

D2.1 Report on CCs analysis



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Colophon

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List of acronyms and abbreviations

- 4CH: The 4CH Project for the Competence Centre on the Conservation of Cultural Heritage
- AC/s: Associated Country/ies
- AD: Advisory Board
- ADS: Archaeology Data Service, Ireland
- AI: artificial intelligence
- ARIADNE Plus: H2020 EU project
- ARIADNE: FP7 EU project
- Athena: FP7 EU project
- Bi-Rex: Big Data Innovation & Research Excellence
- C2RMF: Centre de recherche et de restauration des musées de France
- CARARE: Connecting Archaeology and Architecture in Europe
- CASTIEL: H2020 EU project
- CC-COIN: Competence Centre on Composite Indicators
- CC-ME: Competence Centre on Microeconomic Evaluation
- CC/CCs: Competence Centre/s
- CCIs: Cultural and Creative Industries
- CCR 'La Venaria Reale': Centro Conservazione e Restauro
- CENER: Centro Nacional de Energías Renovables
- CESSDA ERIC: Consortium of European Social Science Data Archives
- CH: Cultural Heritage
- CHARISMA: FP7 EU project
- CHCfE: Cultural Heritage Counts for Europe
- CIEMAT: Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas
- CINECA: Consorzio Interuniversitario del Nord-Est per il Calcolo Automatico
- CIPA ED: Comité International de la Photogrammétrie Architecturale
- CLARIN ERIC: Common Language Resources and Technology Infrastructure
- CONCORDIA: H2020 EU project
- CSA: Coordination and support actions
- DANS: Dutch National Centre of Expertise and Repository for Research Data
- DARIAH ERIC: Digital Research Infrastructure for the Arts and Humanities
- DARIAH: Digital Research Infrastructure for the Arts and Humanities
- DG COMM: EC DG for Communication
- DG DEVCO: EC DG for International Cooperation and Development
- DG DIGIT: EC DG for Informatics
- DG ECHO: EC DG for European Civil Protection and Humanitarian Aid Operations
- DG HOME: EC DG Migration and Home Affairs

- DG INTPA: EC DG for International Partnerships
- DG RTD: EC DG for Research and Innovation
- DG SANTE: EC DG for Health and Food Safety
- DG SG / SG: The Secretariat-General of EC
- DG/s: Directorate/s General
- DICE: Data Infrastructure Capacity for EOSC projects
- DIGITAL: Digital Europe Programme
- DIH/s Digital Innovation Hub/s
- DPLA: Digital Public Library of America
- DRI: Digital Repository of Ireland
- DRMKC: Knowledge Centre on Disasters Risk Management
- E-RIHS: European Research Infrastructure for Heritage Science
- EC: European Commission
- ECCC: European Cybersecurity Competence Centre
- ECHO: H2020 EU project
- EDI: European Data Infrastructure
- EDIH: European Digital Innovation Hubs
- EEAS: European External Action Service
- EERA: Energy Research Alliance
- ENA: European Network Association
- EOSC: The European Open Science Cloud
- EPSC: European Political Strategy Centre
- ERA: European Research Area
- ERC: European Research Council
- ERIC: European Research Infrastructure Consortium
- ESFRI: The European Strategy Forum for Research Infrastructures
- ESTAT: Eurostat
- ETH Zurich/CSCS: Swiss National Supercomputing Centre
- ETP: European Technology Platforms
- EU: European Union
- EUComp-Centre: European Competence & Community Centre for Heritage Assets
- EUROCC ACCESS: H2020 EU project
- FAIR: Findable, Accessible, Interoperable, Reusable
- FAIRsFAIR: Fostering Fair Data Practices in Europe Project
- GA: Grant Agreement
- GARR: Gestione Ampliamento Rete Ricerca
- GCI: Getty Conservation Institute
- GCS: Gauss Centre for Supercomputing
- GDPR: General Data Protection Regulation

- GENCI: Grand équipement national de calcul intensif
- GRI: Getty Research Institute
- H2020: Horizon 2020 EU Programme
- HPC: high-performance computing
- HPDA High Performance Data Analytics
- ICAR: Istituto Centrale per gli Archivi
- ICCD: Istituto centrale per il catalogo e la documentazione
- ICCU: Istituto Centrale per il Catalogo Unico delle Biblioteche Italiane e per le Informazioni Bibliografiche
- ICDI: Italian Computing Data Infrastructure
- ICOM: International Council of Museums
- ICOMOS: International Council on Monuments and Sites
- ICR: Istituto Centrale per il Restauro
- ICT/s: Information and Communication Technology/ies
- INCREAS: H2020 EU project.
- Indicate: FP7 EU project
- INP: The Institutul Național al Patrimoniului, Romania
- IPCE: Instituto del Patrimonio Cultural de España
- IPERION CH: H2020 EU project
- IPERION-CH: Integrated Platform for the European Research Infrastructure ON Cultural Heritage project
- IPRs Intellectual property rights
- ISPRS: International Society for Photogrammetry and Remote Sensing
- IT: information technology
- JRC: Joint Research Centre by European Commission
- K4P: Commission's Knowledge4Policy
- KC/KCs: Competence Centre/s
- KCMD: Knowledge Centre on Migration and Demography and on Territorial Policies
- KER: Key Exploitable Results
- KNAW: Royal Netherlands Academy of Arts and Sciences
- LRMH: Le laboratoire de recherche des monuments historiques
- MICHAEL: Multilingual Inventory of Cultural Heritage in Europe
- MM: Modern Movement
- MS/s: Member State/s
- NAB: National Advisory Boards
- NANOMATCH: FP7 EU project
- NCC: National Competence Centre
- NGOs: non-governmental organization
- NWO: Dutch Research Council

- OLAF: Open Linked Authority File
- OP: Publications Office of the European Union
- OPD: Opificio delle Pietre Dure
- Open AIRE: European Open Science Infrastructure, for open scholarly and scientific communication
- POP: plateforme ouverte du patrimoine
- PRACE: Partnership for Advanced Computing in Europe
- RI/s Research Infrastructure/s
- RIA: Research and Innovation Action
- SAF: Higher Education School, Italy
- SBN: National Library Service, Italy
- SCI: Social & Cultural Innovation
- SPARTA: H2020 EU project
- SSH: Social Sciences and Humanities
- TI: Technology Infrastructure
- TII: Transport Infrastructure Ireland
- UE: European Union
- UNESCO: United Nations Educational, Scientific and Cultural Organization
- VET: Vocational Education and Training
- WP: Work Package

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Executive summary

The main goal of the 4CH Project is to set up the methodological, procedural, and organizational framework of a European Competence Centre (CC) about Cultural Heritage (CH) able to seamlessly work with a network of national, regional, and local cultural Institutions, providing them with advice, support, and services.

This report describes the survey results on existing Competence/Knowledge Centres and other similar entities, implemented with the aim to get useful feedbacks and lessons learnt to outline the future 4CH Competence Centre (4CH CC) organization, governance, funding and business plan, provision of services and other related and relevant aspects.

The Concept of “Competence Centre”, tailored to 4CH needs, objectives and expected results, is addressed as an evolving and open subject, starting from a literature review of the term use in current practice and the main aspects outlined in the project proposal, focusing on the three levels operational structure (Central Hub, Coordination Centres at national level and National Competence Community). A brief overview on the specific ambit (Europe), scope (Cultural Heritage - CH) and focus (Conservation, Preservation and Valorisation of CH) of the expected 4CH CC introduces significant progresses implemented so far by the project (in particular in WP1), in order to frame how the survey on existing relevant entities can be of reference for the organization and structure of the future CC.

The survey starts with the definition of the methodological approach, mainly based on desk research on publicly available documents and direct contacts, including several tailor-designed tools: a matrix list of the centres/institutions to be analysed; guidelines for criteria selection to define the survey target; a factsheet template where reporting and describing all relevant aspects (Legal, Governance and Management structures, Strategies, Business models and plans, Value proposition and Portfolio of services, and many others) and a questionnaire form to support the collection of data, not available via desk survey, accompanied by an informed consent form for respondents.

Object of the investigation is a wide range of 51 centres and initiatives operating at National, European and Extra European level, covering the following broad macro-categories:

- European Commission Competence Centres and Knowledge Centres (already partially considered in the initial analysis performed in the project proposal);
- other facilities and clusters, potentially relevant for the definition of the 4CH CC, including: National CCs (Europe), Research infrastructures, EU-funded projects for the establishment of Competence Centres, Digital Innovation Hubs, Documentation Centres on CH (digital libraries and aggregators; expert-hubs of digital cultural heritage valorisation networks; databases, digital inventories and repositories; national institutes for cataloguing and documentation) and additional national and

international centres on CH (National public institutes operating in CH restoration, conservation, and promotion field; other National research centres and departments with focus on particular type of Heritage; International research and documentation centres).

The qualitative data collected were analysed and compared according to thematic aspects, such as type of entities, procedures, organization, service deployed, main audience, legal structure, policy etc. among all the entities or per macro-category, returning a transversal framework net of features, relationships and differences.

The survey results, as for the general comparison, detect that most of the considered centres are only digital entities, attributable to public bodies managed at European Level and EU Commission owned, operating with a multi-scalar scope (from international to local one); the entities count on variable business models of public and mixed private/public funding; they mainly provide services of consultancy and orientation, training and capacity building, dissemination activities (conferences, webinars, meetings, journals, newsletters, etc.) and data collection and management, addressed to and involving a wide ecosystem of stakeholders (public institutions, researchers and research centres, policymakers, universities but also companies, agencies, industries, associations, professionals and citizen among others).

The collection of information and insights from existing centres of expertise is completed by a critical contribution, highlighting possible links, services or activities considered relevant for the design, implementation and long-term sustainability of the future CC on CH.

The survey outcomes reported in this document show the several different patterns that characterize the analysed institutions in relation to organizational framework, governance model, funding scheme and service portfolio: a variegated landscape of institutions and networks which could provide useful and inspiring hints in terms of features, services and activities to be combined with those characterising the specific field of CH and its target users.

The general conclusions highlight that the design of the 4CH CC cannot be the complete application of any existing model because none fully corresponds to its mission, despite all may provide useful hints. It should be, instead, the combination of features, services and activities inspired by those carried out in such institutions - summarized and organically presented in this report - with other new ones, to be compliant with the mission, the objectives, the field of application, the expected impacts and the long-term sustainability of the 4CH Competence Centre.

1. Introduction

1.1 The 4CH project

The purpose of this short section is to synthetically introduce the 4CH project to readers who don't know the overall project framework, making the present deliverable usable as a standalone document, and placing the deliverable preparation in the general 4CH work plan. For more details on 4CH, readers can refer to the 4CH web site¹ and the documentation available from it.

The 4CH project, funded by the European Commission in the framework of the Horizon 2020 Programme (Grant Agreement n. 101004468 — 4CH), started on 1st January 2021 and will end on 31st December 2023. Its general goal consists in “*Setting up the methodological, procedural, and organizational framework of a Competence Centre for Cultural Heritage, able to seamlessly work with a network of national, regional and local Cultural Institutions, providing them with advice, support, and services.*” Such a Competence Centre (in what follows, also CC for short) will offer knowledge and support concerning the conservation, preservation, and valorisation of Cultural Heritage, notably about monuments and sites. The CC will collect and propose integrated cutting-edge technologies, both purely digital as 3D modelling and derived from Heritage Sciences, and collect European best practices and valuable initiatives on the matter. It will also foster collaboration among heritage institutions and policy makers, researchers, and professionals. The CC will finally set up tools for training and upskilling human resources and support knowledge transfer via the knowledge base it will create.

The above summary clarifies that 4CH is not, nor will automatically become, the European Competence Centre on Cultural Heritage. Its task is to define and design this CC and prepare its launch in the final part of its work.

The work started therefore from understanding and describing the landscape and state of the art as regards previous projects, existing technologies, and current best practices - a work which is the subject of another deliverable (WP1, Deliverable D1.2) - and in analysing the panorama of existing CCs, the subject of the present one.

¹ 4CH project website, <https://4ch-project.eu> (Accessed on 12 July 2021).

1.2 Objective of the deliverable

According to the project description of work, the present deliverable should be “a survey on existing Competence / Knowledge Centres and similar entities will be carried out in order to outline the CC organization, objectives and goals. National, European and Extra-EU areas will be investigated as well as other CC related to other topics beyond Cultural Heritage. The research on existing CCs will start from the initial analysis performed in the proposal that will be expanded during the first six months of the implementation of 4CH in order to get feedback and learn from their lessons.” Thus, the present report is of paramount importance to inform the project work continuation, and it is therefore planned to be released just before the other activities defining the CC design will start.

1.3 The Concept of Competence Centre

1.3.1 Competence Centres in the literature and in current practice

The term “Competence Centre” has rather different uses according to the context (e.g. business, public-private organizations, etc.) and countries, including the European Union.

According to the European Commission² Competence Centres “are centred on analytical tools which can be applied to any policy area, bringing together in one place extensive expertise in this field. They offer training courses in the use of the tools for policy-making, advise on the choice of tools and also work directly with the Commission policy Directorates-General to apply the tools to the policy problems in hand.” According to this definition, CCs appear to be more tool-oriented than domain-oriented. I.e., it might concern 3D technology for any applicative use, from automotive to zoo-archaeology. As we will examine below, existing CCs are indeed oriented in this way. Knowledge Centres are instead defined as “virtual entities, bringing together experts and knowledge from different locations inside and outside the European Commission. Their job is to inform policy-makers in a transparent, tailored and concise manner about the status and findings of the latest scientific evidence. They are designed to be a ‘one-stop-shop’ in their respective areas, and include communities of practice.” Actually, the forthcoming CC on CH appears to be a mixture of the two, providing training, advice and collaboration (CC definition above) and, on the other hand, it will set up a one-stop-shop for technology in collaboration with communities of practice (KC definition).

The literature on CCs shows ambiguity about the CC role. According to Gartner, a primary USA business consulting firm, “A Competency (sic) Center is an organizational structure used to coordinate IT skills with an enterprise. Competency centers provide expertise for project or program support, acting both as repositories of knowledge and resource pools for multiple business areas.”³

² EU SCIENCE HUB, Knowledge & competence centres, <https://ec.europa.eu/jrc/en/knowledge> (Accessed on 15 July 2021).

³ Gartner, IT Glossary. Available online, <https://www.gartner.com/en/information-technology/glossary/competency-center> (Accessed on 15 July 2021).

They are clearly influenced by a business-oriented and IT-focused perspective.

Reply, another UK-based business consulting company, does not give a text definition, but lists some key characteristics of a Competency Centre or Centre of Excellence:

- Focusing on a particular domain of expertise;
- Taking an enterprise wide view, enables reuse by identifying commonality;
- Providing a shared service across the enterprise;
- Having an End-to-End lifecycle responsibility, e.g., from requirements definition and architecture through to operational support;
- Providing thought leadership, awareness of the market and how best practice can be applied to the organisation;
- Communicating its activities and disseminates knowledge;
- Having authority for its domain of responsibility;
- Delivering clearly defined capabilities, boundaries, roles, and responsibilities;
- Providing strong process, methods, and governance;
- Having dedicated small core team of highly skilled resource⁴.

Finally, it may be worthwhile considering the use of the term “Competence Centre” in some European countries.

According to Enterprise Ireland, the Government agency in **Ireland** responsible for supporting Irish businesses in the manufacturing, “*Competence Centres are collaborative entities established and led by industry and resourced by highly-qualified researchers associated with research institutions who are empowered to undertake market focussed strategic research for the benefit of industry. The objective of the Competence Centre initiative is to achieve competitive advantage for industry in Ireland by accessing the innovative capacity of the research community.*”⁵

In **Italy**, National Competence Centres are regulated by a 2018 decree of the Ministry of Economic Development, which fixed the rules for CCs. They may be summarized as “*strategically supporting businesses in facing the challenges which the Fourth Industrial Revolution has put into being*”⁶. Such a definition also envisages a collaboration between research and the industry.

In **France**, where a similar infrastructure is named “Pôle d’innovation” or more frequently “Pôle de compétitivité”, the definition is the following: “*le regroupement sur un même territoire d’entreprises, d’établissements d’enseignement supérieur et d’organismes de recherche publics ou privés qui ont*

⁴ Glue Reply UK, Competency Centres & Centres Of Excellence. Available online, https://www.reply.com/Documents/3496_img_GLUR12_Competency_Centres_Excellence_eng.pdf (Accessed on 15 July 2021).

⁵ Enterprise Ireland, Some frequently asked questions about Competence Centres. Available online, <https://www.enterprise-ireland.com/en/research-innovation/companies/r-d-funding/competence-center-faqs> (Accessed on 15 July 2021).

⁶ Italian Ministry of Economic Development (2018), Directorial Decree 29 January 2018 - Highly specialized competence centers. Available online, https://www.mise.gov.it/images/stories/normativa/decreto_direttoriale_29_gennaio_2018.pdf (Accessed on 15 July 2021).

*vocation à travailler en synergie pour mettre en œuvre des projets de développement économique pour l'innovation*⁷ namely “the cluster on the same territory of enterprises, educational institutions and public or private research organizations willing to work in synergy to undertake economic development projects for innovation”.

The above examples show that the economic and enterprise-oriented component of the Competence Centre concept is common to EU member states. In combination with the use of the term in the industry, this might be misleading to policy makers without an appropriate explanation of what 4CH intends for “Competence Centre” in the particular case of Cultural Heritage. Such explanation should therefore be present in a concise way in 4CH briefs targeted to policy makers and governmental institutions.

1.3.2 The preliminary Competence Centre design outlined in the 4CH proposal

The 4CH proposal, in order to address challenges and scope of the topic of the DT-TRANSFORMATION-20- 2020 call⁸, contains the first overall concept, objectives, approach, organizational framework, target users identification, technologies, of the future Competence Centre on the Conservation of Cultural Heritage.

The new 4CH Competence Centre will be further defined and implemented starting from the lessons-learned from the analysis of existing European Commission CCs, already listed in the proposal, and of the other entities that have been considered relevant, reported in this deliverable.

According with the proposal, the 4CH CC will bridge the gap between research and business, policy-making and finance. It will sustain the market/policy deployment of CH conservation processes, services and products. It will support European CH agencies, institutions, companies, professionals, Cultural and Creative industries and other CH related industries in exploiting the added-value of CH digitization for preservation and conservation and in developing and acquiring new advanced skills.

The 4CH CC will provide:

- counseling and orientation (analyzing research, mapping risks, addressing new needs and releasing standards);
- training and capacity building (technology transfer and up-skilling);
- support in innovation and projects (innovative services and tools, data re-use, policy-making, steering research activities).

⁷ Republique Francaise (2004), LOI n° 2004-1484 du 30 décembre 2004 de finances pour 2005. Available online, <https://www.legifrance.gouv.fr/dossierlegislatif/JORFDOLE000017759195/>. (Accessed on 15 July 2021).

⁸ European Commission (2019), Funding & tender opportunities, European Competence Centre for the preservation and conservation of Monuments and Site, TOPIC ID: DT-TRANSFORMATIONS-20-2020. Available online, <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/dt-transformations-20-2020> (Accessed on 15 July 2021).

The 4CH project will define the organizational and operational framework of the future CC, designing and testing its infrastructure, tools and services to be provided.

The following schema summarizes the project objectives and relates them with the actions needed for their achievement.

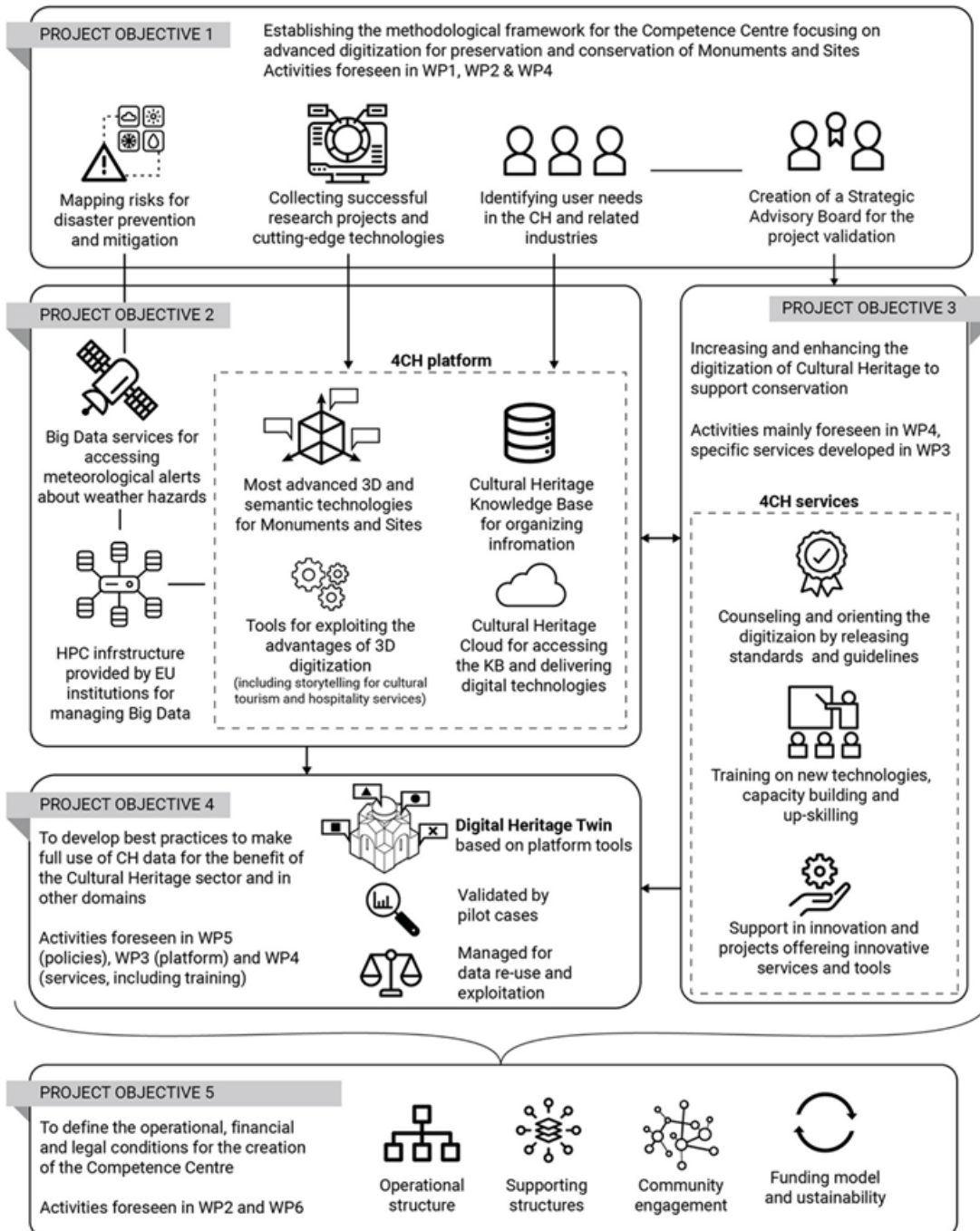


Figure 1. 4CH project objectives and actions.

The present D2.1 focuses on the analysis of other CCs, KCs and similar entities and has been carried out to support the achievement of the project objective 5⁹: “to define the operational, financial and legal conditions of the new 4CH CC will be implemented starting from the lessons-learned from the existing experiences, including hindrances and weaknesses”.

In the conceptual map below, the CC organizational structure is exemplified; a more detailed explanation is provided in the proposal but the Central hub, the Thematic Departments and the other bodies activities will be further identified during the design phase, according with the information gathered by the present survey and on the base of the most relevant topics for the CH preservation and conservation, including, among others, sciences and technologies, ICTs and 3D technology, training and education, policies and strategies, financial aspects.

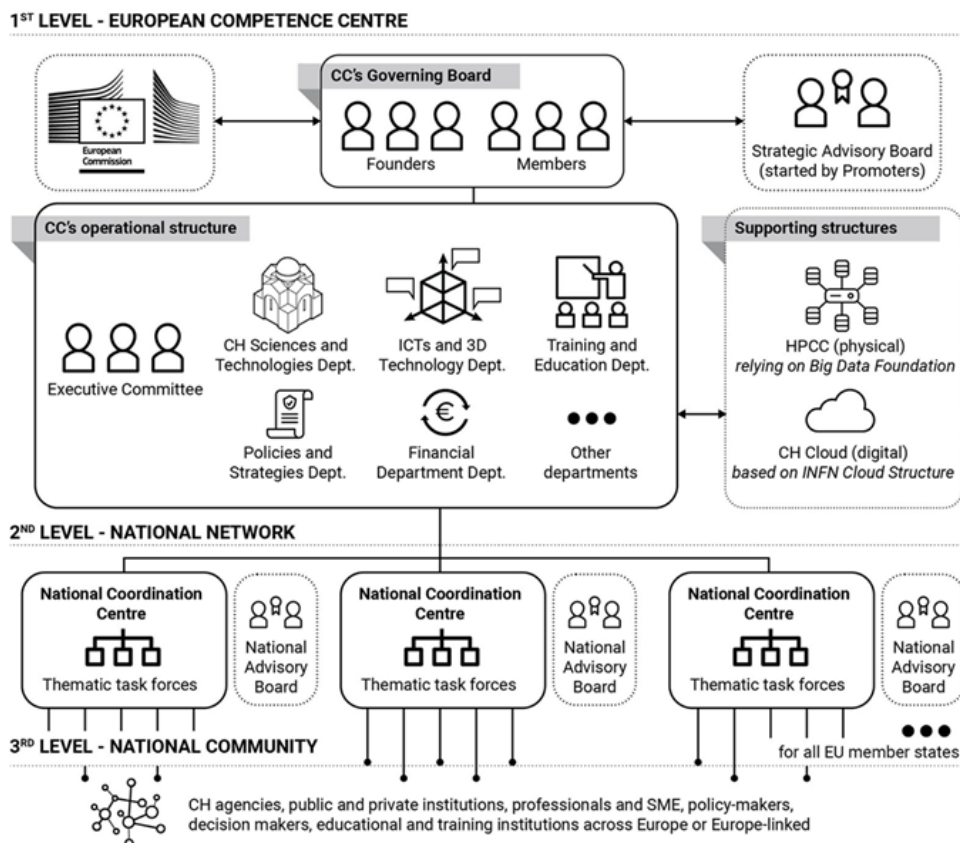


Figure 2. Conceptual map of the main governing bodies and the central and local units, operating inside and outside the CC, on which 4CH will develop the CC organizational structure.

⁹ The analysis of existing European CCs is part of the first of the four phases of the project: Phase 1 – (year 1) Concept: requirements and objectives; Phase 2 (year 2) assembly: structure, tools and standards, Phase 3 (year 3) Fine Tuning: CC services and sustainability; Phase 4 (year 3) Kick-off: making the CC ready to start. (4CH GA – Part B, p. 19-20).

According with this first structure, the future CC for the conservation and preservation of Cultural Heritage governance and organizational framework is organized in three levels:

Level 1_ European Competence Centre, in which the Governing Board with the support of the Advisory Board would have the task of assisting and advising the CC in general challenges and political and strategic orientations. The operational structure is made by an Executive Committee and a set of Thematic Departments. The CH Cloud (digital) and the High Performance Computing centre (physical) are the two supporting structures of this level.

Level 2_ National CH Coordination Centres, that will be in charge of the provision of services linked to Thematic Departments, adapting and aligning their contents to specific national rules, policies and laws. Each Member State will have its National CH Coordination Centre, responsible for pooling and connecting efforts and implementing locally.

A National Advisory Boards (NAB) will support each National CH Coordination Centre.

Level 3_ National CH Competence Community, i.e. a diffuse structure including a wide range of local, metropolitan and regional entities, related to CH and with expertise in research, development and/or training and education domains.

The Community will contribute to collect local best practices, experiences and skills together with information about user needs, criticalities, frailty and threats affecting CH.

4CH is in charge of defining the features of the central hub of outlining the common features of the national/regional ones, which will be adapted to the local specific legal, administrative, financial and managerial conditions.

According to 4CH, the CC will also foster the establishment of links and connections between the existing networks of public and private institutions working on CH conservation, taking into account that preservation, conservation and valorisation need the contributions of many different disciplines and an holistic approach.

1.3.3 Definition of the 4CH CC field of action

As reported in the 4CH website and as already stated in the present deliverable, the term Competence Centre may have different meanings, depending on the focus area, scope, domain, and socio-economic context. It usually describes an infrastructure dedicated to knowledge organization and transfer, associated with excellence, training and knowledge transfer, interdisciplinarity, standardization, and a collaborative approach of different institutions or departments.

As for the 4CH CC, the name European Competence Centre for the Conservation of Cultural Heritage itself helps to define the ambit (Europe), scope (Cultural Heritage), and focus (Conservation).

Nevertheless, to better define what the future CC is and, consequently, how it will be organized and will

operate, it is necessary to clarify what the considered CH is and what is Conservation for 4CH, given the broad meanings related to these two terms.

The D2.1 comes at Month 6 from the beginning of the project implementation and can benefit from the work and first results of other Work Packages, in particular the WP1 (Definition of 4CH requirements and the field of activities of the future Competence Centre) which have been running at the same time with the WP2. Thus, some notes that intertwine the contents of the proposal with some reflections that emerged from the work of WP1 are briefly anticipated below.

The term Preservation is already included in the topic next to Conservation, hence the mission assigned by the European Commission to the CC indicates that it should consider heritage Preservation together with Conservation. In the proposal, the 4CH project already poses the need to clarify the two definitions: despite Conservation and Preservation are already widely shared concepts¹⁰, they are often used without an actual distinction and this might generate misunderstandings. This necessary clarification has even more strongly emerged from the work of WP1 that is purposely defining a glossary in order to use a common language in the development of project contents.

Another similar concept mentioned in the topic and, consequently, in the proposal, is Promotion. In the current preliminary definition of the framework and field of action of 4CH, the term Valorisation has been designated as preferable to the term Promotion: despite being discussed in international documents (e.g. Cultural Heritage Counts for Europe, CHCfE Consortium 2015; Convention on the Protection and Promotion of the Diversity of Cultural Expressions, UNESCO 2005) Promotion has never been given a proper unambiguous definition. The ICOMOS CH Conservation Terminology¹¹, considered by 4CH as the main reference for the use of a correct language concerning actions on CH, does not include a specific definition of Valorisation. For this reason, a definition has been agreed for 4CH which is based on the related terms of ICOMOS glossary and drawing to some extent from the notion of valorisation contained in the Italian Legislative Decree 42/2004 which, among European sources, is the one that describes the notion most inclusively and extensively¹². In 4CH project, Valorisation is meant as 'mise en valeur' ('valorizzazione', in Italian), being aware of the evolution of such term and its meanings in relation to CH. As the term Valorisation as English translation of *mise en valeur* can be not entirely adherent with the

¹⁰ ICOMOS, Heritage Conservation Terminology Definition of terms from various sources. Available online, http://ip51.icomos.org/~fleblanc/documents/terminology/doc_terminology_e.html# (Accessed on 15 July 2021).

¹¹ Ibidem.

¹² "Valorisation consists in the exercise of functions and regulation of activities aimed at promoting the knowledge of CH and ensuring the best conditions for the public use and fruition of the heritage itself, including people with disabilities, in order to promote the development of culture. It also includes the promotion and support of interventions for conservation of CH. With reference to the landscape, it also includes the rehabilitation of buildings and areas under safeguard that are compromised or degraded, or the realization of new coherent and integrated landscape values. Italian parliament (2004), Italian Legislative Decree 42/2004, n.42, "Codice dei beni culturali e del paesaggio, ai sensi dell'articolo 10 della legge 6 luglio 2002, n. 137", art. 6, c.1 "Valorizzazione del patrimonio culturale". Available online <https://www.parlamento.it/parlam/leggi/deleghe/04042dl.htm> (Accessed on 15 July 2021).

intended meaning in relation with CH field, a debate is still ongoing within the 4CH research group with the aim to better define the broader and wide reaching range of activities to be expressed by the term. According with the meanings and activities related to the above mentioned three key terms, Conservation can be considered as a relevant component of Preservation, while Valorisation may include or anticipate Conservation and Preservation practices.

It must be finally underlined that the strong link between Conservation, Preservation and Valorisation makes the contours between the three blurred and overlapping; the 4CH project works in the direction of the maintenance of complexity and diversity, characteristics that enrich and ground worldwide the definition of Cultural Heritage and the related activities, but it is also making efforts to synthesize and organized the key concepts to ease the processing and restitution of projects results. This process is ongoing and will be shared with other WPs during the implementation of the project.

Research, best practices, skills, data, technologies, tools, services, policies and strategies related to Cultural Heritage¹³, also due to its gradually expanded definition¹⁴, have an extremely wide field of cross-disciplinary relations.

According with the UNESCO synthetic definition¹⁵, CH is composed by:

Cultural Heritage

Tangible CH, in turn divided in:

- movable CH (paintings, sculptures, coins, manuscripts);
- immovable CH (monuments, archaeological sites, and so on);
- underwater CH (shipwrecks, underwater ruins and cities).

Intangible CH: oral traditions, performing arts, rituals.

Natural heritage: natural sites with cultural aspects such as cultural landscapes, physical, biological or geological formations.

Heritage in the event of armed conflict

Although the 4CH CC focuses on the immovable component of heritage, consisting of monuments and sites, the project will also deal with the interaction with the related movable component. The movable heritage is usually stored in the immovable one whose Conservation, Preservation and Valorisation

¹³ ICCROM Working Group 'Heritage and Society (2005), Definition of Cultural Heritage. References to documents in history. J. Jokilehto (Originally for ICCROM, 1990). Available online, http://cif.icomos.org/pdf_docs/Documents%20on%20line/Heritage%20definitions.pdf (Accessed on 15 July 2021).

¹⁴ European Commission, Directorate-General for Research and Innovation (2018), Innovation in Cultural Heritage. Research for an Integrated European Research Policy. Online, <https://op.europa.eu/it/publication-detail/-/publication/1dd62bd1-2216-11e8-ac73-01aa75ed71a1> (Accessed on 15 July 2021).

¹⁵ UNESCO, What is meant by "cultural heritage"?. Available online, <http://www.unesco.org/new/en/culture/themes/illicit-trafficking-of-cultural-property/unesco-database-of-national-cultural-heritage-laws/frequently-asked-questions/definition-of-the-cultural-heritage/> (Accessed on 5 July 2021).

cannot ignore what is included inside. Interventions of CH must consist in an integrated set of actions that take into consideration all the components that concur to contextualize and define the specific CH; therefore, 4CH does not consider strategies and interventions that operate directly and exclusively on movable objects but includes the maintenance and the restoration of the conditions favourable to their preservation.

Moreover, both immovable and movable components are considered intertwined with the intangible aspects, expressions of the cultural and social environment that cannot be disjoined from their physical manifestations.

For all the above-mentioned reasons, the present survey on existing relevant entities that can be of reference for the definition of the organization and structure of the future CC, encompasses not only institutions and networks that are officially classified as Competence Centres, but also a selection of those that have different purposes and goals or that are engaged in other topics than CH.

The 4CH project proposal hinted at and introduced framing issues, but they will be detailed and focused during the implementation of the project as well as the terms of the interdisciplinary, practical and operative implications that need to be identified and tested. The discussion is open among the research groups engaged in the project, in particular in the WP1 as it is aimed at defining the fields which the 4CH CC will operate on, the methodological framework and the knowledge base. Nevertheless, given the broadness and interconnection of the involved research areas, the contribution of the other WPs and the different expertise of the Consortium will be crucial.

2. Design of the survey strategy

2.1 The survey methodology

The research and working activities started with the definition of the methodological approach and the preparation of the necessary tools to better address the achievement of Task's goals.

All the procedural and methodological aspects were discussed and implemented involving WP2 partners.

Given the diversity of approaches to the Competence Centre concept, the analysis activity on existing CCs and KCs has been structured with the aim to collect different sets of information, according to the actions listed below:

Desk research

- Verifying the presence of the main characteristics of a Competence Centre for the Conservation of Cultural Heritage - as outlined in the 4CH approach - in existing so-called "Competence Centres", consulting publicly available documentation.
- Extracting, contextually, other information about features potentially interesting for the 4CH CC design, not considered in the preliminary design.

Survey methodology and tools

- Preparing a broad list of institutions that may not qualify themselves as Competence Centres but may have functions important for the 4CH CC design.
- Defining a Matrix structure, where reporting all the relevant selected entities.
- Defining Guidelines for criteria selection of relevant entities' characteristics.
- Setting a factsheet template for the survey, where report and describe all relevant aspects (Legal, Governance and Management structures, Strategies, Business models and plans, Value proposition and Portfolio of services, etc.), based on a specific case study but open to integration with additional information if need be.
- Involving partners in carrying out the interviews, to ascertain that the survey is not dealt by respondents as the n-th request for information and, in most cases, left unreplied.
- Providing a questionnaire form, to collect data not available via desk survey, supporting the interview activity. (see Appendix - 2).
- Since most cases may involve personal information, preparing an informed consent form for respondents, in compliance with GDPR regulations, underwritten by respondents (see Appendix - 3).

Survey execution

- Distributing tasks to selected partners, chosen as those more feasible to obtain satisfactory results because of their position, nationality, contacts, etc.
- Collecting the answers/information, analyze, compare and structure them to allow a synthetic view of the overall landscape, from which conclusions may be easily drawn.
- Presenting results in a very action-oriented way, to be used to complete the design of the 4CH CC.

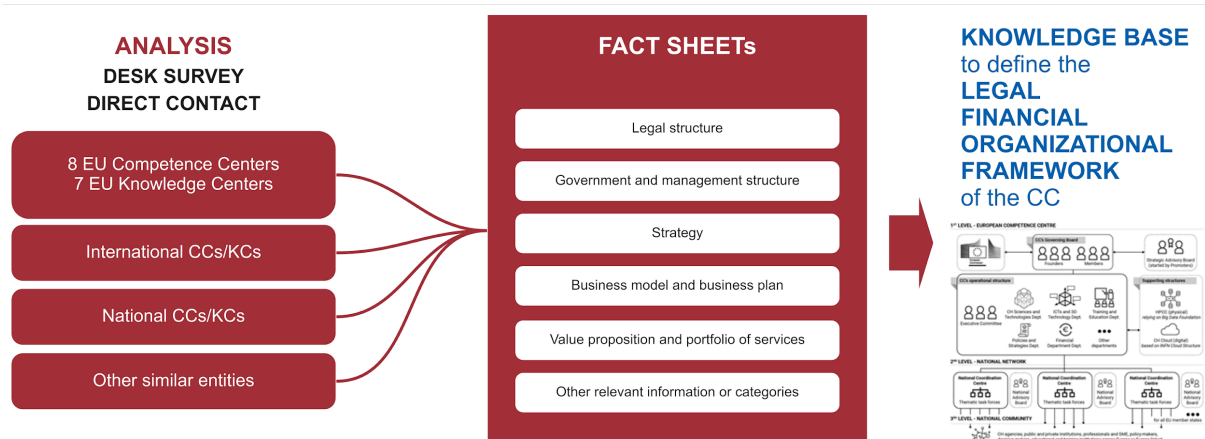


Figure 3. WP2, Task 2.1: Methodological approach

Following the described main steps, a **detailed workplan** was set up in the preliminary activity stage, presented and discussed among partners, planning the Task activities until the delivering deadline.

Working tools set-up

- Presentation of the draft of the matrix and factsheet template.
- Collection of feedback and comments by partners on the draft matrix and the factsheet template.
- Provision of the definitive version of the matrix and the factsheet form.
- Preparation of questionnaire form and the personal data consent form.

Entities list compiling

- Compiling the matrix by partners, listing relevant entities to be analysed.
- Final selection and assignment of the entities to partners.

Data collection

- Desk survey and direct contact interviews to collect data and compiling the factsheets

Analysis of the survey results

- Comparison and visualization of data using the Power BI software

Reporting results

	Survey design			Entities selection		Data collection		Results analysis	Reporting results			
step	1	2	3	4	5	6	7	8	9	10	11	
total deadline	08-march	11-march	22-march	02-apr	09-apr			17-may				31-july
	presentation of the draft of the matrix and the factsheet	feedback and comments on the draft matrix (including the UK CCs and KCs already listed) and the factsheet	final version of the matrix and the factsheet (including single survey form for external persons)	compiling the MATRIX (listing entities, expression of interest and including the involvement of external persons)	final selection and assignment of the factsheets to the T2.1 partners and WP2 (other volunteers)	compiling the FACTSHEETS (desk survey and questionnaires or interviews)		analysis of the survey	draft of the report (introduction, etc.)	contribution on the report (especially the conclusions for paving the way for T2.2/T2.3)	final version of the report	review of the report and submission
warning and notes	FILE to be used: SHARED Excel file including list, matrix, factsheet and 4 sub-factsheets (only comments allowed)	IMPORTANT: including the SHARED Excel sheet description of each field to be filled in	FILE to be used: SHARED Excel file including only list and matrix. WARNING: try to list the most relevant ones to avoid time and effort waste. UNIBO indicates filters and selection criteria			FILE to be used: Excel file including factsheet and 4 sub-factsheets - one file for each "entry". WARNING: please be concise and effective and ask for the declaration of consent of external persons						
partner et al.	UNIBO	WP2 partners	UNIBO WP2 partners	UNIBO WP2 partners other partners (i.e. CARARE, MICHAEL)	UNIBO	T2.1 partners WP2 partners / "volunteers"		T2.1 partners	UNIBO	T2.1 partners	UNIBO	Coordinators

Figure 4. WP2, Task 2.1: Detailed Workplan.

2.2 The survey tools

2.2.1 The Matrix List

With the aim of identifying and selecting other centres of excellence and research that could be included in the analysis, a matrix list was set-up to be entered with all the relevant entities.

The matrix form is divided into 8 columns and organizes some general information (see Fig. 5 and 6).

- Name of the entity to be investigated.
- Main field of interest (e.g., Cultural Heritage, Cybersecurity, Creative Industries, High Performance Computing and so on);
- Type of centre according to its geographical location and its status (if public, private, public/private, etc.).
- Nationality and context of influence of the centre, whether European or not, if applicable.
- Task 2.1 partner responsible for the analysis.
- WP2 (or other WP) partner contributing to the analysis.
- Note and suggestion of contacts of any external persons providing information.

The Competence Centres and Knowledge Centres funded and launched by the JRC of the European Commission - considered during the preliminary analysis carried out for the preparation of the project proposal - together with few others, were included in the starting draft list (see Tab. 1).

Name	Main field	Type	Country (Europe)	Country (Extra-Europe)	T2.1 Partner (responsible)	Comments by other WP2 Partners (possible contribution)	External contact person/entity
AI Watch	Artificial Intelligence	UE - public	Not Applicable	Not Applicable			
BI-Rex	Industry 4.0	National UE - mixed	Italy	Not Applicable	09. UNIBO		
CINECA	High Performance Computing	National UE - other (ONG, etc.)	Italy	Not Applicable			
Competence Center on Cybersecurity Industrial, Technology and Research	Cybersecurity	UE - public	Not Applicable	Not Applicable			
Competence Centre on Behavioural Insights	Behavioural Insights	UE - public	Not Applicable	Not Applicable			
Competence Centre on Composite Indicators and Scoreboards - COIN	Composite Indicators and Scoreboards	UE - public	Not Applicable	Not Applicable			
Competence Centre on Foresight	Foresight	UE - public	Not Applicable	Not Applicable			
Competence Centre on Microeconomic Evaluation - ME	Microeconomic	UE - public	Not Applicable	Not Applicable			
Competence Centre on Modelling - MOD	Modelling	UE - public	Not Applicable	Not Applicable			
Competence Centre on Technology Transfer - TT	Technology Transfer	UE - public	Not Applicable	Not Applicable			
Competence Centre on Text Mining and Analysis - TMA	Text Mining and Analysis	UE - public	Not Applicable	Not Applicable			
Disaster Risk Management Knowledge Centre	Disaster Risk	UE - public	Not Applicable	Not Applicable			
Health Promotion and Disease Prevention Knowledge Gateway	Health	UE - public	Not Applicable	Not Applicable			
ICCD	Cultural Heritage	National UE - public	Italy	Not Applicable			
ICOMOS	Cultural Heritage	WW - other (ONG, etc.)	Not Applicable	Not Applicable			
Knowledge Centre for Biodiversity	Biodiversity and Bioeconomy	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Bioeconomy	Biodiversity and Bioeconomy	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Food Fraud and Quality	Food	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Global Food and Nutrition Security	Food	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Territorial Policies	Policies	UE - public	Not Applicable	Not Applicable			
Knowledge Centre on Migration and Demography	Migration and Demography	UE - public	Not Applicable	Not Applicable			

Figure 5. Wp2, Task 2.1: Matrix List structure.

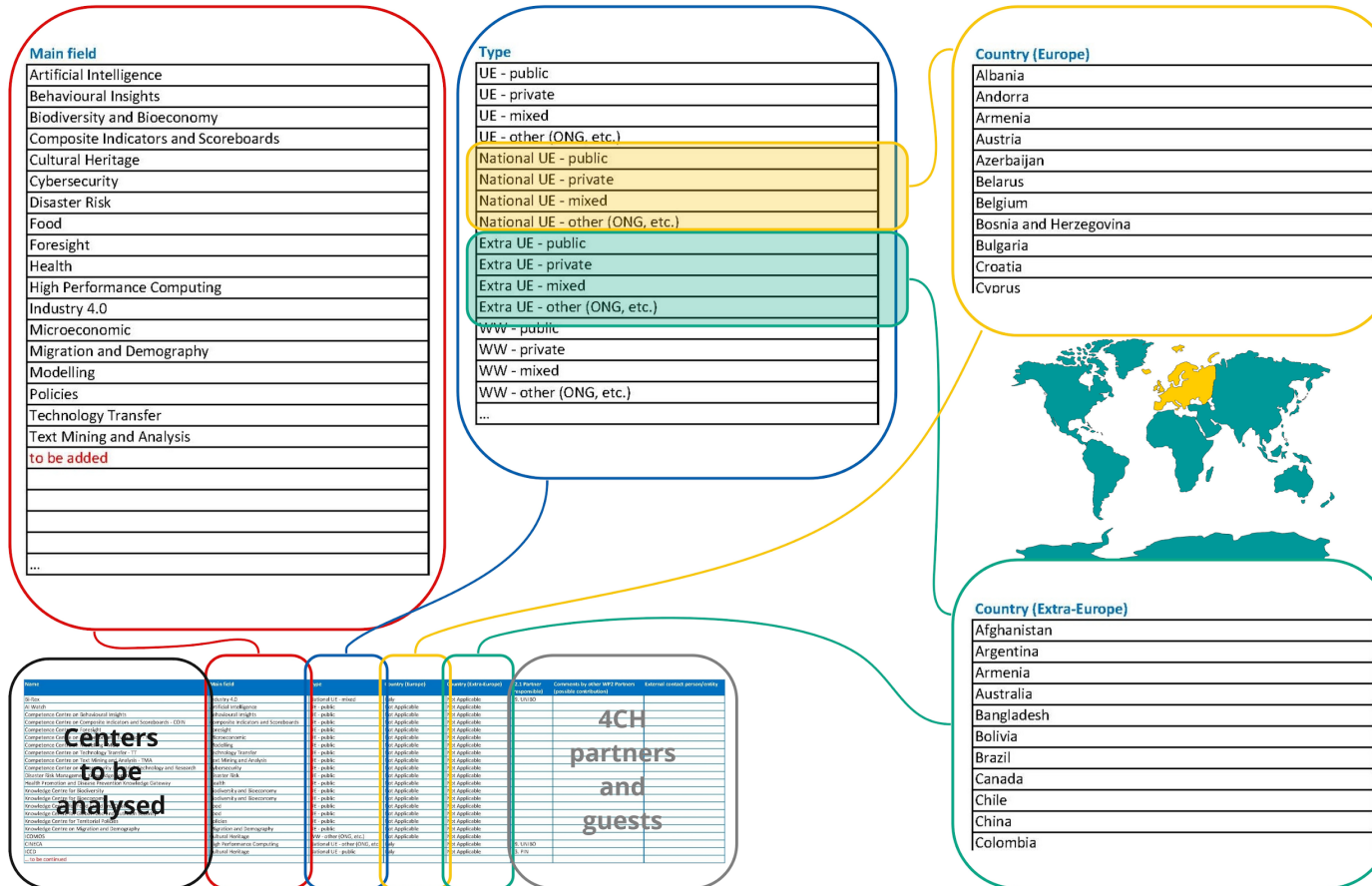


Figure 6. Wp2, Task 2.1: Matrix List fields.

Table 1. Wp2, Task 2.1: entities included in the starting matrix list (alphabetical order).

Name (alphabetical order)	Main field
AI Watch	Artificial Intelligence
Bi-Rex	Industry 4.0
CINECA	High Performance Computing
Competence Center on Cybersecurity Industrial, Technology and Research	Cybersecurity
Competence Centre on Behavioural Insights	Behavioural Insights
Competence Centre on Composite Indicators and Scoreboards - COIN	Composite Indicators and Scoreboards
Competence Centre on Foresight	Foresight
Competence Centre on Microeconomic Evaluation - ME	Microeconomic
Competence Centre on Modelling - MOD	Modelling
Competence Centre on Technology Transfer - TT	Technology Transfer
Competence Centre on Text Mining and Analysis - TMA	Text Mining and Analysis
Disaster Risk Management Knowledge Centre	Disaster Risk
Health Promotion and Disease Prevention Knowledge Gateway	Health
ICCD	Cultural Heritage
Knowledge Centre for Biodiversity	Biodiversity and Bioeconomy
Knowledge Centre for Bioeconomy	Biodiversity and Bioeconomy
Knowledge Centre for Food Fraud and Quality	Food
Knowledge Centre for Global Food and Nutrition Security	Food
Knowledge Centre for Territorial Policies	Policies
Knowledge Centre on Migration and Demography	Migration and Demography

2.2.2 The factsheet template

The most relevant information and characteristics of CCs, KCs and similar entities to be investigated were identified in a factsheet template, one for each centre. To facilitate the compiling, each cell provides exact instructions.

The form consists of a main sheet and three sub-charts related to the main topics to be deepen.

The **main sheet** includes general data (partly the same as in the matrix) to identify the entity: name and acronyms, type, country of affiliation, partner responsible for entering data, link to the official website and contact of person external to the 4CH consortium to ask for additional data and information.

The subsequent fields deal with information about location (if physical, digital or both), headquarter, year of foundation, main focus, operational areas of thematic departments, mission and strategy, value proposition, legal structure and partnership, adopted engagement practices and promotion strategy (if applicable), audience/target groups, networks of stakeholders, coordination with other similar entities /

Ecosystem / Hubs, use of platform/digital infrastructure, steps to setting up/launch of the CC, KC or similar entity, possible link with the future CC on CH and references.

A red cell identifies a very important field to be filled-in: the lesson-learnt (in terms of information, service, activity, etc.) from the specific centre described in the sheet to design the 4CH CC (see Fig. 7 and Tab. 2).

The main sheet links to three blue cells reporting the most important topics to be deepen - following what reported in the proposal as key aspects for a sustainable design and management of the Competence Centre¹⁶ - as are described in separate sub-charts:

- **Governance and Management structure:** the sub-chart contains a brief general description and some field requirements to be entered with a simple yes/no/not applicable answer, related to Governance (if private, public, joint venture, network, public/private or other.), Ownership (academia-led, industry-led, government led or other), Scope/area of impact (local, regional, national, or international) (see Tab. 3).
- **Business model:** the sub-chart contains data about External supporting funding, co-financing, financial and physical resources, budgeted holder, and other relevant information (see Tab. 4).
- **Portfolio of services:** the sub-chart contains a brief description and four main field of data, detailed according to the Description of Work of 4CH project¹⁷: Consultancy and orientation, Training and capacity building, Support in innovation and projects. An additional “others” field allows to include issues not addressed in the proposal. Most of the fields require yes/no/not applicable answer. This sub-chart links to a workflow tab, where additional descriptions of infographics can be added (see Tab. 5).

The first draft of the factsheet template was developed starting from the analysis of a National CC based in Bologna (Italy), the “Bi-Rex” Center. The pilot test was useful to identify all relevant information to be mapped, to design the template and to help partners understanding the structure rationale.

As for the other tools, the template was discussed among partners and improved in a definitive version, following comments and suggestions.

The factsheet concept assumes a highly effective and concise data reporting, functional to the successive phases of analysis and to acknowledge and highlight components or inputs capable of being transferred or taken as inspiration for drafting 4CH.

¹⁶ 4CH - GA, Part B, “Sustainability of the Competence Centre”, pp. 31 - 32

¹⁷ Ibidem.

MATRIX

Name	Main field	Type	Country (Europe)	Country (Extra-Europe)	T2.1 Partner (responsible)	Comments by other WP2 Partners (possible contribution)	External contact person/entity
Bi-Rex	Industry 4.0	National UE - mixed	Italy	Not Applicable	DS, UNIBO		
AI Watch	Artificial intelligence	UE - public	Not Applicable	Not Applicable			
Competence Centre on Behavioural Insights	Behavioural Insights	UE - public	Not Applicable	Not Applicable			
Competence Centre on Composite Indicators and Scoreboards - COIN	Composite Indicators and Scoreboards	UE - public	Not Applicable	Not Applicable			
Competence Centre on Foresight	Foresight	UE - public	Not Applicable	Not Applicable			
Competence Centre on Microeconomic Evaluation - ME	Microeconomic	UE - public	Not Applicable	Not Applicable			
Competence Centre on Modelling - MO	Modelling	UE - public	Not Applicable	Not Applicable			
Competence Centre on Technology Transfer - TT	Technology Transfer	UE - public	Not Applicable	Not Applicable			
Competence Centre on Text Mining and Analysis - TMA	Text Mining and Analysis	UE - public	Not Applicable	Not Applicable			
Competence Centre on Cybersecurity industrial, Technology and Research	Cybersecurity	UE - public	Not Applicable	Not Applicable			
Disaster Risk Management Knowledge Centre	Disaster Risk	UE - public	Not Applicable	Not Applicable			
Health Promotion and Disease Prevention Knowledge Gateway	Health	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Biodiversity	Biodiversity and Bioeconomy	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Bioeconomy	Biodiversity and Bioeconomy	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Food Fraud and Quality	Food	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Global Food and Nutrition Security	Food	UE - public	Not Applicable	Not Applicable			
Knowledge Centre for Territorial Policies	Policies	UE - public	Not Applicable	Not Applicable			
Knowledge Centre on Migration and Demography	Migration and Demography	UE - public	Not Applicable	Not Applicable			
COMOS	Cultural Heritage	WW - other (ONG, etc.)	Not Applicable	Not Applicable			
CINECA	High Performance Computing	National UE - other (ONG, etc.)	Italy	Not Applicable	DS, UNIBO		
ICCD	Cultural Heritage	National UE - public	Italy	Not Applicable	DS, PIN		
XXXX							

FACTSHEET

Name	Bi-Rex
Field	Industry 4.0
Type	National UE - mixed
Country (Europe)	Italy
Country (Extra-Europe)	Not Applicable
Partner (responsible)	DS, UNIBO
Other Partners (possible contribution)	
External contact person/entity	
Website	https://bi-rex.it/en/
Site (only physical/only digital/both physical and digital)	Both physical and digital
Headquarters (if applicable)	Bologna
Year of foundation	2018
Main focus	Big Data
Mission	Important aggregation point of public and private excellences (Universities and Research and Innovation Centers, End User Companies, Provider companies) aimed at strengthening the network among all players involved in digitalization, innovation and training processes, with a view to industry 4.0, providing the necessary skills and resources. Supports industrial culture through promotion of networking and sharing of new concepts and technologies.
Strategy	Bi-Rex Competence Center intends to be a strategic and operational player to support companies interested in digitalization of industrial processes, within industry 4.0 framework, from design to production, from R&D to supply chain, from security to blockchain.
Value proposition	Supporting companies in their digitalization and technological innovation processes, through the adoption of industry 4.0 enabling technologies and trying to collect the know-how of the firms. Promotes High Technology network (industrial research laboratories, infrastructures, Digital Innovation Hubs) with a national and international road map, aimed at the development of high TRL solutions (close to the market), in particular for SMEs.
Operational development areas	1. Big data and new business digital models 2. additive manufacturing
Legal structure	President General Director Business Development Manager Administration & Finance Manager Training and Consulting Services Manager Pilot Plant Manager Marketing & Communications Manager Business Development Associate Administration Associate
Government and management structure	See "Government" sheet
Business model and business plan	See "Business" sheet See "Services" sheet
Portfolio of services	1. An orientation, training and consultancy system for companies, closely integrated with the Digital Innovation Hubs operating in Italy; 2. A wide ecosystem including innovation projects and collaborative public-private industrial research projects within several thematic areas that make use of industry 4.0 enabling technologies, in an integrated way; 3. A Pilot Plant where industry 4.0 enabling technologies can be implemented and optimized; 4. Dedicated areas within our structures where conferences, meetings, training and co-working activities can be implemented.
Engagement practices	
Audience/target groups	Public institutions, Research Centres, Companies, Start-ups, Universities, Large companies, multi-national research organizations
Partnerships and/or networks of stakeholders	57 players among Universities, Research Centers and Companies of excellence (12 Institutions - 28 Companies - 17 Service Providers)
Use of Platform/digital infrastructure	Cybersecurity, Big Data & Analytics, In Cloud Services, Internet of Things, Additive Manufacturing, Augmented and Virtual Reality, Artificial Intelligence, Blockchain, Advanced Manufacturing, 5G Connectivity, High Performance Computing (HPC), Automated Guided Vehicle (AGV).
Steps of development and formation path of the CC	It is one of the 8 Italian Competence Centers funded by the Italian Ministry of the Economic Development, within the Industry 4.0 National Plan. Constituted according to the modalities established by Italian Ministry of Economic Development in conjunction with Italian Ministry of Economy and Finance.
Coordination with other similar entities / Ecosystem / Hubs	Digital innovation Hub European Innovation Hub (candidate)
Possible link with the Future CC on CH	Yes, level 3
Relevant services/activities/other useful per building our CC	MOST IMPORTANT FIELD: synthesis

most important field:
synthesis of the relevant services/activities/other data
useful to build our CC

Government / Management structure SHEET

Business model / Business plan SHEET

Portfolio of services SHEET

Portfolio of services	back to the main factsheet
Counseling and orientation	
Training and capacity building	
Innovation and projects	
-	
-	

Figure 7. WP2, Task 2.1: Matrix list and factsheet template relation.

Table 2. WP2, Task 2.1: factsheet template, reporting field and compiling instructions (main sheet).

Name	CC, KC or similar entity name	
Field	Main field of expertise (e.g. CH, Cybersecurity, Industry 4.0, AI, etc.) please add if not listed yet	
Type	e.g. EU (Continent) /National / Extra-EU / World Wide - International (i.e. companies with bases in several countries worldwide) ... public/private/mixed/other	
Country (Europe)	European (Continent) Country of affiliation	
Country (Extra-Europe)	Extra-European (Continent) Country of affiliation	
Partner (responsible)	Partner responsible for factsheet filling (e.g. UNIBO)	
Other Partners (possible contribution)	Other partner/s involved in factsheet filling (e.g. INCEPTION, KNAW, etc.)	
External contact person/entity	Contact (name, surname, e-mail, phone number, affiliation) of person/entity external to the 4CH consortium for additional data and information. IMPORTANT. please fill in this cell only if the personal data are public or the person signed the consent form	
Website	Link to the official website	
Site (only physical/only digital/both physical and digital)	e.g. only physical, only digital, both physical and digital	
Headquarters (if applicable)	CC, KC or similar entity headquarters (e.g. EU Cybersecurity CC > Bucharest, Romania)	
Year of foundation	Year	
Main focus	Main topic of activity and research (e.g. Big Data)	
Operational areas/thematic departments	e.g. financial dept., training and educational dept., research and development area, science and technology dept., etc.	
Mission and Strategy	Description of entity's purpose; main objectives and goals; strategy to reach objectives/goals and systems of activities	
Value proposition	Entity's values to be delivered, communicated and acknowledged	
Legal structure	e.g. Limited company, consortium, non - profit organisation, etc.	
Partnerships	e.g. States, Institutions, Research centers, Universities, Public bodies, organizations, etc.	
Government and management structure	e.g. governance, ownership, scope / area of impact, structure, etc.	see "Government" sheet

Business model and business plan	<i>e.g. External supporting funding, Co-financing, Financial resources, Physical resources, Budget, etc.</i>	see "Business" sheet
Portfolio of services	<i>e.g. Counselling and orientation, Training and capacity building, Support in innovation and projects, Others, etc.</i>	see "Services" sheet
Engagement practices and promotion strategy	<i>Interaction addressed to external stakeholders (e.g. citizens, etc.) through public activities (e.g. workshops, surveys/questionnaires, laboratories, etc.)</i>	
Audience/target groups	<i>e.g. Public Institutions, Research Centres, Companies, Start-ups, Universities, Large Companies, Multinationals Companies, Research organisations, etc.</i>	
Networks of stakeholders	<i>CC, KC or similar entities interconnected web of stakeholders (e.g. Cyberg Competence Network)</i>	
Coordination with other similar entities / Ecosystem / Hubs	<i>e.g. Digital Innovation Hub, European Innovation Hub, etc.</i>	
Use of Platform/digital infrastructure	<i>e.g. service-oriented platforms, data sharing platforms, social media platforms, knowledge platforms, media sharing platforms</i>	
Steps to setting up/launch of the CC, KC or similar entity	<i>e.g. workshops with stakeholders, surveys to gather suggestions, impact assessment, EU bodies consultations, collection of citizens' feedbacks, etc.</i>	
Possible link with the future CC on CH	<i>Relations concerning common topics that can be activated</i>	
Relevant services/activities/other useful per building our CC	MOST IMPORTANT FIELD: synthesis	
References	<i>Sources of information and data</i>	

Table 3. WP2, Task 2.1: factsheet template, reporting field and compiling instructions (Governance sub-chart).

GOVERNMENT AND MANAGEMENT STRUCTURE		back to the main factsheet
Governance		
Private	<i>e.g. yes, no, not applicable</i>	
Public	<i>e.g. yes, no, not applicable</i>	
Joint Venture	<i>e.g. yes, no, not applicable</i>	
Network	<i>e.g. yes, no, not applicable</i>	
Public/Private	<i>e.g. yes, no, not applicable</i>	
Other	<i>to be added</i>	
Ownership		
Academia-led	<i>e.g. yes, no, not applicable</i>	
Industry-led	<i>e.g. yes, no, not applicable</i>	
Government-led	<i>e.g. yes, no, not applicable</i>	
Other	<i>to be added</i>	
Scope/area of impact		
Local scope	<i>e.g. yes, no, not applicable</i>	
Regional scope	<i>e.g. yes, no, not applicable</i>	
National scope	<i>e.g. yes, no, not applicable</i>	
International scope	<i>e.g. yes, no, not applicable</i>	
Structure		
Description of government and management structure	<i>e.g. general: Executive committee, Steering committee, etc. and, in detail: President, General Director, Business Development Manager, Administration & Finance Manager, Training and Consulting Services Manager, Pilot Plant Manager, Marketing & Communications Manager Business Development Associate, Administration Associate, etc.</i>	
External contact person for this specific section (if available)	<i>Contact (name, surname, e-mail, phone number, affiliation). IMPORTANT. please fill in this cell only if the personal data are public or the person signed the consent form</i>	

Table 4. WP2, Task 2.1: factsheet template, reporting field and compiling instructions (Business sub-chart).

BUSINESS MODEL AND BUSINESS PLAN		back to the main factsheet
-		
External supporting funding	<i>Sponsorships, EU funding, etc.</i>	
Co-financing	<i>% of co-financing from public or private entities</i>	
Financial resources	<i>Main revenue streams, e.g., patents, service provisions, etc.</i>	
Physical resources	<i>Spaces, licences, etc.</i>	
Budget holder	<i>National, private, public-private, etc.</i>	
Other relevant information		
External contact person for this specific section (if available)	<i>Contact (name, surname, e-mail, phone number, affiliation). IMPORTANT. please fill in this cell only if the personal data are public or the person signed the consent form</i>	

Table 5. WP2, Task 2.1: factsheet template, reporting field and compiling instructions (Services sub-chart).

PORTFOLIO OF SERVICES		back to the main factsheet
-		
Brief description	<i>Description of main services provided by KC, CC or similar entity</i>	
	link to the workflow	
-		
Consultancy and orientation		
Consultancy and orientation	<i>e.g., yes, no, not applicable</i>	
Access to financing services	<i>e.g., yes, no, not applicable</i>	
Scouting and ecosystem building	<i>e.g., yes, no, not applicable</i>	
-		
Training and capacity building		
Awareness creation	<i>e.g., yes, no, not applicable</i>	
Collaborative research	<i>e.g., yes, no, not applicable</i>	
Visioning and strategy development	<i>e.g., yes, no, not applicable</i>	
Mentoring	<i>e.g., yes, no, not applicable</i>	
Training and skills development	<i>e.g., yes, no, not applicable</i>	
Conferences, Training, Meetings	<i>e.g., yes, no, not applicable</i>	
-		
Support in innovation and projects		
Competitive mass production	<i>e.g., yes, no, not applicable</i>	
Commercial Infrastructure	<i>e.g., yes, no, not applicable</i>	
Incubator/accelerator support	<i>e.g., yes, no, not applicable</i>	
Testing and validation	<i>e.g., yes, no, not applicable</i>	
Market intelligence	<i>e.g., yes, no, not applicable</i>	
Prototyping validation	<i>e.g., yes, no, not applicable</i>	

PORTFOLIO OF SERVICES		back to the main factsheet
Others		
Digital maturity assessment	<i>e.g., yes, no, not applicable</i>	
Coworking areas or spaces	<i>e.g., yes, no, not applicable</i>	
Access to specific technologies and equipment	<i>e.g., yes, no, not applicable</i>	
Data collection and integration	<i>e.g., yes, no, not applicable</i>	
Other	<i>To be added</i>	
External contact person for this specific section (if available)	<i>Contact (name, surname, e-mail, phone number, affiliation). IMPORTANT. please fill in this cell only if the personal data are public or the person signed the consent form</i>	
WORKFLOWS		back to the Service sheet
<i>Description or infographics</i>		

2.2.3 Questionnaire and personal information on processing data form

Supporting the data collection, a questionnaire form to be used in interviewing external persons was provided, in order to get and complete info not available via desk survey.

The questionnaire (see Appendix 2) is organized in six main sections, following the same main fields of the Factsheet:

- 1/6 - Credits of External Contact
- 2/6 - General Information
- 3/6 - Government and Management Structure
- 4/6 - Business Model and Business Plan
- 5/6 - Portfolio of Services
- 6/6 - Other

The suggested questions address aspects and information not usually reported on official documents and websites but considered useful for the analysis. The partners were suggested to send by email or to use as support tool to complete the data collection.

Special attention was given to the data protection rules (EU General Data Protection Regulation 2016/679 - GDPR). Due to some sensitive mapped data reported in the factsheets, a personal data consent form – compliant to art. 13 of Regulation (EU) 2016/679 - accompanies the questionnaire, describing Parties Involved in Processing, Purposes and Methods of Processing, Legal Basis and Nature of the Provision of Data, Rights of the Data Subject (see Appendix 3).

2.3 The survey target

2.3.1 Criteria of selection of the relevant entities

National, European and a few extra-EU institutions were investigated, as well as entities not classified as CCs and KCs or related to other topics beyond Cultural Heritage, as they could give further insights or useful indications.

In order to guide the selection of the relevant entities that might have been useful to outline the 4CH_CC organization, objectives and goals, and include them in the survey, a set of criteria was established.

A first draft of the set of criteria was developed by the T2.1 partners and shared among other partners - external to the task but that had been requested to participate to the survey for their expertise, connection, or affiliation to institutions that might have been relevant sources for gathering information. Partners available to participate to the survey, provided feedbacks about the criteria of selection guidelines and, finally, the definitive version was defined.

The guidelines for entities selection were provided to the partners involved in the survey and they were invited to follow them in the identification of the possible existing CCs, KCs and other significant institutions and then to use them to verify the pertinence and consistency to the objectives of the survey. The main choice that influenced the setting of the selection criteria was not including in the survey only the existing CCs and KCs and those entities that are commonly recognized as or named after Competence Centers, but opening to other entities, different for structure and goals but relevant for the provision of services and tools, governance and organization, network and synergies and other desirable features.

The set of criteria are deliberately broad, to allow the partners to retain a degree of discretionality in the research and evaluation of the entities under inquiry. The 4CH partners are representative of different EU countries, identities, cultures, practices, and regulations, guaranteeing interdisciplinary and complementary expertise. Such expertise was precious and put at disposal to point out entities of interest, analyse them and check if they were relevant or not for the T2.1 aim.

The partners involved in the survey – and their field of expertise - are indicated in the table below (Tab. 6).

Table 6. WP2, Task 2.1: framework of expertise of the project partners involved in the survey.

Expertise						3D	Heritage Science data	Semantics				Data management History & Geography	Creativity	Policy	Community
	Digitization & standards	Modelling & HBIM	Workflow	Visualisation	Data storage & management				Conservation and restoration	Ontologies & standards	Aggregation				
Partners involved in the survey															
INFN					X	X			X	X					
INCEPTION	X	X	X	X	X								X		
PIN		X					X	X	X	X	X		X	X	
TECNALIA			X										X		
KNAW								X					X		
UNIBO						X	X				X	X	X	X	
ICCU											X		X	X	
CARARE	X						X						X	X	
MICHAEL													X	X	
INP								X							X

It must be underlined that the Consortium partners involved in the survey have also transversal and additional expertise covering the evaluation competences necessary to select entities that may significantly differ from one another for ambit (regional, national, European, extra EU), scope (Cultural Heritage, ICT, HPC, etc.), and focus (Conservation, Digitization, 3D modelling, etc.), topic, scale, property, funding sources, vocation, and goals.

The “Criteria of selection of Competence Center, Knowledge Centers and other relevant entities_guidelines” were included in a document and shared among the partners: the content is described in the box below.

CCs and KCs and other entities that represent shared hubs of expertise in providing knowledge and services, offering leadership and coordination to connect relevant people, guidance, learning resources and curricula in thematic areas (preferably related to CH but also not), enabling harmonisation and supporting dissemination.

They should include a combination of the following features (not necessarily all of them):

- collections, archives or scientific data, digital services, and access to knowledge base;
- computing systems and communication networks;
- comprehensive and searchable collections of standards, terminology, guidelines, and regulations;
- major scientific equipment or sets of instruments;
- any other research and innovation infrastructure and/or service open to external users;

Desirable features:

- leadership for thematic areas;
- influence on policy makers;
- hub for collaboration between stakeholders;
- organizations ruled by a consortium agreement aimed to a common purpose of general interest;
- access to tools, resources, and services;
- evaluation and assessment of services;
- building and engaging with stakeholders in the community;
- feedbacks from communities' adoption;
- presence of a long-term sustainability plan;
- synergy and complementarity with other centres;
- generated or collected data exploitation, research data, data reuse and interoperability management policies

Such entities may be concentrated in one facility, distributed and networked, or completely virtual.

The first part of the guidelines gives a definition of the entities to be included in the survey. In the 4CH proposal, the Competence Centre (CC) on the Conservation of Cultural Heritage is described through its aims: *“the Centre will offer knowledge (advice and support activities) and services to national and regional heritage agencies, cultural heritage institutions, professionals, and citizens”*¹⁸.

¹⁸ Idem, p. 22.

Thus, the above-mentioned knowledge and services provided by the entities under inquiry are the principal aspects to focus on.

The rest of the entity definition is inferred by the FAIRsFAIR¹⁹ definition of Competence Centres: *shared hubs of expertise in implementing FAIR data stewardship principles, offering leadership, coordination and cataloguing services to connect relevant people, guidance, learning resources and curricula in different thematic areas*²⁰. As no well-established definition of Competence Centre is found in literature, FAIRsFAIR_ Fostering FAIR Data Practices in Europe project offers a definition of the FAIR Competence Centre based on the commonalities across the definitions of the European Network of Innovation Agencies²¹, the EU Open Science Hub²² and the EOSC Hub Consortium²³.

As for the set of **features to be checked** in the selection of the relevant entities, they are mainly a synthesis of the ESFRI Research Infrastructure description²⁴ (see chapter 3, paragraph 3.2.2 for a more in-depth description of RIs). RIs are enablers of high-quality research, providers of advanced services and data as well as prescribers of leading-edge technologies²⁵. These basic aspects are considered relevant by 4CH in order to select the entities to be studied and analyzed as useful models for the definition of 4CH-CC organization, objectives, and goals, so the features related to RIs are also highly significant.

¹⁹ FAIRsFAIR has received funding from the European Commission's Horizon 2020 research and innovation programme under the Grant Agreement no. 831558. Starting date: March 1, 2019; duration 36 months. The overall objective of FAIRsFAIR is to accelerate the realization of the goals of the EOSC by opening up and sharing all knowledge, expertise, guidelines, implementations, new trajectories, courses and education on FAIR matters. (FAIRsFAIR - Fostering Fair Data Practices in Europe, <https://www.fairsfair.eu/>).

²⁰ Herterich, P., Davidson, J., Whyte, A., Molloy, L., Matthews, B., & Kayumbi Kabeya, G., (2019). D6.1 Overview of needs for competence centres, p. 7. Available online, <https://zenodo.org/record/3549791/export/geojson#.YMuqSmgza00> (Accessed on 17 June 2021).

²¹ Taftie. The European Network of Innovation Agencies (2016), Future Competence Centre Programmes. Report of the TAFTIE Task Force on Competence Centre Programmes CompAct. Available online, https://www.taftie.org/sites/default/files/Taftie_TF_CompAct_Final_Report%20LV.pdf (Accessed on 15 July 2021).

²² Ibidem.

²³ EOSC Portal, <https://eosc-portal.eu/about/eosc>.

²⁴ ESFRI RIs are facilities, resources or services of a unique nature, identified by European research communities to conduct and to support top-level research activities in their do mains. They include: major scientific equipment – or sets of instruments; knowledge-based resources like collections, archives and scientific data; e-Infrastructures, such as data and computing systems and communication networks; and any other tools that are essential to achieve excellence in research and innovation. (ESFRI (2018), Roadmap 2018. Strategy report on research infrastructures, p.11. Available online, <http://roadmap2018.esfri.eu/media/1060/esfri-roadmap-2018.pdf> (Accessed on 15 May 2021).

²⁵ Idem, p.22.

The **desirable features** were in part extrapolated by the list of features that a CC must provide according with the Digital Preservation Europe project²⁶ analysis as retrieved by FAIRsFAIR²⁷. Other desirable feature are adaptations of the criteria for the selection of the European Digital Innovation Hubs (EDIH)²⁸, integrated or modified thanks to the observations and suggestions from the partners. EDIH are single organisation or a coordinated group of organisations with complementary expertise whose objective is providing support to companies and/or the public sector in their digital transformation. They also provide innovation services, such as financing advice, training, and skills development, oriented to improve business/production processes, products, or services using digital technologies.

2.3.2 List of selected entities

The selection of entities by involved partners ends up with a final selection of 51 entities to be further investigated, according with defined criteria selection, related to different main topics, nationality, and geographical location(see Tab. 7).

The list of entities is reported in the table below, highlighting name, main field of action and the responsible partners for data collection and compiling the factsheet. The entities, as already mentioned, were assigned to partners, according to their expertise, direct contacts, or involvement with the institution, to facilitate an effective data collection. The survey aim is to extract information, hints and insights from identified CCs, KSs and other similar entities, potentially useful for the setting of organizational and operational framework of 4CH CC.

Table 7.WP2, Task 2.1: 51 entities included in the final matrix list (alphabetical order).

	Name	Main field	T2.1 Partner (responsible)
1	AI Watch	Artificial Intelligence	TECNALIA
2	Archaeology Data Service	Cultural Heritage	CARARE
3	Bi-Rex	Industry 4.0	UNIBO
4	CARARE	Cultural Heritage	CARARE
5	Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	Cultural Heritage	INFN
6	CINECA	High Performance Computing	UNIBO

²⁶ EU FP5-IST Digital Preservation Europe project, <https://cordis.europa.eu/project/id/034762>.

²⁷ Herterich, P., Davidson, J., Whyte, A., Molloy, L., Matthews, B., & Kayumbi Kabeya, G., (2019). D6.1 Overview of needs for competence centres, p. 9. Available online, <https://zenodo.org/record/3549791/export/geojson#.YMuqSmgza00> (Accessed on 17 June 2021).

²⁸ Kalpaka A., Sörvik J., Tasigiorgou A. (JRC) (2020), Digital Innovation Hubs as policy instruments to boost digitalization of SMES. A practical handbook & good practices for regional/national policy makers and DIH managers, Publications Office of the European Union. Available online <https://publications.jrc.ec.europa.eu/repository/handle/JRC121604> (Accessed on 15 July 2021).

	Name	Main field	T2.1 Partner (responsible)
7	Competence Center on Cybersecurity Industrial, Technology and Research	Cybersecurity	UNIBO
8	Competence Centre on Behavioural Insights	Behavioural Insights	UNIBO
9	Competence Centre on Composite Indicators and Scoreboards - COIN	Composite Indicators and Scoreboards	UNIBO
10	Competence Centre on Foresight	Foresight	UNIBO
11	Competence Centre on Microeconomic Evaluation - ME	Microeconomic	UNIBO
12	Competence Centre on Modelling - MOD	Modelling	UNIBO
13	Competence Centre on Technology Transfer - TT	Technology Transfer	UNIBO
14	Competence Centre on Text Mining and Analysis - TMA	Text Mining and Analysis	UNIBO
15	Consortium of European Social Science Data Archives - CESSDA	Social science	KNAW
16	CulturalItalia	Cultural Heritage	ICCU
17	CyberSec4Europe	Cybersecurity	UNIBO
18	Digital Innovation Hubs (DIHs)	Digital infrastructures and innovation	UNIBO
19	Digital Public Library of America	Cultural Heritage	INP
20	Digital Research Infrastructure for the Arts and Humanities - DARIAH	Cultural Heritage	KNAW
21	Disaster Risk Management Knowledge Centre	Disaster Risk	TECNALIA
22	docomomo international	Cultural Heritage	UNIBO
23	EuroCC project - National Competence Centre (NCC)	High Performance Computing	UNIBO
24	European Research Infrastructure for Language Resources and Technology - CLARIN	Languages	KNAW
25	Europeana	Cultural Heritage	UNIBO
26	France Archive	Cultural Heritage	UNIBO
27	General Catalogue of Cultural Properties	Cultural Heritage	ICCU
28	Getty Center	Cultural Heritage	UNIBO
29	Health Promotion and Disease Prevention Knowledge Gateway	Health	TECNALIA
30	ICCD	Cultural Heritage	ICCU
31	ICCU	Cultural Heritage	ICCU
32	ICR	Cultural Heritage	INFN
33	Institutuel Memorie Culturale Romania	Cultural Heritage	NP
34	Italian Computing Data Infrastructure (ICDI) Competence Center	Digital infrastructures and innovation	ICCU
35	DANS	Cultural Heritage	KNAW

	Name	Main field	T.1 Partner (responsible)
36	Knowledge Centre for Biodiversity	Biodiversity and Bioeconomy	TECNALIA
37	Knowledge Centre for Bioeconomy	Biodiversity and Bioeconomy	TECNALIA
38	Knowledge Centre for Food Fraud and Quality	Food	TECNALIA
39	Knowledge Centre for Global Food and Nutrition Security	Food	TECNALIA
40	Knowledge Centre for Territorial Policies	Policies	TECNALIA
41	Knowledge Centre on Migration and Demography	Migration and Demography	TECNALIA
42	Le laboratoire de recherche des monuments historiques (LRMH)	Cultural Heritage	UNIBO
43	MUSEU – HUB	Cultural Heritage	MICHAEL
44	OPD Opificio delle Pietre Dure	Cultural Heritage	INFN
45	Open AIRE	Open Access Research	UNIBO
46	POP	Cultural Heritage	MICHAEL
47	Spanish cultural Heritage Institute	Cultural Heritage	TECNALIA
48	Spanish National Renewable Energy Centre CENER	Renewable Energy	TECNALIA
49	The Centre for Research and Restoration of the Museums of France (C2RMF)	Cultural Heritage	UNIBO
50	The Discovery Programme: Centre for Archaeology and Innovation Ireland	Cultural Heritage	CARARE
51	Transport Infrastructure Ireland, Archaeology and Heritage section	Cultural Heritage	CARARE

3. Existing Competence Centres and other relevant Institutions

The identified heterogeneous existing CCs, KCs, and similar entities (reported in the list according to the described methodological approach) resulting from the survey, were divided in macro-categories in order to make the comparative analysis more effective,

This chapter looks at the description of each of such categories to identify their approaches, differences, goals and organization. As already underlined, the range of institutions and initiatives taken into consideration was kept purposefully wide and covers the following broad categories:

- European Commission Competence Centres and Knowledge Centres.
- Other European facilities and clusters, potentially relevant for the definition of the 4CH CC, in particular:
 - National CCs (Europe)
 - Research infrastructures
 - EU-funded projects
 - Digital Innovation Hubs
 - Documentation Centres on CH
 - Other national and international centres on CH

3.1 European Commission Competence Centres and Knowledge Centres

The first macro-category taken into account by the 4CH project, since the writing of the proposal, is the set of already existing or planned EU Competence Centres.

