

## EUROMED2018 COST WORKSHOP, CYPRUS, 31 OCTOBER 2018

### *HOW TO OVERCOME THE FRAGMENTATION IN CULTURAL HERITAGE RESEARCH AND FUNDING IN THE CONTEXT OF HORIZON EUROPE?*

#### WHAT IS COST?

- COST is the oldest (created in 1971) EU-funded programme for researchers to set up interdisciplinary research \*networks\* (COST Actions).
- COST is an Intergovernmental Organization with 37 full members COST Member and Israel as a Cooperating State.
- COST is running a permanently “open call” with regular collection dates (approx. each 9 months; the next one will be on Nov. 29): based on scientific excellence, proposals are interdisciplinary and bottom-up, providing a large spectrum of opportunities for researchers and innovators.
- By not setting research priorities, COST contributes to support high-risk, innovative and emerging research themes.
- It anticipates and complements the activities of the EU Framework Programmes, constituting a “bridge” between scientific communities. It increases the mobility of researchers across Europe and fosters the establishment of scientific excellence.
- COST Actions are providing networking instruments for scientists to cooperate and coordinate nationally funded research activities.
- COST Actions are for 4 years for organising conferences, meetings, training schools, short scientific exchanges or other networking activities in a wide range of scientific topics.

#### BACKGROUND INFORMATION

One year ago, COST Organised an event (**COST Connect**) on the “**Cultural Heritage in the Digital Era**” <https://www.cost.eu/news/general/cost-connect-cultural-heritage-in-the-digital-era/>.

COST Actions were invited to exchange with other related European research projects (taking into account the broad diversity of funding), relevant representatives of the European Institutions, end-users and partners (especially from the private sector).

The COST Connect on “Cultural Heritage in the Digital Era” was an open space for participants to identify and discuss how they could best contribute to structuring this field of cooperation that has shown high potential to create societal impact in Europe.

The event was seen as the **starting point** bringing together various disciplines and actors in the field with the aim to create and consolidate European partnerships. **This COST workshop in EuroMED2018 is a one of the follow-up:**

- Booklet document <https://www.cost.eu/wp-content/uploads/2018/10/Booklet-Cultural-Heritage-in-the-Digital-Era-Dec2017-1.pdf>

## THE COST WORKSHOP AT EUROMED2018

*How to overcome the fragmentation in Cultural Heritage research and funding in the context of Horizon Europe?"*

The workshop is designed as a panel discussion :

- participants from COST Actions will make a presentation of their activities
- the debate can be organised on the following (non exhaustive) topics:
  - *Fight against fragmentation of activities and dispersion of resources:*

Given the high interdisciplinary nature of the domain, the need for a better structured dialogue and a common understanding between communities is clearly a main priority. The difficult collaboration between scientists in Humanities and IT specialists is an opportunity and not an enemy and requires the main actors in the field to develop a new culture of sharing, to re-design their skills and profiles and to open up to co-creation.

- *Linking research with needs of society and citizens:*

Culture is more and more seen as the new cement for redefining European identity and integration. Investigating cultural heritage and promoting discoveries in combination with new technologies, contribute to a better understanding of our common past in order to valorise, conserve, protect and preserve the European heritage.

- *Dissemination of knowledge to the general public:*

It is a critical challenge, including how citizens can be actively involved in promoting, contributing and exploiting cultural heritage around them. This concrete example of "citizen science" becomes therefore innovative by connecting research for the benefit of the broad society: directly engage, involve citizens to protect and preserve cultural heritage for future generations.

- *Open data and data management*

A major challenge is the lack of ontologies and standard vocabularies. Open access culture is thus very limited in the field of cultural heritage, as is the reuse of data. The use of digitized data is important: common challenges are the approaches, how to develop these data, how to store and to handle it.

Regarding data management, this challenge is related to big data analytics and interoperability of data and models, particularly focused on semantic harmonization issues and its relation to the application level regarding data acquisition. Datafication has changed cultural heritage deeply, for example using information with a "Big Data" approach, for instance, for massive predictive analyses. Last but not least, the compatibility of various repositories and data bases including at international level with transnational navigation tools, is an additional challenge.

## PARTICIPATING COST ACTIONS

The Participating COST Actions are at different stage of completion (started date) :

- TD1201 (Nov. 2012) [TD1201 - Colour and Space in Cultural Heritage](#)
- IS1310 (April 2014) [IS1310 - Reassembling the Republic of Letters, 1500-1800 A digital framework for multi-lateral collaboration on Europe's intellectual history](#)
- TD1406 (May 2015) [TD1406 - Innovation in Intelligent Management of Heritage Buildings](#)
- CA15201 (Oct. 2016) [CA15201 - Archaeological practices and knowledge work in the digital environment](#)
- CA17131 (Oct. 2018) [CA17131 - The Soil Science & Archaeo-Geophysics Alliance: going beyond prospection](#)

The evolution of their network, both by disciplines and geographically, is shown in Annex IV-.

