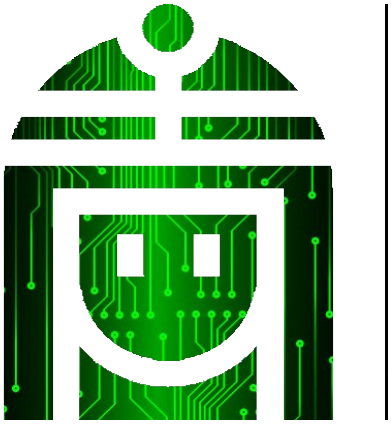
CLEOPATRA

CoLlaborative ExploratiOn of cyber-PhysicAl culTuRal lAndscapes



cleopatra-project.cloud

Cleopatra Project Deliverable: D6.2

Intermediate Report

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The research leading to these results has received funding by the University of Campania "Luigi Vanvitelli" from VALERE 2019 program.

About CLEOPATRA

The Cleopatra Project aims at increasing the knowledge of the archaeological and historical-artistic sites and to develop new communication techniques for Cultural Heritage. The objective is to promote and rediscover the sense of history and cultural identity by the valorisation of lesser-known areas and sites of the Campania region, but no less interesting.

Two experimental scenarios will be designed proposing "Diffused Museums", through which the territory is known, and developing archeo-trekking or slow-tourism (i.e., cycling tourism), based on the protection and preservation of places requiring responsible, personalized and non-massive use.

The projects aims at achieving the following objectives:

1. the creation of user friendly services both in outdoor (archaeological sites, squares, etc.) and indoor spaces (historic buildings, museums that store material documentation), in order to structure thematic itineraries through history, culture and art that involve the territory in its entirety for the construction of an integrated network for tourism promotion which is currently lacking;
2. the organization of a system to guide the tourist, combining, from time to time, archaeological and historical-artistic, naturalistic, faunistic and geological elements based on their interests through an informative support; in the case of scenario 2, its peculiarity is emphasized by the naturalistic and geo-environmental background, in which the archaeological sites are located: currently they can be visited only with the aid of expert touristic guides;
3. the realization a close interaction between user and avatar; the avatar will guide the tourist to places of difficult access through vocal and visual advices, choosing the most suitable routes based on a series of criteria, such as the available time, the ability of users to move in difficult contexts, clothing and the possibility to take scenic routes; at the same time the user, in his interaction with other users, can recommend new paths and report new elements, thus providing starting points for future research;
4. to overcome problems, thanks to the help of the avatar, such as limited interaction with text documents, especially in open spaces, the lack of user, and an insufficient or wrong location of POIs.

For more information

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The research leading to these results has received funding by the University of Campania "Luigi Vanvitelli" from VALERE 2019 program.

Explanation of the work carried out and Overview of progress

1.1 Objectives

The table below shows the project objectives as described in the revised project proposal and describes the work carried out during the reporting period towards achievement of each listed objective. The table also provides an assessment, as a percentage, of the degree of completion of each objective. This percentage assessment is only an approximate assessment based on what has been achieved and what remains to be done, and the relative scale and complexity of these. More precise assessments of progress in individual deliverable.

Objective	Project work addressing objective during period covered by this report	Estimated degree of completion
(O1) Collaborative models and technologies for augmented live fruition of archaeological sites.	Defining of collaborative models for fruition of cultural assets (D1.1). Extending the fruition model with a social dimension (D1.1, D2.1). Views shared by other members (D2.1).	40%
(O2) Artificial intelligence for learning agents in one to many cyber-physical social interactions	Intelligent software agents as a tourist guide and moderators of social fruition of distributed cultural assets. Common communication technologies. Advanced interaction models Artificial intelligence techniques and proactive behaviours. Back-end production as a teaching to agents activity about historical, artistic or general information.	40%
(O3) Information fusion and knowledge extraction and multi-modal presentation	Multi-modal presentation, choosing the preferred interaction mode. Integration of different technologies, including text to speech, push messages, speech to text, textual chat, image sharing, talking heads.	30%
(O4) Advanced content production and communication	Increase the knowledge of the archaeological and historical-artistic sites. New communication techniques for Cultural Heritage. Valorisation of lesser-known areas and sites trough the innovative concept of "musei diffusi" Close interaction between user and avatar. User to user interaction users for promoting recommendation of new paths and to report new elements.	30%

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1.2 Explanation of the work carried per Work Package

1.2.1 Workpackage 1 - Collaborative cultural heritage fruition in cyber-physical systems

Summary:
In this WP collaboratives models for exploring distributed cultural sites will be defined. From requirement analysis a software architecture and the technological stack to plug-in innovative services and research prototypes will be designed.

