintenance of the resource. Additionally, 'Research infrastructure' records the name of the infrastructure to which the resource is associated, highlighting the supporting frameworks or facilities that contribute to its development or functionality. This element is particularly innovative and distinguishes our approach within the H2IOSC project, emphasizing our commitment to integrating comprehensive contextual information that enhances the overall utility of the resources while promoting collaboration across the digital humanities landscape.

As previously noted, the inclusion of this external information is intentionally kept brief. Instead of creating dedicated entities to which relate the single instances of the 'Resource', the decision was made to incorporate this information as optional, multiple attributes within the 'Resource' entity table, populated through controlled-term lists. The URIs associated as additional attributes to the terms in the list direct users to existing registries when available, such as ORCID (https://orcid.org), where rich metadata can be found. This approach not only enriches the resource's contextual information, but also promotes a more interconnected understanding of the digital epigraphy landscape within a linked data framework.

As mentioned previously, it is possible to link one 'Resource' record to another 'Resource' record. These relationships are semantically defined through predicates such as 'same as' or 'is included in', which allow, for instance, the indication that the contents of a specific corpus such as the Epigraphic Database Rome (http://www.edr-edr.it/) are aggregated within EAGLE (https://www.eagle-network.eu), or that an epigraphic archive like SITH-Karnak (http://sith.huma-num.fr) integrates the Pactols thesaurus (https://www.frantiq.fr/pactols/le-thesaurus/).

Semantically defined relationships are also applied to a different category of related information, specifically between the EpiHub records and those of H-SeTIS (SCARPA, VALENTE 2024)[8] and DHeLO (MANCUSO, D'EREDITÀ 2024)[9], whose lists are automatically retrieved via the relevant APIs. These databases, which were collaboratively developed by research groups within the H2IOSC project, display the results of comprehensive surveys of international 'semantic artefacts' and Italian digital products and projects relevant to the Heritage domain. This approach emphasizes that, although these resources are 'external' to EpiHub, they are nonetheless 'internal' to the project from which EpiHub originates.

The bibliography is maintained through a Zotero group, which is currently being populated and will be publicly accessible soon (see §4.2). Similarly to H-SeTIS, EpiHub uses Zotero's API to query bibliographic data, and leverages Zotero's unique identifiers to organize and access individual references linked to each resource (SCARPA, VALENTE 2024, 554).

3.5 *Managing the back- and front-end content from a single entry-point*

Data entry is done through a back-end user interface, whose structure, functionalities and graphic design leverages the experience gained from developing the H-SeTIS system. H-SeTIS's source code, developed by the IT specialist Matteo Gallo, was reused and adapted for EpiHub, both for cost-effectiveness and to meet the requirements of H2IOSC, which mandates the release of open-source codes, thereby inherently promoting their reuse. The back-end user interface allows the creation, editing and publication of each 'Resource' record on the front-end site, the implementation of controlled-terms lists and the easy creation of relationships among 'Resource' records, which are also semantically connoted. The EpiHub back-end interface does not only allow addition and manipulation of data concerning its records, but also the management of great part of the front-end website contents. For

---

[8] H-SeTIS - *Heritage – Semantic Tools and Interoperability Survey* is an output of H2IOSC's project WP4.10 at the CNR-ISPC Milan branch (https://h-setis.cnr.it).

[9] DHeLO - *Digital Heritage Landscaping PlatfOrm* is an output of H2IOSC's project WP2.4 at the CNR-ISPC Rome branch (https://dhelo.cnr.it).