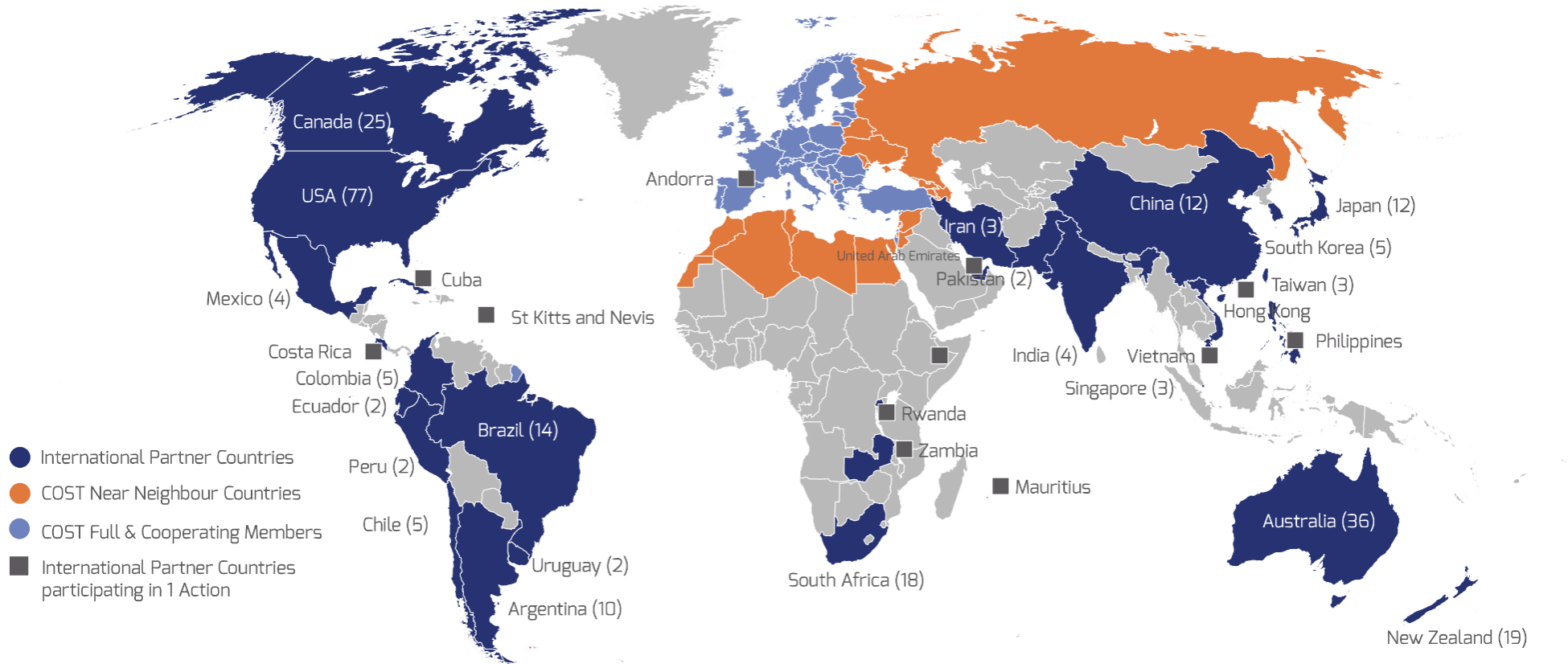
## PROPOSED SPEAKING POINTS

- How to overcome fragmentation is obviously over ambitious and provocative
- COST is a generalist funding entity for cooperation in Science & Technology not a specialised agency for Cultural Heritage (CH) > It shows that CH is now reaching a general audience and the Society at large.
- Last year, COST organised an event in Brussels (COST Connect) on the “Cultural Heritage in the Digital Era” .
- The event was very successful and seen as the starting point bringing together various disciplines and stakeholders with the aim to create and consolidate European partnerships.
- That’s why we are there today
- It confirmed the high interdisciplinary level of research for CH and the need for a structured dialogue between potential partners.
- That is indeed where COST can contribute to overcome fragmentation of research resources since it is well fitting with research needs for CH:
  - COST in an **H2020 program**: transnational proposals are selected on the basis of scientific excellence
  - It supports **transnational & multidisciplinary** research teams to cooperate
  - COST is **bottom up**: it is “project-oriented” and directly replies to a need from the field while the “Digital Cultural Heritage” is a domaine of “niches”, (very) small topical projects which can have difficulty to find an adapted response in general (European) calls for proposals.
- COST is **open and inclusive**:
  - Open to all countries and disciplines
  - Inclusive towards all less developed research countries
  - COST Actions are **flexible**: you can submit a proposal or join an already running Action
  - COST Action bridges Scientists with Citizens which is especially relevant for CH
- COST Actions can be seen as the 1st step towards **more global initiatives**: COST open call allows to fund very specific proposals, helping them to grow, to structure their cooperation and then to have the necessary **critical mass** enabling to reach more ambitious perspective.
- Promoting cooperation on Cultural Heritage in Cyprus is more **meaningful** than elsewhere considering the long history and the rich culture of the Island that spans 10000 years, making it one of the oldest civilisations in the Mediterranean and a door between Europe and the East.
- COST is **inclusive** toward our Inclusive Targetted Countries (**ITC**) and Near Neighbour Countries (**NNC**) partners which includes many Mediterranean countries:
  - COST Actions provide a platform for researchers from all around the Mediterranean to work in partnership and share knowledge/experience
  - COST enables/facilitates the co-creation of common solution to problems affecting societies, shared over borders
- The research cooperation realised within the COST Actions are clear examples of **science diplomacy** in action:
  - science works for diplomacy by maintaining trust and reinforcing professional relationships.
  - By enabling cross-border (land and sea) research work driven by the scientific needs [not the political reality], COST contributes to preserve the integrity of the Mediterranean.

## **ANNEXES:**

- I- COST MAP**
- II- COST ACTIONS' ABSTRACTS**
- III- COST ACTION CHAIRS BIOGRAPHIES**
- IV- COST ACTION NETWORKS MAPS AND GRAPHS**

## I- COST MAP



## II- COST ACTIONS' ABSTRACTS

### TD1201- COLOUR AND SPACE IN CULTURAL HERITAGE

The COST Action TD1201: Colour and Space in Cultural Heritage ([www.COSCH.info](http://www.COSCH.info)) contributed to the conservation and preservation of cultural heritage (CH) by enhancing the shared understanding, between experts from various disciplines, of the spectral and spatial recording of physical CH objects. Optimal recording, adapted to the needs of a CH application, should involve experts from multiple disciplines and industries. Such an interdisciplinary approach is necessary “in order to protect, preserve, analyse, understand, model, virtually reproduce, document and publish important CH in Europe and beyond” [CO12, p. 3]. In order to fulfil this goal, experts from 28 European countries entered into a multidisciplinary dialogue trying to establish a common understanding of spatial and spectral recording techniques best suited for particular CH applications. The dialogue addressed the characterization of spatial and spectral recording techniques; the use of algorithms and processing chains; and requirements of analysis, restoration or visualization of cultural heritage surfaces and objects.

The implementation of available techniques has been tested through six COSCH case studies. A range of spectral and spatial techniques have been applied to selected cultural heritage objects, addressing cultural heritage research questions. The case studies demonstrate the possibilities offered by spatial and spectral recording techniques and highlight the challenges involved. The processing of acquired data and the possibilities for using these data to analyse and visualize CH objects and their surfaces have been considered.

It was possible, through an intensive discussion, to propose a novel structured view of recording techniques that takes into consideration the user's questions. A basic foundation for a semantic representation of these interrelations has been developed. The resulting COSCH<sup>KR</sup> (knowledge representation) shows the potential of semantic technologies for a conceptual approach to this multidisciplinary research field.

Four years of work made visible which huge variety of CH objects, research questions, goals, scientific disciplines, personal views, financial margins, national frameworks and traditional strategies exist and may result in more or less different views of a problem and possible strategies to solve it. As consequence of this heterogeneity it is quite logic to face problems with a fragmentation of the field leading to redundancy in activities and missing awareness of already existing achievements. As COSCH showed it is possible to improve the situation through the development of mutual understanding, to make processes transparent, to transform experiences into a structured semantics, which have to be made accessible and visible to everybody acting in the field.

