



**European Cooperation
in the field of Scientific
and Technical Research
- COST -**

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COST 071/13

MEMORANDUM OF UNDERSTANDING

Subject : Memorandum of Understanding for the implementation of a European Concerted Research Action designated as COST Action IS1310: Reassembling the Republic of Letters, 1500-1800 A digital framework for multi-lateral collaboration on Europe's intellectual history

Delegations will find attached the Memorandum of Understanding for COST Action IS1310 as approved by the COST Committee of Senior Officials (CSO) at its 188th meeting on 14 November 2013.

MEMORANDUM OF UNDERSTANDING
For the implementation of a European Concerted Research Action designated as

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

The Parties to this Memorandum of Understanding, declaring their common intention to participate in the concerted Action referred to above and described in the technical Annex to the Memorandum, have reached the following understanding:

1. The Action will be carried out in accordance with the provisions of document COST 4114/13 “COST Action Management” and document COST 4112/13 “Rules for Participation in and Implementation of COST Activities”, or in any new document amending or replacing them, the contents of which the Parties are fully aware of.
2. The Action’s main objective is to plan a digital system designed (a) to collect, analyse, and visualise data on the Republic of Letters, (b) to facilitate new forms of radically multilateral scholarly collaboration, and (c) to communicate the fruits of that collaboration to the public.
3. The economic dimension of the activities carried out under the Action has been estimated, on the basis of information available during the planning of the Action, at EUR 48 million in 2013 prices.
4. The Memorandum of Understanding will take effect on being accepted by at least five Parties.
5. The Memorandum of Understanding will remain in force for a period of 4 years, calculated from the date of the first meeting of the Management Committee, unless the duration of the Action is modified according to the provisions of section 2. *Changes to a COST Action* in the document COST 4114/13.

A. ABSTRACT AND KEYWORDS

The early modern communications revolution allowed scholars to scatter correspondence across Europe, knitting together the international, knowledge-based civil society crucial to that era's intellectual breakthroughs and formative for many of modern Europe's values and institutions. The current IT revolution provides means for reassembling and disseminating this precious literary heritage for the first time while fostering new forms of scholarly cooperation. In pursuit of these aims, this COST Action will coordinate (1) a historiographical reconsideration of the place of the Republic of Letters in Europe's cultural formation; (2) the intensive discussion amongst librarians and archivists, IT experts, and scholars needed to plan a state-of-the-art digital system within which to collect a pan-European pool of highly granular data on the Republic of Letters; (3) the designing of tools for navigating, analysing and visualising this huge pool of data, and for facilitating new forms of international and interdisciplinary scholarly collaboration, thereby consolidating a new virtual Republic of Letters; and (4) experiment with the use of this system to engage the broader public with the cutting-edge technical and scholarly work on this key phase of European cultural and intellectual integration.

Keywords: International communication and collaboration; European integration and identity; Cultural heritage resource enhancement and discoverability; Digital infrastructure.

B. BACKGROUND

B.1 General background

Europe was a cultural entity long before it was a political entity. During the early modern period, Europe's cultural integration was accelerated by improved systems of communication, which coupled the emerging print technology and the rediscovery of the familiar letter as a means of scholarly exchange with the development of increasingly efficient, accessible, and inexpensive means of exchanging letters within and beyond national borders.

The subsequent exchange of increasing quantities of learned letters knit Europe together in unprecedented ways fundamental to the revolutionary intellectual developments of the early modern period. Thematically, these letters meander unpredictably through the entire world of learning, displaying the pursuit of knowledge with an immediacy rarely replicated elsewhere. Geographically they spun a web of reciprocal communication from one end of Europe to another and beyond it to Asia and America. Socially, correspondence bound together people who had never met or might not

care to mix socially: princes and aristocrats, gentlemen and scholars, men and women, diplomats and officer holders, physicians and apothecaries, clergymen and school teachers, students and tutors, printers and booksellers, merchants and travellers, instrument makers, craftsmen, alchemists and astrologers: all these and many more jostle together in the most representative correspondences of the period.