They are one of the responses set up by the EU Commission to the complex and rapidly changing challenges to be faced and the consequent necessity for innovative approaches.

The strategic use of data, information and knowledge have been declared as essential parts of the modernization of the Commission's way of working, needed to face the contemporary EU challenges in effective and rapid way²⁹.

The proposed approach puts strong emphasis on teamwork, overcoming silo mentalities and harnessing synergies between portfolios, policy areas and departments. The general strategy was the improvement of data, information and knowledge gathering, managing, sharing and preservation, and the fostering new chances for collaborative working.

²⁹ European Commission (2016), COMMUNICATION TO THE COMMISSION Data, Information and Knowledge Management at the European Commission {SWD(2016) 333 final}. Available online [https://ec.europa.eu/transparency/documents-register/detail?ref=C\(2016\)6626&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=C(2016)6626&lang=en) (Accessed on 15 May 2021).

In order to explicit and support these orientations, in June 2015 a report by a High-Level Reflection Group of Directors-General set out principles, short and medium-term actions, and governance arrangements for a corporate data, information and knowledge management policy³⁰.

The report recommendations were based on two main principles:

- 1) Data, information, and knowledge should be shared as widely as possible within the Commission unless there are legal requirements or clear justifications for access to be restricted, in which case these restrictions should be enforced rigorously and uniformly.
- 2) Collaborative working practices should be developed and supported both within and between DGs (Directorates General) and departments as a preferred working method.

The report of the High-Level Reflection Group led to the writing of the “Communication to The Commission Data, Information and Knowledge Management at the European Commission” document³¹.

The Communication sets out:

- general orientations for a Commission policy for data, information and knowledge management based on the two principles, as stated above³²;
- concrete immediate actions in four main areas;
- a governance framework that fits into existing structures.

The four main areas are:

1. Improving information retrieval and delivery.
2. Working together and sharing information and knowledge.
3. Maximising use of data for better policy-making.
4. Creating a culture of knowledge sharing and learning.

For each area, the Communication identifies a first set of concrete actions to be launched or accelerated in the short term. The main objectives of the actions are the improvement of data, information and knowledge management within the Commission and the boosting of internal and external synergies.

³⁰ Ibidem.

³¹ Ibidem.

³² “There are no universally agreed definitions of data, information and knowledge. In this Communication data, information and knowledge can be understood as follows: Data are concrete objective facts, measurements or observations that need to be processed to generate information. Information can be generated when data is categorised, analysed, interpreted, summarised and placed in context that gives it structure and meaning. Knowledge is acquired through analysis and aggregation of data and information, supported by expert opinion, skills and expertise, and can provide a valuable resource to help in decision making. Knowledge can be tacit (e.g. residing in the expertise and understanding of a person, in which case it is difficult to access and transfer) or explicit (in which case it is easier to articulate, codify, access and verbalise)”. Idem p.2.

The setting up of Knowledge and Competence Centres is one of the sub areas that compose ‘Area 2 - Working together and sharing information and knowledge’.

The sub areas are:

- Collaborative policy-making and knowledge sharing
- Knowledge and competence centres.

“Specific knowledge and competence centres will be set up for issues that fall under the policy priorities of the Commission, including thematic areas of the European Semester. Responsibility for knowledge management will be shared among all the departments that play a role in knowledge accumulation, creation, sharing and use. The relevant DGs will form thematic networks to underpin the work of the knowledge centres”³³.

The aims of the knowledge and competence centres to be settled or further developed are described in the Communication as follows:

- **Knowledge Centres:** collect, check, structure and make easily accessible and comparable all the relevant data, knowledge and intelligence in a specific policy field. Knowledge centres will not create any new entities nor require additional staff.
- **Competence Centres:** provide expertise on specific scientific methods and tools to support policy.

The action point related to this sub area (2.B1) is the JRC (Joint Research Centre)³⁴ initiative for the development of knowledge centres and competence centres for priority policy area.

³³ Idem, p.6.

³⁴ The JRC is the European Commission’s in-house science and knowledge service.

Table 8. Action 2.B1 from the EC, Rolling Plan 2016-2017 Short Term / Ongoing Actions (source: EC, p.6)³⁵

Action 2.B1: Develop knowledge centres and competence centres for priority policy areas.

Description:	Establish knowledge and competence centres at Commission level; establish the working methods; identify and exploit synergies and identify new ones. Involvement of the Commission's Library and e-Resources Centre will be considered.
Owner(s):	JRC
Actors:	JRC, DIGIT, COMM, ESTAT, OP, RTD, SG, EAC and all relevant policy DGs.
Resource needs:	None.
Other needs:	Interservice groups to be created and managed.

The portal of the EU Commission, the European Commission's science and knowledge service (the EU Science Hub), provides a definition for the JRC Knowledge and Competence Centres³⁶.

- **Knowledge Centres:** These are virtual entities, bringing together experts and knowledge from different locations inside and outside the European Commission. Their job is to inform policy-makers in a transparent, tailored and concise manner about the status and findings of the latest scientific evidence. They are designed to be a 'one-stop-shop' in their respective areas and include communities of practice.
- **Competence Centres:** These are centred on analytical tools which can be applied to any policy area, bringing together in one place extensive expertise in this field. They offer training courses in the use of the tools for policy-making, advise on the choice of tools and also work directly with the Commission policy Directorates-General to apply the tools to the policy problems in hand.

In the same page of the EC portal, Knowledge and Competence Centres implemented so far by the JRC are listed, together with two Knowledge Services, respectively created to monitor and facilitate the implementation of the European Strategy for Artificial Intelligence and to support public health policymakers:

³⁵ European Commission (2016), Commission Staff Working Document. Accompanying the document Data, Information and Knowledge Management at the European Commission {C(2016) 6626 final}, p.6. Available online [https://ec.europa.eu/transparency/documents-register/detail?ref=C\(2016\)6626&lang=en](https://ec.europa.eu/transparency/documents-register/detail?ref=C(2016)6626&lang=en) (Accessed on 15 May 2021).

³⁶ EU SCIENCE HUB, Knowledge & competence centres, <https://ec.europa.eu/jrc/en/knowledge>. (Accessed on 14 May 2021).

Knowledge Centres

- Knowledge Centre for Bioeconomy
- Disaster Risk Management Knowledge Centre
- Knowledge Centre for Food Fraud and Quality
- Knowledge Centre for Global Food and Nutrition Security
- Knowledge Centre on Migration and Demography
- Knowledge Centre for Territorial Policies
- Knowledge Centre for Biodiversity
- Knowledge Centre on Earth Observation

Competence Centres

- Competence Centre on Composite Indicators and Scoreboards
- Competence centre on foresight – Megatrends Hub
- Competence Centre on Microeconomic Evaluation
- Competence Centre on Modelling
- Competence Centre on Text Mining and Analysis
- Competence Centre on Technology Transfer
- Competence Centre on Behavioural Insights

Knowledge Services

- AI watch
- Health Promotion and Disease Prevention Knowledge Gateway

The first Knowledge Centre was the Centre on Disasters Risk Management (DRMKC), launched in November 2015, followed by the Centre on Migration and Demography and on Territorial Policies (KCMD) in June 2016. As for the Competence Centres, the first one was the Competence Centre on Composite Indicators (CC-COIN), launched in February 2016, and the Competence Centre on Microeconomic Evaluation (CC-ME) followed in May 2016.

The last competence centre to be delivered and that is not already included in the list in the EU Knowledge & competence Centres page, is the European Cybersecurity Industrial, Technology and Research Competence Centre, part of the cybersecurity initiatives announced in 2017 by the European Commission: the Council Conclusions adopted in November 2017 called on the Commission to provide an impact assessment on the possible options to create a Network of National Coordination Centres and a European cybersecurity research and competence centre.

The process of development of the new Competence Centre and the related Network ended on 20 May 2021 when the Regulation establishing the European Cybersecurity Industrial, Technology and Research

Competence Centre and the Network of National Coordination Centres³⁷ was adopted³⁸ (see Appendix 1 – factsheet no. 1.8, p.29 for an in-depth analysis of the CC on Cybersecurity).

JRC knowledge services, knowledge centres and competence centres are included in European Commission's Knowledge4Policy (K4P) platform, in order to gather all the knowledge in one single database³⁹. The K4P platform aims to overcome the distances between policymakers and scientists so to support evidence-based policymaking.

Why EU CCs and KCs can be taken into account for 4CH CC organization, objectives, and goals?

The existing CCs and KCs collect and coordinate **extensive expertise in each field** and are characterised by their **long-term mutual commitment between industry and academia** to share R&D programmes, cross-cutting and interdisciplinary problem focus, engagement with education and operator's training.

They offer **training and advice related to policy-making tools** and choices working directly with the Commission policy Directorates-General, facilitating the implementation of new tools to policy issues.

Their capabilities and expertise are always reinforced by a **wide-ranging network of partnerships** with other institutions and by the access to a broad network of stakeholders across Europe and beyond.

They usually work with other DGs of the European Commission, other EU institutions, Member States, Neighbourhood countries, Institutions (Universities, Research Centres, associations, International Organisations). The types of projects they support include training projects, capacity building projects, financing projects, diagnostic and analytical studies, research projects⁴⁰.

³⁷ European Commission (2021), Regulation (EU) 2021/887 of The European Parliament and of The Council of 20 May 2021 establishing the European Cybersecurity Industrial, Technology and Research Competence Centre and the Network of National Coordination Centres, Official Journal of the European Union, 8/06/2021. Available online <https://eur-lex.europa.eu/eli/reg/2021/887/oj> (Accessed on 8 June 2021).

³⁸ Ibidem. The Parliament approved the Regulation in first reading in 2019. This Regulation represented a valuable reference for the structure, the objectives and the tasks of the 4CH Competence Centre as drafted in the proposal, notwithstanding the specific mission and industrial/commercial vocation of the CC on Cybersecurity.

³⁹ EC, About Knowledge4Policy, https://knowledge4policy.ec.europa.eu/about-knowledge4policy_en. (Accessed on 8 June 2021).

⁴⁰ 4CH - GA, Part B, p. 21.

3.2 Other European facilities and clusters

3.2.1 National CCs (Europe)

The second group of analyzed entities is identified by National Centres of expertise in the European Country. Each one meets the criteria set in the guideline document and is intended as representative of the network they belong to.

The selected and analyzed entities are:

- the Spanish National Renewable Energy Centre (CENER);
- the Italian Big Data Innovation & Research excellence Competence Centre Industry 4.0 (Bi-Rex);
- the Italian Computing Data Infrastructure (ICDI)
- the Dutch National Centre of Expertise and Repository for Research Data (DANS).

The National CCs gather a **network of experts, universities, and research infrastructures** to provide expertise for their specific areas, through **different services**, in particular: training, support and capacity building activities, consultancy, and orientation (workshops, webinars and conferences, scientific research and dissemination, collaborative research, etc.).

The fields of expertise of each centre emerge from the operational areas and the organizational charts in which they are organized, making clear what the centre does and what skills, expertise and services are offered.

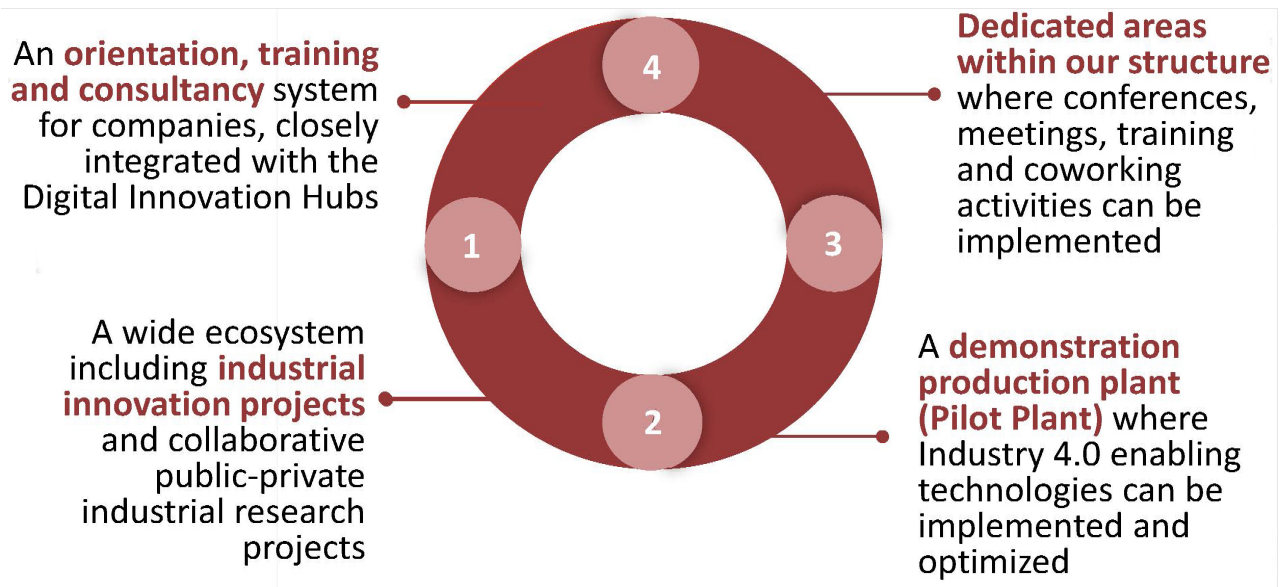


Figure 8. Bi-Rex strengths and thematic areas (source: Bi-Rex).

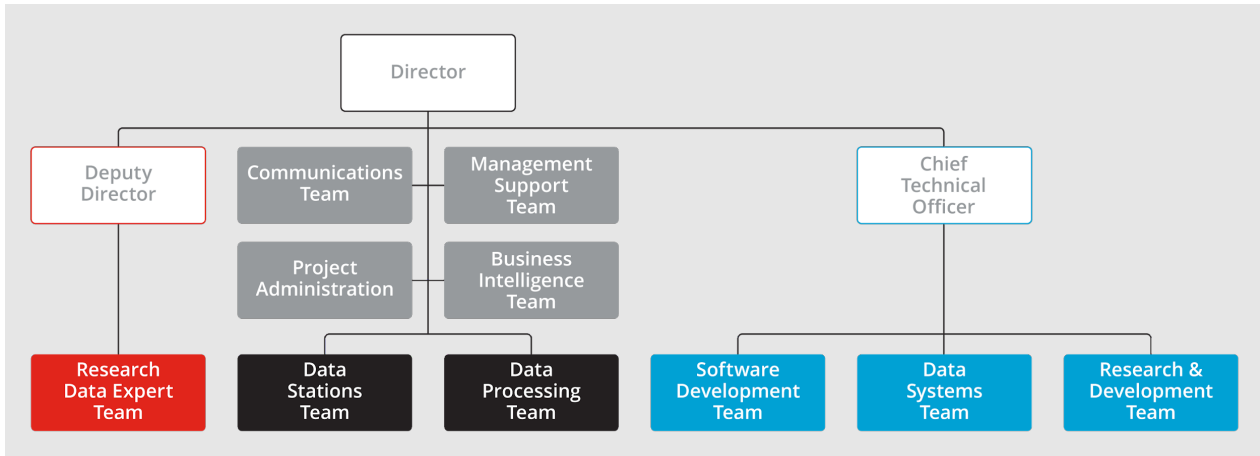


Figure 9. The organizational chart of DANS (source: DANS).

Despite the obvious differences, the centres share similar **stakeholders' network** such as researchers, public and private institutions, bodies and research centres, public administrations, professionals and companies, local, regional, national, and European public authorities.

The selected centres **involve or were promoted by Public Government Institutions**.

CENER and Bi-Rex have a focus in research & development & innovation in their specific area (Renewable Energy and Big-data) to be transferred to industry and society.

The Italian one, a public-private consortium, was developed in the context of a National Plan (the Industria 4.0 National Plan)⁴¹, and the Spanish CENER is part of the “CENER-CIEMAT Foundation”, a non-profit foundation, entrusted to public bodies⁴². ICDI and DANS are national centre of expertise for Open Science and the dissemination of FAIR principles. The first one is part of the GARR network (the Italian Education & Research network) and managed by the GARR consortium, a non-profit association created under the aegis of the Ministry of Education, University and Research⁴³ - in turn linked to NRENs (National Research & Education Network)⁴⁴ and other European and international networks⁴⁵. The second one, a non-profit organisation too, is an institute of the advisory body to the Dutch Government KNAW (Royal Netherlands Academy of Arts and Sciences)⁴⁶ and NWO (Dutch Research Council)⁴⁷, which support and manage research programmes and national knowledge infrastructure.

⁴¹ European Commission (2017), Digital Transformation Monitor Italy: “Industria 4.0”. Available online https://ati.ec.europa.eu/sites/default/files/2020-06/DTM_Industria4.0_IT%20v2wm.pdf (Accessed on 15 May 2021).

⁴² CENER, National Renewable Energy Centre, Government and Management board, <https://www.cener.com/en/foundation/> (Accessed on 15 May 2021).

⁴³ Consortium GARR, <https://www.garr.it/en/garr-en> (Accessed on 15 May 2021).

⁴⁴ National research and education network (NREN) – GÉANT, <https://www.geant.org/About/NRENs> (Accessed on 15 May 2021).

⁴⁵ NREN COMPENDIUM, <https://compendium.geant.org/#/> (Accessed on 15 May 2021).

⁴⁶ Royal Netherlands Academy of Arts and Sciences, <https://knaw.nl/en/about-us> (Accessed on 15 May 2021).

⁴⁷ Dutch Research Council, <https://www.nwo.nl/en> (Accessed on 15 May 2021).

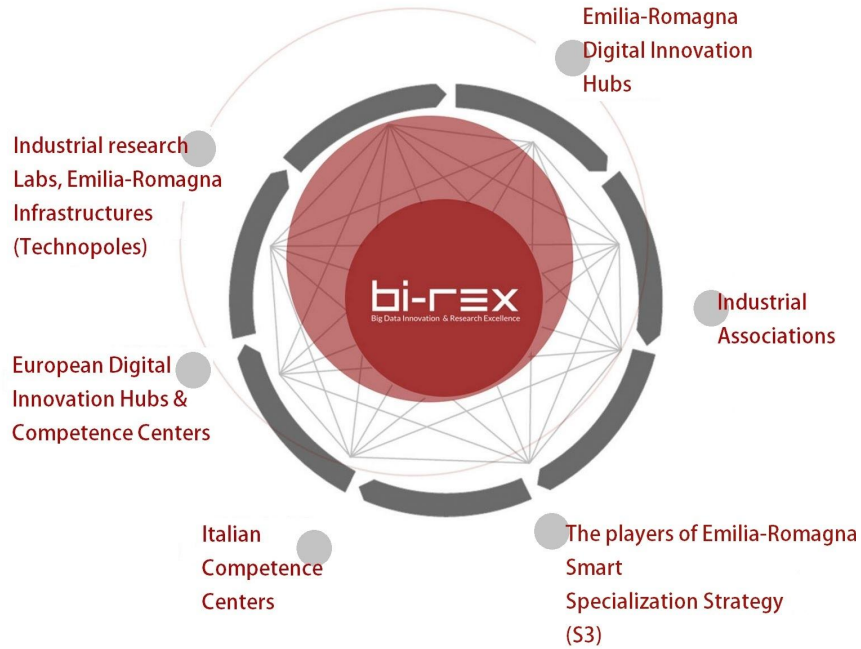


Figure 10. Bi-Rex Ecosystem (source: Bi-Rex).



Figure 11. The GARR network map, July 2019 (source: GARR).

AT THE HEART OF GLOBAL RESEARCH AND EDUCATION NETWORKING

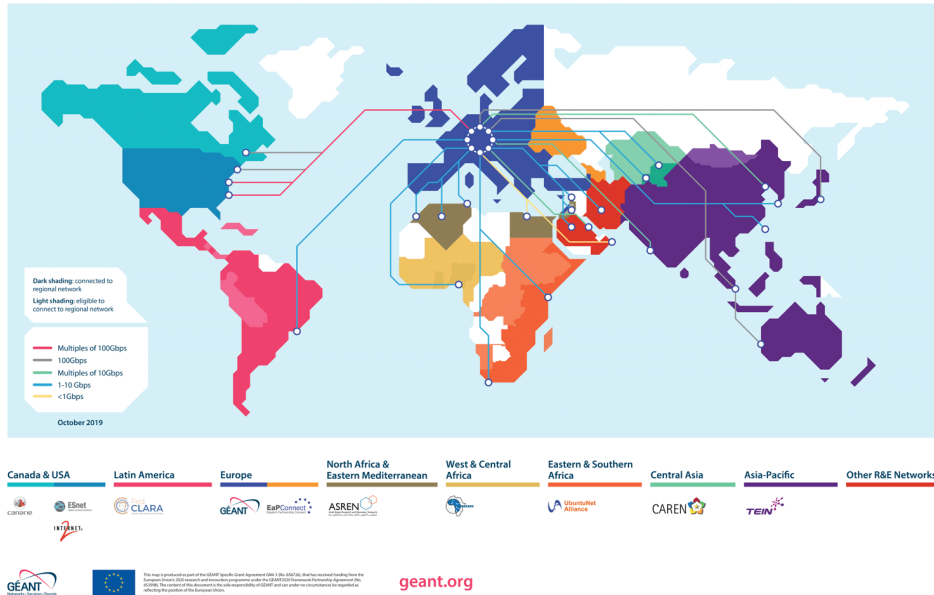


Figure 12. GÉANT Global-Connectivity map, October 2019 (source: GARR).

The selected entities have links to the **European and International Research Infrastructures** (ERIC RIs, see next paragraph 3.2.2), **initiatives, associations, or projects** of national representative nodes articulated in different countries or that led to the creation of specific competence centres networks. Aspects which make these centres of potential interest for the 4CH CC in terms of network models they belong to. In particular:

- The Italian Computing and Data Infrastructure (ICDI)⁴⁸ Competence Centre is a working group created by representatives of some of the main Italian Research Infrastructures and Digital Infrastructures with the aim of promoting synergies at national level to optimize Italian participation in this sector, including the European Open Science Cloud (EOSC)⁴⁹, the European Data Infrastructure (EDI) and HPC (High Performance Computing).
- The Spanish National Renewable Energy Centre CENER participates in the Energy Research Alliance (EERA)⁵⁰, European Technology Platforms (ETP)⁵¹ and European Renewable Industry Associations⁵² among the others.

⁴⁸ ICDI (Italian Computing and Data Infrastructure), <https://www.icdi.it/en/> (Accessed on 15 May 2021).

⁴⁹ The European Open Science Cloud (EOSC), <https://eosc-portal.eu/about/eosc> (Accessed on 15 May 2021).

⁵⁰ The Energy Research Alliance (EERA), <https://www.eera-set.eu/about-us/what-is-eera.html> (Accessed on 15 May 2021).

- The bi-rex CC was included by Italy among the candidate list⁵³ of European Digital Innovation Hubs (EDIH)⁵⁴ (see paragraph 3.2.4 for more detailed information) network foreseen by Digital Europe programme⁵⁵;
- DANS hosts one of the offices for coordination of the Digital Research Infrastructure for the Arts and Humanities (DARIAH)⁵⁶, included in the European Research Infrastructure Consortium (ERIC)⁵⁷.

More detailed information on the analysed centres is reported in the factsheets, available in Appendix -1 of the Deliverable (see Appendix 1 – factsheet n. 4.1, 4.2, 4.3, 4.3, pp. 78-93 for more details).

Why National CCs can be taken into account for 4CH CC organization, objectives and goals?

The National CCs analysed, regardless of the specific thematic areas and focus (not directly related to Cultural Heritage), could provide useful and relevant insights to build the 4CH CC related to aspects such as thematic departments organization, main audience, involved actors of economic sectors, network of stakeholders, or services and activities. Moreover, the 4CH CC shares with these centers the mission of gather synergistically educational institutions, public or private research organizations, citizens and enterprises by strengthening networks, actions and projects for innovation.

⁵¹ The European Technology Platforms (ETP), <https://www.enea.it/it/internazionali/relazioni-unione-europea/iniziative-strategiche-europee-per-r-i/european-technology-platforms-etps>.

⁵² European Renewable Energy Council, <http://www.eubia.org/cms/renewable-energy-house/>.

⁵³ Italian Ministry of Economic Development, Elenco dei Poli nazionali candidati alla call ristretta europea per la selezione degli European Digital Innovation Hubs (EDIH). Available online <https://www.mise.gov.it/index.php/it/incentivi/impresa/poli-digitali> (Accessed on 15 July 2021).

⁵⁴ European Commission (2018), Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the Digital Europe programme for the period 2021-2027, COM/2018/434 final - 2018/0227 (COD), Article 16 “Digital Innovation Hubs”. Available online https://eur-lex.europa.eu/resource.html?uri=cellar:321918fd-6af4-11e8-9483-01aa75ed71a1.0003.03/DOC_1&format=PDF (Accessed on 15 July 2021).

First (2019), La politica europea in materia digitale: gli European Digital Innovation Hubs. Available online https://first.aster.it/_aster_/viewNews/46370/european-digital-innovation-hubs-la-politica-digitale-ue (Accessed on 15 July 2021).

⁵⁵ European Commission, Digital Europe Programme 2021-2027. Available online <https://digital-strategy.ec.europa.eu/en/activities/digital-programme> (Accessed on 15 July 2021).

⁵⁶ DARIAH – EU, DARIAH in a Nutshell, DARIAH ERIC: A network to enhance and support digitally enabled research and teaching across the Arts and Humanities. Available online <https://www.dariah.eu/about/dariah-in-nutshell/> (Accessed on 15 July 2021).

For more details, see the DARIAH factsheet no. 5.1 in the Appendix – 1.

⁵⁷ European Commission, European Research Infrastructure Consortium (ERIC). Available online https://ec.europa.eu/info/research-and-innovation/strategy/strategy-2020-2024/our-digital-future/european-research-infrastructures/eric_en (Accessed on 15 July 2021).

3.2.2 Research infrastructures

The following selected and analysed category is 'The European Strategy Forum for Research Infrastructures (ESFRI). ESFRI was established in 2002 to facilitate the coordination in the development of research facilities in the European Research Area, boosting scientific excellence and the EU competitiveness in the global knowledge-based economy. The ESFRI forum is composed of representatives of national authorities of the Member States (MS) and Associated Countries (AC) of the European Union and the European Commission. The European Research Infrastructure Consortium (ERIC) has also been developed as legal instrument to ease the setting of favorable conditions for the establishment and operation of large European infrastructures among several MSs and ACs as well as third countries and to facilitate integration and pooling of resources.

According with the "European Charter for Access to Research Infrastructure. Principles and Guidelines for Access and Related Services" the Research Infrastructure definition is:

"Research Infrastructures' are facilities, resources and services that are used by the research communities to conduct research and foster innovation in their fields. They include: major scientific equipment (or sets of instruments), knowledge-based resources such as collections, archives and scientific data, e-infrastructure, such as data and computing systems and communication networks and any other tools that are essential to achieve excellence in research and innovation. They may be 'single-sited', 'virtual' and 'distributed'⁵⁸.

The ESFRI periodically updates its monitoring activity about the projects status and their progress towards implementation, according to the fulfillment of the needed requirements. The monitoring process leads to conclusions, advices to the Projects and recommendations and allow the possible promotion of Projects to the status of Landmark.

The ESFRI Roadmap 2018 is the last one to be delivered and provides the following updated definition for RIs:

"ESFRI RIs are facilities, resources or services of a unique nature, identified by European research communities to conduct and to support top-level research activities in their domains. They include: major scientific equipment – or sets of instruments; knowledge-based resources like collections,

⁵⁸ European Commission (Directorate-General for Research and Innovation, Directorate B – Open Innovation and Open Science Unit B4 – Research Infrastructures) (2016), European Charter for Access to Research Infrastructure. Principles and Guidelines for Access and Related Services, Publications Office of the European Union, Luxembourg. Available online http://www.e-rihs.it/wp-content/uploads/2021/02/KI0415085ENN.en_.pdf (Accessed on 15 July 2021).

This definition is in turn derived from the Article 2 (6), European Commission (2013), Regulation (EU) No 1291/2013 of the European Parliament and of the Council of 11 December 2013 establishing Horizon 2020 - the Framework Programme for Research and Innovation (2014-2020) and repealing Decision No 1982/2006/EC Text with EEA relevance. Available online <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1291&from=EN> (Accessed on 15 July 2021).

*archives and scientific data; e-Infrastructures, such as data and computing systems and communication networks; and any other tools that are essential to achieve excellence in research and innovation*⁵⁹.

ERICs cover many areas, ranging from energy, environment, health and food, engineering and social sciences. Among the Projects and Landmarks, the T2.1 partners chose to analyse those directly related to CH domain, the Social and Cultural Innovation domain and the Data Computing and Digital Research domain.

The first RI (Research Infrastructure) committed in supporting research across and within the Social & Cultural Innovation (SCI) domain, includes the first known CH infrastructures, such as libraries, museums and archives⁶⁰. In the present digital age, RIs in the Social Sciences and Humanities (SSH) benefit from data collected and provided by SCI RIs as they contribute to research offering new insights not only into Europe's CH but also into its creative industries, in education, health and well-being of its citizens. Moreover, RIs support the development of social and economic policies, strategies and societal trends, making available data and knowledge⁶¹.

Though each RI is linked to a specific scientific area, as a whole ERIC RIs are crucial in addressing also transversal issues as setting up digital infrastructures, generating innovation, fostering the transfer of disruptive knowledge, enhancing the technical understanding of the economy sector of production and services. RIs have high potential for interdisciplinary and multidisciplinary research along with the horizontal analyses like socio-economic impact, territorial impact, pan-European and global dimensions.

Another prime transversal issue faced by RIs is the generation of high-quality data for enabling a knowledge-based economy. ESFRI fosters the definition, implementation, and further development of advanced solutions for the effective provision and use of high-quality scientific data, with effective descriptors, ease of access, interoperability, and reusability, fully implementing the FAIR principles. The European open research data system has converged in the overarching project European Open Science Cloud (EOSC) that will make possible a much higher level of interdisciplinarity and potentially a higher impact of solid scientific evidence into decision-making, planning, and strategy at societal level. ESFRI RIs contribute to EOSC, covering also HPC, distributed computing, scientific data, and networks⁶².

⁵⁹ ESFRI (2018), Roadmap 2018. Strategy report on research infrastructures. Available online, <http://roadmap2018.esfri.eu/media/1060/esfri-roadmap-2018.pdf> (Accessed on 15 May 2021).

⁶⁰ Idem, p.107.

⁶¹ Idem, p.109.

⁶² Council of the European Union (2015), Conclusions of the Council of the European Union of 29 May 2015 on Open, data-intensive and networked research as a driver for faster and wider innovation. Doc. 9360/15. Available online <http://data.consilium.europa.eu/doc/document/ST-9360-2015-INIT/en/pdf> (Accessed on 15 July 2021).

For 4CH, RIs are relevant references as they are engaged in research that meet both the demand of the scientific community for state-of-the-art resources for supporting excellent science, and the demand of knowledge transfer for innovation at social and economic level.

Research infrastructures (RIs) are recognized as one of the key elements for the development and improvement of knowledge and technology. RIs encompass single sited facilities and/or distributed facilities integrating resources across the European Research Area, as well as networks of national facilities and which serves researchers and practitioners.

As already mentioned, RIs are also generators of large amounts of data that have called for technical and policy solutions to curate, document, preserve and make available these data upon request by the scientist community or by developers⁶³.

A relevant aspect of RIs, which determines a difference with the 4CH CC concept, is that they are mainly enablers of high-quality research and data providers. 4CH CC, on the other hand, will provide a complete overview of the state of cultural heritage assets indicating which possible risks they may be subject to. 4CH CC will also provide the guidelines to be followed (including techniques) for the preservation and conservation of the CH assets taking particular care of digitization. Furthermore, one of the 4CH CC missions deals with consultancy, education and training activities and another mission, no less important, deals with management activities and strategic policy support, completely excluded from the RIs.

To better exploit RIs innovation potential, ERIC underlines the needs to ensure maximum return and therefore financial and societal long-term sustainability and acceptance: a robust long-term vision is essential to successfully and sustainably develop, construct and operate RIs, as well 4CH Competence Centre. ESFRI has addressed RIs sustainability since its creation, but a systematic approach was taken up in response to the Competitiveness Council request of 27 May 2016⁶⁴.

The EU supported RIs through its research and innovation funding programme 2014-2020, Horizon 2020, with 2.4 billion Euro. Other funds for the development of RIs came from the European Regional and Development Funds 2014-2020 (6.6 billion) and EU countries' investment (per year = 10 billion)⁶⁵.

European Infrastructures will remain at the core of the European Research Area and Horizon Europe, the EU's next research and innovation programme until 2027.

Research Infrastructures will contribute to the achievement of the Horizon Europe four key strategic orientations⁶⁶ by continuing to provide state of the art services, knowledge, and tools to address societal

⁶³ Ibid. p. 18.

⁶⁴ European Strategy Forum on Research Infrastructures Long-Term Sustainability Working Group (October 2017), Long-Term Sustainability of Research Infrastructures, ESFRI Scripta Vol.2., Available online http://www.esfri.eu/sites/default/files/u4/ESFRI_SCRIPTA_TWO_PAGES_19102017_1.pdf (Accessed on 15 July 2021).

⁶⁵ European Commission (2021), Research infrastructures. Make science happen. Available online https://embrc.codeconut.fr/sites/default/files/2020-10/KI0319636ENN.en_.pdf (Accessed on 15 May 2021).

⁶⁶ "1. promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains; 2. restoring Europe's ecosystems and biodiversity, and managing sustainably natural resources; 3. making Europe the first digitally enabled circular, climate-neutral and sustainable economy; 4. creating a more resilient, inclusive and

challenges, ensuring evidence-based policymaking and helping industry to innovate and strengthen knowledge base and technical know-how. Moreover, the European Open Science Cloud (EOSC)⁶⁷ and the European Data Infrastructure (EDI), will support researchers involved in Horizon Europe activities giving them the possibility to access and process most of the data generated and collected by RIs⁶⁸.

In particular, RIs are part of the challenges of Destination #1: A well-functioning European Research Infrastructure landscape⁶⁹: *"The challenges for the near future are to consolidate and optimise the European Research Infrastructure landscape and enhance its capacity to support frontier research and address the emerging and new scientific and societal objectives associated with the transition towards a sustainable and resilient Europe. In addition, there is the need to define an effective and sound RI strategy in Europe, which is complemented by and interlocks with the long-term ambition of creating an integrated Technology Infrastructure (TI) landscape, the latter is supported in Pillar II of HE"*⁷⁰.

The Topic 1.1 is dedicated to RI concept development aiming to support the development of new concepts for their next generation, single/multi sited, distributed or virtual RIs, that none or few Member States might individually be able to afford, and for the upgrading of existing RIs. The implementation of the ESFRI roadmap is considered crucial to address financial and technical issues as well as long-term operation and use. An important aspect that emerges from this topic is the need for a higher level of integration within European RI ecosystem, to consolidate and enhance coherence and cost-effectiveness of the landscape of pan-European RIs.

RIs are also involved in Destination #2: Enabling an operational, open, and FAIR EOSC ecosystem.

democratic European society." European Commission, Strategic plan, The first Horizon Europe strategic plan (2021-2024). Available online, https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/strategic-plan_en (Accessed on 15 May 2021).

⁶⁷ EOSC is an ecosystem of research data and related services. It encompasses standards, common rules of engagement, technologies, and services, which will enable and enhance seamless access to and reliable re-use of FAIR (Findable, Accessible, Interoperable, Reusable) research outputs (i.e., data and other digital objects), including those generated or collected by other research infrastructures, and covering the whole research data life cycle from discovery and mining to storage, management, analysis, and re-use.

⁶⁸ European Commission (Directorate-General for Research and Innovation Directorate A — Policy & Programming Centre Unit - Unit A.3 - Horizon Strategic Planning and Programming) (February 2021), Horizon Europe Strategic Plan (2021 – 2024), p. 22. Available online, https://ec.europa.eu/info/sites/default/files/research_and_innovation/funding/documents/ec_rtd_horizon-europe-strategic-plan-2021-24.pdf (Accessed on 15 May 2021).

⁶⁹ Destination 1 aims to create a coherent, agile and attractive RI landscape in Europe, by reducing its fragmentation at European, national and regional level, ensuring coordination of efforts and alignment of priorities among MSs, federating and connecting RIs to the EOSC, and which is able to support national and regional R&I ecosystems. The support to a European strategy for Research Infrastructures as well as activities to enhance the role of RIs for international cooperation and science diplomacy will also be covered under this Destination.

⁷⁰ European Commission (2021), Horizon Europe Work Programme 2021-2022, Part. 3, p. 10. Available online https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-3-research-infrastructures_horizon-2021-2022_en.pdf (Accessed on 15 July 2021).

EU has supported the EOSC development through several Horizon 2020 projects and an interim EOSC governance structure preparing the next stage of EOSC development for the period after 2020. H2020 projects, among the other results, have contributed to the connection of the ESFRI RIs and other world-class RIs, to the creation of a pan-European access mechanism, to the initial setting and operationalisation of the FAIR principles and a FAIR-compliant certification scheme for research data infrastructures. Another relevant result is the EOSC portal⁷¹, that allows the access to a range of services, guidelines and training and the development and provision of a number of research enabling and value-added services (both public and commercial). The EOSC portal lists and links all the projects related to EOSC. In particular, EOSC-hub and the following DICE projects can be significant references for 4CH. The EOSC hub project aims to create a hub of service providers to accelerate data-driven research in Europe. Nine so called “Key Exploitable Results (KER)” have been produced⁷². Among them, the Digital Innovation Hub, to whom a dedicated factsheet has been filled and is available in the present deliverable (see Appendix 1 – factsheet n. 7.1, pp. 129).

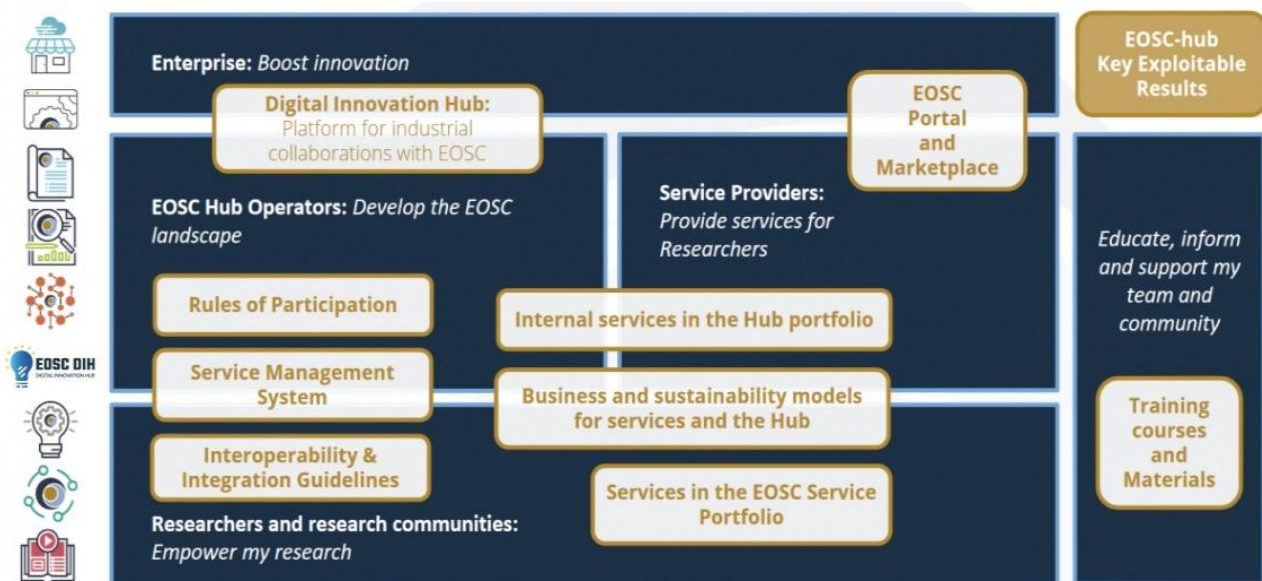


Figure 13. Key Exploitable Results (KER) (source: eosh-hub.eu).

The ESFRI Roadmap 2018 contains the list of 18 ESFRI Projects and 37 ESFRI Landmarks.

ESFRI Projects:

“The ESFRI Projects are RIs in their Preparation Phase which have been selected for the excellence of their scientific case and for their maturity, according to a sound expectation that the Project will enter the

⁷¹ The European Open Science Cloud - EOSC Portal, <https://eosc-portal.eu> (Accessed on 11 May 2021).

⁷² EOSC-hub (2021), Key Exploitable Results. Available online https://eosc-hub.eu/sites/default/files/EOSC-hub_BookletB5_february2021%20rev3.pdf (Accessed on 15 May 2021).

Implementation Phase within the ten-year term. They are included in the Roadmap to point out the strategic importance they represent for the European Research Area (ERA) and to support their timely implementation as new RIs or major updates of existing RIs. The Projects can be at different stages of their development towards implementation according to their respective date of inclusion in the Roadmap⁷³.

The ESFRI Project E-RIHS is based on the preliminary work done in the framework of the H2020 IPERION-CH project started in May 2015⁷⁴. It aims at supporting research and strategies on heritage interpretation, preservation, documentation. It connects researchers in the humanities and natural sciences and facilitates a trans-disciplinary culture of exchange and cooperation.

The 4CH CC will go beyond such research activities and access to state-of-the-art equipment. It has as its mission the completeness and interoperability of digitized data, to provide a complete information model of cultural heritage: the digital twin. The 4CH CC mission includes also the involvement of the industry. Finally, 4CH is inspired by the vision of a common European heritage reflecting the spirit of “united in diversity” which is at the root of the European Union.

ESFRI landmarks

“The ESFRI Landmarks are RIs that were implemented or reached an advanced Implementation Phase under the Roadmap and that represent major elements of competitiveness of the ERA. The Landmarks can be already delivering science services and granting user access, or can be in advanced stage of construction with a clear schedule for the start of the Operation Phase.

The Landmarks need continuous support and advice for successful completion, operation and – if necessary – upgrade to achieve optimal management and maximum return on investment⁷⁵.

According with the criteria of selection, we choose to analyze the following landmarks, related to CH or data and technology domains:

- **CESSDA ERIC** Consortium of European Social Science Data Archives
- **CLARIN ERIC** Common Language Resources and Technology Infrastructure
- **DARIAH ERIC** Digital Research Infrastructure for the Arts and Humanities
- **PRACE** (CINECA) Partnership for Advanced Computing in Europe

⁷³ ESFRI (2018), Roadmap 2018. Strategy report on research infrastructures, p. 157. Available online, <http://roadmap2018.esfri.eu/media/1060/esfri-roadmap-2018.pdf> (Accessed on 15 May 2021).

⁷⁴ European Research Infrastructure for Heritage Science (E-RIHS), <http://www.e-rihs.eu/> (Accessed on 15 May 2021).

⁷⁵ ESFRI (2018), Roadmap 2018. Strategy report on research infrastructures. Available online, <http://roadmap2018.esfri.eu/media/1060/esfri-roadmap-2018.pdf> (Accessed on 15 May 2021).

In particular, PRACE is a pan-European supercomputing RI providing access to world-class computing and data resources and services through a peer-review process. The five PRACE members provide the accessibility to the computer systems and their operations: BSC representing Spain, CINECA representing Italy, ETH Zurich/CSCS representing Switzerland, GCS representing Germany and GENCI representing France.

4CH analyzed only CINECA⁷⁶, as representative of the 5 structures, and Open AIRE⁷⁷, an e-infrastructure project for researchers that aims to enabling and guiding them to deposit research publications and data into open access repositories, in compliance with the EC Open Access pilot and the ERC Guidelines on Open Access. (See Appendix 1 factsheet n. 5.1, 5.2, 5.3, 5.4, 5.5, pp. 94-117 for more details).

Why ESFRI RIs can be taken into account for 4CH CC organization, objectives and goals?

RI, such as 4CH CC are high quality research and data enablers, as well as prescribers of cutting-edge technologies, so they can share valid references for 4CH CC.

RI ESFRI and 4CH share the following similar goals:

- strengthen interdisciplinary involvement for the care of cultural heritage;
- identify the best technologies for the protection of cultural heritage and promote new ones;
- investigate the various existing financing schemes - above all - to ensure the sustainability of the national parts⁷⁸.

3.2.3 EU-funded projects (for the establishment of Competence Centres)

The 4CH proposal quotes many projects mostly related to 3D digitization of CH but offers also an interdisciplinary perspective integrating complementary issues, such as managing data from preservation, conservation and restoration activities, semantic tools, tourism and storytelling, data management and policies for their further re-use. The WP1 is collecting and relating experiences, skills, best practices acquired and implemented so far in the European Countries in the fields of CH Conservation, Preservation and Valorisation, in the mapping of risks, in technologies and user needs, with specific reference to EU-funded research. Thus, for the above-mentioned EU project typologies, we invite to refer to those already mentioned in the proposal or that will be included in the WP1 research results.

⁷⁶ CINECA, <https://www.cineca.it/en> (Accessed on 15 May 2021).

⁷⁷ OpenAIRE, <https://www.openaire.eu/> (Accessed on 15 May 2021).

⁷⁸ European Commission (Directorate-General for Research and Innovation, Directorate B — Open Innovation and Open Science, Unit B.4 — Research Infrastructures) (2016), Report on the Consultation on Long Term Sustainability of Research Infrastructures, Publications Office of the European Union, Luxembourg, p.5. Available online <https://op.europa.eu/en/publication-detail/-/publication/9607d79e-47f3-11e6-9c64-01aa75ed71a1> (Accessed on 11 May 2021).

The present selection of EU-funded research is focused specifically on Competence Centres, in terms of their development, structure, organization and services. The projects have the specific aim to pave the way for the establishment of Competence Centres or represent pilot projects with the same purpose. First, it must be underlined that EU funds, especially under the Horizon 2020 Research and Innovation programme, are the main financial instruments that guarantee economic sustainability for the research and often also the pilot stage of the establishment of CCs, KCs as well as RIs.

CONCORDIA, ECHO, SPARTA and CyberSec4Europe and the European Cybersecurity Network

In order to pilot the creation of efficient networks of competence centres across the EU, able to jointly respond to cybersecurity industrial challenges, the Commission launched a call for proposals under the H2020 Work Programme, opening in February and closing in May 2018. The call was “Establishing and operating a pilot for a European Cybersecurity Competence Network and developing a common European Cybersecurity Research & Innovation Roadmap” (call H2020-SU-ICT_2018-2020⁷⁹). The learnings from the winning projects were intended to inform the process of creating the Cybersecurity Competence Network and the European Cybersecurity Research and Competence Centre.

CONCORDIA⁸⁰, ECHO⁸¹, SPARTA⁸² and CyberSec4Europe⁸³ are the four pilot projects chosen to address the Horizon 2020 Cybersecurity. Each of the four projects has a different but complementary approach to this shared common goal. They involve distinct cybersecurity excellence centres in Europe with diverse expertise, e.g., university labs, public or private non-profit research centres, taking into consideration public-private cooperation models and the ecosystems around them. The four projects cooperate and coordinate their activities extensively, working together with Europe’s cybersecurity ecosystem to advance and strengthen the way cybersecurity research, innovation and deployment is performed in Europe.

The European Cybersecurity Industrial, Technology and Research Competence Centre and the Network of National Coordination Centres have been established with the Regulation (Eu) 2021/887 of the European Parliament and of The Council on the 20th May 2021⁸⁴. The Competence Centre should be

⁷⁹ European Commission (2018), Funding & tender opportunities, Establishing and operating a pilot for a Cybersecurity Competence Network to develop and implement a common Cybersecurity Research & Innovation Roadmap, TOPIC ID: SU-ICT-03-2018. Funding scheme: RIA. Available online <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-ict-03-2018> (Accessed on 11 May 2021).

⁸⁰ H2020 CONCORDIA project, Cybersecurity Competence for Research and Innovation, ongoing (ending on 31st December 2022), <https://www.concordia-h2020.eu/> (Accessed on 15 May 2021).

⁸¹ H2020 ECHO project, European Network of Cybersecurity Centres and Competence Hub for Innovation and Operation, ongoing (ending on 31st December 2022), <https://echonetwork.eu/> (Accessed on 15 May 2021).

⁸² H2020 SPARTA project, Strategic programs for advanced research and technology in Europe, ongoing (ending on 31st January 2022), <https://www.sparta.eu/> (Accessed on 15 May 2021).

⁸³ H2020 CyberSec4Europe, ongoing (ending on 31st July 2022), <https://cybersec4europe.eu> (Accessed on 15 May 2021).

⁸⁴ European Parliament and The Council of The European Union (2021), REGULATION (EU) 2021/887 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 May 2021 establishing the European Cybersecurity Industrial, Technology and

established as a Union body with legal personality to which Commission Delegated Regulation (EU) 2019/715 (8) is to apply. The Competence Centre should perform a dual role: undertaking specific tasks in the area of cybersecurity industry, technology and research as laid down in the Regulation and managing cybersecurity-related funding from several programmes at the same time: the funding for the functioning of the Competence Centre would originate primarily from Horizon Europe and the Digital Europe Programme⁸⁵, confirming the central role of EU programmes in the economic sustainability of these type of structures.

The interest for 4CH in the four pilot project lays in their preparatory role for the Cybersecurity CC which is the last and more significant among the analysed existing EU CCs (see paragraph 3.1).

The Cybersecurity CC Regulation represents a valuable reference for the structure, the objectives, and the tasks of each part of the 4CH CC and its Network, as already stated in the proposal. Moreover, the four pilot projects offer a broad range of activities, including training and education programmes and demonstration test cases that can be a reference for 4CH portfolio of services. Another shared mission is the collaboration with industry and production, helping the development of EU-made innovative marketable solutions that will address the future cross-domain cybersecurity challenges to the security of the Digital Single Market.

The **Cybersecurity Competence Network** will be facilitated and coordinated by the Competence Centre. The Network should be made up of one national coordination centre from each Member State. National coordination centres should be public sector entities, or entities with a majority of public participation, performing public administrative functions under national law.

Another complementary entity along the Competence Centre and the Network is the Cybersecurity Competence Community. The Community should involve a large, interdisciplinary, and diverse group of European stakeholders related to cybersecurity technology and should include research entities, industries, SMEs and the public sector. The Community should provide input to the activities of the Competence Centre, to the multiannual and annual work programmes, in particular through the Strategic Advisory Group⁸⁶.

Research Competence Centre and the Network of National Coordination Centres, Official Journal of the European Union, 8.6.2021. Available online <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0887&from=EN> (Accessed on 15 May 2021).

⁸⁵ Idem. p. 4. For more details about financial provisions, see Articles 21 and 22.

⁸⁶ For a more detailed description of the mission, structure, services and governance of the European Cybersecurity Research and Competence Centre, see the correspondent factsheet (no. 1.8, p. 29, Appendix - 1).

Euro CC project/CASTIEL

Euro CC project and CASTIEL are two complementary EU-funded projects⁸⁷ that have been selected following the Horizon 2020 (call for proposal H2020-JTI-EuroHPC-04-2019⁸⁸) and will be coordinated by the High-Performance Computing Centre Stuttgart (HLRS), one of the members of the Gauss Centre for Supercomputing (GCS)⁸⁹.

Within the **EuroCC project**, each participating country is tasked with establishing a single National Competence Centre (NCC) in the area of high-performance computing (HPC). These NCCs will coordinate activities in all HPC, HPDA (High Performance Data Analytics) and artificial intelligence (AI) related fields at the national level and will serve as contacts point for customers from industry, science, HPC experts, and the general public alike. Ultimately, the goal is to make HPC available to different users from science, industry, public administration, and society.

Half of the budget comes from Horizon 2020, while the other half will come from the 33 participating countries.

The definition of Competence Center as interpreted by Euro CC project is:

“A National Competence Center is the reference and single point of contact and coordination on a national level for HPC. Its missions are to analyse, implement and coordinate all necessary activities and offers services to end users to cover their needs: from access to resources, from technological consultancy to the provision of training courses for academia, public administrations and industry”⁹⁰.

CASTIEL Coordination and Support for National Competence Centres on a European Level (call for proposal H2020-JTI-EuroHPC-2019-2⁹¹) will also run for a 2-year period, from 1st September 2020, with an extra Horizon 2020 funding of €2 million.

CASTIEL’s mission is to contribute to the achievement of the objectives and activities of the National Competence Centres as realized in the EuroCC project. CASTIEL will bring together a core consortium to setup a framework of activities that will support the evolution of each single National Competence Centre

⁸⁷ H2020 EUROCC ACCESS project, ongoing (ending on 31st August 2022), <https://www.eurocc-access.eu/> (Accessed on 15 May 2021).

⁸⁸ European Commission (2019), Funding & tender opportunities, HPC Competence Centres - TOPIC ID: EuroHPC-04-2019, European High-Performance Computing Joint Undertaking Annual Work Plan 2019 – Research and Innovation actions (RIA). Available online <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eurohpc-04-2019> (Accessed on 15 July 2021).

⁸⁹ Gauss Centre for Supercomputing (GCS), <https://www.gauss-centre.eu/> (Accessed on 15 July 2021).

⁹⁰ From the home page on the project website, H2020 EUROCC ACCESS project, HYPERLINK "<https://www.eurocc-access.eu/>"<https://www.eurocc-access.eu/> (Accessed on 15 July 2021).

⁹¹ European Commission (2019), Funding & tender opportunities, HPC Competence Centres, TOPIC ID: EuroHPC-04-2019. Coordination and support actions (CSA). Available online <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eurohpc-04-2019> (Accessed on 15 July 2021).

and enable them step by step to get closer together in terms of capabilities and expertise, identifying and closing gaps due to the diverse levels of maturity between the different nations.

Thus, the fundamental role of CASTIEL is to represent a single and central reference point at European Level to coordinate and support the National Competence Centres and foster the integration of the single nations into the overall strategy at European level while preserving their autonomy and without interfering with their national strategy.

The relevance of the two projects for 4CH is the path to bring together the necessary expertise to set up a cross-European network of NCCs in HPC-related topics, and the effort for the coordination of the 31 participating members and associated states. Also, the provision of a broad service portfolio tailored to the respective national needs of academia, public administrations and industry can be a reference for 4CH CC.

Although not included in the list of selected entities, it is considered pertinent to mention the **INCREAS (Innovative and Creative Solutions for Cultural Heritage) project**.

INCREAS is a Pilot policy project co-funded by the European Union under the Creative Europe programme⁹².

This project is focused on increasing employment opportunities and fostering the idea of sustainable cultural heritage in Europe. Project participants are developing innovative and creative educational solutions for the cultural heritage sector, like digital skills modules, workshops, study visits, and a structured peer-to-peer exchange programme.

The relevance for 4CH is that INCREAS aims to setting up a prototype of the European Competence & Community Centre for Heritage Assets (EUComp-Centre) in Austria that focuses on built heritage competences. The final goal is the formation of European Competence & Community Centres and an Exchange Programme for professionals, apprentices and volunteers, making possible the exchanges of experience, providing available learning, skills development and practical testing, and cooperation opportunities.

An interesting and distinctive purpose of INCREAS is the fostering of stronger connections and networking of cultural heritage sectors with Cultural and Creative Industries (CCIs) and "third places" such as creative hubs, maker spaces, fablabs, cultural centres, community centres or other – e.g., developing new hubs and enhancing existing ones.

To strengthened trans-national and cross-sectoral relations between the cultural heritage sector, professionals, CCIs and the community, INCREAS intends to benefit from formal/non-formal learning and skills development and already existing programmes like those offered by VET (Vocational Education and

⁹² Centro Universitario Europeo per i Beni Culturali, MODI-FY - Maintaining Historic Buildings and Objects through Developing and Up-grading Individual Skills of Project Managers: Fostering European Heritage and Culture for Years to come. Available online <https://www.univeur.org/cuebc/index.php/en/modify> (Accessed on 15 July 2021).

Training) e.g., MODI-FY⁹³ and PRO-Heritage⁹⁴. Peer learning, exchange of good practice and study visits are at the base of the methodology for the improvement of skills and the better employability of cultural heritage professionals.

(See Appendix 1 factsheet n. 6.1, 6.2, pp. 118-127 for more details).

Why analyzed EU-funded projects can be a reference for 4CH CC organization, objectives and goals?

- EU funds, especially under the Horizon 2020 Research and Innovation programme, are the main financial instruments that guarantee economic sustainability for the research and often also the pilot stage of the establishment of RIs, as is also the case of CCs and KCs.
- EU-funded projects related to CCs, developed roadmaps for the implementation of CCs and piloting the creation of efficient networks.
- EU-funded projects related to CCs offer a broad range of activities, services, training programmes.

3.2.4 Digital Innovation Hubs (DIHs)

The fourth group included among the other European facilities and clusters, potentially relevant for the definition of the 4CH CC, refers to Digital Innovation Hubs.

In April 2016 the European Commission adopted the Communication "Digitising European Industry"⁹⁵ to promote the digital transformation processes of companies with an industrial policy that is attentive to the re-launch of innovative investments and the creation of an innovation system, strengthening the link between Research and Industry.

The action is based on the network of actors consisting of Competence Centres and European Digital Innovation Hubs (EDIH).

The European Digital Innovation Hubs (EDIHs)⁹⁶ have the task of stimulating and promoting the production system's demand for innovation, reinforcing the level of knowledge and awareness of the opportunities offered by digitalization. They serve as the "gateway" for companies – especially SMEs and mid-caps but also the public sector - to the world of Industry 4.0.

In order to support the industry digitisation and implement the network of EDIH, the EC has:

- promoted a EUR 500 million investment (through Horizon 2020);

⁹³ MODI-FY project, New tools to train heritage asset managers. Available online, <https://ec.europa.eu/programmes/erasmus-plus/sites/default/files/erasmusplus-project-modi-fy.pdf> (Accessed on 15 July 2021).

⁹⁴ PRO-Heritage, <https://www.pro-heritage.eu/> (Accessed on 15 July 2021).

⁹⁵ It is the first industry-related initiative of the Digital Single Market package. European Commission, Shaping Europe's digital future, Digitising European Industry. Available online, <https://ec.europa.eu/digital-single-market/en/digitising-european-industry> (Accessed on 15 July 2021).

⁹⁶ European Commission, Shaping Europe's digital future, European Digital Innovation Hubs. Available online, <https://digital-strategy.ec.europa.eu/en/activities/edihs> (Accessed on 15 July 2021).

- launched the European platform of national initiatives on industrial digitisation;
- defined a European agenda for e-skills development;
- proposed measures to facilitate the free flow of data in the EU⁹⁷.

EDIH are single organisation or a coordinated group of organisations with complementary expertise and will have both local and European functions.

The strength of a DIH is that it is able to offer a qualified level of services through a network of national and European innovation players.

EDIHs provide access to technical expertise and experimentation as well as the possibility to “test before invest” and help companies improve their business, products and services through the use of digital technologies. They also offer innovation services, such as financing advice, training, and skills development that are needed for a successful digital transformation. Environmental issues are also taken into account, in particular with regard to energy consumption and low carbon emissions.

The process that will set the initial network of hubs has already started. Each MS will define its list of candidates, in accordance with national procedures, administrative and institutional structures. A first restricted call of expression of interest for EDIHs was expected to be launched at the end of May 2021, to enable selected EDIHs to start their operation early in 2022^{98 99} that will support projects in five key capacity areas: supercomputing, artificial intelligence, cybersecurity and advanced digital skills. With a planned overall budget of €7.5 billion (in current prices), it aims to accelerate the economic recovery after the COVID 19 pandemic and shape the digital transformation of Europe’s society and economy, bringing benefits to everyone, but in particular to small and medium-sized enterprises. DIGITAL will complement the funding available through the other EU programmes, such as the Horizon Europe programme, the Connecting Europe Facility for digital infrastructure, the Recovery and Resilience Facility and the Structural funds.

⁹⁷ European Commission, Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and The Committee of the Regions Digitising European Industry Reaping the full benefits of a Digital Single Market {SWD(2016) 110 final}. Available online <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52016DC0180&from=EN> (Accessed on 1 April 2021).

⁹⁸ In the moment we are writing the present deliverable, no info is available about this call.

⁹⁹ European Commission, Shaping Europe’s digital future, The Digital Europe Programme. Available online, <https://digital-strategy.ec.europa.eu/en/activities/digital-programme> (Accessed on 15 July 2021).

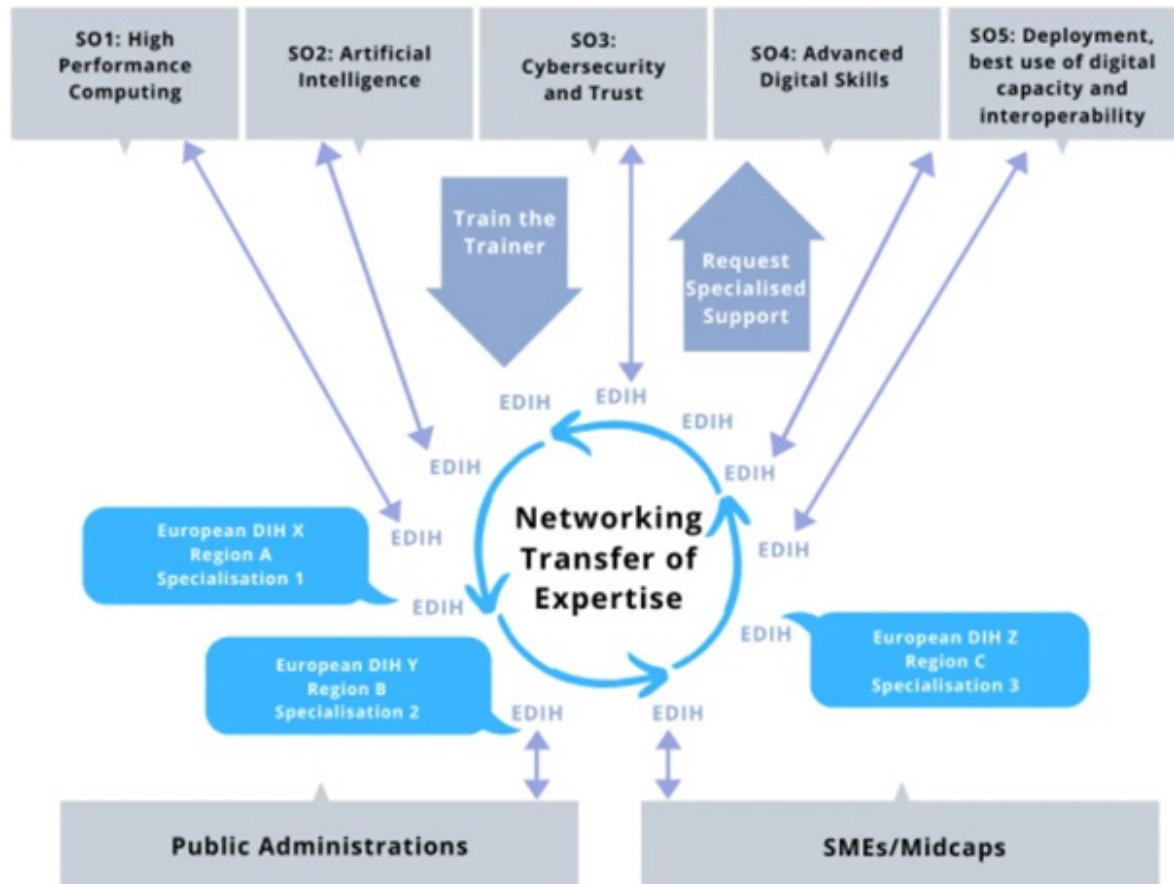


Figure 14. Scheme of a typical DIH ecosystem (source: "European Digital Innovation Hubs in Digital Europe Programme" EC Draft working document – 22 10 2020).

Why EDIHs can be a reference for 4CH CC organization, objectives and goals?

They are part of the network of organizations aimed at fostering innovation and digitization in EU, together with CCs, RIs and other.

EDIHs have EU, national or local dimension and influence.

Networking, collaborations and partnerships among different hubs, Countries and international, regional and local scales.

3.2.5 Documentation Centres on CH

According to European policy and initiatives, as drawn by the Digital Europe (DIGITAL)¹⁰⁰, the New European Agenda for Culture¹⁰¹, the Digital4Culture strategy¹⁰² or the Creative Europe¹⁰³ programs improving the accessibility and availability of information on Cultural Heritage thought digitization is a key step to achieve sustainable and inclusive valorisation actions recognising knowledge as a valuable and operable resource.

The 4CH CC will implement and foster the expertise in the field of CH digitalization by enhancing and sharing knowledge; defining standards, guidelines and protocols; promoting education and training on digitisation procedures, technologies and tools. In order to archive this kind of objectives, documentation centres, archives and digital platforms with particular focus on Cultural Heritage represent relevant entities from which to get hints and lessons learned.

The selection of analysed centres refers to **repositories, inventories, data index, digital platforms, network or expert-hubs** specialized in Cultural Heritage sector and its accessibility, conservation, preservation and enhancement thought digitalization. The information and data managed by the documentation centres include resources, documents, data and metadata on different heritage assets. Many of these entities are involved in National and European projects and networks, promote educational programs and training activities through different tools. The entities are grouped in four main families and for each one the most interesting aspects to 4CH future CC are described and highlighted. More detailed information is available in the Appendix – 1 section of the deliverable.

A. DIGITAL LIBRARIES AND AGGREGATORS of digitized contributions, aggregated from various institutions at national and supra-national level, within a single site/platform, responding to the needs of different users, expert as well as general public.

¹⁰⁰ European Parliament And The Council Of The European Union (2021), Regulation (EU) 2021/694 of the European Parliament and of the Council of 29 April 2021 establishing the Digital Europe Programme and repealing Decision (EU) 2015/2240 (Text with EEA relevance) PE/13/2021/INIT. Available online, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0694&from=EN> (Accessed on 15 July 2021).

¹⁰¹ European Commission, Culture and Creativity, Strategic framework for the EU's cultural policy. Available online, <https://ec.europa.eu/culture/policies/strategic-framework-eus-cultural-policy> (Accessed on 15 July 2021).

European Commission, Supporting media and digital culture. Available online, <https://digital-strategy.ec.europa.eu/en/policies/supporting-media-and-culture> (Accessed on 15 July 2021).

¹⁰² European Commission (2018), Communication from The Commission to the European Parliament, The European Council, The Council, The European Economic and Social Committee and The Committee of The Regions A New European Agenda for Culture COM/2018/267 final. Available online, <https://eur-lex.europa.eu/legalcontent/EN/TXT/PDF/?uri=CELEX:52018DC0267&from=EN> (Accessed on 15 July 2021).

¹⁰³ European Commission, Culture and Creativity, Creative Europe programme. Available online, <https://ec.europa.eu/culture/funding-creative-europe/about-creative-europe-programme> (Accessed on 15 July 2021).

Europeana¹⁰⁴, is an initiative of the European Union, financed by the European Union's connecting Europe Facility and European Union Member States: it is the European Union's digital platform for cultural heritage.

Europeana collects digitized contributions (including books, films, paintings, newspapers, sound archives, maps, manuscripts and archives) from various institutions of the member countries of the EU. The Europeana ecosystem is made of three interlinked expert organisations: Europeana Foundation (independent and non-profit organization that manages the digital platform and other digital services), the Europeana Network Association ENA (community of experts working in the field of digital cultural heritage) and the Aggregators Forum (the network of national, domain and thematic aggregators who support cultural institutions providing data and content to Europeana)¹⁰⁵. (See factsheet no. 8.1 for more detailed information).

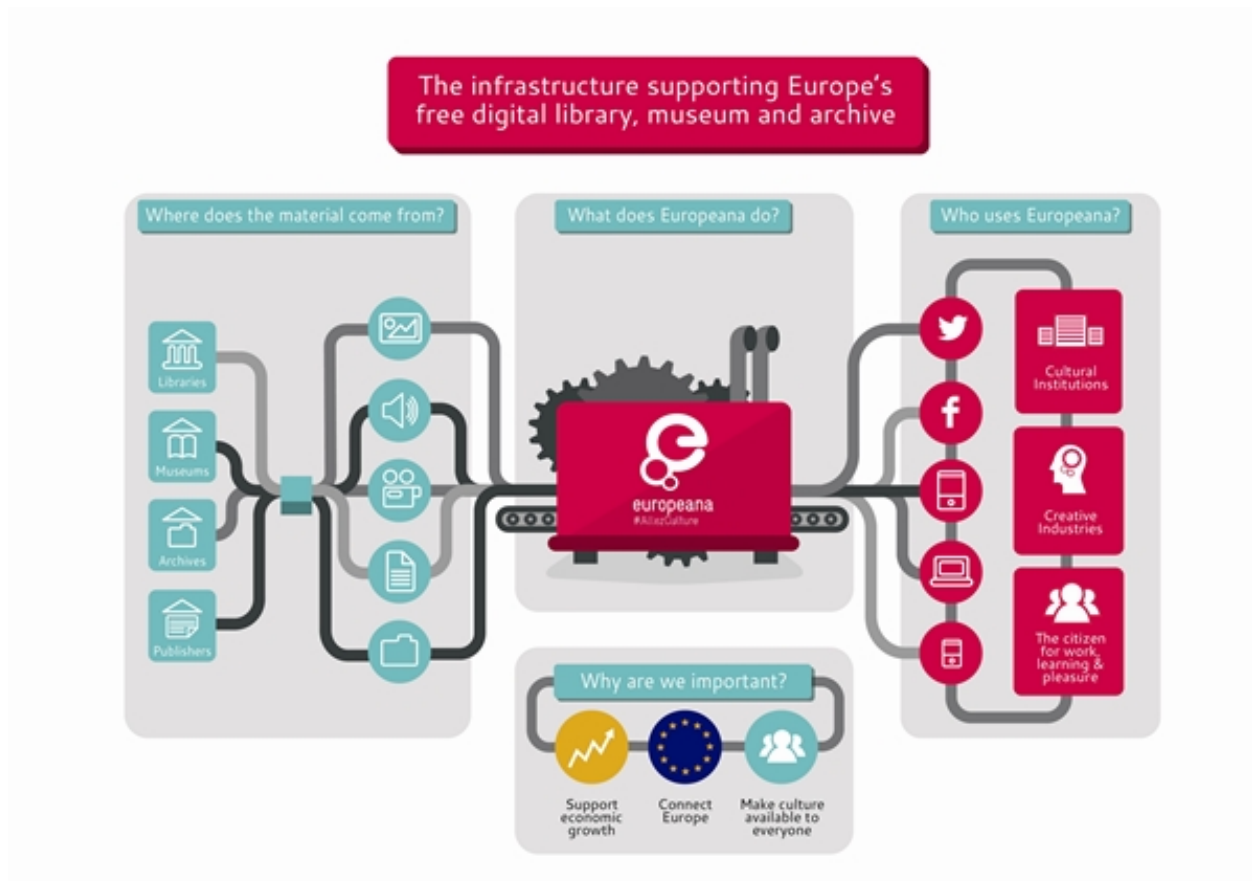


Figure 15. Scheme of Europeana infrastructure (source: blog. Euscreen.eu, 2013).

¹⁰⁴ Europeana, <https://www.europeana.eu/en>.

¹⁰⁵ Europeana, <https://pro.europeana.eu/about-us/mission>.

Culturaitalia¹⁰⁶, makes accessible, gathers, and organizes informational elements on Italian culture provided directly by the entities participating in the project who own and manage the resources. The online portal of the Italian Ministry of Culture Activities is managed by The Central Institute for the Union Catalogue of Italian Libraries and Bibliographic Information (ICCU) and is a trusted national aggregator of Europeana. Culturaitalia participates to Research Infrastructures in the Digital Humanities & Cultural heritage sectors such as DARIAH-IT¹⁰⁷ or ARIADNE Plus¹⁰⁸. (See factsheet no. 8.3 for more detailed information).

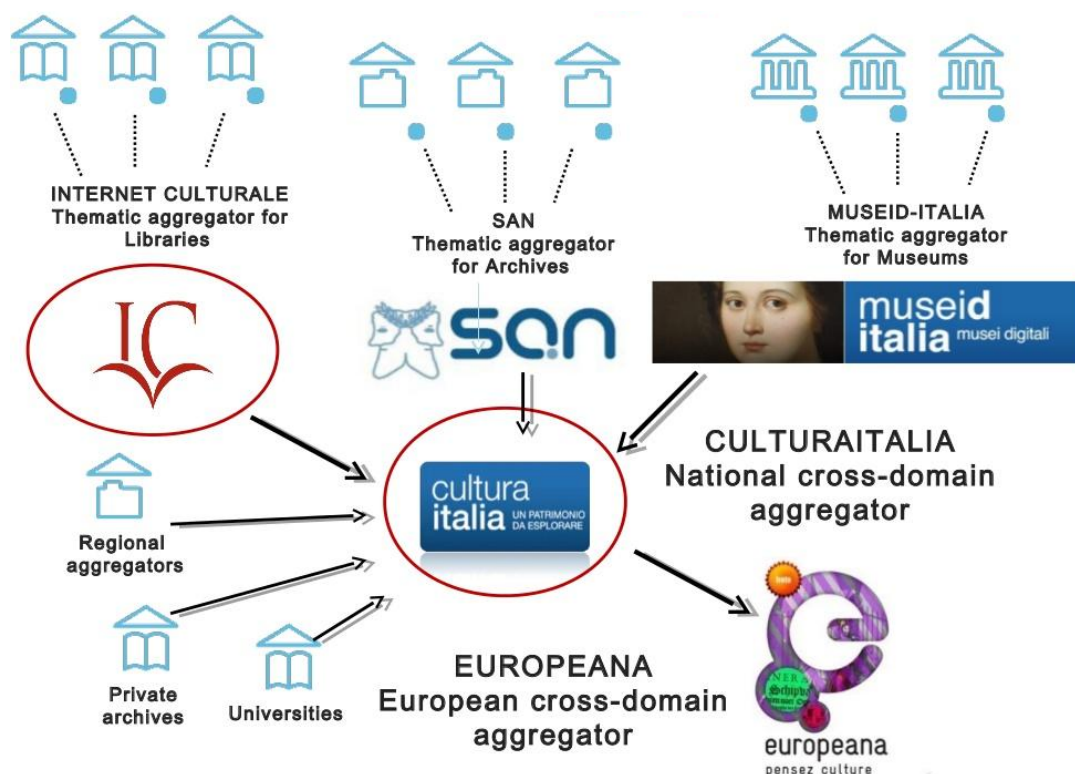


Figure 16. Culturaitalia and the aggregator system (Conference held at the former SSAB by ICCU).

Digital Public Library of America¹⁰⁹, is a single point access to nation's digital cultural heritage materials (photographs, maps, news footage, oral histories, manuscript documents, artwork, etc.) from different types of libraries, archives, museums and cultural institutions (public, state, academic, school,

¹⁰⁶ Culturaitalia, the Italian National Cultural Aggregator, The project. Available online, http://www.culturaitalia.it/opencms/il_progetto_en.jsp?language=en&tematica=static (Accessed on 15 July 2021).

¹⁰⁷ Science and Technology Digital Library, DARIAH-EU: un ecosistema d'avanguardia per la ricerca umanistica europea. Available online, <http://stdl.cnr.it/it/dariah> (Accessed on 15 July 2021). The Digital Research Infrastructure for the Arts and Humanities (DARIAH), <https://www.dariah.eu/> (Accessed on 15 July 2021).

¹⁰⁸ EU H2020 ARIADNEplus project, <https://ariadne-infrastructure.eu/portal/> (Accessed on 15 July 2021).

¹⁰⁹ DPLA - Digital Public Library of America, Strategic Roadmap, 2019-2022. Available online, <https://pro.dp.la/about-dpla-pro/strategic-plan> (Accessed on 15 July 2021).

consortia, etc.) across the United States, provided by a growing partner network. The DPLA is based on a “Hubs Model”¹¹⁰ of national network of digital libraries, consisting of Service Hubs (aggregators of metadata from their partners to contribute it to DPLA, hosts digital content, digitization, metadata creation or enhancement, professional development, community outreach programs, etc.) and Content Hubs (individual institutions with large digital collections). (See factsheet no. 8.8 for more detailed information).