Work performed and achievements made during this reporting period

T1.1 Collaborative models definition (M1-12)

All of this work was carried out by DING and DiLBEC. High level interaction protocols have been defined to comply with project requirements. The identified interaction will support the development of specific services in the project case studies. In particular the interaction include, as actors, human users, software agents and distributed services (such as sensors and actuators). The work of this task is documented in D1.1

T1.2 Requirement Analysis and architecture design (M1-12)

All of this work was carried out by DING. The software architecture of the Cleopatra platform has been designed. It allows the loosely integration of project services and supports the interactions defined in T1.1.

The work of this task is documented in D1.2, which complement the design description with UML artifacts.

T1.3 Scouting of technologies (M1-12)

All of this work was carried out by DING. The key technologies necessary for the implementation of the software architecture defined in T1.2 have been identified and experimented. The work of this task is documented in D1.2

Status of deliverables production

The table below shows the deliverables from this WP, and their current delivery status.

No.	Title	Status/ Completion %	Due month /date	Date delivered
D1.1	Collaborative models design	100	M12 (M24)	M24
D1.2	Architecture design and technologies	100	M12 (M24)	M24

Issues/problems arising during the reporting period, and how they were addressed

Because of the Covid 19 Emergency the design activities focused on the requirements of virtual experiences rather than physical or hybrid ones.

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Plans for next reporting period

Activities of WP1 have been completed. Obviously, the architecture design and the collaborative models will be updated according to new requirements and issues which will eventually emerge during the implementation and test phases. In particular, the completeness of the collaborative models will be verified during the development and test of the project case studies.

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1.2.2 Work Package 2: Artificial intelligence for learning agents

Summary:

In this WP, the research activities will design the knowledge base that will implement the agent intelligence and will allow for reasoning on.

Work performed and achievements made during this reporting period

T2.1 Knowledge base design (M6-M18)

This task has started. In particular the knowledge base (KB) is distributed among different technologies and use heterogeneous format. As it is documented in D2.1, some components of the KB are represented by the conversational agent's rules, the internal and standard IIIF representation of multimedia content.

T2.2 Knowledge extraction and information fusion techniques (M6-M18)

The design of information fusion techniques has started, in particular to foster the integration of the Natural Understanding components of the conversation agents with the context awareness collected by the interaction with the users and by the detection of external events.

T2.3 Learning techniques (M12-M24)

This task has not started yet, but the fundamental techniques and the enabling technology has been identified. In particular we remark here the relevant results: the investigation of techniques and technologies for the development of conversational agents; the ontology the opportunity of exploitation of previours annotated contents; a side attivity that was not originally included into the proposal. In particular, Ing. Pietro Fusco (PhD student) is collaborating with the project for the exploitaion of Dee Learning technology to automatically detect ruines of and ancient method (Centuriazione) for the land separation

Status of deliverables production

The table below shows the deliverables from this WP, and their current delivery status.

No.	Title	Status/ Completion % [1]	Due month /date	Date delivered
D2.1	Knowledge base design (Prototype)	30%	M18	
D2.2	Connection with related archaeological and historical-artistic sites and artifacts in other places (Report)	10%	M18	
D2.3	Reasoning and learning techniques and technologies (Report)	5%	M18	

Issues/problems arising during the reporting period, and how they were addressed

No relevant issues arose.

Plans for next reporting period

[1] While this report, formally, covers the period up to the end of M18 (Feb 2020), there was some in some cases considerable progress in the period up to 2020-03-14. In these cases, the completion status as of 2020-03-14 is shown in brackets (as this report is being produced after that date).

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1.2.3 Work Package 3: Multi-modal fruition and participation

Summary:

In this WP advanced communication mechanisms will be developed to allow seamless interaction in a social cyber physical environment

Work performed and achievements made during this reporting period

T3.1 P2P Communication mechanisms (M6-M18)

XMPP has been identified as the internal communication mechanism, and the multi-user chat has been exploited to build an overlay for the real time communication in a virtual museum with a community of users. The connection with alternative communication overlays, tayd to external social network (Facebook, Telegram) has been experimented: a) to automatically connect the user to his personal contacts and b) to let him use legacy communication application.

T3.2 Content sharing, content presentation and transformations (M6-M18)

The IIIF standard has been identified as the main interoperable solution for the delivery of multi-media content over the web. Some technologies, such as Mirador viewer and IIPmage have been identified and experimented for the implementation of the presentation layer.