In idealistic moments, key figures in this new world of learned exchange 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 new world was an open society in which bonds and duties were created not by 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, and a transnational and tolerant community, existing above and beyond the narrower bounds of ethnicity, nationality, profession, and even religious confession, and held together by intellectual aspirations, learned values, and cultural ideals. The surviving records of this transnational system of exchange represent therefore a priceless cultural heritage: the documentation of the emerging ideal of a modern, tolerant, meritocratic, knowledge-based, pan-European civil society, of striking relevance even today, and responsible for a great deal of the intellectual innovations which ushered in the modern world.

Given its obvious relevance, this extraordinary intellectual heritage is strangely marginal to the cultural memory of the European Union, whether considered as an institution or as a collection of peoples. Specialised literature is by no means lacking: scholarly editions and monographic studies of major correspondences, individual articles, and edited collections have accumulated in great quantities over the years, including much material of the highest scholarly quality. Yet authoritative overviews remain impossible, existing fragmentary perspectives make limited impact on historical education, and the Republic of Letters scarcely features in the popular historical imagination.

How has this vitally important community disappeared from Europe's cultural memory? And how can modern scholarship be equipped both to recapture it more fully as a subject of attention and to communicate its significance more vividly to policy makers, young people, and the general public? These are the technical, scholarly, and cultural questions driving this COST Action.

One dimension of the answer to the first question is doubtless historical. The professional study of history and literature came of age in the nineteenth century under the conditions of nationalism; and the study of national processes and culture heroes are far more firmly institutionalised and well resourced than their transnational equivalents. One strand of this Action's coordinating activities will attempt to flesh out this historical understanding by tracing the processes in which the humanist intelligentsia of the Renaissance came to conceive of itself as a literary republic, how this

conception weathered the ensuing confessional era to re-emerge in the Enlightenment, how the growth of nationalism undermined it, and the ways in which efforts to study and recreate it were both stimulated and obstructed by the violent developments of the twentieth century.

Deconstructing the ideal of the Republic of Letters in this way, and plotting its historical and historiographical trajectories, are necessary preconditions for reassembling an historically accurate conception of how this community functioned both as an imaginary ideal and a historical reality. A second and arguably deeper dimension of the problem, however, is ultimately technological. Put simply, the enhanced capacity of ordinary early modern scholars to disperse corpora of manuscript letters across and beyond entire continents has posed scholarly problems which print technology has proved unable to solve. Ink on paper is an excellent medium for deciphering transcribing, translating, and annotating letters and publishing the results. But for navigating the open oceans of early modern epistolary archives, print is of limited help. Accurately cataloguing a large and miscellaneous collection of letters likewise strains the resources and expertise of most repositories. Reassembling the scattered letters, even of a single famous individual, remains an extremely laborious process, requiring life-long labours sometimes of whole teams of scholars. And the more epistolary data and metadata is assembled in print, the more inadequate the medium appears as a means of navigating, analysing, and visualising the immense quantities of complex data needed to gain an overview of this phenomenon.

In the midst of the media revolution of the present day, however, the general solution to this longstanding problem is increasingly obvious. It is now possible to publish online huge quantities of catalogue metadata, manuscript images, transcriptions, annotations, biographical details, bibliographical records, and other information on early modern letters. It is also possible to envisage a digital toolset capable of facilitating and transforming every stage of the process: cataloguing individual manuscript letters; reassembling entire correspondences; transcribing, annotating, and analysing texts; visualising huge collections of complex metadata; and even modelling the thematic structure of entire networks of correspondences. Further still, it is now possible to conceive of shared digital platforms on which whole communities of scholars can collaborate in piecing back together the innumerable scattered tesserae of the Republic of Letters into something approaching a coherent mosaic. Just as the epistolary revolution of the early modern era created a new imagined Republic of Letters, the digital revolution of the twenty-first century can consolidate a transnational virtual scholarly community within this and cognate fields. Collaboratively assembling data of all the requisite kinds will also produce far more comprehensive conceptions of the origin and evolution of this republic in the past. And the tools which allow scholars to make sense of these unprecedented quantities of data will also provide ideal means of presenting the results of cutting-

edge scholarship in the visually arresting, animated, and interactive form best suited to engaging the interest of policy makers, students, and the general public.