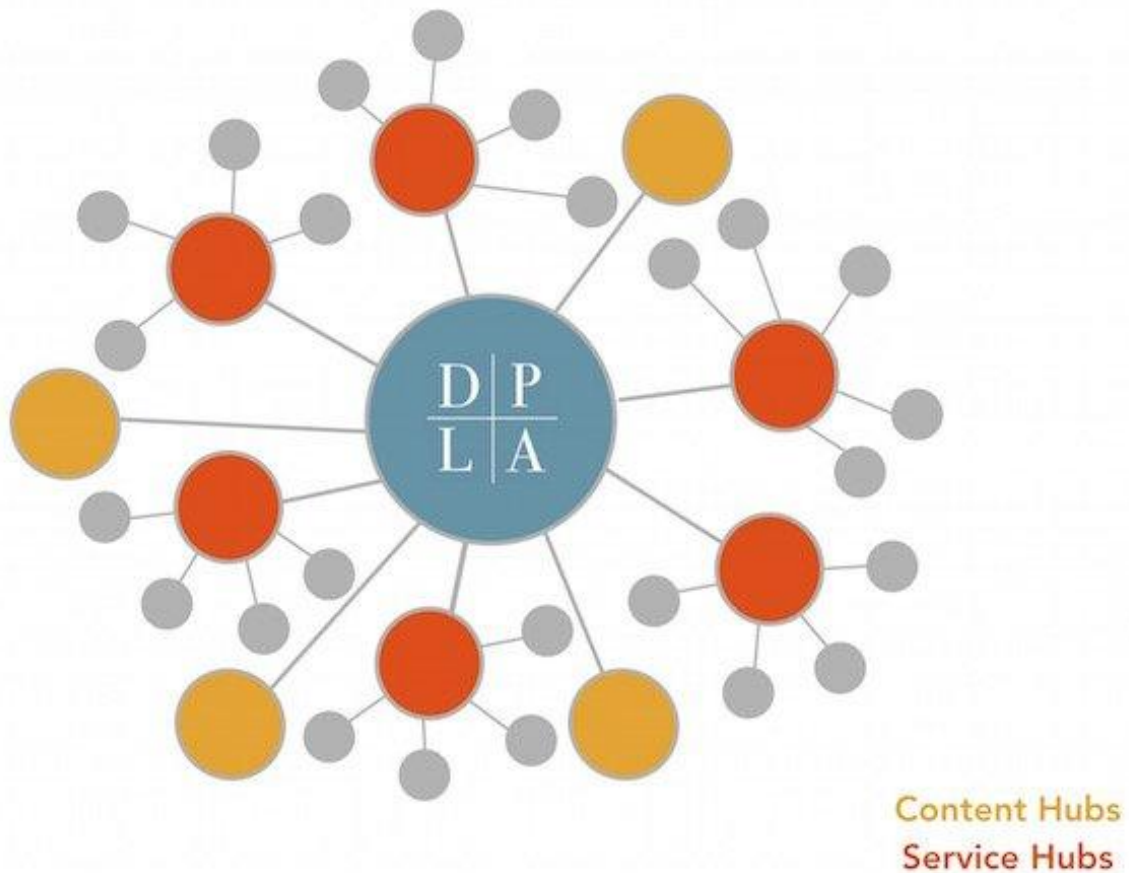


Figure 17. DPLA Hub Network (source: noshelfrequired.com).

POP: la plateforme ouverte du patrimoine (France)¹¹¹, is a digital database promoted by the Ministry of Culture: a tool for disseminating cultural resources that brings together and makes accessible the digital collections of French heritage from a unique portal. (See factsheet no. 8.10 for more detailed information).

¹¹⁰ DPLA, Prospective Hubs, <https://pro.dp.la/prospective-hubs> (Accessed on 15 July 2021).

¹¹¹ POP: la plateforme ouverte du patrimoine, <https://www.pop.culture.gouv.fr/> (Accessed on 15 July 2021).



Figure 18. POP map to access geolocated heritage data (source: pop.culture.gouv.fr).

B. EXPERT-HUBS OF DIGITAL CULTURAL HERITAGE VALORISATION NETWORKS, providing services and support to other institutions for digitization and contents aggregation for Europeana.

MUSEU-HUB¹¹², is a reference point and metadata aggregator specialized in Museum collections, which represents a bridge for museums who want to join Europeana. **It provides advice, services, good practices, training, helpdesk, documentation and updating** on the fields of digitisation standards, IPR (Intellectual Property Rights) and reuse, multilingualism and terminologies, digital exhibitions, digital storytelling tools¹¹³. The hub, run by experts linked to MICHAEL Culture Association¹¹⁴, collaborates with

¹¹² MUSEU HUB, Services for museums going digital and aggregating for Europeana, <http://www.museuhub.eu/en/1/home> (Accessed on 15 July 2021).

¹¹³ MUSEU HUB, Services, <http://www.museuhub.eu/en/7/services> (Accessed on 15 July 2021).

European projects, networks and initiatives (MINERVA¹¹⁵, MICHAEL¹¹⁶, Linked Heriatgem Athena¹¹⁷, AthenaPlus¹¹⁸, Indicate¹¹⁹), is an accredited aggregator of Europeana, and benefits from the network of National Contact Points as mediators between the hub and contributing local institutions. It is the reference point for European museums and other cultural institutions hosting museum collections in the field of digital cultural heritage and aggregation for Europeana¹²⁰. Within the Europeana ecosystem, MUSEU cooperates with other expert-hubs at European level such as Archives Portal Europe Foundation¹²¹ and CARARE¹²². (See factsheet no. 8.9 for more detailed information).

CARARE - Connecting Archaeology and Architecture in Europe¹²³ gathers agencies and organisations, research institutions, specialist digital archives to advance professional practice and foster digital archaeological and architectural heritage resources in many different fields of application. CARARE, as well as MUSEU among the others, was one of the technical infrastructures funded by the EU Commission to help develop Europeana. The centre plays a significant role in involving Europe's network of organisations responsible for investigating, protecting, informing, and promoting archaeological monuments, architecturally important buildings, historic town centres and industrial monuments of World, European and National heritage importance alongside the existing national, regional, and local content providers. It is responsible for different aggregation services¹²⁴ providing access to documentation, guidelines, and tools, among which adding 3D and Virtual Reality¹²⁵ content to Europeana. (See factsheet no. 8.11 for more detailed information).

¹¹⁴ MICHAEL Culture Association is a European trans-domain devoted to European digital cultural heritage valorisation which gathers a network of public and private organizations, in turn linked to European cultural heritage networks and projects such as Europeana or the Europe's Digital Library, <http://www.michael-culture.eu/> (Accessed on 15 July 2021).

¹¹⁵ MINERVA Knowledge base, <https://www.minervaeurope.org/home.htm> (Accessed on 15 July 2021).

¹¹⁶ MICHAEL Culture Association, <http://www.michael-culture.eu/> (Accessed on 15 July 2021).

¹¹⁷ LINKED HERITAGE, <https://www.linkedheritage.eu/> (Accessed on 15 July 2021).

¹¹⁸ AthenaPlus, <https://www.athenaplus.eu/> (Accessed on 15 July 2021).

¹¹⁹ INDICATE (International Network for a Digital Cultural Heritage e-Infrastructure), <https://www.indicate-project.eu/> (Accessed on 15 July 2021).

¹²⁰ MUSEU-HUB, <https://pro.europeana.eu/organisation/museu-hub> (Accessed on 15 July 2021).

¹²¹ Archives Portal Europe Foundation, <http://www.archivesportaleuropefoundation.eu/> (Accessed on 15 July 2021).

¹²² MUSEU HUB, Sister hubs, <http://www.museumhub.eu/en/31/sister-hubs> (Accessed on 15 July 2021).

¹²³ CARARE, <https://www.carare.eu/en/> (Accessed on 15 July 2021).

¹²⁴ CARARE, Services & Guidelines, <https://pro.carare.eu/en/services-guidelines/> (Accessed on 15 July 2021).

¹²⁵ CARARE, Sharing 3D Cultural Heritage. Available online, <https://www.slideshare.net/CARARE/sharing-3d-cultural-heritage> (Accessed 15 July 2021).

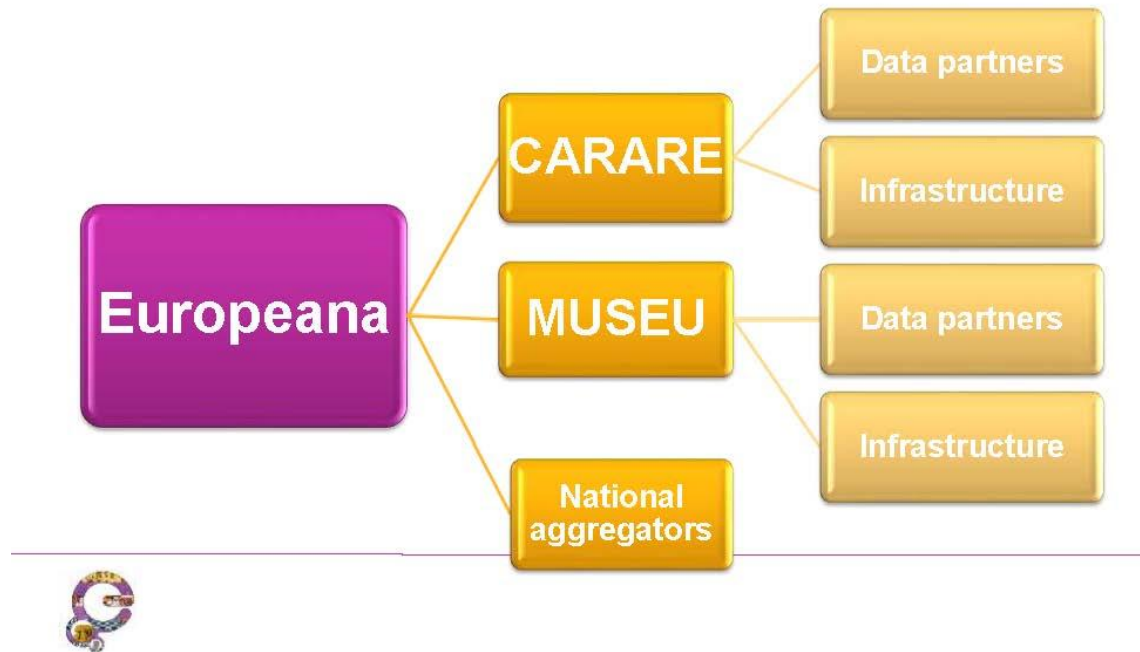


Figure 19. Scheme describing CARARE and MUSEU relationships with Europeana (source: pro.carere.eu).

C. DATABASES, DIGITAL INVENTORIES AND REPOSITORIES managed by National Government institutions or by consortium of Accademia led stakeholder network dedicated to promoting and preserving digital heritage data. The platforms collect, describe, catalogue, and preserve digital resources.

The General Catalogue of Cultural Properties¹²⁶ (Italy), the new cataloguing system is a public digital service and a necessary tool identifying and describing cultural assets that are recognised as being of artistic, historical, archaeological, or ethno-anthropological interest, with an aim of heritage safeguarding and for conservative interventions. The cataloguing activities are carried out and managed at national level by **ICCD (Central Institute for Cataloguing and Documentation)** with the assistance of the regions and other territorial authorities. The portal is integrated with crowdsourcing tools that allow engagement with registered users for the enrichment of heritage data through OLAF (Open Linked Authority File). The catalogue is based on a linked open data web platform (Sigec Web) that manages the entire cataloguing flow: production and diffusion of standards, assignment of unique cataloguing code to the assets (archaeological, architectural and landscape, demo-ethno-anthropological photographic, musical, naturalistic, numismatic, scientific and technological, historical and artistic), publication of sheets for the use on the website of the general catalogue of cultural heritage. (See factsheet no. 8.4 for more detailed information).

¹²⁶ Catalogo Generale dei Beni Culturali, <https://catalogo.beniculturali.it/> (Accessed on 15 July 2021).

The Archaeology Data Service ADS¹²⁷, a digital management and storage centre with a specific focus on **long term** preservation and Open Access to heritage digital data and resources created through archaeological research (collection, description, preservation, technical advice and support services, information standards and guidelines) to promote good practices and facilitate their re-use by the heritage sector and wider users' community. The centre collaborates with the national and local archival bodies to promote the use of existing and available services; it works with research councils, national and local archaeological agencies involved in the funding of archaeological research, to negotiate deposition of project data derived from fieldwork as well as desk-based studies. The ADS works within international e-infrastructure collaborations, such as ARIADNE and E-RIHS to explore new ways of connecting archives around the world in a global network. It relies on promotion strategy through training workshops, teaching and learning resources, blog, newsletter, social media, publications, guides to good practices, workshops, conferences, events, help desk for data depositors, FAQs etc. (See factsheet no. 8.7 for more detailed information).

France Archive¹²⁸ is a digital portal, promoted by *Ministère de la Culture and Service interministériel des Archives de France*, aimed to the valorisation of the national heritage archives (divided in wide, spread and different departments) within the wide public (mainly citizens and people working in educational fields) promoting accessibility of institutional documents data and info about the resources in a single, simple and user-friendly access point, linking to the external providers. The portal provides administrative support; suggests research paths, strategies, and guidelines (in the form of "How to") to explore the France heritage archives; it publishes reports on the use of the service; supports archivists operators; organizes annual conferences. The portal operates in coordination within several European and National networks and projects such as the Archives Portal Europe, *Le Conseil international des Archives* (ICA + EURBICA); *Le Portail international archivistique francophone* (PIAF); *Association Archivistes Sans Frontières*; *Groupe Européen des Archives* (AEG). (See factsheet no. 8.2 for more detailed information)

D. NATIONAL INSTITUTES FOR CATALOGUING AND DOCUMENTATION responsible for cataloguing standards and national heritage catalogues and databases. These are in particular:

Central Institute for the Union Catalogue of Italian libraries and for bibliographic information - ICCU¹²⁹ (*Istituto Centrale per il Catalogo Unico delle biblioteche italiane e per le informazioni bibliografiche*) is the national public centre for cataloguing and management of national bibliographic heritage and other databases related to library services (National Library Service - SBN). The main aim is

¹²⁷ The Archaeology Data Service (ADS), <https://archaeologydataservice.ac.uk/about/background.xhtml> (Accessed on 15 July 2021).

¹²⁸ France Archive, <https://francearchives.fr> (Accessed on 15 July 2021).

¹²⁹ ICCU - Istituto Centrale per il Catalogo Unico delle Biblioteche Italiane e per le Informazioni Bibliografiche, <https://www.iccu.sbn.it/en/index.html> (Accessed on 15 July 2021).

improving the knowledge of bibliographic collections and simplifying user access, promoting open source and open-access policies, cooperation among institutions, dissemination of cataloguing standard; accountability and transparency. The centre cooperates in particular with the national ICAR - Central Institute for the Archives¹³⁰ and ICCD - Central Institute for Cataloguing and Documentation¹³¹.

Among the various activities and expertise, ICCU:

- coordinates projects for the cataloguing, digitisation, and long-term preservation of digital documents;
- produces, translates and disseminates national guidelines and international standards for the cataloguing of several types of materials;
- provides training and help for cataloguing through online resources, courses and internships.

The different departments reflects the internal organization and the several activities in charge of:

- elaboration and diffusion of cataloguing, teaching standards and guidelines;
- development and coordination of the catalogue and the network of the national library service;
- ensure accessibility to bibliographic information and to the database of Italian libraries;
- development of digitisation services and document retrieval;
- bibliography, cataloguing and census of ancient books and manuscripts;
- communication and cultural promotion service;
- administrative service;
- information and communication technology;
- documentation Office for International Programs, such as the European Documentation Center (CDE OPIB) specialized on European Programs and International Initiatives pertaining to the world of culture, research and training¹³², CARARE (ICCU has been a member of the association since 2019), Europeana and many others¹³³. (See factsheet no. 8.6 for more detailed information).

Central Institute for Cataloguing and Documentation (ICCD)¹³⁴, is a National Central Institute of the Italian Ministry of Culture for **research, development and definition of knowledge methods, tools and cataloguing standards** for the management and preservation of different types of Italian cultural heritage. ICCD manages the New Italian national catalogue of archaeological, architectural, artistic, scientific, photographic and demo-ethno-anthropological heritage. (See factsheet no. 8.5 for more detailed information).

¹³⁰ ICAR - Central Institute for the Archives, <https://www.icar.beniculturali.it/> (Accessed on 15 July 2021).

¹³¹ ICCD - Central Institute for Cataloguing and Documentation, <http://www.iccd.beniculturali.it/> (Accessed on 15 July 2021).

¹³² The CDE OPIB EUROPEAN DOCUMENTATION CENTER, <http://www.opib.librari.beniculturali.it/index.php?it/360/il-cde-opib> (Accessed on 15 July 2021).

¹³³ ICCU, International activities, <https://www.iccu.sbn.it/en/activities/international-activities/> (Accessed on 15 July 2021).

¹³⁴ ICCD - Central Institute for Cataloguing and Documentation, <http://www.iccd.beniculturali.it/> (Accessed on 15 July 2021).

Why analyzed Documentation Centres can be taken into account for 4CH CC organization, objectives and goals?

The 4CH CC will provide services and activities such as the definition of digitisation standards, criteria and parameters about the quality assessment of digitised monuments, sites and documents will be based on, and will establish a dynamic repository on available new digital technologies for preservation and promotion of cultural heritage, arising from EU research projects results. In this perspective, the analysed Documentation Centres can be considered best-practices in the field of cataloguing, digitisation, and long-term preservation, and management of repository services according with an innovative, collaborative and open-access oriented approach.

3.2.6 Other national and international centres on CH

The last macro-group of relevant entities taken into account by the survey refers to centres specialized in the protection, preservation and valorization of Cultural Heritage at National and International level.

The future CC will work with a network of national, regional, and local Cultural agencies and Institutions, professionals and citizens, providing them knowledge (advice and support activities) and services in the wide field of CH. The conservation of monuments, historic buildings, historic urban areas and other forms of value recognized heritage (artifacts, archives, intangible heritage, etc.) is a significant cultural, social, economic and strategic resource of great potential, important for European history and identity.

According to the objective 1 of 4CH project, as stated in proposal, *“the future CC, among the different objectives and goals, will promote a holistic and multidisciplinary approach to the conservation of CH, facilitating coordination between Heritage Agencies and CH Institutions across Europe and ongoing European initiatives, building an effective partnership to promote the conservation and valorization of CH and enabling the take up and transfer of research project results by the cultural heritage sector”*¹³⁵.

In this perspective, the analysis of centres and institutions with a remarkable commitment on Cultural Heritage, represent a useful resource per building the CC, establish and implement the 4CH’s network. In the same way as for Documentation Centers group, the analysed centres are divided into sub-categories.

A. National public institutes operating in CH restoration, conservation, and promotion field.

The Spanish Cultural Heritage Institute (IPCE - Instituto del Patrimonio Cultural de España) is a public research institution operating within the Directorate General of Fine Arts of the Ministry of Culture and Sports of the Government of Spain, in the areas of conservation, restoration, research, documentation and dissemination of Spain’s cultural heritage and specialized training. It focuses on interdisciplinary actions of special complexity or those that have a significant research component, constitute an innovation in criteria and methods or address new fields of heritage, in order to subsequently transfer this knowledge to society through courses, conferences and publications.

¹³⁵ 4CH - GA, Part B, Objective 1, p. 4.

The Institute is organized in specific departments:

- Interventions area
- Research and training area
- Documentation and dissemination area
- Internal regime area (human resources, financial resources, processing of agreements and subsidies, etc.).

IPCE is part of national and international networks, among which, the EU founded Open Heritage: Research and Society¹³⁶ (a tool of investigation and interdisciplinary innovation that addresses the great challenge of the conservation, understanding and dissemination of tangible cultural heritage); and the Science and Technology Network for the Preservation of Cultural Heritage.

The centre manages the IPCE collection and archive through the architectural Heritage Inventory¹³⁷ and the web catalogue¹³⁸: most of the documents are digitized and open access. (See factsheet no. 9.1 for more detailed information).

The Centre for the Conservation and Restoration of Cultural Heritage, Italy (CCR - Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale")¹³⁹ is a foundation created in the context of redevelopment interventions of the monumental complex of the Reggia di Venaria (Piedmont region) to establish a centre for higher education and research in the field of cultural heritage conservation, following three main strategic axes: innovation, internationalisation and culture to be developed with a digital transformation process.

It offers advanced level training and capacity building programs promoting the development of the territory through knowledge transfer to the local cultural heritage enterprises, by means of an interdisciplinary approach and cross-sectorial projects and collaborations at local, national, and international level. CCR works in partnership with several CH institutions (e.g., ICOM), Research centres (e.g., C2RMF), Universities and high education institutes, public bodies, organizations and associations, museums, archaeological and touristic sites, and economic companies. The main active areas within the Centre are:

- the Restoration Laboratories
- the Scientific Laboratories
- the Higher Education School
- Educational Services.

¹³⁶ PATRIMONIO ABIERTO: INVESTIGACIÓN Y SOCIEDAD, Plataforma Temática Interdisciplinar – CSIC (Open Heritage: Research and Society), <https://pti-pais.csic.es/> (Accessed on 15 July 2021).

¹³⁷ IPCE, Inventario del Patrimonio Arquitectónico, <http://www.mcu.es/comun/bases/ipce/IPAA.html> (Accessed on 15 July 2021).

¹³⁸ Archive of the Institute of Cultural Heritage of Spain (IPCE), <http://catalogos.mecd.es/opac> (Accessed on 15 July 2021).

¹³⁹ CCR - Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale", <https://www.centrorestaurovenaria.it/> (Accessed on 15 July 2021).

The centre hosts a Master Course in "Conservation and Restoration of Cultural Heritage" in the framework of an agreement with the University of Turin; offers to institutions partnership for technical, scientific, methodological support for the development of research projects, educational programmes, conservation activities, scientific analysis; organizes on demand training courses and schools at regional, national or international level; workshop and congress organisation.

The centre could represent a National Community partner and a National Community reference institution for the future 4CH CC, to provide best practices in preservation and conservation of Cultural Heritage. (See factsheet no. 9.2 for more detailed information).

The Central Institute for Restoration (ICR), Italy (Istituto Centrale per il Restauro)¹⁴⁰ is a technical body of the Italian Ministry of Cultural Heritage and Activities specializing in the field of restoration and conservation of works of art and cultural heritage. The ICR promotes and develops the scientific research aimed at the preservation, protection, and restoration of cultural heritage, carrying out conservation projects, research, experimentation, and verification activities with the final aim of the protection of cultural assets. Among its provided services, are highlighted: counselling and orientation in conservation and restoration projects, preventive conservation, training and capacity building, support in innovation and standardization of new materials and methods for CH. The ICR includes an educational centre, the Higher Education School (SAF – Scuola di Alta Formazione) responsible for the training activity of future restorers. The institute is organized in different departments, including:

- Conservation Laboratories
- Scientific Laboratories
- Advanced training area
- Research and Development area
- Communication & Documentation area
- Technical service.

The ICR manages the produced documentation on the occasion of the conservation and restoration interventions conducted on the Italian and foreign cultural heritage through the ARES system platform, an Intranet / Internet system, entirely based on open-source technologies. (See factsheet no. 9.3 for more detailed information).

The Opificio delle Pietre Dure (OPD)¹⁴¹, Italy, is an Institute with special autonomy within the Ministry of Culture, belonging to the Directorate General for Education, Research and Cultural Institutes, operating in the field of restoration of works of art. The activity of the institute is divided into sectors of restoration and research identified on the basis of the constituent materials of the works of art. Its activity takes place in three offices but also extends to the outside, both in the form of operational sites and technical-scientific

¹⁴⁰ ICR – Istituto Centrale per il Restauro, <http://www.icr.beniculturali.it/> (Accessed on 15 July 2021).

¹⁴¹ OPD - Opificio delle Pietre Dure, <http://www.opificiodellepietredure.it/> (Accessed on 15 July 2021).

consultancy, addressing, upon request, all the assets of historical-artistic interest subject to public protection.

The Institute host one of the official national restoration schools, defined as Higher Education and Studies. OPD is in charge of the activity connected to the scientific disciplines applied to the study and conservation of cultural heritage. The scientific sectors provide technical-diagnostic assistance to restoration activities and at the same time deal with studies and research in the field of scientific diagnostics and in the conservation methodologies of cultural heritage. The two sectors that operate in the field of scientific diagnostics and research are the Scientific Laboratory and the Climatology and Preventive Conservation Sector. The OPD's Documentation and Research activity includes a Library, the Cultural Promotion Office which manages the external activities of the OPD as well as the editorial stuffs (the main restorations are accompanied by monographic publications), a photographic laboratory and the photographic and restoration archives. (See factsheet no. 9.4 for more detailed information).

The Centre for Research and Restoration of the Museums of France (C2RMF)¹⁴² provides operative technical and scientific support for the research, preventive conservation, and restoration of the collections of French museums. C2RMF is responsible for the documentation, conservation and restoration of the items held in the museums collections in France. It carries out extensive scientific studies and data recording for these collections and is active both nationally and internationally in the field of cultural heritage conservation and analysis.

The centre is involved in the development of technologies and scientific procedures employed in the preservation of art works and artefacts, both on its own and in partnership with other museums and research institutions across the globe. Its mission is framed under three axes: scientific research (especially linked with materials), the restoration of museums heritage and the control on (both scientific and technical) on the state of conservation of the heritage assets. In addition to this, the Centre also provides documentations on materials, techniques, and restoration methodologies. The Centre publishes a six-monthly magazine, which disseminates the multidisciplinary results of materials science and heritage restoration. Each restoration or major research project is the subject of a booklet. The agency carries out didactic actions, organizes conferences and seminars, disseminating of the knowledge acquired and the skills developed within the C2RMF. The centre works in partnership with national (Centre de recherche sur la conservation (CRC)¹⁴³ and Laboratoire de recherche des Monuments Historiques) and international institutions (Getty Conservation Institute). The C2RMF is involved in many European and international programs, it is one of the coordinators for France of the E-RIHS project. Furthermore, its expertise is recognized by the international scientific community for the creation of research and restoration laboratories. (See factsheet no. 9.7 for more detailed information).

¹⁴² C2RMF - Centre for Research and Restoration of the Museums of France, <https://crc.mnhn.fr/fr> (Accessed on 15 July 2021).

¹⁴³ Centre de Recherche sur la Conservation, <https://crc.mnhn.fr/fr> (Accessed on 15 July 2021).

The historical monuments research laboratory - *Le laboratoire de recherche des monuments historiques (LRMH)*¹⁴⁴, France, provides high-level scientific and technical assistance, consultancy and support for interventions (conservation and restoration) on tangible cultural heritage in France at public and private level. The Laboratory participates in the framework of the government scientific and technical control. LRMH works through the scientific orientation to clients and project managers (Technical and scientific control of the State) and the scientific studies on State-owned monuments and great works, and research on heritage conservation. The LRMH research activity follows three main themes: knowledge of the materials constituting the heritage works and their alteration mechanisms; optimization or evaluation of conservation and restoration techniques and products; the development of new scientific instrumentation, the least invasive as possible and often usable in the field. The centre provides technical and scientific contents and is involved in educational collaborations with relevant institutions. The LRMH is part of several European Projects and networks (e.g. NANOMATCH, CHARISMA, IPERION CH, platform E-RIHS) and co-operates at the international level through several "missions d'expertise" (scientific-expert missions). (See factsheet no. 9.6 for more detailed information).

The Institutul Național al Patrimoniului INP¹⁴⁵, (**National Heritage Institute**), **Romania**, is a public body of national relevance with a focus on Culture Heritage preservation, architectural restoration, digital evidence and dissemination. The Institute works under, supports and collaborates with the Institutional bodies of the Ministry of Culture in several tasks: it manages the consolidation and restoration research funds; provides standards, expertise and specialized technical assistance in the field of protection of historical monuments; proposes the initiation of normative acts in the field of protection of historical monuments; develops and maintains national databases and evidence instruments for archaeological heritage, mobile cultural heritage, intangible cultural heritage; accredits experts, technical experts, verifiers/technical verifiers and specialists. The institute manages the digital library, repository, and data sharing platform "e-Patrimoniul.ro"¹⁴⁶ where Methodological documents, Regulatory acts on cultural heritage, digital collections and news are made accessible. The institute operates also through the organization of Workshops, Webinars, Publications, Annual conferences and collaborates with European and International Networks (Europeana, CARARE, ICOM, etc.). (See factsheet no. 9.11 for more detailed information).

B. Other National research centres and departments with focus on particular type of Heritage areas, promoting knowledge and innovative technology benefit application, guidance and institutional support and linked to European and International networks.

¹⁴⁴ Le Laboratoire de Recherche des Monuments Historiques, <https://www.lrmh.fr/presentation.aspx> (Accessed on 15 July 2021).

¹⁴⁵ INP - The Institutul Național al Patrimoniului, <https://patrimoniul.ro/> (Accessed on 15 July 2021).

¹⁴⁶ Institutul Național al Patrimoniului (INP): [patrimoniul.gov.ro](http://cimec.ro/), online portal, <http://cimec.ro/> (Accessed on 15 July 2021).

The Discovery Programme: Centre for Archaeology and Innovation Ireland¹⁴⁷, based in Dublin, is a national archaeological research body supported by the Heritage Council and additional research grants (for example from EU): it explores Ireland's past and its cultural heritage by conducting advanced research in Irish archaeology not explored knowledge areas, topics and related disciplines and by disseminating its findings widely to the global community. Its interdisciplinary research approach involves experts in the humanities and science, experimenting new technologies and surveying techniques engagement. The projects' results are communicated to the general public as well the academic community through scientific publications and outreach campaigns in collaboration with national cultural institutions, third and fourth level institutions, higher-education institutions, local authorities and local heritage partnerships, research infrastructure such as E-RIHS or the international CIPA Heritage Documentation¹⁴⁸ (ICOMOS / ISPRS Committee for Documentation of Cultural Heritage, with respect to which the Discovery Programme aims to guide a centre for Ireland). It is linked and collaborates with digital repositories of national and European level such as The Digital Repository of Ireland¹⁴⁹ for Ireland's humanities, social sciences, and cultural heritage data, the GSI Open Topographic Data Viewer¹⁵⁰, CARARE, Europeana or ARIADNEplus.

The Discovery Programme represents a useful example of organisation establishing national competence centre within the framework of European initiatives. (See factsheet no. 9.9 for more detailed information).

The Archaeology & Heritage Section of The Transport Infrastructure Ireland (TII) centre¹⁵¹ manages the archaeological implications of national road and light rail projects, with the aim of minimising the archaeological and heritage impacts associated with TII's capital projects and programmes. The section, following the requirements in planning approvals, environmental and national monument legislation, exercises its functions through the procurement and management of archaeological consultants or directly involving TII's archaeologists. The section manages archaeological risk, ensures legislative compliance and builds public trust. It ensures dissemination of information arising from TII's projects through regional heritage event or publications. It actively participates in international conferences, conventions and working groups, represents TII on several national and professional committees. Since 2017, Transport Infrastructure Ireland (TII), in collaboration with other relevant national institutions (the Digital Repository of Ireland (DRI) and the Discovery Programme) manages the TII Digital Heritage Collections that includes different type of resources on archaeological excavations, accessible to the

¹⁴⁷ The Discovery Programme: Centre for Archaeology and Innovation Ireland, <http://www.discoveryprogramme.ie/> (Accessed on 15 July 2021).

¹⁴⁸ CIPA Heritage Documentation, <https://www.cipaheritagedocumentation.org/about/whatiscipa/> (Accessed on 15 July 2021).

¹⁴⁹ The Digital Repository of Ireland, <https://repository.dri.ie/organisations> (Accessed on 15 July 2021).

¹⁵⁰ The Open Topographic Data Viewer, <https://dcenr.maps.arcgis.com/apps/webappviewer/index.html?id=b7c4b0e763964070ad69bf8c1572c9f5> (Accessed on 15 July 2021).

¹⁵¹ TII, Archaeology & Heritage Section, <https://www.tii.ie/technical-services/archaeology/who-we-are/> (Accessed on 15 July 2021).

general public and professionals, also from a variety of important national and international platforms, including Ireland's Open Data Portal, HeritageMaps.ie (an initiative of the Heritage Council), and the ARIADNE portal (a European-wide Research Infrastructure for archaeology), as well as the TII Open Data Portal. These multiple points of data access provide access to these rich collections for the general public and professionals. (See factsheet no. 9.10 for more detailed information).

C. International research and documentation centres, providing expertise and knowledge, promoting preservation and conversation of heritage resources through several activities of research, documentation, counselling, orientation, promotion, dissemination and networking.

The Getty Centre¹⁵² is a cultural and philanthropic institution, based in Los Angeles (USA), operating at international level with the mission to advance and share the world's visual arts and cultural heritage legacy. The centre promotes art historical research, conservation practice, valorisation, knowledge and appreciation of art programs, serving the general interested public and a wide range of professional communities through several efforts, such as conservation work, publications, exhibitions, grant initiatives and training programs. The Centre makes accessible a digital Art and Research Collections database as support for work and study in art and cultural heritage through the "Getty Search Gateway"¹⁵³ platform, allowing users to search across several of the Getty repositories, including collections databases, library catalogues, collection inventories, and archival finding aids.

The Centre counts on a Research Institute (GRI) and a Conservation Institute (GCI).

The Research international centre for the study of visual culture pursues the Getty Centre objectives through its expertise, active collecting program, public programs, institutional collaborations, exhibitions, publications, digital services, and residential scholars' programs. It counts on a Research Library and Special Collections of rare materials and digital resources that serves an international community of scholars and the interested public. Among the several tools and services provided there is "The Getty Vocabularies", containing structured terminology for art, architecture, decorative arts, archival materials, visual surrogates, conservation, and bibliographic materials: the Vocabularies grow through contributions from institutions and projects comprising the expert user community¹⁵⁴. The Research Institute is a content hub partner in the Digital Public Library of America (DPLA) and collaborates with other platforms and institutions¹⁵⁵. The Getty Conservation Institute (GCI) serves the conservation community through scientific research, education and training, field projects, and the dissemination of information¹⁵⁶. The core areas of the institutes are Built heritage, Objects and Collections and Education and Dissemination.

¹⁵² The Getty Center, <https://www.getty.edu/> (Accessed on 15 July 2021).

¹⁵³ The Getty Search Gateway, <https://search.getty.edu/gateway/about.html> (Accessed on 15 July 2021).

¹⁵⁴ The Getty Research institute, Search Tools and Databases, <https://www.getty.edu/research/tools/> (Accessed on 15 July 2021).

¹⁵⁵ GRI, collaborations, https://www.getty.edu/research/institute/development_collaborations/collaborations.html#dpla (Accessed on 15 July 2021).

¹⁵⁶ The Getty Conservation Institute, <https://www.getty.edu/conservation/about/mission.html> (Accessed on 15 July 2021).

In 2020, the Getty.edu website was redesigned to improve all aspects of user experience, including information organization, interaction and visual design, accessibility, and content quality¹⁵⁷. (See factsheet no. 9.5 for more detailed information).

Docomomo international¹⁵⁸ is a non-profit organization dedicated to documentation and conservation of buildings, sites and neighbourhoods of the Modern Movement (MM) with the aim of: supervising heritage under threat; exchanging ideas relating to conservation technology, history and education; fostering interest in the ideas and heritage of the MM and the development of appropriate techniques and methods of conservation and adaptive (re)use; eliciting mutual responsibility towards this recent architectural inheritance; bringing the significance of the architecture of the MM to the attention of the public, the authorities, the professionals and the educational community; promoting the surveying of the works of the MM. Docomomo International's strategy is to realize a worldwide network connecting people with interest and knowledge in modern architecture and bringing together historians, architects, town-planners, landscape architects, conservationists, teachers, students and public officials. It works in synergy with many institutional partners related to MM works and authors¹⁵⁹ (e.g., Villa Tugendhat, Czech Republic, Alvar Aalto Museum, Finland, ecc.) and Institutional Members, such as universities, academia, agencies, foundations, architecture offices, libraries, institutes and centres. Docomomo promotes dissemination activities such as conferences, workshops, exhibitions, research projects, news and tours. The centre coordinates seven International Specialist Committees (ISC) of experts and specialists on Registers, Technology, Urbanism+Landscape, Education+Theory, Interior Design, Publications. Docomomo international counts on a growing system of "Chapters" (currently 71) across the globe, which provide insight into their respective countries' activities towards preservation of the modern movement's heritage and act as local advisory bodies. The single chapters (e.g., Docomomo Italy) operate as agencies providing answers to the many problems related to the knowledge and protection of the large and not yet sufficiently recognized architectural heritage of the twentieth century. At national levels, a series of regional sections and working groups have been established, with hundreds of individual and collective members. (See factsheet no. 9.8 for more detailed information).

¹⁵⁷ Stephan, A., Wong, A. & Newbury, D. (2020), "Redesigning Getty.edu with Structured Content" in: MW20: MW 2020. February 26. Available online, <https://mw20.museweb.net/paper/redesigning-getty-edu-with-structured-content/> (Accessed on 2 July 2021).

¹⁵⁸ Docomomo international, <https://www.docomomo.com/> (Accessed on 15 July 2021).

¹⁵⁹ Docomomo Institutional Partners, <https://www.docomomo.com/join/institutional-partners> (Accessed on 15 July 2021).



Figure 20. Map of Docomomo Chapters (source: docomomo.com).

Why analysed Documentation Centres can be taken into account for 4CH CC organization, objectives and goals?

The analysed agencies and institutions are centres of expertise and reference in the field of research, protection, preservation, conservation and valorisation of CH; operating according to national and international networks; and providing several types of services (education, advising, dissemination and publications, data management, data repository, etc.). The main targets of this kind of institutions are public bodies, professionals, academic but general public alike. The future CC will facilitate the coordination among all the recognized blueprints in the CH field, establishing and implementing the 4CH's network.

4. Results

4.1 Data results analysis

The compiling of the factsheets was entrusted to partners involved in WP2 and they were free to fill them personally, ask other informed persons the information unavailable to them, or transfer directly the compilation to external reference persons, generally internal to the organization under inquiry. Information collected in the Factsheets were processed and inserted in the software Power BI desktop¹⁶⁰ in order to visualize them and perform the comparison among the several type of entities, their procedures, organization, service deployed, policy etc.

4.2 Comparative and transversal analysis of collected data

Information collected in the 51 Factsheets were processed and inserted in the software PowerBI in order to visualize them and perform the comparison among the several type of entities, their procedures, organization, service deployed, policy etc.¹⁶¹. The PowerBi tool is a Business Intelligence tool that allows, among other functionalities, the visualisation of a large volume of data. In addition, thanks to the filters and segmenters it offers, the information is not static but allows to "play with the data" making all the comparisons you want, facilitating its interpretation and the drawing of conclusions.

Thus, the software allowed the visualisation of the information about each single entity, about the homogeneous entities grouped in the macro-categories¹⁶², about the macro-categories all together, and a wide range of thematic and transversal comparison and data restitution.

The enlarged selection of entities was useful and convenient for the research objectives, however in the survey administration and in the result extraction phases the heterogeneity of data led to some criticalities. As the information is qualitative, many efforts have been made to homogenize it as the first release of the graphs showed some errors. This action required several follow-up checks, supported by the PowerBI software that allowed to visualize and detect inconsistencies and overlaps. For instance, because of the different authors of the filling procedures, same concepts, governance bodies or structures were given different names or acronyms.

As already mentioned in the section dedicated to the survey methodology, despite most of the questions gave the possibility to answer through the selection of multiple choices, some other questions were open, to allow a greater freedom of expression. The open answers allowed in some factsheets' fields were more difficult to compare and synthetize, also due to their different level of detail and deepening; therefore, a

¹⁶⁰ Microsoft PowerBI, <https://powerbi.microsoft.com/en-us/desktop/> (Accessed on 15 July 2021).

¹⁶¹ This part of the work has been performed by TECNALIA, T2.1 partner.

¹⁶² European Commission CCs, European Commission KCs, National CCs (Europe), Research Infrastructures, EU-funded projects, Digital Innovation Hubs, Documentation Centres on CH, Other National and International Centres on CH.

file-tuning phase, made of several subsequent adjustments, has been necessary. It must be taken into account that the respondent persons have different expertise, so they filled the factsheet from different perspectives or gave more or less relevance and extension to the possible answers according with their fields of research or action. Sometimes, questions that required comment and personal evaluation/assessment have not been answered.

The steps of the analysis are as follows:

- All the information contained in the 51 files has been included in a single Excel document.
- Qualitative information has been homogenized
- The different sheets of the Excel document have been loaded into PowerBi and the "data model" has been generated
- Fine-tuning and adjustments have been made

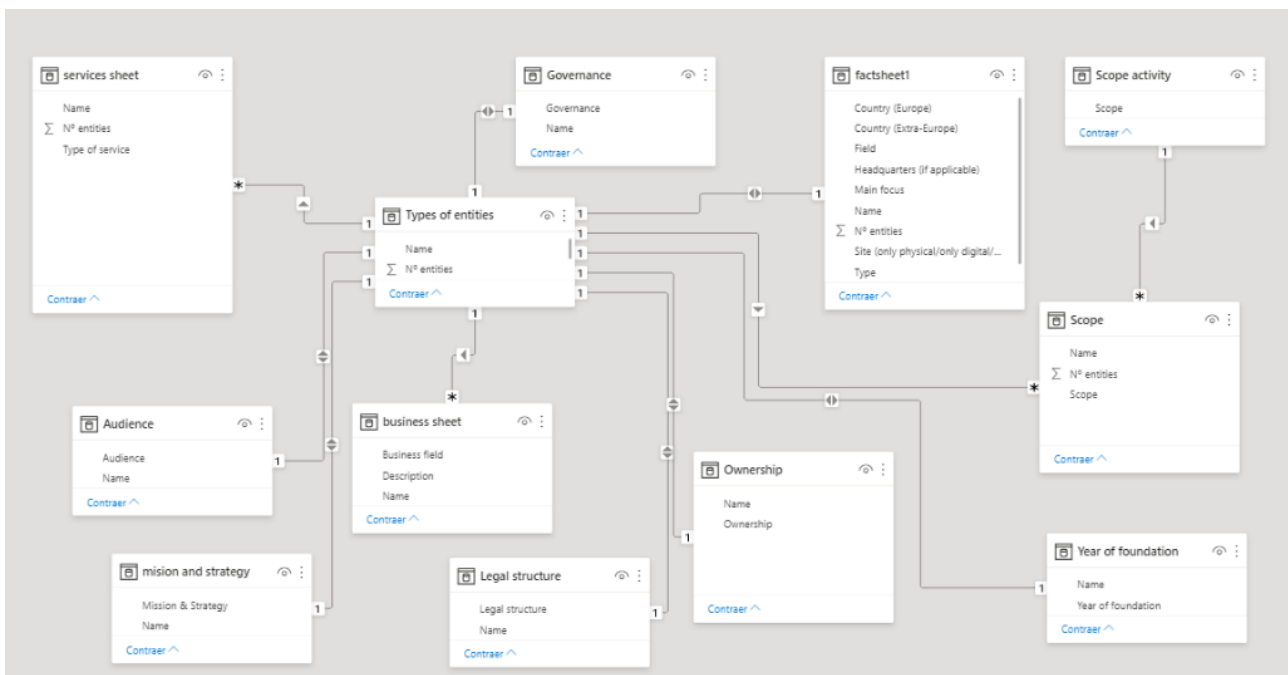


Figure 21. Generated data model

The information is displayed at 3 scales:

- **Individual level: the one corresponding to each of the Centers.**
- **Macro-group level: information grouped by each typology**
 - European Commission CCs
 - European Commission KCs
 - National CCs (Europe)
 - Research infrastructures
 - EU-funded projects
 - Digital Innovation Hubs
 - Documentation Centres on CH
 - Other national and international centres on CH
- **(3) Global level: aggregated level of all data**

The different views that have been generated allow the **visualisation and analysis** of the following **fields**, in the 3 scales mentioned above:

- Type of entity: EU-public, National EU-public, National EU-mixed, etc.
- Site: Only digital, only physical, both physical and digital
- Fields and main focus: Cultural Heritage, Cybersecurity, Bioeconomy, etc,
- Country and Year of foundation
- Legal structure
- Governance
- Ownership
- Type of services offered
- Scope (international, regional, national, local)
- Audience/Target groups
- Business information
- Mission & Strategy

In the present chapter, a selection of results and related data visualisation of the analysis are reported.

4.2.1 Type of entities

The first set of visualisation is related to the type of entity, namely the macro-categories that has been established grouping similar entities.

The following visualisation shows a set of information about all the entities under inquiry:

- the number of entities included in each typology/category;
- the site (physical, virtual or both);
- the property (public, private, mixed) and dimension of the property (National, EU, extra EU).

The most represented, in this sheet and in the following ones, are CCs (9) and KCs (9) categories and the selection of relevant centres about CH: documentation centres (11) and other national and international centres (11).

The diagram clearly shows that 26 out of 51 entities are only virtual, 7 are only physical and 18 are both.

The sheets about the three main groups of entities allows to deep the level of analysis. (Fig. 28)

The sheet about European Commission CCs and KCs shows that they are almost completely virtual (the only exception is Cybersecurity CC, with a physical headquarter in Bucharest, Romania) and the property is EU-public being all related to JRC. (Fig. 23)

Documentation centres on CH are, as expected, more varied. They have a national dimension and sphere of influence and, despite the virtual sites are preponderant, a relevant share has both physical and virtual sites (in most cases they refer to digital platforms for managing the cataloguing services and access to resources). (Fig. 24)

As for the Other National centre on CH, they are mainly private national entities, but the physical dimension is much more represented. In fact, the macro-category includes centres such as The Central Institute for Restoration (ICR), the Opificio delle Pietre Dure or The Central Institute for Restoration (ICR) 'La Venaria Reale', where practical activities of CH conservation are carried out or specific services (Laboratories and Advanced training) that need a physical space are deployed (see paragraph 3.2.6). (Fig. 25).

The next figures allow to visualize the number of entities per macro-category according with their virtual, physical or virtual/physical simultaneous dimension, and their public/private/mixed or other type of property, giving back an overall and transversal framework. (Fig. 26, 27 and 28)

Type of entity

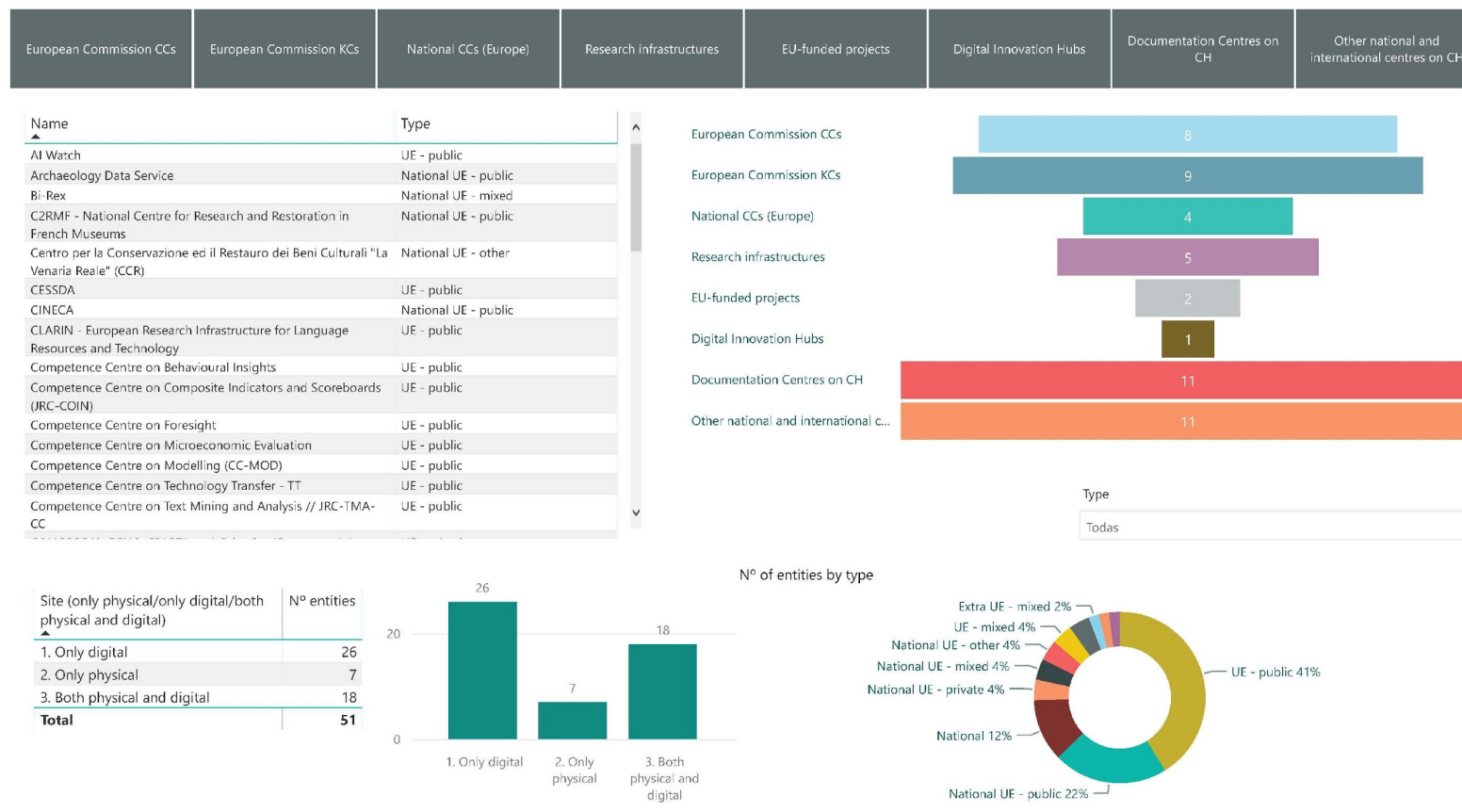


Figure 22. Type of entity and site data visualisation: all the analysed centres.

Type of entity

European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
-------------------------	-------------------------	-----------------------	--------------------------	--------------------	-------------------------	-----------------------------	--

Name	Type
AI Watch	UE - public
Competence Centre on Behavioural Insights	UE - public
Competence Centre on Composite Indicators and Scoreboards (JRC-COIN)	UE - public
Competence Centre on Foresight	UE - public
Competence Centre on Microeconomic Evaluation	UE - public
Competence Centre on Modelling (CC-MOD)	UE - public
Competence Centre on Technology Transfer - TT	UE - public
Competence Centre on Text Mining and Analysis // JRC-TMA-CC	UE - public
Disaster Risk Management Knowledge Centre - DRMKC	UE - public
European Cybersecurity Industrial, Technology and Research Competence Centre	UE - public
Health Promotion and Disease Prevention Knowledge Gateway	UE - public
Knowledge Centre for Biodiversity	UE - public
Knowledge Centre for Bioeconomy	UE - public
Knowledge Centre for Food Fraud and Quality	UE - public
Knowledge Centre for Global Food and Nutrition Security	UE - public
Knowledge Centre for Territorial Policies	UE - public



Type

Site (only physical/only digital/both physical and digital)	N° entities
1. Only digital	16
3. Both physical and digital	1
Totale	17

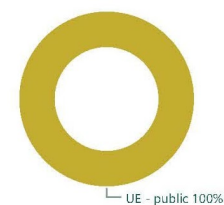
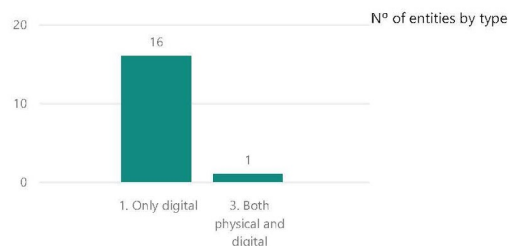


Figure 23. Type of entity and site data visualisation: European Commission CCs and KCs.

Type of entity

European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
-------------------------	-------------------------	-----------------------	--------------------------	--------------------	-------------------------	-----------------------------	--

Name	Type
Archaeology Data Service	National UE - public
Connecting Archaeology and Architecture in Europe (CARARE)	UE - other
CulturaItalia	National
Digital Public Library of America (DPLA)	Extra UE - mixed
Europeana	National UE - other
France Archives	National UE - public
General Catalogue of Cultural Properties	National
ICCU – Istituto Centrale per il Catalogo Unico delle biblioteche italiane e per le informazioni bibliografiche / Central Institute for the Union Catalogue of Italian libraries and for bibliographic information	National
Institute for Cataloging and Documentation (ICCD)	National
MUSEU - HUB	UE - other
POP	National UE - public



Site (only physical/only digital/both physical and digital)	N° entities
1. Only digital	6
2. Only physical	1
3. Both physical and digital	4
Totale	11

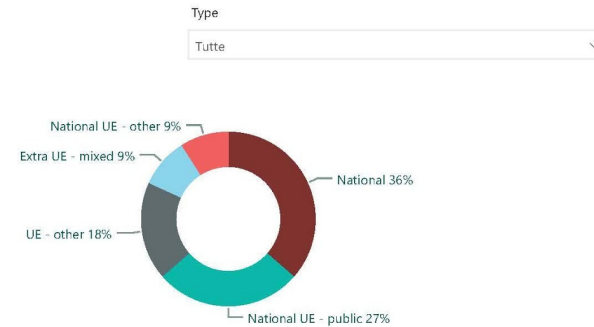
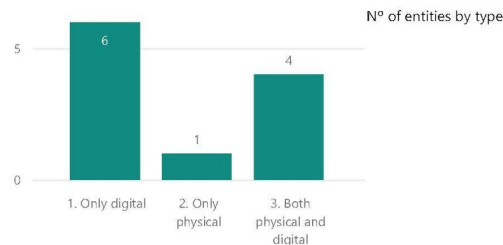


Figure 24. Type of entity and site data visualisation: Documentation Centres on CH

Type of entity

European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
-------------------------	-------------------------	-----------------------	--------------------------	--------------------	-------------------------	-----------------------------	--

Name	Type
C2RMF - National Centre for Research and Restoration in French Museums	National UE - public
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	National UE - other
Docomomo International	WW - other
Getty Center	Extra UE - private
Institutul Național al Patrimoniului	National
Istituto Centrale per il Restauro (ICR)	National UE - public
Laboratoire de Recherche des Monuments Historiques	National UE - public
Opificio delle Pietre Dure - OPD	National UE - public
Spanish Cultural Heritage Institute (IPCE, Instituto del Patrimonio Cultural de España)	National UE - public
The Discovery Programme: Centre for Archaeology and Innovation Ireland	National UE - private
Transport Infrastructure Ireland, Archaeology and Heritage Section	National UE - public



Site (only physical/only digital/both physical and digital)	N° entities
1. Only digital	1
2. Only physical	4
3. Both physical and digital	6
Totale	11

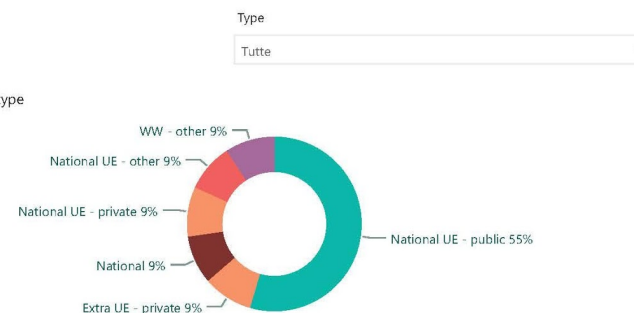
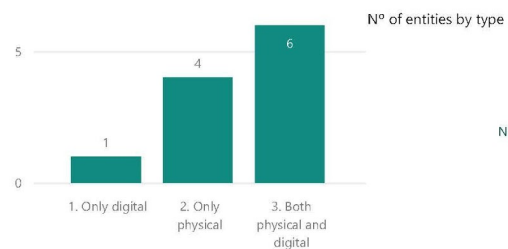
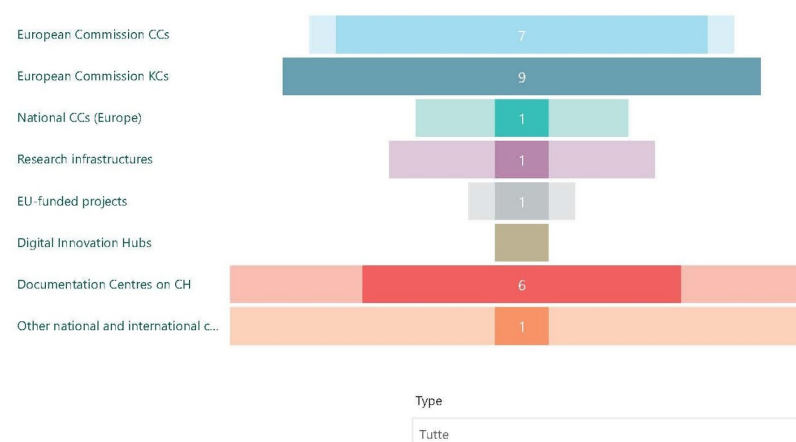


Figure 25. Type of entity and site data visualisation: other national and international centres on CH.

Type of entity

European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
-------------------------	-------------------------	-----------------------	--------------------------	--------------------	-------------------------	-----------------------------	--

Name	Type
AI Watch	UE - public
Competence Centre on Behavioural Insights	UE - public
Competence Centre on Composite Indicators and Scoreboards (JRC-COIN)	UE - public
Competence Centre on Foresight	UE - public
Competence Centre on Microeconomic Evaluation	UE - public
Competence Centre on Modelling (CC-MOD)	UE - public
Competence Centre on Technology Transfer - TT	UE - public
Competence Centre on Text Mining and Analysis // JRC-TMA-CC	UE - public
CONCORDIA, ECHO, SPARTA and CyberSec4Europe and the European Cybersecurity Network	UE - mixed
Connecting Archaeology and Architecture in Europe (CARARE)	UE - other
CulturalItalia	National
Disaster Risk Management Knowledge Centre - DRMKC	UE - public
Docomomo International	WW - other
France Archives	National UE - public
General Catalogue of Cultural Properties	National
Health Promotion and Disease Prevention Knowledge Gateway	UE - public



Site (only physical/only digital/both physical and digital)	N° entities
1. Only digital	26
Totale	26

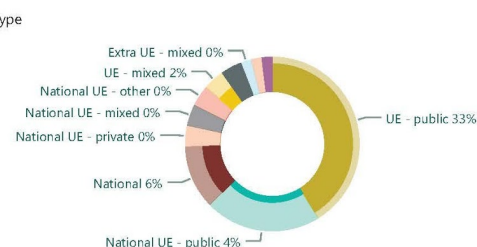
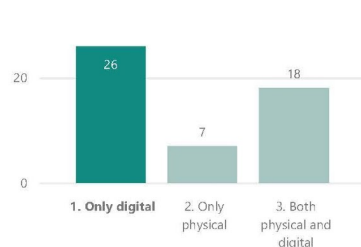


Figure 26. Only digital entities: all the analysed centres

Type of entity

European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
-------------------------	-------------------------	-----------------------	--------------------------	--------------------	-------------------------	-----------------------------	--

Name	Type
Archaeology Data Service	National UE - public
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	National UE - other
CINECA	National UE - public
Istituto Centrale per il Restauro (ICR)	National UE - public
Spanish Cultural Heritage Institute (IPCE, Instituto del Patrimonio Cultural de España)	National UE - public
Spanish National Renewable Energy Centre CENER, Centro Nacional de Energías Renovables	National UE - private
Transport Infrastructure Ireland, Archaeology and Heritage Section	National UE - public

European Commission CCs

European Commission KCs

National CCs (Europe)

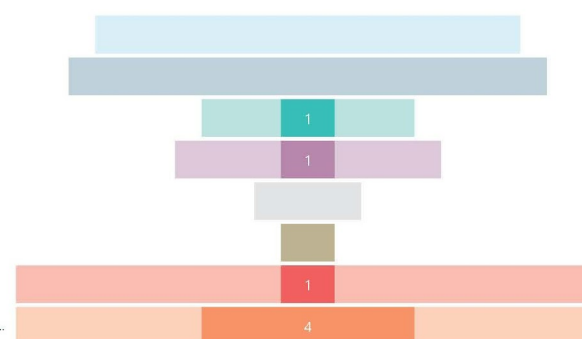
Research infrastructures

EU-funded projects

Digital Innovation Hubs

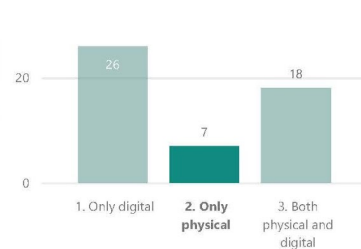
Documentation Centres on CH

Other national and international c...



Type
Tutte

Site (only physical/only digital/both physical and digital)	N° entities
2. Only physical	7
Totale	7



N° of entities by type

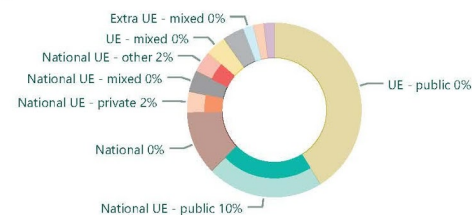


Figure 27. Only physical entities: all the analysed centres.

Type of entity

European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
-------------------------	-------------------------	-----------------------	--------------------------	--------------------	-------------------------	-----------------------------	--

Name	Type
Archaeology Data Service	National UE - public
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	National UE - other
CINECA	National UE - public
Istituto Centrale per il Restauro (ICR)	National UE - public
Spanish Cultural Heritage Institute (IPCE, Instituto del Patrimonio Cultural de España)	National UE - public
Spanish National Renewable Energy Centre CENER, Centro Nacional de Energías Renovables	National UE - private
Transport Infrastructure Ireland, Archaeology and Heritage Section	National UE - public

European Commission CCs

European Commission KCs

National CCs (Europe)

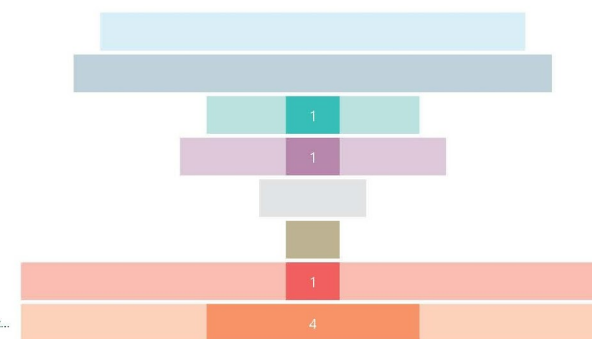
Research infrastructures

EU-funded projects

Digital Innovation Hubs

Documentation Centres on CH

Other national and international c...



Type
Tutte

Site (only physical/only digital/both physical and digital)	N° entities
2. Only physical	7
Totale	7

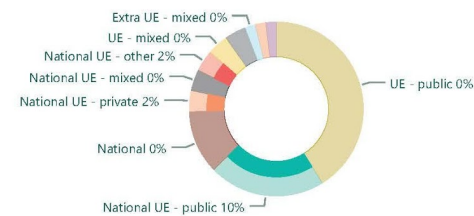
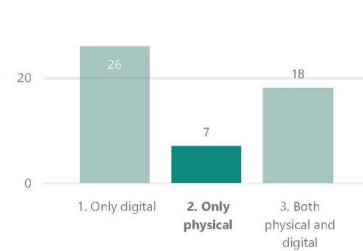


Figure 28. Both physical and digital entities: all the analysed centres

4.2.2 Field of action and main focus

The second data visualisation set frames the field of action and main focus of the considered centres of expertise. The data were collected from a multiple-choice entry in the factsheet – with the possibility to add items if needed - that reflects the variety of expertise of the selected centres. The pre-set choices deal with:

- **Different field related to CH in general or more specific:** 3D documentation of CH, Cultural Heritage Cloud, Cultural Heritage conservation, Cultural heritage preservation, Cultural Heritage promotion, Libraries and Book Heritage, Cataloguing the CH, Research and develop knowledge methods and instruments.
- **Data and ICT:** Data acquisition, Data and metadata, Data management and storage, Data preservation, ICT, Modelling, Techniques and instruments for digitization, Standards, Open Access Research, Open Science, FAIR data, Supercomputing.
- **Business, finance and funding:** Business models and sustainability plans, Finance and funding opportunities, Microeconomic
- **Others specific:** Artificial Intelligence, Behavioural Insights, Biodiversity, Bioeconomy, Composite Indicators and Scoreboards, Cybersecurity, Disaster Risk, Risk management, Food, Foresight, Health, High Performance Computing, Industry 4.0, Materials and nanomaterials, Market watch, Migration and Demography, Technology Transfer, Text Mining and Analysis, Social Science, Renewable energy.
- **Very general:** Innovation, Policies, Strategy and Policy, Projects, Research and development, Training and education for professionals and managers, User needs, Visualisation, Languages.

The coloured table below sorts the centres by main field of action, by number of entities and alphabetically.

As evident, the largest number refers to centres focusing or directly committed on Cultural Heritage: most of them refers generically to 'Cultural Heritage', while others, even if operative or related to that area, were mapped by partners under different tags, describing the scope in more detail.

This aspect emerges from the diagrams of 'Documentation centres on CH' macro-category (Fig. 30) where the CH commitment involve activities such as Data management and storage, Cataloguing, CH valorisation, Research, development and definition of cataloguing standards for the different types of cultural heritage, etc.

Fields and main focus

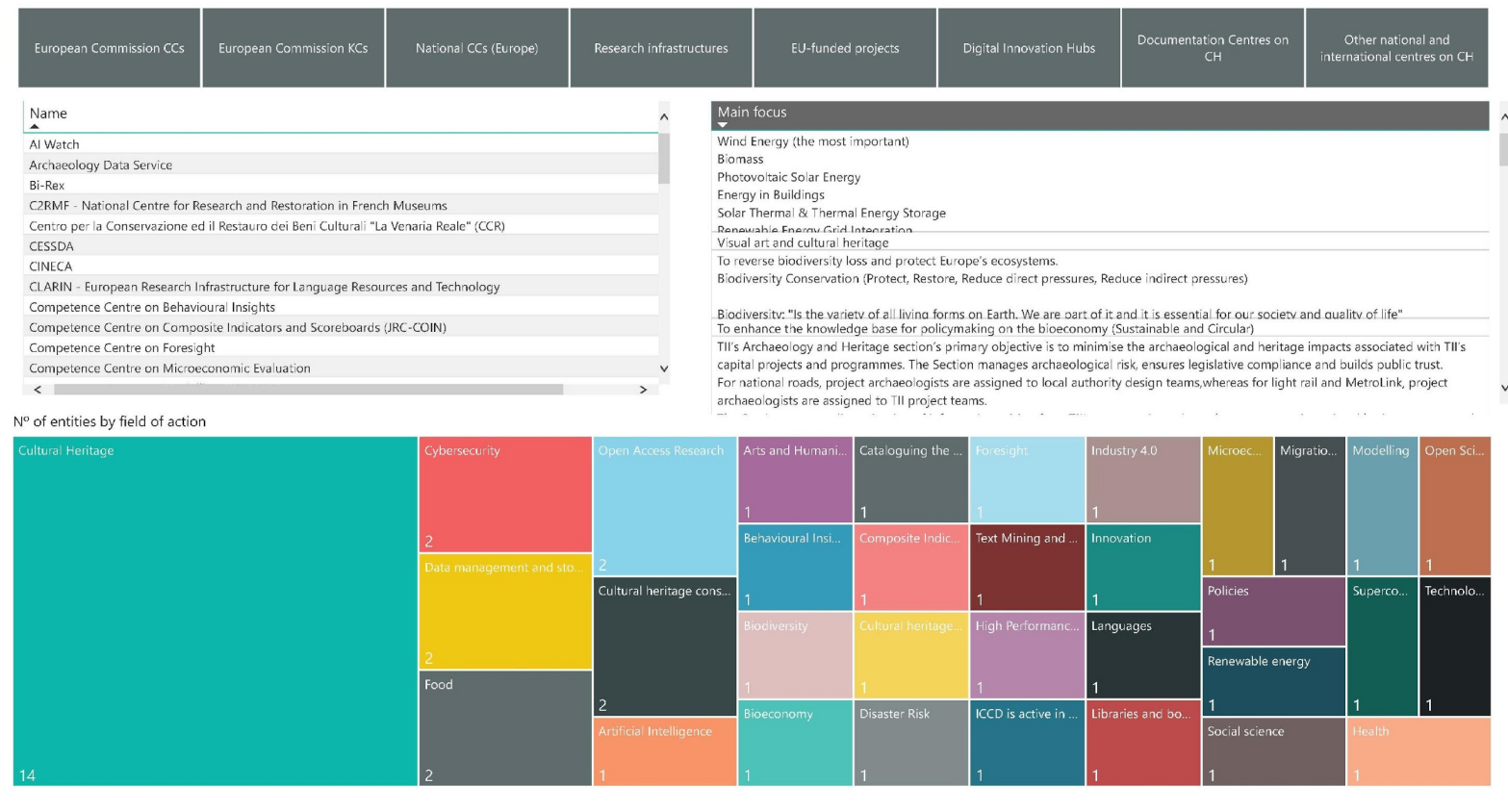


Figure 29. Fields and main focus data visualisation: all the analysed centres.

Fields and main focus

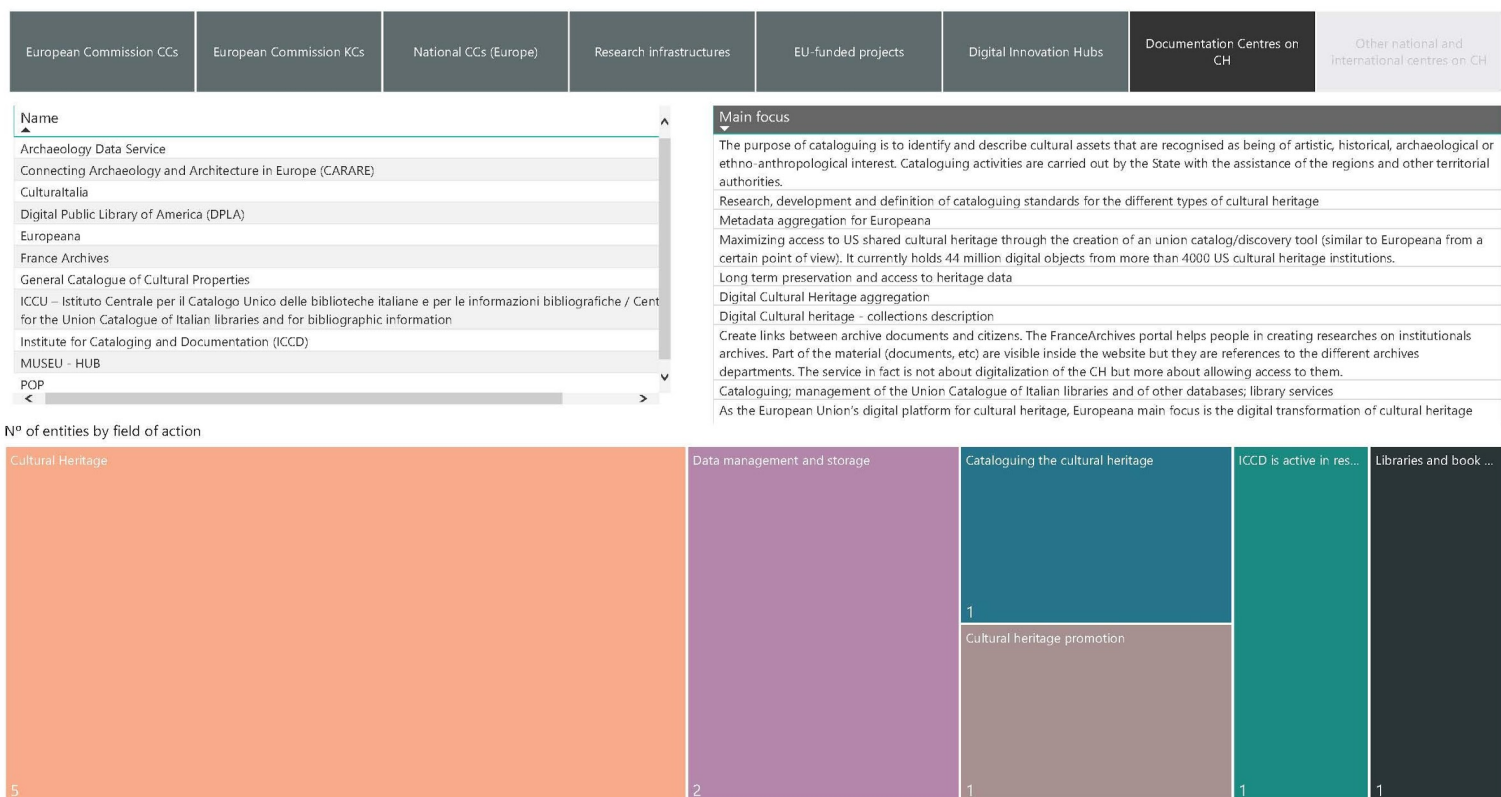


Figure 30. Fields and main focus data visualisation: documentation centres on CH

4.2.3 Legal structure

The legal structure is one of the relevant aspects to be deepened and analysed in WP6, mentioned in the proposal as crucial point for the Sustainability of the Competence Centre, with the aim to select the *'properly fit with the mission of the centre and to avoid any potential restrictions to the natural activities of the centre, that may hinder its purpose or financial support'*¹⁶³.

The collected data show that the highest percentage of centres is:

- public bodies (22 out of 51, around 43%), mainly including EC CCs and KCs, some Documentation Centres and other entities on CH);
- non-profit organizations¹⁶⁴ (18 out of 51, around 35%), including Documentation Centres (7 out of 11 analysed, in particular CARARE, Europeana, DPLA, ICCU, MUSEU-HUB, Archaeology Data service, France Archives and POP); other Centres on CH (e.g., C2RMF, CCR 'La Venaria Reale' or Docomomo international); one of the National CCs (that is DANS) and one EU CCs (CC on Foresight);
- Consortia (10 out of 51, around 20%).

The survey mapped also other models, such as Foundations or MoU agreement¹⁶⁵ among the others.

¹⁶³ 4CH – GA, part B, pp. 31.

¹⁶⁴ The non-profit-organization is not a real legal structure in itself and may corresponds to several legal organization models: this option has been introduced to allow respondents to answer with a general information when the exact legal structure was not available or known, since this kind of information proved to be quite difficult to obtain.

¹⁶⁵ 'A memorandum of understanding (MoU) is a type of agreement between two (bilateral) or more (multilateral) parties. It expresses a convergence of will between the parties, indicating an intended common line of action. It is often used either in cases where parties do not imply a legal commitment or in situations where the parties cannot create a legally enforceable agreement (Wikipedia).

Legal structure

European Commission CCs	Digital Innovation Hubs
European Commission KCs	Documentation Centres on CH
National CCs (Europe)	Other national and international centres on CH
Research infrastructures	
EU-funded projects	

N° of entities according to legal structure



Name	Legal structure
AI Watch	Public body
Archaeology Data Service	Non-profit Organisation
Bi-Rex	Consortium
C2RMF - National Centre for Research and Restoration in French Museums	Non-profit Organisation
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	Non-profit Organisation
CESSDA	Consortium
CINECA	Consortium
CLARIN - European Research Infrastructure for Language Resources and Technology	Consortium
Competence Centre on Behavioural Insights	Public body
Competence Centre on Composite Indicators and Scoreboards (JRC-COIN)	Public body
Competence Centre on Foresight	Non-profit Organisation
Competence Centre on Microeconomic Evaluation	Consortium

N° of entities according to legal structure

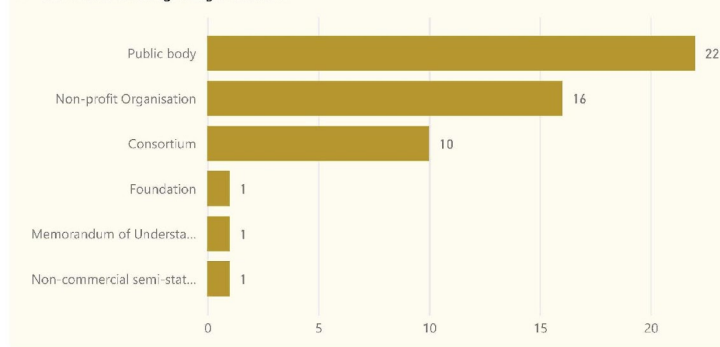


Figure 31. Legal structure data visualisation: all the analysed centres.

4.2.4 Governance

The Governance and Management structure - as well as Legal Structure, Strategy, Portfolio of Services, Business model and plan – is another key aspect for a sustainable design of the CC.

The 4CH centre will operate in a complex network of European, National and Regional agents, together with companies and individual persons, who should be represented in the governance and may guide the strategy of the competence centre¹⁶⁶.

A similar path, emerges from collected data on government models of the analysed entities. The comparative graph of all the entities shows that they are mostly public or managed by networks of public bodies (Fig. 32). The data visualisations related to single macro-categories give back a more detailed level of the organization governance: European Commission CCs and KCs (Fig. 33) are generally in charge of the EC's science and knowledge service of the Joint Research Centre (JRC) and the specific EC's Directorate-General (DG)¹⁶⁷ (see Appendix – 1, factsheets from no. 1.1 to no. 3.1 for more details and an in-depth analysis of each EU CC and KC).

As for the documentation centres on CH (Fig. 40) and other centres on CH (Fig. 35), the governance models include more variables, such as non-profit organizations (e.g., Europeana, DPLA or ICCU) or mixed solutions of non-profit/private (e.g., the Getty Centre), private/public (e.g., The Central Institute for Restoration (ICR) 'La Venaria Reale') or network/private bodies. This last case refers to CARARE, a Company Limited by Guarantee which is governed in accordance with its memorandum and articles of association by a board of directors on behalf of the members of the company who each have voting rights: a good example of consortium successfully transitioned to a legal entity (see Appendix – 1, factsheet no. 8.11).

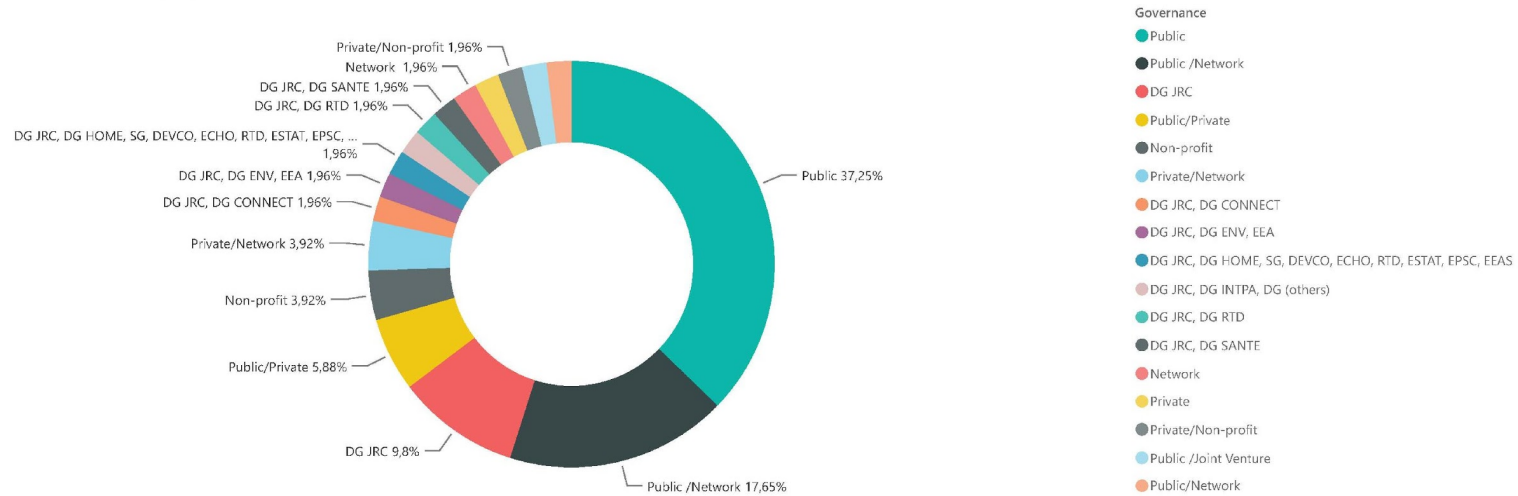
¹⁶⁶ 4CH – GA, part B, pp. 31.

¹⁶⁷ The DGs are the equivalent of ministries at national level, divided into four groups - Policy DGs, External relations DGs, General Service DGs and Internal Service DGs – and headed by a European Commissioner, responsible for the general direction of the directorate-general, and a Director-General, responsible for the management of day-to-day affairs. European Commission, Departments and Executive agencies. Available online, https://ec.europa.eu/info/departments?field_core_topics_target_id_entityreference_filter=All&field_core_ecorganisation_value_i18n=Directorate-General&field_department_tasks_tid_entityreference_filter=All (Accessed on 15 July 2021).