Status of deliverables production

Number	Title	Completion %	Due date	Delivery date
D3.1	Presentation mechanisms, (Prototype)	40%	M18	
D3.2	P2P platform	60%	M20	
D3.3	Interactive Cartography Systems (Report)	5%	M18	

The table above shows the Deliverables from this WP, and their current delivery status.

Issues/problems arising during the reporting period, and how they were addressed

Identified and experimented technologies need to be tested ad the commercial utilization of the identified solution needs to be invesigated.

Plans for next reporting period

Integrate channels.

The research leading to these results has received funding by the University of Campania "Luigi Vanvitelli" from VALERE 2019 program.

1.2.4 Work Package 4: Integration

Summary:
In this WP the research prototypes will be integrated in one P2P platform and tested in a controlled environment.

Work performed and achievements made during this reporting period

T4.1 Technology integration (M12-M20)

This task has not formally started yet. However, intermediate results of ongoing activities are available. The current prototypes are not usable yet as they are in continuous development.
If the reviewer wants to look at these work in progress can access the following links:

- https://parsec2.unicampania.it/~branco/cleodemo/summerschool.php
- https://parsec2.unicampania.it/~branco/cleodemo/summerschool_ras.php
- https://parsec2.unicampania.it/~cleopatra/cleodemo/montepugliano.html

We are collecting all developed software in an open source repository, whose documentation and presentation will be organized in the next reporting period:

- https://github.com/25sal/cleopatra

T4.2 Testbed set-up (M12-M20)

This task has not formally started yet.

T4.3 Experimental activities (M12-M24)

This task has not formally started yet.

Status of deliverables production

The table below shows the deliverables from this WP, and their current delivery status.

Number	Title	Completion %	Due date	Delivery date
D3.1	Integrated platform (Prototype)	0%	M24	
D3.2	Integration tests (Report)	0%	M24	

Issues/problems arising during the reporting period, and how they were addressed

The research leading to these results has received funding by the University of Campania "Luigi Vanvitelli" from VALERE 2019 program.

Plans for the next reporting period

For the next period we will start with the design to the experimental activities and with the set-up of two different environments: a public one for demonstration purpose (directly linked to the web site) and the other one of experimental activities.

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1.2.5 Work Package 5: Scenarios

Summary:
This WP focuses on the case study. Its objective are content production and on site evaluation.

Work performed and achievements made during this reporting period

T5.1. Case study definition and acquisition of basic data (M0-M6)

Scenario 1. "The MudiR - Museo diffuso of the Risorgimento".

It is focused on the Italian Risorgimento. In particular way, the district of Caserta and its 19th century events and monuments have been considered as the main theme of the scenario.

Scenario 2. "Men, places and institutions of the Samnites in the Northern Campania: Re-Generation of a cultural identity": creation of historical contents linked to the Artificial Intelligence system for learning agents.

2.1. Archaeological site of Monte Pugliano (BN): historical and archaeological study of the hill between the municipalities of Castelvenere, San Salvatore Telesino and Telese Terme. This site was frequented since the protohistoric era, but it is well known thanks to the polygonal structures built by the Samnites and the naturalistic evidences.

2.2. Cultural itinerary of the Matese Regional Park: study of the historical-archaeological entities of Matese Regional Park (provinces of Caserta and Benevento) to create an itinerary of the cultural and landscape heritage. The aim will be to ease the communication and the fruition of the archaeological sites located in the municipalities that are part of the Regional Park.

In the meanwhile another scenario has been added.

Scenario 3. "Via Appia-exhibition".

Preparation of contents for a permanent exhibition on the ancient Via Appia at the Archaeological Museum of Ancient Capua.

T5.2. Field activities (M6-M14)

Scenario 2. "Men, places and institutions of the Samnites in the Northern Campania: Re-Generation of a cultural identity": creation of historical contents linked to the Artificial Intelligence system for learning agents.

2.1 Archaeological site of Monte Pugliano (BN): the field activities have concerned the study and survey of the Samnite hill-fort, two Roman villas and the Medieval church. The sinkholes (typical of the geographic context) have been georefered.

2.2 Cultural itinerary of the Matese Regional Park: the points of archaeological interest have been identified and studied. Particular interest was paid to the Samnites hill-forts which represent one of the most characteristic evidence of the forms of settlement of non-urbanized communities, prior to the Roman occupation. This scenario also includes the museums of the area: the Civic Museum - Mu.ci.ra.ma of

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Piedimonte Matese and the Archaeological Museum of ancient Allifae. Alongside the promotion and dissemination of the historical and cultural heritage, the points of naturalistic interest were also highlighted. lThey represent another important reading key for the Regional Park area.