### IS1310- REASSEMBLING THE REPUBLIC OF LETTERS, 1500-1800 A DIGITAL FRAMEWORK FOR MULTI-LATERAL COLLABORATION ON EUROPE'S INTELLECTUAL HISTORY

Europe urgently needs a reinforced sense of transnational identity. Such an identity can only be fashioned from shared cultural histories, shared accomplishments, and shared values. But how can we piece together the scattered fragments of such histories and traditions into a coherent mosaic capable of reshaping our collective self-understanding? COST Action IS 1310 addressed these general

questions by focusing on one of Europe's most important transnational integrative communities during the formative centuries of the Renaissance, the scientific revolution and the Enlightenment: namely, 'the republic of letters'.

In their more idealistic moments, leading European scholars, philosophers and scientists in this period saw themselves as living the most meaningful parts of their lives in a new kind of imagined community which they called the *respublica litteraria* or *république des lettres*. This was an open society, formed by multilateral scholarly communication in script and print as well as face-to-face contact; a non-traditional society in which bonds and duties were created not by blood, law, custom, or power relations but by mutual services to the cause of learning; a meritocratic society in which status was determined neither by birth nor by wealth but by learning and insight; a transnational and tolerant community, existing above and beyond the narrower bounds of ethnicity, nationality, profession, and even religious confession; a society held together above all by the excitement generated by the intellectual discoveries and breakthroughs of the period. This ideal is remarkably relevant to Europe's idealised self-image today. So why has it disappeared so completely from Europe's collective self-understanding?

Part of the problem is that the postal communication which helped bind this community together scattered the archive of materials needed to understand it. Letters only achieve their communicative function by being dispersed; and scholars attempting to reconstruct this community have subsequently had to comb the archives and libraries of Europe looking for stray letters to or from specific individuals. The republic of letters therefore poses, in extreme form, the challenge of reassembling fragmented cultural heritage.

To reassemble the material scattered by the communications revolutions of the early modern period, we need to harness the digital communications revolution of our own day. Working out how best to do so was the objection of COST Action IS1310. The goal was to envisage open-access, open-source, transnational digital infrastructure capable of facilitating the radically multilateral collaboration needed to reassemble this scattered documentation and to support a new generation of scholarly methods and research questions. The means to that end was four years of structured discussions undertaken in a community which grew to include nearly 100 members and 100 affiliates, from 33 different countries, drawn from many different disciplines, including archivists, librarians, scholars from many fields, and experts in visualization, communication, intellectual property, and many different kinds of digital technology.

Four of the Action's six working groups scrutinized the standards needed to describe all the different dimensions of early modern learned correspondence: places and dates, people and networks, texts and topics, documents and collections. A fifth group described the tools and systems needed to assemble, reconcile, analyse, and model unprecedented quantities of epistolary data within a new kind of distributed infrastructure. A sixth working group sought to envisage the kinds of scholarship which might emerge from geographically disparate teams of scholars working within such infrastructure with unprecedented quantities of data in new ways. The fruits of these discussions are being drawn together by the chair and vice-chair into a collaboratively written book, entitled *Reassembling the Republic of Letters in the Digital Age: Standards, Systems, Scholarship* (Göttingen University Press). Once this conceptual framework is in place, the next big task will be to raise the funding necessary to build the infrastructure we need. Once standards, systems and new working relationships have been developed for reassembling material on this aspect of Europe's transnational cultural heritage, the objective will be to expand and adapt them to serve cognate areas as well.

## **TD1406- INNOVATION IN INTELLIGENT MANAGEMENT OF HERITAGE BUILDINGS**

Europe is one of the World's regions presenting the areas (pillars): scientific wisdom, systems & data and social engagement.

A multidisciplinary interoperable approach is of national heritage of every country and culture. They usually consist of multiple facets and materials often altering dramatically throughout their life span due



to changes imposed by society, their environment and usage. It is through the conservation and restoration of these buildings, and the collections therein, that the cultural identity of our past can be preserved and transferred into our future.

The aforementioned three pillars should be the bases for a “rooftop” interoperability layer. It is mandatory to identify what is homogenous, heterogeneous and synergetic amongst the three pillars, highlighting interdependencies and gaps while identifying best approaches in order to progress towards this common interoperable framework.

In this context, COST Action TD1406 (Innovation in Intelligent Management of Heritage Buildings) was extremely relevant and timeless, gathering under the “rooftop” layer of interoperability the basic three pillars of HBs, bringing together that sparse knowledge and confined operations on HBs to develop a common framework providing an integrated multidisciplinary expertise, technology and know-how through a novel and independent global framework.

## **CA15201- ARCHAEOLOGICAL PRACTICES AND KNOWLEDGE WORK IN THE DIGITAL ENVIRONMENT**

From the perspective of the COST Action Archaeological Practices and Knowledge Work in the Digital Environment (ARKWORK), there is a lot of relevant on-going work in different European countries for increasing the understanding of digital and digitalising archaeological and archaeology-related work and knowledge production. Two years of activities within the Action has confirmed some of the earlier assumptions and observations of the proposers but at the same time, underlined the significance of other factors that were not considered to be as problematic as they appear to be. The focus of the Action on practices has at the same time confirmed the importance and difficulty of conducting research on what people do and how to leverage on that understanding to inform practitioners. One of the most important take-away so far has been by far the significance of reaching a common understanding on what research is about – both for successful scholarly and scientific collaboration, communication and dissemination of results and societal impact of the work. The presentation will discuss briefly key insights into the 'articulation work' carried out in COST-ARKWORK to reach a common understanding of the research field and its linkages to the archaeological practice, and its implications for overcoming fragmentation of research and practice in archaeology and material cultural heritage in Europe.

## **CA17131- THE SOIL SCIENCE & ARCHAEO-GEOPHYSICS ALLIANCE: GOING BEYOND PROSPECTION**

Archaeo-geophysics currently stands as a powerful discipline in European archaeological research to discover, study and record subsurface archaeological sites. Its importance lies in its capacity to reveal hidden archaeological assets in a non-destructive, rapid and detailed manner in comparison with traditional and more invasive archaeological methods such as excavation or test-trenching. Less-invasive and cost-effective field procedures, such as those provided by geophysical means, are increasingly becoming a top priority to mitigate the destructive effects on our cultural heritage from intensified land use, climate change and the current conflict panorama. By using geophysical techniques, archaeological remains can be detected remotely, from the ground surface, sea surface or from the air. These techniques measure and map spatial variations of a range of physical properties of the subsoil which may be representative (the proxies) of the subsurface archaeology. In the last decade, a major technological development in archaeo-geophysics has been the introduction of multi-sensor and motorised instrumentation. This has revolutionised archaeological prospection by allowing extremely fast and high-resolution surveys to explore large areas.