Governance

European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
-------------------------	-------------------------	-----------------------	--------------------------	--------------------	-------------------------	-----------------------------	--

N° of entities according to governance



Name	Governance
AI Watch	DG JRC, DG CONNECT
Archaeology Data Service	Public
Bi-Rex	Public/Private
C2RMF - National Centre for Research and Restoration in French Museums	Public
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	Public/Private
CESSDA	Public/Network

51

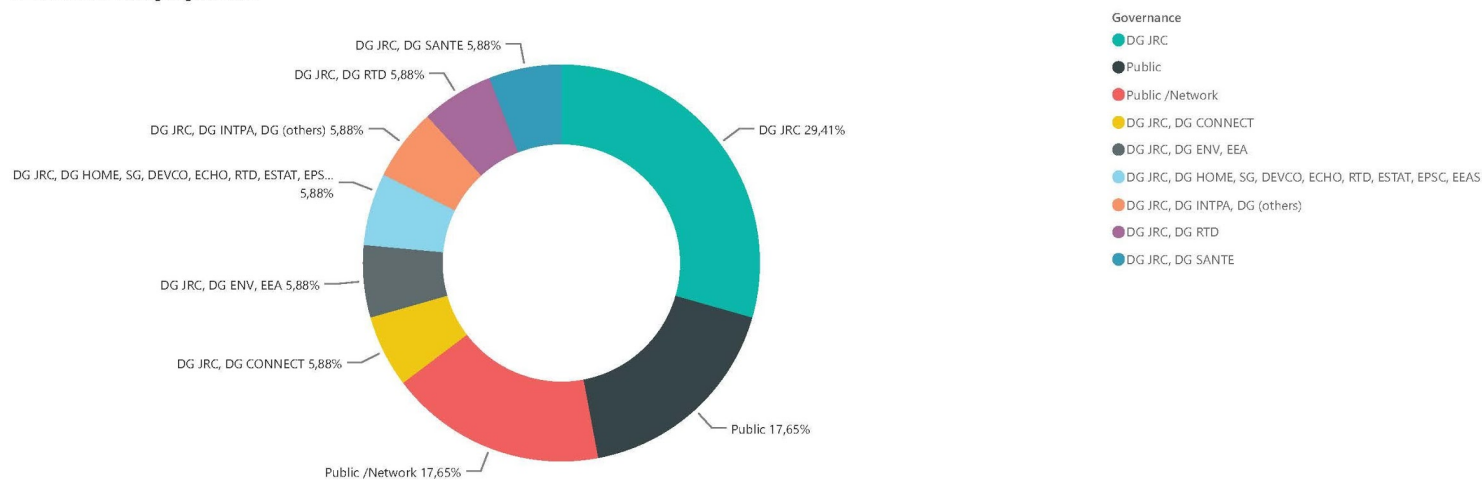
N° entities

Figure 32. Governance models data visualisation: all the analysed centres.

Governance



N° of entities according to governance



Name	Governance
AI Watch	DG JRC, DG CONNECT
Competence Centre on Behavioural Insights	Public
Competence Centre on Composite Indicators and Scoreboards (JRC-COIN)	Public /Network
Competence Centre on Foresight	Public /Network
Competence Centre on Microeconomic Evaluation	DG JRC
Competence Centre on Modelling (CC-MOD)	DG JRC

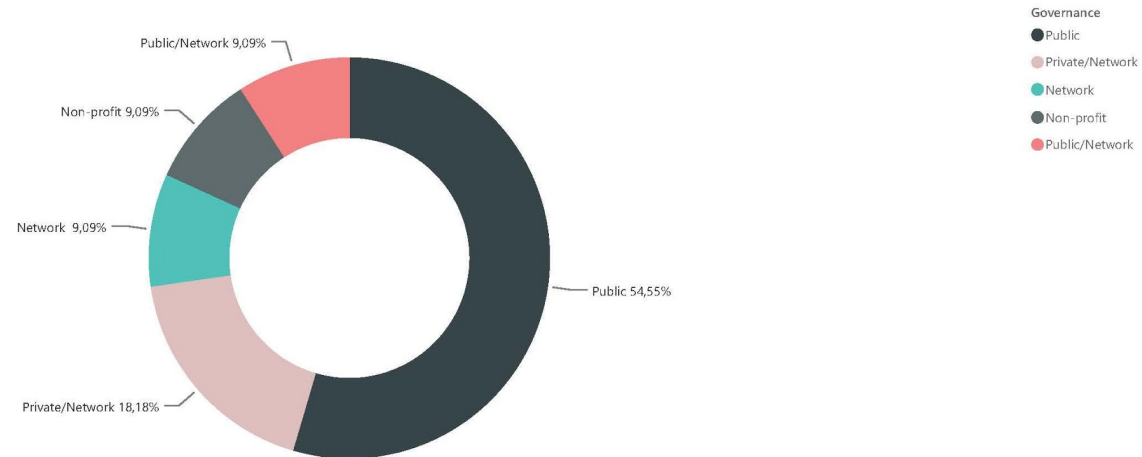
17
N° entities

Figure 33. Governance models data visualisation: European Commission CCs and KCs.

Governance



N° of entities according to governance



Name	Governance
Archaeology Data Service	Public
Connecting Archaeology and Architecture in Europe (CARARE)	Private/Network
CulturalItalia	Public
Digital Public Library of America (DPLA)	Network
Europeana	Non-profit
France Archives	Public

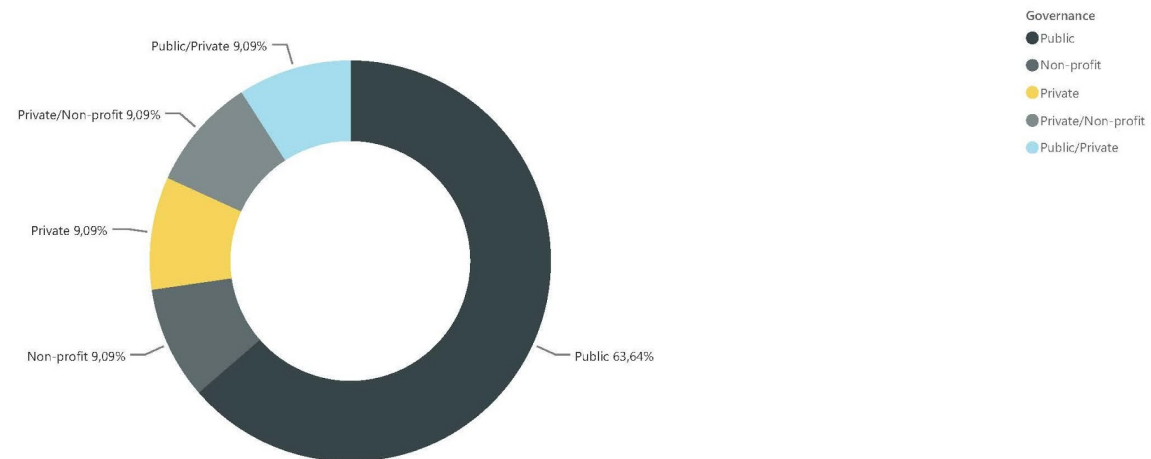
11
N° entities

Figure 34. Governance models data visualisation: documentation centres on CH.

Governance



N° of entities according to governance



Name	Governance
C2RMF - National Centre for Research and Restoration in French Museums	Public
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	Public/Private
Docomomo International	Non-profit
Getty Center	Private/Non-profit
Institutul Național al Patrimoniului	Public
Istituto Centrale per il Restauro (ICR)	Public

11
N° entities

Figure 35. Governance models' data visualisation: other national and international centres on CH.

4.2.5 Ownership

The next aspect analysed refers to entity ownership, relevant to describe and detail the ecosystem involved in the general 'public', 'network', 'private' tags related to the governance models. The public 'owners' and leading subjects mapped by the survey are Government bodies, at single state national level (e.g., Ministry of Culture for C2RMF or ICR) or European one (e.g., European Commission through the JRC), Universities and public research centres. As for the private bodies, they mainly refer to Industry sector (e.g., bi-rex, Italy).

Other results concern mixed ownership solutions involving Industry and Academia-led centres (e.g., ADS - Archaeological Data Services), Academia, Government and Industry-led cases (e.g., The Central Institute for Restoration (ICR) 'La Venaria Reale') or Academia/Government-led (e.g., DANS).

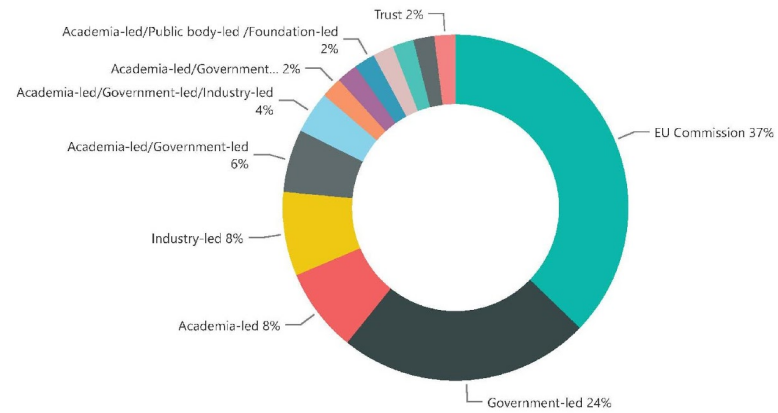
This kind of variety in the organization and subjects involved, in terms of legal structure, governance and ownership, is well described in the graphs below on the relations among the three key aspects.

What emerge from the visualisation is that Public Governance corresponds to entities owned by Academia, Governments, Industry or EU Commission, with a legal structure attributable to Consortium, Foundations, non-profit organizations or more particular solutions (Fig. 37). In the same way, the centres/entities mapped as Academia-led under 'ownership' tag, reflects different possible Governance models - such as non-profit (e.g., Docomomo international), or Public Network (e.g., CINECA) – and Legal structure ones - consortium, non-profit organization or MoU (Fig. 38).

Ownership

European Commission CCs	Digital Innovation Hubs
European Commission KCs	Documentation Centres on CH
National CCs (Europe)	Other national and international centres on CH
Research infrastructures	
EU-funded projects	

N° of entities by Ownership



Name	Ownership
AI Watch	EU Commission
Archaeology Data Service	Academia-led/Industry-led
Bi-Rex	Industry-led
C2RMF - National Centre for Research and Restoration in French Museums	Government-led
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	Academia-led/Public body-led/Foundation-led
CESSDA	Government-led
CINECA	Academia-led
CLARIN - European Research Infrastructure for Language Resources and Technology	Academia-led/Government-led
Competence Centre on Behavioural Insights	EU Commission
Competence Centre on Composite Indicators and Scoreboards (IRC-COIN)	EU Commission
Competence Centre on Foresight	EU Commission
Competence Centre on Microeconomic Evaluation	EU Commission

Ownership

Academia-led	Academia-led/Ind...	Industry-led	Trust
Academia-led/Gov...	Academia-led/Pub... body-led/Founda...	Ownership not applicable (Found...	
Academia-led/Gov...	EU Commission	Professionals/Aca...	
Academia-led/Gov...	Government-led	Public/Private	

Figure 36. Ownership models data visualisation: all the analysed centres.

Relationships: Governance, Legal structure, Ownership

Governance

DG JRC	DG JRC, DG RTD	Private/Network	Public/Network
DG JRC, DG CONNECT	DG JRC, DG SANTE	Private/Non-profit	Public/Private
DG JRC, DG ENV, EEA	Network	Public	
DG JRC, DG HOME, SG, DEVCO, ECHO, RTD, ESTAT, EPSC, EEAS	Non-profit	Public /Joint Venture	
DG JRC, DG INTPA, DG (others)	Private	Public /Network	

Ownership

Academia-led	EU Commission	Ownership not applicable (Foundation)
Academia-led/Government-le...	Government-led	
Academia-led/Industry-led	Industry-led	

Legal structure

Consortium	Non-commercial semi-state Company
Foundation	Non-profit Organisation
Memorandum of Understanding (MoU) agreement	Public body

Name	Type of entity	Field
Archaeology Data Service	Documentation Centres on CH	Data management and storage
C2RMF - National Centre for Research and Restoration in French Museums	Other national and international centres on CH	Cultural heritage conservation
Competence Centre on Behavioural Insights	European Commission CCs	Behavioural Insights
Competence Centre on Text Mining and Analysis // JRC-TMA-CC	European Commission CCs	Text Mining and Analysis
CONCORDIA, ECHO, SPARTA and CyberSec4Europe and the European Cybersecurity Network	EU-funded projects	Cybersecurity

Figure 37. Relationships among Governance, Legal Structure and Ownership: Public Bodies-led governance.

Relationships: Governance, Legal structure, Ownership

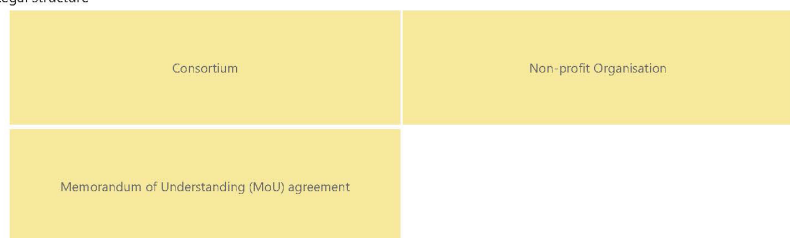
Governance



Ownership



Legal structure



Name	Type of entity	Field
CINECA	Research infrastructures	Supercomputing and its applications, IT services for the members of the Consortium
Docomomo International	Other national and international centres on CH	Cultural Heritage
Italian Computing and Data Infrastructure (ICDI) Competence Center	National CCs (Europe)	Open Science, FAIR Data
OpenAire	Research infrastructures	Open Access Research

Figure 38. Relationships among Governance, Legal Structure and Ownership: Academia-led owned.

4.2.6 Portfolio of Services

The portfolio of services provided by the different macro-categories of analysed centres, represents one more of the relevant aspects evidenced by the proposal, to which a sub-chart in the factsheet was dedicated. The survey collected quantitative information starting from a pre-set multiple-choice answer, referred to a list of services, reflecting expertise, skills and equipment of each category of entities. The main types of mapped services are:

- Consultancy and orientation, also in term of access to financing services, scouting and ecosystem building;
- Training and capacity building, in term of: awareness creation, collaborative research, visioning and strategy development, mentoring, training and skills development, conferences, training, meetings.
- Support in innovation and projects, described through services such as: competitive mass production, commercial Infrastructure, incubator/accelerator support, testing and validation, prototyping validation.
- Other services, such as: digital maturity assessment, co-working areas or spaces, Access to specific technologies and equipment, Data collection and integration.
- Additional items entered by partners responsible for the factsheet compiling.

The data visualisation diagrams below, referred to all the analysed entities, show that the services provided in most cases are: Consultancy and orientation, Training and capacity building, Dissemination activities (Conferences, webinars, meetings, journals, newsletters, etc.) and Data collection and management - often with the support of digital platforms (Fig. 39).

As for the schemes on single macro-categories (Fig. 40, 41, 42, 43, 44 and 45), the results – as obvious - follow the same trend. What can be highlighted, in particular for the European Commission CCs and KCs is that the second ones provide a reduced number of services. (Fig. 40 and 41).

Type of services offered

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Type of service	N° entities
1.1 Consultancy and orientation	42
1.2 Access to financing services	9
1.3 Scouting and ecosystem building	13
2.1 Awareness creation	33
2.2 Collaborative research	41
2.3 Visioning and strategy development	27
2.4 Mentoring	27
2.5 Training and skills development	42
2.6 Conferences, Training, Meetings	48
3.1 Competitive mass production	1
3.2 Commercial Infrastructure	5
3.3 Incubator/accelerator support	7
3.4 Testing and validation	13

Name
AI Watch
Archaeology Data Service
Bi-Rex
C2RMF - National Centre for Research and Restoration in French Museums
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)
CESSDA
CINECA
CLARIN - European Research Infrastructure for Language Resources and Technology

N° of entities providing each service

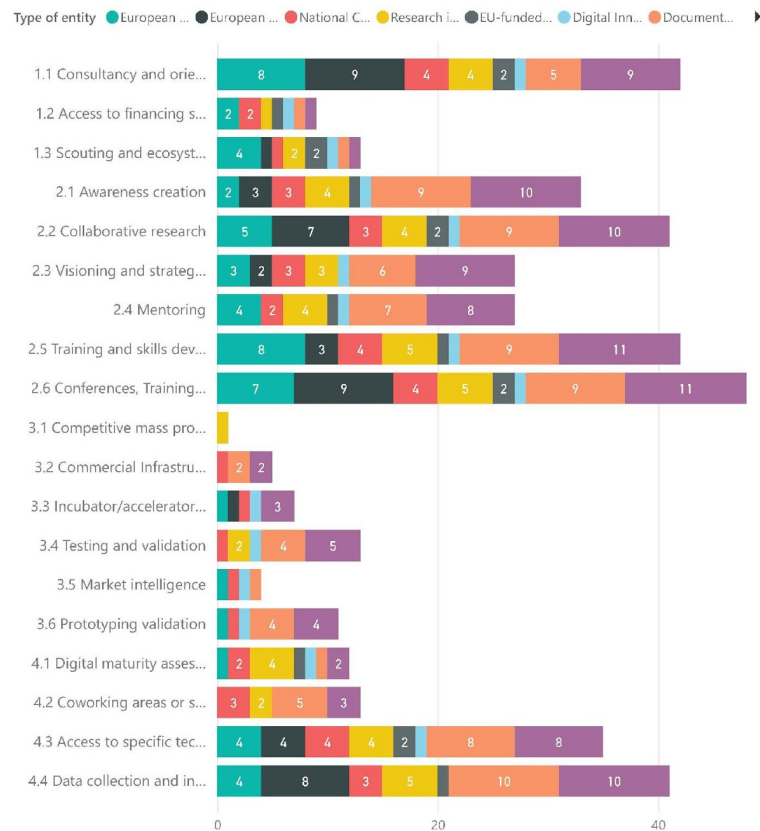


Figure 39. Type of services offered data visualisation: all the analysed centre

Type of services offered

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Type of service	N° entities
1.1 Consultancy and orientation	8
1.2 Access to financing services	2
1.3 Scouting and ecosystem building	4
2.1 Awareness creation	2
2.2 Collaborative research	5
2.3 Visioning and strategy development	3
2.4 Mentoring	4
2.5 Training and skills development	8
2.6 Conferences, Training, Meetings	7
3.3 Incubator/accelerator support	1
3.5 Market intelligence	1
3.6 Prototyping validation	1

Name
Competence Centre on Behavioural Insights
Competence Centre on Composite Indicators and Scoreboards (JRC-COIN)
Competence Centre on Foresight
Competence Centre on Microeconomic Evaluation
Competence Centre on Modelling (CC-MOD)
Competence Centre on Technology Transfer - TT
Competence Centre on Text Mining and Analysis // JRC-TMA-CC
European Cybersecurity Industrial, Technology and Research Competence Centre

N° of entities providing each service

Type of entity ● European Commission CCs

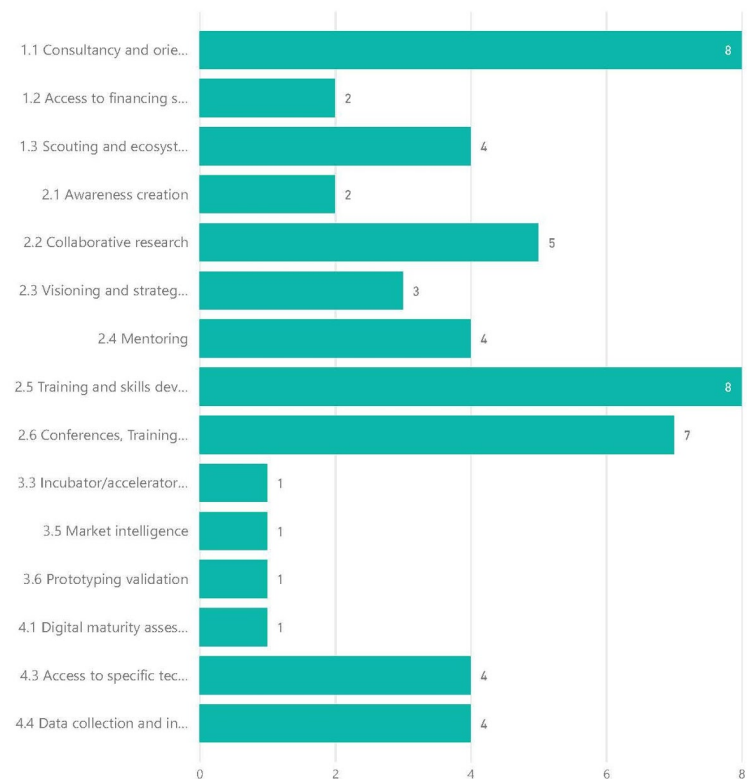


Figure 40. Type of services offered data visualisation: European Commission CCs.

Type of services offered

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Type of service	N° entities
1.1 Consultancy and orientation	9
1.3 Scouting and ecosystem building	1
2.1 Awareness creation	3
2.2 Collaborative research	7
2.3 Visioning and strategy development	2
2.5 Training and skills development	3
2.6 Conferences, Training, Meetings	9
3.3 Incubator/accelerator support	1
4.3 Access to specific technologies and equipment	4
4.4 Data collection and integration	8

Name
AI Watch
Disaster Risk Management Knowledge Centre - DRMKC
Health Promotion and Disease Prevention Knowledge Gateway
Knowledge Centre for Biodiversity
Knowledge Centre for Bioeconomy
Knowledge Centre for Food Fraud and Quality
Knowledge Centre for Global Food and Nutrition Security
Knowledge Centre for Territorial Policies

N° of entities providing each service

Type of entity ● European Commission KCs

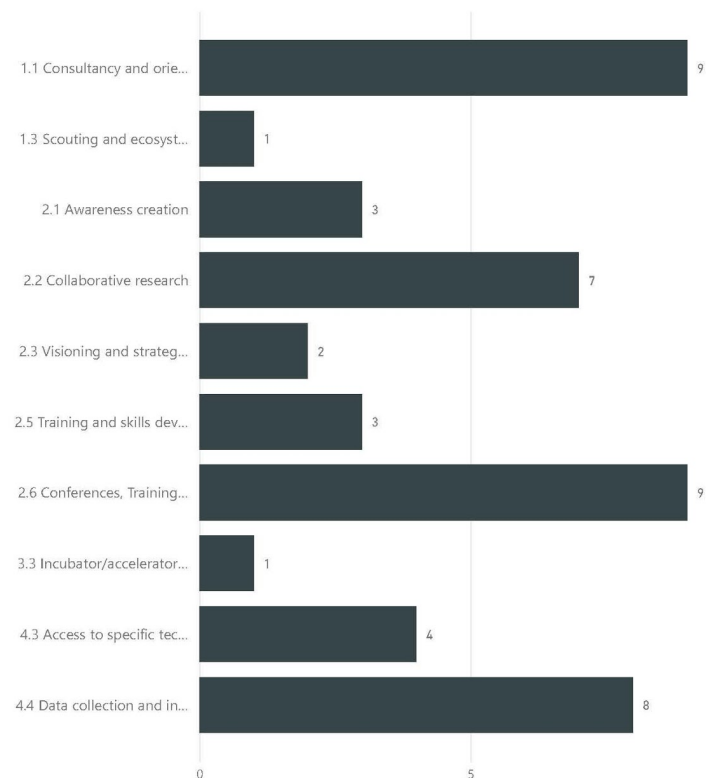


Figure 41. Type of services offered data visualisation: European Commission KCs.

Type of services offered

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Type of service	Nº entities
1.1 Consultancy and orientation	4
1.2 Access to financing services	2
1.3 Scouting and ecosystem building	1
2.1 Awareness creation	3
2.2 Collaborative research	3
2.3 Visioning and strategy development	3
2.4 Mentoring	2
2.5 Training and skills development	4
2.6 Conferences, Training, Meetings	4
3.2 Commercial Infrastructure	1
3.3 Incubator/accelerator support	1
3.4 Testing and validation	1

Name
Bi-Rex
DANS - Data Archiving and Networked Services
Italian Computing and Data Infrastructure (ICDI) Competence Center
Spanish National Renewable Energy Centre CENER, Centro Nacional de Energias Renovables

Nº of entities providing each service

Type of entity ● National CCs (Europe)

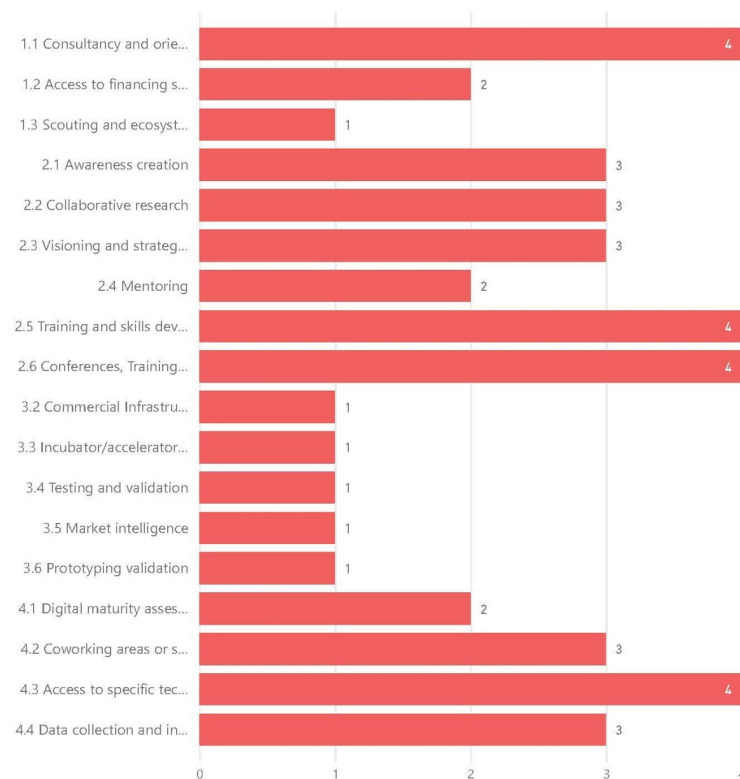


Figure 42. Type of services offered data visualisation: National CCs (Europe).

Type of services offered

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Type of service	N° entities
1.1 Consultancy and orientation	4
1.2 Access to financing services	1
1.3 Scouting and ecosystem building	2
2.1 Awareness creation	4
2.2 Collaborative research	4
2.3 Visioning and strategy development	3
2.4 Mentoring	4
2.5 Training and skills development	5
2.6 Conferences, Training, Meetings	5
3.1 Competitive mass production	1
3.4 Testing and validation	2
4.1 Digital maturity assessment	4

Name
CESSDA
CINECA
CLARIN - European Research Infrastructure for Language Resources and Technology
DARIAH (Digital Research Infrastructure for the Arts and Humanities)
OpenAire

N° of entities providing each service

Type of entity ● Research infrastructures

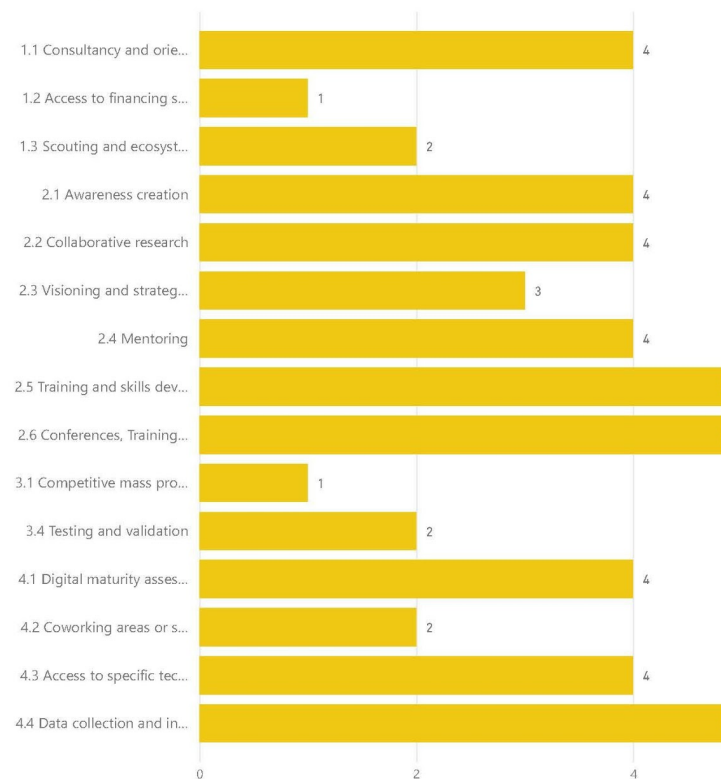


Figure 43. Type of services offered data visualisation: Research infrastructures.

Type of services offered

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Type of service	N° entities
1.1 Consultancy and orientation	5
1.2 Access to financing services	1
1.3 Scouting and ecosystem building	1
2.1 Awareness creation	9
2.2 Collaborative research	9
2.3 Visioning and strategy development	6
2.4 Mentoring	7
2.5 Training and skills development	9
2.6 Conferences, Training, Meetings	9
3.2 Commercial Infrastructure	2
3.4 Testing and validation	4
3.5 Market intelligence	1

Name
Archaeology Data Service
Connecting Archaeology and Architecture in Europe (CARARE)
CulturalItalia
Digital Public Library of America (DPLA)
Europeana
France Archives
General Catalogue of Cultural Properties
ICCU – Istituto Centrale per il Catalogo Unico delle biblioteche italiane e per le

N° of entities providing each service

Type of entity ● Documentation Centres on CH

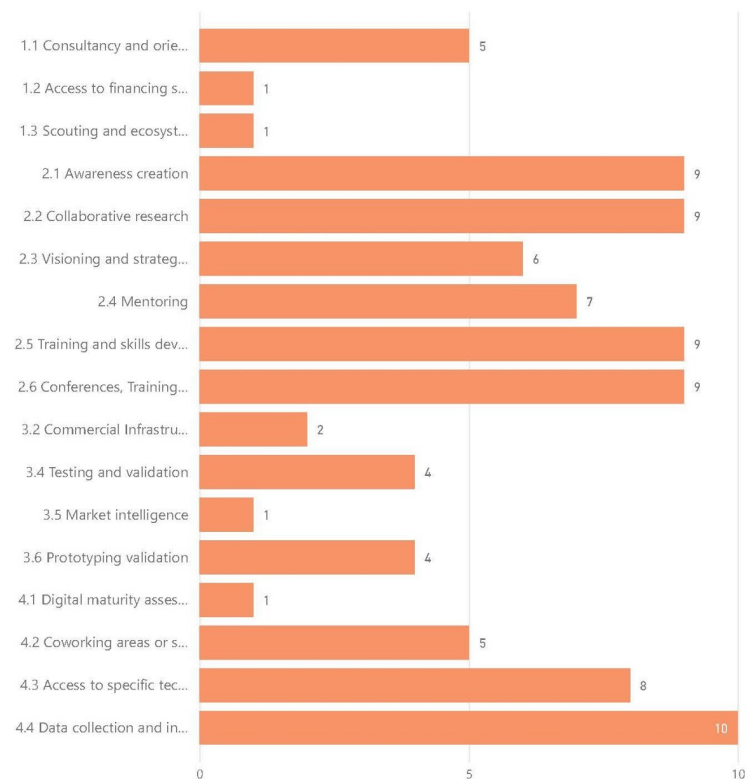


Figure 44. Type of services offered data visualisation: documentation centres on C

Type of services offered

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Type of service	N° entities
1.1 Consultancy and orientation	9
1.2 Access to financing services	1
1.3 Scouting and ecosystem building	1
2.1 Awareness creation	10
2.2 Collaborative research	10
2.3 Visioning and strategy development	9
2.4 Mentoring	8
2.5 Training and skills development	11
2.6 Conferences, Training, Meetings	11
3.2 Commercial Infrastructure	2
3.3 Incubator/accelerator support	3
3.4 Testing and validation	5

Name
C2RMF - National Centre for Research and Restoration in French Museums
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)
Docomomo International
Getty Center
Institutul Național al Patrimoniului
Istituto Centrale per il Restauro (ICR)
Laboratoire de Recherche des Monuments Historiques
Opificio delle Pietre Dure - OPD

N° of entities providing each service

Type of entity ● Other national and international centres on CH

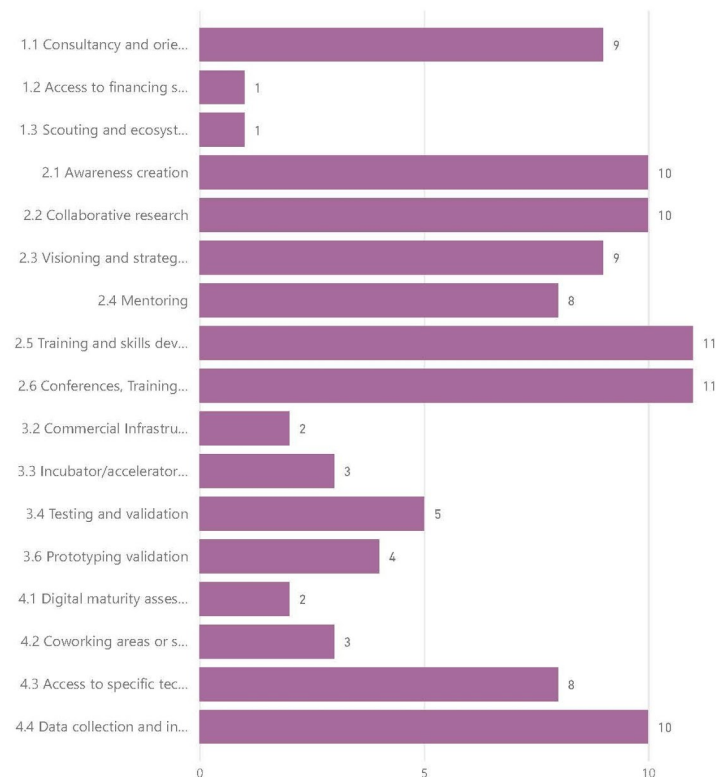


Figure 45. Type of services offered data visualisation: other national and international centres on

4.2.7 Scope

Another aspect analysed is the area of influence of the centres: regional, local, national or international. The data collected highlight how the international scope is generally the most significant, with a remarkable share in the case of Documentation Centres, followed by EC CCs and RIs. As for the national scope, the EC KCs report the highest percentage (Fig. 46).

The visualisation of collected data allows observing the contextual commitment of the entities at all the scale levels, providing expertise and services in the different context of reference.

A gap of the template format was to not foresee a hierarchy in reporting data, but only a pre-set multiple choice yes/no/not applicable, without therefore reflecting the main area of influence for each group.

Scope

European Commission CCs	Research infrastructures	Documentation Centres on CH
European Commission KCs	EU-funded projects	Other national and international centres on CH
National CCs (Europe)	Digital Innovation Hubs	

Scope	N° entities
International scope	38
Local scope	19
National scope	21
Regional scope	23

Name	Scope
AI Watch	National scope
Archaeology Data Service	International scope
Archaeology Data Service	Local scope
Archaeology Data Service	National scope
Bi-Rex	International scope
Bi-Rex	Local scope
Bi-Rex	Regional scope
C2RMF - National Centre for Research and Restoration in French Museums	National scope
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	International scope
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	Local scope
Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	Regional scope

Scope ● International scope ● Local scope ● National scope ● Regional scope

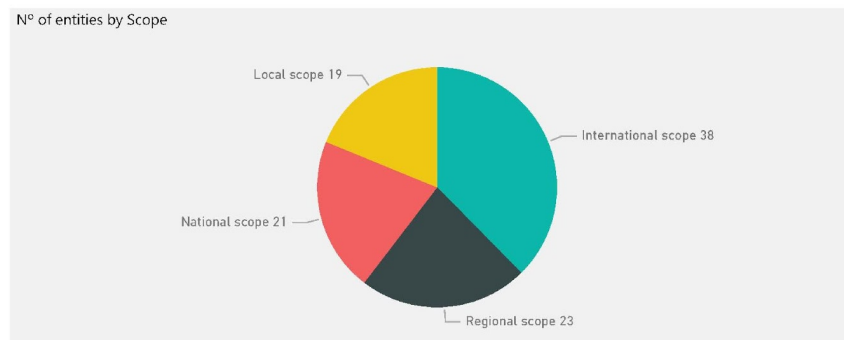
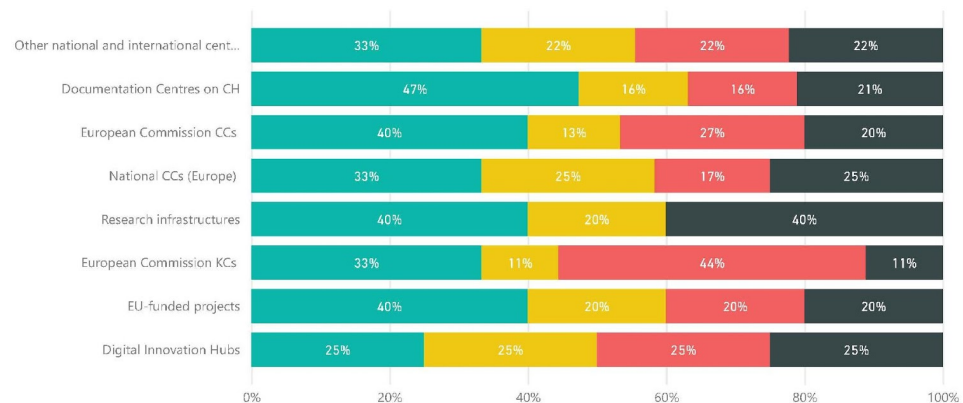


Figure 46. Scope: all the analysed centres

4.2.8 Audience and target groups

The field of inquiry related to 'main audience and target groups' aims to identify the analysed centres ecosystem of stakeholders. The data visualisation shows the words most frequently entered in the corresponding cell (using a word cloud tool), outlining the large and common framework of involved subjects: mainly public institutions, researchers and research centres, policymakers, universities but also companies, agencies, industries, associations, professionals and citizen among others (Fig. 47).

4.2.9 Business information

The financial aspects and resources sustaining the activities of the analysed entities – according to what reported in the proposal - are essential points to be explored with the aim to identify the most effective organizational structure for the 4CH CC – at set-up and running stage, the other accessorial requirements and overall needs of funding to sustain the operations of the centre throughout its life.

The fields of inquiry reported in the factsheet deal with information about: External supporting funding (e.g., *sponsorships, EU funding, etc.*), Co-financing (*from public or private entities*), main source of financial resources, Type of Budget holder (e.g., if *National, private, public-private, etc.*) and availability of physical resources, plus an open field to enter other relevant information.

The partners filled-in the data reporting textual and consequently heterogeneous descriptions (in some case missing), for which visualisation through diagrams or graphs is not applicable. All the information is available in the specific section of the factsheets.

Despite this, starting from the systematic and comparative view of the same information referring to each macro-category provided by the software, it is possible to develop some considerations, confirming the heterogeneous conditions that distinguish the entities.

As for the National CCs (Europe), the collected data reflects mixed co-funding framework: for example, bi-rex received funds from the Italian Ministry of Economic Development for the first 3 years of activity; DANS counts on funding from two national institutes (The Royal Academy of Arts and Science - KNAW and the National Research Council - NWO) and by participating in (inter)national projects and infrastructures¹⁶⁸; or Spanish CENER is co-founded by National and Regional Government. Regarding to physical resources, this last one is the most structured in this sense, sited in several headquarters with different kind of specific laboratories.

Similar considerations apply to 'Other national and international centres on CH' macro-category: physical equipment in terms of working and research labs and offices or halls to host congresses and training events. Most of them are mainly supported by public and research projects funds, counting on the additional external sustain from sponsorship, donations, private and banking foundation and membership. The table below describes the type of data systematization of business information provided by PowerBi software (Fig. 48).

¹⁶⁸ DANS, Projects, <https://dans.knaw.nl/en/projects> (Accessed on 15 July 2021).

Business information

	European Commission CCs	European Commission KCs	National CCs (Europe)	Research infrastructures	EU-funded projects	Digital Innovation Hubs	Documentation Centres on CH	Other national and international centres on CH
Business field	AI Watch	Archaeology Data Service	Bi-Rex	C2RMF - National Centre for Research and Restoration in French Museums	Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)	CESSDA		
1. External supporting funding	EU Funding	Project funding, Charging Policy for data deposits, Endowment fund	14.400.000€ for 3 years by Italian MISE		Banking and private foundations, Public fundings (EU and local projects)	EU funding, Co member states.		
2. Co-financing		University of York underwrites longterm preservation of data	14.400.000€ for 3 years by consortium members		general rules: 85% -100% co-financing from public, 100% from private entities			
3. Financial resources	JRC	Project funding, Charging Policy for data deposits	Among all Italian Competence Centers, Bi-Rex is the one which allocate most of MISE co-financing to industrial research projects. Aggregate turnover > 100 billion Euros		Service provisions, Public fundings, Research project.			
4. Physical resources	no		1.500 square meters inside the Opificio Golinelli	The Center has several physical offices/labs in Paris	8.000 m2 facilities (Conservation laboratories and Scientific laboratories -Chemistry, Biology, TAC-RX bunker), Main Hall (250 places) to host congresses and public events, several classroom			
5. Budget holder		ADS	...	National	Private			
6. Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission	https://archaeologydataservice.ac.uk/about/finance.xhtml	...					CESSDA participi projects (EOSC)

Figure 48. Business information data visualisation

4.2.10 Summary data by macro-categories

The previous data visualisation graphics describe a transversal analysis across all the analysed centres, useful to describe quantitative information with respect to the complete sample of the survey: the graphs below, included in this last paragraph, deal with thematic or per macro-categories comparison.

The summary data includes the main considered and already described fields of inquiry and analysis, and allow reading all the data in a systematic way (Fig. 49, 50 and 51), in particular:

- Type (if public, private or other);
- Site (if physical, digital or both);
- Main audience and target groups;
- Governance, Ownership and Legal structure models;
- Scope (if local, regional, national or international);
- Type of provided services.

The visualisation can involve a selection of one or more macro-categories in the same framework, or according to a specific topic.

As regard, for example, to the Centres with focus on CH (including Documentation Centre and other institution), it is possible to observe that: around 60% of the analysed entities (13 out of 22 ones) have a Public Governance and are Government-led and are legally structured as non-profit organizations; half (11 out of a total of 22) are Government owned; or that 45% are both physical and digital (Fig. 51).

In addition to this, it is possible to clarify and highlight interdependent relationships between the different mapped aspects. By selecting the centres with a non-profit legal structure, the display of the other fields is updated and returns a different and specific frame, highlighting which of these are publics, which of these are Government or Academia-led, which of these have an international or national scope, and so on (Fig. 52)

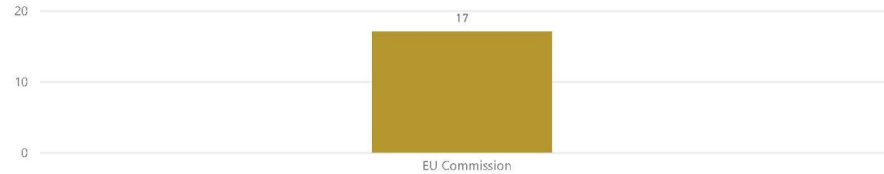
Summary data by type of entity

- Type of entity
- European Commission CCs
 - European Commission KCs
 - National CCs (Europe)
 - Research infrastructures
 - EU-funded projects
 - Digital Innovation Hubs
 - Documentation Centres on CH
 - Other national and international centres on CH

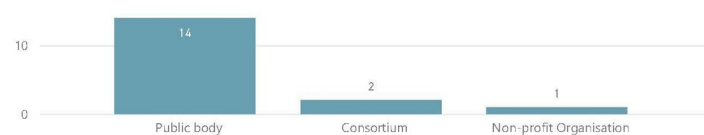
Governance



Ownership



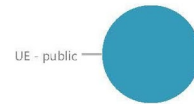
Legal structure



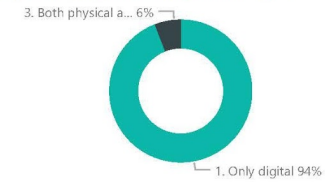
Audience



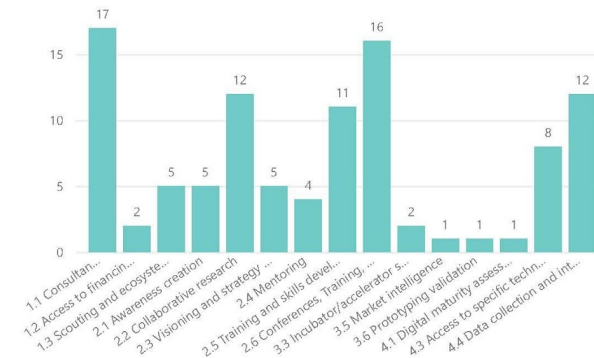
Type



Site (only physical/only digital/both physical and digital)



Type of services



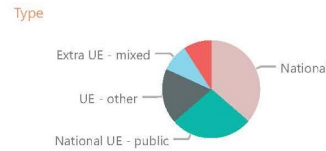
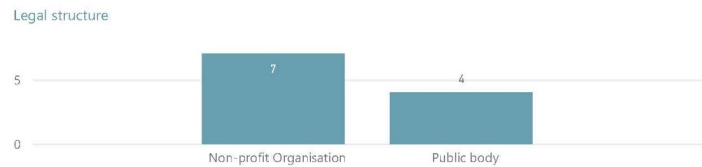
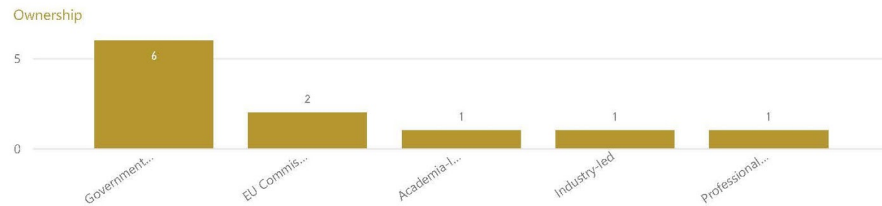
Scope



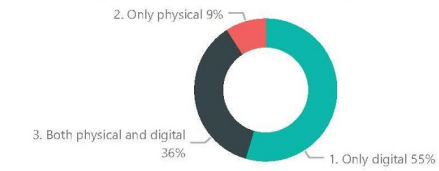
Figure 49. Summary data visualisation: European Commission CCs and KCs.

Summary data by type of entity

- Type of entity
- European Commission CCs
 - European Commission KCs
 - National CCs (Europe)
 - Research infrastructures
 - EU-funded projects
 - Digital Innovation Hubs
 - Documentation Centres on CH
 - Other national and international centres on CH



Site (only physical/only digital/both physical and digital)



Type of services

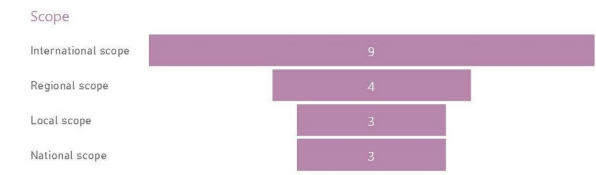
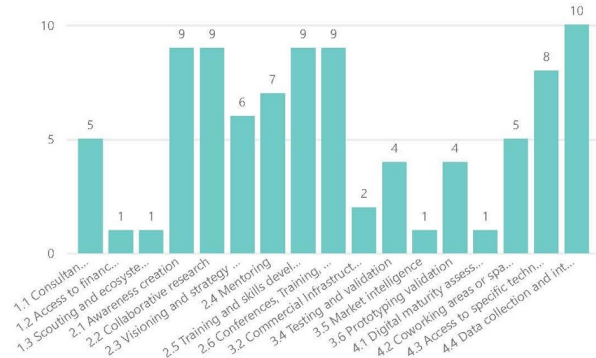


Figure 50. Summary data visualisation: documentation centres on CH.

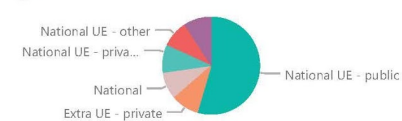
Summary data by type of entity

- Type of entity
- European Commission CCs
 - European Commission KCs
 - National CCs (Europe)
 - Research infrastructures
 - EU-funded projects
 - Digital Innovation Hubs
 - Documentation Centres on CH
 - Other national and international centres on CH

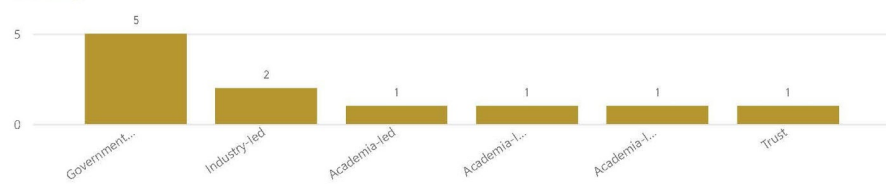
Governance



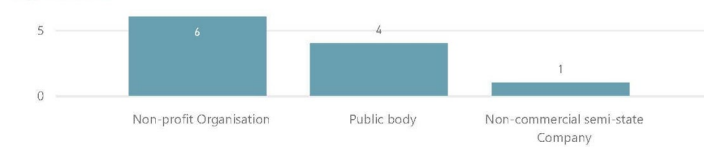
Type



Ownership



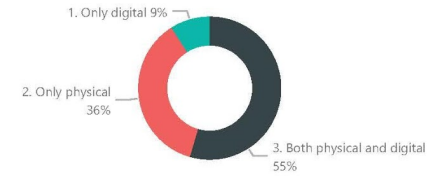
Legal structure



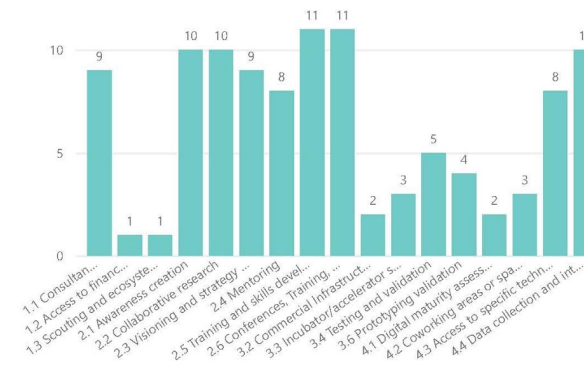
Audience



Site (only physical/only digital/both physical and digital)



Type of services



Scope



Figure 51. Summary data visualisation: other national and international centres on CH.

Summary data by type of entity

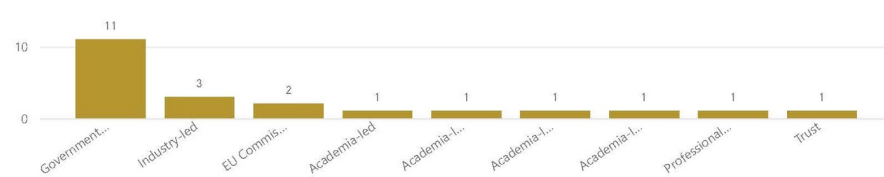
Type of entity

- European Commission CCs
- European Commission KCs
- National CCs (Europe)
- Research infrastructures
- EU-funded projects
- Digital Innovation Hubs
- Documentation Centres on CH
- Other national and international centres on CH

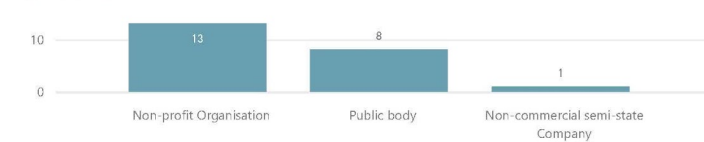
Governance



Ownership



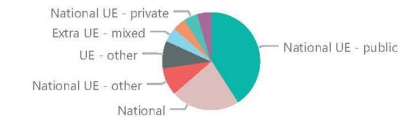
Legal structure



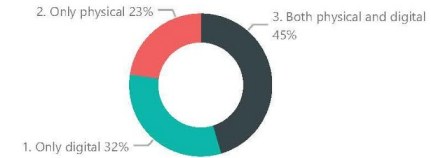
Audience



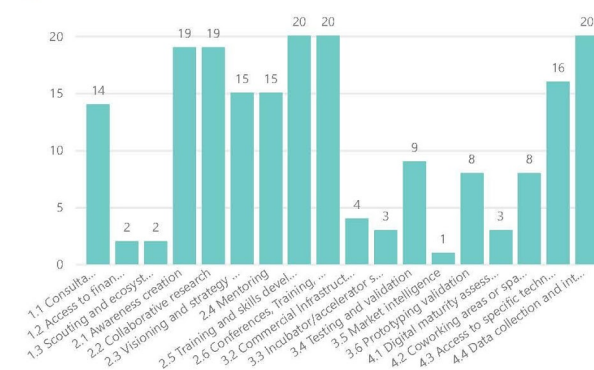
Type



Site (only physical/only digital/both physical and digital)



Type of services



Scope



Figure 52. Summary data visualisation: Focus on CH (documentation centres and other national and international centres on CH).

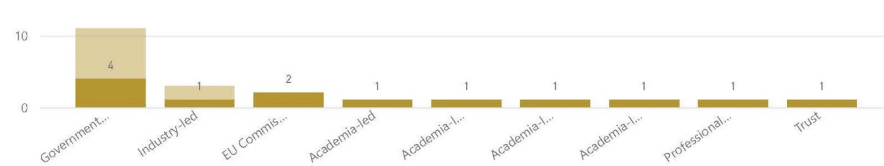
Summary data by type of entity

- Type of entity
- European Commission CCs
 - European Commission KCs
 - National CCs (Europe)
 - Research infrastructures
 - EU-funded projects
 - Digital Innovation Hubs
 - Documentation Centres on CH
 - Other national and international centres on CH

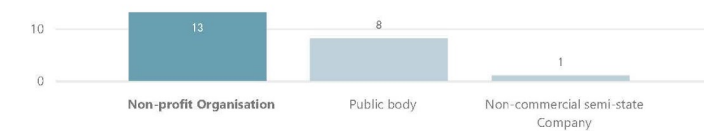
Governance



Ownership



Legal structure



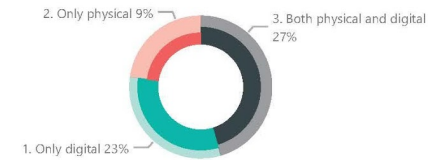
Audience



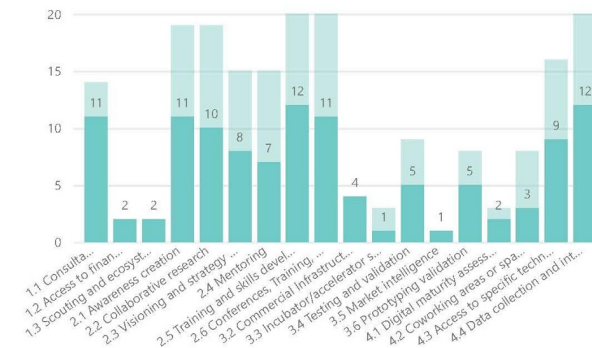
Type



Site (only physical/only digital/both physical and digital)



Type of services



Scope

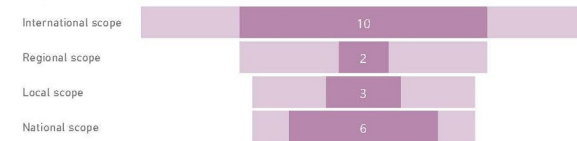


Figure 53. Summary data visualisation: Focus on CH, interrelations among specific aspects.

5. Critical summary about the survey results

The present survey D2.1 - Report on CCs analysis on existing Competence/Knowledge Centres and similar entities was carried out to collect information and insights in order to outline the CC organization, objectives and goals. The D2.2 - Report on the planned organization of the Competence Centre on Cultural Heritage, due at Month 36, after recalling the structure of existing CCs, will report the planned structure, organization and services tailored for the 4CH CC.

The factsheet is the tool used in the survey to collect information about the selected entities to be investigated. The factsheet template includes two fields that require the author in charge of filling the form to express conclusive considerations and synthesis about the gathered data:

- Possible link with the future CC on CH;
- Relevant services/activities/other useful per building our CC.

The two fields, where subjective evaluations are required, integrate the objective information whose results are referred in the previous chapter.

Some factsheets have been returned with no text or the “to be investigated” statement as the authors did not deem himself able to respond, but most of the filled factsheets are complete and report brief descriptions about the above-mentioned topics.

Below, some comments that might be useful as basis for future discussion and further insights, divided according with the identified macro-categories.

European Commission Competence Centres and Knowledge Centres

The factsheets about existing CCs underline the main aim they have been established for bringing together, in one place, all the in-house expertise and offering advice on the choice of analytical tools in relation to the policy problems. They have the characteristic of working directly with the Directorates General to develop and/or apply the tools for policy making so they are configured as JRC-managed internal consultancy services for the Commission, as well as the Knowledge Centers. CCs and KCs operative structure, governance and funding source are direct consequences of this particular status, so the fillers of the factsheets have not reported them as significant references for the future 4CH CC. Furthermore, no specific possible link exists between CCs and KSs have been outlined, due to the completely different fields of application, not concerning CH related issues.

What can be useful for 4CH CC?

- Advice, Counselling, Training and Benchmark activity on the most appropriate tools for policymaking to improve their comparability and robustness;
- Megatrend hub, managed by the Competence Centre on Foresight: a platform that curates and provides information and policy advice structured around 14 Global Megatrends relevant for the future of Europe. The system involves experts across the CC research teams to compile and curate qualitative and quantitative information from a range of authoritative and validated resources, ensuring that the information on Megatrends remains broadly up-to-date;
- Systemic use of existing digital infrastructure, expertise and skills;
- Aggregation of results and best practices generated by other Directorate-Generals of the European Commission and EU programmes (e.g., H2020, COSME, EU4TECH);
- Expertise on statistical methodologies and technical guidelines;
- Governance structure in terms of relations between a main coordination and direction centre and operative CCs referring to individual Member States (as for the Cybersecurity CC);
- Gathering experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers.

National CCs (Europe)

National CCs are heterogeneous entities, different for mission, structure and facilities. Given their national scale and sphere of influence, they can be significant as references for the Level 2 of the 4CH organizational structure, the National Coordination Centres (see the conceptual map about the organizational structure of the 4CH CC as drafted in the proposal, Fig. 2, p.18 of this report).

They are often integrated in wider international networks (e.g., Digital Innovation Hubs, European Energy Research Alliance, European Technology Platforms, EU Research Infrastructures) and they are connected by digital platforms. Some suggestions about possible link with 4CH CC are provided in the factsheets. For instance, the Italian Computing and Data Infrastructure Competence Center (ICDI) has

been indicated as an opportunity to integrate future Italian services of the 4CH CC into the ICDI catalogue and to implement a shared strategy to foster open science and the European Open Science Cloud (EOSC) in the cultural heritage sector; moreover, ICDI is the Italian mandated organisation in the EOSC Association in which it coordinates the participation of a wide network of Italian structures: agreements can be made to promote new projects and activities to bring the cultural heritage sector into the EOSC. Both the Italian BI-rex and the Dutch DANS have been notified relevant for the provision of services and the performance of activities; in particular, the first structure is considered a possible reference for the structure and contents of the service catalogue (orientation and consultancy, training activities, innovation projects, facilities) and the second for the research data management services (data management planning, certification of repositories, data archiving, fair data services, project management). Finally, National CCs have strong connections with the industry and technologic sector and with local, regional and national stakeholders, and 4CH National Coordination Centres can benefit from the way they manage and structure those relationships.

What can be useful for 4CH CC?

- Efficient management of large consortia and international networks of partners and stakeholders;
- Research Data Management Services;
- Consultancy and Training activities and services;
- New business models and innovative opportunities to supply services enabled in Industry 4.0 and Enterprise 4.0;
- Enabling technologies related to Big Data collection and processing, from cloud / industrial edge to artificial intelligence applied to predictive diagnostics and machine learning;
- Pilot plans to integrate Industry 4.0 technologies with traditional ones, in a digitally interconnected environment;
- Different legal structure formulas, according with national specificities, and related funding sources, conceived to achieve long-term sustainability.

Research infrastructures

The analysis of the selected European Research Infrastructures (ERIC RIs), mainly devoted to humanities and social science, confirm the interest of the related set of facilities, resources and services as possible references for the future CC. RIs, as also already described in chapter 3, paragraph 3.2.2, include major scientific equipment/instruments, knowledge-based resources such as collections, archives and scientific data, e-infrastructures, data and computing systems and communication networks and any other tools that are essential to achieve excellence in research and innovation. Thus, they involve both research and practice in order to meet the needs of scientific and academic communities and of other audiences and target users (practitioners, service providers, industry, public and private institutions).

Other relevant characteristic confirmed by the analysis based on the factsheets is that, despite each RIs deals with specific topics, they also address transversal issues like education and training, development of digital infrastructures, knowledge transfer methodologies, innovation-oriented approaches, enhancement of technical skills, link with economy sectors of production and services. Another crucial transversal issue faced by RIs is the generation and processing of high-quality data.

Two other very important aspects for the design of the 4CH CC emerged from the analysis: the long-term sustainability RIs vision and strategy, that has led to the setting up of an ad hoc working group to provide recommendations and a dedicated Action Plan to strengthen long-term sustainability, and the roadmapping process for their development and enhancement, with publicly available rules and procedures.

What can be useful for 4CH CC?

- Long-term sustainability vision and strategy (setting up of an ad hoc working group to provide recommendations and a dedicated Action Plan to strengthen long-term sustainability);
- Roadmapping processes with publicly available rules and procedures;
- Services related to innovative technologies combined with cultural heritage for museums, archives, galleries;
- Expertise on data sharing and archiving, open science, open innovation protocols, data protection policies;
- Open access services and training programmes, benefiting from already established networks (e.g. National Open Access Desks or Community of Practice for Training Coordinators) and from the engagement with academia;
- Example of governance as network (e.g. DARIAH).

EU-funded projects

The EU-funded projects included in the survey have been selected for their direct connections with CC design and implementation. The EURO CC project mission is to bring together the necessary expertise to set up a cross-European network of National CCs in HPC-related topics and to provide a broad service portfolio tailored to the respective national needs of academia, public administrations and industry. Consequently, the project can be useful for the Level 2_ National CH Coordination Centres of the 4CH CC. The project is at an initial stage and there are not significant documents or reports available online so far, but it is worthy of being monitored.

The group of projects related to the establishment of the European Cybersecurity, Industrial, Technology and Research Competence Centre (ECCC), namely CONCORDIA, ECHO, SPARTA and CyberSec4Europe, are in an advanced stage and the ECCC Regulation establishing the new centre was published on 8 June 2021.

The organizational structure of the 4CH CC, as drafted in the proposal, is partially inspired by the ECCC: a central European hub (the European Cybersecurity Industrial, Technology and Research Competence Centre), the EU Network of National Coordination Centres, the Cybersecurity Competence Community. The ECCC is the only JRC-managed Competence Centre not to function only as an internal consultancy service for the Commission; another specificity is that it is not entirely EU-funded but also co-funded by involved Member States.

What can be useful for 4CH CC?

- Broad portfolio of services tailored to the respective national needs of academia, public administrations and industry;
- Networking, collaborations and partnerships paths among different stakeholders, Countries and international, regional and local scales;
- Dissemination/promotion strategies (Webinars, Broadcasts);
- Focus groups, composed by representatives from the different CCs pilots (among them: Education, Atlas, Roadmapping, Governance);
- Mission: to analyse, implement and coordinate all necessary activities and offers services to end users to cover their needs: from access to resources, from technological consultancy to the provision of training courses for academia, public administrations and industry.
-

Digital Innovation Hubs

The European Digital Innovation Hubs (EDIHs) are represented by a single factsheet that provides general information about this group of entities, made by single organisations or coordinated groups of organisations sharing complementary expertise; each one aims to become a one-stop shop with the not-for-profit objective to help companies become more competitive using digital technologies. They provide access to technical expertise and experimentation, innovation services, financing advice, training and skills development, thus the range of activities and service portfolios can be similar to those of 4CH CC, that is focused on digital technologies and 3D.

EDIHs are co-funded by the EU but it is interesting that EU funding will be made available for hubs that are already (or will be) supported by their Member States (or regions), so as to increase the impact of public funding.

As potential EDIHs can be different typology of entities, they are free to define their organisation, composition and governance structure.

What can be useful for 4CH CC?

- Document to prepare the implementation of European Digital Innovation Hubs in Digital Europe Programme, based also on the outcome of meetings with Member State representatives and validated with other stakeholders: European Commission Directorate-General for Communications Networks, Content And Technology, European Digital Innovation Hubs in Digital Europe Programme Draft working document 25 01 2021, Brussels, 2021¹⁶⁹;
- Guidance for the cooperation between the European Digital Innovation Hubs, Enterprise Europe network partners and cluster organisations¹⁷⁰;
- Practical handbook by JRC¹⁷¹ that introduces a step-by-step approach to provide support to policy makers that envisage strengthening DIHs in their regions/countries with a view to accelerate digital transformation of the economy and society. The Handbook includes many examples that highlight good practices in the different steps of the proposed methodology.

Documentation Centres and Other national and international centres on CH

For what Documentation Centres and other type of Centres focused on CH are concerned, it is difficult to extrapolate common general reflections from the factsheets because those institutions and/or networks are diversified in organization, mission and focus. Nevertheless, many potentialities of connection with the 4CH CC have been highlighted by the partners in charge of filling the factsheets or by the contact persons, internal of the entities under inquiry, that have been asked for their comments. For the specific indications provided in the “Possible link with the future CC on CH” and “Relevant services/activities/other useful per building our CC” cells, we invite to refer to the single factsheets, but here we point out some relevant groups of useful subjects.

Centres of excellence, like the Opificio delle Pietre Dure, the Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale", the Istituto Centrale per il Restauro, the Laboratoire de Recherche des Monuments Historiques, are crucial to provide scientific and technical knowledge and best practices for restoration and conservation processes and actions. They also offer consultation to private-owned cultural heritage, high educational services and advanced training. They are members of the most important partnerships about CH and network of stakeholders. For all these reasons, they are indicated as reference institutions for the Level 3 National Community of the 4CH organizational structure. Those

¹⁶⁹ European Commission, Directorate-General For Communications Networks, Content And Technology (2021), European Digital Innovation Hubs in Digital Europe Programme Draft working document 25-01-2021. Available online (click on “document.pdf” link) <https://digital-strategy.ec.europa.eu/en/activities/edihhs> (Accessed on 29 May 2021).

¹⁷⁰ European Commission (2021), Guidance for the cooperation between the European Digital Innovation Hubs, Enterprise Europe Network Partners and Cluster Organisations. Available online https://ec.europa.eu/newsroom/repository/document/2021-23/Guidance_note_EENEDIHclusters_12032021_FINAL_DGeWljbwe2VJd1pWb3UagT3oy8g_76992.pdf (Accessed on 29 May 2021).

¹⁷¹ Kalpaka A., Sörvik J., Tasigiorgou A. (2020), Digital Innovation Hubs as policy instruments to boost digitalization of SMES. A practical handbook & good practices for regional/national policy makers and DIH managers, Publications Office of the European Union. Available online <https://publications.jrc.ec.europa.eu/repository/handle/JRC121604> (Accessed on 25 May 2021).

type of institutions are also among the most entitled to represent the target users and to point out their needs in order to support their work and mission in terms of tools, services, data and knowledge. Documentation centres and archives are indicated as reference for knowledge sharing, for digital data management storage and long-time preservation of digital contents, e.g. 3D modelling data for digital conservation of monuments and sites, for the developing of ontologies and solution for conversion and mapping different metadata schemes, for the developing of software, tools, and databases for culture heritage evidence, for websites for culture heritage dissemination, for e-content acquisition platforms, and for other facilities and services related to the role of “gates” to virtually access CH.

What can be useful for 4CH CC?

- Standard and data exchange for preservation purposes, metadata descriptions, ontologies for digital documentation of cultural heritage assets;
- Knowledge on digital data management, storage and long-time preservation of digital content;
- Databases/platforms on CH;
- Digital and data analysis tools, 3D modelling for digital conservation of museum's collections and historical monuments and sites;
- Open access and linked open data policies;
- Step-by-step guidelines for all (“How to do” paths) and scientific publications;
- Networks with key stakeholders at regional, national and international levels;
- Wide target audience (general public, institutions, professional communities);
- Research, education, conservation, promotion, dissemination and training activities.

5.1 Final remarks

The goal of the present report, as stated in the 4CH project proposal, is the production of “a survey on existing Competence / Knowledge Centres and similar entities [...] in order to outline the [4CH] CC organization, objectives and goals. National, European and Extra-EU areas will be investigated as well as other CC related to other topics beyond Cultural Heritage”.¹⁷²

Both the desk research and the questionnaires produced a clear description of the current panorama of more than 50 Competence and Knowledge Centres in Europe, including also a selection of other relevant national institutions and few international cases. It must be noted that, notwithstanding the short time frame available for the questionnaire survey, the answers produced were remarkably informative - with the usual limits of surveys, such as partial or no answer, delayed reply, refusal to answer, and so on. Moreover, the provision of sensitive data (for which a specific informed consent form has been used) has been uneven.

¹⁷² 4CH – GA, p. 11.

Questionnaires were compiled with the support of several WP2 partners, who filled in directly the answers or interviewed representatives of the respondents. The team in charge of the deliverable made then a revision to minimise the effect of different cultural backgrounds and expertise, and to make comparable notes and answers to open questions.

The resulting picture of the CC global landscape is shown in the figures of chapter 4, paragraph 4.2. The diagrams describe in a synthetic and homogenous way rather different situations and qualitative features and provide the foundation for the definition of the 4CH Competence Centre, making it easier to build a suitable and tailored design for it.

As a general conclusion, the survey has shown the existence of several different patterns in the analyzed institutions, as regards organizational framework, governance model, funding scheme and service portfolio. The design of the 4CH CC cannot therefore be the automatic replica of any such model because none fully corresponds to its mission, although all provide useful hints. It should be, instead, the combination of features, services and activities inspired by those existing in such institutions - summarized and organically presented in this report - with other new ones, to be compliant with the mission, the objectives, the field of application, the expected impacts and the long-term sustainability of the 4CH Competence Centre.

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Appendices

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Appendix 1

Mapping of different types of CCs / KCs and similar entities of potential interest for 4CH CC

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1 European Commission Competence Centres

- 1.1 Competence Centre on Behavioural Insights
- 1.2 Competence Centre on Foresight
- 1.3 Competence Centre on Microeconomic Evaluation (ME)
- 1.4 Competence Centre on Text Mining and Analysis (TMA)
- 1.5 Competence Centre on Modelling (MOD)
- 1.6 Competence Centre on Technology Transfer (TT)
- 1.7 Competence Centre on Composite Indicators and Scoreboards (COIN)
- 1.8 Competence Centre on Cybersecurity Industrial, Technology and Research

1.1 Competence Centre on Behavioural Insights		
Field	Behavioural Insights	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://knowledge4policy.ec.europa.eu/behavioural-insights_en	
Site	Only digital	
Headquarters (if applicable)	The JRC headquarter in Brussels	
Year of foundation	2019	
Main focus	Behavioural sciences	
Operational areas / thematic departments		
Mission and Strategy	Supporting policymaking by providing evidence on human behaviour. Activities include: <ul style="list-style-type: none"> - conducting behavioural research - providing expert assistance to other departments of the European Commission, to embed behavioural evidence into policymaking - building capacity on behavioural insights 	
Value proposition	The mission of the Competence Centre on Behavioural Insights is to support EU policymaking with evidence about human behaviour.	
Legal structure	Public body	
Partnerships	EU Commission; JRC - Joint Research Centre	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	Yes
Structure		
Description of government and management structure	There is no internal government or management structure. The structure is composed by a team consisting of academic experts with a diverse background in behavioural sciences, including behavioural economics, psychology, sociology and consumer research. Every project receives input from at least 2 experts. Each team member tends to specialise in specific policy	

		areas and liaises primarily with colleagues working on similar topics.
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	No co-financing
	Financial resources	JRC
	Physical resources	No
	Budget holder	Public International
	Other relevant information	All CCs and KCs work as a JRC-managed internal consultancy services for the Commission (not implemented via grant or procurement).
Portfolio of Services	Brief description	Research In-house behavioural research in various policy areas, mainly on-demand, following requests from other departments of the European Commission. Anticipatory research that envisages future policy needs for behavioural evidence. Expert assistance Capacity-building Training module and workshops to promote and enable the use of behavioural insights throughout the EU policy cycle, and in national policymaking. Building and managing communities of practitioners applying behavioural insights in key policy areas.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No

	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	No
	Other	No
	Workflows	
		
Engagement practices and promotion strategy	Interaction addressed to external stakeholders (e.g. citizens, etc.) through public activities (e.g. workshops, surveys/questionnaires, laboratories, etc.)	
Audience/target groups	Directorate-Generals of the European Commission, other EU institutions, EU member states, EU Neighbourhood countries Individual institutions (universities, research centres, associations, international organisations)	
Networks of stakeholders	EU Commission policy departments (Directorates-General - DGs); EU policy	

	makers
Coordination with other similar entities / Ecosystem / Hubs	other Competence Centres
Use of Platform/digital infrastructure	Knowledge for Policy (K4P)
Steps to setting up/launch of the CC, KC or similar entity	Launch on 5th June 2019
Possible link with the future CC on CH	All CCs aim at bringing together, in one place, all the in-house expertise in the use of analytical tools that can be applied in any policy area. The methodology can be the same.
Relevant services/activities/other useful per building our CC	Advise a policy DG on the choice of the most appropriate tools. They can work with the policy DG to apply the tools to the policy problem in hand. They can provide training courses in the use of the tools for policy making. They can help to benchmark and validate tools used across the Commission, to improve their comparability and robustness.
References	https://knowledge4policy.ec.europa.eu/behavioural-insights/about_en#whatdowedo

1.2 Competence Centre on Foresight		
Field	Foresight	
Type	UE - public	
Country (Europe)	European (Continent) Country of affiliation	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://knowledge4policy.ec.europa.eu/foresight_en https://blogs.ec.europa.eu/eupolicylab/tag/foresight4eu/	
Site	Only digital	
Headquarters (if applicable)	Joint Research Center's Headquarters. CDMA Building, 21 Rue du Champ de Mars / Marsveldstraat 21, B-1050 Brussels	
Year of foundation	2018	
Main focus	Foresight, Modelling, Behavioural Insights and Design for Policy	
Operational areas / thematic departments	Policymaking, research and development area	
Mission and Strategy	The CC on Foresight (CC-Foresight) provides direct strategic and future-oriented input into EU policymaking, boosts the uptake of foresight and forward-looking approaches, and continuously advances in-house foresight capacity, methods and tools to make it more practical for decision-making procedures. Its purpose is to foster creativity and engagement and to develop interactions, processes and tools able to bring innovation into European policy-making. It achieves this by testing, experimenting and co-designing, using tailored made frameworks with a strong visuals focus.	
Value proposition	The CC mandate is to anticipate emerging issues that need to be addressed at EU level, mainly through the use of collaborative and experimental methods, non-predictive future-oriented technology analysis applied to policy contexts	
Legal structure	Non-profit Organisation	
Partnerships	European Commission's science and knowledge service	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	EU Commission
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
Structure		
Description of government and	A unit and a team that exists inside a large public research service: JRC, the European Commission's in-house science	

	management structure	service and the only DG executing direct research to provide science advice to EU policy. Government positions: Deputy Head; Policy Analyst; Behavioural Economist; Secretary to the Unit; Contracts and Finance Assistant; Administrative Support Team; Head of the Policy Lab.
Business Model And Business Plan	External supporting funding	EU funding, payment for services
	Co-financing	% of co-financing from public or private entities
	Financial resources	service provisions, third party research
	Physical resources	No
	Budget holder	No
	Other relevant information	Since 1989, JRC has been allowed to render services against payment. Income generation is not the primary goal of doing this. Rather, it is to maximise the returns on public investment. So, for example, infrastructure built using money from the EU budget can be opened up to other European research organisations or to businesses, including SMEs, thus generating further social or economic returns on that public investment.
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	Yes
	Others	

	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	Yes
	Other	No
	Workflows	
	<p>The CC provides support and insights to policy makers through a series of tools released under a Creative Commons licence (CC-BY-SA):</p> <p>1) The Megatrends Hub: the European Commission's public website that supports the dynamic collective intelligence system underlying this foresight initiative. It includes: a) curated information structured around 14 Global Megatrends relevant for the future of Europe; b) knowledge to help you understand what the megatrends mean for a specific issue; c) macro- and micro-trends, developments and forecasts, potential implications and foresight-related resources d) engagement tools to explore how megatrend can affect a policy field.</p> <p>2) The Scenario Exploration System (SES): a future simulation tool, solution-oriented, to explore possible paths towards the future, in relation to any policy topic in the form of a serious game to stimulate engagement with stakeholders where you can play the role of business, policymaker, civil society, the public or the media.</p> <p>3) Horizon Scanning: helps identify emerging issues, weak signals of change and events that could lead to changes in behaviour, strategy or policy. It relies on collective sense-making sessions of the scanned signals and validation through further research.</p> <p>4) #DLT4Good Scanning: data exploration tool to support anticipatory policy-making on Distributed Ledger Technologies (DLTs) for social and public good.</p> <p>5) Complex System Analyser: workshop-based tool designed to facilitate the systems thinking approach.</p> <p>6) ForLearn: Online Foresight Guide: a guide to provide practitioners, policy makers and beginners the means to understand and practice foresight.</p> <p>7) FuturGov Game: tool developed to stimulate policy debates. You can play it in 4 to 8 persons, with a duration of approximatively 2h.</p> <p>8) Industrial Landscape Vision Generator: workshop-based tool designed to engage with industry sectors, develop shared long-term visions and identify challenges and opportunities.</p> <p>9) Migration Discussion Toolkit: seven discussion formats for a forward-looking debate on migration and integration.</p>	
	Engagement practices and promotion strategy	International conferences (the CC was launched in 2018 during the conference Future-oriented Technology Analysis - FTA2018); Community of Practice to Share knowledge, to Exchange best practices & methodological advancements, to Create synergies with other policy support disciplines; Foresight Trainings on EU Learn; workshops OF participatory foresight, collective vision building and co-creation workshops, prototyping of speculative artefacts through multi-stakeholder engagement.
	Audience/target groups	Public Institutions, Research Centres, Universities, Research organisations
	Networks of stakeholders	Community of Practice
	Coordination with other similar entities / Ecosystem / Hubs	JRC
	Use of Platform/digital infrastructure	social media platforms, knowledge platforms
	Steps to setting up/launch of the CC, KC or similar entity	"The CC was recommended by the European Commission's Expert

Possible link with the future CC on CH	Group on Public Sector Innovation, which explicitly called for the establishment of 'an EU Innovation Lab inside the Commission to support, facilitate and foster more innovation in the work of the Commission Services'. Workshops and interaction activities are the means to provide policy recommendations to the EU and other institutional actors"
Relevant services/activities/other useful per building our CC	Foresight methodologies are key to provide thorough vision capacity of the potentialities of Digital CH.
References	https://knowledge4policy.ec.europa.eu/foresight_en .