Scenario 3. "Via Appia-exhibition".

- Preparation of the museum itinerary, in which the traditional exhibition settings will be accompanied by narrations, immersive visits and 3D realizations inherent to the route of the road.

- Study and analysis of the archaeological contexts in the Campania part of the Via Appia with particular attention to the archaeological ruins of ancient Capua (S. Maria Capua Vetere).

- Creation of a multimedia map of the ancient Appian Way (from Rome to Brindisi) which includes the following contents:

- linear layer for the route;

- layers of points of the archaeological evidence along the road;

- layers of points of the ancient centres crossed by the road;

- study and preparation of texts and images associated with each specific layer of the archaeological ruins along the route.

Other activities:

Systematization and data import

- Revision of the SIT "Territorio", with the normalization of the data present in the Microsoft Access environment:

- verification of the interface with the GIS platform (ArcMap 10.3) through the match between the alphanumeric data in Access and the shapefiles in GIS environment;

- insertion of new archaeological records;

- systematized n. 2563 cards present in the SIT "Territorio";

- importing alphanumeric data into a geodatabase, functional to the creation of the new WebGIS.

- Starting from a match, Shapefiles have been produced. This match was processed between a field common to the remodeled data table in the Sit Territorio and to the new table included in the Geodatabase.

The final Shapefile will concern the archaeological sites of the following territories: Ailano, Alife, Alvignano, Amorosi, Arienzo, Arpaia, Baia and Latina, Bellona, Caianello, Caiazzo, Capriati al Volturno, Capua, Carinaro, Casagiove, Casapesenna, Caserta, Castel Campagnano, Castel di Sasso, Castel Morrone, Castello Matese, Castelvenere, Cervino, Ciorlano, Dragoni, Durazzano, Faicchio, Falciano del Massico, Francolise, Giano Vetusto, Grazzanise, Gricignano d'Aversa, Letino, Liberi, Maddaloni, Marcianise, Melizzano, Mondragone, Piana di Monteverna, Piedimonte Matese, Pietravairano, Pontelatone, Prata

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Sannita, Pratella, Puglianello, Raviscanina, Recale, Riardo, Roccarainola, Rocchetta and Croce, Ruviano, Sant'Angelo d'Alife, S. Arpino, S. Cipriano d ' Aversa, San Felice a Cancello, San Marco Evangelista, Santa Maria a Vico, San Potito Sannitico, San Prisco, San Salvatore Telesino, San Tammaro, Sessa Aurunca, Solopaca, Sturno, Teano, Telese Terme, Valle Agricola, Villa di Briano.

Setting up a WebGIS template

- Preparation of a standard form relating to archaeological sites within a WebGIS.

The new form includes eight sections and various subsections. They are essential for a precise knowledge of the considered archaeological heritage and contexts. The sections have been structured also considering the way in which the fields are filled in (drop-down menus with multiple choices, free fields, etc.).

Creation of lexicons

- Study of the lexicons used in the archaeological field. References are to the CIDOC CRM formal ontology model (European Ariadne Project) whose purpose is to make it possible to exchange and integrate descriptions, informations and documentation for scientific research between heterogeneous sources of cultural heritage.

- Preparation of a new "dating section" referring to the archaeological lexicons. The included cultural phases move from prehistoric era to the late Middle Ages, with a focus on those chronological periods that characterize territorial sectors of central and southern Italy.

T5.3 Content creation (M8-M20)

Multimedia contents processing:

Scenario 2. “Men, places and institutions of the Samnites in the Northern Campania: Re-Generation of a cultural identity”

2.1 Archaeological site of Monte Pugliano (BN):

- n. 4 multimedia contents, containing the graphic reworking of n. 40 images. Each of them will be accompanied by a text in Italian and English.

- storytelling about the site of Monte Pugliano: through a visit simulation, it could favour the cultural dissemination and the fruition of the site. Thus, by the narration of these landscapes the aim will be to raise awareness of minor sites, far from the major tourist circuits.

2.2 Cultural itinerary of the Matese Regional Park

- Creation of a virtual tour about the cultural heritage of the Matese Regional Park through the places of the Samnites. In the creation of the tour and its contents, the strong link between the archaeological heritage and the natural landscape in which it is inserted has been considered, paying attention to the areas of naturalistic interest included in this scenario.