Whilst the discipline of archaeo-geophysics is going through an exciting phase of technological development, a major problem concerning researchers and practitioners is that our ability to interpret the full suite of information extractable from geophysical datasets has not kept pace with developments in technology and is still very limited. This deficiency prevents geophysical survey moving beyond basic



prospection and becoming a significant tool for answering nuanced questions about archaeology and the landscapes it is part of. The reason for this limitation is that there is still much to learn about the relationships between soil properties and geophysical measurements. Since the publications of Clark (1990), Scollar et al. (1990), Fassbinder & Stanjek (1993) or Weston (2001 & 2002), back in the early stages of the application of geophysics to archaeology, most of the progress achieved in this topic has come from some significant but very fragmented studies. Also, much of the work has focused on understanding of soil magnetic properties whilst other soil properties that contribute to geophysical contrast have been considered to a lesser extent.

Bridging this gap requires fine-tuned and multidisciplinary teams, experimental approaches, testing field and analytical methods and solutions for multivariate data integration and analysis. The lack of continuity in the development of this topic should be understood, partly, because of the scarcity in funding that has been devoted to Humanities in Europe during the last decade and the consequent research priorities followed by many institutions. These have been more interested in being at the foreground of technological development rather than competing with more time-consuming and resource-demanding projects devoted to in-depth understanding and interpretation of proxy data. Besides, there has been little scholarly discussion devoted to distilling the outcomes and structuring the achievements of the projects that have been completed in this topic into validated and shared “lessons learned”. Overcoming these challenges is a prerequisite for maximising the cost-effectiveness of geophysical methods, harvesting the expected benefits of large-scale investments in instrumentation and allowing a broader uptake of geophysical methods in the cultural heritage sector.

Our principal reason to apply for a COST Action was to build a multi-disciplinary international network in order to bring together geophysicists, archaeologists, soil scientists and a wide range of experts in other sub-disciplines in geoscience to make a major push forward in our capability to interpret geophysical data for archaeological purposes. Our prospects are that after four years of intensive collaborative work, SAGA will have created a framework for emerging field procedures and enhanced data-interpretation solutions. SAGA will have facilitated a broader understanding and use of integrated geophysical methods in cultural resource management routines in countries where these methods were not previously common. In countries that already integrate geophysical prospection in cultural heritage management, SAGA will have educated practitioners and curators in the cutting edge of our improved understanding following the integration and synthesis of concepts, methods and knowledge from adjacent disciplines.

### **III- COST ACTION CHAIRS BIOGRAPHIES**

#### **PROF. FRANK BOOCHS**

##### **TD1201 (07/11/2012 - 06/11/2016) COLOUR AND SPACE IN CULTURAL HERITAGE (COSCH)**

Frank Boochs is professor for applied informatics at the Mainz University of Applied Sciences and managing director of i3mainz, institute for spatial information and surveying technology. His research interests are in the fields of image and 3D data processing used to generate different types of object knowledge, development of geometrical processing concepts to generate high precision data, integration of spectral image characteristics for the detection and classification of objects and the use of structured knowledge as support of data analysis and interpretation. From 2012 - 2016 he chaired the COST Action TD1201 "colour and space in cultural heritage", a transdisciplinary Action dedicated to the development of better mutual understanding of an optimal documentation of CH objects. In 2012 he received the science award of the state rhine-palatinate and the academy of science and literature for outstanding research and teaching activities. He authors more than 150 publications in the above-mentioned research fields.

#### **PROF. HOWARD HOTSON**

##### **IS1310 (28/04/2014 - 27/04/2018) REASSEMBLING THE REPUBLIC OF LETTERS, 1500-1800 A DIGITAL FRAMEWORK FOR MULTI-LATERAL COLLABORATION ON EUROPE`S INTELLECTUAL HISTORY**

Professor Howard Hotson is Professor of Early Modern Intellectual History at the University of Oxford and a Fellow of St Anne's College.

Since 2009 he has directed Oxford-based collaborative research project, 'Cultures of Knowledge: Networking the Republic of Letters, 1550-1750', which helped lay the foundations for COST Action IS 1310, which he chaired between 2014 and 2018 with Thomas Wallnig (University of Vienna). This action, entitled, 'Reassembling the Republic of Letters, 1500-1800', brought together members from 33 different countries to design 'a digital framework for multi-lateral collaboration on Europe's intellectual history.'

While serving as President of the International Society for Intellectual History, Howard also joined the Executive Committee of the Council for the Defence of British Universities. These various spheres of activity are all linked: his views on higher education policy are informed by a longstanding historical interest in the conditions that generate and sustain traditions of intellectual innovation and cultural creativity, and his interest in digital technology is driven partly by a desire to put more of what universities do on public view.

#### **PROF. JOAO MARTINS**

##### **TD1406 (06/05/2015 - 05/05/2019) INNOVATION IN INTELLIGENT MANAGEMENT OF HERITAGE BUILDINGS**

João Martins was born in Lisbon, Portugal, in 1967. He graduated in electrical engineering at Instituto Superior Técnico (IST), Technical University of Lisbon, in 1990. He received his M.Sc. and Ph.D. degrees in electrical engineering at the same institute, respectively in 1996 and 2003. Currently he is an Associate Professor at the Department of Electrical Engineering, Faculty of Sciences and Technology, NOVA University of Lisbon, Portugal.

João Martins integrates the board of directors of Centre of Technology and Systems. His research interests are mainly in energy efficiency (alternative energies and power quality, intelligent

and energy efficient buildings, energy awareness, renewables integration) heritage buildings and advanced learning control techniques for electromechanical systems.

He has coordinated several national and European projects on those areas, in particular he is chairing COST Action TD1406 (Innovation in Intelligent Management of Heritage Buildings - i2MHB). He is a senior member of IEEE and he has published more than 50 scientific articles in refereed journals and books and more than 150 articles in refereed conference proceedings.

## **PROF. ISTO HUVILA**

### **CA15201 (06/10/2016 - 05/10/2020) ARCHAEOLOGICAL PRACTICES AND KNOWLEDGE WORK IN THE DIGITAL ENVIRONMENT**

Professor Isto Huvila holds the chair in information studies at the Department of ALM (Archival Studies, Library and Information Science and Museums and Cultural Heritage Studies) at Uppsala University in Sweden and is adjunct professor (docent) in information management at Information Studies, Åbo Akademi University in Turku, Finland.

His primary areas of research include information and knowledge management, information work, knowledge organisation, documentation, and social and participatory information practices.

The contexts of his research ranges from archaeology and cultural heritage, archives, libraries and museums to health information and e-health, social media, virtual worlds and corporate and public organisations. He received a MA degree in cultural history at the University of Turku in 2002 and a PhD degree in information studies at Åbo Akademi University (Turku, Finland) in 2006.