1.3 Competence Centre on Microeconomic Evaluation (ME)		
Field	Microeconomic	
Type	UE - public	
Country (Europe)	European (Continent) Country of affiliation	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://knowledge4policy.ec.europa.eu/microeconomic-evaluation_en	
Site	only digital	
Headquarters (if applicable)	Rome, Ispra	
Year of foundation	2016	
Main focus	Monitoring, Indicators & Impact Evaluation	
Operational areas / thematic departments	Policymaking, microdata-driven evaluation	
Mission and Strategy	To enhance EU policies through data-driven micro-econometric analysis and to provide causal evidence on what works. It focuses on quantitative evaluations of policies contributing to the Better Regulation Agenda, the European Semester and EU Spending Programmes, in collaboration with all EU Institutions and Member States.	
Value proposition	Entity's values to be delivered, communicated and acknowledged	
Legal structure	Consortium	
Partnerships	States, Institutions, Research centres, Universities, Public bodies, SMEs, data providers	
Government And Management Structure	Governance	
	Private	
	Public	Yes
	Joint Venture	
	Network	
	Public/Private	
	Other	
	Ownership	
	Academia-led	
	Industry-led	
	Government-led	
	Other	EU Commission
	Scope/area of impact	
	Local scope	
	Regional scope	
	National scope	
International scope		
Structure		
Description of government and management structure		
Business Model And Business Plan	External supporting funding	The core of DG JRC's institutional funding comes from its participation in the EU Research Framework Programmes (currently Horizon 2020). Beyond this, there are contractual

		activities, as well as the de-commissioning and waste management programme.
	Co-financing	
	Financial resources	
	Physical resources	
	Budget holder	
	Other relevant information	"6% of the total annual budget will be allocated to infrastructure investments, including scientific and technical equipment"
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
Data collection and integration	Yes	

	Other	No
	Workflows	
	<ul style="list-style-type: none"> • Counterfactual Impact Evaluations, with the Counterfactual Evaluation Archive (CEA), an online database which collects published articles and working papers using counterfactual impact evaluation methods to assess the impact of active labour market policies and programmes. These include interventions funded by the European Social Fund as well as policies of similar type within Europe (updated up to December 2017). • Advice and capacity building on data access, evaluation design and methodology • Quality review of impact evaluations 	
Engagement practices and promotion strategy	Conferences, workshops and partnerships with the Community of practices. Open Days. NetCIEEX, a multilateral Collaboration Agreement, which aims to foster research collaboration between the CC-ME and several academic and institutional partners in order to contribute more effectively to the understanding of effects of policy and to resolving scientific issues in the field of CIE.	
Audience/target groups	Public Institutions, Research Centres, Companies, Start-ups, Universities, Research organisations, SMEs	
Networks of stakeholders	CC, KC or similar entities interconnected web of stakeholders (e.g. Cyberg Competence Network)	
Coordination with other similar entities / Ecosystem / Hubs	IDAN Network	
Use of Platform/digital infrastructure	Service-oriented platforms, knowledge platforms	
Steps to setting up/launch of the CC, KC or similar entity	The CC was recommended by the European Commission's Expert	
Possible link with the future CC on CH	Group on Public Sector Innovation, which explicitly called for the establishment of an EU Innovation Lab inside the Commission to support, facilitate and foster more innovation in the work of the Commission Services'.	
Relevant services/activities/other useful per building our CC	Nothing to report	
References	https://knowledge4policy.ec.europa.eu/microeconomic-evaluation_en	

1.4 Competence Centre on Text Mining and Analysis (TMA)	
Field	Text Mining and Analysis
Type	UE - public
Country (Europe)	Not Applicable
Country (Extra-Europe)	Not Applicable
Partner (responsible)	09. UNIBO
Website	https://knowledge4policy.ec.europa.eu/text-mining_en
Site	only digital (related to JRC Ispra Bruxelles)
Headquarters (if applicable)	Not Applicable
Year of foundation	2016-2017 [9] - [10]
Main focus	The Text Mining & Analysis Competence Centre is an in-house consultancy and innovation service supporting EU Institution's Policy Makers, Investigators and Analysts in their knowledge-intensive tasks by providing advice and advanced analytical tools in the field of text mining. [2]; Uses Text mining and analysis tools to extract information from online data, including traditional or social media, or from large public or proprietary document sets [2] to be applied by EU's institutions to: political current affairs media monitoring; targeted information for crisis rooms to improve EU's prevention, preparedness and response capabilities; information used for security purposes; business intelligence based on framework proposals; research and innovation monitoring; monitoring of health related issues; monitoring of news in the financial sector.[3]
Operational areas / thematic departments	Not Applicable
Mission and Strategy	"The Text Mining & Analysis CC is an in-house consultancy and innovation service supporting EU Institution's Policy Makers, Investigators and Analysts in their knowledge-intensive tasks by providing advice and advanced analytical tools in the field of text mining [1] ; The CC-TMA Provide TMA expertise; practical solutions based on TMA; advice on the use of TMA techniques [4]"
Value proposition	The Directorate General Joint Research Centre has strong competences in the area and will offer its skills and tools to EU policy makers through a new Competence Centre on Text Mining and Analysis. [14] THE CC Provide the expertise needed to offer practical solutions based on TMA: computational linguistic research, applied IT and support; maintain, expand and develop knowledge/experience in TMA in an operational environment; provide sufficient critical mass to support research in TMA; provide sufficient capacity to answer to relevant ad-hoc requests; promote the harmonisation of tools/techniques allowing for better information exchange between users; leverage economies of scale by deploying the same technology/tools; in addition Institutional support for small scale media monitoring activities can be provided to EU Offices and Agencies; provide a clear point of reference for TMA and act as solution broker for TMA needs; provide a one-stop-shop for tools, services and training for the EU institutions; provide advice on the use of TMA techniques for information extraction; support or conduct technical negotiations with external data providers of structured and unstructured textual data; reduce number of external interfaces to data providers; together with Eurostat, organise the community of Data4policy within the Commission, and ensure interactions with Data4policy community outside of the Institutions. [3]
Legal structure	Public body (In-house consultancy, related to the Text and Data Mining Unit (I3) of the European - Italy, Ispra in Bruxelles).
Partnerships	EU Directorate-General Communication (DG COMM); DG for Migration and Home Affairs (DG HOME); EU Council ; European Parliament (EP); SANCO/ECDC/EFSA; FRONTEX ; EUROPOL; EU-CERT; 25+ DGs ; EUIPO, ECHA, EUROFOUND, EMSA, EASO,EMCDDA, FRA; member state organisations; WHO, IAEA, AU, OAS [10]. Text mining solutions developed by the JRC already support policy making

	both inside and outside the Commission and allow for the understanding, visualisation, and use of data automatically extracted from text. [14]		
Government And Management Structure	Governance		
	Private	No	
	Public	Yes	
	Joint Venture	No	
	Network	No	
	Public/Private	No	
	Other	No	
	Ownership		
	Academia-led	No	
	Industry-led	No	
	Government-led	No	
	Other	EU Commission	
	Scope/area of impact		
	Local scope	No	
	Regional scope	No	
	National scope	No	
International scope	Yes		
Structure			
Description of government and management structure	Text and Data Mining (JRC.I.3): Team Leader - Text and Data Mining Competence Centre [13]		
Business Model And Business Plan	External supporting funding	No	
	Co-financing	No	
	Financial resources	The JRC is funded by the EU's Framework Programme for Research and Innovation, currently Horizon 2020, and the EURATOM research and training programme.	
	Physical resources	No	
	Budget holder	Public	
	Other relevant information	No	
Portfolio of Services	Brief description	The CC-TMA uses various tools to address the problem of volume of data (textual data available online, such as traditional or social media, or in large public or proprietary document sets) and of timeliness of information in a proper format and in a variety of contexts.[3]; The CC's MAIN SERVICES and TOOLS are: EMM (Europe Media Monitor); TIM Analytics ; Open Source Intelligence (OSINT) Suite; OSINT Success Stories/Highlights; highly multilingual software and linguistic resources available for free.	
	Consultancy and orientation		
	Consultancy and orientation	Yes	
	Access to financing services	No	
	Scouting and ecosystem building	No	
	Training and capacity building		

	Awareness creation	No
	Collaborative research	No
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	No
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	online tutorial
	Workflows	
	  <p>Text and Data Mining Unit (I.3 Unit)</p>   <p>https://connected.cnect.cec.eu.int/community/jrc/directorate-i/i3</p> <p>>>EMM (Europe Media Monitor) as an example of TMA-CC service: A tool to monitor, analyse and aggregate online and other electronically available sources)[4] - EMM was developed for media analysts, epidemiologists, decision makers and politicians. It is also used by journalists, financial analysts, health experts and you [6]; TIM (Tools for Innovation Monitoring) - Extracting knowledge from large and complex datasets [4]-[5] // EMM started as an 'unofficial'</p>	

	<p>collaboration between DG COMM (The Commission's Directorate-General for Communication) and DG JRC (The Joint Research Centre is the European Commission's in-house science service which employs scientists to carry out research in order to provide independent scientific advice and support to EU policy [12]) in November 2001. The first prototype was delivered in April 2002, a first real version went live (and public!) in July 2002 [11];</p> <p>>>TIM Analytics is part of the Competence Centre on Text Mining and Analysis of the Joint Research Centre of the European Commission, Unit JRC.I.3 Text and Data Mining - small team of software engineers and analysts, experts in innovation studies and are located in Ispra and Brussels [7];</p> <p>>>Open Source Intelligence (OSINT) Suite (Development started in 2005 (request of Law Enforcement); Evolved over time with feedback from law enforcement authorities and the support of DG HOME (The Commission's Directorate-General for Migration and Home Affairs); Major revision in 2012). [12]</p> <p>>>OSINT Success Stories/Highlights (Yearly workshops with practitioners from MS law enforcement authorities since 2007; 45 licences signed with MS authorities; Use in academia as training material for undergraduate courses University of Applied Sciences Leiden, The Netherlands Cranfield University, UK). [12]</p> <p>>>highly multilingual software and linguistic resources available for free: JRC Eurovoc Indexer (JEX), which classifies documents in 22 languages according to the thousands of categories of the Eurovoc thesaurus; JRC-Acquis, a one-billion word collection of EU documents and their human-produced translations; JRC-Names, which is a large collection of person and organisation names and their dozens or hundreds of spelling variants.</p>
Engagement practices and promotion strategy	
Audience/target groups	EU Institutions, EU Agencies, UN Agencies, African Union, Organization of American States, Member States Tax Agencies and Customs from Member States from Member States have already started working with EMM and OSINT tools. [4]
Networks of stakeholders	
Coordination with other similar entities / Ecosystem / Hubs	EU KNOWLEDGE FOR POLICY
Use of Platform/digital infrastructure	TIM (Tools for Innovation Monitoring); EMM (Europe Media Monitor); SITAF (Statistics and Information Technologies for Anti-Fraud); BigData& EOSS (Earth Observation & Social Sensing Big Data Pilot Project) [4]
Steps to setting up/launch of the CC, KC or similar entity	"The CC-TMA was not one among the pilot Knowledge and Competence Centres launching onto this Knowledge4Policy Platform in May 2018 [3]. Initially developed in 2002 to monitor online media, the text mining competences have been applied in areas including disaster management, monitoring of innovation and crisis management. The CC was presented during the JRC CONFERENCE ""TEXT MINING IN POLICY MAKING"" (13 December 2016) [14]. "
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Systemic use of existing digital infrastructure, skills and competences
References	<p>[1] https://knowledge4policy.ec.europa.eu/text-mining_en</p> <p>[2] https://cental.uclouvain.be/team/seminaires/seminaire2019-20/2019-12-05_De-longueville_slides.pdf</p> <p>[3] https://knowledge4policy.ec.europa.eu/text-mining/about_en</p> <p>[4]https://ec.europa.eu/cefdigital/wiki/download/attachments/61932141/1_07_Guillaume%20Jacquet_EMM_etranslation.pdf?version=1&modificationDate=1544434916586&api=v2</p> <p>[5] https://knowledge4policy.ec.europa.eu/text-mining/topic/tim_analytics_en</p> <p>[6] https://emm.newsbrief.eu/overview.html</p> <p>[7] https://knowledge4policy.ec.europa.eu/text-mining/about_tim_en</p> <p>[8] https://op.europa.eu/en/web/who-is-who/organization/-/organization/JRC/COM_CRF_244102</p>

	<p>[9] https://ec.europa.eu/jrc/en/publication/annual-reports/jrc-annual-report-2017</p> <p>[10] https://ec.europa.eu/jrc/sites/jrcsh/files/20161213-cc-text-mining-vandergoot_en.pdf</p> <p>[12] https://magic-nexus.eu/partner/dg-joint-research-centre</p> <p>[13] https://op.europa.eu/en/web/who-is-who/organization/-/organization/JRC/COM_CRF_244102</p> <p>[14] https://ec.europa.eu/jrc/sites/jrcsh/files/20161213-text-mining-programme_en.pdf</p>
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1.5 Competence Centre on Modelling (MOD)		
Field	Modelling	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://knowledge4policy.ec.europa.eu/modelling	
Site	only digital	
Headquarters (if applicable)	Headquarter of JRC (Brussels)	
Year of foundation	2017 (October)	
Main focus	<ul style="list-style-type: none"> - To promote a responsible use of models in EU policymaking - To increase the transparency, consistency and quality of model use - To improve the efficiency and effectiveness of modelling resources [2] 	
Operational areas / thematic departments	<ul style="list-style-type: none"> - Corporate modelling inventory and knowledge management system MIDAS - Sensitivity analysis of model output (SAMO) team - Peer review of models - Transparency and coherence in science for policy - Social Multi-Criteria Evaluation of policy options [2] 	
Mission and Strategy	<p>The CC-MOD promotes a responsible, coherent and transparent use of modelling to support the evidence base for EU policies, pooling the Commission's competencies and best practices in building and using models.</p> <p>The CC leverages the modelling capacity and competences across the Commission and beyond. Starting with a Commission-wide modelling inventory, it supports a proper documentation, use, and reuse of models by making available years of experience in the area of baseline scenarios, uncertainty analysis and sensitivity analysis, and social multi-criteria evaluation.</p> <p>It further helps identifying common approaches to quality and transparency of model use, and establishes a Community of Practice on Modelling.[1]</p>	
Value proposition	It contributes to the Commission's Better Regulation policy, to the Inter-Institutional Agreement on Better Law Making, and to the Communication on Data, Information and Knowledge Management at the European Commission. [1]	
Legal structure	Public body	
Partnerships	CC-MOD collaborates with the Inter-Service Group on Modelling , the coordination body of all model users and developers across the European Commission. CC-MOD manages the Community of Practice on Modelling , the Commission-wide forum for the exchange of modelling-related knowledge and best practices in support of the EU policy cycle.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	Joint Research Centre of the European Commission.
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	

	Local scope	No
	Regional scope	Yes
	National scope	No
	International scope	No
	Structure	
	Description of government and management structure	CC-MOD is part of Unit I.2 'Foresight, Modelling, Behavioural Insights and Design for Policy' of the Joint Research Centre of the European Commission.
Business Model And Business Plan	External supporting funding	
	Co-financing	
	Financial resources	The JRC is funded by the EU's framework programme for research and innovation, Horizon 2020, for its non-nuclear work and by the EURATOM Research and Training Programme for its nuclear work.
	Physical resources	
	Budget holder	Public
	Other relevant information	
Portfolio of Services	Brief description	CC-MOD main activities include: - capacity building (trainings) and ad-hoc advice - development of software tools - facilitating dialogue between scientists and policymakers - promoting and sharing best practices for model use in support to policymaking - writing scientific publications, technical reports and guidelines
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No

	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes, software and web application
	Data collection and integration	No
	Other	No
	Workflows	
Engagement practices and promotion strategy	Organisation of the biannual JRC-SAMO Summer School.	
Audience/target groups	Policymakers, analysts and researchers from the European Commission, international organisations, think tanks and academia [1].	
Networks of stakeholders		
Coordination with other similar entities / Ecosystem / Hubs		
Use of Platform/digital infrastructure	<p>CC-MOD develops and runs MIDAS, the Modelling Inventory and Knowledge Management System of the European Commission.</p> <p>MIDAS describes all models in use by the Commission in support to the policy cycle, and offers a platform where models, data, scientific publications and policy actions can be easily correlated, and where these connections can be browsed and better understood.</p> <p>the development of a Web-Application for Sensitivity Indices Estimate allowing scientists to perform global sensitivity analysis of their models.</p> <p>Development of a web-based SMCE software tool (SOCRATES) for impact assessment to support policy officers in the transparent ranking of policy options.[2]</p>	
Steps to setting up/launch of the CC, KC or similar entity		
Possible link with the future CC on CH	Nothing to report	
Relevant services/activities/other useful per building our CC	Nothing to report	
References	<p>[1] https://ec.europa.eu/jrc/en/event/conference/launch-cc-mod</p> <p>[2] https://knowledge4policy.ec.europa.eu/sites/default/files/JRC123040_cc-mod_booklet_0.pdf</p> <p>[3] https://ec.europa.eu/jrc/sites/jrcsh/files/ccmod_leaflet.pdf</p>	

1.6 Competence Centre on Technology Transfer (TT)		
Field	Technology Transfer	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	Technology Transfer	
Site	https://knowledge4policy.ec.europa.eu/technology-transfer_en	
Headquarters (if applicable)	Only digital	
Year of foundation	The JRC headquarter in Brussels	
Main focus	Launched in 2018 by the Joint Research Centre (JRC) of the European Commission	
Operational areas / thematic departments	Technology Transfer	
Mission and Strategy	Capacity Building, Financing, Innovation Ecosystems	
Value proposition	Deepen and share competencies, expertise and knowledge on technology transfer in the following areas: Capacity building, Financing, Innovation ecosystems. The CC TT also aims to deepen competences, expertise and knowledge in technology transfer through research and the structured aggregation of results and best practices generated by other Directorate-Generals of the European Commission and EU programmes (e.g. H2020, COSME, EU4TECH).	
Legal structure	Public body	
Partnerships	EU Commission; JRC - Joint Research Centre	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	No
International scope	Yes	
Structure		
Description of government and management structure	The Competence Center on Technology Transfer is part of the unit on Intellectual Property and Technology Transfer at the DG JRC of the European Commission.	
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	No

	Financial resources	Main revenue streams, e.g. patents, service provisions, etc.
	Physical resources	No
	Budget holder	Public International
	Other relevant information	All CCs and KCs work as a JRC-managed internal consultancy services for the Commission (not implemented via grant or procurement).
Portfolio of Services	Brief description	Technology Transfer Capacity Building Identification: evaluation and protection of technologies, Management of intellectual property rights, Business development, Negotiation of commercial deals; Technology Transfer Financing: Proof of concept funds, Grant and innovation voucher schemes, Equity and debt instruments, IP exchanges and securitisation deals; Technology Transfer Innovation Ecosystems Design: Technical, managerial, industrial and financial aspects of innovation ecosystem design, set-up and management, Design, development and management of technology transfer offices, incubators and accelerators based in science and technology parks, universities and PROs.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Not Applicable
	Collaborative research	No
	Visioning and strategy development	Yes
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	Yes
	Testing and validation	No
	Market intelligence	Yes
	Prototyping validation	No
	Others	
Digital maturity assessment	Yes	

	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	No
	Other	No
	Workflows	
Engagement practices and promotion strategy	Interaction addressed to external stakeholders (e.g. citizens, etc.) through public activities (e.g. workshops, surveys/questionnaires, laboratories, etc.)	
Audience/target groups	Directorate-Generals of the European Commission, other EU institutions, EU member states, EU Neighbourhood countries Individual institutions (universities, research centres, associations, international organisations).	
Networks of stakeholders	EU Commission policy departments (Directorates-General - DGs);	
Coordination with other similar entities / Ecosystem / Hubs	Access to best practices and knowledge of the member organisations of the European TTO Circle, a network of the technology transfer offices of Europe's largest Public Research Organisations (PROs). Link with associations for professionals involved in knowledge transfer among universities and industry, with universities of science and technology, with the Organisation for Economic Co-operation and Development (OECD), with the World Bank Group.	
Use of Platform/digital infrastructure	Knowledge for Policy (K4P)	
Steps to setting up/launch of the CC, KC or similar entity	Launch on 14th December 2018	
Possible link with the future CC on CH	All CCs aim at bringing together, in one place, all the in-house expertise in the use of analytical tools that can be applied in any policy area. The methodology can be the same.	
Relevant services/activities/other useful per building our CC	Aggregation of results and best practices generated by other Directorate-Generals of the European Commission and EU programmes (e.g. H2020, COSME, EU4TECH).	
References	https://knowledge4policy.ec.europa.eu/technology-transfer/about_en https://knowledge4policy.ec.europa.eu/technology-transfer_en	

1.7 Competence Centre on Composite Indicators and Scoreboards (COIN)		
Field	Composite Indicators and Scoreboards	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://knowledge4policy.ec.europa.eu/composite-indicators_en	
Site	both physical and digital	
Headquarters (if applicable)	The JRC headquarter in Brussels (research sites in 5 member state)	
Year of foundation	Launched in 2016 by the Joint Research Centre (JRC) of the European Commission	
Main focus	Composite indicators	
Operational areas / thematic departments	Capacity Building , Financing, Innovation Ecosystems	
Mission and Strategy	Contribute to better monitor the impact of EU strategies & policies at national, regional and local levels by developing and auditing composite indicators and scoreboards summarising multi-dimensional concepts.	
Value proposition	Providing policy-makers with the 'big picture' for informed policy decisions and progress monitoring. Developing methodologies to construct robust composite indicators to help policymakers shaping policy and monitoring progress in any policy area.	
Legal structure	Public body	
Partnerships	EU Commission; JRC - Joint Research Centre	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
Structure		
Description of government and management structure	The Competence Center on Composite Indicators and Scoreboard is part of the DG JRC of the European Commission.	
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	No

	Financial resources	
	Physical resources	No
	Budget holder	Public International
	Other relevant information	All CCs and KCs work as a JRC-managed internal consultancy services for the Commission (not implemented via grant or procurement).
Portfolio of Services	Brief description	COIN includes the provision of support and assistance to policy Directorate-Generals (DGs), as well as technical training. Best practices are shared across services via communities of practice. Furthermore, COIN will strengthen and extend its strong networks with academia, external research organisations, and practitioners in other policy-making institutions, to remain mainstream in its expertise and to provide the Commission with state-of-the-art scientific methodology.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	No
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific	Yes

	technologies and equipment	
	Data collection and integration	No
	Other	No
	Workflows	
Engagement practices and promotion strategy	Interaction addressed to external stakeholders (e.g. citizens, etc.) through public activities (e.g. workshops, surveys/questionnaires, laboratories, etc.)	
Audience/target groups	Policy makers, European Commission, international organisations, scientific community	
Networks of stakeholders	The CC works with: other Directorate-Generals of the European Commission, other EU institutions, EU member states, EU Neighbourhood countries Individual institutions (universities, research centres, associations, international organisations)	
Coordination with other similar entities / Ecosystem / Hubs	OECD and other international institutions such as INSEAD & World Intellectual Property Organisation, World Economic Forum	
Use of Platform/digital infrastructure	Knowledge for Policy (K4P) EU Multidimensional Inequality Monitoring Framework (EU MIMF) Gender Equality Strategy monitoring portal	
Steps to setting up/launch of the CC, KC or similar entity	The JRC has worked on composite indicators since 2002; 2003 first Annual Seminar on Composite Indicators; 2004 second Annual Seminar jointly organized with OECD; 2005 first request for JRC audit; 2008 JRC-OECD Handbook; 2016 CC launch	
Possible link with the future CC on CH	All CCs aim at bringing together, in one place, all the in-house expertise in the use of analytical tools that can be applied in any policy area. The methodology can be the same.	
Relevant services/activities/other useful per building our CC	The JRC-COIN is renowned for its expertise on statistical methodologies and technical guidelines on the development of sound composite indicators, which can be used in making informed policy decisions.	
References	https://knowledge4policy.ec.europa.eu/technology-transfer/about_en https://knowledge4policy.ec.europa.eu/technology-transfer_en https://knowledge4policy.ec.europa.eu/composite-indicators/about_en	

1.8 Competence Centre on Cybersecurity Industrial, Technology and Research	
Field	Cybersecurity
Type	UE - public
Country (Europe)	Not Applicable
Country (Extra-Europe)	Not Applicable
Partner (responsible)	09. UNIBO
Website	https://ec.europa.eu/digital-single-market/en/european-cybersecurity-industrial-technology-and-research-competence-centre
Site	both physical and digital
Headquarters (if applicable)	Bucarest, Romania [5]
Year of foundation	2018-2019 (proposal) - 2021 [13]
Main focus	Facilitate and coordinate the work of the National Coordination Centres Network and foster the Cybersecurity Competence Community [1] // implementing cybersecurity-related financial support from Horizon Europe and Digital Europe Programmes [1] // Help the EU retain and develop the cybersecurity technological and industrial capacities necessary to secure its Digital Single Market. This goes hand-in-hand with the key objective to increase the competitiveness of the EU's cybersecurity industry and turn cybersecurity into a competitive advantage of other European industries [2] // together with the network of national coordination centres designated by member states, will help the EU to pool and network its expertise in cybersecurity research, technology and industrial development, and promote the deployment of the latest cybersecurity solutions [9] // help secure the digital single market, including in areas such as e-commerce, smart mobility and the Internet of Things, and increase the EU's autonomy in the area of cybersecurity [10] //
Operational areas / thematic departments	A thematically organised community (see figure 9), which envisages supporting projects related to challenges in a specific sector or cybersecurity domain (e.g. network security, cryptography, cybersecurity of the energy sector, etc.) [14];
Mission and Strategy	<p>1. The mission of the Competence Centre and the Network is to help the Union to: (a) strengthen its leadership and strategic autonomy in the area of cybersecurity by retaining and developing the Union's research, academic, societal, technological and industrial cybersecurity capacities and capabilities necessary to enhance trust and security, including the confidentiality, integrity and accessibility of data, in the Digital Single Market; (b) support Union technological capacities, capabilities and skills in relation to the resilience and reliability of the infrastructure of network and information systems, including critical infrastructure and commonly used hardware and software in the Union; and (c) increase the global competitiveness of the Union's cybersecurity industry, ensure high cybersecurity standards throughout the Union and turn cybersecurity into a competitive advantage for other Union industries.</p> <p>2. The Competence Centre and the Network shall undertake their tasks in collaboration with ENISA and the Community, as appropriate.</p> <p>3. The Competence Centre shall, in accordance with the legislative acts establishing the relevant programmes, in particular Horizon Europe and the Digital Europe Programme, use relevant Union financial resources in such a way as to contribute to the mission. [Article 3, 19]</p> <p>The CC should help to increase the security of network and information systems, including the internet and other infrastructures which are critical for the functioning of society, such as transport, health, energy, digital infrastructure, water, the financial markets and the banking systems. [point 5, 19] The CC should be the Union's main instrument to pool investment in cybersecurity research, technology and industrial development and to implement relevant projects and initiatives together with the Network. The CC should manage cybersecurity-related financial support from Horizon Europe and the Digital Europe Programme, and should be open to other programmes where appropriate. [point 14, 19] . The Competence Centre should not carry out operational cybersecurity tasks (associated with</p>

	<p>Computer Security Incident Response Teams (CSIRTs), monitoring and handling of cybersecurity incidents); however, the CC should be able to facilitate the development of ICT infrastructures at the service of industries, in particular SMEs, research communities, civil society and the public sector. [point 16, 19]</p> <p>The CC will:</p> <ol style="list-style-type: none"> 1. ensure stronger coordination between research and innovation as well as deployment strategies at the EU and national level; 2. enable the Member States to take decisions related to their financial contribution to joint actions; 3. in accordance with the above-mentioned governance (i.e. Commission and Member States), to implement research and innovation actions (supported by Horizon Europe Programme) as well as capacity building actions (supported by Digital Europe Programme). 4. together with Member States, to support the build-up and procurement of advanced cybersecurity equipment, tools and data infrastructures in Europe and ensure a wide deployment of the latest cybersecurity solutions across the economy (as also indicated in the Digital Europe Programme's Partial General Approach). 5. to facilitate the shared acquisition of capacities on behalf of Member States [10] 	
Value proposition	<ol style="list-style-type: none"> 1. Contribute to the wide deployment of the latest cybersecurity technology, in particular through carrying out or supporting procurement of products and solutions; 2. provide financial support and technical assistance to cybersecurity start-ups and SMEs to connect them to potential markets and to attract investment; 3. support research and innovation based on a comprehensive industrial and research agenda, including large-scale research and demonstration projects in next-generation cybersecurity capabilities; 4. drive high cybersecurity standards not only in technology and cybersecurity systems but also in skills development; and 5. facilitate the cooperation between the civil and defence spheres with regard to dual use technologies and applications, and enhancing civil-defence synergies in relation to the European Defence Fund [1] 	
Legal structure	Consortium	
Partnerships	Involved stakeholders: industry and research communities; Member States; research entities, supply-side industries, demand side industries, and the public sector.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	Yes
	Industry-led	Yes
	Government-led	Yes
	Other	No
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
International scope	Yes	
Structure		
Description of government and	>> Governing Board; an Executive Director; Strategic Advisory Group. The Governing Board shall be composed of	

	management structure	<p>one representative of each Member State and two representatives of the Commission who act on behalf of the Union. A representative from ENISA shall be a permanent observer in the Governing Board. [art. 11-12, 19]</p> <p>>>Governing Board (The Centre's principal decision-making body): all Member States take part but only those Member States which participate financially have voting rights. The voting mechanism in the Governing Board is proposed as a double majority principle requiring 75% of the financial contribution and 75% of the votes. In view of its responsibility for the Union budget, the European Commission holds 50% of the votes. The Governing Board is assisted by an Industrial and Scientific Advisory Board to ensure regular dialogue with the private sector, consumers' organisations and other relevant stakeholders.[1]; CC Co-governed by the Member States and the Commission [10];</p> <p>>> National Coordination Centres: The CC should facilitate and coordinate the work of the Network (made up of one national coordination centre from each Member State). National coordination centres which have been recognised by the Commission as having the necessary capacity to manage funds to fulfil the mission and objectives laid down in this Regulation should receive direct Union financial support, including grants awarded without a call for proposals. [point 25, 19]. National coordination centres should be public sector entities, or entities with a majority of public participation, performing public administrative functions under national law, including by means of delegation, and they should be selected by Member States. It should be possible for the functions of a national coordination centre in a given Member State to be carried out by an entity that carries out other functions arising under Union law (such as those of a national competent authority, a single point of contact within the meaning of Directive (EU) 2016/1148 or any other Union Regulation, or a digital innovation hub within the meaning of Regulation (EU) 2021/694). Other public sector entities or entities performing public administrative functions in a Member State should be able to assist the national coordination centre in that Member State in carrying out its functions. [point 26, 19]</p>
Business Model And Business Plan	External supporting funding	<p>>>The Competence Centre shall be funded by the Union, while joint actions shall be funded by the Union and by voluntary contributions by the Member States. [art. 21, 19]</p> <p>>>Funded jointly by the European Union and the participating Member States through financial contributions (The participating Member States should match the EU's financial contribution with investments of the same amount in line with their priorities and with co-financing of the running costs of the Centre and the Network); Cybersecurity research and innovation will additionally be supported under the Horizon Europe programme and other relevant EU programmes where appropriate; [1] The costs arising from the establishment of the Competence Centre and from the administrative and coordination activities of the Competence Centre should be financed by the Union and by the Member States, in proportion to the voluntary contributions from the Member States to joint actions. In order to avoid double funding, those activities should not benefit simultaneously from a contribution from other Union programmes.[19 - point 44]</p>

	<p>Co-financing</p>	<p>>> The Union's contribution to the Competence Centre to cover administrative costs and operational costs shall comprise the following: (a) up to EUR 1 649 566 000 from the Digital Europe Programme, including up to EUR 32 000 000 for administrative costs; (b) an amount from Horizon Europe, including for administrative costs, for joint actions, such amount being equal to the amount contributed by Member States pursuant to paragraph 7 of this Article but not exceeding the amount determined in the strategic planning process of Horizon Europe to be carried out pursuant to Article 6(6) of Regulation (EU) 2021/695, in the annual work programme or in the multiannual work programme; (c) an amount from the other relevant Union programmes, as needed for the implementation of the tasks or the achievement of the objectives of the Competence Centre, subject to decisions taken in accordance with the legal acts of the Union establishing those programmes.[art 21, 19]</p>
	<p>Financial resources</p>	
	<p>Physical resources</p>	<p>Public</p>
	<p>Budget holder</p>	<p>The European Commission has placed cybersecurity high on the agenda for the next long-term EU budget for years 2021-2027. Under the new Digital Europe programme the European Commission proposed in 2018 to invest €2 billion into safeguarding the EU's digital economy, society and democracies through polling expertise, boosting EU's cybersecurity industry, financing state-of-the-art cybersecurity equipment and infrastructure. The concrete funding priorities will be established as part of the Competence Centres annual Work Plan, which will be adopted by the Governing Board after having received input from the Industrial and Scientific Advisory Group. The bulk of the funding will be allocated through open calls for proposals and calls for tender. Stakeholders know this system from the past Research and Innovation Framework Programmes. In these cases, the Competence Centre will manage and eventually disburse financial support to recipients, which would typically be academic and research entities, industrial companies, or public authorities. The Competence Centre will also seek to promote joint procurement of strategic cybersecurity infrastructures and tools together with one or several other entities – typically public authorities. Some funding will be made available directly to National Coordination Centres for them to carry out tasks under this Regulation. National Coordination Centres will also be able to financially support their respective national ecosystems through the use of so-called cascading grants.[1] By managing the cybersecurity funds under the next long-term EU budget, the Centre will source funding from the Digital Europe Programme and Horizon Europe, as well as contributions from Member States. [15]. The CC, when preparing the annual work programme, should inform the EU Commission of its co-funding needs on the basis of the Member States' planned co-funding contributions to joint actions, so that the Commission is able to take into account the matching Union contribution in the preparation of the draft general budget of the Union for the following year.[point 32, 19]</p>

	Other relevant information	<p>>>The Competence Centre shall be funded by the Union, while joint actions shall be funded by the Union and by voluntary contributions by the Member States. [art. 21, 19]</p> <p>>>Funded jointly by the European Union and the participating Member States through financial contributions (The participating Member States should match the EU's financial contribution with investments of the same amount in line with their priorities and with co-financing of the running costs of the Centre and the Network); Cybersecurity research and innovation will additionally be supported under the Horizon Europe programme and other relevant EU programmes where appropriate; [1] The costs arising from the establishment of the Competence Centre and from the administrative and coordination activities of the Competence Centre should be financed by the Union and by the Member States, in proportion to the voluntary contributions from the Member States to joint actions. In order to avoid double funding, those activities should not benefit simultaneously from a contribution from other Union programmes.[19 - point 44]</p>
Portfolio of Services	Brief description	<p>The structures created with the Competence Centre and the Network and the financial support provided through them will open up additional opportunities for networking, community building, access to testing and experimentation facilities and capability development, thereby advancing the research and industrial agenda.</p> <p>Scientists and developers will have better access to the know-how available in Europe, as well as to computing facilities, testbeds or data resources.[18]</p> <p>The Competence Centre should implement cybersecurity relevant parts of Horizon Europe and the Digital Europe Programme in accordance with the multiannual work programme of the Competence Centre (multiannual work programme), the annual work programme and the strategic planning process of Horizon Europe by allocating grants and other forms of funding, primarily following a competitive call for proposals. The Competence Centre should also facilitate the transfer of expertise in the Network and the Community and should support joint investment by the Union, Member States or industry. It should pay particular attention to supporting SMEs in the area of cybersecurity, as well as to actions that help overcome the skills gap.[point 32, 19]</p>
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	
	Mentoring	Yes

	Training and skills development	Yes
	Conferences, Training, Meetings	
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	
Engagement practices and promotion strategy	<p>The Commission used different consultation methods in order to make sure that the Union's general public interest – as opposed to special interests of a narrow range of stakeholder groups – is well reflected in this initiative. While no open public consultation was conducted specifically for this initiative given its target audience (industrial and research community and Member States), the thematic was already covered by several other open public consultations</p> <p>>> A general open public consultation carried out in 2018 on the topic of investment, research & innovation, SMEs and the single market.</p> <p>>>A 12-week online public consultation launched in 2017 to seek views of the wider public (approx. 90 respondents) on ENISA evaluation and review.</p> <p>>>A 12-week online public consultation that was carried out in 2016 at the occasion of the launch of the contractual public-private partnership on cybersecurity (approx. 240 respondents).</p> <p>The Commission also organised targeted consultations on this initiative including workshops, meetings and targeted requests for input (from ENISA and European Defence Agency). The consultation period spanned over 6 months, starting in November 2017 until March 2018. The Commission also conducted a mapping of centres of expertise, which allowed to gather input from 665 cybersecurity expertise centres on their know-how, activity, working fields, international cooperation. The survey was launched in January and surveys submitted until 08 March 2018 were taken into consideration for the report analysis.</p>	
Audience/target groups	Eu Member State, industries, academic research organisations, public sector entities [9]- [19]	
Networks of stakeholders	>>The CC foreseen a geographically organised network (see figure 8), which would link the European Competence Centre with one Coordination Centre per Member State creating a structure dealing horizontally with cybersecurity industrial and	

	<p>research challenges [14];</p> <p>>>Network of National Coordination Centres [2];</p> <p>>>Cybersecurity Competence Community (would seek to gather all relevant European actors involved in cybersecurity technology – in particular research entities, supply-side industries, demand side industries, and the public sector; should provide input to the activities of the Competence Centre and it should also benefit from the community-building activities of the Competence Centre and the Network of National Coordination Centres) [14];</p> <p>>>CONCORDIA, ECHO, SPARTA and CyberSec4Europe [7][8];</p> <p>>>European cybersecurity competence community (industry, academic research organisations, public entities dealing with cybersecurity operational and technical matters, and relevant actors from other sectors facing cybersecurity challenges) [9].</p>
Coordination with other similar entities / Ecosystem / Hubs	Cyberg Competence Network [12] ; European Union Cybersecurity Agency (European Union Agency for Network and Information Security – ENISA) [14];
Use of Platform/digital infrastructure	
Steps to setting up/launch of the CC, KC or similar entity	<p>>>September 2017 - the EU Commission adopted the Joint Communication on "Resilience, Deterrence and Defence: Building strong cybersecurity for the EU" to further reinforce the EU's resilience, deterrence and response to cyber-attacks [14];</p> <p>>>1 February - 29 May 2018 - the Commission launched a call for proposals under the H2020 Work Programme to pilot the creation of efficient networks of competence centres across the EU, able to jointly respond to cybersecurity industrial challenges. The learnings from the projects, will inform the process of creating the future Network and Competence Centre [14];</p> <p>>>September 2018 - the Commission adopted a proposal for a Regulation of the European Parliament and of the Council establishing the European Cybersecurity Industrial, Technology and Research Competence Centre and the Network of National Coordination Centres. End of 2018 - start of the projects [4];</p> <p>>>During the previous legislative term, two trilogies meetings took place, which however were not conclusive. The updated Council negotiation mandate was obtained by the Croatian Presidency in June 2020. Following today's political agreement, Member States will confirm the agreement on 18 December during the Committee of the Permanent Representatives of the Governments of the Member States to the European Union ('Coreper').</p> <p>>>December 2020. Member States reached an agreement on the proposal. After the formal adoption from the European Parliament and the Council, the European Commission will start setting up the Cybersecurity Competence Centre. [1]</p> <p>>>January 2021. - Formal adoption from the European Parliament and the Council. The European Commission will then start setting up the Cybersecurity Competence Centre. [4].</p>
Possible link with the future CC on CH	Relations concerning common topics that can be activated
Relevant services/activities/other useful per building our CC	Government and Financial structure.
References	<p>[1] https://ec.europa.eu/digital-single-market/en/european-cybersecurity-industrial-technology-and-research-competence-centre</p> <p>[2] https://ec.europa.eu/digital-single-market/en/proposal-european-cybersecurity-competence-network-and-centre</p> <p>[3] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018PC0630&from=EN</p> <p>[4] https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2384</p> <p>[5] https://www.consilium.europa.eu/it/press/press-releases/2020/12/10/the-new-european-cybersecurity-competence-centre-to-be-located-in-bucharest-romania/</p> <p>[6] https://ec.europa.eu/digital-single-market/en/content/cybersecurity-technology-capacity-building-unit-h1</p> <p>[7] https://cybercompetencenetwork.eu/about/</p> <p>[8] https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2384</p> <p>[9] https://www.consilium.europa.eu/en/press/press-releases/2020/12/11/new-</p>

	<p>cybersecurity-competence-centre-and-network-informal-agreement-with-the-european-parliament/ [10] https://www.consilium.europa.eu/media/47665/st13856-en20.pdf [11] https://cybercompetencenetwork.eu/new-cybersecurity-competence-centre-and-network/ [12] https://cybercompetencenetwork.eu/ [13] https://www.consilium.europa.eu/en/policies/cybersecurity/timeline-cybersecurity/ [14] https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-establishing-european-cybersecurity-industrial-technology-and-research [15] https://ec.europa.eu/commission/presscorner/detail/en/IP_20_2384 [16] https://ec.europa.eu/digital-single-market/en/faq/key-questions-proposal-european-cybersecurity-competence-network-and-centre#1675 [17] p.8, Proposal for a Regulation establishing the European Cybersecurity Industrial, Technology and Research Competence Centre and the Network of National Coordination Centres (COM(2018) 630 final) [18] https://ec.europa.eu/digital-single-market/en/faq/key-questions-proposal-european-cybersecurity-competence-network-and-centre [19] REGULATION (EU) 2021/887 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 May 2021, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R0887&from=EN</p>
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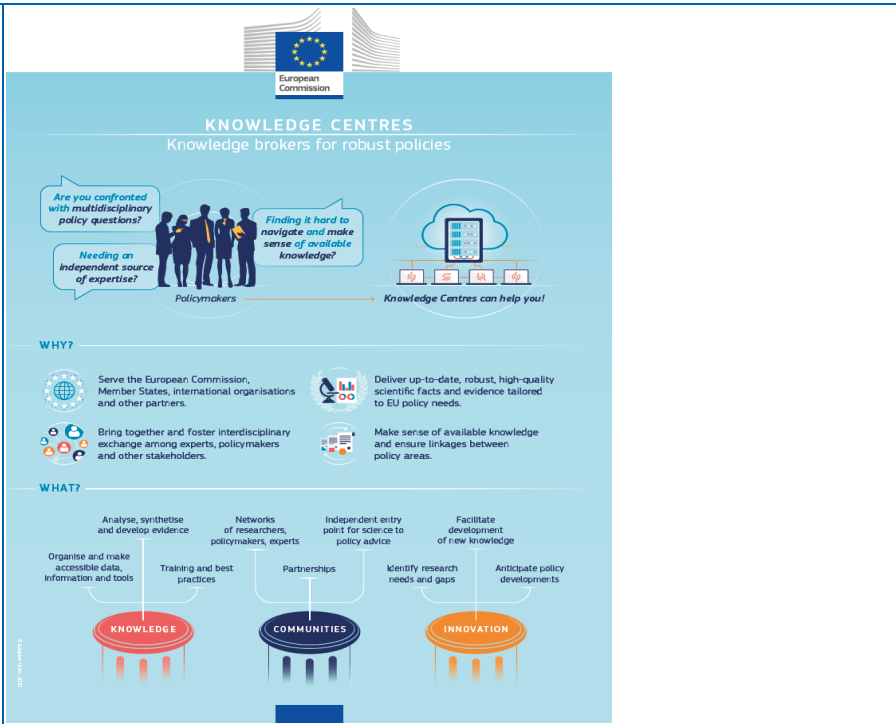
2 European Commission Knowledge Centres

- 2.1 Knowledge Centre for Bioeconomy
- 2.2 Knowledge Centre for Biodiversity
- 2.3 Disaster Risk Management Knowledge Centre
- 2.4 Knowledge Centre for Food Fraud and Quality
- 2.5 Knowledge Centre for Global Food and Nutrition Security
- 2.6 Health Promotion and Disease Prevention Knowledge Gateway
- 2.7 Knowledge Centre on Migration and Demography
- 2.8 Knowledge Centre for Territorial Policies

2.1 Knowledge Centre for Bioeconomy		
Field	Bioeconomy	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/bioeconomy_en	
Site	Only digital (Knowledge Centres These are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers).	
Headquarters (if applicable)	The KCB is hosted by the JRC (Brussels); the team is in Ispra, Italy.	
Year of foundation	2017	
Main focus	To enhance the knowledge base for policymaking on the bioeconomy (Sustainable and Circular)	
Operational areas / thematic departments	No	
Mission and Strategy	The European Bioeconomy Strategy aims to develop a bioeconomy for Europe that is sustainable and circular: able to support the successful implementation of the 2030 Agenda and its Sustainable Development Goals, as well as to contribute to a European economy with no net emissions of greenhouse gases and other objectives of the European Green Deal. But the development of such bioeconomy will not be possible without effective and coherent EU policies. And this is where the Knowledge Centre for Bioeconomy comes into play. Coherent policies can only happen if they are based on the best available knowledge.	
Value proposition	The KCB collects and systematises robust evidence from different sources, including not only JRC research, but also work undertaken by other Commission services and external organisations. It makes this knowledge available in a transparent and tailored manner, always trying to find the best tools to meet the needs of policy-makers and bioeconomy experts: from short reports to interactive dashboards, videos, infographics, and so on. At the same time, as Knowledge Centre it brings together JRC researchers, EU policy makers and other experts to share their knowledge and contribute to enhance the knowledge base for policy-making.	
Legal structure	Public body	
Partnerships	EU Commission, JRC (Joint Research Centre)	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	DG JRC, DG-RTD
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	

	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	EU (Member States) / International network
	Structure	
	Description of government and management structure	Steering: Steering Group participating services co-chaired by JRC and DG-RTD. Coordination: JRC Coordination Team.
Business Model And Business Plan	External supporting funding	EU Funding
	Co-financing	No
	Financial resources	No
	Physical resources	No
	Budget holder	No
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission.
Portfolio of Services	Brief description	Knowledge services: <ul style="list-style-type: none"> - Identifying and filtering relevant information from different sources and making it accessible; - Bringing together researchers, policymakers and other experts in the fields through a Community of Practice; - Analysing, synthesising and communicating available evidence; - Enhancing the knowledge base (for policymaking) on the bioeconomy. Priorities: <ul style="list-style-type: none"> - Biomass supply & demand - Bio-waste - Environmental impacts of biomass use - EU ecosystems & services - Forest resources & ecosystems - Monitoring & forward-looking analysis - Policy developments in MS & regions
	Consultancy and orientation	
	Consultancy and orientation	Yes (Internal consultancy: for the policy partners (European Commission))
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes (Networks of researchers, policymakers, experts)
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	No
	Conferences, Training, Meetings	Yes

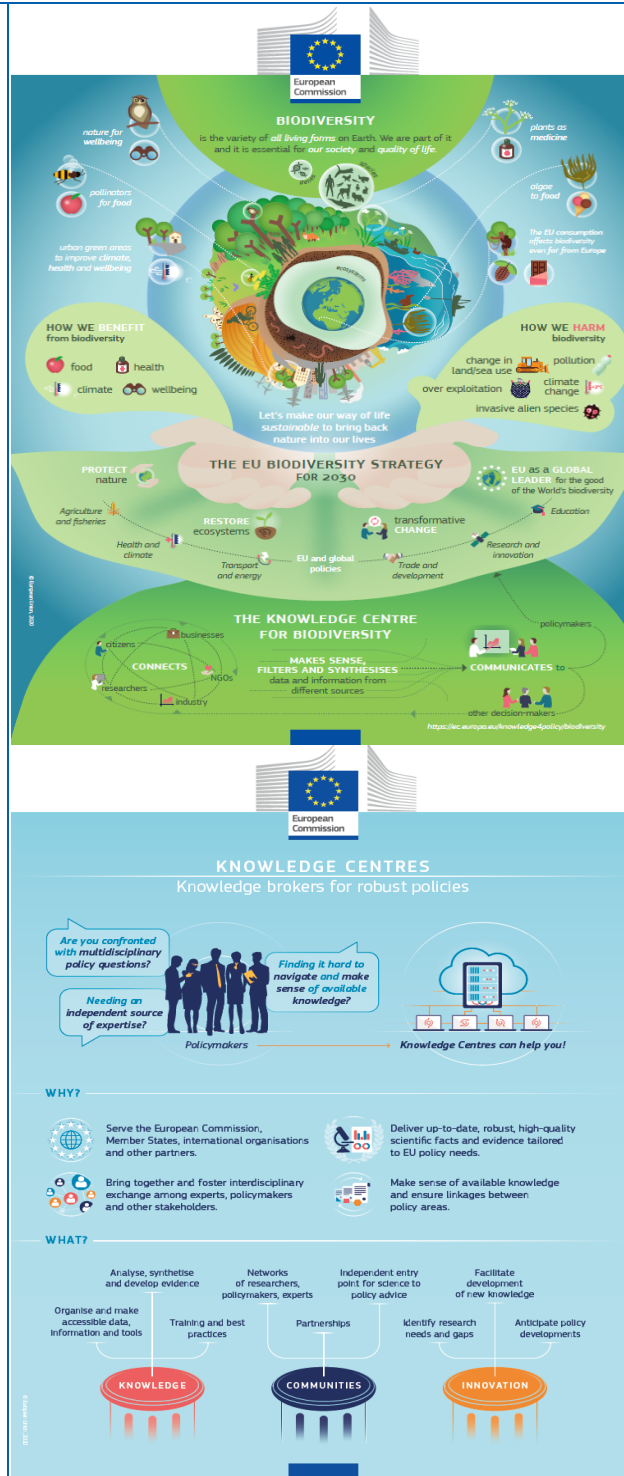
Support in innovation and projects	
Competitive mass production	No
Commercial Infrastructure	No
Incubator / accelerator support	No
Testing and validation	No
Market intelligence	No
Prototyping validation	No
Others	
Digital maturity assessment	No
Coworking areas or spaces	No
Access to specific technologies and equipment	No
Data collection and integration	Yes
Other	No
Workflows	
 <p>THE EUROPEAN COMMISSION'S KNOWLEDGE CENTRE FOR BIOECONOMY</p> <p>Global challenges, such as climate change and land and ecosystem degradation, coupled with growing demands for food and energy, force us to find new ways of producing and consuming.</p> <p>A SUSTAINABLE AND CIRCULAR BIOECONOMY</p> <p>Ensuring there is enough food for a growing population</p> <p>Managing our natural resources in a sustainable way</p> <p>Reducing our dependence on non-renewable resources</p> <p>Strengthening European competitiveness and creating jobs</p> <p>Integrating and adapting to climate change</p> <p>EUROPEAN COMMISSION</p> <p>KNOWLEDGE CENTRE</p> <p>Identifying and filtering relevant information and making it accessible.</p> <p>Bringing together researchers, policymakers and other experts in the field.</p> <p>Analysing, synthesising and communicating available evidence.</p> <p>Enhancing the knowledge base for policymaking.</p> <p>https://ec.europa.eu/knowledge4policy/bioeconomy</p>	

	
<p>Engagement practices and promotion strategy</p>	<p>Dissemination of its activities through the web site (https://knowledge4policy.ec.europa.eu/bioeconomy_en), conferences, events, etc. In the period 2018 -2020: 15 physical and virtual events engaging 566 attendees (Member States authorities, research organisations, academia, international organisations). Social media Twitter: @EU_ScienceHub Facebook: EU Science Hub – Joint Research Centre LinkedIn: EU Science, Research and Innovation YouTube: Eu Science Hub</p>
<p>Audience/target groups</p>	<p>EU Commission Policy Departments (DG), EU policy makers; information is accessible to the entire society.</p>
<p>Networks of stakeholders</p>	<p>Experts in Member States, academia and both EU and International institutions.</p>
<p>Coordination with other similar entities / Ecosystem / Hubs</p>	<p>European Bioeconomy Network (EuBioNet), Bio-based industries consortium, etc.</p>
<p>Use of Platform/digital infrastructure</p>	<p>K4P Platform EU Bioeconomy Monitoring System dashboards https://knowledge4policy.ec.europa.eu/visualisation/eu-bioeconomy-monitoring-system-dashboards_en</p>
<p>Steps to setting up/launch of the CC, KC or similar entity</p>	
<p>Possible link with the future CC on CH</p>	<p>Nothing to report</p>
<p>Relevant services/activities/other useful per building our CC</p>	<p>Nothing to report</p>
<p>References</p>	<p>https://knowledge4policy.ec.europa.eu/bioeconomy_en https://datam.jrc.ec.europa.eu/datam/public/pages/news.xhtml?newsId=6&rdr=1620222065734</p>

2.2 Knowledge Centre for Biodiversity		
Field	Biodiversity	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/biodiversity_en	
Site	Only digital (Knowledge Centres : These are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers).	
Headquarters (if applicable)	The KCB is hosted by the JRC (Brussels); the team is in Ispra, Italy	
Year of foundation	2020	
Main focus	To reverse biodiversity loss and protect Europe's ecosystems. Biodiversity Conservation (Protect, Restore, Reduce direct pressures, Reduce indirect pressures) Biodiversity: "Is the variety of all living forms on Earth. We are part of it and it is essential for our society and quality of life"	
Operational areas / thematic departments	No	
Mission and Strategy	The KCB is a European Commission initiative that will make the latest knowledge on biodiversity available to strengthen the impact of EU policies. Supporting the EU Biodiversity Strategy for 2030. By bringing together and fostering interdisciplinary exchange, the KCB will deliver up-to-date, robust, high-quality scientific facts and evidence to support the EU Biodiversity strategy for 2030 in: <ul style="list-style-type: none"> - extending and connecting protected areas; - achieving the EU nature restoration targets and plan, which include, among others: conservation of pollinators and their habitats, reduction of pesticides and nutrient pollution from agriculture, restoration and decontamination of soils, and protection of forests; - reinforcing enforcement, compliance and implementation of EU law; - involving businesses, better financing, and integration of natural capital accounting systems; - supporting the global biodiversity agenda, through work on global biodiversity conservation, protected areas, deforestation, biodiversity footprints. 	
Value proposition	The KCB enhances the knowledge base, facilitate its sharing and foster cross-sectorial policy dialogue for EU policy making in biodiversity and related fields. The KCB provides: <ul style="list-style-type: none"> - A one-stop shop for key information about biodiversity and the impact of related policies; - A platform where progress of the EU Biodiversity Strategy for 2030 can be monitored; - An interface for scientists to network, share research results and channel them more effectively to support EU policies. 	
Legal structure	Public body	
Partnerships	EU Commission, JRC (Joint Research Centre). Developed in close collaboration with the Commission's Directorate-General for Environment and the European Environment Agency (EEA)	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No

	Network	No
	Public/Private	No
	Other	DG-JRC, DG-ENV, EEA (Joint Research Centre and Commission's Directorate-General for Environment and the European Environment Agency)
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	No
	Regional scope	Regional: Support of development (e.g. Central Africa, Amazon)
	National scope	No
	International scope	Two interlinked dimensions: Dimension focusing on EU countries Dimension addressing the global challenges (global monitoring)
	Structure	
Description of government and management structure		
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	No
	Financial resources	JRC
	Physical resources	No
	Budget holder	No
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission.
Portfolio of Services	Brief description	<p>Knowledge Service:</p> <ul style="list-style-type: none"> - One stop shop on biodiversity knowledge, activities and events - Space to identify and address key policy demands through scientific working groups - Translate and communicate scientific evidence to enhance policy uptake and key reports - Support legislation and policy coherence by clarifying the interlinkages with policies - Coordinate stakeholders and support collaboration between experts, partners and networks <p>Science Service:</p> <ul style="list-style-type: none"> - Support to scientific forums, networks and working groups for the analysis of key topics, including foresight and innovation - Scientific and technical support to effective and transparent production of key knowledge products and reports - Help identify knowledge gaps
	Consultancy and orientation	
	Consultancy and	Yes (Internal consultancy: for the policy partners (European

	orientation	Commission)
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes (Networks of researchers, policymakers, experts)
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	No
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	No
	Other	No
	Workflows	




Engagement practices and promotion strategy

Dissemination of its activities through the web site (https://knowledge4policy.ec.europa.eu/biodiversity_en)
Social media
Twitter: @EU_ScienceHub
Facebook: EU Science Hub – Joint Research Centre
LinkedIn: EU Science, Research and Innovation
YouTube: Eu Science Hub

Audience/target groups	EU Commission Policy Departments (DG), EU policy makers; information is accessible to the entire society
Networks of stakeholders	Experts in Member States, academia and both EU and International institutions.
Coordination with other similar entities / Ecosystem / Hubs	No
Use of Platform/digital infrastructure	K4P Platform The Biodiversity Information System for Europe (BISE) (https://knowledge4policy.ec.europa.eu/biodiversity/bise_en)
Steps to setting up/launch of the CC, KC or similar entity	On May 20, 2020, the European Commission adopted the new EU Biodiversity Strategy for 2030 and an associated Action Plan - a comprehensive, ambitious, long-term plan for protecting nature and reversing the degradation of ecosystems. To support the strategy, a Knowledge Centre for Biodiversity has been established. As this Knowledge Centre is in its infancy, its content is expected to change and grow quickly over the months.
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	https://knowledge4policy.ec.europa.eu/biodiversity_en https://ec.europa.eu/jrc/en/news/commission-launches-knowledge-centre-reverse-biodiversity-loss-and-protect-europe-s-ecosystems https://www.youtube.com/watch?v=5w_l-9bJzmE

2.3 Disaster Risk Management Knowledge Centre		
Field	Disaster Risk	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://drmkc.jrc.ec.europa.eu/	
Site	Only digital. Knowledge Centres are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers.	
Headquarters (if applicable)	The DRMKC is hosted by the JRC (Brussels); based in Ispra, Italy	
Year of foundation	2015	
Main focus	Knowledge base to support Disaster Risk Management and ensuring the uptake of science in DRM policy formulation and implementation.	
Operational areas / thematic departments	<p>The three key pillars that structured DRMKC are:</p> <p>Partnership: Networks are fragmented and it becomes imperative to foster the transfer of knowledge and technologies across scientific networks specialised on different hazards and threats - where knowledge begins- to be able to strengthen the science-policy interface by providing integrated support to the policy cycle – where knowledge applies.</p> <p>Knowledge: Scientific research results along with operational knowledge gained from lessons learned, exercises and trainings need to be better exploited. Pooling of information and granting access to scientific results and expertise to boost transfer of research outputs to end-users – where knowledge meets - is the first step to facilitate the difficult task of making sense of existing knowledge and to identify existing gaps – where needs are identified.</p> <p>Innovation: There is the imperious necessity for a common space where continuous testing, training, benchmarking, validation and promotion of more and more focused innovation in all phases of the DRM cycle will take place. Industry and the scientific community play an essential role in developing innovative methods, tools and technological solutions for the mitigation of disasters (adaptation and prevention) and their impacts (preparedness and response).</p>	
Mission and Strategy	The DRMKC integrates existing scientific multi-disciplinary knowledge and co-develops innovative solutions for existing needs. Activities of the EC DRMKC support the translation of complex scientific data and analyses into usable information and provides science-based advice for DRM policies.	
Value proposition	<p>Territorial: focused on regional and urban levels and functional areas;</p> <p>Shared: engagement of different stakeholders is encouraged;</p> <p>Holistic: multisectoral information and knowledge.</p>	
Legal structure	Public body	
Partnerships	The Disaster Risk Management Knowledge Centre (DRMKC) is an initiative of the European Commission (Joint Research Centre – JRC; Humanitarian Aid and Civil Protection – ECHO, Climate Action – CLIMA; Environment – ENV; Migration and Home Affairs – HOME; Research and Innovation - RTD).	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	

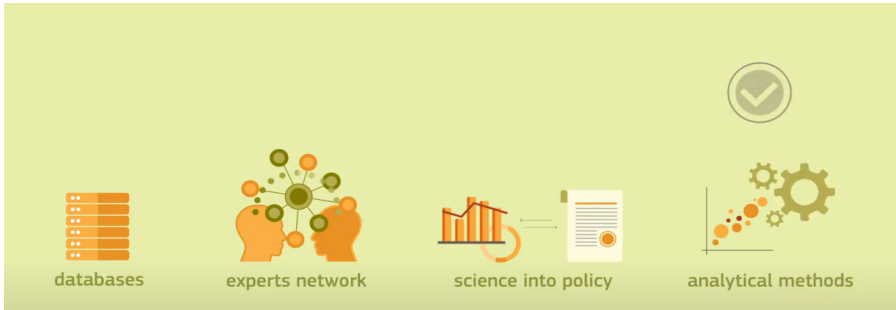
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
Business Model And Business Plan	Structure	
	Description of government and management structure	
	External supporting funding	EU funding
	Co-financing	No
	Financial resources	JRC
	Physical resources	No
	Budget holder	No
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission
Portfolio of Services	Brief description	Developing collective knowledge and innovative tools Supported and empowered by the union of well-experienced scientific networks, the DRMKC offers a collaborative space with a multidisciplinary approach to the complexity of the DRM by proposing concrete collective goals to be reached in support the development of a more sustainable future. The DRMKC facilitates information and knowledge sharing, while enhancing the connection between science, operational activities and policy needs. The DRMKC Newsletters are produced on quarterly basis to help disseminating information across sectors and networks.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	
	Training and skills development	Yes

	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	Yes
	Testing and validation	
	Market intelligence	
	Prototyping validation	
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	
	 <p>Disaster Risk Management Knowledge Centre DRMKC</p>	
Engagement practices and promotion strategy	<p>Dissemination of its activities, events, workshop and training sessions, as well as news and publications through the web site. An interesting initiative is organising an Info Day to provide detail information on the Knowledge centre and its services, tools and components for its implementation. The Info Day has been held virtually on Jun 15th 2021. More details on https://drmkc.jrc.ec.europa.eu/Overview/Disaster-Risk-Management-Knowledge-Centre-Information-Day</p>	
Audience/target groups	Scientist, practitioner and policy makers	
Networks of stakeholders	Experts in Member States, academia and both EU and International institutions.	
Coordination with other similar entities / Ecosystem / Hubs	Complete link to list of stakeholders and coordination webpage : https://drmkc.jrc.ec.europa.eu/Partnership/DRM-Networks	

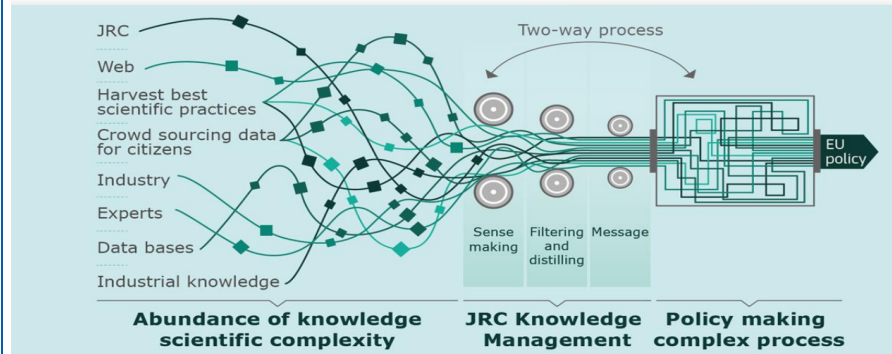
Use of Platform/digital infrastructure	the Urban Data Platform provides information on: 807 European cities, 672 functional areas and 271 metropolitan regions. To access information on the status and trends of European cities and their surrounding regions, the Urban Data Platform, with its interactive interface and 60 indicators, allows users to explore, visualise, compare and download data.
Steps to setting up/launch of the CC, KC or similar entity	
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	https://drmkc.jrc.ec.europa.eu/ Disaster Risk Management Knowledge Centre: A New European Initiative to Bridge Science and Policy, in In book: Proceedings of the 3rd Global Summit of Research Institutes for Disaster Risk Reduction (pp.111-119), January 2021

2.4 Knowledge Centre for Food Fraud and Quality		
Field	Food	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/food-fraud-quality_en	
Site	Only digital. Knowledge Centres are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers.	
Headquarters (if applicable)	The KC-FFQ is hosted by the JRC (Brussels) and its main laboratories are based at its Geel site in Belgium.	
Year of foundation	2018	
Main focus	Food fraud detection and prevention; Food Quality	
Operational areas / thematic departments	.	
Mission and Strategy	The KC's mission is to inform policy makers in a transparent, tailored and concise manner about the status and findings of the latest scientific evidence. The Knowledge Centre for Food Fraud and Quality (KC-FFQ), provides and shares up-to-date scientific knowledge on food fraud and food quality issues. It coordinates market surveillance activities and operates early warning and information system for food fraud.	
Value proposition	Collectively operated by the Commission's science and knowledge service, the Joint Research Centre (JRC) and the Departments regulating the feed-food chain and protecting consumer rights, the KC-FFQ works to: <ul style="list-style-type: none"> • Create formalised science/policy interface in support of initiatives for safe-guarding the quality of agri-food products and protecting the integrity of the food chain. • Ensure knowledge sharing among different Commission departments, scientists and competent authorities in EU countries through a Community of Practice. • Build collaboration with authorities in third countries. 	
Legal structure	Public body	
Partnerships	EU Commission, JRC (Joint Research Centre)	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	DG-JRC, DG-SANTE
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	No
Regional scope	No	
National scope	Yes	

	International scope	Yes. EU (Member States) / Collaboration with authorities in third countries
	Structure	
	Description of government and management structure	A Steering Group ensures the governance structure of the Knowledge Centre. It provides strategic direction to match demand with supply, ensures a balance of topics, verifies the output quality, and requests resources. It is co-chaired at Director level by the European Commission Department for Health and Food Safety (SANTE) and the JRC. In addition, the Steering Group will be further composed of the following Commission Departments: <ul style="list-style-type: none"> • Agriculture and Rural Affairs (AGRI) • Justice and Consumers (JUST) • Maritime Affairs and Fisheries (MARE) • Customs Union and Taxation (TAXUD) • Internal Market, Industry, Entrepreneurship and SMEs (GROW) together with the European Anti-Fraud Office (OLAF) and the European Food Safety Authority (EFSA) The Steering Group meets at least once a year.
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	No
	Financial resources	JRC
	Physical resources	The KC-FFQ is hosted by the JRC and its main laboratories are based at its Geel site in Belgium.
	Budget holder	
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission
Portfolio of Services	Brief description	Knowledge Base <ul style="list-style-type: none"> • Knowledge production, including analysis of the vulnerability to fraudulent manipulations of supply chains in the single market; coordination of market surveillance with regard to the perceived quality of certain foods; predictive modelling of trade flows to spot market irregularities; development and harmonisation of detection methods. • Knowledge sharing, including the operation of an early warning and information system for food fraud; networking with competent authorities in EU countries; linking information systems in EU countries. • Knowledge management, including systematic literature reviews, policy briefs, horizon scans. • Country specific knowledge, including mapping of the control infrastructure, existing information systems, and food fraud and quality related competences in EU countries. Analytical Services (R&D): Spectroscopy, DNA based methods, Chemometry Networking
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No

Training and capacity building	
Awareness creation	Yes
Collaborative research	Yes
Visioning and strategy development	No
Mentoring	No
Training and skills development	No
Conferences, Training, Meetings	Yes
Support in innovation and projects	
Competitive mass production	No
Commercial Infrastructure	No
Incubator / accelerator support	No
Testing and validation	No
Market intelligence	No
Prototyping validation	No
Others	
Digital maturity assessment	No
Coworking areas or spaces	No
Access to specific technologies and equipment	Yes
Data collection and integration	Yes
Other	No
Workflows	
	

The purpose of EC Knowledge Centres



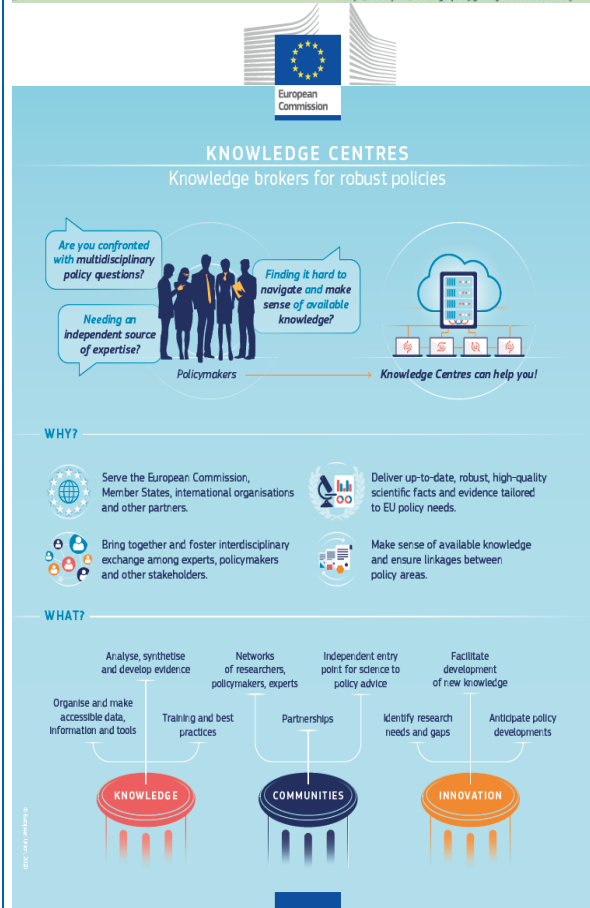
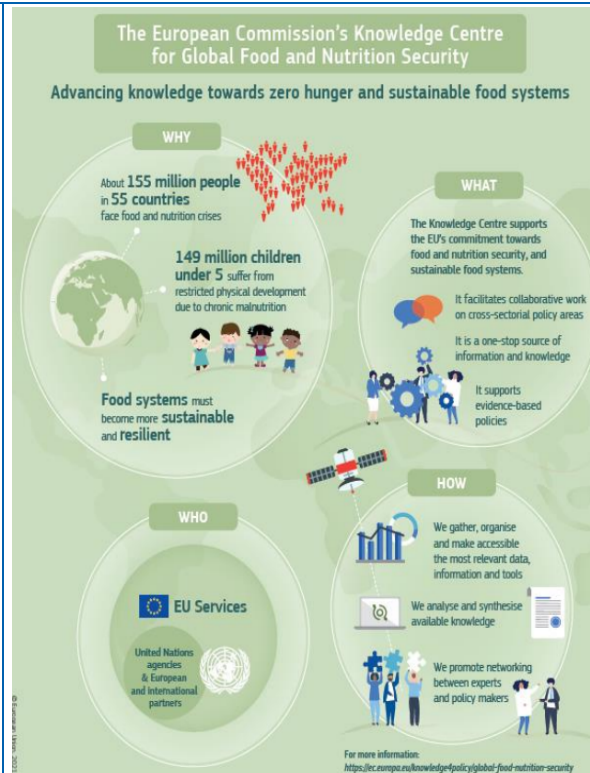
<p>Engagement practices and promotion strategy</p>	<p>Dissemination of its activities through the web site (https://knowledge4policy.ec.europa.eu/food-fraud-quality_en), conferences, events, etc. Social media Twitter: @EU_ScienceHub Facebook: EU Science Hub – Joint Research Centre LinkedIn: EU Science, Research and Innovation YouTube: Eu Science Hub</p>
<p>Audience/target groups</p>	<p>EU Commission Policy Departments (DG), EU policy makers; EU Food Fraud Network; information is accessible to the entire society</p>
<p>Networks of stakeholders</p>	<p>The Centre complements the activities of the EU Food Fraud Network (https://ec.europa.eu/food/safety/food-fraud/ffn_en), which is operated by the European Commission Department for Health and Food Safety. International cooperation with competent authorities in third countries, Standard Developing Organisations such as International Organization for Standardization (ISO), European Committee for Standardization (CEN), FAO/WHO Codex Alimentarius, and law enforcement agencies such as EUROPOL and INTERPOL.</p>
<p>Coordination with other similar</p>	<p>Network: CSIC (Centro Superior de Investigaciones Científicas), Spain; Food</p>

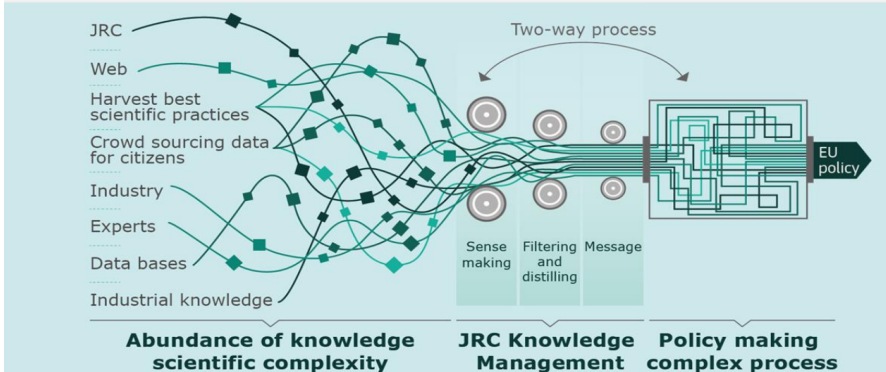
entities / Ecosystem / Hubs	Standars Agency, United Kingdom; Rikilt (Institute of food safety), Netherlands; Fondazione Edmund Mach, Italy; BFR. Deutschland; Food Protection and Defense Institute, United States; UE pharmacoepia, etc.
Use of Platform/digital infrastructure	K4P Platform: KnowledgeBase (https://knowledge4policy.ec.europa.eu/food-fraud-quality_en) Tools: Food fraud databases (https://knowledge4policy.ec.europa.eu/publication/food-fraud-data-bases_en)
Steps to setting up/launch of the CC, KC or similar entity	
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/719759/07_Franz_Ulberth_ECJRC.pdf https://knowledge4policy.ec.europa.eu/food-fraud-quality_en

2.5 Knowledge Centre for Global Food and Nutrition Security		
Field	Food	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/global-food-nutrition-security_en	
Site	only digital Knowledge Centres: These are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers.	
Headquarters (if applicable)	The KC is hosted by the JRC (Brussels)	
Year of foundation	2018	
Main focus	Food and nutrition security and sustainable food systems	
Operational areas / thematic departments		
Mission and Strategy	The Knowledge Centre for Global Food and Nutrition Security (KC-FNS) supports the EU global commitment to end hunger, achieve food security and improve nutrition through a dedicated, reinforced science-policy interface and a fostered inter-policy dialogue.	
Value proposition	It facilitates collaborative work on cross-sectorial policy areas including international networking, it offers a one-stop source of curated information and knowledge, and creates new knowledge on key topics. The ultimate objective of the KC is to support evidence-based policies. Its geographical scope encompasses the developing countries in which food and nutrition security and sustainable agriculture are key sectors.	
Legal structure	Public body	
Partnerships	EU Commission, JRC (Joint Research Centre)	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	DG - JRC and DG - INTPA
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes (Country Dashboard)
	International scope	Yes
Structure		
Description of government and	The Steering Group is composed of the Directors of the involved DGs. It decides on strategic directions and work	

	management structure	<p>priorities for the year. It is co-chaired by DG JRC and DG INTPA.</p> <p>Director - JRC.D, Sustainable Resources</p> <p>Director - DG INTPA.C, Planet and Prosperity</p> <p>Director - ECHO.DDG.C, Neighbourhood and Middle East</p> <p>Director - RTD.C, Healthy Planet</p> <p>Director - AGRI.DDG1.A, International</p> <p>Director - ENV.F, Global Sustainable Development</p> <p>Director - SANTE.DDG2.D, Food chain stakeholder and international relations</p> <p>Director - CLIMA.C, Climate Strategy, Governance and Emissions from non-trading sectors</p> <p>Director - NEAR.A, Strategy and Turkey</p> <p>Director - TRADE.DGA1.D, Sustainable Development; Economic Partnership Agreements - African, Caribbean and Pacific; Agri-food and Fisheries</p> <p>Director - MARE.B, International Ocean Governance and Sustainable Fisheries</p> <p>Deputy Managing Director - EEAS.GLOBAL.DMD, Human Rights, Global and Multilateral Affairs</p>
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	No
	Financial resources	JRC
	Physical resources	No
	Budget holder	No
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission
Portfolio of Services	Brief description	<p>Knowledge Service:</p> <ul style="list-style-type: none"> - Organise and make accessible the most relevant data, information and tools - Analyse and synthesise available knowledge: The KC conducts systematic synthesis of existing information with critical analysis and outlining emerging and projected future trends, factors of influence and future challenges, triangulation and verification, using among others bibliometric methods. - Create new knowledge on key topics <p>Networking:</p> <p>Promote networking between expert and policy makers</p> <p>TOPICS:</p> <ul style="list-style-type: none"> - COVID 19 and Food and Nutrition Security - Sustainable Foods Systems - Policy impact analysis and Food security - Agroecology - Food Security and Food Crises - Nutrition - Country Dashboards - Fisheries and Aquaculture and Food and Nutrition Security - Climate Extremes and Food Security - Mycotoxins and Food Security - Research and Innovation
	Consultancy and orientation	
	Consultancy and orientation	Yes (EC)
	Access to financing services	No

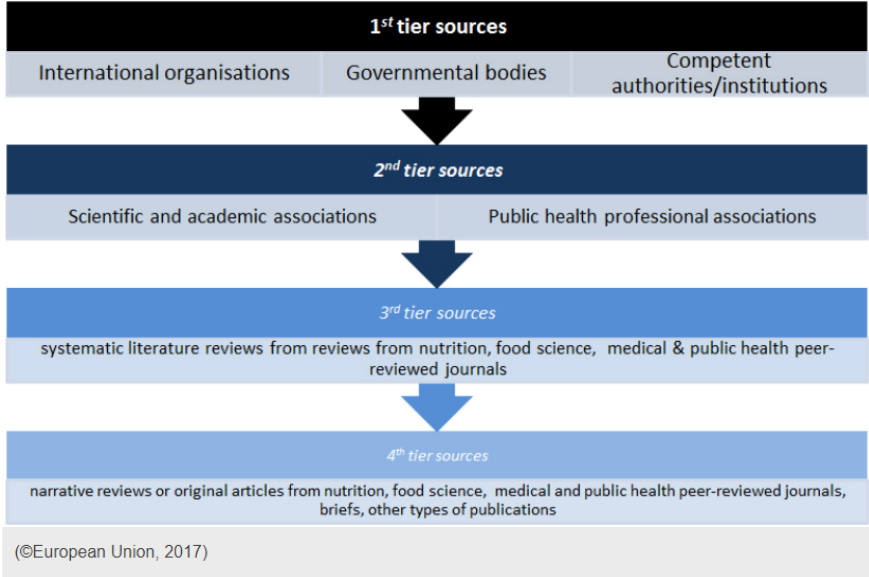
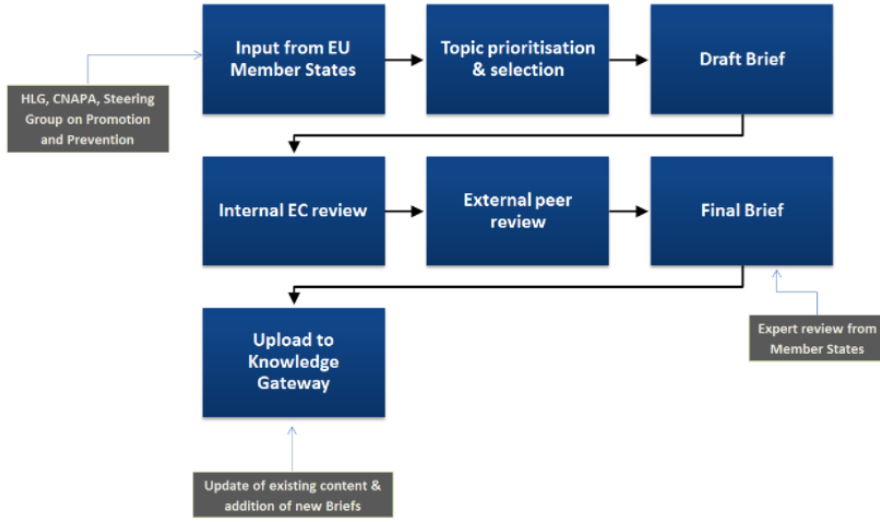
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	No
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	Yes
	Other	No
	Workflows	



	<h2 style="text-align: center;">The purpose of EC Knowledge Centres</h2>  <p style="text-align: center;"> Abundance of knowledge scientific complexity JRC Knowledge Management Policy making complex process </p>
Engagement practices and promotion strategy	Dissemination of its activities through conferences, events, the web site (https://knowledge4policy.ec.europa.eu/global-food-nutrition-security_en), etc. Social media Twitter: @EU_ScienceHub Facebook: EU Science Hub – Joint Research Centre LinkedIn: EU Science, Research and Innovation YouTube: Eu Science Hub
Audience/target groups	EU Commission Policy Departments (DG), EU policy makers; information is accessible to the entire society
Networks of stakeholders	
Coordination with other similar entities / Ecosystem / Hubs	Food and Agriculture Organization (FAO), Agroecology Knowledge Hub, ...
Use of Platform/digital infrastructure	K4P Platform: KnowledgeBase (https://knowledge4policy.ec.europa.eu/global-food-nutrition-security_en) Databases/Tools: - Tools and applications on "Climate extremes and food security" - Tools and applications on "Agroecology" - Tools and Datasets on "Food security and food crises" - Online resources on "Sustainable Food Systems" - Online resources on "Mycotoxins and food security" - Data-Modelling platform of agro-economics research - Country dashboards: https://datam.jrc.ec.europa.eu/datam/mashup/COUNTRY_DASHBOARDS - Etc
Steps to setting up/launch of the CC, KC or similar entity	
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	https://knowledge4policy.ec.europa.eu/global-food-nutrition-security_en

2.6 Health Promotion and Disease Prevention Knowledge Gateway		
Field	Health	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/health-promotion-knowledge-gateway_en#:~:text=Health%20Promotion%20and%20Disease%20Prevention,of%20health%20and%20well%2Dbeing.	
Site	Only digital. Knowledge Centres: These are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers.	
Headquarters (if applicable)	Hosted by the JRC (Brussels); based in Ispra (Italy)	
Year of foundation	2017	
Main focus	Information provision, reliable, independent and up-to date information on topics related to the promotion of health and the prevention of non-communicable diseases	
Operational areas / thematic departments		
Mission and Strategy		
Value proposition	This new EC Knowledge Gateway gives policymakers instant access to pertinent information on disease prevention and health promotion.	
Legal structure	Public body	
Partnerships	EU Commission, JRC (Joint Research Centre) and DG SANTE	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
International scope	Yes	
Structure		
Description of government and management structure		
Business Model And Business	External supporting EU funding	


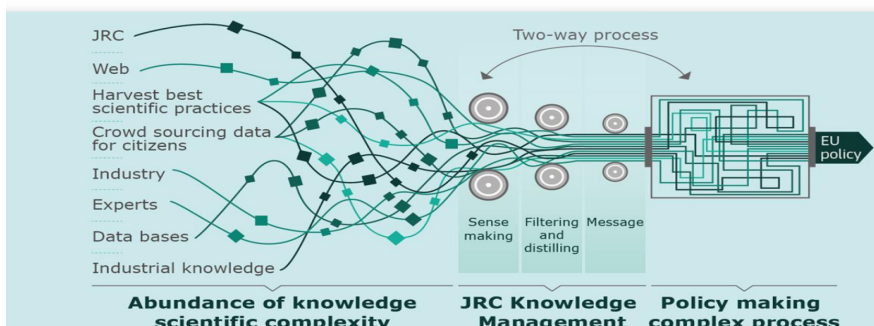
Plan	funding	
	Co-financing	No
	Financial resources	JRC
	Physical resources	No
	Budget holder	No
	Other relevant information	
Portfolio of Services	Brief description	Gateway for information that provides reliable, independent and up-to date information on topics related to the promotion of health and the prevention of non-communicable diseases, such as cardiovascular disease, diabetes and cancer.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	No
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and	Yes

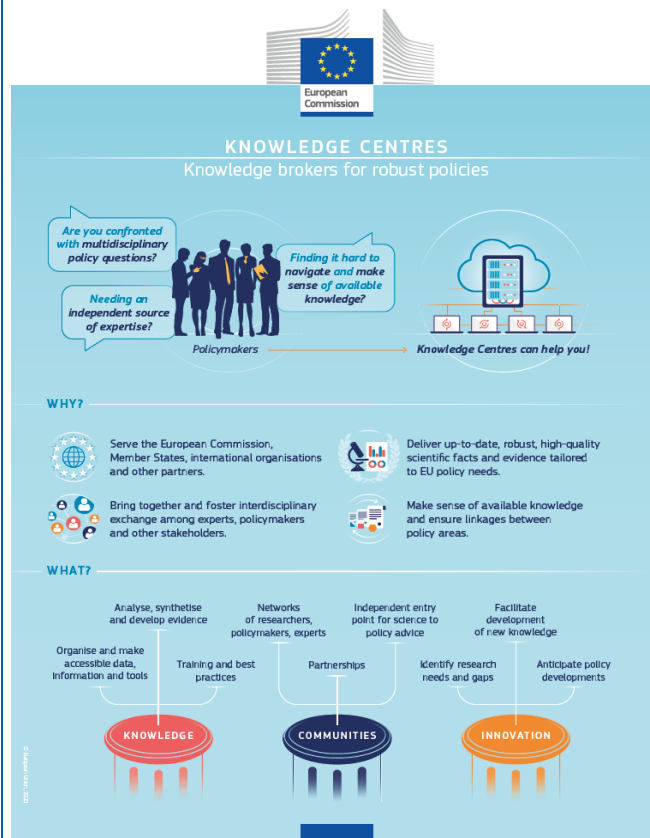
	integration	
	Other	No
	Workflows	
	 <p>(©European Union, 2017)</p>	
	<p>Fig. 1: Tiered approach for selection of sources of information.</p> 	
Engagement practices and promotion strategy		
Audience/target groups		
Networks of stakeholders		
Coordination with other similar entities / Ecosystem / Hubs		
Use of Platform/digital infrastructure		
Steps to setting up/launch of the CC, KC or similar entity		
Possible link with the future CC on CH	Nothing to report	

Relevant services/activities/other useful per building our CC	Nothing to report
References	https://knowledge4policy.ec.europa.eu/health-promotion-knowledge-gateway_en#:~:text=Health%20Promotion%20and%20Disease%20Prevention,of%20health%20and%20well%2Dbeing .