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- Others multimedia contents:

- *Samnite man's weapons and armors*, with a focus on the military sphere, highlighting the wide range of related artefacts found in the Museums.

- *The Samnite woman*, with a focus on daily life, customs, habits, activities, which provide information on the role of women within the society of the time.

- *Samnite Oscan language*, the alphabet and its characteristics. Some writing games will be developed (supported by software). They will stimulate the user's curiosity, facilitating the knowledge of this cultural aspect of the Samnites.

Scenario 3. "Via Appia-exhibition".

Creation of multimedia contents strictly related to artificial intelligence that will be able to offer the user a diversified visit linked to their needs. The contents, structured in texts and images, refer to:

- Arch of Capua

- Amphitheater

- Theater

- Cryptoporticus

- Domus of Confuleius

- Domus in Via degli Orti

- The Conocchia.

- Multimedia map of the ancient Appian Way (from Rome to Brindisi).

T5.4 Evaluation activities (M20-M24)

This task is not formally started yet.

Status of deliverables production

The table below shows the deliverables from this WP, and their current delivery status.

Nr	Title	Status/Completion %	Due Month/ Date	Date Delivered
D5.1	Case study definition, (Report)	100 %	M6	M6
D5.2	Cataloguing and documentation of archaeological sites and monuments, (Report)	100 %	M8	M8
D5.3	Cataloguing of historical and artistic heritage, (Report)	20%	M14	
D5.4	Cataloguing and documentation of numismatic finds, (Report)	20%	M14	

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Nr	Title	Status/Completion %	Due Month/ Date	Date Delivered
D5.5	Organization of cultural contents and queries (Report)	50%	M20	
D5.6	Modeling of cultural itineraries for tourism, (Report)	60%	M20	
D5.7	Evaluation of results, (Report)	0%	M24	

Deliverables D5.1 and ...

Issues/problems arising during the reporting period, and how they were addressed

No issues.

Plans for next reporting period

The WP activities will proceed according to the plan.

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1.2.6 Work Package 6: Management and dissemination

Summary: This WP includes the management and dissemination activities.

Work performed and achievements made during this reporting period

T6.1 Management (M0-M24)

Unfortunately physical meetings have been organized only at the beginning of the project.

Due to the Covid-19 emergency most of management most of all internal communication and coordination activities have been performed online.

A private Microsoft Team has been used to organize meeting onedrive and other tools have been used for document sharing. E-mails have been used for asynchronous communication.

T6.2 Dissemination (M0-M24)

In the first period the dissemination activities included:

- the development of the Cleopatra web site (http://cleopatra-project.cloud, D6.1) , which his hosted at the Unicampania premises and managed by the DING group. The web site will be continuously updated with references to the project results and links to the project prototypes.
- the participation to two international conference in the area of the Computer Science
- the start of preparation of two paper which are going to be submitted to two open access international journals
- the organization of a summer school in the context of cultural heritage

Moreover two papers in indexed proceedings of international book series have been published:

[1] Ambrisi, A.; Aversa, R.; Ficco, M.; Cacace, D.; Venticinque, S.. (2021) Intelligent Cloud Agents in Multi-participant Conversations for Cyber-Physical Exploitation of Cultural Heritage. doi:10.1007/978-3-030-75078-7_11. pp.97-106. in lecture notes in networks and systems - isbn:978-3-030-75077-0.... in lecture notes in networks and systems - issn:2367-3370 vol. 227

[2] Venticinque S., Aversa R., Ficco M., Ambrisi A., Branco D., Renda G. and Mataluna S. (2021) Intelligent agents for diffused cyber-physical museums. In: David Camacho, Domenico Rosaci, Giuseppe M.L. Sarné, Mario Versaci (eds) Intelligent Distributed Computing XIV. IDC 2021. Studies in Computational Intelligence,. Springer, Cham.

Status of deliverables production

The table below shows the deliverables from this WP, and their current delivery status.

No.	Title	Status/ Completion %	Due month /date	Date delivered
D6.1	Website (Prototype)	100%	M4	M10
D6.2	Intermediate Report (Report)	100%	M12	M12
D6.3	Final Report (Report)	0%	M24	

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Issues/problems arising during the reporting period, and how they were addressed

No major issues have arisen during this reporting period.

Plans for next reporting period

- Completion and submission of two papers in open access international journals
- Organization of a physical exhibition in S. Maria Capua Vetere Musem
- Planning of additional 2 presentation in international conference
- Planning of two additional paper in the open access international journal including experimental results and evaluation activities.