## **DR CARMEN CUENCA-GARCIA**

### **CA17131 (26/10/2018 - 25/10-2022) THE SOIL SCIENCE & ARCHAEO-GEOPHYSICS ALLIANCE: GOING BEYOND PROSPECTION**

Carmen is a Postdoctoral Fellow at NTNU since January 2017. She holds a PhD in near-surface geophysics for archaeological prospection (University of Glasgow, 2013), an MSc in archaeological prospection - shallow geophysics (University of Bradford, 2008) and a BA in Archaeology and Prehistory (University of Valencia, 1998).

Carmen has held positions at the Laboratory of Geophysical-Satellite Remote Sensing & Archaeo-environment (IMS-FORTH) in Rethymno (Crete) and the Preparatory Commission for the Comprehensive Nuclear-Test Ban Treaty Organization (CTBTO) in Vienna.

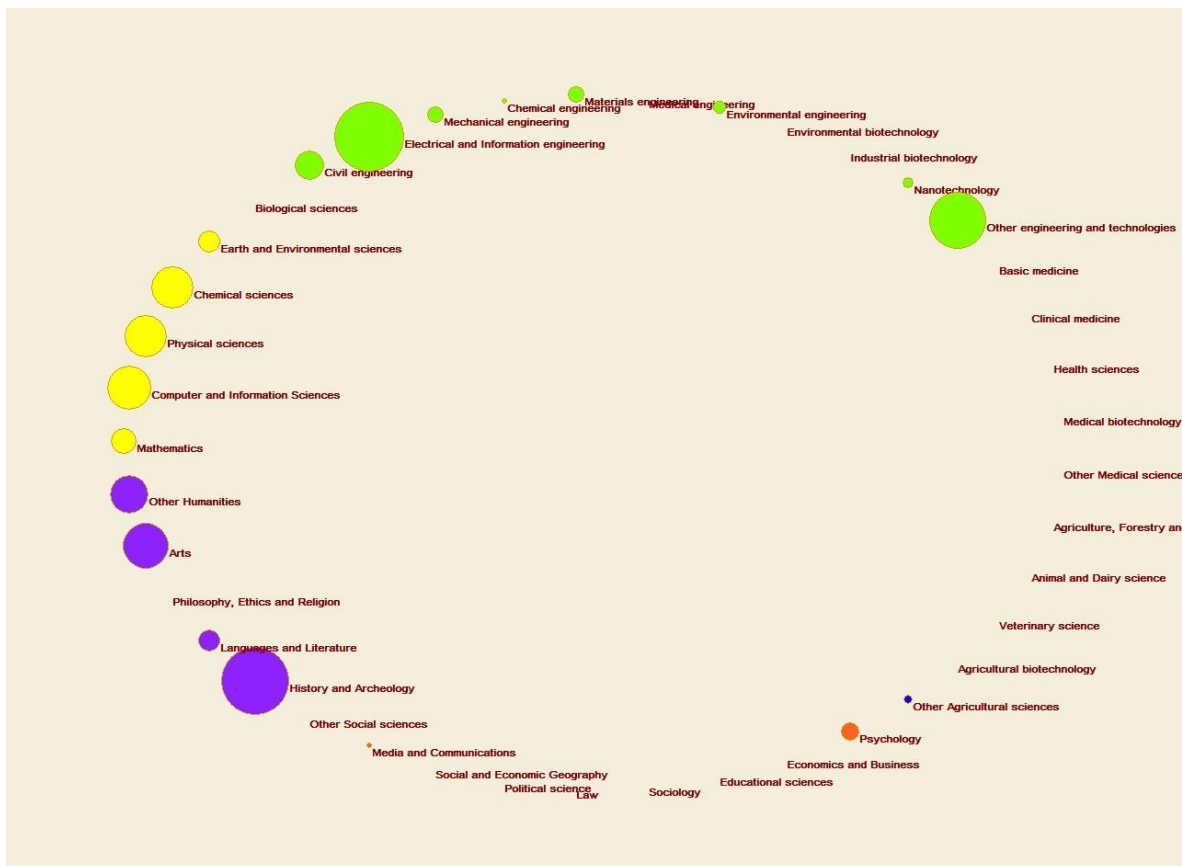
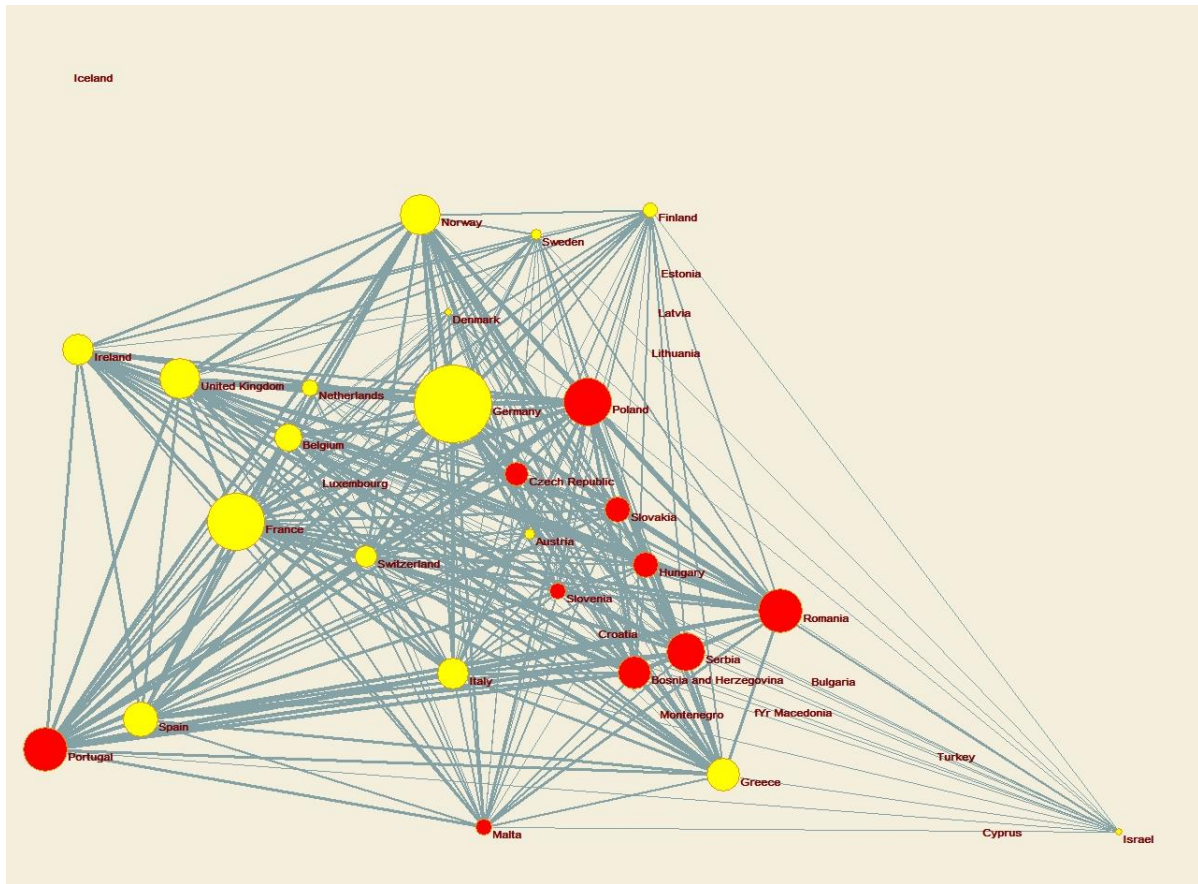
Her research focuses on applied geophysics for archaeology and aims to:

- 1) discover and characterise archaeological sites in a non-destructive, rapid and detailed manner using geophysical methods;
- 2) provide augmented archaeological interpretations integrating soil analysis and other sensing technologies as part of terrestrial geophysical explorations;
- 3) develop new methodologies for recording, monitoring and preserving endangered archaeological sites.

Current projects include: exploring the use of geophysical surveying under winter conditions at archaeological sites in Norway; integrating soil analysis and geophysics to study tell-sites in Greece. She was the main proposer of the [COST Action SAGA](#).

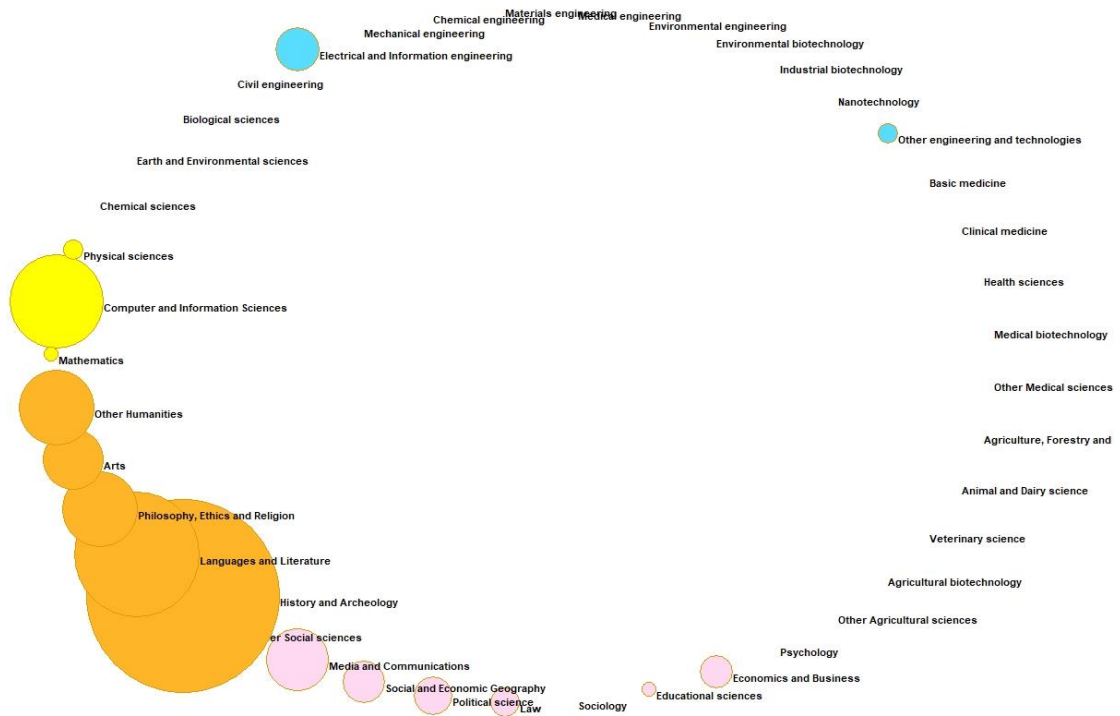
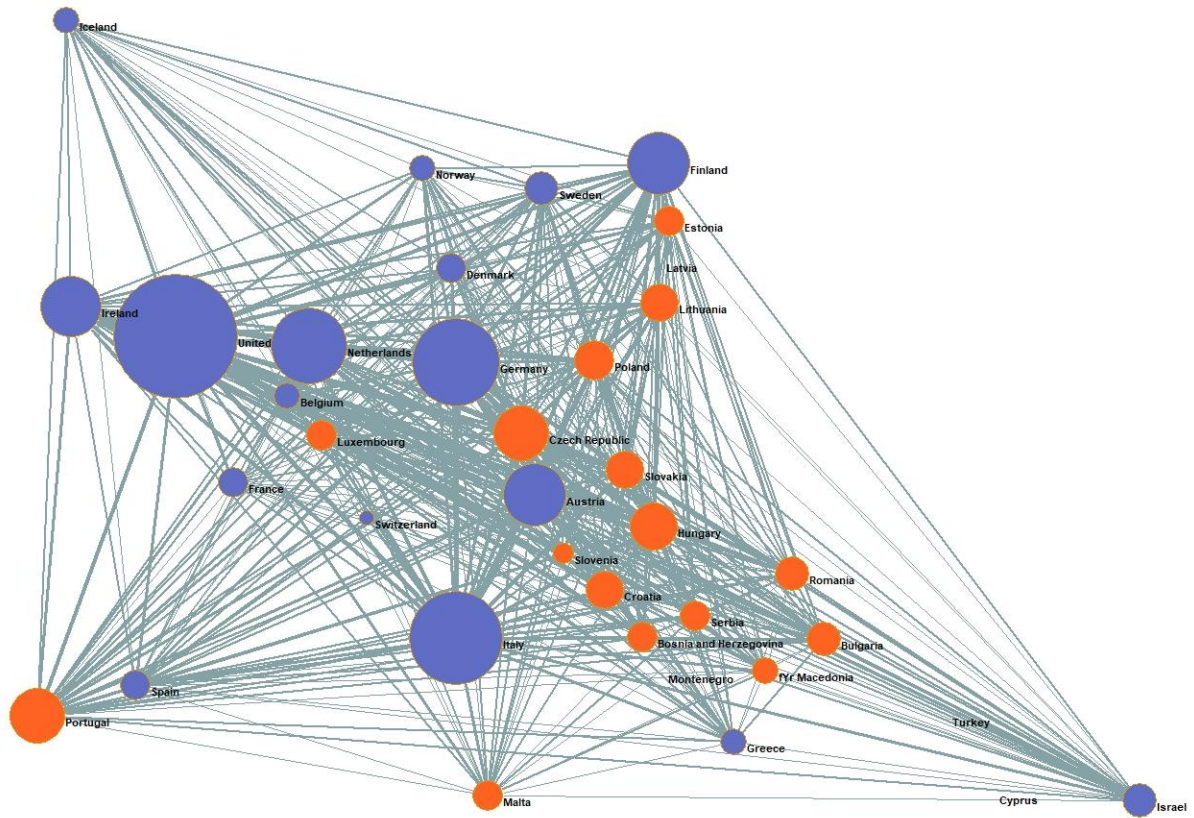
## IV- COST ACTION NETWORKS MAPS AND GRAPHS