2.7 Knowledge Centre on Migration and Demography		
Field	Migration and Demography	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/migration-demography_en	
Site	Only digital. Knowledge Centres: These are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers.	
Headquarters (if applicable)	The KCMD is hosted by the JRC (Brussels); the team is in Ispra, Italy	
Year of foundation	2016	
Main focus	Demographic change, migration and mobility	
Operational areas / thematic departments		
Mission and Strategy	To provide data driven analysis and policy relevant knowledge to strengthen the European Commission's overall response to the opportunities and challenges related to migration.	
Value proposition	In support of the European Agenda on Migration: - To capitalise on the wealth of existing but fragmented data and knowledge at all levels – local, national, European and global - To better understand the societal impact of migration flows and population trends on the EU in the medium to longer term - To support future-proofing of migration management	
Legal structure	Public body	
Partnerships	EU Commission: DG Migration & Home Affairs, JRC (Joint Research Centre)	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	DG-JRC, DG-HOME, DG - SG, DG-DEVCO, DG-ECHO, DG-RTD, ESTAT, EPSC and EEAS.
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes, for example, the Atlas of Demography has: European Union overview, Member State overview, Regional dimension and Local dimension
Structure		

	Description of government and management structure	The KCMD is steered by the Commission services HOME and JRC (co-chairs), SG, DEVCO, ECHO, RTD, ESTAT, EPSC and EEAS. Representatives of these services meet regularly in the KCMD Steering Group. The Joint Research Centre (JRC) runs the KCMD's daily activities.
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	
	Financial resources	JRC
	Physical resources	No
	Budget holder	
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission
Portfolio of Services	Brief description	"The Knowledge Centre on Migration and Demography is a virtual entity providing scientific support to policy partners through both knowledge production and knowledge management activities, such as: <ul style="list-style-type: none"> • A combination of strong quantitative and qualitative analytical capacities • A lead on innovative migration and demography data • Interactive on-line tools to enable policymakers to access, explore and visualise data • Timely and fit-for-purpose analysis, scenarios and policy options for advancing our understanding of complex societal challenges • Knowledge sharing and collaborations to reinforce the dialogue between science and policy-making"
	Consultancy and orientation	
	Consultancy and orientation	Yes. Internal consultancy: for the policy partners (European Commission)
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes. Networking with experts.
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	No
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No

	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	Yes
	Other	No
	Workflows	
	 <p>KCMD Pillars</p> <p>Knowledge</p> <ul style="list-style-type: none"> Data, information, activities Knowledge gaps Analysis, modelling, foresight Research <p>Partnership</p> <ul style="list-style-type: none"> Extending the knowledge Networking with experts Improving science-policy interface <p>Uptake</p> <ul style="list-style-type: none"> Knowledge sharing and dissemination Publications and workshops Community of practice Tailored results, best practices <p>The purpose of EC Knowledge Centres</p>  <p>Abundance of knowledge scientific complexity</p> <ul style="list-style-type: none"> JRC Web Harvest best scientific practices Crowd sourcing data for citizens Industry Experts Data bases Industrial knowledge <p>JRC Knowledge Management</p> <p>Two-way process</p> <ul style="list-style-type: none"> Sense making Filtering and distilling Message <p>Policy making complex process</p> <p>EU policy</p>	



Engagement practices and promotion strategy	Knowledge sharing and dissemination of its activities (https://knowledge4policy.ec.europa.eu/migration-demography_en), publications and workshops, Community of practice, participation in events, etc. Social media Twitter: @EU_ScienceHub Facebook: EU Science Hub – Joint Research Centre LinkedIn: EU Science, Research and Innovation YouTube: Eu Science Hub
Audience/target groups	EU Commission Policy Departments (DG), EU policy makers; information is accessible to the entire society
Networks of stakeholders	
Coordination with other similar entities / Ecosystem / Hubs	KCMD partners range from international organisations (IOM, OECD, World Bank, UN DESA, ICMPD) to research centres and networks (IIASA, EUI Migration Policy Centre, Migration Policy Institute - Europe, IMISCOE) and individual experts. https://knowledge4policy.ec.europa.eu/migration-demography/kcmd-partnerships_en
Use of Platform/digital infrastructure	K4P Platform KCMD Data Portal (https://migration-demography-tools.jrc.ec.europa.eu/) 1 - Data+ catalogue: Demography, Migration and Development, Innovative Data and Modelling, Legal migration and integration, Asylum and forced displacement, Migration and vulnerable groups, International migration governance. 2 - Dynamic Data Hub 3 - Atlas of Migration 4 - Atlas of Demography (https://migration-demography-tools.jrc.ec.europa.eu/atlas-demography/)
Steps to setting up/launch of the CC, KC or similar entity	
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	https://knowledge4policy.ec.europa.eu/migration-demography_en

2.8 Knowledge Centre for Territorial Policies		
Field	Policies	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/territorial_en	
Site	Only digital. Knowledge Centres: These are virtual entities. Knowledge Centres bring together experts, researchers and policymakers within and outside the Commission to holistically frame policy questions and develop evidence-informed answers.	
Headquarters (if applicable)	The KCTP is hosted by the JRC (Brussels); the team is in Seville, Spain	
Year of foundation	October 2016	
Main focus	Enhancing knowledge at the service of European regions and cities.	
Operational areas / thematic departments		
Mission and Strategy	The KCTP aims to be the point of reference for Commission services, Member States and local authorities on territorial and regional knowledge and data. It allows for analytical and networking activities, accompanied by a repository of relevant research and new initiatives.	
Value proposition	"Territorial: focused on regional and urban levels and functional areas;	
Legal structure	Public body	
Partnerships	Holistic: multisectoral information and knowledge.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	No
Structure		
Description of government and management structure		
Business Model And Business Plan	External supporting funding	EU funding

	Co-financing	No
	Financial resources	JRC
	Physical resources	No
	Budget holder	No
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission
Portfolio of Services	Brief description	The KC TP brings together a number of different services in the form of data tools, platforms, (forecasting and now-casting) models and dashboards, such as LUISA, RHOMOLO, STRA-Board, T-Board, and the Urban Data Platform. Together these services offer a vast amount of data and knowledge, suitable for analysis, theoretic explorations, policy backing/development and/or scenario building. While the services differ in specific focus, they have one common denominator: a territorial outlook.
	Consultancy and orientation	
	Consultancy and orientation	Yes. Internal consultancy: for the policy partners (European Commission)
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes. Networks of researchers, policymakers, experts.
	Visioning and strategy development	Yes
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	
	Prototyping validation	No
	Others	
Digital maturity assessment	No	
Coworking areas or spaces		

	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	
	The KCTP is structured around 5 core components: 1. Data (both statistical and modelled); 2. Modelling capacity; 3. Community of practice; 4. City Labs; 5. Dissemination and visualisation tools (Urban Data Platform, Territorial Dashboard, Strategy Dashboard)	
Engagement practices and promotion strategy	Dissemination of its activities, events, workshop and training sessions, as well as news and publications through the web site (https://knowledge4policy.ec.europa.eu/territorial_en)	
Audience/target groups	EU Commission Policy Departments (DG), EU policy makers; information is accessible to the entire society: Policy-makers, Academy, Business and Citizens	
Networks of stakeholders	Experts in Member States, academia and both EU and International institutions.	
Coordination with other similar entities / Ecosystem / Hubs	Community of Practice on CITIES - Platform for knowledge exchange and collaboration on cities; Currently 800 members including EC policymakers, scientists, city administrators, city networks, international organisations; First collaborative product: Future of Cities report 2019; CoP-Cities Newsletter published every 2 months	
Use of Platform/digital infrastructure	"the Urban Data Platform provides information on: 807 European cities, 672 functional areas and 271 metropolitan regions. To access information on the status and trends of European cities and their surrounding regions, the Urban Data Platform, with its interactive interface and 60 indicators, allows users to explore, visualise, compare and download data.	
Steps to setting up/launch of the CC, KC or similar entity		
Possible link with the future CC on CH	Nothing to report	
Relevant services/activities/other useful per building our CC	The Knowledge Centre for Territorial Policies manages and makes sense of the vast amount of knowledge available on European cities and regions. The territorial focus allows for analysis on regional and urban levels as well as functional areas, allowing for differences on policies an understanding of urban issues, which can have relevance when considering heritage protection policies and diverse attitudes towards heritage.	
References	https://knowledge4policy.ec.europa.eu/territorial_en https://knowledge4policy.ec.europa.eu/territorial/topic/regional_en	

3 European Commission Knowledge Services

3.1 AI Watch

3.1 AI Watch		
Field	Artificial Intelligence	
Type	UE - public	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://knowledge4policy.ec.europa.eu/ai-watch_en	
Site	Only digital	
Headquarters (if applicable)	Headquarter of JRC (Brussels)	
Year of foundation	2018	
Main focus	Artificial Intelligence AI for the public sector AI Landscape Evolution of AI technology Social perspective Strategic Actions and Coordination	
Operational areas / thematic departments	No	
Mission and Strategy	European Commission Knowledge Service to monitor the development, uptake and impact of Artificial Intelligence for Europe.	
Value proposition	AI Watch monitors industrial, technological and research capacity, policy initiatives in the Member States, uptake and technical developments of Artificial Intelligence and its impact in the economy, society and public services. It provides a number of analyses necessary to monitor and facilitate the implementation of the European Strategy for AI.	
Legal structure	Public body	
Partnerships	AI Watch is an initiative of the European Commission (EC) jointly developed by the EC Joint Research Centre (JRC) and the Directorate General for Communications Networks, Content and Technology (DG CONNECT).	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	DG JRC, DG CONNECT
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	EU Commission. AI Watch is developed by the Joint Research Centre (JRC) of the European Commission in close collaboration with the Directorate-General for Communications Networks, Content and Technology (DG CONNECT). Within JRC, AI Watch is under the responsibility of the Digital Economy Unit, part of Growth and Innovation Directorate.
	Scope/area of impact	

	Local scope	No
	Regional scope	No
	National scope	AI Watch by country (EU, Member States)
	International scope	European Level (see value proposition)
	Structure	
Description of government and management structure	<p>An AI Watch Steering group composed of Member States representatives was created in 2019. The steering group provides guidance to the Commission in the development of AI Watch.</p> <p>The role of the Group is to monitor the implementation of AI Watch activities, resolve potential issues and provide strategic guidance. This includes formally reviewing AI Watch material dealing with Member State information before their publication on the AI Watch portal. The group also serves to create links with Member States and to collect and validate information, for example on national AI strategies.</p>	
Business Model And Business Plan	External supporting funding	EU Funding
	Co-financing	No
	Financial resources	JRC
	Physical resources	No
	Budget holder	
	Other relevant information	All KCs work as a JRC-managed internal consultancy services for the Commission.
Portfolio of Services	Brief description	<p>Knowledge Service: AI Watch monitors European Union's industrial, technological and research capacity in AI; AI national strategies and policy initiatives in the EU Member States; uptake and technical developments of AI; and AI use and impact in public services. AI Watch will also provide analyses of education and skills for AI; AI key technological enablers; data ecosystems; and social perspective on AI. AI Watch has a European focus within the global landscape, and works in coordination with Member States. AI Watch results and analyses are published on the AI Watch Portal.</p>
	Consultancy and orientation	
	Consultancy and orientation	Yes: internal consultancy for the policy partners (European Commission)
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	No
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	No

	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	Yes
	Other	No
	Workflows	
	No relevant workflow found	
Engagement practices and promotion strategy	Dissemination of its activities (conferences, events, etc.) through the web site and social media. Website: https://knowledge4policy.ec.europa.eu/ai-watch_en Twitter: @EU_ScienceHub Facebook: EU Science Hub – Joint Research Centre LinkedIn: EU Science, Research and Innovation YouTube: Eu Science Hub	
Audience/target groups	EU Commission Policy Departments (DG), EU policy makers. Information is accessible to the entire society.	
Networks of stakeholders	The European AI Alliance https://knowledge4policy.ec.europa.eu/ai-watch/collaborations_en	
Coordination with other similar entities / Ecosystem / Hubs	OECD, The German Observatory for AI, the AI Observatory of the Politecnico di Milano, AI Laboratory of the Jozef Stefan Institute in Slovenia, Industry associations (Eurocommerce, Digital Europa, The European Digital SME Alliance), etc. AI Watch set in 2019 the first of several partnerships with the Regione Lombardia with which the JRC has established a specific Collaborative Agreement to support AI Watch.	
Use of Platform/digital infrastructure	K4P Platform: KnowledgeBase/AI Watch Portal (https://knowledge4policy.ec.europa.eu/ai-watch_en) AI Collaboratory online platform (https://knowledge4policy.ec.europa.eu/ai-watch/ai-collaboratory-tracking-evolution-ai_en)	
Steps to setting up/launch of the CC, KC or similar entity	In December 2018, the European Commission and the Member States published a “Coordinated Plan on Artificial Intelligence”, COM(2018)795, on the development of AI in the EU. The Coordinated Plan mentions the role of AI Watch to monitor its implementation. AI Watch launched in December 2018.	

	<p>In the document "AI Watch. 2019 Activity Report. Joint Research Center" describes the beginnings of AI Wach (the link has been included in the references):</p> <ul style="list-style-type: none"> - development an operational definition of AI to be adopted for the monitory activities of AI Watch; - development an AI history timeline in order to understand the evolution of AI Technologies; - development a data-driven framework to collect and explore data about AI results, progress and ultimately capabilities, the AICollaboratory; - development a dashboard of AI indicators and metrics relevant for policymaking; - participation in the JRC Collaboration with Leading Science Centres & Museums; the objective of the project was organise activities on AI, including Virtual/Augmented Reality experiences and workshops, notably at the MuST science museum in Milan and Universiencies in Paris; - etc.
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	https://knowledge4policy.ec.europa.eu/ai-watch_en
	https://knowledge4policy.ec.europa.eu/ai-watch/ai-watch-2019-activity-report_en

4 National Competence Centres (European)

- 4.1 Spanish National Renewable Energy Centre (CENER)
- 4.2 Bi-Rex
- 4.3 Italian Computing Data Infrastructure (ICDI) Competence Centre
- 4.4 Dutch National Centre of Expertise and Repository for Research Data (DANS)

4.1 Spanish National Renewable Energy Centre (CENER)		
Field	Renewable energy	
Type	National UE - private	
Country (Europe)	Spain	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	http://www.cener.com/	
Site	only physical	
Headquarters (if applicable)	Ciudad de la Innovación, Sarriguren, Navarra, Spain	
Year of foundation	2002	
Main focus	Wind Energy (the most important) Biomass Photovoltaic Solar Energy Energy in Buildings Solar Thermal & Thermal Energy Storage Renewable Energy Grid Integration	
Operational areas / thematic departments	One Department for each of the above areas (Wind Energy, Biomass, Photovoltaic Solar Energy, etc.) although it is in the process of being revised to achieve greater integration. In addition: - Finance and Legal Department - Business Development Department - Human Resources and Organization Department - Communication and Institutional Relations Department	
Mission and Strategy	Its mission is to transfer its know-how to industry and society. - Supporting the R&D&I activities of companies by providing technological services, carrying out R&D projects under contract and providing advice. - Developing technologies for the production and use of energy through research and development. - And making possible the maximum penetration of renewable energies in the energy system by generating the necessary tools and services to solve the technical and relationship problems between the different agents in the system.	
Value proposition	CENER is a technology centre specialized in applied research and the development and promotion of renewable energies. CENER's activity covers the entire process of energy generation from renewable resources	
Legal structure	Non-profit Organisation	
Partnerships	Spanish Government Institutions: Government of Navarra, Ministry of Science and Innovation of Spain, CIEMAT (Center for Energy, Environmental and Technological Research), Ministry of Ecological Transition	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
Government-led	No	
Other	Not applicable (Foundations have no owners)	

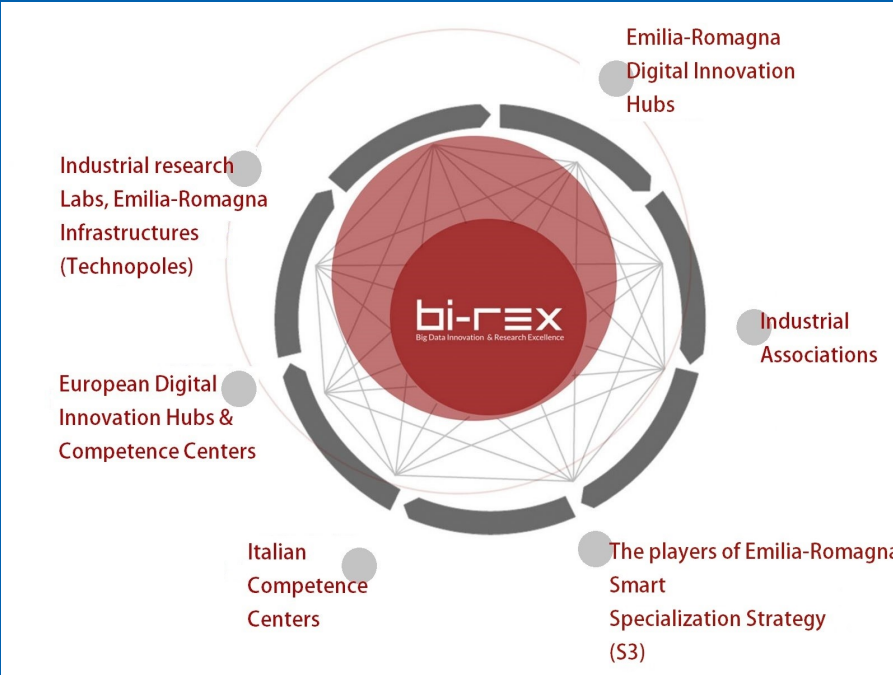
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
Description of government and management structure	<p>Public governance, private management</p> <p>a) Board of trustees: President, Vice President, Secretaries and Members (Government of Navarra (49%), General Administration of the State -Ministry of Science and Innovation of Spain, CIEMAT, Ministry of Ecological Transition- (49%) and Automotive and Mechatronics R&D Foundation (2%))</p> <p>b) Managing commission (President, Secretaries and Members)</p> <p>c) Executive staff (not public offices): General Manager Director of the Financial and Legal Department Director of Business Development Director of Human Resources and Organization Head of Communication and Institutional Relations</p>	
Business Model And Business Plan	External supporting funding	Government of Spain and Government of Navarra funding (30% approx.)
	Co-financing	
	Financial resources	Main revenue streams: service provisions (30%), competitive funding (EU, national, regional) 30%. Attention: The interviewee from CENER does not want the % of financing of the Center to be made public.
	Physical resources	4 physical centres: Aoiz, Sangüesa, Sarriguren and Seville (Spain) CENER has state-of-the-art technological infrastructures. The most important are: - Wind Turbine Test Laboratory (a unique infrastructure in the world) - Experimental Wind Farm - Biorefinery and Bioenergy Centre BIO2C - 2 nd generation Biofuels Center - ATENEA Microgrid Others laboratories: - Blockchain Laboratory - Photovoltaic Materials and Solar Cell Laboratory - Photovoltaic Module Test Laboratory - Thermal Collector Characterisation Laboratory - PTC Receivers Testing Laboratory - Calibration and validation of Radiometric Sensors - Laboratory for the Characterisation, Pre-Treatment, Fermentation and Transformation Processes of Biomass - Power Electronics and Smart Grids Laboratory
	Budget holder	
	Other relevant information	More than 200 researchers
Portfolio of Services	Brief description	CENER offers a wide and varied range of services: - Technology development through R&D&I projects, promoting the generation, acquisition and dissemination of knowledge to the industrial sector. - Technical assistance and provision of highly qualified

		services for component testing and certification. - Knowledge and Technology Transfer - Studies - Certification (CENER has laboratories accredited by ENAC (Spanish National Accreditation Body) which are recognized to perform tests within product certification schemes under international reference standards)
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	Yes
	Incubator / accelerator support	No
	Testing and validation	Yes
	Market intelligence	Yes
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes, services.
	Data collection and integration	No
	Other	No
	Workflows	
Engagement practices and	Social media: Twitter (@CENER_Energia), web page (www.cener.com),	

promotion strategy	participation in congresses, organization of events, courses, webinars, etc.
Audience/target groups	Public Administration (national, regional, local), Energy sector companies
Networks of stakeholders	
Coordination with other similar entities / Ecosystem / Hubs	<p>CENER is part of the main European technological platforms led by industry. Participates in the European Energy Research Alliance (EERA). CENER is also part of (among others):</p> <ul style="list-style-type: none"> - Spain's representative in the Renewable Energy Working Party (International Energy Agency) - Operating Agent Task 11 of the Implementing Agreement for Wind Energy (International Energy Agency) - European Energy Research Alliance (EERA) - European Technology Platforms (TP Wind, etc.) - European Renewable Industry Associations - Member of MEASNET (International Network for Harmonised and Recognised Measurements in Wind Energy) - PVPS-Photovoltaic Power Sources Executive Committee (International Energy Agency) - Etc. <p>CENER collaborates/works together with universities, technology centres, etc. in R&D projects.</p>
Use of Platform/digital infrastructure	Blockchain; Big Data e Analytics, Artificial Intelligence (for internal R&D developments)
Steps to setting up/launch of the CC, KC or similar entity	<p>The National Renewable Energy Center is part of the CENER-CIEMAT Foundation, a non-profit organization created in 2000 by the Government of Navarra, the Ministry of Education and Science and the Energy, Environmental and Technological Research Center (CIEMAT) as a key tool to achieve, through research and technology transfer (use of renewable energies), the objectives set by the European Union for the year 2010. CENER's initial financial endowment was 15.6 million euros and the building's budget was 10.5 million euros (2.8 million of which came from European ERDF funds).</p> <p>The presence of GAMESA (now SIEMENS-GAMESA, a leading renewable energy company) in the region was a driving force for the start-up of the Center.</p>
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	http://www.cener.com/

4.2 Bi-Rex		
Field	Industry 4.0	
Type	National UE - mixed	
Country (Europe)	Italy	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://bi-rex.it/en/	
Site	both physical and digital	
Headquarters (if applicable)	Bologna, Italy	
Year of foundation	2018	
Main focus	Big Data	
Operational areas / thematic departments	1. Big data for sustainability; 2. Big data for manufacturing; 3. ICT for machines and production lines; 4. advanced systems to manage production processes; 5. security and blockchain; 6. additive and advanced manufacturing; 7. collaborative robotics, warehousing and AGV; 8. sustainability and social responsibility.	
Mission and Strategy	BI-REX Competence Center intends to be a strategic and operational player to support companies interested in digitalization of industrial processes, within Industry 4.0 framework: from design to production, from R&D to supply chain, from security to blockchain. Important aggregation point of public and private excellences (Universities and Research and Innovation Centres, End User Companies, Provider companies) aimed at strengthening the network among all players involved in digitalization, innovation and training processes, with a view to Industry 4.0, providing the necessary skills and resources. Supports industrial culture through promotion of networking and sharing of new concepts and technologies.	
Value proposition	Supporting companies in their digitalization and technological innovation processes, through the adoption of Industry 4.0 enabling technologies and trying to collect the know-how of the Emilia Romagna High Technology network (industrial research laboratories, infrastructures, Digital Innovation Hubs) with a national and international road map, aimed at the development of high TRL solutions (close to the market), in particular for SMEs.	
Legal structure	Consortium (public-private)	
Partnerships	57 players: 12 Public entities (Universities, research centres, etc.) , 28 companies, 17 service providers	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	Yes
	Other	No
	Ownership	
	Academia-led	No
	Industry-led	Yes
	Government-led	No
	Other	No
	Scope/area of impact	
Local scope	Yes	

	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management structure	Executive committee, Steering committee, BI-Rex team. In detail: President General Director Business Development Manager Administration & Finance Manager Training and Consulting Services Manager Pilot Plant Manager Marketing & Communications Manager Business Development Associate Administration Associate
Business Model And Business Plan	External supporting funding	14.400.000€ for 3 years by Italian MISE
	Co-financing	14.400.000€ for 3 years by consortium members
	Financial resources	Among all Italian Competence Centres, Bi-Rex is the one which allocate most of MISE co-financing to industrial research projects. Aggregate turnover > 100 billion Euros
	Physical resources	1.500 square meters inside the Opificio Golinelli
	Budget holder	Consortium
	Other relevant information	No
Portfolio of Services	Brief description	1. An orientation, training and consultancy system for companies, closely integrated with the Digital Innovation Hubs operating in Italy; 2. A wide ecosystem including innovation projects and collaborative public-private industrial research projects within several thematic areas that make use of Industry 4.0 enabling technologies, in an integrated way; 3. A Pilot Plant where Industry 4.0 enabling technologies can be implemented and optimized; 4. Dedicated areas within our structures where conferences, meetings, training and coworking activities can be implemented.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	Yes
	Training and skills development	Yes

	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	Yes
	Testing and validation	Yes
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	
		
Engagement practices and promotion strategy	Entrepreneurs and all players involved in technology and digital transformation processes	
Audience/target groups	Industry research labs, RER (Region Emilia Romagna) Infrastructures; Technopolis; Digital Innovations Hubs and EU Competence Center; RER Digital Innovations Hubs; trade associations; RER Smart Specialization Strategy Plan (S3) members;	

	Italian Competence Centres.
Networks of stakeholders	Digital Innovation Hub, European Innovation Hub (candidate)
Coordination with other similar entities / Ecosystem / Hubs	Cybersecurity; Big Data e Analytics; In Cloud Services; Internet of Things; Addictive Manufacturing; Augmented and Virtual Reality; Artificial Intelligence; Blockchain; Advanced Manufacturing; 5G Connectivity, High Performance Computing (HPC), Automated Guided Vehicle (AGV).
Use of Platform/digital infrastructure	It is one of the 8 Italian Competence Centres funded by the Italian Ministry of the Economic Development, within the Industry 4.0 National Plan. Constituted according to the modalities established by Italian Ministry of Economic Development in conjunction with Italian Ministry of Economy and Finance.
Steps to setting up/launch of the CC, KC or similar entity	
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Structure of service catalogue (orientation and consultancy, training activities, innovation projects, facilities)
References	https://bi-rex.it/en/

4.3 Italian Computing Data Infrastructure (ICDI)		
Field	Open Science, FAIR Data	
Type	National	
Country (Europe)	Italy	
Country (Extra-Europe)	Extra-European (Continent) Country of affiliation	
Partner (responsible)	14. ICCU	
Website	https://www.icdi.it/en/activities/tf-cc	
Site	only digital	
Headquarters (if applicable)	GARR - The Italian Research and Education Network, Via dei Tizii 6 - 00185 Roma	
Year of foundation	2019	
Main focus	The mission of the Competence Centre of ICDI (CC-ICDI) is to create a network of experts, initiatives and research infrastructures to support the national Open Science community, the FAIR principles and the Italian participation in the European Open Science Cloud (EOSC).	
Operational areas / thematic departments	Training, networking to empower open science, open access and FAIR data; legal expertise on the management and sharing of research processes and results.	
Mission and Strategy	The ICDI Competence Center aims to support and develop activities to disseminate good practices of Open Science, FAIR principles by fully integrating them into the methodologies and flows of scientific work in the EOSC era. All the activities will be disseminated through information and communication events addressed in general to all the actors involved.	
Value proposition	<p>The CC-ICDI is part of a broader context of European initiatives to promote Open Science, the dissemination of FAIR principles and participation in EOSC, which include research infrastructures, e-infrastructures and projects that have led to the creation of specific competences and national nodes in Italy. The research infrastructures ESFRI, OpenAIRE, the Research Data Alliance, GO-FAIR, the projects of the INFRAEOSC-05 call, are examples of initiatives developed through a European network of national nodes articulated in various countries. The EOSC Association itself is a legal entity with representatives from member states and associated countries.</p> <p>Following the launch of EOSC in 2018, during the two-year period of provisional governance, the need emerged for Competence Centres in which to consolidate and build on the expertise developed in that European network experience. Ideally, Competence Centres of national nature, such as ICDI's, disciplinary or thematic, i.e. devoted to Open Science practices applied to specific research communities or to certain topics such as making data FAIR, could be established.</p>	
Legal structure	Memorandum of understanding (MoU) agreement	
Partnerships	EOSC at EU level; Universities and research institutes	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	Maybe in the future
Other	No	




	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management structure	ICDI is a consortium based on a MoU. It is governed by the Executive Board with representatives of the bodies that have signed the MoU.
Business Model And Business Plan	External supporting funding	EU Project
	Co-financing	In-kind contribution for the moment
	Financial resources	Not Applicable
	Physical resources	Not Applicable
	Budget holder	Not Applicable
	Other relevant information	Actually it is not funded and it's animated on a voluntary basis
Portfolio of Services	Brief description	By pooling the competences of research institutions, universities and thematic and transversal research infrastructures, the Competence Centre aims to be a national point of reference for: Training and support: help desk, consultancy and training on Open Science, FAIR principles and EOSC; Empowerment: fostering the integration of Open Science within the daily practice of researchers; Professionalisation: designing and promoting structured training and the introduction of the data steward in research institutions; Good practices: encourage the development and dissemination of good practices by delivering guidelines, standards and training and information resources - also produced by others - on Open Science, FAIR and EOSC principles; Tools and services: provide access to tools and services that allow the application of Open Science good practices and that enable FAIR by design both by taking into account the specificities of different research communities and by fostering the exchange of experiences between sectors.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes

	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	Not Applicable
	Commercial Infrastructure	No
	Incubator / accelerator support	Not Applicable
	Testing and validation	Not Applicable
	Market intelligence	Not Applicable
	Prototyping validation	Not Applicable
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	
Engagement practices and promotion strategy	Webinars, surveys, booklets, catalogue, help desk and consultancy	
Audience/target groups	The main stakeholders are: researchers, public and private institutions, bodies and research centres, public administrations, professionals and companies that (re)use or produce data for research, funding bodies, public and private training and education institutions and agencies and ultimately citizens.	
Networks of stakeholders	Research infrastructures, scholars and researchers involved in EU projects, Universities students and professors	
Coordination with other similar entities / Ecosystem / Hubs	European Open Science Cloud initiative, ESFRI Infrastructures, Research Infrastructures, OpenAIRE, RDA, other Competence Centres such as DCC	
Use of Platform/digital infrastructure	Website: https://www.icdi.it/en/ LinkedIn: https://www.linkedin.com/company/icdi-italian-computing-data-infrastructure/?viewAsMember=true Twitter: https://twitter.com/IcdiData	
Steps to setting up/launch of the CC, KC or similar entity	Workshops with stakeholders, surveys to gather suggestions, impact assessment, EU bodies consultations, webinars, help desk and consultancy	
Possible link with the future CC on CH	Open Science, FAIR Data	
Relevant services/activities/other useful per building our CC	Implement a shared strategy to foster open science and EOSC in the cultural heritage sector; ICDI is the Italian Mandated organisation in the EOSC Association and coordinates the participation of a wide network of Italian organisation in EOSC. The Italian Ministry of University and Research participated in the initiative as an observer. Agreements can be made to	

	<p>promote new projects and activities to bring the cultural heritage sector into the EOSC. It will be possible to integrate future Italian services of the 4CH competence centre into the ICDI catalogue. Collaborations and training activities can be better defined in the future.</p>
<p>References</p>	<p>Web site https://www.icdi.it/en/activities/tf-cc</p>

4.4 Dutch National Centre of Expertise and Repository for Research Data (DANS)		
Field	Open Access Research	
Type	National UE - public	
Country (Europe)	Netherlands	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	08. KNAW	
Website	https://dans.knaw.nl/en/	
Site	both physical and digital	
Headquarters (if applicable)	Anna van Saksenlaan 51 2593 HW Den Haag	
Year of foundation	2005	
Main focus	Research Data Management support / Open Access Support	
Operational areas / thematic departments	Data Stations (aimed at specific scientific fields), training, service development, projects, data management	
Mission and Strategy	Dutch National Centre of Expertise and Repository for Research Data.	
Value proposition	DANS encourages researchers to make their digital research data and related outputs Findable, Accessible, Interoperable and Reusable	
Legal structure	Non-profit Organisation	
Partnerships	Universities, Research communities, Projects, International Organisations	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	Yes
	Other	No
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
Structure		
Description of government and management structure	Management Team, Steering committee (related to Royal Dutch Academy of Arts and Sciences (KNAW))	
Business Model And Business Plan	External supporting funding	Funding by Royal Dutch Academy of Arts and Science (KNAW), National Research Council (NWO), project funding (EU)
	Co-financing	No

	Financial resources	No
	Physical resources	No
	Budget holder	National
	Other relevant information	No
Portfolio of Services	Brief description	Data Management Services (VRE, digital archive, information systems) Training, Consultancy
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	

	<p>DANS encourages researchers to make their digital research data and related outputs Findable, Accessible, Interoperable and Reusable.</p> <div style="display: flex; justify-content: space-around;"> <div style="background-color: #0072bc; color: white; padding: 10px; width: 30%; text-align: center;">  <p>SERVICES</p> <p>Read more about the background of DANS services. »»</p> </div> <div style="background-color: #0072bc; color: white; padding: 10px; width: 30%; text-align: center;">  <p>ORGANISATION & POLICY</p> <p>Read more about who we are and what we do. »»</p> </div> <div style="background-color: #0072bc; color: white; padding: 10px; width: 30%; text-align: center;">  <p>RESEARCH & INNOVATION</p> <p>See how Research and Innovation supports DANS. »»</p> </div> </div>
Engagement practices and promotion strategy	Workshops, Webinars, Training, Publications
Audience/target groups	Researchers, Research communities, Service providers
Networks of stakeholders	Cooperation engagement with a wide range of organisations and projects. (e.g. RDA, CTS, ERICs,)
Coordination with other similar entities / Ecosystem / Hubs	
Use of Platform/digital infrastructure	Research data management services. Services to support Open Science
Steps to setting up/launch of the CC, KC or similar entity	Workshops, Webinars, Consultancy
Possible link with the future CC on CH	Research data management
Relevant services/activities/other useful per building our CC	Research Data Management Services: Data Management Planning, Certification of Repositories, Data archiving, FAIR data services, Project management.
References	

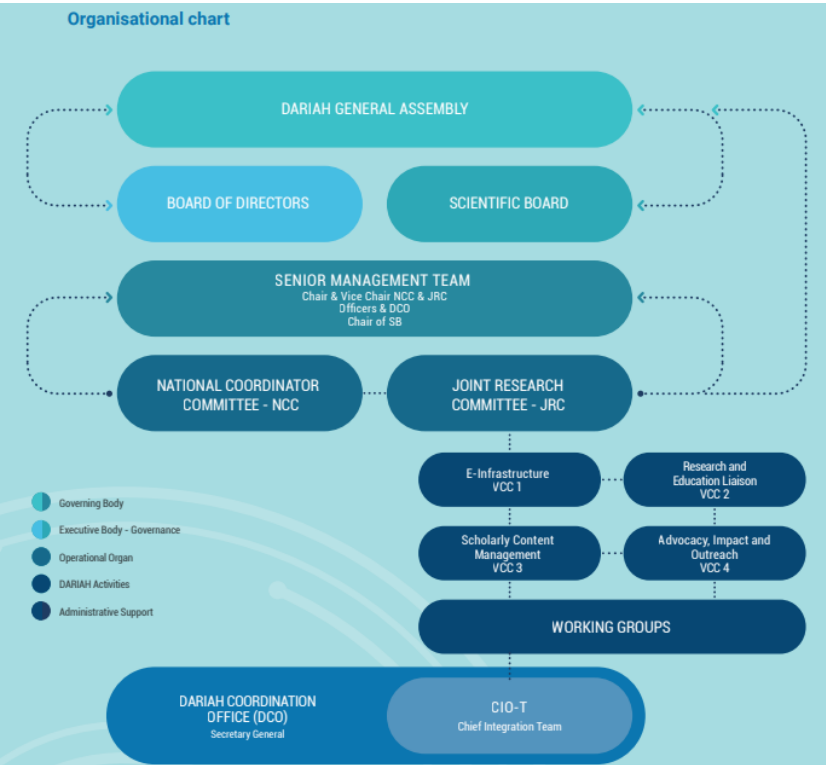
5 Research infrastructures

- 5.1 Digital Research Infrastructure for the Arts and Humanities (DARIAH)
- 5.2 European Research Infrastructure for Language Resources and Technology (CLARIN)
- 5.3 Open AIRE
- 5.4 CINECA
- 5.5 Consortium of European Social Science Data Archives (CESSDA)

5.1 Digital Research Infrastructure For The Arts And Humanities (DARIAH)	
Field	Arts And Humanities
Type	UE - public
Country (Europe)	Not Applicable
Country (Extra-Europe)	Not Applicable
Partner (responsible)	08. KNAW
Website	https://www.dariah.eu/
Site	both physical and digital
Headquarters (if applicable)	<p>DARIAH-EU's formal seat as an ERIC is in Paris: c/o TGIR Huma-Num CNRS UMS 3598 54 bd Raspail 75006 Paris</p> <p>Address in Berlin: DARIAH-EU Coordination Office Centre Marc Bloch Friedrichstraße 191 D-10117 Berlin Germany</p> <p>Address in Dublin: Trinity College Dublin Trinity Long Room Hub Arts and Humanities Research Institute The University of Dublin College Green Dublin 2 Ireland</p> <p>Address in The Hague: DANS : Netherland Institute for Permanent Access to Digital Research Resources Anna van Saksenlaan 51 2593 HW The Hague Netherlands</p>
Year of foundation	2014 (established as an ERIC)
Main focus	Network to enhance and support digitally enabled research and teaching across the Arts and Humanities
Operational areas / thematic departments	24 working groups (https://www.dariah.eu/activities/working-groups-list/) Projects, Training
Mission and Strategy	<p>DARIAH's mission is to empower research communities with digital methods to create, connect and share knowledge about culture and society. DARIAH's strategy stands upon four pillars that derive from the mission and vision.</p> <ol style="list-style-type: none"> 1. Build a Marketplace to facilitate fluid exchange of tools, services, data and knowledge 2. Build access to education and training 3. Build Working Groups, Hubs and other forms of Transnational and Transdisciplinary organisation 4. Build bridges between research policy and communities of practice
Value proposition	DARIAH exists to enable excellent research in the arts and humanities. The challenges emerging from the intersection of these long-standing research fields and methods with technology and technological advancement lie at the heart of DARIAH's strategy.
Legal structure	Consortium
Partnerships	Researchers, research communities, universities, service providers
Government And Management Structure	Governance
	Private No

	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	Yes
	Other	No
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
Description of government and management structure	https://www.dariah.eu/about/organisation-and-governance/ DARIAH-EU is constituted by its Executive Bodies (General Assembly and Board of Directors), Advisory Bodies (Scientific Board), Coordinating Bodies (National Coordinators Committee, Senior Management Team), Implementation Bodies (Joint Research Committee, Virtual Competence Centres and Working Groups) and Administrative Bodies (DARIAH Coordination Office).	
Business Model And Business Plan	External supporting funding	EU funding. "in-kind contribution" of partners.
	Co-financing	No
	Financial resources	No
	Physical resources	Main office in Paris and office in Berlin, Dublin, the Hague
	Budget holder	Public
	Other relevant information	No
Portfolio of Services	Brief description	DARIAH supports a wide range of services (often provided by members) see: https://www.dariah.eu/tools-services/tools-and-services/
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes

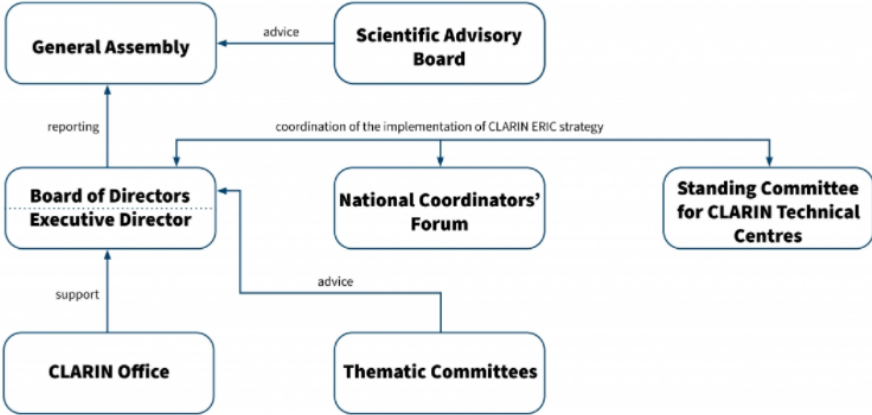
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	

	<p style="text-align: center;">Organisational chart</p>  <p style="text-align: center;">80%</p> <ul style="list-style-type: none"> 65 € Training 1,431 € Bank charges 2,191 € Catering 2,358 € Consumables 9,529 € Communication 10,747 € Consulting 10,979 € Travel & accommodation 20,100 € Accounting & audit 87,609 € Community support through project funding 595,896 € Personnel costs
<p>Engagement practices and promotion strategy</p>	<p>Workshops, Training, Publications</p>

Audience/target groups	Researchers, Research communities, Universities
Networks of stakeholders	
Coordination with other similar entities / Ecosystem / Hubs	DARIAH is related to ESFRI roadmap (Eu roadmap for research infrastructures) and EOSC.
Use of Platform/digital infrastructure	DARIAH is a network organisation and links with a wide range of platforms and infrastructures.
Steps to setting up/launch of the CC, KC or similar entity	Workshops, training, conferences, etc.
Possible link with the future CC on CH	To be investigated
Relevant services/activities/other useful per building our CC	DARIAH governance as network can act as example, reference.
References	https://www.dariah.eu/

5.2 European Research Infrastructure for Language Resources and Technology (CLARIN)		
Field	Languages	
Type	UE - public	
Country (Europe)	European (Continent) Country of affiliation	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	08. KNAW	
Website	https://www.clarin.eu/	
Site	both physical and digital	
Headquarters (if applicable)	CLARIN ERIC c/o Utrecht University Drift 10 3512 BS Utrecht The Netherlands	
Year of foundation	2012	
Main focus	European Research Infrastructure for Language Resources and Technology	
Operational areas / thematic departments	CLARIN is a distributed network, made up of the CLARIN Governance and Coordination body (CLARIN ERIC), national consortia, centres of expertise of various types, and online services. distributed network is made out of centres. There are several types of centres. The backbone of CLARIN is provided by technical centres, in particular Service Providing Centres or CLARIN B-centres, for short. These units, often a university or an academic institute, offer the scientific community access to resources, services and knowledge on a sustainable basis. (see: https://www.clarin.eu/content/clarin-centres)	
Mission and Strategy	CLARIN vision: All digital language resources and tools from all over Europe and beyond are accessible through a single sign-on on-line environment for the support of researchers in the humanities and social sciences. CLARIN's mission : Create and maintain an infrastructure to support the sharing, use and sustainability of language data and tools for research in the humanities and social sciences.	
Value proposition	CLARIN provides: Knowledge infrastructure Technical infrastructure Organisational development Sustainability	
Legal structure	Consortium	
Partnerships	Researchers, research communities, universities, service providers	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	Yes
	Other	No
	Scope/area of impact	

	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management structure	The CLARIN infrastructure is governed and coordinated by CLARIN ERIC, which is a consortium of countries, represented by their ministries.
Business Model And Business Plan	External supporting funding	EU funding, membership fees, project budget
	Co-financing	No
	Financial resources	public funding
	Physical resources	data management, data analysis services
	Budget holder	public
	Other relevant information	No
Portfolio of Services	Brief description	<ul style="list-style-type: none"> - Portal - Data depositing services - Virtual Language Observatory - Easy access to protected resources - Language resource switchboard - Virtual collections - Language resources inventory - Content search - Q&A
	Consultancy and orientation	
	Consultancy and orientation	No
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No

	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	
	 <pre> graph TD SAB[Scientific Advisory Board] -- advice --> GA[General Assembly] SAB -- "coordination of the implementation of CLARIN ERIC strategy" --> BDE[Board of Directors Executive Director] SAB -- "coordination of the implementation of CLARIN ERIC strategy" --> NCF[National Coordinators' Forum] SAB -- "coordination of the implementation of CLARIN ERIC strategy" --> SCC[Standing Committee for CLARIN Technical Centres] BDE -- reporting --> GA CO[CLARIN Office] -- support --> BDE TC[Thematic Committees] -- advice --> BDE </pre>	
Engagement practices and promotion strategy	CLARIN in first instance focused on scientific language and linguistics community. Information resources are often open and available for others.	
Audience/target groups	Researchers, research communities, universities, service providers	
Networks of stakeholders	ESFRI (EU RI roadmap), Research Data Alliance (RDA), Cluster projects (E.g. SSHOC)	
Coordination with other similar entities / Ecosystem / Hubs	Cooperation with other RIs.	
Use of Platform/digital infrastructure	Services, Knowledge base, events, etc. (see: https://www.clarin.eu)	
Steps to setting up/launch of the CC, KC or similar entity	Workshops, consultations, etc.	
Possible link with the future CC on CH	Cooperation in projects, sharing data and expertise.	
Relevant services/activities/other useful per building our CC	CLARIN is a good example of a successful Research Infrastructure	
References	https://www.clarin.eu/content/governance https://www.clarin.eu/content/services	

5.3 Open AIRE	
Field	Open Access Research
Type	UE - public
Country (Europe)	Not Applicable
Country (Extra-Europe)	Not Applicable
Partner (responsible)	09. UNIBO
Website	https://www.openaire.eu
Site	only digital
Headquarters (if applicable)	
Year of foundation	2018
Main focus	<p>OpenAIRE is a European project supporting Open Science. On the one hand OpenAIRE is an network of dedicated Open Science experts promoting and providing training on Open Science.</p> <p>On the other hand OpenAIRE is a technical infrastructure harvesting research output from connected data providers. OpenAIRE aims to establish an open and sustainable scholarly communication infrastructure responsible for the overall management, analysis, manipulation, provision, monitoring and cross-linking of all research outcomes. The main focus of OpenAire are the following:</p> <ol style="list-style-type: none"> 1) Align policies. Engaging all stakeholders for an effective Open Science implementation The network of 34 National Open Access Desks (NOADs) operates a European Helpdesk supporting a coordinated transition to Open Science. 2) Provide open science services. Embedding Open Science into researcher workflows. It provides interoperability services that connect research and enable researchers, content providers, funders and research administrators to easily adopt open science. 3) Link research. Building global common standards for linking research outcomes (e.g., publications, data, software) to their creators (e.g., researchers, institutions, funders), enabling discoverability, transparency, reproducibility and quality-assurance of research. 4) Monitor (open) science. Facilitating transparency in research impact assessment 5) Train for open science researchers, content providers, policy makers to acquire the skills and competencies to practice Open Science. 6) Build global bridges. Connecting Europe to the global open research environment to promote and share common access policies and protocols for all research results. It promotes common data standards and exchange content to transition towards an effective and open global research ecosystem. 7) Facilitate Open Innovation so that 3rd party providers build value added services to foster better understanding of scientific knowledge, while scouting for open and innovative scholarly communication services.
Operational areas / thematic departments	<p>Management and Administration</p> <p>The role of the Management and Administration Standing Committee is primarily to provide financial oversight of the organization. It provides guidance with regards to its budget formation (budgeting, financial planning and reporting) and monitoring (creation and monitoring of internal controls and accountability policies). And it makes suggestions to the OpenAIRE competent bodies, particularly the Executive Board regarding selection and appointment of OpenAIRE Management Office officers and staff.</p> <p>Legal, Policy and Ethics</p> <p>The purpose of the LPE SC is to provide guidance on policy, legal matters and ethics. It is responsible for advising the General Assembly (GA) and Executive Board (EB) in establishing clear rules, regulations and guidelines required for all levels of operation within the OpenAIRE AMKE. The LPE SC is responsible for providing template documents, e.g. contracts and policies, in accordance with the applicable legal frameworks and ethical best practices. In addition the LPE SC is responsible for ensuring that necessary guidelines and policies are in place and that</p>

	<p>they are regularly reviewed. The LPE will focus on setting up and updating:</p> <ol style="list-style-type: none"> 1 Statutory documents 2 Internal Rules of Procedure (IRoP) 3 Data policies 4 Service-level Agreements (SLA) <p>Outreach, Communications and Engagement The Standing Committee provides the AMKE with a communications, outreach and engagement high-level strategy; it recommends the prioritization for services and stakeholders, and is responsible for the onboarding of new OpenAIRE members (who, how, when). Training and Support The Training and Support Standing committee develops training strategy and monitors and measures training operations. It identifies areas of training that are of strategic importance and priority for the OpenAIRE communities; provides train-the-trainers as a service for all interested; and collaborates with the global open science and open scholarly communication training and education communities. It also contributes to building open science skill sets and provides strategic guidance with regards to the production of learning material, modules and open educational resources, based on regional, national or local contexts. Services and Technologies The objective of the Services and Technologies Steering Committee is to provide the strategic framework necessary in order to define, assess, expand, maintain and improve the OpenAIRE services and enhance their interoperability with international, national, regional, and sub-regional services. Open Science Strategies The Open Science Policy Committee has the two-fold objective to:</p> <ol style="list-style-type: none"> 1 Identify emerging and analyse existing policies regarding Open Science 2 Analyse and assess OS business models (e.g., APC, non-APC) relevant for the OpenAIRE communities 3 Carry out/ commission studies about Open Science policy emerging trends 4 Identify innovative services, tools and business models to serve open science and also to establish OpenAIRE LE as a key European organization in open scholarly communication by engaging with Open Science Policymakers at the national (especially at the ministry level), European and international level in order to set up, support and expand the Open Science Policy network.
<p>Mission and Strategy</p>	<p>The mission of OpenAIRE is to establish, maintain and operate an open and sustainable scholarly communication infrastructure and provide the necessary services, resources and network for supporting a common European e-science environment. To shift scholarly communication towards openness and transparency and facilitate innovative ways to communicate and monitor research. To transform society through validated scientific knowledge. To allow citizens, educators, funders, civil servants and industry find ways to make science useful for themselves, their working environments, the society.</p>
<p>Value proposition</p>	<p>OpenAire's operations seek to reshape the research system towards openness and transparency for scientists and scholars in all fields of knowledge, be they organized as disciplines, problems, models, or even around specific, often large-scale, instruments. To redefine the meaning of validated knowledge within society, through Open Science so that researchers, citizens, educators, funders, civil servants, and SMEs, can access the best pieces of knowledge available anywhere, and find ways to make them useful for themselves, their working environments and the society. To create Europe's linked open science monitoring system, i.e. an EU-wide research information system for optimum use of resources and improved decision-making policies. OpenAIRE works with research and education communities, public and private organisations in order to:</p>

	<ul style="list-style-type: none"> - Support, implement and monitor open science in Europe - Study, analyse and promote open science and e-science - Connect open research with society, economy and the public sector - Connect Europe to global open research 	
Legal structure	Non-profit Organisation	
Partnerships	EOSC (DICE - Data Infrastructure Capacity for EOSC, EGI-ACE - EGI Advanced computing for EOSC, RELIANCE - REsearch Lifestyle mAnagement for Earth Science Communities and CopErnicus users in EOSC, C-SCALE - Copernicus - eoSC Analytics Engine),	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	Yes
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	No
	Other	
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	Yes
Structure		
Description of government and management structure	<p>OpenAIRE is a participatory initiative from its onset. Through its participatory governance framework and active presence within the European Open Science Cloud, OpenAIRE, it seeks new “open science partnerships” in EC member states, with the aim to foster a greater country participation and collaboration level within the European Community. The current governance structure consists of three bodies: the General Assembly (decision making body, composed of the Regular Members of OpenAIRE, i.e. the NOADs and Intergovernmental or International Organisations (IGOs) and Multinational Organisations.), the Executive Board (steering) and the Management Office (daily activities). Standing Committees are necessary for OpenAIRE to function properly and make relevant suggestions to the OpenAIRE Executive Board and the General Assembly. For the time being there are six Standing Committees that have been formed in order to deal with specific issues of interest to the OpenAIRE Members. These are the following: 1. Management and Administration; 2. Legal, Policy and Ethics; 3. Outreach, Communication and Engagement; 4. Training and Support; 5. Services and Technologies; 6. Open Science Strategies.</p> <p>OpenAIRE is a Non-Profit Partnership (NPP) incorporated under the provisions of Greek Law (articles 741 onwards of the Greek Civil Code) and Law No 4072/2012 (established in Sept 2018). Membership in OpenAIRE is intended for institutions and initiatives with presence in European,</p>	

		national and/ or global open research and innovation ecosystems. Individual membership of natural persons is not considered, yet. OpenAIRE is primarily but not exclusively European: It shall have OpenAIRE Members based at least in two EU Member States (EUMS) or three countries that belong to the Council of Europe. The operative part of OpenAire is the network of 34 European National Open Access Desks experts in open access and open science. They mainly consisting of institutions: national, academic and research libraries, cross-institutional organisations, information services and consortia. NOADS specific activities are: Outreach to national key players, Align OA/OS policies, Engage with funders among others (see: https://www.openaire.eu/noad-activities)
Business Model And Business Plan	External supporting funding	OpenAIRE's income includes indicatively: donations and sponsorships of natural and legal persons, inheritances or legacies, lottery revenue, income from events related to its purposes, as well as any other contributions by members or third persons, natural or legal, private or public, and by the property rights the OpenAIRE acquires through its operation.
	Co-financing	The Members agree to provide an initial contribution of five hundred (500) Euros each for the setting up of the OpenAIRE Legal Entity.
	Financial resources	OpenAIRE's income may also include fees from conducting relevant studies and/ or offering services and/ or content related to its mission and operation.
	Physical resources	
	Budget holder	Public
	Other relevant information	Useful information can be found in the statute: https://www.openaire.eu/index.php?option=com_edocman&view=document&id=1047&Itemid=2552
Portfolio of Services	Brief description	Addressing the scholarly communication aspects of the research life cycle, OpenAire offers a suite of services for all key stakeholders: researchers, institutions, funders, content providers, etc. Services are categorised in: Aggregators & Integrators; Processing & Analysis; Security & Operations; Sharing & Discovery; Training & Support
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	No
	Visioning and strategy development	No
	Mentoring	Yes
	Training and skills development	Yes
	Conferences,	Yes

	Training, Meetings	
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	Yes
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	online trainings
	Workflows	
	<p>AMNESIA ""Anonymize your datasets"" AMNESIA allows end users to anonymize sensitive data in order to share them with a broad audience. The service allows the user to guide the anonymization process and decide on a flexible trade-off between privacy guaranty and data utility. The service is offered through a web interface that allows users to explore the anonymized data visually. Moreover, the service detects duplicate anonymized files when they are uploaded to Zenodo. Reduce or eliminate the dangers to the privacy of the users that are associated with the data. Allow data owners or curators to safely share the data with other experts and to benefit from their processing on them"</p> <p>ARGOS ""Plan and follow your data"" Argos (argos.openaire.eu) is the online machine-actionable tool developed by OpenAIRE to facilitate Research Data Management (RDM) activities concerning the implementation of Data Management Plans (DMPs). It is an open, extensible and configurable tool which follows global standards including the DMP Common Standard of Research Data Alliance (RDA) for machine actionability. Argos uses OpenAIRE guides created by its RDM Task Force to familiarize users with basic RDM concepts and guide them throughout the process of describing their data. It also utilises the OpenAIRE pool of services and inferred sources to make DMPs more dynamic in use and easier to be completed, published and exploited in the Open Science ecosystem. Argos is based on the OpenDMP open source software, developed in collaboration with EUDAT CDI."</p> <p>Digital Humanities and Cultural Heritage OpenAIRE Community Gateway ""Single entry point for discovery and sharing of scientific results in Digital Humanities and Cultural Heritage"" The OpenAIRE Community Gateway for Digital Humanities and Cultural Heritage offers a view of the OpenAIRE Graph including literature, datasets, software, other research products, and projects (all linked to each other relative to the domain of Digital Humanities. This broad definition includes Humanities, Cultural Heritage,</p>	

	<p>History, Archaeology and related fields. Users can discover scientific outputs and browse their discipline-specific graph, monitor Open Science statistics over time, and by accessing. Zenodo.org also deposit/publish new products by assigning them to this community. Growing a single entry point for Digital Humanities and Cultural Heritage Researchers in Digital Humanities and Cultural Heritage"</p> <p>Episciences ""An overlay journal platform"" Episciences.org is a hosting platform for open access journals. The originality of the Episciences.org platform is that it is based on contents deposited in open archive for creating overlay-journals. Episciences.org is an innovative combination of the two routes of free access: the gold route by hosting journals in open access (overlay journals) and the green route where articles are submitted to these journals by depositing them in an open archive."</p> <p>OpenAIRE Broker ""OpenAIRE Catch-all Notification Broker Service"" Content providers can use the OpenAIRE Broker Service via the OpenAIRE Content Provider Dashboard. Thanks to the Broker, repositories, publishers or aggregators can exchange metadata and enrich their local metadata collection by subscribing to notifications of different types. The Broker is able to notify providers when the OpenAIRE Graph contains information that is not available in the original collection of the provider. In particular, the provider can subscribe via the Content Provider Dashboard and be notified about: Additional PIDs of its publications (e.g. DOIs). Additional classification subjects (e.g. subjects from standard schemes like ACM, JEL and DDC. Links to Open Access versions . Links to projects. Links to datasets. Missing publication dates. Enriched repositories for better access. Improved institution memory. Better institution research assessment. OA publisher compliance to funder rules."</p> <p>OpenAIRE Content Provider Dashboard ""One-stop-shop for sharing, improving and enriching your content"" The OpenAIRE Content Provider Dashboard is a one-stop-shop web service where data providers (repository, data archive, journal, aggregator, CRIS system) interact with OpenAIRE. It provides the front-end access to many of OpenAIRE's backend services: Register - validate data source against OpenAIRE guidelines (via the OpenAIRE Validator); register in OpenAIRE; provide links to content for text and data mining; view history of validations, status of harvesting; Enrich - subscribe and view/receive notifications to enrich the metadata or the content of the data source (via the OpenAIRE Broker); Assess - subscribe to the OpenAIRE Usage Statistics service; view aggregated, cleaned usage stats for repository access (COUNTER rules, latest robots.txt). Improve repository collections and content for enhanced visibility and access. Improved institution memory. Better institution research assessment. Compliance to funder rules. Improved repository interoperability.900 content providers of all types have used the registration and validation service."</p> <p>OpenAIRE Explore Portal ""Find open linked research"" The OpenAIRE Discovery portal provides access to Open Access research content. It is based on OpenAIRE's open scholarly communication graph that includes all research and scholarly activities, spanning all phases of the research life cycle. The OpenAIRE scholarly communication graph is created bi-monthly by aggregating, cleaning, transforming and inferring content retrieved from OpenAIRE's European and global network of validated OA data providers. In addition to the usual search and browse mechanisms, the OpenAIRE Discovery portal provides end user functionalities which allow users to: find the most fitting repository to deposit their publication or data, authoritatively enrich the underlying content (e.g., linking research results to funding, linking research results to external sources), view and download reports or graphs of aggregated research outcomes (e.g., per funder, project, institution) and their stats. Enable intelligent and contextualized research discovery. Connect public to open access research in Europe and beyond.9, 200 registered users. 50, 000 users use the service on the average every month."</p> <p>OpenAIRE Explore Portal ""Find open linked research"" The OpenAIRE Discovery portal provides access to Open Access research content.</p>
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	<p>It is based on OpenAIRE's open scholarly communication graph that includes all research and scholarly activities, spanning all phases of the research life cycle. The OpenAIRE scholarly communication graph is created bi-monthly by aggregating, cleaning, transforming and inferring content retrieved from OpenAIRE's European and global network of validated OA data providers. In addition to the usual search and browse mechanisms, the OpenAIRE Discovery portal provides end user functionalities which allow users to: find the most fitting repository to deposit their publication or data, authoritatively enrich the underlying content (e.g., linking research results to funding, linking research results to external sources), view and download reports or graphs of aggregated research outcomes (e.g., per funder, project, institution) and their stats. Enable intelligent and contextualized research discovery. Connect public to open access research in Europe and beyond. 9, 200 registered users. 50, 000 users use the service on the average every month."</p> <p>Open Science Helpdesk ""Access OpenAIRE support resources or ask us a question""</p> <p>This service provides a wide range of activities brought together to support stakeholders questions on Open Science and builds a knowledge base on a range of topics targeted at different stakeholders. It includes a 24x7 Helpdesk supported by NOADs, FAQs, Factsheets, Briefing Papers and topical webinars. The whole European network of NOADs work behind the scenes at national levels to run the service. Open Science enabler. Direct and round the clock support for wide ranging issues on Open Science across European Research Institutions, Projects and Individuals Daily tickets and NOADs contact by all stakeholder types"</p> <p>Open Science Training ""Practice Open and FAIR Science""</p> <p>This service offers policy training and support on European Commission Open Science policies providing the body of resources to facilitate the easy uptake and comprehension of the Open Access mandate to publications and data, as well as a broader open science agenda among a wide range of stakeholders. For example: It helps project coordinators to comply with Open Access funder's requirements. It assists repository managers and journal editors and publishers with making their repositories and journals compatible with the OpenAIRE Guidelines. It works with national research funders to align their policies with Open Access policies of the European Commission. It organizes conferences, workshops and other knowledge sharing and community-building events and activities to promote availability of Open Access publications and research data and Open Science. Open Access Basics, Research Data Management Handbook, Guides to Open Science, Factsheets Open Science enabler. Open science training provides user groups and customers with the latest information about developments in open access, open data and open science. It communicates basic principles, recent developments and innovations, provides how to guides to different stakeholders and helps them to develop the necessary skills. Supports open science implementation across European research Institutions and individuals. Large attendance in webinars and training workshops"</p>
<p>Engagement practices and promotion strategy</p>	<p>Among the engagement strategy OpenAire provides two spaces 1) Community of Practice for Training Coordinators (CoP): an informal network to share experiences along research and e-infrastructures, aiming to map out related activities of various pan-European, EOSC-related initiatives and strengthen their training capacity. 2) Content providers community calls, aimed at presenting and discussing recent developments from OpenAIRE, upcoming releases from the provide related services and other related relevant topics, in particular a time to discuss and give feedback about interoperability issues and the OpenAIRE infrastructure. The promotion strategy foresees a multi-channel dissemination through: newsletter, blog, social media, portal news items, postcards, factsheets, webinars, workshops.</p>
<p>Audience/target groups</p>	<ul style="list-style-type: none"> • Repository managers • H2020 projects and Project Coordinators • Research administrators • OA publishers • Open science practitioners • Institutions, libraries • Data initiatives/labs/groups

	<ul style="list-style-type: none"> • National funders and other policy makers • Researchers • Research networks / associations • NOADs and other national networks or infrastructures (e.g., NRENs, NCPs) • SMEs
Networks of stakeholders	<p>Network of 34 National Open Access Desk (NOADs) https://www.openaire.eu/openaire-amke-factsheet/view-document</p>
Coordination with other similar entities / Ecosystem / Hubs	<p>Pan-European network of National Open Access Desks (NOADs) connects research stakeholders, research institutions, and policy makers at a national level, enabling the responsive deployment of OpenAIRE services throughout Europe's heterogeneous research ecology. In parallel work with partners around the globe (via Confederation Open Access Repositories) to foster technical interoperability amongst regional, national or thematic networks of repositories for publications, data and all research artefacts.</p>
Use of Platform/digital infrastructure	<p>OPENAire portal: online trainings, webinars, platform for resource and services consultation; faq section</p>
Steps to setting up/launch of the CC, KC or similar entity	<p>OpenAIRE has grown through a series of project phases funded by the European Commission: from the DRIVER projects to link Europe's repository infrastructure, to the first OpenAIRE project aimed to assist the EC in implementing its initial pilot for Open Access (OA) to publications, and, through several further phases which have extended and consolidated the OpenAIRE mission to implement Open Science policies.</p>
Possible link with the future CC on CH	<p>Networking on Open Innovation protocols; service provision on Open access services</p>
Relevant services/activities/other useful per building our CC	<p>Governance structure; service provision portfolio; data protection policies; European network with NOADs; the Community of Practice for Training Coordinators (CoP) an informal network to share experiences along research and e-infrastructures; Content providers community calls</p>
References	<p>https://www.openaire.eu</p>


5.4 CINECA		
Field	Supercomputing and its applications, IT services for the members of the Consortium	
Type	National UE - public	
Country (Europe)	Italy	
Country (Extra-Europe)	Extra-European (Continent) Country of affiliation	
Partner (responsible)	09. UNIBO	
Website	https://www.cineca.it/en	
Site	only physical	
Headquarters (if applicable)	Bologna, Italy	
Year of foundation	1969	
Main focus	High Performance Computing for higher education and research	
Operational areas / thematic departments	<p>COMPLEX STRUCTURES: Complex Structure for High Performance Computing, Complex Structure for Universities, Complex Structure for the Ministry of Education and the Ministry of University and Research and for Public Administration.</p> <p>TRANSVERSAL STRUCTURES: Support Complex Structure, of which Claudia Battista is responsible; Complex Structure Outsourcing; Complex Structure Delivery; Organisation and Systems, which deals with human resources, organisation, communication and internal information systems and whose director is Serena Borelli; Administration and Controls; The Compliance Area; The Information Security Area; The Facility Area.</p>	
Mission and Strategy	Cineca supports the researchers by means of supercomputing and its applications, and develops innovative IT services for the members of the Consortium, in order to support digitalisation and efficiency of the organisations.	
Value proposition	Cineca supports the researchers by means of supercomputing and its applications, and develops innovative IT services for the members of the Consortium, in order to support digitalisation and efficiency of the organisations.	
Legal structure	Consortium	
Partnerships	Universities, Public bodies	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	No
	Other	No
	Scope/area of impact	
	Local scope	No
	Regional scope	Yes
	National scope	Yes
	International scope	No
Structure		
Description of	Consortium Assembly, President, Board of Directors,	

	government and management structure	Consortium Council, General Manager, Board of Auditors, Supervisory Body
Business Model And Business Plan	External supporting funding	Sponsorships, EU funding, etc.
	Co-financing	% of co-financing from public or private entities
	Financial resources	Main revenue streams, e.g. patents, service provisions, etc.
	Physical resources	Spaces, licences, etc.
	Budget holder	National, private, public-private, etc.
	Other relevant information	No
Portfolio of Services	Brief description	Information services for the university system and its member organisations. Supercomputing services to the scientific community. Technological transfer of skills to the world of public administration and enterprises. Facility management ORGANIZATIONAL STRUCTURE - HPC High Performance Computing whose director is Sanzio Bassini . Services for the Universities whose manager is Giacomo Scillia . Services for the Ministries of Education, University and Research and Public Administration whose director is Maurizio Tani . Delivery whose director is Paolo Malfetti . Support whose head is Claudia Battista . Outsourcing whose head is Dario Mingarelli . The Organization and Systems Area, which deals with human resources, organization, communication and internal information systems, whose director is Serena Borelli . The Administration and Finance Area, which deals with internal administration whose director is Maurizio Tani . The Compliance Area, of which Stefano Roselli is the director. The information security office, whose head is Leonardo Valcamonici . The Facility, whose head is Alessio Mauri .
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes

	Support in innovation and projects	
	Competitive mass production	Yes
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	Yes
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Not Applicable
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	Services for facility management; E-vote and E-government services; Retrieval, management and analysis of data, information and knowledge; Services for the Health Care Systems; Services for Decision Support (Data Mining, etc.).
	Workflows	
Engagement practices and promotion strategy	Interaction addressed to external stakeholders (e.g. citizens, etc.) through public activities (e.g. workshops, surveys/questionnaires, laboratories, etc.)	
Audience/target groups	Ministry of Education, the Italian Ministry of Universities and Research, 69 Italian universities and 25 Italian National Institutions, industries, service companies, training organizations, local administrations, cultural heritage institutions	
Networks of stakeholders	CC, KC or similar entities interconnected web of stakeholders (e.g. Cyberg Competence Network)	
Coordination with other similar entities / Ecosystem / Hubs		
Use of Platform/digital infrastructure	Cineca is currently one of the Large Scale Facilities in Europe and it is a PRACE Tier-0 hosting site	
Steps to setting up/launch of the CC, KC or similar entity		
Possible link with the future CC on CH	Services related to new technologies combined with cultural heritage for museums, archives, galleries	
Relevant services/activities/other useful per building our CC	Cineca is a Large Scale Facility, and an asset for the Italian National Academic System. Moreover, the Consortium is one of Italy's main representatives in the projects of the European Union, participating in numerous activities for the development and promotion of the most advanced information technologies.	
References	official website	

5.5 Consortium of European Social Science Data Archives (CESSDA)		
Field	Social science	
Type	UE - public	
Country (Europe)	European (Continent) Country of affiliation	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	08. KNAW	
Website	https://www.cessda.eu/	
Site	both physical and digital	
Headquarters (if applicable)	Main office: Solheimsgaten 16, 5058 Bergen, Norway	
Year of foundation	1976 (Since 2017 CESSDA is an ERIC)	
Main focus	CESSDA is a consortium of European Social Science Data Archives. Since 2017 CESSDA is an ERIC (European Research Infrastructure Consortium)	
Operational areas / thematic departments	Consortium of 21 member states. Main office in Norway. 4 working groups: Tools and Services, Trust, Training and Technical	
Mission and Strategy	The mission of CESSDA is to provide a full scale sustainable research infrastructure enabling the research community to conduct high-quality research in the social sciences contributing to the production of effective solutions to the major challenges facing society today and to facilitate teaching and learning in the social sciences.	
Value proposition	CESSDA wants to be a consortium of trusted repositories with full European coverage, offering a platform with tools and services to both data producers and data re-users.	
Legal structure	Consortium	
Partnerships	Partnership with 21 European national social science data archives.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	No
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	No
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	Yes
Structure		
Description of government and management structure	The CESSDA ERIC Consortium is comprised of the General Assembly, the Director, the Scientific Advisory Board and the Service Providers Forum. Its main office is in Bergen, Norway.	
Business Model And Business	External supporting EU funding. Contributions by Member States.	