instance, each 'Resource' is provided with an uploaded image designed to visually represent its main features, facilitating and enhancing the consultation process in the website's 'Catalogue' preview. Moreover, in order to organize resources thematically for display in dedicated 'Collections' on the front-end site (see §4.2), the back-end interface includes a functionality for managing them. These records, to which resources can be associated, contain a title, a short description and an image that appears as a card, serving as access-point to the 'Collection' in the front-end. Finally, the static content on the website pages is managed through the back-end interface using an integrated HTML editor. This approach simplifies the task of curating both data-entry and presentation content from a single entry-point.
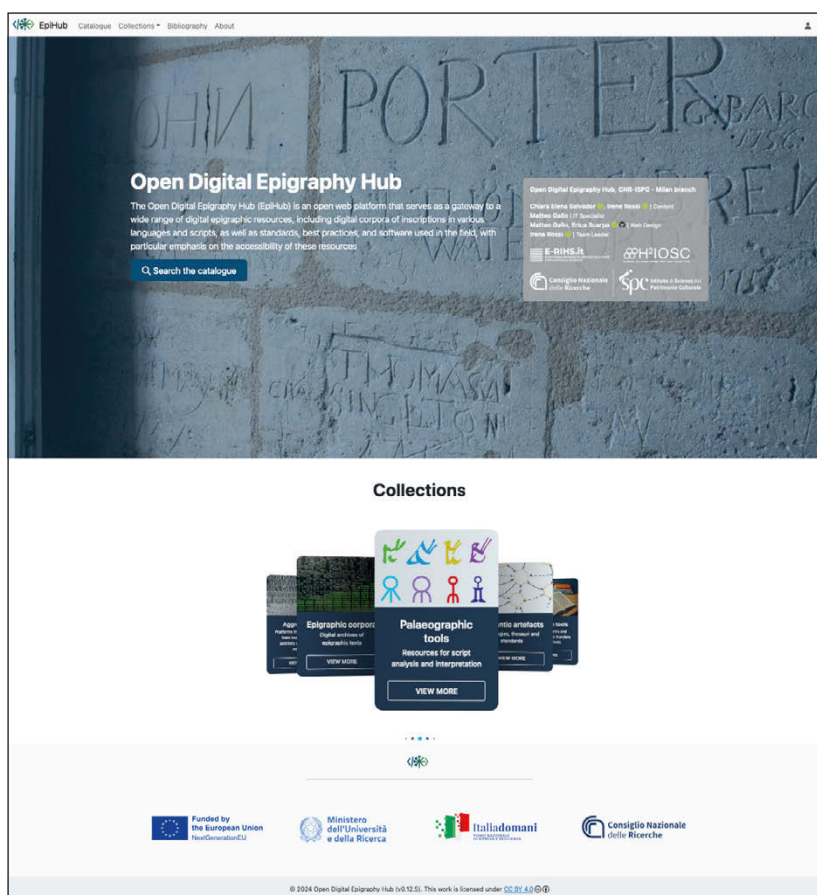
Fig. 3 – EpiHub website landing page.

4. The Open Digital Epigraphy Hub: the front-end

The front-end interface of EpiHub was designed to be both appealing and user-friendly, thanks to the collaborative efforts of Erica Scarpa and Matteo Gallo, who developed a web design based on our input. We aimed to avoid the overly utilitarian look of a standard data entry page, which can be discouraging for users. Instead, we opted for a more engaging and visually rich design that not only enhances the user experience but also makes the tool more inviting to explore. The landing page (Fig. 3) provides a brief introduction and invites users to search the full catalogue of 'Resource' records, which opens in a dedicated page. It also offers access to the aforementioned thematic 'Collections', which are displayed as a carousel of cards. The site will be openly accessible via https://open-epihub.cnr.it by the end of the H2IOSC project in 2025.

4.1 *The open Catalogue and the Search tool*

The 'Catalogue' page lists previews of the records with 'published' status in the back-end, displayed as cards. Each preview card includes an illustrative image, the 'Name', 'Alternative name', a shortened 'Description' of the resource, and its 'Resource type'. Additionally, a small colour-coded label indicates the 'Accessibility' level of each resource (Fig. 4). This feature aligns with H2IOSC's emphasis on promoting open access practices and highlights for EpiHub users the availability of immediately usable resources.