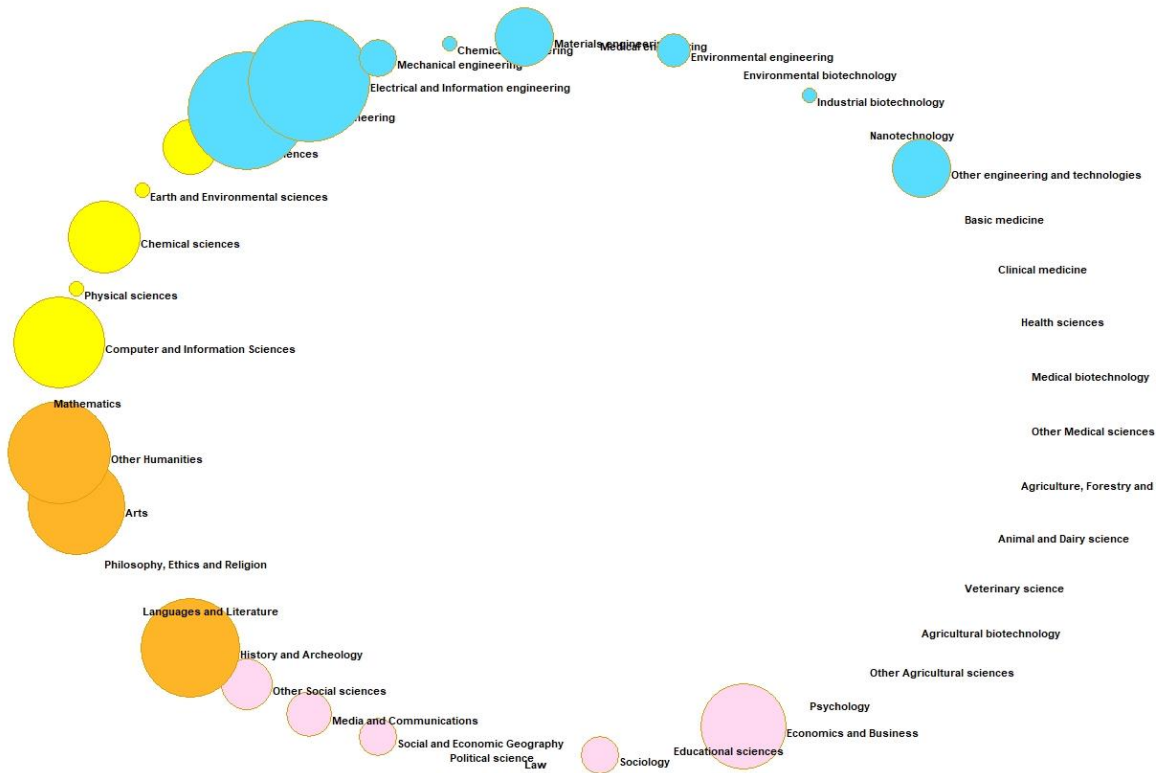
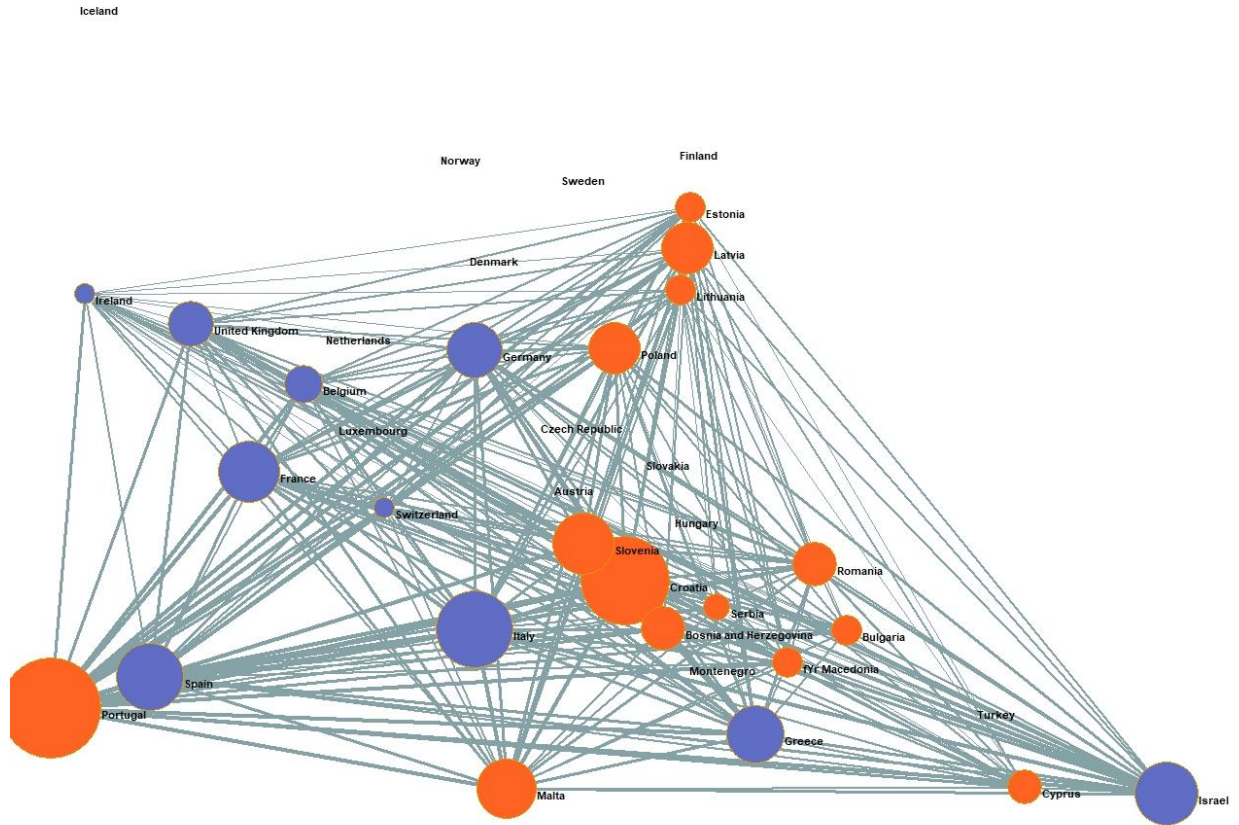
TD1201 (07/11/2012-06/11/2016) COLOUR AND SPACE IN CULTURAL HERITAGE (COSCH)