Plan	funding	
	Co-financing	
	Financial resources	
	Physical resources	
	Budget holder	
	Other relevant information	CESSDA participates in EU funded projects (EOSC)
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	Yes
	Other	No
	Workflows	

	<div style="display: flex; justify-content: space-around;"> <div> <p>Data Catalogue</p> <p>The CESSDA Data Catalogue contains the metadata of all data in the holdings of CESSDA's service providers. It is a one-stop-shop for search and discovery, enabling effective access to European social science research data.</p>  <p>cessda DC Data Catalogue</p> </div> <div> <p>Data Management Expert Guide</p> <p>This guide is designed by European experts to help social science researchers make their research data findable, accessible, interoperable and reusable.</p>  <p>cessda DMEG Data Management Expert Guide</p> </div> <div> <p>Training</p> <p>The CESSDA Training website provides a collection of resources and events for learning about the management, preservation and distribution of research data.</p>  <p>cessda TRAINING</p> </div> </div> <div style="text-align: center; margin-top: 20px;"> <p>Tools & Services</p> <div style="display: flex; justify-content: space-around; align-items: center;">     </div> <p>Data Users Data Producers Service Providers Members</p> </div> <div style="margin-top: 20px;"> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">CESSDA's Services Timeline</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>Tools & Services</th> <th>Data Users</th> <th>Data Producers</th> <th>Service Providers</th> <th>Funders / Members</th> </tr> </thead> <tbody> <tr> <td rowspan="2" style="writing-mode: vertical-rl; transform: rotate(180deg);">2018</td> <td>CESSDA Data Catalogue</td> <td>◆</td> <td>◆</td> <td>◆</td> <td></td> </tr> <tr> <td>ELSST Multilingual Thesaurus</td> <td></td> <td></td> <td>◆</td> <td></td> </tr> <tr> <td rowspan="5" style="writing-mode: vertical-rl; transform: rotate(180deg);">2019</td> <td>CESSDA Vocabulary Service</td> <td></td> <td></td> <td>◆</td> <td></td> </tr> <tr> <td>CESSDA European Question Bank</td> <td>◆</td> <td>◆</td> <td></td> <td></td> </tr> <tr> <td>CESSDA Quality Assurance</td> <td></td> <td></td> <td></td> <td>◆</td> </tr> <tr> <td>CESSDA Self-Archiving</td> <td></td> <td></td> <td>◆</td> <td></td> </tr> <tr> <td>Single Sign On / Easy Access</td> <td>◆</td> <td>◆</td> <td>◆</td> <td></td> </tr> <tr> <td>CESSDA Access to Sensitive Data</td> <td>◆</td> <td></td> <td></td> <td></td> </tr> <tr> <td rowspan="3" style="writing-mode: vertical-rl; transform: rotate(180deg);">2020</td> <td>Social Sciences Data Exploration Tools</td> <td>◆</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Social Sciences Research Data Management</td> <td></td> <td>◆</td> <td></td> <td></td> </tr> <tr> <td>CESSDA Data Tags</td> <td></td> <td>◆</td> <td>◆</td> <td></td> </tr> </tbody> </table> </div>		Tools & Services	Data Users	Data Producers	Service Providers	Funders / Members	2018	CESSDA Data Catalogue	◆	◆	◆		ELSST Multilingual Thesaurus			◆		2019	CESSDA Vocabulary Service			◆		CESSDA European Question Bank	◆	◆			CESSDA Quality Assurance				◆	CESSDA Self-Archiving			◆		Single Sign On / Easy Access	◆	◆	◆		CESSDA Access to Sensitive Data	◆				2020	Social Sciences Data Exploration Tools	◆				Social Sciences Research Data Management		◆			CESSDA Data Tags		◆	◆	
	Tools & Services	Data Users	Data Producers	Service Providers	Funders / Members																																																												
2018	CESSDA Data Catalogue	◆	◆	◆																																																													
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Engagement practices and promotion strategy	Workshops, Webinars, Participation in Conferences																																																																
Audience/target groups	Social scientists, universities, service providers																																																																
Networks of stakeholders																																																																	

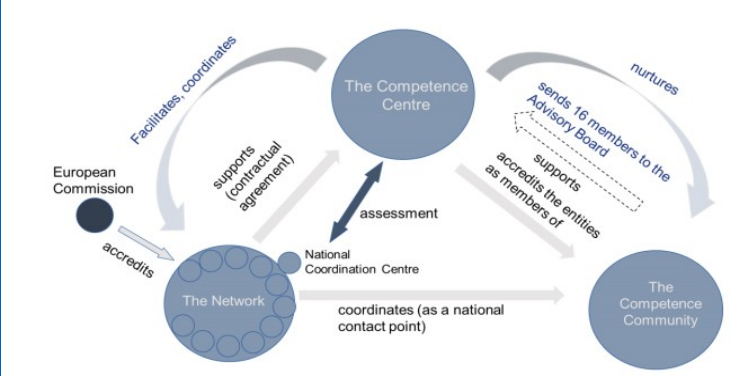
Coordination with other similar entities / Ecosystem / Hubs	Research Data Alliance (RDA), EOSC
Use of Platform/digital infrastructure	Data aggregation services, Training
Steps to setting up/launch of the CC, KC or similar entity	
Possible link with the future CC on CH	Expertise on data archiving, open science
Relevant services/activities/other useful per building our CC	Engagement with Academia
References	

6 EU-funded projects

- 6.1 European Cybersecurity Network (CONCORDIA, ECHO, SPARTA, CyberSec4Europe)
- 6.2 EuroCC project - National Competence Centre (NCC)

6.1 European Cybersecurity Network (CONCORDIA, ECHO, SPARTA, CyberSec4Europe)		
Field	Cybersecurity	
Type	UE - mixed	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://cybercompetencenetwork.eu/ (https://www.concordia-h2020.eu/ ; https://echonetwork.eu/ ; https://sparta.eu/ ; https://cybersec4europe.eu/)	
Site	only digital	
Headquarters (if applicable)	not applicable	
Year of foundation	2019 - 2022	
Main focus	CONCORDIA, ECHO, SPARTA and CyberSec4Europe are the four pilot projects chosen to address the Horizon 2020 Cybersecurity call "Establishing and operating a pilot for a European Cybersecurity Competence Network and developing a common European Cybersecurity Research & Innovation Roadmap". Each of the four projects has a different but complementary approach to these shared common goals. The four projects cooperate and coordinate their activities extensively, working together with Europe's cybersecurity ecosystem to advance and strengthen the way cybersecurity research, innovation and deployment is performed in Europe. [2]	
Operational areas / thematic departments	Focus groups areas of the European Cybersecurity Network are: Communications Focus Group; Cyber Range Focus Group; CCN Education group; Governance Focus Group; JRC European Cybersecurity Atlas; Road-mapping Focus Group; Threat Intelligence in the Financial Sector Focus Group [3]	
Mission and Strategy	The purpose of a European Cybersecurity Network and Competence Centre (The public private partnership on cybersecurity - 2016) is to retain and develop the cybersecurity technological and industrial capacities of the EU necessary to secure its Digital Single Market; and to strengthen and sustain Europe's cybersecurity competence, placing Europe in a leading position in the cybersecurity marketplace. [2]	
Value proposition	The broad range of cybersecurity-related activities include demonstration test- and use-cases in eHealth, finance, telecommunications, smart cities and transportation. The use of cyber ranges, training and education programmes to tackle the cybersecurity skills gap in the EU will help deliver innovative marketable solutions, made in the EU, that will address the future cross-domain cybersecurity challenges to the security of the Digital Single Market. [2]	
Legal structure	Consortium (research-based consortium)	
Partnerships	The four pilot projects bring together over 160 partners (11 research organizations, 34 public bodies and others, 57 private for profit entities, 61 higher or secondary education establishment) including large companies, SMEs, universities and cybersecurity research institutes, from 25 EU Member States and 5 extra-EU Member States. [2]	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
Academia-led	Yes	

	Industry-led	No
	Government-led	No
	Other	No
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	No
	International scope	Yes
	Structure	
	Description of government and management structure	Each project is research-based consortium. CyberSec4Europe is a research-based consortium with 44 participants covering 21 EU Member States and Associated Countries.[11] Cybersecurity Competence Community: Members of the Community should participate in working groups established by the Competence Centre (e.g. on specific cybersecurity domains or on specific application areas such as energy, health, transport). Financial support to collaborative projects on such topics should be allocated following a competitive process based on scientific excellence and industrial and policy relevance. Consortia should typically include all relevant actors of the value chain (from competence centres to supply industry and user (private, public) side).[14]
Business Model And Business Plan	External supporting funding	The projects CONCORDIA, ECHO, SPARTA and CyberSec4Europe have received funding from the European Union's Horizon 2020 programme under the grant agreement numbers 830927, 830943, 830892 and 830929 respectively. [8]
	Co-financing	
	Financial resources	over 63.5 MEUR
	Physical resources	
	Budget holder	
	Other relevant information	
Portfolio of Services	Brief description	The four projects provides different services such as Broadcast and webinars (CyberSec4Europe Insights [9-10]); Workshops, Courses and trainings for professionals (CONCORDIA); Study programs and Curricula Designer (SPARTA); ECHO (coming soon).
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	No

	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	No
	Other	No
	Workflows	
	 <p>Figure 1: EU Regulation Proposal 2018/0328 draft governance structure overview</p>	
	[7]	


Cybersecurity Horizon 2020 pilot projects

to prepare a European Cybersecurity Competence Network
& contribute to the European cybersecurity industrial strategy

More than **€63.5 million** invested in **4 projects**

 <p>Partners: 46 EU Member States involved: 14</p> <p>Key words SME & startup ecosystem Ecosystem for education Socio-economic aspects of security Virtual labs and services Threat Intelligence for Europe DDoS Clearing House for Europe AI for cybersecurity Post-Quantum cryptography</p>	 <p>Partners: 43 EU Member States involved: 20</p> <p>Key words Cybersecurity for citizens Application cases Research Governance Cyber Range Cybersecurity certification Training in security</p>	 <p>Partners: 30 EU Member States involved: 15</p> <p>Key words Network of Cybersecurity centres Cyber Range Cybersecurity demonstration cases Cyber-skills Framework Cybersecurity certification Cybersecurity early warning</p>	 <p>Partners: 44 EU Member States involved: 14</p> <p>Key words Research Governance Cybersecurity skills Cybersecurity certification Community engagement International cooperation Strategic Autonomy</p>
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[8]



Establishing and operating a pilot for a European Cybersecurity Competence Network and developing a common European Cybersecurity Research & Innovation Roadmap.



BUILD A MORE SECURE DIGITAL EUROPE



Telecommunications eHealth Transportation Finance Smart Cities Energy Defence

The projects CONCORDIA, ECHO, SPARTA and CyberSec4Europe have received funding from the European Union's Horizon 2020 programme under the grant agreement numbers 830927, 830943, 830892 and 830929 respectively.

[1]

Engagement practices and promotion strategy

Public Conferences and Webinars, Social Media

Audience/target groups	Research institutions, companies and actors from the public sector. [4], industry and research communities ; Member States.
Networks of stakeholders	<p>>> Cybersecurity Competence Community: this community consists of cybersecurity stakeholders, such as research institutions, companies and actors from the public sector. Members of the Community will share information with the Competence Centre, which will become a focal point of their activities.</p> <p>>> Network of National Coordination Centres: Each Member State will nominate one National Coordination Centre, which will serve as a contact point between the members of the Community and the Competence Centre. The National Coordination Centres will also facilitate participation in cross-border projects, and create synergies with activities at national and regional level.</p> <p>>> The European Cybersecurity Industrial, Technology and Research Competence Centre: this centre will coordinate the Network and support the Community by providing common access to cybersecurity expertise. Governed by representatives from Member States and the European Commission, it will play a key role in executing the Digital Europe and Horizon Europe programmes.[4bis]</p>
Coordination with other similar entities / Ecosystem / Hubs	Each of the four projects share information and collaborate with projects on related topics (e.g.. [general] cyberwatching.eu (“The European watch on cybersecurity & privacy”) [5].
Use of Platform/digital infrastructure	The Cybersecurity Atlas: The Cybersecurity Atlas is a knowledge management platform that maps, categorises, visualises, and analyses information on cybersecurity expertise in Europe. Its goal is to foster the collaboration between European cybersecurity experts in support of the EU Digital Strategy. (https://cybersecurity-atlas.ec.europa.eu) THE PLATFORM provides several tools and services (e.g. Competency map: shows the location of EU cybersecurity research institutions (different types of cybersecurity entities in the different countries and the corresponding knowledge domains); Cybersecurity Taxonomy. [4]
Steps to setting up/launch of the CC, KC or similar entity	February - 29 May 2018 - the Commission launched a call for proposals under the H2020 Work Programme to pilot the creation of efficient networks of competence centres across the EU, able to jointly respond to cybersecurity industrial challenges. The learnings from the projects, will inform the process of creating the future Network and Competence Centre [6]; The network consisting of the four winning pilot projects of the 2018 Horizon 2020 cybersecurity call.
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Focus groups structure; Dissemination/Promotion strategy (Webinars, Broadcasts); Networking.
References	<p>[1] https://cybersec4europe.eu/about/</p> <p>[2] https://cybercompetencenetwork.eu/about/</p> <p>[3] https://cybersec4europe.eu/events/convergence/ - Focus Groups</p> <p>[4] https://cybercompetencenetwork.eu/the-cybersecurity-atlas/</p> <p>[4bis] https://cybersecurity-atlas.ec.europa.eu/about</p> <p>[5] https://cybersec4europe.eu/our-community/related-projects/</p> <p>[6] https://digital-strategy.ec.europa.eu/en/library/proposal-regulation-establishing-european-cybersecurity-industrial-technology-and-research</p> <p>[7] https://cybersec4europe.eu/wp-content/uploads/2020/02/D2.1-Governance-Structure-final-Submitted.pdf</p> <p>[8] https://www.cyberwatching.eu/news-events/news/four-eu-pilot-projects-launched-prepare-european-cybersecurity-competence-network</p> <p>[9] https://cybersec4europe.eu/events/broadcasts-and-webinars/</p> <p>[10] https://cybersec4europe.eu/events/convergence/</p>

6.2 EuroCC project - National Competence Centre (NCC)		
Field	High Performance Computing	
Type	UE-mixed	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://www.eurocc-access.eu/the-projects/	
Site	both physical and digital	
Headquarters (if applicable)	High-Performance Computing Center Stuttgart (HLRS)	
Year of foundation	The Euro CC project started on 1st September 2020	
Main focus	High Performance Computing, High Performance Data Analytics and artificial intelligence	
Operational areas / thematic departments		
Mission and Strategy	Within the EuroCC project under the European Union's Horizon 2020 (H2020), participating countries are tasked with establishing a single National Competence Centre (NCC) in the area of high-performance computing (HPC) in their respective countries. These NCCs will coordinate activities in all HPC-related fields at the national level and serve as a contact point for customers from industry, science, (future) HPC experts, and the general public alike.	
Value proposition	Euro CC is a project that aims to elevate the participating countries to a common high level in the fields of HPC, HPDA and artificial intelligence (AI). To this end, the EuroCC project will establish National Competence Centres (NCCs) in the participating countries, which will be responsible for surveying and documenting the core HPC, HPDA, and AI activities and competencies in their respective countries. Ultimately, the goal is to make HPC available to different users from science, industry, public administration, and society.	
Legal structure	Consortium	
Partnerships	CASTIEL (CSA project): Universität Stuttgart (USTUTT) and Gauss Centre for Supercomputing e.V. (GCS) GERMANY, Consorzio Interuniversitario (CINECA) ITALY, TERATEC FRANCE (TERATEC), Barcelona Supercomputing Center – Centro Nacional De Supercomputación (BSC) SPAIN, Partnership for Advanced Computing in Europe AISBL (PRACE) BELGIUM	
Government And Management Structure	Governance	
	Private	No
	Public	
	Joint Venture	
	Network	
	Public/Private	Yes
	Other	Consortium
	Ownership	
	Academia-led	Yes
	Industry-led	Yes
	Government-led	Yes
	Other	partners: Universität Stuttgart (USTUTT) and Gauss Centre for Supercomputing e.V. (GCS) GERMANY, Consorzio Interuniversitario (CINECA) ITALY, TERATEC FRANCE (TERATEC), Barcelona Supercomputing Center – Centro Nacional De Supercomputación (BSC) SPAIN, Partnership for Advanced Computing in Europe AISBL (PRACE)

		BELGIUM
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management structure	There are three bodies in the EuroHPC Joint Undertaking: Governing Board (composed of representatives of the EU and Participating States), Executive Director, Industrial and Scientific Advisory Board (consists of the Research and Innovation Advisory Group (RIAG) and the Infrastructure Advisory Group (INFRAG))
Business Model And Business Plan	External supporting funding	50% H2020 funding (for 2 years), 50% from the 33 participating countries
	Co-financing	
	Financial resources	
	Physical resources	
	Budget holder	public
	Other relevant information	Starting on 1st September 2020, the project EuroCC will run for a 2-year period with a total budget of €57 million. Half of the budget comes from Horizon 2020. CASTIEL (Coordination and Support for National Competence Centres on a European Level) will also run for a 2-year period, from 1st September 2020, with an extra Horizon 2020 funding of €2 million. Funding from the European High Performance Computing Joint Undertaking (EuroHPC JU).
Portfolio of Services	Brief description	Coordination of HPC expertise at national level; access to European HPC opportunities for research and scientific users, public administration but also in different industrial sectors, delivering tailored solutions for a wide variety of users.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	No
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	

	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Not Applicable
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	The EuroCC activity will bring together the necessary expertise to set up a network of National Competence Centres in HPC across Europe in 31 participating, member and associated states, to provide a broad service portfolio tailored to the respective national needs of industry, academia and public administrations.
	Workflows	
Engagement practices and promotion strategy	Interaction addressed to external stakeholders (e.g. citizens, etc.) through public activities (e.g. workshops, surveys/questionnaires, laboratories, etc.)	
Audience/target groups	Research and Academia, industry and SMEs, HPC communities, general public, policy makers	
Networks of stakeholders	CC, KC or similar entities interconnected web of stakeholders (e.g. Cyberg Competence Network)	
Coordination with other similar entities / Ecosystem / Hubs	Coordination and Support Action (CSA) CASTIEL	
Use of Platform/digital infrastructure		
Steps to setting up/launch of the CC, KC or similar entity	The two projects EuroCC and CASTIEL have been selected following the call EuroHPC-04-2019. Starting on 1st September 2020, the project EuroCC will run for a 2-year period	
Possible link with the future CC on CH	Definition of CC; an EU coordination centre and national CCs	
Relevant services/activities/other useful per building our CC	<p>The Cyprus institute is a partner. CINECA is a partner. Definition of Competence Center according with EuroCC project: A National Competence Center is the reference and single point of contact and coordination on a national level for HPC. Its missions are to analyse, implement and coordinate all necessary activities and offers services to end users to cover their needs: from access to resources, from technological consultancy to the provision of training courses for academia, public administrations and industry. The aim is to bring together the necessary expertise to set up a cross-European network of NCCs in HPC-related topics with 31 participating members and associated states and to provide a broad service portfolio</p>	

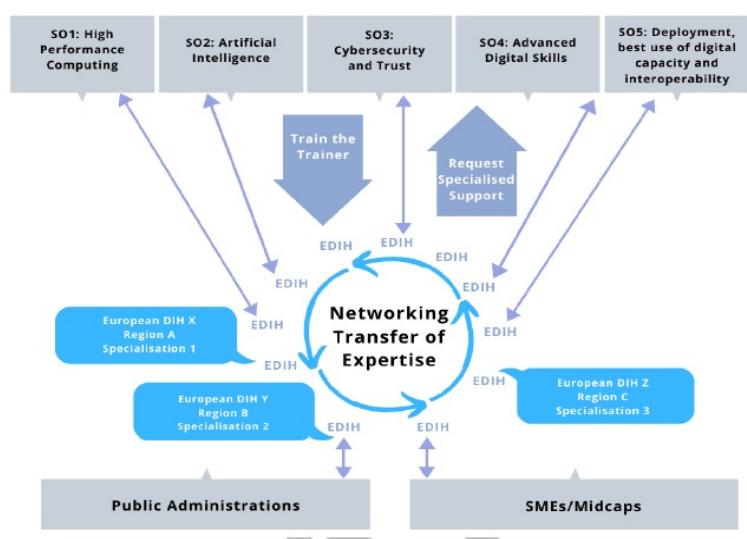
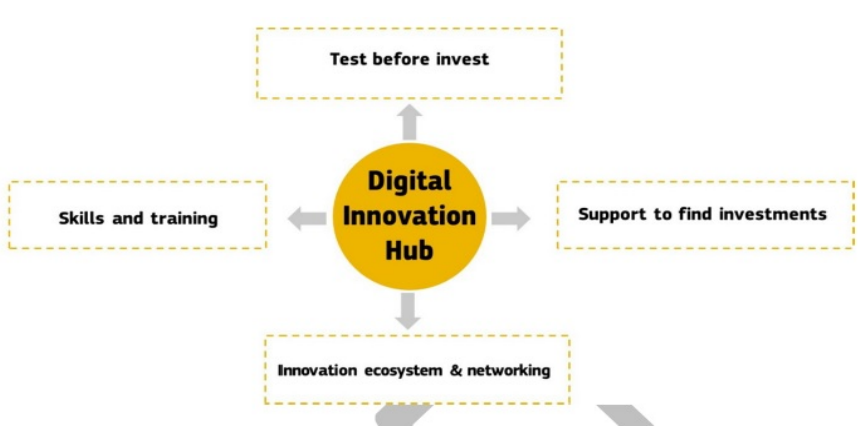
	tailored to the respective national needs of academia, public administrations and industry. Each NCC has a presentation page with their skills and contact information.
References	https://cordis.europa.eu/project/id/951740 ; https://eurohpc-ju.europa.eu/ ; https://digital-strategy.ec.europa.eu/en/news/eurocc-and-castiel-two-new-projects-boost-european-hpc-knowledge-and-opportunities .

7 Digital Innovation Hubs

7.1 Digital Innovation Hubs (DIHs)

7.1 Digital Innovation Hubs (DIHs)		
Field	Innovation	
Type	National UE - mixed (participation of public and private entities)	
Country (Europe)	European (Continent) Country of affiliation	
Country (Extra-Europe)	Extra-European (Continent) Country of affiliation	
Partner (responsible)	09. UNIBO	
Website	https://ec.europa.eu/digital-single-market/en/digital-innovation-hubs-dihs-europe	
Site	Both physical and digital	
Headquarters (if applicable)	CC, KC or similar entity headquarters (e.g. EU Cybersecurity CC > Bucharest, Romania)	
Year of foundation	Ongoing; foreseen for 2021	
Main focus	Digital Innovation	
Operational areas / thematic departments		
Mission and Strategy	Digital transformation of the economy and society. EDIHs will function as one-stop shops that help companies dynamically respond to the digital challenges and become more competitive. By providing access to technical expertise and experimentation as well as the possibility to “test before invest”, EDIHs help companies improve business/production processes, products, or services using digital technologies. They also provide innovation services, such as financing advice, training, and skills development that are needed for a successful digital transformation. Environmental issues are also taken into account, in particular with regard to energy consumption and low carbon emissions.	
Value proposition	EDIH are single organisation or a coordinated group of organisations with complementary expertise, with a not-for-profit objective that support companies – especially SMEs and mid-caps – and/or the public sector in their digital transformation	
Legal structure	Consortium	
Partnerships		
Government And Management Structure	Governance	
	Private	Not Applicable
	Public	Not Applicable
	Joint Venture	Not Applicable
	Network	Not Applicable
	Public/Private	Not Applicable
	Other	Each consortium can have a different governance according with the members features
	Ownership	
	Academia-led	Not Applicable
	Industry-led	Not Applicable
	Government-led	Not Applicable
	Other	Public/Private (Each consortium can have a different ownership according with the members features).
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
National scope	Yes	
International scope	Yes	

	Structure	
	Description of government and management structure	EDIHs are free to define their organisation, composition, and governance structure
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	% of co-financing from public or private entities
	Financial resources	Main revenue stream: EU funds
	Physical resources	Spaces, licences, etc.
	Budget holder	National, private, public-private, etc.
	Other relevant information	EU funding will be made available for hubs that are already (or will be) supported by their Member States (or regions), in order to increase the impact of public funding. The beneficiaries should declare that for the activities covered by the grant they apply a not-for-profit objective, i.e. all money earned by them or donated to them is used in pursuing the EDIH's objectives and keeping it running.
Portfolio of Services	Brief description	Information services (e.g. participation to events) "Test before invest" activities allowing beneficiaries to test technologies; Access to finance; Training activities; Networking activities. Each EDIH will provide services based on a specific focus/expertise, which will support the local private and public sector with their digital and green transformation.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	
	Commercial Infrastructure	
	Incubator / accelerator support	Yes

	Testing and validation	Yes
	Market intelligence	Yes
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	
	Access to specific technologies and equipment	Yes
	Data collection and integration	
	Other	
	Workflows	
	 <p><i>Figure 6. Schematic overview of the role of EDIHs in Digital Europe Programme.</i></p> 	
Engagement practices and promotion strategy	Interaction addressed to external stakeholders (e.g. citizens, etc.) through public activities (e.g. workshops, surveys/questionnaires, laboratories, etc.)	

Audience/target groups	Regional authorities, industrial clusters, SME associations, business development agencies, incubators, accelerators, EEN, EIT Co-location Centres, and chambers of commerce.
Networks of stakeholders	Regional authorities, industrial clusters, SME associations, business development agencies, incubators, accelerators, EEN, EIT Co-location Centres, and chambers of commerce. The knowledge transfer in Digital Europe Programme and the networking of the EDIHs will be supported through a central node called “Digital Transformation Accelerator”.
Coordination with other similar entities / Ecosystem / Hubs	Other EDIHs; Enterprise Europe Network (EEN; the world’s largest support network for small and medium sized enterprises)
Use of Platform/digital infrastructure	
Steps to setting up/launch of the CC, KC or similar entity	The initial network of EDIHs will be established from a list of hubs designated by Member States. The European Commission will launch an expression of interest for Member States to designate their candidate hubs. Each Member State shall designate, in accordance with their national procedures, administrative and institutional structures, candidate entities through an open and competitive process. A first restricted call for EDIHs is expected to be launched at the end of May 2021, to enable selected EDIHs to start their operation early in 2022.
Possible link with the future CC on CH	Relations concerning common topics that can be activated
Relevant services/activities/other useful per building our CC	EDIHs are one-stop shops that help companies become more competitive with regard to their business/production processes, products or services using digital technologies, by providing access to technical expertise and experimentation, so that companies can “test before invest”. They also provide innovation services, such as financing advice, training and skills development that are needed for a successful digital transformation. European Digital Innovation Hubs will have both local and European functions. EU funding will be made available for hubs that are already (or will be) supported by their Member States (or regions), so as to increase the impact of public funding.
References	European Digital Innovation Hubs in Digital Europe Programme Draft working document 25 01 2021; Frequently Asked Questions European Digital Innovation Hubs

8 Documentation Centres on Cultural Heritage

- 8.1 Europeana
- 8.2 France Archive
- 8.3 CulturalItalia
- 8.4 General Catalogue of Cultural Properties (Italy)
- 8.5 Institute for Cataloguing and Documentation (ICCD)
- 8.6 Central Institute for the Union Catalogue of Italian libraries and for bibliographic information (ICCU)
- 8.7 Archaeology Data Service
- 8.8 Digital Public Library of America
- 8.9 MUSEU – HUB
- 8.10 La Plateforme Ouverte du Patrimoine (POP)
- 8.11 Connecting Archaeology and Architecture in Europe (CARARE)

8.1 Europeana	
Field	Cultural Heritage
Type	National UE - other (NGO, etc.)
Country (Europe)	Netherlands
Country (Extra-Europe)	Not Applicable
Partner (responsible)	09. UNIBO and 14. ICCU
Website	https://pro.europeana.eu
Site	both physical and digital
Headquarters (if applicable)	Prins Willem-Alexanderhof 5, 2595 BE Den Haag, Netherlands
Year of foundation	2008
Main focus	As the European Union's digital platform for cultural heritage, Europeana main focus is the digital transformation of cultural heritage sector.
Operational areas / thematic departments	Europeana is made possible by the collaboration of three interlinked expert organisations (Europeana Foundation, Europeana Network Association, Aggregators Forum) that share the vision of a cultural heritage sector transformed by digital, and a Europe transformed by culture. This ecosystem is called the Europeana Initiative.
Mission and Strategy	Europeana empowers the cultural heritage sector in its digital transformation. It aims to provide the full benefits of the technological revolution in digital services for culture, and develops expertise, tools and policies to embrace digital change and encourage partnerships that foster innovation. Europeana makes it easier for people to use cultural heritage for education, research, creation and recreation. Its work contributes to an open, knowledgeable and creative society. Europeana imagines a cultural heritage sector powered by digital and a Europe powered by culture, giving it a resilient, growing economy, increased employment, improved well-being and a sense of European identity.
Value proposition	For Europeana, access to cultural heritage leads to positive social and economic change, and digital technology can support and accelerate that change. That does not simply mean applying technology. It means applying it with serious consideration in line with a set of core values that are deeply ingrained throughout the organisation. Europeana value proposition regards: usable (Europeana provides the impetus, expertise and tools to support cultural heritage institutions in harnessing digital to open up their collections, to make them available to be used in new ways; content and technology need to be accessible; they need to be easy-to-use and open, otherwise, the reach of any social or economic impact will be limited); mutual (the Europeana Initiative is a networked organisation, a partnership of connected bodies and cultural heritage professionals; Europeana fosters creative collaboration and teamwork, working towards common goals for mutual benefit; innovation needs to be community-based and reciprocal, combining the best of sector knowledge and practices); reliable (Europeana supports the cultural heritage institutions that safeguard Europe's heritage, those who organise it, structure it and make it accessible with great care and precision; Europeana is committed to ensuring that its digital data is always authentic, trustworthy and robust, that it's easy to create with and that partners benefit from sharing it).
Legal structure	Non-profit Organisation
Partnerships	Europeana is interested in building partnerships around new ideas and technologies that encourage audiences to engage with their cultural heritage. It is open to relationships in all forms and work with diverse organisations, including non-profit, corporate and government. At the moment, Strategic Partnerships are with the Time Machine Organisation, ViMMPlus, Europeana China and The RightsStatements.org Consortium; Education Partnerships are with European Schoolnet and EuroClio; Research Partnerships are with CLARIN and DARIAH. A new partnership is with the Khalili Collections.

Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	Non-profit
	Ownership	
	Academia-led	Not Applicable
	Industry-led	Not Applicable
	Government-led	Not Applicable
	Other	European Union
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	No
International scope	Yes	
Structure		
Description of government and management structure	General Director; Supervisory Board (Supervisory Board Chair, Supervisory Board Vice-Chair, Supervisory Board members); Advisory Board members.	
Business Model And Business Plan	External supporting funding	EU funding (contribution of the European Union Member States)
	Co-financing	Connecting Europe Facility of the European Union
	Financial resources	Budget 2021 total income: 6.129.700 € - Budget 2021 total costs: 6.586.800 € - Result (covered from the appropriate reserve DSI-4): 457.100 €
	Physical resources	Europeana spaces
	Budget holder	European Commission
	Other relevant information	
Portfolio of Services	Brief description	Building Digital Capacity; Education; Online access to a vast store of cultural heritage material; Impact Playbook, inspiration, practical resources and a community to help develop and refine impact practice; Research; International consortium providing standardised rights statements to the cultural heritage sector; Webinars; Tools, resources and inspiring examples of how the cultural heritage sector is responding to the challenge of COVID-19.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Yes
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative	Yes

	research	
	Visioning and strategy development	Yes
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	Not Applicable
	Commercial Infrastructure	...
	Incubator / accelerator support	...
	Testing and validation	...
	Market intelligence	...
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	No
	Workflows	
Engagement practices and promotion strategy	Europeana organises, attends and highlights a number of events throughout the year, such as conferences, webinar series, masterclasses, festivals and training programmes.	
Audience/target groups	Europeana delivers networked cross-border services for citizens, businesses and public administrations.	
Networks of stakeholders	Europeana stakeholders are cultural heritage institutions that want to make it easier to share their collections online effectively, to improve the quality of shared data and content, and to empower to build their capacity for digital transformation. Europeana network of stakeholders is composed also of professionals and educational for whom it provides training tools and guidelines.	
Coordination with other similar entities / Ecosystem / Hubs	Europeana is coordinated with European Schoolnet for promoting innovative learning with digital cultural heritage.	
Use of Platform/digital infrastructure	Europeana website; Facebook, Instagram, Twitter and LinkedIn pages; GitHub; Europeana Classroom; Teaching with Europeana blog.	
Steps to setting up/launch of the CC, KC or similar entity	In 2005, a letter signed by French President Jacques Chirac and five other heads of state asked European Union officials to support the development of a European digital library. The Europeana prototype went live in 2008. Museums, audio-visual archives and galleries joined the libraries, creating a common access point to Europe's cultural heritage. At launch, Europeana gave access to 4.5 million digital	

	<p>objects. In 2011, the European Commission released its 'New Renaissance' report which endorsed Europeana as 'the central reference report for Europe's online cultural heritage'. A huge milestone followed in 2012 when, in the first move of its kind, Europeana metadata was released under the terms of the Creative Commons CC0 1.0 Universal Public Domain Dedication, making the metadata itself freely available for any kind of use, boosting opportunities for digital innovation and creativity. In 2015, Europeana became one of the European Commission's Digital Service Infrastructures. As of early 2020, Europeana Collections provides access to 58 million digital objects - books, music, artworks and more - with sophisticated search and filter tools, and many themed collections, exhibitions, galleries and blogs.</p>
Possible link with the future CC on CH	Digital transformation of cultural heritage sector.
Relevant services/activities/other useful per building our CC	Digital and democratic access to cultural heritage; information, guidance and resources to enrich and inspire cultural heritage practices.
References	https://pro.europeana.eu ; https://www.europeana.eu/en/europeana-classroom ; https://teachwitheuropeana.eun.org .

8.2 France Archive		
Field	Cultural heritage promotion	
Type	National UE - public	
Country (Europe)	France	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://francearchives.fr	
Site	only digital	
Headquarters (if applicable)	Paris, France (Ministère de la Culture + Service interministériel des Archives de France)	
Year of foundation	I cannot find the date where this specific service started. The National Archives are created after the French Revolution in 1790. The oldest date I found in publication of information is around 2008.	
Main focus	Create links between archive documents and citizens. The FranceArchives portal helps people in creating researches on institutional archives. Part of the material (documents, etc) are visible inside the website but they are references to the different archives departments. The service in fact is not about digitalization of the CH but more about allowing access to them.	
Operational areas / thematic departments	Culture department	
Mission and Strategy	The Mission is to allow people to access institutional documents in a simple and understandable way. The basis on which the strategy is grounded is that institutional archives are wide and spread and that it can be very hard to find the right document or piece of information in this ocean of materials. The portal aims to help people in finding the needed document, being this for administrative need of just for curiosity purposes. They suggest paths, strategies and they provide guidelines according with common paths (e.g. genealogic research, etc).	
Value proposition	To create a link between all the national archives (divided in the different departments, etc) with people	
Legal structure	Non-profit Organisation	
Partnerships	States, Territorial Institutions (Territorial Archives), private (some private archives are also included)	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	Not Applicable
	Network	No
	Public/Private	No
	Other	...
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	...
	Scope/area of impact	
	Local scope	No
	Regional scope	No
National scope	Yes. The scope is mainly national but for the nature of the CH	

		itself (documents) it is possible to recognise also Regional and Local scope as well (as secondary - indirect scopes)
	International scope	No
	Structure	
	Description of government and management structure	Government led service with a public governance led by three different Ministries (inter-ministerial approach). Service interministériel des Archives de France (SIAF) - Main management body for the platform and the services inside Ministère de la Culture / Ministère des Armées /Ministère de l'Europe et des Affaires étrangères - they are the 3 public bodies responsible and referent for the activity at the national level Archives inside the territory - all the archives where the material (both physical and digital are collected) - the list is available here: https://francearchives.fr/en/services
Business Model And Business Plan	External supporting funding	Sponsorships, EU funding, etc.
	Co-financing	% of co-financing from public or private entities
	Financial resources	Main revenue streams, e.g. patents, service provisions, etc.
	Physical resources	Spaces, licences, etc.
	Budget holder	National, private, public-private, etc.
	Other relevant information	
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	No
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	No
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and	No

	validation	
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	
	Coworking areas or spaces	Not Applicable
	Access to specific technologies and equipment	No
	Data collection and integration	No
	Other	
	Workflows	
Engagement practices and promotion strategy	The practices of engagement and promotion are addressed mainly to the wide public with two main targets: citizens (in general, needed materials for private purposes) and people working in educational fields (thus needing materials for educational purposes). The service has several instruments to reach them: 1)publication of guidelines, in the form of "How to", helping people to find materials; 2)publication of reports on the use of the service; 3)promotion within Europe and outside in the scientific field of archivists and archive science of the service as a best practice in Europe (e.g. Séminaire annuel des Archives de France). They also provide instructions and support for archivists.	
Audience/target groups	Mainly citizens but also professors, schools, other archivists (technical professional in the archive science field)	
Networks of stakeholders	CC, KC or similar entities interconnected web of stakeholders (e.g. Cyberg Competence Network)	
Coordination with other similar entities / Ecosystem / Hubs	Coordination and promotion within Europe mainly through the following: Archives Portal Europe (https://www.archivesportaleurope.net/) - which is a EU funded project in 2012; Le Conseil international des Archives (ICA + EURBICA); Le Portail international archivistique francophone (PIAF); Association Archivistes Sans Frontières; Groupe Européen des Archives (AEG)	
Use of Platform/digital infrastructure	Data sharing platform	
Steps to setting up/launch of the CC, KC or similar entity		
Possible link with the future CC on CH	I personally find interesting the approach of not collecting inside the service all the digital materials, but just link to external providers. This is a way to give people access to more materials, without the need to collect everything in one place. Also their approach on guiding step-by-step people in finding what they need is very interesting, especially for types of CH very difficult to manage and understand	
Relevant services/activities/other useful per building our CC	This knowledge centre gives access to the wide public to relevant documents contained in several national archives. It helps people find the document they need, it provides useful guidelines to be followed step-by-step (e.g. the case of finding your genealogy) and provides relevant materials in sets for educational purposes (e.g. sets related to the World Wars).	
References	Mainly the website and the site of the Ministry for Cultural Affair.	

8.3 Culturalitalia		
Field	Cultural Heritage	
Type	National	
Country (Europe)	Italy	
Country (Extra-Europe)	N/A	
Partner (responsible)	14. ICCU	
Website	http://www.culturalitalia.it	
Site	Only digital (Web site portal)	
Headquarters (if applicable)	ICCU, Rome, Italy	
Year of foundation	2008	
Main focus	Digital Cultural Heritage aggregation	
Operational areas / thematic departments	Digital Cultural Heritage & European Project office	
Mission and Strategy	Culturalitalia proposes a guided access to the world of Italian culture. The portal gathers and organises millions of informational elements on the resources that make up the country's vast cultural universe, and place them at the disposal of web users at large. In order to reach its goal, Culturalitalia aggregates metadata from Cultural Heritage Institutions (CHIs), transforming them in the PICO application profile. Then, Culturalitalia makes available the information gathered via front-end portal, OAI-PMH repository and SPARQL end point.	
Value proposition	Data interoperability; re-use of digital collections of libraries, museums and archives; participation to Research Infrastructures in the Digital Humanities & Cultural heritage sectors	
Legal structure	Public body (Governmental organization)	
Partnerships	Institutions, Libraries, Museums, Archives, Public bodies	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	Yes
Structure		
Description of government and management structure	Project manager: Simonetta Buttò; Project and Technical coordinator: Antonio Davide Madonna; technical staff: Flavia Massara; Editorial manager: Anna Conticello; editorial staff: Georgia Garritano; administrative office Andrea Tempera,	

		secretary Sara Moretto.
Business Model And Business Plan	External supporting funding	N/A
	Co-financing	100 % Public
	Financial resources	N/A
	Physical resources	N/A
	Budget holder	National
	Other relevant information	N/A
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	No
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	Yes
	Training and skills development	No
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	No
Data collection and integration		

	Other	
	Workflows	
Engagement practices and promotion strategy	Workshops to engage content providers	
Audience/target groups	public institutions, researchers	
Networks of stakeholders	NEMO Association, Michael Association, IFLA, AIB, ANAI, Museum-IT	
Coordination with other similar entities / Ecosystem / Hubs	Europeana, DARIAH-IT, ARIADNE, Beniculturali.data.it	
Use of Platform/digital infrastructure	data sharing platform	
Steps to setting up/launch of the CC, KC or similar entity	Workshops, surveys, webinars, training	
Possible link with the future CC on CH	Standard on digitisation, interoperability, users engagement, training and events	
Relevant services/activities/other useful per building our CC	Data provider, ingestion, metadata enrichment, training and communication / dissemination.	
References	http://www.culturaitalia.it/	

8.4 General Catalogue of Cultural Properties (Italy)		
Field	Cataloguing the cultural heritage	
Type	The Central Institute for Cataloguing and Documentation (ICCD) is a National Central Institute of the Italian Ministry of Culture	
Country (Europe)	Italy	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	ICCU	
Website	https://catalogo.beniculturali.it/	
Site	Both physical and digital	
Headquarters (if applicable)	Via di San Michele, 18 - 00153 Roma. tel. 06 67235220 - fax 06 58332313. iccd@beniculturali.it.	
Year of foundation	1975	
Main focus	The purpose of cataloguing is to identify and describe cultural assets that are recognised as being of artistic, historical, archaeological or ethno-anthropological interest. Cataloguing activities are carried out by the State with the assistance of the regions and other territorial authorities.	
Operational areas / thematic departments	Quality of the General Catalogue; Quality of Catalographic Standards; Quality of Cataloguing Processes Cataloguing Observatory; Digitisation of Cultural Heritage - Digital Library: Catalogue records archive	
Mission and Strategy	The General Catalogue of Cultural Heritage collects the results of cataloguing activities, with the goal to protect and enhance cultural assets by providing knowledge of them in their context.	
Value proposition	Cataloguing, as public service, is an necessary tool to get the proper knowledge of cultural heritage and to lay the foundation for heritage safeguarding and for conservative interventions.	
Legal structure	Public body	
Partnerships	Italian Regions; Catholic Church, International projects on cataloguing CH	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	Na
	Network	Na
	Public/Private	Na
	Other	
	Ownership	
	Academia-led	No
	Industry-led	Na
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	No
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management	ICCD Director: Arch. Carlo Birrozzi (Carlo.Birrozzi@beniculturali.it) Quality of the General Catalogue

	structure	Coordinator: Antonella Negri (antonella.negri@beniculturali.it) Quality of Catalographic Standards Coordinator: Maria Letizia Mancinelli (marialetizia.mancinelli@beniculturali.it) Quality of Cataloguing Processes Coordinator: Barbara Barbaro (barbara.barbaro@beniculturali.it) Cataloguing Observatory ic-cd.osservatorio@beniculturali.it Coordinator: Elena Plances (elena.plances@beniculturali.it) Digitisation of Cultural Heritage - Digital Library Coordinator: Chiara Veninata (chiara.veninata@beniculturali.it) Catalogue records archive ic-cd.catalogazione@beniculturali.it
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	Not Applicable
	Financial resources	Not Applicable
	Physical resources	Not Applicable
	Budget holder	Public
	Other relevant information	
Portfolio of Services	Brief description	Sigec Web, a web-based platform that manages the entire flow of cataloguing from the production and diffusion of cataloguing standards, to the assignment of unique cataloguing code to the cataloguing assets (archaeological, architectural and landscape, demo-etno-anthropological protographic, musical, naturalistic, numismatic, scientific and technological, historical and artistic) to the publication of cataloguing sheets for the use on the site of the general catalogue of cultural heritage. All data produced by SIGECweb are published in linked open data and they are then published in https://catalogo.beniculturali.it
	Consultancy and orientation	
	Consultancy and orientation	Not Applicable
	Access to financing services	Not Applicable
	Scouting and ecosystem building	Not Applicable
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	

	Competitive mass production	Not Applicable
	Commercial Infrastructure	Not Applicable
	Incubator / accelerator support	Not Applicable
	Testing and validation	Not Applicable
	Market intelligence	Not Applicable
	Prototyping validation	Not Applicable
	Others	
	Digital maturity assessment	Not Applicable
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Training courses, museum exhibition, hackathons, workshops. The General Catalogue portal is integrated with crowdsourcing tools that allow engagement with registered user for the enrichment of heritage data through OLAF (Open Linked Authority File). It is an interface that allows the authors of works in the General Catalogue of Cultural Heritage to be associated with the entities present on Wikidata and in other sources of the Linked Open Data cloud connected to Wikidata (Wikidata acts as a "sorter", for example towards VIAF - Virtual International Authority File or the Getty's ULAN, or the Treccani Biographical Dictionary, the Encyclopaedia Treccani, the main national libraries, the Smithsonian etc.).	
Audience/target groups	Public Institutions, Researchers and scholars, Start-ups, experts from cultural heritage institutions	
Networks of stakeholders	ICCROM, CNR, Catholic Church, Valdese Church	
Coordination with other similar entities / Ecosystem / Hubs	CulturalItalia, Cultural Heritage of the Catholic Church and Valdese Church	
Use of Platform/digital infrastructure	https://catalogo.beniculturali.it/	
Steps to setting up/launch of the CC, KC or similar entity	Workshops with stakeholders; crowdsourcing initiatives	
Possible link with the future CC on CH	Metadata descriptions of cultural heritage assets; data exchange; training activities; repository for 3D resources	
Relevant services/activities/other useful per building our CC	Data exchange for preservation purposes. Training activities is also another field of possible collaboration.	
References	The ICCD web site http://www.iccd.beniculturali.it/internationaltrainingprojects/index.html	

8.5 Institute for Cataloguing and Documentation (ICCD)		
Field	ICCD is active in research and develop knowledge methods and instruments for cataloguing the Italian archaeological, architectural, artistic and demo-ethno-anthropological heritage-	
Type	The Central Institute for Cataloguing and Documentation (ICCD) is a National Central Institute of the Italian Ministry of Culture	
Country (Europe)	Italy	
Country (Extra-Europe)	NA	
Partner (responsible)	14. ICCU	
Website	http://www.iccd.beniculturali.it/	
Site	NA	
Headquarters (if applicable)	Via di San Michele, 18 - 00153 Roma. tel. 06 67235220 - fax 06 58332313. iccd@beniculturali.it.	
Year of foundation	1975	
Main focus	Research, development and definition of cataloguing standards for the different types of cultural heritage	
Operational areas / thematic departments	National Photo Library, library, museum, heritage protection, quality of cataloguing, cataloguing observatory, digitisation of heritage, training and international cooperation.	
Mission and Strategy	A core mission of the Central Institute for Cataloguing and Documentation (ICCD) is to research and develop knowledge methods and instruments for the proper management and preservation of cultural heritage. ICCD manages Italy's national catalogue of archaeological, architectural, artistic, scientific, photographic and demo-ethno-anthropological heritage. It encourages the international cultural exchange trough an educational offer in the field of the cultural heritage's preservation.	
Value proposition	Cataloguing, as public service, is an necessary tool to get the proper knowledge of cultural heritage and to lay the foundation for heritage safeguarding and for conservative interventions. ICCD define and disseminate standard and interoperability among the different catalogues; creation of open data and LOD.	
Legal structure	Public body	
Partnerships	Italian Regions; Catholic Church, Universities, CNR, International projects on cataloguing CH	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	N/A
	Network	N/A
	Public/Private	N/A
	Other	
	Ownership	
	Academia-led	No
	Industry-led	N/A
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	No
	Regional scope	Yes
National scope	Yes	

	International scope	Yes
	Structure	
	Description of government and management structure	Director: Arch. Carlo Birrozzi (Carlo.Birrozzi@beniculturali.it) Cataloguing Area Coordinator: Chiara Veninata (chiara.veninata@beniculturali.it) Catalogue records archive ic-cd.catalogazione@beniculturali.it
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	N/A
	Financial resources	N/A
	Physical resources	N/A
	Budget holder	Public
	Other relevant information	
Portfolio of Services	Brief description	1) SiGECweb, a web-based platform that manages the entire flow of cataloguing from the production and diffusion of cataloguing standards, to the assignment of unique cataloguing code to the cataloguing assets (archaeological, architectural and landscape, demo-etno-anthropological protographic, musical, naturalistic, numismatic, scientific and technological, historical and artistic) to the publication of cataloguing sheets for the use on the site of the general catalogue of cultural heritage. 2) XDAMS , a web-based platform that manages the entire flow of describing ICCD and Superintendencies photographic archives.
	Consultancy and orientation	
	Consultancy and orientation	N/A
	Access to financing services	N/A
	Scouting and ecosystem building	N/A
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	N/A
	Commercial Infrastructure	N/A
	Incubator / accelerator support	N/A
	Testing and	N/A

	validation	
	Market intelligence	N/A
	Prototyping validation	N/A
	Others	
	Digital maturity assessment	N/A
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Training courses, museum exhibition, hackathons, workshops	
Audience/target groups	Public Institutions, Research Centres, Start-ups, Universities, Museums, Cultural and creative industries	
Networks of stakeholders	ICCROM, CNR	
Coordination with other similar entities / Ecosystem / Hubs	CulturalItalia, Cultural Heritage of the Catholic Church and the Valdese Church	
Use of Platform/digital infrastructure	Sigec web http://www.sigecweb.beniculturali.it/it.iccd.sigec.axweb.Main/ ; General catalogue https://catalogo.beniculturali.it/ ; Open data https://dati.beniculturali.it/	
Steps to setting up/launch of the CC, KC or similar entity	workshops with stakeholders	
Possible link with the future CC on CH	Metadata descriptions of cultural heritage assets; data exchange; training activities; research on 3D resources	
Relevant services/activities/other useful per building our CC	Standard and data exchange for preservation purposes. ICCD manages also 3D resources created by universities and other stakeholders: it could be possible to create standard for creating and archiving 3D and a repository for storage and re-use. Training activities is also another field of possible collaboration.	
References	The ICCD web site, http://www.iccd.beniculturali.it/	

8.6 Central Institute for the Union Catalogue of Italian libraries and for bibliographic information (ICCU)		
Field	Libraries and book heritage	
Type	National	
Country (Europe)	Italy	
Country (Extra-Europe)		
Partner (responsible)		
Website	https://www.iccu.sbn.it/	
Site	both physical and digital	
Headquarters (if applicable)	ICCU – Istituto Centrale per il Catalogo Unico delle biblioteche italiane e per le informazioni bibliografiche / Central Institute for the Union Catalogue of Italian libraries and for bibliographic information	
Year of foundation	1951	
Main focus	Cataloguing; management of the Union Catalogue of Italian libraries and of other databases; library services	
Operational areas / thematic departments	Dept. for the elaboration and diffusion of cataloguing and teaching standards and guidelines; Dept. for the development and coordination of the catalogue and the network of the National Library Service; Dept. for the access to bibliographic information and for the Database of Italian libraries; Dept. for the development of digitisation services and document retrieval; Dept. for the bibliography, cataloguing and census of ancient books; Dept. for the bibliography, cataloguing and census of manuscripts; Communication and Cultural Promotion Service; Administrative Service; Information and Communication Technology Office; Documentation Office for International Programs CDE/OPIB	
Mission and Strategy	cataloguing the entire national bibliographic heritage, improving the knowledge of bibliographic collections as well as simplifying user access	
Value proposition	cooperation; cataloguing standard dissemination; promotion of open source and open access policies; accountability and transparency	
Legal structure	Public body	
Partnerships	libraries of different types, including State and local authorities libraries, university libraries, ecclesiastical libraries and cultural institution libraries; ABES	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
International scope	Yes	
Structure		

	Description of government and management structure	Executive committee, Management committee, Audit committee, Director, Administration & Finance Manager, Heads of Departments
Business Model And Business Plan	External supporting funding	No
	Co-financing	No
	Financial resources	Public funds
	Physical resources	State offices and licences
	Budget holder	National
	Other relevant information	
Portfolio of Services	Brief description	ICCU is responsible for the promotion and coordination of the cataloguing of the book heritage held in public libraries through the National Library Service (SBN). It coordinates projects for the cataloguing, digitisation and long-term preservation of digital documents. It produces, translates and disseminates national guidelines and international standards for the cataloguing of several types of materials. It provides training and help for cataloguing through online resources, courses and internships.
	Consultancy and orientation	
	Consultancy and orientation	No
	Access to financing services	Not Applicable
	Scouting and ecosystem building	Not Applicable
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	Not Applicable
	Commercial Infrastructure	Not Applicable
	Incubator / accelerator support	Not Applicable
	Testing and validation	Yes
	Market intelligence	Not Applicable
	Prototyping validation	Not Applicable

	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Interaction addressed to library community and citizens, through surveys/questionnaires, webinars, classes, social networks, tutorials etc.	
Audience/target groups	Library community and citizens	
Networks of stakeholders	SBN - National Library Service	
Coordination with other similar entities / Ecosystem / Hubs	ICAR - Central Institute for the Archives (https://www.icar.beniculturali.it/); ICCD - Central Institute for Cataloguing and Documentation (http://www.iccd.beniculturali.it/)	
Use of Platform/digital infrastructure	service-oriented platforms, library data sharing platforms, social media platforms, media sharing platforms	
Steps to setting up/launch of the CC, KC or similar entity	ICCU provides training and help for cataloguing through its wiki page, courses and internships. An online blog for cataloguers is forthcoming	
Possible link with the future CC on CH	development of tutorials and guidelines on licences; storage and long-time preservation of digital content; creation of a standard for metadata shared internationally among different types of institutions	
Relevant services/activities/other useful per building our CC	Meeting and events on the topic listed above and on metadata and semantic web	
References	Institutional website	

8.7 Archaeology Data Service		
Field	Data management and storage	
Type	National UE - public	
Country (Europe)	United Kingdom	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	15. CARARE	
Website	https://archaeologydataservice.ac.uk/	
Site	only physical	
Headquarters (if applicable)	Archaeology Data Service, Department of Archaeology, University of York	
Year of foundation	1996	
Main focus	Long term preservation and access to heritage data	
Operational areas / thematic departments	Collections Development, Archives, Systems and Applications, Internet Archaeology, Administration	
Mission and Strategy	The ADS is the leading accredited digital repository for heritage data generated by UK-based fieldwork and research. Its core activity is the long-term digital preservation of the data entrusted to our care. To do this it follows a policy of active data management and curation. All resources archived with the ADS are Open Access and are delivered through our website to facilitate re-use by the heritage sector and wider community. The ADS is a world leader in promoting good practice in the use of digital data in archaeology, providing technical advice to the research community and taking the lead in a wide range of research projects. The ADS works within International e-infrastructure collaborations such as ARIADNE to explore new ways of connecting archives around the world, creating a genuinely global network for communication that cuts across traditional research boundaries.	
Value proposition	ADS is the only UK accredited digital repository in the UK for heritage data, with over 20 years of experience supporting research, learning and teaching with free, high quality and dependable digital resources.	
Legal structure	Non-profit Organisation	
Partnerships	ADS has partnerships with the AHRC, is an associate member of the Digital Preservation Coalition (DPC) and a founding member of the Bedern Group (an alliance of the key agencies concerned with the preservation of the intellectual record of the historic environment of the UK, the founding members comprise the Archaeology Data Service, English Heritage, the RCAHMS and RCAHMW). In addition to the members of the Bedern group, ADS has exchanged memorandum of understanding with the British Geological Survey, the Association of Local Government Archaeological Officers, the Council for British Archaeology, the Collections Trust and the National Trust.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	Yes
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	Yes
	Industry-led	Yes
	Government-led	No
	Other	The management committee includes key stakeholders, funders and user communities - some from academia and

		some from the 'industry' (i.e. heritage bodies)
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Not Applicable
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management structure	The ADS is governed by a Management Committee that meets annually, which is made up of representatives of key stakeholders, funders, user communities and the ADS and Internet Archaeology internal management team. The management team comprises: Director, Deputy Director, Collections Development manager, International projects manager, Systems Manager, Editor of Internet Archaeology.
Business Model And Business Plan	External supporting funding	Project funding, Charging Policy for data deposits, Endowment fund
	Co-financing	University of York underwrites long term preservation of data
	Financial resources	Project funding, Charging Policy for data deposits
	Physical resources	
	Budget holder	ADS
	Other relevant information	The ADS is a not-for-profit organisation hosted by the University of York (charitable status information). The ADS is financed through a combination of project funding and a depositor-charging policy. https://archaeologydataservice.ac.uk/about/finance.xhtml
Portfolio of Services	Brief description	Collections - Ingestion of data to archive, Data Management Digital preservation - Policies, Repository Operations, etc Systems - Development, Applications Access - FAIR, Rights management Teaching and learning - Training, Guides to Good practice Research
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	Not Applicable
	Scouting and ecosystem building	
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass	Not Applicable

	production	
	Commercial Infrastructure	Yes
	Incubator / accelerator support	Not Applicable
	Testing and validation	Yes
	Market intelligence	Yes
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	Not Applicable
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Training workshops, Teaching and learning resources, Blog, newsletter, social media, Publications, Guides to Good practices, workshops, conferences, events, help desk for data depositors, FAQs etc	
Audience/target groups	UK archaeologists (researchers, archaeological units, local archaeology societies); UK heritage organisations (public institutions, NGOs, non-profit institutions); universities; students; people interested in the archaeology of the UK; International research institutions, researchers, students, interested public etc.	
Networks of stakeholders	FISH-HEIRNET (Forum on Information Standards in Heritage), member of DPC, ARIADNE Plus, E-RIHS, CARARE and SEADDA	
Coordination with other similar entities / Ecosystem / Hubs	SSHOC (Social Sciences and Humanities Open Cloud)	
Use of Platform/digital infrastructure	Accredited digital repository: Virtual machine cluster; local file storage; Off-site storage (AWS); project and task management software (JIRA and Trello) Collections website	
Steps to setting up/launch of the CC, KC or similar entity	To be determined	
Possible link with the future CC on CH	Potential relationships concerning digital preservation, access and guides to good practice	
Relevant services/activities/other useful per building our CC	The ADS is a good example of a well-established and self-sustaining service with over 25 years' experience. It is a world-leading service that has been emulated by 9 other national services (Japan, Argentina, USA, Netherlands, Sweden, Austria, to name a few).	
References	https://archaeologydataservice.ac.uk/about/ourWork.xhtml	

8.8 Digital Public Library of America - DPLA	
Field	Cultural Heritage
Type	Extra UE - mixed (participation of public and private entities)
Country (Europe)	Not Applicable
Country (Extra-Europe)	United State of America
Partner (responsible)	17. INP
Website	https://dp.la/
Site	both physical and digital
Headquarters (if applicable)	Boston, Massachusetts (1 Washington Mall #1019 Boston, MA 02108)
Year of foundation	2013
Main focus	Maximizing access to US shared cultural heritage through the creation of an union catalogue/discovery tool (similar to Europeana from a certain point of view). It currently holds 44 million digital objects from more than 4000 US cultural heritage institutions.
Operational areas / thematic departments	Departments with permanent staff: Technology department; Business development and strategy; Communications; eBook services; Community engagement; Current operations; Working Groups/Task Forces: Outreach and Assessment Working Group; Metadata Working Group; Rights Statements Working Group (they might vary according to new initiatives)
Mission and Strategy	Mission: The Digital Public Library of America empowers people to learn, grow, and contribute to a diverse and better-functioning society by maximizing access to American shared history, culture, and knowledge (i.e. to make digital content from US libraries and cultural institutions accessible to all). Vision: A single point of access. A gateway to the cultural and intellectual riches stewarded by libraries, archives, and museums across the United States. Open to all, and only possible in the Digital Era. An open, distributed national digital library to harness the power of collaboration to inform and empower everyone. Strategy: The Digital Public Library of America amplifies the value of libraries and cultural organizations as Americans' most trusted sources of shared knowledge. This is done by collaborating with partners to accelerate innovative tools and ideas that empower and equip libraries to make information more accessible. Key objectives: 1. Make millions of materials from libraries, archives, museums, and other cultural institutions across the United States available to all in a one-stop discovery experience. 2. Provide a library-controlled marketplace and platform for libraries to purchase, organize, and deliver eBooks and other e-content to their patrons. 3. Convene library leaders and practitioners to explore and advance technologies that serve, inform, and empower their communities.
Value proposition	Proactive Collaboration: DPLA actively seeks community leadership through strategic, balanced, mutually-beneficial partnerships in every aspect of its work. DPLA will bring together leaders and practitioners from across the field to address common challenges and identify areas for innovation; Equity and Inclusion: Commitment to empowering institutions and communities that have been historically marginalized, underserved, and underrepresented and to working with new and existing networks to collect and promote diverse and inclusive collections and stories; Optimism about the Potential of Technology: Libraries and cultural heritage institutions can and must be active participants as these technologies are created, shared, and used to ensure that they are harnessed for the greater good.
Legal structure	Non-profit Organisation
Partnerships	Libraries, museums, archives, other cultural heritage institutions. DPLA collaborates with hubs, either members of the hub network which pay a yearly fee or partners. Hubs, either members or partners, are divided in two broad categories: service hubs

	(California Digital Library, Indiana Memory etc.) and content hubs (Harvard Library, HathiTrust, Internet Archive, Library of Congress, United States Government Publishing Office, J. Paul Getty Trust etc.) Other Partners: Europeana, Trove, DigitalNZ, Wikimedia.	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	...
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	Professional/Academia-led (DPLA is led by professionals from libraries and other cultural heritage institutions, both private and public. Very similar to academia-led).
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	No
Structure		
Description of government and management structure	DPLA is a registered 501(c)3 non-profit organization exempted from federal income tax. It is built on a network of ca. 30 hub members (mainly libraries, but other cultural heritage institutions are included, too, such as museums and archives). There are also other hub partner , which are not hub members. Hubs, either members of DPLA's hub membership network or only partners, are divided in two broad categories: Service Hubs - state or regional collaborations that aggregate metadata from libraries, archives, museums, and other cultural heritage institutions; Content Hubs - large libraries, museums, archives, or other digital repositories that maintain a direct relationship with DPLA and provide more than 150,000 unique metadata records that resolve to digital objects to DPLA. DPLA activity is managed by an Executive Director and is conducted by its staff (director of technology; director of business development and senior strategist; director of eBook services; director of community engagement; director of communications; operations and culture manager; developers etc.). The activity of the Executive Director and the staff is supported and monitored by the Board of Directors , whose main responsibilities are to: <ul style="list-style-type: none"> ● Establish and be accountable for the mission and vision of the Digital Public Library of America. ● Establish policies and procedures related to the governance of the organization. ● Support the mission, purposes, policies, and programs in accordance with all applicable laws, rules, and regulations of federal, state, and local authorities that have jurisdiction over DPLA. ● Approve and monitor an annual plan of work to achieve 	

		<p>goals of the current strategic plan and a budget that provides the resources necessary to achieve the plan and supports the organization.</p> <ul style="list-style-type: none"> ● Maintain confidentiality of Board matters and publicly support Board decisions. ● Employ and review annually the performance and compensation of the Executive Director. ● Support and encourage the Executive Director and DPLA staff. ● Nominate Board members who will assure continuity of the highest quality of board service. ● Elect officers who will assure the highest quality of board leadership. The Member Network is represented in the Board of Directors. There is also a Network Council where every Member Hub will appoint one representative. The Network Council provide oversight to Working Groups/Task Forces, including identifying and recruiting participants with appropriate expertise; Surface network-wide issues and opportunities for collaboration to the Advisory Council; Elect, on an annual basis, a Chair and Co-Chair who will serve as ex-officio members of the Advisory Council; Vote on matters such as changes to the governance structure, and members of the Advisory Council; Participate in and help set agenda for quarterly meetings, to be run by the Chair and Co-Chair. The Advisory Council include up to seven Hub representatives, as well as the Chair and Co-Chair of the Network Council as ex-officio members. The Advisory Council: Works closely with DPLA staff to set network priorities, explore new initiatives, resolve issues; Approve new Working Groups/Task Forces; Provide feedback to and advise DPLA on programs that impact the members; Identify strategic opportunities and potential network initiatives, at large and through consultation with the Network Council; Meet monthly with DPLA staff; Advocate with external funding sources, as appropriate to support projects and programs of high interest to the membership. There are also Working Groups/Task Forces which are established by the Advisory Council to assist in implementation of DPLA/network initiatives; surface network-wide issues/priorities; provide input to DPLA at key decision points; and/or facilitate information sharing across the network. Members of Working Groups and Task Forces may be drawn from the Councils or any staff with necessary expertise from the Member Hubs. Occasionally, Working Groups and Task Forces may invite participants from outside the Hubs that have significant expertise beneficial to the group. Working Groups are usually made of 8 persons. E.g.: Outreach and Assessment Working Group; Metadata Working Group; Rights Statements Working Group.
<p>Business Model And Business Plan</p>	<p>External supporting funding</p>	<p>Contributions from private foundations (e.g. Knight Foundation, Mellon Foundation, Sloan Foundation, Pivotal Ventures, Bill & Melinda Gates Foundation), government agencies (e.g. US National Endowment for the Humanities, Institute of Museum and Library Services) and individuals (single or monthly donations of \$10, 25, 50, 75, 100 or more). It represents the greatest share of the revenues.</p>
	<p>Co-financing</p>	<p>Not applicable as in the EU.</p>
	<p>Financial resources</p>	<p>Fees paid by Member Hubs (\$10,000/year; \$12,500/year for multi-state Hubs), eBooks sale, other services revenues, ticket sales at DPLAFest.</p>

	Physical resources	Mostly computers, servers, software licences.
	Budget holder	Contributions from private foundations (e.g. Knight Foundation, Mellon Foundation, Sloan Foundation, Pivotal Ventures, Bill & Melinda Gates Foundation), government agencies (e.g. US National Endowment for the Humanities, Institute of Museum and Library Services) and individuals (single or monthly donations of \$10, 25, 50, 75, 100 or more). It represents the greatest share of the revenues.
	Other relevant information	The main financial information is freely available in a series of audited financial statements at https://dp.la/about (the latest, from 2019, is available here: http://dpla.wpengine.com/wp-content/uploads/2020/10/Digital-Public-Library-of-America-06-30-2019-Financial-Statement.pdf)
Portfolio of Services	Brief description	DPLA functions first as an aggregator of digital resources and it develops tools for easier aggregation of digital cultural objects with different origins, both for their own use and the use of their Member Hubs. At the same time, it provides useful documentation and other tools for the Hubs (https://pro.dp.la/hubs/documentation). Secondly, it gives US libraries greater control over their acquisition and delivery of e-content; make more diverse e-content easily available to libraries and their patrons; advocate for the needs of libraries in the e-content landscape (https://ebooks.dp.la/). Thirdly, through a large array of events, it brings people together across fields and disciplines to problem-solve around common challenges and opportunities. There are specific services that are available for the members of the network (https://pro.dp.la/hubs/membership-program#benefits). 1. Discovery tool/union catalogue: cultural heritage aggregation; 2. eBooks program: give US libraries greater control over their acquisition and delivery of e-content; make more diverse e-content easily available to libraries and their patrons; advocate for the needs of libraries in the e-content landscape; 3. Convener, champion, and advocate for libraries and cultural institutions and the technological advances.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
Conferences,	Yes	

	Training, Meetings	
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	Yes
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Not applicable
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
	<p>There is not a detailed infographic of the workflow of DPLA. See the description of the governance structure for better understanding of the workflow: DPLA is a registered 501(c)3 non-profit organization exempted from federal income tax. It is built on a network of ca. 30 hub members (mainly libraries, but other cultural heritage institutions are included, too, such as museums and archives). There are also other hub partner, which are not hub members. Hubs, either members of DPLA's hub membership network or only partners, are divided in two broad categories: Service Hubs - state or regional collaborations that aggregate metadata from libraries, archives, museums, and other cultural heritage institutions; Content Hubs - large libraries, museums, archives, or other digital repositories that maintain a direct relationship with DPLA and provide more than 150,000 unique metadata records that resolve to digital objects to DPLA. DPLA activity is managed by an Executive Director and is conducted by its staff (director of technology; director of business development and senior strategist; director of eBook services; director of community engagement; director of communications; operations and culture manager; developers etc.). The activity of the Executive Director and the staff is supported and monitored by the Board of Directors, whose main responsibilities are to:</p> <ul style="list-style-type: none"> • Establish and be accountable for the mission and vision of the Digital Public Library of America. • Establish policies and procedures related to the governance of the organization. • Support the mission, purposes, policies, and programs in accordance with all applicable laws, rules, and regulations of federal, state, and local authorities that have jurisdiction over DPLA. • Approve and monitor an annual plan of work to achieve goals of the current strategic plan and a budget that provides the resources necessary to achieve the plan and supports the organization. • Maintain confidentiality of Board matters and publicly support Board decisions. • Employ and review annually the performance and compensation of the Executive Director. • Support and encourage the Executive Director and DPLA staff. • Nominate Board members who will assure continuity of the highest quality of 	

	<p>board service.</p> <ul style="list-style-type: none"> • Elect officers who will assure the highest quality of board leadership. The Member Network is represented in the Board of Directors. There is also a Network Council where every Member Hub will appoint one representative. The Network Council provide oversight to Working Groups/Task Forces, including identifying and recruiting participants with appropriate expertise; Surface network-wide issues and opportunities for collaboration to the Advisory Council; Elect, on an annual basis, a Chair and Co-Chair who will serve as ex-officio members of the Advisory Council; Vote on matters such as changes to the governance structure, and members of the Advisory Council; Participate in and help set agenda for quarterly meetings, to be run by the Chair and Co-Chair. The Advisory Council include up to seven Hub representatives, as well as the Chair and Co-Chair of the Network Council as ex-officio members. The Advisory Council: Works closely with DPLA staff to set network priorities, explore new initiatives, resolve issues; Approve new Working Groups/Task Forces; Provide feedback to and advise DPLA on programs that impact the members; Identify strategic opportunities and potential network initiatives, at large and through consultation with the Network Council; Meet monthly with DPLA staff; Advocate with external funding sources, as appropriate to support projects and programs of high interest to the membership. There are also Working Groups/Task Forces which are established by the Advisory Council to assist in implementation of DPLA/network initiatives; surface network-wide issues/priorities; provide input to DPLA at key decision points; and/or facilitate information sharing across the network. Members of Working Groups and Task Forces may be drawn from the Councils or any staff with necessary expertise from the Member Hubs. Occasionally, Working Groups and Task Forces may invite participants from outside the Hubs that have significant expertise beneficial to the group. Working Groups are usually made of 8 persons. E.g.: Outreach and Assessment Working Group; Metadata Working Group; Rights Statements Working Group.
Engagement practices and promotion strategy	Promotion strategy comprehensively makes use of social media (accounts on Twitter, Facebook, Instagram, Tumblr, Flickr, YouTube), public discussions (e.g. Book Talks), webinars, yearly DPLAfeats etc. DPLA Community Reps (volunteers) are used to: a) Organize activities that promote DPLA; b) Share materials and feedback from outreach efforts (blog posts, group notes, images, video, etc.); c) Check in with DPLA staff about progress and share experiences via the DPLA Reps Google Group. Reps receive DPLA materials to use in their efforts, including a slide deck, event ideas, fact sheets, and promotional swag (stickers, pens, etc.).
Audience/target groups	Main audience: libraries (public, state, academic, school, consortia etc.) Secondary audience: other cultural heritage institutions
Networks of stakeholders	
Coordination with other similar entities / Ecosystem / Hubs	Coordination with Wikimedia for Wikimedia Commons.
Use of Platform/digital infrastructure	Hyku - Samvera (former Hydra): digital repository software; API Codex: DPLA's API; GitHub; JSON-LD; Lucene; ElasticSearch (mostly open-source software); Facebook, Twitter, Instagram, Tumblr: social media platforms used for promotion; Flickr, YouTube: media sharing platforms; DPLA Exchange: e-content acquisitions platform
Steps to setting up/launch of the CC, KC or similar entity	2010-2013: planning phase conducted by a Steering Committee of library and foundation leaders, convened by Harvard University's Berkman Center for Internet & Society, with financial support from the Alfred P. Sloan Foundation and the Arcadia Fund. ("On October 1, 2010, a group of librarians, foundation heads, and computer scientists met at Harvard to discuss the possibility of constructing a Digital Public Library of America. The basic idea was simple: form a coalition of foundations to provide the funding; form a coalition of libraries to supply the books. But the task is enormously complex. After taking its measure, the group formed a steering committee to provide general guidance and to recruit support from diverse constituencies scattered around the country. A secretariat was appointed and set to work with the help of a grant from the Sloan Foundation to organize study of the most difficult questions. Six working groups produced reports, which cleared the way for a master plan. A preliminary version of the plan was presented to the public

	on October 21st at a meeting in Washington hosted by the National Archives with the support of the Library of Congress, the National Endowment for the Humanities, and the Institute of Museum and Library Services." Robert Darnton, The Digital Public Library of America: The Idea and Its Implementation, in Bernhardt et al. (eds.), Something's Gotta Give, Purdue University Press, 2012, p. 31)
Possible link with the future CC on CH	Possible collaboration on convening, championing, and advocating for libraries and cultural institutions and the technological advances.
Relevant services/activities/other useful per building our CC	1) The idea of a network of institutional members to pay an annual fee in exchange for membership benefits and rights of governance must be explored as a good source for a steady funding source. As well, the creation of a business development department is useful for assuring the necessary funds and for aiming at finding contributions from private foundations and charitable funds. 2) There are many interesting ideas that might be drawn from the eBook programme - e.g. our CC might develop an e-content acquisition platform (not only for e-books) or act as negotiator for diverse services and products needed in the cultural heritage field on behalf of the subscribing members. 3) Enhancements of open-source software in order to be better and more appropriately used by cultural heritage institutions. 4) Creations and systematization of useful documentation and tools for the CC's members, partners etc.
References	https://dp.la/ ; http://www.dlib.org/dlib/may17/gore/05gore.html ; https://www.jstor.org/stable/j.ctt6wq4sf.8?seq=1#metadata_info_tab_contents ; https://en.wikipedia.org/wiki/Digital_Public_Library_of_America ;

8.9 MUSEU – HUB		
Field	Cultural Heritage	
Type	UE - other (ONG, etc.)	
Country (Europe)	Belgium	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	16. MICHAEL	
Website	http://www.museuhub.eu/	
Site	only digital	
Headquarters (if applicable)		
Year of foundation	2015	
Main focus	Metadata aggregation for Europeana	
Operational areas / thematic departments		
Mission and Strategy	MUSEU-HUB is a reference point for European museums and other cultural institutions hosting museum collections in the field of digital cultural heritage and aggregation for Europeana. It provides services, good practices, training, help-desk, documentation, updating on digitisation standards, aggregation, IPR and reuse, multilingualism and terminologies, digital exhibitions, digital storytelling tools. It represents a bridge for museums who want to join Europeana, either news museums, either those who want to update or add new datasets, and it will ensure that museums are suitably skilled and motivated to participate in Europeana. It helps museums to aggregate better quality digital content using MINT technology, until the new Europeana Operation Direct technology will be ready. MUSEU is run by expert working for the MICHAEL Culture Association,	
Value proposition	More visibility for GLAM's collections; more expertise of GLAM's staff about digitisation: workflow, metadata, IPR and licenses, terminologies, enrichment, aggregation procedures; more awareness about Europeana services, tools and strategies	
Legal structure	Non-profit Organisation	
Partnerships	MUSEU benefits from a big network of experts in digital cultural heritage who are used to work together in European projects and initiatives (MINERVA, MICHAEL, Linked Heriatgem Athena, AthenaPlus, Indicate). MUSEU also benefits from the network of National Contact Points who were appointed in past aggregation projects, who will be the bridge between MUSEU and local institutions.	
Government And Management Structure	Governance	
	Private	Yes
	Public	
	Joint Venture	
	Network	Yes
	Public/Private	
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	Michael Association (EU Commission)
	Scope/area of impact	
Local scope		
Regional scope		

	National scope	
	International scope	Yes
	Structure	
	Description of government and management structure	MUSEU is managed by MCA which is an AISBL. President, Presidium, Board of administrators, coordinator and project managers
Business Model And Business Plan	External supporting funding	EU funding
	Co-financing	Variable
	Financial resources	Mainly EU projects + EU services + Membership fees
	Physical resources	no
	Budget holder	Private / Michael Culture
	Other relevant information	
		Brief description
Portfolio of Services	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	Yes
	Market intelligence	No
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	...
	Coworking areas or	...

	spaces	
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	European projects
	Workflows	
	Contact with cultural institutions, data analysis, training on MINT (the aggregation tool used by MUSEU), data enrichment according to the Europeana Publishing Guidelines and Europeana Publishing Framework, Aggregation via OAI-PMH, Quality assessment, Final Publication, Reuse of cultural resources and tools.	
Engagement practices and promotion strategy	Workshops, Surveys, Training, webinars , Help-desk	
Audience/target groups	Culture heritage institutions (libraries, museums, galleries)	
Networks of stakeholders	MCA members, Europeana Aggregator Forum, MCA is member of Culture Action Europe, heritage Alliance, EAC Expert Group	
Coordination with other similar entities / Ecosystem / Hubs	Europeana Initiative // MUSEU is the trusted aggregator for museums	
Use of Platform/digital infrastructure	Aggregation Infrastructure	
Steps to setting up/launch of the CC, KC or similar entity	MUSEU is the result of several EU projects	
Possible link with the future CC on CH	Sharing of expertise and training for GLAMs through MUSEU and networking through Michael Culture	
Relevant services/activities/other useful per building our CC	Expertise & experience on DCH from technical aspects to re-use/valorisation + networking + webinar/training + advocacy toward policy & decision makers + Europeana ecosystem	
References		

8.10 La Plateforme Ouverte du patrimoine (POP)		
Field	Cultural Heritage	
Type	National UE - public	
Country (Europe)	France	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	16. MICHAEL	
Website	https://www.pop.culture.gouv.fr/	
Site	only digital	
Headquarters (if applicable)	not applicable	
Year of foundation	2018	
Main focus	Digital Cultural heritage - collections description	
Operational areas / thematic departments	Mediathèque de l'architecture et du patrimoine, Service des Musées de France, Services du Patrimoine, Services de l'Inventaire Mission de recherche et de restitution des biens culturels spoliés entre 1933 et 1945 Service du livre et de la lecture	
Mission and Strategy	Open platform giving access to national databases on cultural heritage	
Value proposition	Access to national collections from a unique portal	
Legal structure	Non-profit Organisation	
Partnerships	not applicable	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
Structure		
Description of government and management structure	The Médiathèque de l'architecture et du patrimoine is the entity from the Ministry of Culture (under the General direction for Heritage and Architecture) responsible for coordinating and administrating the portal.	
Business Model And Business Plan	External supporting funding	
	Co-financing	
	Financial resources	National funding

	Physical resources	
	Budget holder	National (Ministry of Culture)
	Other relevant information	
Portfolio of Services	Brief description	Access to digital collections
	Consultancy and orientation	
	Consultancy and orientation	Not Applicable
	Access to financing services	Not Applicable
	Scouting and ecosystem building	Not Applicable
	Training and capacity building	
	Awareness creation	Not Applicable
	Collaborative research	Not Applicable
	Visioning and strategy development	Not Applicable
	Mentoring	Not Applicable
	Training and skills development	Not Applicable
	Conferences, Training, Meetings	Not Applicable
	Support in innovation and projects	
	Competitive mass production	Not Applicable
	Commercial Infrastructure	Not Applicable
	Incubator / accelerator support	Not Applicable
	Testing and validation	Not Applicable
	Market intelligence	Not Applicable
	Prototyping validation	Not Applicable
	Others	
	Digital maturity assessment	Not Applicable
	Coworking areas or spaces	Not Applicable
	Access to specific technologies and equipment	Not Applicable
	Data collection and integration	Yes
	Other	
	Workflows	
	The MAP is coordinating the imports from the various sources - various departments of the ministry - . Institutions have a direct access to contribute.	