The list of 'Catalogue' records can be refined using the search functionality available in the same 'Catalogue' page, via a general free-text search bar or an expandable list of filters (Fig. 5). The former queries the 'Name', 'Alternative' name and 'Description' fields, along with keywords recorded in a multiple 'Keyword' field of the 'Resource' records in the database, which remain hidden from front-end users. The latter help normalize descriptive terms, allowing also for the inclusion of relevant information not covered in the 'Description' field, such as references to museum collections contributing content to the epigraphic database.

The advanced search offers a set of filtering parameters, allowing users to apply AND or OR logical operators as needed. These parameters correspond to most of the 'Resource' attributes described in §3 and are organised into three sections reflecting the main categories: 'Resource description', 'Resource scope', and 'Related information'. For epigraphic research, we deem particularly relevant those search parameters describing the scope of the resource content – such as language, script, geographic and temporal information – as these are the information that EpiHub extracts and organises from the mass of available resources to be offered – contrary to other registries or catalogues – as a curated guide specifically tailored for the epigraphy community.
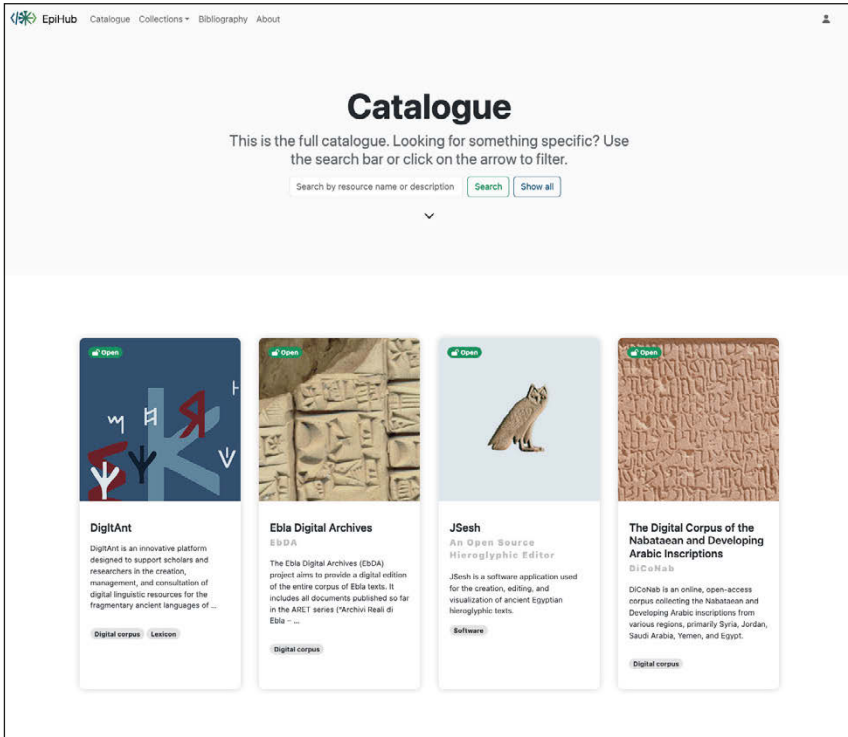
Fig. 4 – EpiHub website 'Catalogue' page.

These aim to provide a thorough view of the various world epigraphies, encompassing different writing cultures and their epigraphic evidence, which varies by language, script, region, and historical periods. The chronological search, besides offering a drop-down menu to select the terms from temporal gazetteers, also allows users to activate a time bar for the selection of the relevant chronological span. Filters on the domain and features of the resources are also designed to be of practical use to researchers seeking for datasets and tools focused on specific disciplinary domains, such as linguistic, palaeography, and philology, as well as those offering specific functionalities, such as word search, maps, and more. At the same time, queries on common 'technical' resource metadata will enhance the discoverability of accessible resources and the identification of those providing interoperable and reusable content or code.