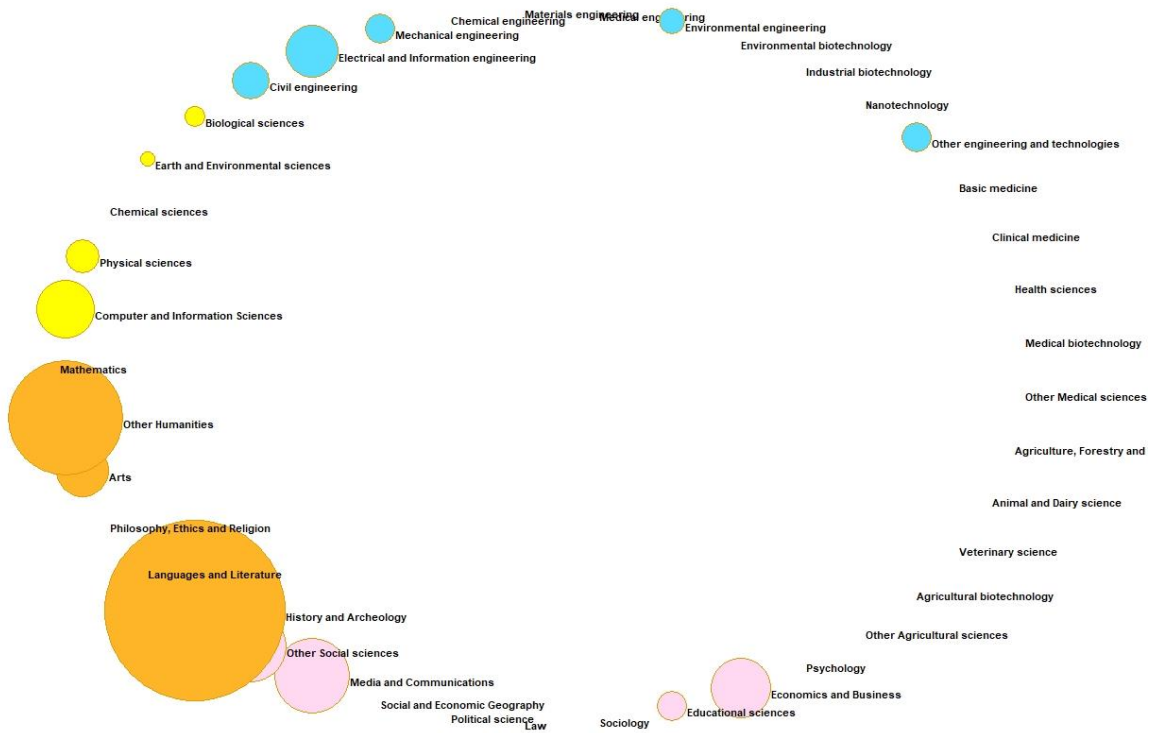
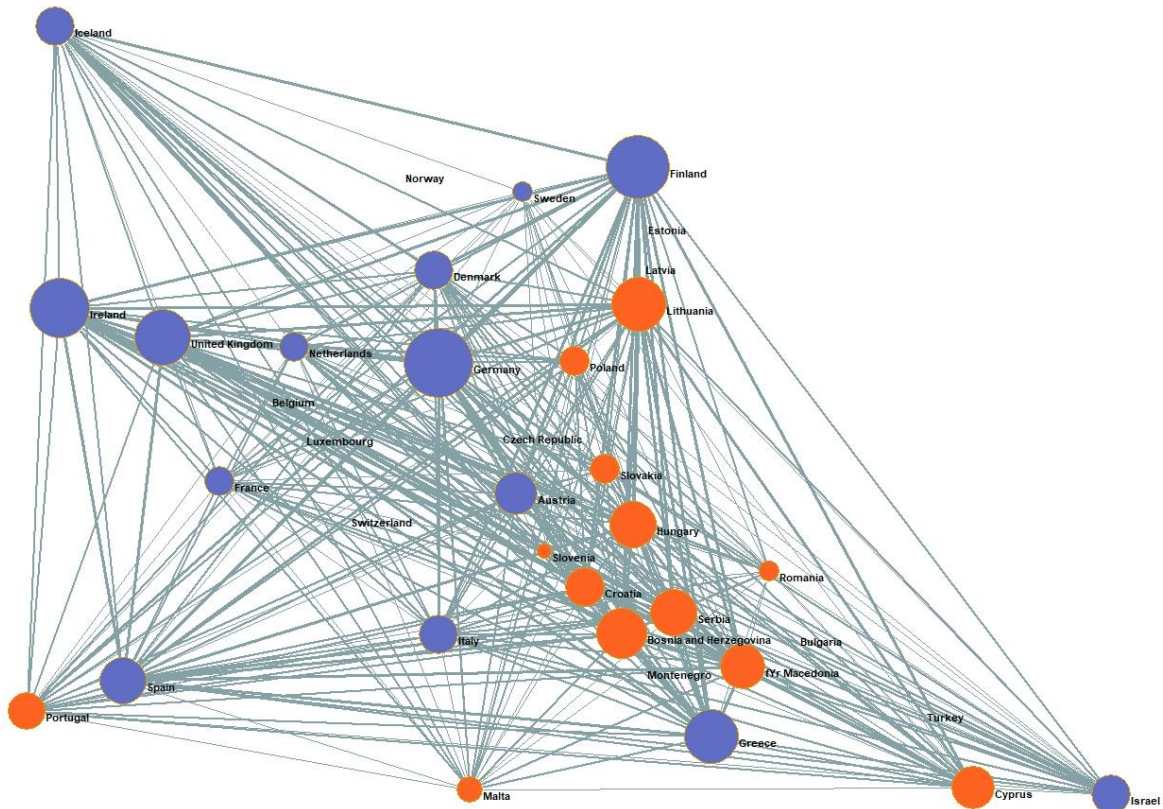


**IS1310 (28/04/2014-27/04/2018) REASSEMBLING THE REPUBLIC OF LETTERS, 1500-1800 A DIGITAL FRAMEWORK FOR MULTI-LATERAL COLLABORATION ON EUROPE'S INTELLECTUAL HISTORY**





CA15201 (06/10/2016-05/10/2020) ARCHAEOLOGICAL PRACTICES AND KNOWLEDGE WORK IN THE DIGITAL ENVIRONMENT





CA17131 (26/10/2018-25/10-2018) THE SOIL SCIENCE & ARCHAEO-GEOPHYSICS ALLIANCE: GOING BEYOND PROSPECTION