	<p>Proposition AR :</p> <p>POP gather Joconde, Palissy, Mérimée, Mémoire, Muséofile, Autor and Enluminures databases.</p> <p>For each database, one or more data administrators supervises the deposits of data coming from various French public institutions (museum, regional directorates of heritage, regional conservatory of historical monuments) and the MAP ensure the functional administration as well as the responsibility for product developments in coordination with all responsible entities of data entered in POP.</p>
Engagement practices and promotion strategy	POP is still under further development
Audience/target groups	all type of audience: general public, Culture , Education, Researchers,.
Networks of stakeholders	Internal entities responsible of producing the data
Coordination with other similar entities / Ecosystem / Hubs	Connection with national aggregator to Europeana under development
Use of Platform/digital infrastructure	Portal with contribution services
Steps to setting up/launch of the CC, KC or similar entity	POP is a request from the minister, harmonised datamodel and LOD terminologies are expected to be developed in a further version
Possible link with the future CC on CH	Standards for collection description (LOD)
Relevant services/activities/other useful per building our CC	Nothing to report
References	

8.11 Connecting Archaeology and Architecture in Europe (CARARE)		
Field	Data management and storage	
Type	UE - other (NGO, etc.)	
Country (Europe)	Ireland	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	15. CARARE	
Website	http://www.carare.eu	
Site	only digital	
Headquarters (if applicable)	Registered address in Dublin	
Year of foundation	2016	
Main focus	Advancement of professional practice and fostering appreciation of the digital archaeological and architectural heritage for public benefit .	
Operational areas / thematic departments	CARARE is a non-profit membership association with a consortium of 27 full members and 3 supporters who include ministries, NGOs, government organisations, university departments, research institutions, museums, private companies and individuals. Operational areas include Tools and Services, Training and Support, Communications and fostering appreciation of the archaeological and architectural heritage	
Mission and Strategy	CARARE's mission is advancing professional practice and foster appreciation of the digital archaeological and architectural heritage for public benefit. It does this by providing advice, guidance and training on good practices in the creation, publication and use of digital data; by providing technical services to enable institutions around Europe to share their digital content with users via Europeana; and by working with members to foster appreciation of the digital cultural heritage and its potential uses by the wider community.	
Value proposition	CARARE exists to support a lively network of like-minded organisations with a shared interest in the archaeological and architectural heritage and the creation and use of digital resources for work, research, learning and enjoyment. It aims to provide a trusted source of advice and services to enable data producers to make their content accessible to the broad public for re-use.	
Legal structure	Non-profit Organisation	
Partnerships	with CARARE members and data partners in projects, with Europeana and the ARIADNE Plus research infrastructure	
Government And Management Structure	Governance	
	Private	Yes
	Public	No
	Joint Venture	No
	Network	Yes
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	Yes
	Government-led	No
	Other	
	Scope/area of impact	
	Local scope	No
Regional scope	No	
National scope	No	

	International scope	Yes
	Structure	
	Description of government and management structure	CARARE is a Company Limited by Guarantee which is governed in accordance with its memorandum and articles of association by a board of directors on behalf of the members of the company who each have voting rights. CARARE has an operations manager appointed by the board of directors.
Business Model And Business Plan	External supporting funding	Not applicable
	Co-financing	Not applicable
	Financial resources	Main revenue streams: membership income and project income
	Physical resources	Not applicable
	Budget holder	CARARE
	Other relevant information	CARARE is a membership association with membership and project income
Portfolio of Services	Brief description	<p>CARARE: Advises its data partners on metadata, copyright and open data, digitisation, 3D content, reuse of digital content, digital library/content management systems, configuring metadata exports, OAI-PMH, etc. Provides metadata aggregation services including metadata mapping, validation, enrichment and publication. Delivers training, workshops, webinars and an annual conference. Disseminates news and information to its members and followers.</p> <p>CARARE's services: Advice, guidance and training; Technical services for metadata aggregation (mapping, validation, enrichment, publication); Maintaining the CARARE metadata schema; Communications.</p>
	Consultancy and orientation	
	Consultancy and orientation	
	Access to financing services	No
	Scouting and ecosystem building	Not Applicable
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Not Applicable
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes

	Support in innovation and projects	
	Competitive mass production	Not Applicable
	Commercial Infrastructure	Not Applicable
	Incubator / accelerator support	Not Applicable
	Testing and validation	Yes
	Market intelligence	No
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	Not Applicable
	Coworking areas or spaces	Not Applicable
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Monthly briefings, annual conference, workshops, webinars, website and social media. CARARE's stakeholders are agencies and organisations, research institutions, specialist digital archives and others with an interest in the archaeological and architectural heritage, and digital content in all formats but with a special interest in 3D.	
Audience/target groups	Professionals, researchers, curators, creative industries and university start-ups focussing on 3D, students, citizen scientists.	
Networks of stakeholders	Interconnections via members with the EAC, Heads of Heritage Forum, CAA network, Europeana Aggregators Forum	
Coordination with other similar entities / Ecosystem / Hubs	CARARE is an accredited Europeana Aggregator	
Use of Platform/digital infrastructure	Metadata mapping and ingestion platform, Data sharing platform, Vocabulary mapping services, Data capture services, Website, social media	
Steps to setting up/launch of the CC, KC or similar entity	Newsletter, consultation, TBC	
Possible link with the future CC on CH	Potentially sharing of expertise, training and cooperation in projects	
Relevant services/activities/other useful per building our CC	CARARE is a good example of a consortium that has successfully transitioned to become a legal entity. Governance can act as guidance.	
References	www.carare.eu	

9 Other national and international centres on Cultural Heritage

- 9.1 Spanish cultural Heritage Institute | Instituto del Patrimonio Cultural de España (IPCE)
- 9.2 Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)
- 9.3 Istituto Centrale per il Restauro (ICR)
- 9.4 Opificio delle Pietre Dure (OPD)
- 9.5 Getty Center
- 9.6 Le laboratoire de recherche des monuments historiques (LRMH)
- 9.7 The Centre for Research and Restoration of the Museums of France (C2RMF)
- 9.8 docomomo international
- 9.9 The Discovery Programme: Centre for Archaeology and Innovation Ireland
- 9.10 Transport Infrastructure Ireland, Archaeology and Heritage section
- 9.11 Institutul Național al Patrimoniului (INP)

9.1 Spanish cultural Heritage Institute Instituto del Patrimonio Cultural de España (IPCE)		
Field	Cultural Heritage	
Type	National UE - public	
Country (Europe)	Spain	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	04. TECNALIA	
Website	https://ipce.culturaydeporte.gob.es/inicio.html	
Site	only physical	
Headquarters (if applicable)	Madrid, Spain	
Year of foundation	1985	
Main focus	Cultural Heritage: conservation and restoration	
Operational areas / thematic departments	<ul style="list-style-type: none"> o Interventions area o Research and training area o Documentation and dissemination area o Internal regime area (human resources, financial resources, processing of agreements and subsidies, etc.) 	
Mission and Strategy	Its mission is the conservation, restoration, research, documentation and dissemination of Spain's cultural heritage and specialized training.	
Value proposition	It focuses on interdisciplinary actions of special complexity or those that have a significant research component, constitute an innovation in criteria and methods or address new fields of heritage. The Institute therefore preferentially addresses those interventions that involve innovation and progress in knowledge, in order to subsequently transfer this knowledge to society through courses, conferences and publications.	
Legal structure	Public body	
Partnerships	The IPCE is a Sub-directorate General attached to the Directorate General of Fine Arts of the Ministry of Culture and Sports of the Government of Spain.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	No
Structure		
Description of government and management	The institute is part of the Ministry of Culture and Sports (Government of Spain). For the management of the centre, a Board of Directors has	

	structure	been created, composed of the director, the deputy director, the heads of areas and services and a representation of the technicians, elected by departments. This body is responsible for selecting interventions and programming.
Business Model And Business Plan	External supporting funding	Public funding/State budgets
	Co-financing	
	Financial resources	
	Physical resources	<p>The IPCE building was declared an Asset of Cultural Interest with the category of monument.</p> <p>IPCE laboratories: diagnosis, treatment and prevention of alterations to cultural property caused by external agents, whether climatic or anthropogenic factors.</p> <p>Works of Art Warehouse at IPCE</p> <p>Archive: Essential for the knowledge of the conservation and restoration of Historical Heritage in Spain, it keeps the documentation generated by this institute and by the institutions that, since the 1940s, preceded it in the functions of conservation and restoration of cultural heritage. It offers users the possibility of consulting its collections and obtaining copies of them.</p> <p>Library: With 40,000 volumes and more than 1,600 journal titles, the IPCE Library is highly specialized in the conservation and restoration of cultural property, as well as in the different aspects of historical heritage. Free access for users.</p> <p>Photo Library: It preserves almost half a million images dating from the 1860s to the present day.</p>
	Budget holder	Spanish Government
	Other relevant information	
Portfolio of Services	Brief description	<ul style="list-style-type: none"> - The conservation and restoration of the heritage legacy. This is materialized in the execution of numerous projects of intervention in cultural goods, both movable and immovable, in the whole Spanish territory, within the competency framework established by the Constitution for the General State Administration. These interventions, carried out with criteria and methodology derived from the extensive experience, at national and international level, of the institution's technicians, are carried out by multidisciplinary teams, whose work is carried out in continuous collaboration with the owners and public administrations responsible for the preservation of Cultural Heritage. - The archiving and systematization of the work carried out and the documentation available on historical heritage: Archive, Library and Photo library. - Research and study on criteria, methods and techniques for the conservation and restoration of historical heritage (Property conservation research, archaeological research, ethnographic research). - The training of technicians and specialists in conservation and restoration of immovable and movable assets that are part of this heritage: online courses, classroom courses, webinars, Nájera School of Historical Heritage, Scholarships and Internships. - The promotion and encouragement of Spanish archaeological research projects abroad.

	Consultancy and orientation	
	Consultancy and orientation	No
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	No
	Mentoring	No
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	No
	Other	
	Workflows	
	Social media (Twitter/Facebook @ipcepatrimonio), seminars, thematic webinars, courses, participation in conferences, practical sessions, monographic sessions, round tables, workshops, etc. It has a specific department for dissemination (press releases, videos, exhibitions, publications)	
Engagement practices and promotion strategy	Society, other Spanish agencies in charge of heritage conservation, professionals in this field, universities, research centres, etc.	
Audience/target groups		
Networks of stakeholders	Among others: IPCE is a member of the Interdisciplinary Thematic Platform - CSIC (Spanish National Research Council) - Open Heritage: Research and Society	

	(https://pti-pais.csic.es/). It is also part of the Science and Technology Network for the Preservation of Cultural Heritage (TechnoHeritage), and the International Network on Heritage Education Patrimonial / International Network on Heritage Education (RIEP/INHE). Spanish Cultural Action (AC/E) collaborator Spanish universities
Coordination with other similar entities / Ecosystem / Hubs	Architectural Heritage Inventory (http://www.mcu.es/comun/bases/ipce/IPAA.html) Catalogue: http://catalogos.mecd.es/opac/
Use of Platform/digital infrastructure	
Steps to setting up/launch of the CC, KC or similar entity	
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	Nothing to report
References	https://ipce.culturaydeporte.gob.es/inicio.html https://pti-pais.csic.es/integrantes/ http://www.riep-inhe.com/ https://www.accioncultural.es/es/red-de-colaboradores

9.2 Centro per la Conservazione ed il Restauro dei Beni Culturali "La Venaria Reale" (CCR)		
Field	Cultural Heritage	
Type	National UE - other (ONG, etc.)	
Country (Europe)	Italy	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	01. INFN	
Website	https://www.centrorestaurovenaria.it/en	
Site	only physical	
Headquarters (if applicable)	(Reggia Venaria Reale)	
Year of foundation	2005	
Main focus	Cultural Heritage Conservation	
Operational areas / thematic departments	Conservation Laboratories, Scientific Laboratories, Advanced training area, Research and Development area, Communication& Documentation area, HR and Administration Area, Safety technical and purchasing Area.	
Mission and Strategy	The CCR works to promote Education and Research on CH conservation following three strategic axes: innovation, internationalisation and culture to be developed with a digital transformation process. It offers advanced levels training and capacity building programs promoting the development of the territory through knowledge transfer to the local cultural heritage enterprises, by means of a interdisciplinary approach and cross-sectorial projects and collaborations at local, national and international level.	
Value proposition	The CCR adopt a critical process aimed at cultivating an appreciation of the heritage as an integral part of present-day society. This approach takes care of cultural heritage values related more specifically to the intrinsic aspects of the monument/site/collection/artwork (its design, techniques, material, and workmanship) and to the values associated with its location, cultural context and its relationship to the setting	
Legal structure	Non-profit Organisation	
Partnerships	Institutions/foundations (e.g. GCI, ICOM, IIC, Compagnia di San Paolo, Fondazione Torino Musei), Research centers (e.g. CNR _ISPC-ISAC-IBAM-IPCF-ISMN_, INFN, INRIM, Eurac, Centre de Recherche et de Restauration des Musées de France, Centro Ricerche Archeologiche e Scavi di Torino per il Medio Oriente e l'Asia), Universities and high education institutes (e.g. University of Turin and several Italian universities, Turin and Milan Polytechnic universities, OPD, ISCR, SUPSI, UCLA, Univ. of Vigo, Univ. of Split The Cologne Institute of Conservation Sciences -CICS-, Germania), Public bodies (w.g. MIBACT -superintendencies-, several Municipalities and regions), organizations and associations (e.g. ARRE, IGIC, FAI , CESMAR 7, Association of Dress Historians, Londra, Associazione Archivio Storico Olivetti, Ivrea), Associació per a l'estudi del moble, Barcellona) museums (Musei Reali, Museo Egizio, Museo d'Arte Orientale, Museo Civico d'Arte Antica, Museo Cinema -Torino-, Musée du Louvre, Musei Vaticani, Musée National d'Art Moderne, Centre Pompidou di Parigi, Museo Nacional Centro de Arte Reina Sofia di Madrid, Museo Nacional Rio De Janeiro..), archaeological and touristic sites (MIBACT Pompei and Ercolano archaeological parks, Piedmont Sacri Monti authority), European Royal residences (Reggia di Caserta, Wilanow Castle, Centre de Recherche du Château de Versailles,) SME and large companies (Montana, Schmincke & Co., ANTARES, El.En. Spa)	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No

	Public/Private	Yes
	Other	
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	No
	Other	Public body-led / Foundation-led
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management structure	<p>Foundation based on private law with a public-law shareholding, which adopts the rules of public law.</p> <p>Board of founder members, Chairman, Board of directors, Board of Auditors, Scientific Director, Scientific Committee, General Secretary, Organisation and development director, Conservation Laboratories Director, Scientific Laboratories Director, Scientific Laboratories Head, Conservation projects Head, Communication and documentation Head, Higher education school Head, Safety technical and purchasing services Head, HR and Administration Department Head, Project development and fundraising managers, Conservation sectors Coordinators, Art historian coordinators, Educational services Manager, IT services manager.</p>
Business Model And Business Plan	External supporting funding	Banking and private foundations, Public funding (EU and local projects)
	Co-financing	general rules: 85% -100% co-financing from public, 100% from private entities
	Financial resources	Service provisions, Public funding, Research project.
	Physical resources	8.000 m2 facilities (Conservation laboratories and Scientific laboratories -Chemistry, Biology, TAC-RX bunker), Main Hall (250 places) to host congresses and public events, several classroom
	Budget holder	Private
	Other relevant information	
Portfolio of Services	Brief description	<p>Users: University students CCR within the agreement with the University of Turin for the Master Course in "Conservation and Restoration of Cultural Heritage" has the responsibility in relation to the conservation work done on the works of arts (SAF - Higher Education School sector- is in charge for the collection and definition of works of arts, object of the students dissertation work, technical supervision of the experimental conservation work and research activities).</p> <p>Users "External" Trainees, students and professionals. On demand training courses and schools (summer and winter schools), at regional, national or international level, in presence or on-line mode. Workshop and congress</p>

		<p>organisation (to hold in our premises).</p> <p>Users: Institutions Partnership for in technical, scientific, methodological support for the development of research projects, didactical activities, conservation activities, scientific analysis. We have the possibility to validate new materials, new equipment and new methodologies on a large range of artefacts and works of arts (conservation sectors: stone materials, stuccoes, mural paintings, easel paintings, wooden paintings and sculpture, wooden materials and furniture, archaeological finds, metals, ceramics, glass, modern and contemporary art, textiles and tapestries, paper and photographic support, leather, ethnographic materials)</p> <p>Users: Private subjects Diagnostic analysis for third parts.</p>
Consultancy and orientation		
Consultancy and orientation	Yes	
Access to financing services	No	
Scouting and ecosystem building	No	
Training and capacity building		
Awareness creation	Yes	
Collaborative research	Yes	
Visioning and strategy development	Yes	
Mentoring	Yes	
Training and skills development	Yes	
Conferences, Training, Meetings	Yes	
Support in innovation and projects		
Competitive mass production	No	
Commercial Infrastructure	No	
Incubator / accelerator support	Yes	
Testing and validation	Yes	
Market intelligence	No	
Prototyping validation	Yes	
Others		
Digital maturity assessment	No	
Coworking areas or spaces	No	
Access to specific	Yes	

	technologies and equipment	
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Workshops, congresses, surveys/questionnaires, webinar, Science for citizens ventures, Public events for dissemination purposes, open days for Laboratories (monthly opening)	
Audience/target groups	Public Institutions, Research Centres, Companies (SME), Start-ups, Universities, Research organisations	
Networks of stakeholders	ENCoRE, ICOM-CC, IGIIC, ARRE, ICCROM, INFN-CHNet, Vatican Coffin Project and EPICO projects networks, Young Professionals Community (YPC), TICHE, Smart Communities Tech, Polo innovazione Regione Piemonte.	
Coordination with other similar entities / Ecosystem / Hubs		
Use of Platform/digital infrastructure	Data sharing platforms (Google Drive, Google calendar and Google tools) , social media platforms (Facebook, Instagram, LinkedIn), media sharing platforms (You Tube), Knowledge platform (owner development on going, platform with educational and training aims within the call "SWITCH_Strategie e Strumenti per la Digital Transformation nella Cultura"), Autodesk BIM360 Docs (starting date for use in late 2021)	
Steps to setting up/launch of the CC, KC or similar entity	The Centro Conservazione e Restauro "La Venaria Reale" is a no-profit Italian Foundation established in 2005 by the Ministry of Culture, Piedmont region, the Metropolitan City of Turin, the Municipality of Turin, the Municipality of Venaria Reale, Fondazione Cassa di Risparmio di Torino, Compagnia di San Paolo and the University of Turin. It is the main public-private centre for CH conservation and restoration in Italy and one of the most important in the world.	
Possible link with the future CC on CH	Yes. A Level 2 National Community partner and a Level 3 National Community reference institution for the best practices in preservation and conservation of Cultural Heritage	
Relevant services/activities/other useful per building our CC	Needs 1 step: digital tools to integrate the on-site documentation (surveys data acquisition) with laboratory analysis acquisition, historical and documental data. 2 step: Digital tool to a user-friendly data comparison aiming at monitoring the conservation conditions during times 3 step: data analysis tools in order to have predictable scenarios and be able to plan preventive conservation actions	
References		

9.3 Istituto Centrale per il Restauro (ICR)		
Field	Cultural Heritage	
Type	National UE - public	
Country (Europe)	Italy	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	01. INFN	
Website	http://www.icr.beniculturali.it/	
Site	only physical	
Headquarters (if applicable)	Historical San Michele Complex (XVII - XVIII centuries), Via di San Michele 25, 00153, Rome, Italy	
Year of foundation	1939	
Main focus	Conservation, research and preservation of cultural heritage	
Operational areas / thematic departments	Conservation Laboratories, Scientific Laboratories, Advanced training area, Research and Development area, Communication & Documentation area, Technical service.	
Mission and Strategy	The ICR (MIC- Ministe of Culture) works to promote Education and Research on conservation of CH following three strategic axes: innovation, internationalisation, application of new materials in the field also by integrations between different cultures in developing digital transformation processes. It offers advanced levels in designing conservation projects and by training and applying building programs with interdisciplinary approaches and cross-sectorial projects and collaborations at local, national and international level.	
Value proposition	The ICR promote and develop the scientific research aimed at the preservation, protection and restoration of cultural heritage, carrying out conservation projects, research, experimentation and verification activities with the final aim of the protection of cultural assets.	
Legal structure	Public body (Public institution of Ministry of Culture)	
Partnerships	States, Institutions, Research centres, Universities, Public bodies, organizations, etc.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
Structure		
Description of	ICR Director (Arch. Alessandra Marino), Conservation	

	government and management structure	Laboratories staff, Scientific Laboratories staff, Communication and documentation staff, Higher education school Head (Rome and Matera), Safety technical and purchasing services Head, HR and Administration Department Head, Art historian staff, IT services manager, management board staff, scientific committee staff.
Business Model And Business Plan	External supporting funding	Banking and private foundations, Public funding, EU and local projects
	Co-financing	
	Financial resources	Service provisions, Public funding, Research project.
	Physical resources	Conservation laboratories and Scientific laboratories, Main Hall to host congresses and public events, several classroom, library, university
	Budget holder	public
	Other relevant information	
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	Yes
	Testing and validation	Yes
	Market intelligence	No
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	No
	Coworking areas or	No

	spaces	
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
	<p>The Istituto Centrale per il Restauro (ICR), as the research institute and the training body for conservation and restoration of MIC since 1939 and - as reported in art. 7 of the Ministerial Decree of 7 October 2008 and according to the art. 38 of the Prime Ministerial Decree no. 169/2019 - develops and carries out among in its institutional competences "functions in the field of scientific research aimed at the preservation, protection and restoration of cultural heritage referred to the articles 10 and 11 of the legislative decree no. 42/2004 and subsequent amendments, promoting and carrying out research, design, experimentation and verification activities for the purposes of the protection of cultural assets, also under the specific request of the Minister or the General and Regional Directors of the Ministry, as well as public and private entities. " The ICR has been a partner of many international projects (NANOCATHEDRAL, SIBILLA, BlueMED, MUSAS etc.), national and regional operational projects of research, conservation and restoration in which it has contributed to the dissemination of know-how on methodologies, materials and techniques for the preservation and restoration of cultural heritage especially with a view to the development of sustainable restoration across the frontiers of green-conservation and nanotechnologies. An integral part of the research activity is the experimentation and development of new materials for the conservation of Cultural Heritage, in close synergy with ICR scientific laboratories, for the development of analytical and control techniques, the transfer of procedures and methods relating to conservation of cultural assets at an international level also through specific tools such as the European Committee for Standardization (CEN). Moreover, thanks to the will of the Directorate General for Education, Research and Cultural Institutes (DG ERIC), ICR established and developed the International Training Projects (ITP) as part of its mandate within the Ministry of Cultural (MIC). The aim of the programs was to encourage international cultural exchanges through the offer of high level training in conservation and technical scientific sectors where Italy leads the world in knowledge and practice. The ICR, whose current Director is the architect Alessandra Marino, is divided into different areas and services including restoration laboratories relating to different types of materials (natural and artificial stone, wall paintings and plasters, plaster casts and casts, stuccos and mosaics, paintings on canvas and wood and polychrome wooden sculpture, contemporary art materials, fabrics, works of art on paper, metals, ceramics, leather, etc.), scientific laboratories (chemistry, material tests, biological investigations, physics and environmental controls, laboratory for 3D technologies for the relief of the form) provided with a wide instrumental equipment, the technical - scientific services where art historians, architects, archaeologists and other professional figures are also involved in the multidisciplinary process of conservation and restoration. ICR has also its Underwater archaeology Unit which started its activities in 1997 focused on developing tools, instruments, materials and methodologies for the in situ conservation, restoration and museum display of Underwater Cultural Heritage.</p>	
Engagement practices and promotion strategy	Workshops, congresses, surveys/questionnaires, webinar, Science for citizens ventures, Public events for dissemination purposes	
Audience/target groups	Public Institutions, Research Centres, Companies, Start-ups, Universities, Large Companies, Multinationals Companies, Research organisations, etc.	
Networks of stakeholders	ministry of culture central and territorial institution (OPD, ICCD, ... and superintendencies, Museum,...), University, CNR, ENEA, INFM	
Coordination with other similar entities / Ecosystem / Hubs		

Use of Platform/digital infrastructure	data sharing platforms, social media platforms, media sharing platforms
Steps to setting up/launch of the CC, KC or similar entity	e.g. workshops with stakeholders, surveys to gather suggestions, impact assessment, EU bodies consultations, collection of citizen's' feedbacks, etc.
Possible link with the future CC on CH	Archival, possible development of institutional guidelines for conservation mapping system, digitalization and realization of database system
Relevant services/activities/other useful per building our CC	Conservation laboratories of different materials, in close connection with scientific laboratories. Research and evaluation of diagnostic products and methodologies for the study of cultural heritage. Interdisciplinary approach to the conservation problems. Master degree course in conservation, a continuous transferring of expertise from the field to the formation activities. Divulgarion of results through publications, conferences, workshops.
References	

9.4 Opificio delle Pietre Dure (OPD)		
Field	Cultural Heritage	
Type	National UE - public	
Country (Europe)	Italy	
Country (Extra-Europe)	Extra-European (Continent) Country of affiliation	
Partner (responsible)	01. INFN	
Website	www.opificiodellepietredure.it	
Site	both physical and digital	
Headquarters (if applicable)	via degli Alfani, 78 - 50121 Firenze	
Year of foundation	1975	
Main focus	Cultural Heritage Conservation	
Operational areas / thematic departments	Conservation Laboratories, Scientific Laboratories, Advanced training area, Research and Development area, Communication & Documentation area, Technical service.	
Mission and Strategy	The OPD (MIC- Ministry of Culture) works to promote Education and Research on conservation of CH following three strategic axes: innovation, internationalisation, application of new materials in the field also by integrations between different cultures in developing digital transformation processes. It offers advanced levels in designing conservation projects and by training and applying building programs with interdisciplinary approaches and cross-sectorial projects and collaborations at local, national and international level.	
Value proposition	The OPD promote and develop the scientific research aimed at the preservation, protection and restoration of cultural heritage, carrying out conservation projects, research, experimentation and verification activities with the final aim of the protection of cultural assets.	
Legal structure	Public institution of Ministry of Culture	
Partnerships	States, Institutions, Research centres, Universities, Public bodies, organizations, etc.	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and	General Director (Superintendent), 11 conservation department, administrative office, School of Conservation

	management structure	(SAF), Scientific Department, Archives, Library, Technical Office, Museum
Business Model And Business Plan	External supporting funding	Banking and private foundations, Public funding, EU and local projects
	Co-financing	according the year (10-30 %)
	Financial resources	Service provisions, Public funding, Research project.
	Physical resources	Conservation laboratories and Scientific laboratories, several classroom, library
	Budget holder	public
	Other relevant information	
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	Yes
	Testing and validation	Yes
	Market intelligence	No
	Prototyping validation	Yes
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes

	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Workshops, congresses, surveys/questionnaires, webinar, Science for citizens ventures, Public events for dissemination purposes	
Audience/target groups	Public Institutions, Research Centres, Companies, Start-ups, Universities, Large Companies, Multinationals Companies, Research organisations, etc.	
Networks of stakeholders	CC, KC or similar entities interconnected web of stakeholders (e.g. Cyberg Competence Network)	
Coordination with other similar entities / Ecosystem / Hubs	ministry of culture central and territorial institution (ICR, ICCD, ... and superintendencies, Museum,...), University, CNR, ENEA, INFM	
Use of Platform/digital infrastructure	Data sharing platforms, social media platforms, media sharing platforms	
Steps to setting up/launch of the CC, KC or similar entity		
Possible link with the future CC on CH	Archival, possible development of institutional guidelines for conservation mapping system, digitalization and realization of database system	
Relevant services/activities/other useful per building our CC	conservation laboratories of different materials, in close connection with scientific laboratories. Research and evaluation of diagnostic products and methodologies for the study of cultural heritage. Interdisciplinary approach to the conservation problems. Master degree course in conservation, a continuous transferring of expertise from the field to the formation activities. Divulgarion of results through publications, conferences, workshops.	
References		

9.5 Getty Center		
Field	Cultural Heritage	
Type	Extra UE - private	
Country (Europe)	Not Applicable	
Country (Extra-Europe)	United State of America	
Partner (responsible)	09. UNIBO	
Website	https://www.getty.edu	
Site	both physical and digital	
Headquarters (if applicable)	1200 Getty Center Drive, Los Angeles, CA 90049	
Year of foundation	1997	
Main focus	Visual art and cultural heritage	
Operational areas / thematic departments	Getty Conservation Institute; Getty Research Institute; Getty Foundation; J. Paul Getty Museum.	
Mission and Strategy	Getty Center is a cultural and philanthropic institution with the mission to advance and share the world's visual arts and cultural heritage for the benefit of all. Through the collective and individual work of its constituent programs, Getty Center pursues its mission in Los Angeles and throughout the world, serving both the general interested public and a wide range of professional communities in order to promote a vital civil society through an understanding of the visual arts and cultural heritage.	
Value proposition	Getty Center is dedicated to the presentation, conservation and interpretation of the world's artistic and cultural legacy.	
Legal structure	Non-profit Organisation	
Partnerships	Genesis Inspiration Foundation; City National Bank AN RBC Company; Starz; Hilton, InStyle; Propper Daley; Waldorf Astoria; Bon Appétit Management Company; Endeavor; March Capital; Rosetta Getty.	
Government And Management Structure	Governance	
	Private	Yes
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	Non-profit
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	No
	Other	Trust (The J. Paul Getty Trust)
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	No
	International scope	Yes
Structure		
Description of government and management structure	Officers (President and CEO; Vice President, Chief Financial Officer and Chief Operating Officer; Controller; Vice President, Chief Investment Officer and Treasurer; Managing Director, Equities & Bonds and Assistant Treasurer; Vice President, General Counsel and Secretary to the Board of	

		Trustees; Vice President, Chief Digital Officer; Vice President, Communications; Vice President for Development); Directors of the Getty Foundation, the Getty Research Institute, the J. Paul Getty Museum and the Getty Conservation Institute; Board of Trustees; Board Committees (Executive Committee, Antiquities Review Committee, Audit Committee, Compensation Committee, Development and External Affairs Committee, Finance Committee, Governance Committee, Investment Committee)
Business Model And Business Plan	External supporting funding	Sponsorships, Donations
	Co-financing	None
	Financial resources	Getty Patron Program (Friend, with an annual gift of \$1,000 or more; Associate, with an annual gift of \$5,000 or more; Fellow, with an annual gift of \$10,000 or more; Partner, with an annual gift of \$25,000 or more; Benefactor, with an annual gift of \$50,000 or more)
	Physical resources	Getty Center spaces
	Budget holder	Private
	Other relevant information	
	Portfolio of Services	Brief description
Consultancy and orientation		
Consultancy and orientation		Yes
Access to financing services		Yes
Scouting and ecosystem building		No
Training and capacity building		
Awareness creation		Yes
Collaborative research		Yes
Visioning and strategy development		Yes
Mentoring		Yes
Training and skills development		Yes
Conferences, Training, Meetings		Yes
Support in innovation and projects		
Competitive mass production		Not Applicable
Commercial Infrastructure		Yes
Incubator / accelerator support		No
Testing and validation		No
Market intelligence		No
Prototyping		Not Applicable

	validation	
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	<p>Getty Volunteers and Docents connect with people, inspiring a love of art and shaping memorable experiences of the architecture and gardens at the Getty Center and Getty Villa. Getty Center welcomes diverse applicants who are eager to share their creativity and passion with students and visitors from the community and around the world. Getty Center is committed to the ideals of generosity, inclusivity, truth, and the belief that the docent corps should be representative of the great diversity of Los Angeles. It is not needed an art degree or any artistic training to be a docent. All it is needed is a passion to connect visitors and students with museums and the visual arts through shared experiences. Getty Center works to make a lasting difference in conservation practice and art historical research and to promote knowledge and appreciation of art also through other efforts, such as conservation work, publications, exhibitions, grant initiatives and training programs.</p>	
Audience/target groups	<p>Getty Center audiences are composed of interested people in visual art and cultural heritage of all ages.</p>	
Networks of stakeholders	<p>Scientists, conservators, archaeologists, architects, information specialists and scholars.</p>	
Coordination with other similar entities / Ecosystem / Hubs	<p>Getty Center is coordinated with Getty Villa Museum (17985 Pacific Coast Highway, Pacific Palisades, CA 90272) dedicated to the arts and culture of ancient Greece, Rome and Etruria.</p>	
Use of Platform/digital infrastructure	<p>Website; blog platform; Facebook, Instagram and Twitter pages; YouTube channel; Soundcloud.</p>	
Steps to setting up/launch of the CC, KC or similar entity	<p>Getty is the legacy of the businessman and art collector J. Paul Getty, and his view that art is a civilizing influence in society. Throughout his adult life, he took greater and greater steps to make art available for the public's education and enjoyment. Starting in 1948, he gave significant pieces from his personal collection to the Los Angeles County Museum of Art. In 1953, he established the J. Paul Getty Museum Trust. The J. Paul Getty Museum, which collects, presents, conserves and interprets great works of art, opened to the public in 1954. The Getty Research Institute, which conducts pioneering research in art history and the humanities, established in 1982. The Getty Publications established in 1983. The Getty Foundation, which supports the understanding and preservation of the visual arts through strategic grant initiatives around the world, established in 1984. The Getty Conservation Institute, which advances the practice of cultural heritage conservation worldwide, established in 1985. In 1984, the J. Paul Getty Trust hired the New York-based architect Richard Meier to design the Getty Center that opened in 1997, housing the Conservation Institute, the Research Institute, the Foundation and the Museum's collections of European paintings, sculptures, decorative arts, drawings and manuscripts from the middle ages to the early 20th century, and photographs.</p>	
Possible link with the future CC on CH	<p>Collaboration with the Getty Conservation Institute which is dedicated to the practice of cultural heritage conservation worldwide.</p>	
Relevant services/activities/other useful	<p>Research and conservation activities (preventive conservation and collections care, modern and contemporary art, decorated surfaces);</p>	

per building our CC	education (teaching and learning resources); publications.
References	https://www.getty.edu ; http://blogs.getty.edu/iris/

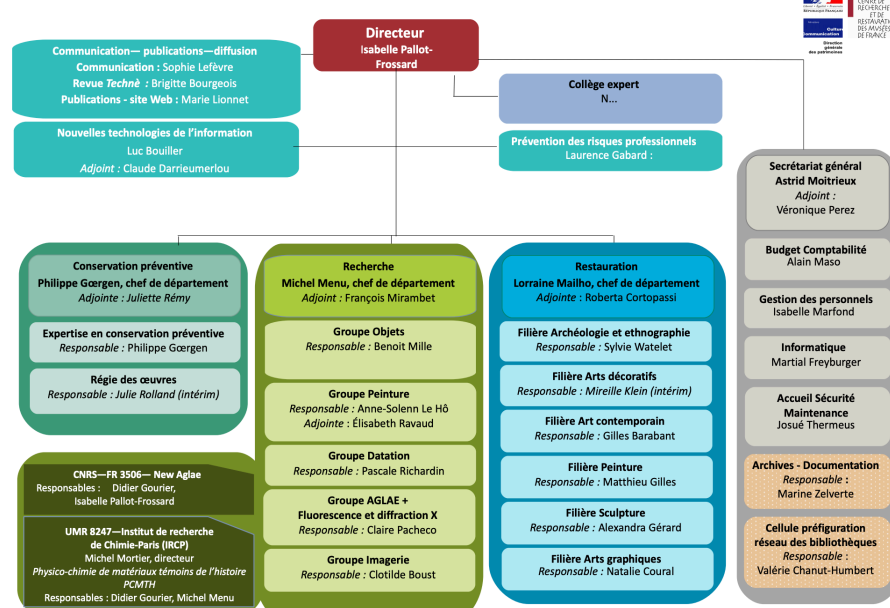
9.6 Le laboratoire de recherche des monuments historiques (LRMH)		
Field	Cultural heritage conservation	
Type	National UE - public	
Country (Europe)	France	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	https://www.lrmh.fr	
Site	both physical and digital	
Headquarters (if applicable)	LRMH 29 rue de Paris, 77420 Champs-sur-Marne (France)	
Year of foundation	1967	
Main focus	Provide scientific interventions and studies on national (and mainly public) tangible cultural heritage.	
Operational areas / thematic departments	The Laboratory is structured in 8 thematic departments plus 2 transversal domains. The thematic departments are selected around the different materials composing the CH that are studied inside the laboratory: concrete, painted caves, metals, wall pictures and polychrome, stone, glass, wood, microbiology, fabric and textile. The transversal departments are Documentation and Photography.	
Mission and Strategy	The main purpose of the centre is to provide scientific support for interventions on tangible cultural heritage in France (public CH mainly). They also give scientific support and control on interventions on private CH and on public CH not owned by the government. The Laboratory in fact intervenes in the framework of the government scientific and technical control.	
Value proposition	High level competences (scientific and technical) on restoration and (more in general) interventions on CH	
Legal structure	Non-profit Organisation	
Partnerships	State, Research centres, Universities, Industries	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	Yes (secondary)
Structure		
Description of government and management structure	The LRMH has the following components: - 34 agents (scientists with the status of State Public Agents) - presence of two deputy managing directors (one female and one male) (directeurs adjoint) from the Conservateurs	

		du Patrimoine expertise - central secretariat with support and welcome tasks - a Centre de ressources (centre of resources) They collaborate (as main interlocutors) with Directions Régionales des Affaires Culturelles (DRAC), Architectes en Chefs des Monuments Historiques (ACMH), Conservateur Régionaux des Monuments Historiques (CRMH).
Business Model And Business Plan	External supporting funding	Sponsorships, EU funding, etc.
	Co-financing	% of co-financing from public or private entities
	Financial resources	Main revenue streams, e.g. patents, service provisions, etc.
	Physical resources	Spaces, licences, etc.
	Budget holder	National, private, public-private, etc.
	Other relevant information	
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	...
	Training and capacity building	
	Awareness creation	No
	Collaborative research	Yes
	Visioning and strategy development	...
	Mentoring	...
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	...
	Market intelligence	No
	Prototyping validation	...
	Others	
	Digital maturity assessment	...
Coworking areas or spaces	...	

	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	The Laboratory develops engagement practices and promotion strategies through two strategies: the first one being present scientifically inside high educational institutions (e.g. Universities) through the creation of dedicate courses, stages, internship as well as with partnering PhD thesis; the second one developing public-private partnerships with industries and other bodies in order to stay aligned with the industry of materials and products for the restoration and conservation of CH (they created the Cercle des partenaires du patrimoine).	
Audience/target groups	The main target group is the public sector owning CH buildings/pieces. They also target private owning CH	
Networks of stakeholders	The LRMH is part of several European Projects and networks such as: NANOMATCH, CHARISMA, IPERION CH, platform E-RIHS. They also co-operate at the international level through several "missions d'expertise" (scientific-expert missions) also outside Europe (e.g. Luxor in Egypt, Éthiopie, Zimbabwe, China, Cambodge (Projet CAST:ING).	
Coordination with other similar entities / Ecosystem / Hubs		
Use of Platform/digital infrastructure	The LRMH has online materials on the Système Numérique Appliqué au Patrimoine et à ses SciencEs (SYNAPSE) platform, where it is possible to find several research materials. However this platform is accessible only through inscription that is allowed only to specific researchers in specific fields.	
Steps to setting up/launch of the CC, KC or similar entity		
Possible link with the future CC on CH	An interesting aspect that they developed is the possibility to be asked for scientific support in case of scientific restorations. Thus the centre has the possibility to create consultations with professionals working in CH sites.	
Relevant services/activities/other useful per building our CC	This knowledge centre provides scientific and technical support to restoration and conservation processes and actions of the public French cultural heritage. It also offers consultation to private-owned cultural heritage as well. It provides technical and scientific contents (divided in main themes) but also educational collaborations with relevant institutions.	
References	Mainly their own website and the Wikipedia page they created (and that is sponsored inside their website)	

9.7 The Centre for Research and Restoration of the Museums of France (C2RMF)		
Field	Cultural heritage conservation	
Type	National UE - public	
Country (Europe)	France	
Country (Extra-Europe)	Not Applicable	
Partner (responsible)	09. UNIBO	
Website	c2rmf.fr	
Site	both physical and digital	
Headquarters (if applicable)	Paris, Palais du Louvre	
Year of foundation	1998 With an administrative decision issued by Catherine Trautmann and the Minister of Culture and Communications - It merged the former Laboratoire de Recherche des musées de France (LRMF) and the Service de restauration des musées de France (SRMF)	
Main focus	Conservation and restoration of museums cultural heritage (focus on museums collections).	
Operational areas / thematic departments	4 Departments: 1) Research, 2) Restoration, 3) Preventive restoration, 4) Archives and Innovative Information Technologies	
Mission and Strategy	The centre is responsible for the documentation, conservation and restoration of the items held in the collections of more than 1,200 museums across France. C2RMF also carries out extensive scientific studies and data recording for these collections, and is active both nationally and internationally in the field of cultural heritage conservation and analysis. The C2RMF is involved in the development of technologies and scientific procedures employed in the preservation of art works and artefacts, both on its own and in partnership with other museums and research institutions across the globe. Its mission is framed under three axis: scientific research (especially linked with materials), the restoration of museums heritage and the control on (both scientific and technical) on the state of conservation of the heritage. In addition to this, the Centre also provide documentations on materials, techniques and restoration methodologies.	
Value proposition	Due to the high quality (both scientific and technical) of the centre, it is recognised as an everyday partner for national museums in the preservation and restoration of cultural heritage. It is therefore nationally and internationally recognised as a key player into the definition of conservation and restoration control and methods.	
Legal structure	Non-profit Organisation	
Partnerships	State, Museums	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	

	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	No
	Structure	
Description of government and management structure	Director + linked structural bodies (General secretariat + Budget and Finance + Personnel office + Computing/technical office + Security + Archives + Office for the relation with the libraries network) Supporting/transversal bodies: 1) Communication-publications-diffusion; 2) New information technologies; 3) Collège expert; 4) Professional risks prevention Core thematic part: 1) Preventive conservation; 2) Research; 3) Restoration	
Business Model And Business Plan	External supporting funding	
	Co-financing	
	Financial resources	
	Physical resources	The Center has several physical offices/labs in Paris
	Budget holder	National
	Other relevant information	
Portfolio of Services	Brief description	The centre provide scientific, technical and operative work for the conservation and restoration of cultural heritage inside national museums.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes Not directly, but indirectly yes (among other researchers more than with the wide public)
	Collaborative research	No precise info. It doesn't seem they host researchers or similar.
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No

	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	Yes, with new technologies
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	...
	Data collection and integration	Yes
	Other	
	Workflows	
	 <p>Organigramme 29 mars 2019</p>	
Engagement practices and promotion strategy	The Center is active into communication and dissemination activities especially through a journal (Technè), the organisation of several days of study and seminars.	
Audience/target groups	Researchers, other research institutions, museums	
Networks of stakeholders	The centre has Partner Centres: Centre de recherche sur la conservation (https://crc.mnhn.fr/fr), Getty Conservation Institute (http://www.getty.edu/conservation/), Laboratoire de recherche des Monuments Historiques (http://www.lrmh.culture.fr/).	
Coordination with other similar entities / Ecosystem / Hubs		
Use of Platform/digital infrastructure	Digitalization of the heritage is present on the EROS archive (http://www.numerique.culture.fr/pub-fr/document.html?base=service&id=FR-SE-	

	90f44288).
Steps to setting up/launch of the CC, KC or similar entity	Not available
Possible link with the future CC on CH	Nothing to report
Relevant services/activities/other useful per building our CC	The Center has the mission of providing technical and scientific support for the conservation and restoration of national museums heritage. It is focused on the heritage contained inside the museums. It provides operative and scientific support on the restoration.
References	Official website

9.8 docomomo international	
Field	Cultural Heritage
Type	WW - other (NGO, etc.)
Country (Europe)	Not Applicable
Country (Extra-Europe)	Not Applicable
Partner (responsible)	09. UNIBO
Website	https://www.docomomo.com
Site	only digital
Headquarters (if applicable)	Instituto Superior Tecnico - University of Lisbon
Year of foundation	1988
Main focus	Documentation and conservation of buildings, sites and neighbourhoods of the Modern Movement
Operational areas / thematic departments	Docomomo International has six International Specialist Committees (ISC) comprised of experts and specialists in modern architecture, theory, construction technology, landscape and interior design: ISC/Registers, ISC/Technology, ISC/Urbanism+Landscape, ISC/Education+Training, ISC/Interior Design and ISC/Publications. They work under the supervision of Docomomo International.
Mission and Strategy	Docomomo International's missions are: to act as watchdog when important Modern Movement buildings anywhere are under threat; to exchange ideas relating to conservation technology, history and education; to foster interest in the ideas and heritage of the Modern Movement; to elicit responsibility towards this recent architectural inheritance. Docomomo International's strategy is to realize a worldwide network connecting people with interest and knowledge in modern architecture and bringing together historians, architects, town-planners, landscape architects, conservationists, teachers, students and public officials.
Value proposition	Docomomo International's values to be delivered, communicated and acknowledged lie in the aim: to bring the significance of the architecture of the Modern Movement to the attention of the public, the authorities, the professionals and the educational community; to identify and promote the surveying of the works of the Modern Movement; to promote the conservation and (re)use of buildings and sites of the Modern Movement; to oppose destruction and disfigurement of significant works; to foster and disseminate the development of appropriate techniques and methods of conservation and adaptive (re)use; to attract funding for documentation conservation and (re)use; to explore and develop new ideas for the future of a sustainable built environment based on the past experiences of the Modern Movement.
Legal structure	Non-profit Organisation
Partnerships	Docomomo International has the support of the university and the city hall where the headquarters are located. It has Institutional Partners (Villa Tugendhat, Czech Republic; Museum of Estonian Architecture, Estonia; Alvar Aalto Museum, Finland; Keski-Suomen Museo, Finland; Muuratsalo Experimental House, Finland; Serlachius Museum, Finland; Studio Aalto, Finland; The Aalto House, Finland; Villa Kokkonen, Finland; HARG House, France; Villa Noailles, France; Fondazione Franco Albini, Italy; CIALP, Portugal; Lisbon Architecture Triennale, Portugal; BACU Association, Romania; Museum of Yugoslav History, Serbia; Museum of Architecture and Design, Slovenia; New Synagogue Zilina, Slovakia; Mies van der Rohe Pavilion, Spain; Maison Blanche, Switzerland; Schweizerisches Architecture Museum, Switzerland; Van Schijndel House, The Netherlands; Museum of Architecture, UK; Canadian Centre for Architecture, Canada; Historic New England – Gropius House, USA; Liljestrand House, USA; MAK Center for Art and Architecture at the Schindler House, USA; Manitoga House, USA; Neutra Silverlake Museum, USA; Casa Curutchet, Argentina; Casa del Puente, Argentina; ARQ ediciones, Chile; Museo Estudio Diego Rivera y Frida Kahlo, Mexico; Cultura Chacao, Venezuela; Bauhaus Center Tel Aviv, Israel; The National Museum of

	Western Art, Japan; ArchiAfrika, Ghana; Casa da Arquitectura, Portugal; Fundação Calouste Gulbenkian, Portugal; Fundação de Serralves, Portugal; Fundação Serra Henriques, Portugal; Harg House, France; ICOMOS, France; ICONIC HOUSES, United States; Modern Asian Architecture Network (mAAN); Ordem dos Arquitectos, Portugal; Rehabimed, Spain; UIA, France; UNESCO, France) and Institutional Members, such as universities, academies, agencies, foundations, architecture offices, libraries, institutes and centres.	
Government And Management Structure	Governance	
	Private	No
	Public	No
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	Non-profit
	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	No
	Other	
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	No
	International scope	Yes
Structure		
Description of government and management structure	Executive Committee (Chair of Docomomo International, Docomomo International Conference Representative, ISC Representative, Former Secretary General); Advisory Board; ISC; Docomomo Chapters.	
Business Model And Business Plan	External supporting funding	Sponsorships, Memberships
	Co-financing	None
	Financial resources	Student membership (30€), Individual membership (60€), Institutional membership (300€), Corporate membership (1.500€)
	Physical resources	None
	Budget holder	Non-profit organization
	Other relevant information	
Portfolio of Services	Brief description	Organization and promotion of conferences, workshops, exhibitions, research projects, news and tours.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes

	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	
	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	Not Applicable
	Commercial Infrastructure	Yes
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	Not Applicable
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	No
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	Docomomo International organizes workshops, PhD weeks, conferences and virtual exhibitions. The promotion strategy includes also the open-access and peer-reviewed Docomomo Journal.	
Audience/target groups	Universities, Public Institutions, Research Centres and people interested in knowing and conserving the Modern Movement works.	
Networks of stakeholders	Docomomo International's worldwide network of stakeholders is composed of experts, specialists and scholars.	
Coordination with other similar entities / Ecosystem / Hubs	Docomomo International is coordinated with the national Docomomo chapters.	
Use of Platform/digital infrastructure	Docomomo International website; Docomomo Conference website; Docomomo International virtual exhibitions website (MoMoVe); Docomomo International Facebook and Instagram pages; Docomomo International Youtube channel; Docomomo chapters websites; Docomomo chapters Facebook, Instagram and Twitter pages.	
Steps to setting up/launch of the CC, KC or similar entity	Docomomo International initiated in 1988 by Hubert-Jan Henket, architect and professor, and Wessel de Jonge, architect and research fellow, at the School of Architecture at the Technical University in Eindhoven, the Netherlands. In 2002, the Docomomo International secretariat relocated to Paris and was hosted by the Cité	

	de l'Architecture et du Patrimoine in the Palais de Chaillot. The chair and secretary general were Maristella Casciato, architect and architectural historian, and Émile d'Orgeix, architectural historian, with Anne-Laure Guillet being director. In 2010, the Docomomo International secretariat relocated to Barcelona, hosted by the Fundacion Mies van der Rohe. Currently Docomomo International is hosted in Lisbon, at Instituto Superior Tecnico - Lisbon University. The chair is Ana Tostões, architect, architecture historian, member of Docomomo Iberico and Full Professor at the Civil Engineering and Architecture Department of the Instituto Superior Técnico - Lisbon University.
Possible link with the future CC on CH	Conservation of buildings, sites and neighbourhoods of the Modern Movement.
Relevant services/activities/other useful per building our CC	Cataloguing of Modern Movement works with relative information sheets; promotion of events and activities on conservation of Modern Movement works; latest news about buildings, sites and neighbourhoods of the Modern Movement; publication of a Journal.
References	https://www.docomomo.com ; https://www.docomomoitalia.it

9.9 The Discovery Programme: Centre for Archaeology and Innovation Ireland		
Field	Cultural Heritage	
Type	National UE - private	
Country (Europe)	Ireland	
Country (Extra-Europe)	Extra-European (Continent) Country of affiliation	
Partner (responsible)	15. CARARE	
Website	Cultural Heritage	
Site	http://www.discoveryprogramme.ie/	
Headquarters (if applicable)	Both physical and digital	
Year of foundation	6 Mount Street Lower, Dublin	
Main focus	1991	
Operational areas / thematic departments	Archaeological and cultural heritage research	
Mission and Strategy	research, technology and outreach departments, administration.	
Value proposition	The Discovery Programme's mission is to explore Ireland's past and its cultural heritage by conducting advanced research in Irish archaeology and related disciplines and by disseminating its findings widely to the global community.	
Legal structure	<p>The Discovery Programme is a national archaeological research body supported by the Heritage Council. The Discovery Programme pursues its goals by identifying 'gaps' in our knowledge or areas where intense research is required or would be valuable. A dedicated project team is then employed for a suitable period to pursue the topic in question.</p> <p>It conducts advanced analysis of Irish Archaeology and pursues its goals by identifying 'gaps' in our knowledge or areas where intense research is required or would be valuable. A dedicated project team is then employed for a suitable period to pursue the topic in question. It promotes interdisciplinary research involving experts in the humanities (anthropologists, historians, linguist) and the sciences (particularly the sciences that study the landscape and environment of the past; paleoenvironmental, osteoarchaeological, geological, flora and fauna).</p> <p>It engages with constantly evolving new technologies in digital imaging and surveying techniques and promotes their introduction into the operation of Irish archaeological more generally.</p> <p>It develops outreach activities to communicate the results of its projects to the general public as well the academic community. These activities include the publication of scientific books and papers and collaborative outreach projects with national cultural institutions, third and fourth level institutions, local authorities and local heritage partnerships.</p> <p>The Discovery Programme is funded through the Heritage Council and additional research grants, e.g. EU.</p>	
Partnerships	Non-profit Organisation	
Government And Management Structure	Governance	
	Private	Yes
	Public	No
	Joint Venture	Not Applicable
	Network	Not Applicable
	Public/Private	Not Applicable
	Other	

	Ownership	
	Academia-led	Yes
	Industry-led	No
	Government-led	Yes
	Other	NGO-led
	Scope/area of impact	
	Local scope	No
	Regional scope	No
	National scope	Yes
	International scope	Yes
	Structure	
	Description of government and management structure	The Discovery Programme's constitution has been changed to bring it into line with the Companies Act 2014 and with best practice in corporate governance. The company's new constitution came into effect in January 2016. Company members are nominated by sixteen Nominating Bodies representing archaeological and heritage bodies and higher-education institutions throughout Ireland. The Directorate consists of twelve Directors, six elected by the company members, four (including the Chair) by the Heritage Council and two external Directors. The organization's executive is headed by a Chief Executive Officer and Secretariat.
Business Model And Business Plan	External supporting funding	The Discovery Programme is funded through the Heritage Council, government research support, EU and other research grants
	Co-financing	100% public funding
	Financial resources	Public funding
	Physical resources	Office space, research infrastructure equipment and licences
	Budget holder	The Discovery Programme
	Other relevant information	The Discovery Programme is funded through the Heritage Council, government research support, EU and other research grants
Portfolio of Services	Brief description	
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	Yes
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes
	Training and skills development	Yes
	Conferences,	Yes

	Training, Meetings	
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	No
	Coworking areas or spaces	No
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
Engagement practices and promotion strategy	External stakeholders: citizens, third level students, cultural heritage institutions, Activities: workshops, webinars, training schools, conferences, social media, exhibitions, etc.	
Audience/target groups	Public Institutions, Research organisations, Companies, Universities, Students, Researchers, General Public, Community heritage groups	
Networks of stakeholders	Governed and integrated within 16 nominating bodies made up of government departments (both in Ireland and Northern Ireland), Universities (both in Ireland and Northern Ireland), professional bodies, museums and	
Coordination with other similar entities / Ecosystem / Hubs	Heritage Council, E-RIHS, CIPA Heritage Documentation	
Use of Platform/digital infrastructure	Digital Repository Ireland, Open Topographic Viewer, CARARE, Europeana, ARIADNEplus, social media, cross domain expert associations	
Steps to setting up/launch of the CC, KC or similar entity	To be investigated	
Possible link with the future CC on CH	The Discovery programme is currently carrying out the process of scoping its role within Ireland as a central support hub and research centre of excellence within the fields of applied technologies within archaeology and cultural heritage, including the spearheading of the establishment of a CIPA Heritage Documentation centre for Ireland.	
Relevant services/activities/other useful per building our CC	<p>Discovery Programme is a good example of an organisation that's establishing national competence centre within the framework of European initiatives.</p> <p>Discovery Programme has a novel and agile remit which places it within several strands of critical development of cultural heritage research including: government, third level institutions, commercial sector and public</p>	
References	Website and interview	

9.10 Transport Infrastructure Ireland, Archaeology and Heritage section	
Field	Cultural Heritage
Type	National UE - public
Country (Europe)	Ireland
Country (Extra-Europe)	Not Applicable
Partner (responsible)	15. CARARE
Website	https://www.tii.ie/technical-services/archaeology/
Site	only physical
Headquarters (if applicable)	Parkgate Business Centre, Parkgate Street, Dublin 8, Ireland
Year of foundation	2015
Main focus	<p>TII's Archaeology and Heritage section's primary objective is to minimise the archaeological and heritage impacts associated with TII's capital projects and programmes. The Section manages archaeological risk, ensures legislative compliance and builds public trust.</p> <p>For national roads, project archaeologists are assigned to local authority design teams, whereas for light rail and MetroLink, project archaeologists are assigned to TII project teams.</p> <p>The Section ensures dissemination of information arising from TII's many projects through engagement in regional heritage events and the publication of monographs and books on the archaeological and heritage aspects of TII projects.</p> <p>The Section also actively participates in international conferences, conventions and working groups. It also represents TII on several national and professional committees, where it can share its unique perspective with other stakeholders, while also being kept fully informed of best practice and emerging trends.</p>
Operational areas / thematic departments	<p>Overall TII has the following five divisions: Commercial Operations, Network Operations, Capital Programme Management, Professional Services, Business Services and Corporate Services.</p> <p>The Archaeology and Heritage Section comes under the remit of the Director for Professional Services.</p>
Mission and Strategy	<p>TII exists to fulfil an important purpose of national strategic significance, touching the lives of citizens and visitors alike on a daily basis.</p> <p>Our purpose is to provide sustainable transport infrastructure and services, delivering a better quality of life, supporting economic growth and respecting the environment.</p> <p>In fulfilling our purpose we strive towards three over-arching aims which, taken together, represent our vision:</p> <ul style="list-style-type: none"> • To be leaders in the delivery and operation of sustainable transport infrastructure; • To ensure that Ireland's national road and light rail infrastructure is safe and resilient, delivering better accessibility and sustainable mobility for people and goods; and • To be recognised as an organisation that values its people, customers and partners.
Value proposition	<p>Our way of working reflects five core values shared and promoted among all TII team members:</p> <ul style="list-style-type: none"> • Sustainability: We prioritise sustainability in our decision making, playing our part in addressing the climate and biodiversity crises; • Collaboration: We fulfil our purpose through effective teamwork, communication and partnership. • Innovation: We seek to create value relevant to our purpose through the application of new and better solutions. • Integrity: We inspire trust through honesty, fairness and accountability. • Spirit of Public Service: We are dedicated to providing quality service and value for citizens and visitors to Ireland.
Legal structure	Non-commercial semi-state Company

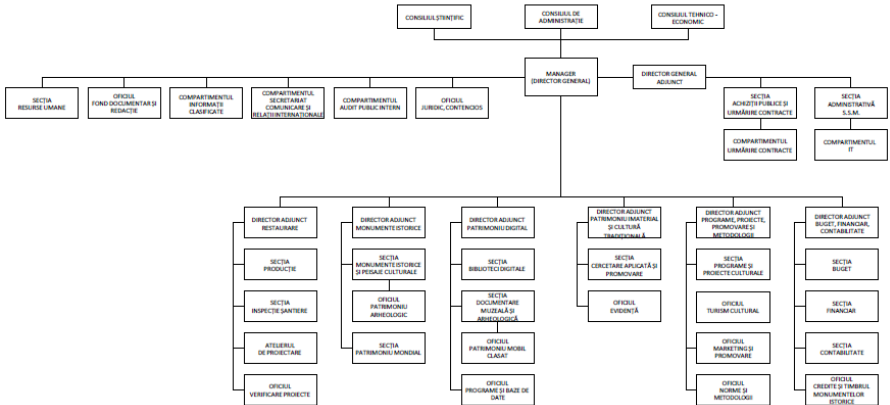
Partnerships	https://www.tii.ie/technical-services/archaeology/	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	Not Applicable
	Other	The Board of TII is responsible for the governance and strategic direction of TII.
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
International scope	Yes, Ireland and Northern Ireland	
Structure		
Description of government and management structure	<p>Transport Infrastructure Ireland (TII) discharges its mandate on behalf of Government under the direction of the Department of Transport in partnership with Local Authorities and the National Transport Authority (NTA). Transport Infrastructure Ireland was established through a merger of the National Roads Authority and the Railway Procurement Agency under the Roads Act 2015, with effect from 01/08/15.</p> <p>TII Archaeology and Heritage comprises archaeologists and is managed by the Head of Archaeology and Heritage, who reports to the Director for Professional Services, who in turn reports to the CEO.</p>	
Business Model And Business Plan	External supporting funding	Exchequer funding
	Co-financing	Not Applicable
	Financial resources	Not Applicable
	Physical resources	Not Applicable
	Budget holder	Not Applicable
	Other relevant information	<p>TII Archaeology and Heritage is a section within TII, which receives an annual budget to meet objectives in the Annual Plan, approved by the TII Board. While archaeological expenditure on national road projects is provided by TII in its role as approving authority. For certain projects another agency may be the approving authority (e.g. the National Transport Authority for Public Transport projects or the Department of Transport for specific national road infrastructure projects), in such circumstance the TII will be the sponsoring agency.</p>
Portfolio of Services	Brief description	For national roads, project archaeologists are assigned to local authority design teams, whereas for light rail and MetroLink, project archaeologists are assigned to TII project teams. The Section ensures dissemination of information

		arising from TII's many projects through engagement in regional heritage events and the publication of monographs and books on the archaeological and heritage aspects of TII projects. The Section also actively participates in international conferences, conventions and working groups. It also represents TII on several national and professional committees, where it can share its unique perspective with other stakeholders, while also being kept fully informed of best practice and emerging trends.
Consultancy and orientation		
Consultancy and orientation		No
Access to financing services		No
Scouting and ecosystem building		No
Training and capacity building		
Awareness creation		Yes
Collaborative research		Yes
Visioning and strategy development		Yes
Mentoring		Yes
Training and skills development		Yes
Conferences, Training, Meetings		Yes
Support in innovation and projects		
Competitive mass production		No
Commercial Infrastructure		No
Incubator / accelerator support		No
Testing and validation		Yes
Market intelligence		No
Prototyping validation		Yes
Others		
Digital maturity assessment		No
Coworking areas or spaces		Yes
Access to specific technologies and equipment		No
Data collection and integration		Yes
Other		
Workflows		

Engagement practices and promotion strategy	Website, Audiobooks, Publications and reference materials, Online magazine, Story maps, conferences, TII Heritage Digital Collections, videos etc
Audience/target groups	Government, Public institutions, Companies (Civil Engineering, Archaeology), Universities, researchers and members of the public
Networks of stakeholders	Department of Transport, National Transport Authority. National Monuments Service (Department of Housing, Local Government and Heritage), NMI (National Museum of Ireland), EAC (European Archaeological Council), RIA (Royal Irish Academy) Standing Committee for Archaeology. DRI (Digital Repository of Ireland), Discovery Programme.
Coordination with other similar entities / Ecosystem / Hubs	CEDR (organisation of European national road administration), EAC (European Archaeological Council)
Use of Platform/digital infrastructure	TII Digital Heritage Collections, hosted by the DRI (Digital Repository of Ireland).
Steps to setting up/launch of the CC, KC or similar entity	Information sharing
Possible link with the future CC on CH	Relations concerning common topics that could be potentially activated
Relevant services/activities/other useful per building our CC	Networks with key stakeholders at national and international levels. Ability to pilot innovations through our contracts and frameworks.
References	

9.11 Institutul Național al Patrimoniului (INP)		
Field	Cultural Heritage	
Type	National	
Country (Europe)	Romania	
Country (Extra-Europe)		
Partner (responsible)	17. INP	
Website	https://patrimoniul.ro/ ; http://www.cimec.ro/	
Site	both physical and digital	
Headquarters (if applicable)	Str. Ienăchiță Văcărescu nr. 16, Sector 4, București 040157	
Year of foundation	2009	
Main focus	Culture Heritage preservation, architectural restoration, digital evidence and dissemination	
Operational areas / thematic departments	Digital heritage Dept., Historical monuments Dept., Architectural Restoration Dept., Intangible heritage and traditional culture Dept., Programmes, projects and methodology Dept.	
Mission and Strategy	INP manages the consolidation and restoration funds destined to the research, expertise and execution of the historical monuments, provides specialized technical assistance for the Ministry of Culture in the field of protection of historical monuments; proposes to the Ministry of Culture the initiation of normative acts in the field of protection of historical monuments; develops and maintains national databases and evidence instruments for archaeological heritage, mobile cultural heritage, intangible cultural heritage; accredits experts, technical experts, verifiers/technical verifiers and specialists.	
Value proposition	Documentation, accessibility and dissemination of cultural heritage in digital format. Preservation of historical monuments through restoration and research. Development of thematic projects for the knowledge and capitalization of the cultural heritage.	
Legal structure	Public body	
Partnerships	Museums, Research Institutes, Universities, other cultural institutions both national and European ones	
Government And Management Structure	Governance	
	Private	No
	Public	Yes
	Joint Venture	No
	Network	No
	Public/Private	No
	Other	
	Ownership	
	Academia-led	No
	Industry-led	No
	Government-led	Yes
	Other	
	Scope/area of impact	
	Local scope	Yes
	Regional scope	Yes
	National scope	Yes
International scope	Yes	
Structure		

	Description of government and management structure	The institute is run by a general manager hired on the basis of the management contract, concluded following a competition of management projects. The general manager of the Institute leads the entire activity of the institution, which he represents in the relations with the public authorities, institutions and organizations, as well as with the legal and natural persons from the country or from abroad. In the exercise of his duties, the manager is assisted by the Board of Directors of the Institute, a collective body with a deliberative management role: 1 Deputy General Director, 5 Deputy Directors, Heads of Department.
Business Model And Business Plan	External supporting funding	No
	Co-financing	No
	Financial resources	Public funds and services contracts
	Physical resources	2 office premises owned , 1 rented office, 2 rented archives locations
	Budget holder	National
	Other relevant information	
Portfolio of Services	Brief description	Own revenues are obtained from activities carried out directly by INP: contracting and conducting studies, research and expertise in the field of cultural heritage; carrying out specialized works and services in the field of protection of historical monuments; publishing and selling materials on the protection and enhancement of historical monuments, movable and intangible heritage; co-financing of programs and projects; publications, editorial services; capitalization of the assets it has in administration: archives, photo library and others; sponsorships or donations; attestation of specialists, experts and technical verifiers in the field of protection of historical monuments, based on tariffs approved by the Ministry of Culture; renting the real estate he has in administration, in accordance with the law. INP also manages the amounts obtained from the application of the stamp of historical monuments for: granting credits with priority for urgent intervention works on historical monuments, financing the development of regulations on historical monuments or financing arrangements to prepare historical monuments for free visits.
	Consultancy and orientation	
	Consultancy and orientation	Yes
	Access to financing services	No
	Scouting and ecosystem building	No
	Training and capacity building	
	Awareness creation	Yes
	Collaborative research	Yes
	Visioning and strategy development	Yes
	Mentoring	Yes

	Training and skills development	Yes
	Conferences, Training, Meetings	Yes
	Support in innovation and projects	
	Competitive mass production	No
	Commercial Infrastructure	No
	Incubator / accelerator support	No
	Testing and validation	No
	Market intelligence	No
	Prototyping validation	No
	Others	
	Digital maturity assessment	Yes
	Coworking areas or spaces	Yes
	Access to specific technologies and equipment	Yes
	Data collection and integration	Yes
	Other	
	Workflows	
	<p style="text-align: right; border: 1px solid black; padding: 2px;">Număr de posturi aprobate: 124, din care: 1.posturi de conducere - 34(1 manager/director general), 1 director general adjunt, 6 directori adjunți, 14 șefi secții, 11 șefi atelier, 1 șef atelier) 2.posturi de execuție - 90</p> <p style="text-align: center;">ORGANIGRAMA INSTITUTULUI NAȚIONAL AL PATRIMONIULUI</p> 	
Engagement practices and promotion strategy	Website, Workshops, Webinars, Publications, National Center for Information and Promotion of Cultural Heritage, Annual conferences	
Audience/target groups	General public, Museums, Research Institutes, Universities, Private companies, educational organisations	
Networks of stakeholders	Cooperation engagement with a wide range of organisations and projects. (e.g. European, Carare)	

Coordination with other similar entities / Ecosystem / Hubs	
Use of Platform/digital infrastructure	data sharing platforms (web portal e-patrimoniu.ro), social media platforms (Facebook), media sharing platforms (YouTube), Data sharing platforms (Google Drive, Google calendar and Google tools)
Steps to setting up/launch of the CC, KC or similar entity	In 1978, the Computing Office was established (subordinated to the National Museum of History), with the objective of implementing the computerization of the national evidence of cultural heritage. In 1981 it became the Computing Center for Culture (subordinated to the Council of Socialist Culture and Education), having responsibilities for computerized documentation of cultural heritage. In 1990 - the Computing Center for Culture becomes the Center for Informatics, Memory and Cultural Synthesis (CIMEC), an extra-budgetary public institution with legal personality, subordinated to the Ministry of Culture. In 2009, two institutions with responsibilities in the field of heritage are merged and form the National Institute of Heritage [INP], and by Government Ordinance, in 2011, the Institute of Cultural Memory - CIMEC is merged by absorption with INP.
Possible link with the future CC on CH	To be investigated
Relevant services/activities/other useful per building our CC	Creation of procedures, guides and standards for digital evidence of cultural heritage and for the restoration of historical monuments. Knowledge on digital data management (storage and long-time preservation of digital content). 3D modelling for digital conservation of museum's collections and historical monuments and sites Developing of ontologies and solution for conversion and mapping different metadata schemes Developing of data bases for culture heritage evidence and of websites for culture heritage dissemination
References	

ANNEX 2

Questionnaire template



QUESTIONNAIRE

Section 1/6 - CREDITS OF EXTERNAL CONTACT

Name and Surname	
Entity affiliation	
Role	
Contacts (e-mail, phone number)	
Place, date of the survey	
Interviewer's Name and Surname (4CH partner)	

Section 2/6 - GENERAL INFORMATION

Equipments / Facilities [1/2]

Does the organization/institution have physical headquarters, offices or facilities and, if yes, which ones?

(e.g. offices, libraries, meeting rooms, training spaces, technical infrastructures, repositories, etc.)

Equipments / Facilities [2/2]

Can the organization / institution benefit of optional physical resources?

(e.g. conference rooms, additional spaces, etc.)

If so, does the organization / institution manage these spaces / resources directly? Or does it only benefit from their use?)

Legal structure

What is the legal structure of the organization / institution?

(e.g. limited company, consortium, non - profit organisation, etc.)

Partnership / Networking [1/2]

How is a new partner selected / admitted by the organization / institution and based on what criteria is the selection made?

Partnership / Networking [1/2]

What are the organization's main networking channels?

Steps to setting up / launch the organization / institution

Please describes the phases of the definition of the structure and operation of the organization / institution.

(e.g. stakeholders consultation, participation practices, engagement, impact assessment, new procurements, etc.)

Professionalism / staff [1/2]

How many people and with what professionalism are part of the permanent and additional staff?

(e.g. Does the organization / institution have full time personnel? What is the percentage ratio between permanent and additional staff? An annual turnover is envisaged for the organization of the staff? How is the staff recruited?)

Professionalism / staff [2/2]

What kind of expertise, skill and professionalism roles must necessarily be involved in the development and management phases of the organization / institution's structure / staff?

Section 3/6 - GOVERNMENT AND MANAGEMENT STRUCTURE

Government Structure

What are the organization / institution's governmental bodies?

(e.g., Stakeholders, Collaborating partners, Board of directors, Board of trustees, Supervisory Board, Executive Board, Strategic Committee, Scientific and Technological Committee, Financial Committee, Steering committee, President, etc.)

Management Structure

What is the organization / institution's chart?

(e.g., General Director, Business Development Manager, Administration & Finance Manager, Training and Consulting Services Manager, Pilot Plant Manager, Marketing & Communications Manager Business Development Associate, Administration Associate, etc.)

Section 4/6 - BUSINESS MODEL AND BUSINESS PLAN

Funding system

What is the present financial / funding system and history of the organization / institution?

(e.g. What is the organization / institution current annual budget?

How is the organization / institution funded? Does organization / institution rely on external funding?

Are they local / regional / national / international funding? Public and / or private?

What are the reasons why these external funders are interested in participating in the financing of the institution/organization?

Where do funds come from in the different steps (starting from the very beginning)?

What eventual problems resulted from the funding system, during the different steps?

How did the organization / institution solve these problems?

Has the organization / institution estimated the costs correctly in the first place?

Was the organization / institution too optimistic and later found that the costs were higher than anticipated? What did the organization / institution do then?

Are the fixed costs fully balanced by some sort of fixed cash contribution? Or do they rely on occasional work? Are they geared on winning Framework Projects funding? Is that what makes them run?)

Long-term sustainability

How does the organization / institution manage long-term sustainability (financial / management aspects)?

(e.g. What are the strength point of the sustainability of the organization/institution? What are the critical issues that have emerged so far? How are fixed costs balanced?)

Section 5/6 - PORTFOLIO OF SERVICES

Service management [1/4]

What services are provided?

(e.g. orientation, training, consultancy, project support, etc.)

Service management [2/4]

How does the organization / institution manage the provision of services?

(e.g. Are the services provided by the organization / institution managed and organized internally or do they rely on external support?

Has the service management model followed by the organization / institution proved efficient? If so, does the organization/institution intend to change its management strategy?

What are the service / activity gaps that the organization / institution must fill?

What are the services / activities that the organization / institution intends to implement? For what reasons? In response to what needs / requests?

Are the services that the organization / institution provides free or paid?)

Service management [3/4]

Who are the users to whom the services provided by the organization / institution are mainly addressed?

(e.g. Public Institutions, Research Centres, Companies, Start-ups, Universities, Large Companies, Multinationals Companies, Research organisations, etc.)

Service management [4/4]

What are the main ways for users engagement of the services provided by the organization / institution?

(e.g. website, networking channels, platforms, partnership, etc.)

Section 6/6 - OTHER

Data management

What data management policy does the organization / institution follow?
(e.g. open science, "FAIR" data, etc.)

Working languages

What is the organization/institution 's official working language?

Other free questions of interest for the interviewer

Other free comments / remarkable points / suggestions from the respondent

MANY THANKS FROM THE 4CH CONSORTIUM!

ANNEX 3

Information on the processing of personal data



Information on the processing of personal data pursuant to art. 13 of Regulation (EU) 2016/679

You are invited to participate in a **Survey on Competence Centres and other relevant infrastructures in Europe** carried out by the Department of Architecture, in collaboration with 4CH project coordinator and partners.

The project is coordinated by INFN – Istituto Nazionale di Fisica Nucleare. The project coordinator is Francesco Taccetti, head of INFN's Cultural Heritage network INFN-CHNet. The above-mentioned survey is coordinated by the Department of Architecture in the persons of Danila Longo, University of Bologna. The 4CH project aims at designing a Competence Centre for the Conservation of Cultural Heritage. A list of the partners participating in the project is available on the project web site (<https://4CH-project.eu>).

Pursuant to art. 13 of Regulation (EU) 2016/679 (General Data Protection Regulation), please note that Alma Mater Studiorum – University of Bologna is the Data Controller of this survey and will process your personal data in compliance with the requirements of Regulation (EU) 2016/679 (General Data Protection Regulation) and Decree 196 dated 30 June 2003 as amended (Data Protection Code).

PARTIES INVOLVED IN PROCESSING

- **Data Controller**

Alma Mater Studiorum – University of Bologna (registered office: via Zamboni 33, 40126 - Bologna, Italy; e-mail: privacy@unibo.it; PEC: scriviunibo@pec.unibo.it).

- **Data Protection Officer of Alma Mater Studiorum – University of Bologna**

Registered office: via Zamboni 33, 40126 - Bologna, Italy; e-mail: dpo@unibo.it; PEC: scriviunibo@pec.unibo.it.

PURPOSES AND METHODS OF PROCESSING

Your personal data and, in particular, the data relating to your **Name and surname – Affiliation – Role – Contacts (e-mail, phone number) – Place and questionnaire compilation date**, will be processed by specifically authorised persons, both with and without the use of automated equipment, for the following purposes:

(A) PARTICIPATION IN THE RESEARCH AND RELATED OPERATIONS AND ACTIVITIES

If you give your consent to participate in the study in question, some of your personal data will be collected through:

- *survey,*
- *interview that will be transcribed.*

4CH Competence Center for the Conservation of Cultural Heritage

4CH is a Horizon 2020 project funded by the European Commission under Grant Agreement n.101004468 – 4CH.



As regards your personal data, any information 4CH has about you, including name, emails, phone numbers, etc., will be kept strictly confidential and safely stored. The Data Controller will not re-use or transfer your personal data to third parties outside the project team in charge of the survey. We will use your personal data only in reference to the present survey.

All electronic data will be stored on a password protected computer. Any paper copies will be kept in a locked filing cabinet. The details of the provisions for personal data safe storage and protection will be detailed in a project deliverable due at project month 7 (July 2021).

The data collected from the different consortium partners will be collected by the University of Bologna inside a unique repository. In compliance with the Open Data Research regulations of the European Commission, the dataset without identification details nor personal data will be deposited in the University of Bologna repository.

The data collected and stored for the realization of the study in question, will be kept for the duration of the project (36 months as of 1 January 2021). Thus, the data will be used exclusively for the period of the project and subsequently stored for administrative purposes in order to comply with the EU Regulations (see point B).

(A1) INFORMATION CONCERNING THE TRANSFER ABROAD TO NON-EU TERRITORY

Your personal data may be transferred to a Country not belonging to the European Union or to an international organization; in particular, they may be transferred to project partners based in Switzerland and Moldova. It is important that you express your consent to this transfer, given that Extra EU Countries may not guarantee an adequate level of data protection and there is the possibility that the data will be transmitted to other subjects currently unknown and/or which do not provide any guarantee with respect to the use of your data.

(A2) INFORMATION CONCERNING THE DISSEMINATION

It should be noted that the data will be disseminated only in strictly anonymous form, for example through scientific publications, statistics and scientific conferences.

Your answers to the questionnaire will be processed and the results will be included anonymously in a dedicated report, in aggregated form. It is however possible that some statements of yours, made in reference to the survey, are of particular interest and deserve being included in the survey conclusion quoting the author. In this case we will ask you by email a specific permission to do so, which you will be free to deny.

(B) CONSERVATION FOR ADMINISTRATIVE PURPOSES

Your data will also be processed for administrative accounting purposes and kept for the time strictly necessary for the pursuit of these purposes, except for the ten-year period to ensure the fiscal, accounting and administrative requirements required by law and, possibly, longer terms, not determinable a priori, as a consequence of different conditions of lawfulness of the treatment (for example, legal actions that make the treatment necessary for over ten years). All digital recordings will be destroyed after completion of the project

4CH Competence Center for the Conservation of Cultural Heritage

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LEGAL BASIS AND NATURE OF THE PROVISION OF DATA

The legal basis of the treatments referred to in point (A) described above lies in the consent, pursuant to art. 6, first paragraph, lett. a) of the Regulation (EU) 2016/679 (General Regulation on Data Protection) and, in the case of special categories of personal data, of art. 9, second paragraph, lett. a) of Regulation (EU) 2016/679. The consent to the processing for the purposes described above is optional.

However, it is specified that the provision of data for the purposes referred to in points (A) and (A1) is not mandatory but is essential for the achievement of the purposes described. The refusal to grant them will not allow you to participate in the study in question.

The provision of data for the purposes referred to in point (B) is necessary to comply with legal obligations regarding the conservation of administrative and accounting documents. In this case the legal basis can be found in the art. 6, paragraph 1, lett. c) and e), of Regulation (EU) 2016/679.

RIGHTS OF THE DATA SUBJECT

Without prejudice to the limitations placed on exercise of the rights of data subjects by arts. 2-*undecies* and 2-*duodecies* of the Data Protection Code (Decree 196/03), you, as a participant in this study and therefore a data subject, may exercise the rights granted pursuant and consequent to arts. 15-21 of the Regulation, including the right to request access to your personal data and its rectification or erasure, as well as to restrict the processing of your data, object to its processing and request its portability.

Please note that any consent given by you is given freely and may be revoked at any time, without any penalties or adverse effects, and without prejudicing the lawfulness of processing based on the consent given prior to revocation.

Requests to exercise the above rights may be presented to Alma Mater Studiorum – University of Bologna by contacting:

- prof. Beatrice Turillazzi, at the following email Beatrice.turillazzi@unibo.it, or
- prof. Danila Longo at the following email danila.longo@unibo.it or
- the project coordinator Francesco Taccetti: francesco.taccetti@fi.infn.it
- the project scientific director Roberto Di Giulio: dgr@unife.it

Lastly, should you believe that the processing of your personal data is in infringement of the provisions of Regulation (EU) 2016/679 or Decree 196/03 and subsequent amendments and additions, you have the right to lodge a complaint with the Italian data protection authority (known as the "Garante per la protezione dei dati personali"), pursuant to Article 77 of the Regulation (UE) 2016/679, or to refer to the appropriate courts (art. 79 of the Regulation).

4CH Competence Center for the Conservation of Cultural Heritage

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Consent for the processing of personal data

I, the undersigned _____,

institution of affiliation _____ based in

_____, address _____,

pursuant to the provisions of Regulation (EU) 2016/679 and Decree 196/2003 and subsequent amendments and additions and having read the above "Information on the processing of personal data".

give consent deny consent

for the processing - NECESSARY for the purpose of participating in the study in question - of my personal data for scientific research and statistical purposes in the manner and for the reasons described in the section entitled "Purposes and methods of processing" (point A).

give consent deny consent

to the transfer - NECESSARY for the purposes of participation in the study in question - outside the territory of the Italian State, to a country not belonging to the European Union that does not guarantee an adequate level of protection of personal data and the subsequent processing necessary for the purposes referred to in point (A1).

give consent deny consent

to the processing and the publishing - NOT NECESSARY for the purposes of participating in the study in question - of interviews without my identification data, with the methods and for the purposes described in point (A2).

give consent deny consent

to the processing and the publishing - NOT NECESSARY for the purposes of participating in the study in question - of my identifying data (for example: name, surname or role) by communicating and disseminating the interviews, in the manner and for the purposes described in point (A2).

give consent deny consent

to the storage and further use - NECESSARY for the purposes of participating in the study in question - of my personal data for the purposes and in the manner set forth in point (B).

Date

Signature

4CH Competence Center for the Conservation of Cultural Heritage

4CH is a Horizon 2020 project funded by the European Commission under Grant Agreement n.101004468 – 4CH.