The search by related information enables users to find resources based on contextual information, allowing them to search by people, organisations/
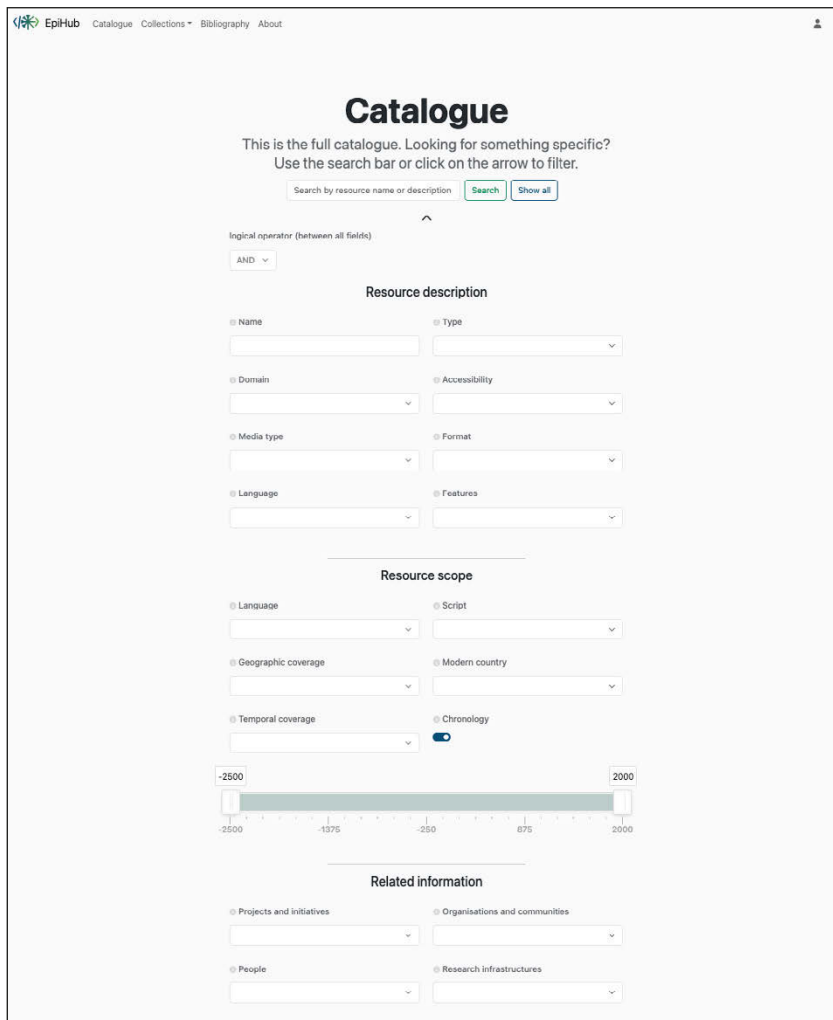
Fig. 5 – The search functionality of the EpiHub website 'Catalogue' page.

communities and initiatives involved in the development of epigraphic or epigraphy-related resources, even if users are unfamiliar with the titles of the products and outcomes they wish to explore. Finally, the filter on the 'Research infrastructures' is aimed to valorise those resources that, being part of the research digital ecosystem, may be more easily exploited. For all search parameters except 'Name', users can select multiple values simultaneously, as these filters correspond to multiple controlled-term vocabularies.

4.2 *The Resource pages and their aggregation within the Collections*

From the list in the Catalogue, users can access individual Resource pages (Figs. 6, 7). Besides the information derived from the attribute fields of the corresponding database record, each page displays editorial details, including the dates of the record's first publication on the website and of its last update, as well as a complete citation of the resource that can be copied to the clipboard to give credit to its authors.

A short bibliography for each record, when available, is also provided. All bibliographic references associated with published resources, as well as other relevant publications in digital epigraphy, are currently being compiled as a Zotero group of the Open Digital Epigraphy Hub. This will be released as a public group on Zotero by the end of the H2IOSC Project and will be accessible in a dedicated section of the EpiHub website through the integration of the web application Kerko (https://pypi.org/project/Kerko/). The Open Digital Epigraphy Hub aims to become a go-to resource for researchers and anyone wishing to stay up to date in the field.