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1.2.7 Achievement of Milestones and adjusted delivery dates for next period

The table below shows the key milestones defined in the project, their completion status at the end of the reporting period, and any actual/planned changes in dates for the milestones.

#	Milestone name	Original due date from DoA	Fulfilment in PPR1	Date achieved/New due date
ML1	Architecture design and technological stack	M12	100%	--
ML2	Integration test started	M18	5%	
ML3	Evaluation activities started	M20	0%	

1.2.8 Impact of Coronavirus Emergency

The current coronavirus emergency will certainly have an impact on the project in terms of overall effectiveness of project operations due to:

5. Decreased effectiveness of staff arising from constraints of having to work from home.
6. Impossibility of organising face-to-face meetings internally in the project, and consequent reductions in effectiveness of internal communication and cooperation.
7. Cancellation of conferences etc. which would have offered good opportunities for project promotion.

The extent of the impact of the above factors depends on the duration and level of measures in place in connection with the coronavirus.

A more fundamental problem arising from the coronavirus emergency measures is that they may restrict the project's ability to carry out and obtain meaningful evaluation data from the physical sites, and also new content production.

1.3 Use of resources

1.3.1 Original Plan

Unit	Direct Personal Costs	Equipment	Travel	Other Direct Costs	Dissemination	Total
DING	€ 110,000.00	€ 32,000.00	€ 18,000.00	€ 15,000.00	€ 12,500.00	€ 187,500.00
DiLBEC	€ 50,000.00	€ 17,000.00	€ 70,000.00	€ 13,500.00	€ 25,000.00	€ 112,500.00

1.3.2 Consumed resources:

The costs of DING research team are shown in Table 19.

In particular the DING research team assigned three Research Contracts by which the design and development activities of the first phase have been carried out.

Dissemination costs include two conference registration and contribution to publication of proceedings.

Other direct costs deal with the acquisition of computer science consumable (software licences and sensors and embedded system for experimental activities). Equipment include the acquisition of one workstation and one working station for developers.

These equipments will be used in the second phase for carrying out experimental activities.

Table 1: Cost of the DING research team

Categoria di spesa	**Numero assegni/proroghe/rinnovi conferiti (con contratto sottoscritto)**	**Importo per assegni/proroghe/rinnovi conferiti (con contratto sottoscritto)**	**Costi registrati al 31/12/2021 ***
Direct Personnel Costs	3.00	€ 75,000.00	
Equipment			7,706.74 €
Travel			- €
Other Direct costs			864.23 €
Dissemination			759.65 €

The costs of DILBEC research team are shown in Table 2. In particular the DILBEC research team assigned one Research Contract, which has been extended for an additional year.

Equipment includes acquisition of computer science consumable (one workstation, one notebook, with system licences, and licence for Adobe Photoshop) for registration and management archaeological and historical data.

Table 2: Cost of the DiLBec research team

Categoria di spesa	**Numero assegni/proroghe/rinnovi**	**Importo per assegni/proroghe/ri**	**Costi registrati al 31/12/2021 ***

	conferiti (con contratto sottoscritto)		**nnovi conferiti (con contratto sottoscritto)**	
Direct Personnel Costs	2.00	€ 48,000.00		
Equipment				3,672.19 €
Travel				- €
Other Direct costs				746.64 €
Dissemination				0 €

List of released deliverables

Released deliverable are private. Can be downloaded from the project website by registered and authorized users. For project reviewers we activated the following account:

website: https://parsec2.unicampania.it/~cleopatra/deliverables/

username: reviewer

password: oJNheTXXwA@IEMb@3ceN$g5b

#	Deliverable Tittle	Direct link
D1.1	Collaborative models design, (Report)	https://parsec2.unicampania.it/~cleopatra/deliverable-d1-1/
D1.2	Architecture design and technologies, (Report)	https://parsec2.unicampania.it/~cleopatra/deliverable-d1-2/
D5.1	Case study definition, (Report)	https://parsec2.unicampania.it/~cleopatra/deliverable-d5-1/
D5.2	Cataloguing and documentation of archaeological sites and monuments, (Report)	https://parsec2.unicampania.it/~cleopatra/deliverable-d5-2/
D6.1	Website (Accompanying Report, Prototype)	https://parsec2.unicampania.it/~cleopatra/deliverable-d6-1/
D6.2	Intermediate Report (This Report)	https://parsec2.unicampania.it/~cleopatra/deliverable-d6-2/