Finally, a section of each resource page is dedicated to links to other semantically related 'Resource' records. In addition to the internal relationships among its records, the EpiHub webpage also lists semantic relations with the DHeLO and H-SeTIS records mentioned above, providing links to their respective pages.

To provide a complementary way for consulting the EpiHub resources beyond filtering through the 'Catalogue', a 'Collection' section has been set up for users without a specific research question in mind, wishing to be guided through the website (Fig. 3). Currently, these thematic 'Collections' gather records based on major themes, highlighting resources according to their type, domain, and feature attributes (e.g., Epigraphic corpora, Aggregators, Semantic artefacts, Translation tools). Since the 'Collections' are easily managed through the back-end interface, they can be added or removed in response to current trends and needs in the Digital Epigraphy research landscape.

5. Some final remarks: EpiHub as a domain-driven community service

We began this project to address the challenge of exploring the multitude of digital corpora and initiatives currently available. As we continue to populate the EpiHub with these resources, we are becoming increasingly aware that some of the projects are more widely known than others, which are only known within the reference community of specific disciplinary domains. Often, these lesser-known projects do not engage in ongoing discussions within the digital humanities and are underrepresented in the relevant literature.

The EpiHub will offer a snapshot of the landscape of digital projects related to epigraphy, including those that are not typically showcased in

Fig. 6 – Example of an individual 'Resource' page in the EpiHub website, upper part (DASI- Digital Archive for the Study of pre-Islamic Arabian Inscriptions).

symposia and round tables but are nonetheless active and serve as essential tools within their respective fields. A first bulk of contents will be published on the website by the end of the H2IOSC project and will be exposed through a dedicated API endpoint. Content enrichment will continue as our survey

Fig. 7 – Example of an individual 'Resource' page in the EpiHub website, lower part (DASI- Digital Archive for the Study of pre-Islamic Arabian Inscriptions).

expands: the aim is to provide epigraphists with a hub to constantly monitor the evolving digital epigraphy landscape and the progress of the discipline. To achieve this, we aim to actively engage with the community in a fruitful exchange of information and recommendations on new resources and new description features to include.

Irene Rossi, Chiara Salvador
Istituto di Scienze del Patrimonio Culturale - CNR
irene.rossi@cnr.it, chiaraelena.salvador@cnr.it

Acknowledgements

REFERENCES

Bigot Juloux V., Gansell A.R., Di Ludovico A. (eds.) 2018, *CyberResearch on the Ancient Near East and Neighboring Regions. Case Studies on Archaeological Data, Objects, Texts, and Digital Archiving*, Digital Biblical Studies 2, Leiden-Boston, Brill (https://doi.org/10.1163/9789004375086).

Bodard G., Romanello M. (eds.) 2016, *Digital Classics Outside the Echo-Chamber: Teaching, Knowledge Exchange and Public Engagement*, London, Ubiquity Press.

Caravale A., Moscati P., Rossi I. (eds.) 2024a, *The H2IOSC project and its impact on digital antiquity within the E-RIHS infrastructure – I*, «Archeologia e Calcolatori», 35.1, 515-562.

Caravale A., Moscati P., Rossi I. 2024b, *Landscaping and integrating Digital Archaeology and Digital Epigraphy resources: New challenges and future opportunities. Introduction to the Special section*, in Caravale, Moscati, Rossi 2024a, 515-520 (https://doi.org/10.19282/ac.35.1.2024.30).

De Santis A., Rossi I. (eds.) 2018a, *Crossing Experiences in Digital Epigraphy. From Practice to Discipline*, Berlin-Boston, De Gruyter (https://doi.org/10.1515/9783110607208).

De Santis A., Rossi I. 2018b, *Appendix A: Selected Webliography*, in De Santis, Rossi 2018a (eds.), 258-288 (https://doi.org/10.1515/9783110607208-022).

Felle A.E. 2016, *Oltre EAGLE: l'International Digital Epigraphy Association (IDEA). Una presentazione in anteprima*, «Archeologia e Calcolatori», 27, 353-355 (https://doi.org/10.19282/AC.27.2016.18).

Felle A.E., Rocco A. (eds) 2016, *Off the Beaten Track: Epigraphy at the Borders. Proceedings of the VI EAGLE International Event (Bari 2015)*, Oxford, Archaeopress (https://www.archaeopress.com/Archaeopress/download/9781784913229).

Heřmánková P., Horster M., Prag J. 2022, *A Report from the Scoping Survey of the FAIR Epigraphy Project (v1.0.0)*, Zenodo (https://doi.org/10.5281/zenodo.6610696).

Le Franc Y., Parland-von Essen J., Bonino L., Lehväslaiho H., Coen G., Staiger C. 2020, *D2.2 FAIR Semantics: First recommendations* (https://zenodo.org/records/3707985).

Liuzzo P.M. 2018, *EAGLE continued: IDEA. The International Digital Epigraphy Association*, in De Santis, Rossi 2018a, 216-230 (https://doi.org/10.1515/9783110607208-018).

Mancuso G., D'Eredità A. 2024, *DHeLO and BiDiAr: New digital resources within the H2IOSC Project*, in Caravale, Moscati, Rossi 2024a, 515-542 (https://doi.org/10.19282/ac.35.1.2024.31).

Orlandi S., Santucci R., Casarosa V., Liuzzo P.M. (eds.) 2014, *Information Technologies for Epigraphy and Cultural Heritage. Proceedings of the First EAGLE International Conference*, Serie antichistica. Collana Convegni 26, Roma, Sapienza Università Editrice (http://www.eagle-network.eu/wp-content/uploads/2015/01/Paris-Conference-Proceedings.pdf).

Orlandi S., Santucci R., Mambrini F., Liuzzo P.M. (eds.) 2017, *Digital and Traditional Epigraphy in Context. Proceedings of the EAGLE 2016 International Conference*, Roma, Sapienza Università Editrice (http://doi.org/10.13133/978-88-9377-021-7).

Scarpa E., Valente R. 2024, *A resource hub for interoperability and data integration in heritage research: The H-SeTIS database*, in Caravale, Moscati, Rossi 2024a, 543-562 (https://doi.org/10.19282/ac.35.1.2024.32).

Velázquez Soriano, I., Espinosa Espinosa D. (eds.) 2021, *Epigraphy in the Digital Age: Opportunities and Challenges in the Recording, Analysis and Dissemination of Inscriptions*, Oxford, Archaeopress.

ABSTRACT

The Open Digital Epigraphy Hub (EpiHub) is an open access digital platform developed to streamline accessibility and organization of resources in digital epigraphy. Created within the Humanities and Cultural Heritage Italian Open Science Cloud (H2IOSC), EpiHub addresses the fragmented landscape of digital epigraphic resources, which span disciplines like linguistics, philology, and archaeology. Offering a comprehensive catalogue of national and international resources – such as datasets, digital tools, geographical and chronological gazetteers, dictionaries, and text-processing software – EpiHub structures these assets through descriptive metadata to facilitate discoverability and usability for researchers and practitioners across diverse cultural and temporal scopes. The platform's flexible back-end architecture supports efficient data management and real-time updates to enhance front-end accessibility, organizing resources by thematic collections and allowing advanced searches based on specific epigraphic needs, such as language, geographic region, or historical period. Emphasizing FAIR principles, EpiHub standardizes metadata and controlled vocabularies to foster broader interoperability and data reuse across research projects. Integrated with related H2IOSC resources, including H-SeTIS and DHeLO, EpiHub aims to become a central resource, continuously enriched to support collaboration and innovation within the digital epigraphy community.