In short, the digital revolution of our own time can help resolve the scholarly problem resulting from the communications revolution of the early modern period. Likewise, the collective study of the *respublica litteraria* can help fashion a new international scholarly community safeguarding and propagating what was best in the values and practices of the old one. Together these processes can transform current understandings of this early form of transnational, knowledge-based civil society, inject powerfully distilled depictions of it into the public domain, and thereby help reinforce European values and shape European identities in the future.

For assembling an interdisciplinary network to design a networking platform for studying past intellectual networks, nothing could be more appropriate than a COST networking grant. Drawing on a wide range of existing institutional research activities (see section B.2), the aims and objectives of the Action (C.1-2) can be achieved only through a structured and intensive programme of international and interdisciplinary networking, discussion, and negotiation. Other networking programmes are all unsuited to these purposes: some are nationally based, others place limits on the number of network participants too restrictive for this Action.

B.2 Current state of knowledge

If these extraordinary opportunities are to be realised, decisive action is needed now, before the ongoing explosion of projects in this field reaches unmanageable proportions. The past few years have seen the spontaneous generation – in archives, libraries, and universities across and beyond the European Union – of nearly 100 web-based projects and resources on early modern intellectual networks (for a representative listing, see http://www.culturesofknowledge.org/?page_id#19). To give only a few prominent examples:

- *Europeana* is an international portal for European cultural content;
- *Kalliope* provides a national union catalogues of manuscript collections;
- The *Catalogus Epistularum Neerlandicarum* offers a national union listing of unstandardised metadata on manuscript correspondence;
- The *Electronic Enlightenment* has digitised some 60,000 letters in copyrighted editions;

- The *ePistolarium* project offers a virtual research environment for browsing and analysing the texts of some 20,000 digitised letters from leading scholars of the seventeenth century;
- The *Mapping the Republic of Letters* project has focused on the visual and especially cartographical presentation of data in this field;
- *Early Modern Letters Online* (EMLO), developed by the Cultures of Knowledge project, is an open-access union catalogue and editorial interface for sixteenth-, seventeenth-, and eighteenth-century letters, designed to bring much of this data together in a single standardised form.

The uncoordinated proliferation of digital catalogues, calendars, archives, and editions is both the opportunity and the danger to which this COST Action responds. These resources lack the standards, protocols, and infrastructure needed to exchange data with one another. As a consequence, precious funding is being squandered in the creation of conflicting means of accomplishing goals which are common to most projects in this field. Moreover, if such standards and infrastructure are not provided quickly, the digital epistolary landscape could become permanently fragmented, or the funds needed to impose standards retrospectively could grow exponentially. Unlike many other manuscript genres, letters share readily identifiable basic features (sender, recipient, date, etc.) which can allow resources, projects, and expertise to be brought together to create a whole much greater than the sum of these individual parts. But this potential will be realised only if the European community seizes this opportunity while the problem remains of manageable dimensions.

B.3 Reasons for the Action

Realising this immense potential can only be achieved in stages. A really adequate conception of the Republic of Letters and its values cannot be reinjected into European cultural memory until a representative body of readily navigable, analysable, and visualisable material has been assembled collaboratively on the basis of a preliminary historiographical reconsideration of this field. Such collaboration requires a shared electronic platform; but such a platform cannot be built or populated before its general specifications have been agreed with a large range of partners. The necessary precondition for all of these developments is, therefore, a carefully organised process of negotiation, in which representative committees assemble from across Europe all the diverse kinds of expertise needed to devise and agree on the standards, specifications, arrangements, and scholarly needs required for the proper functioning of a ‘scholarly social machine’ for global collaboration in the

epistolary field.

For this purpose, most funding agencies are poorly suited. Agencies designed to fund scholarly research, IT systems development, or cultural resource enhancement are not equipped to fund the specification and design of an IT system serving scholarly needs and the dissemination of cultural heritage. Likewise, negotiations that need to take place on an international scale are not readily funded through national schemes.

What is needed is a scheme designed to assemble an interdisciplinary network geographically co-extensive with the early modern Republic of Letters itself and to sustain for several years the discussions within it needed to sharpen the conceptions, to identify the needs, to define the standards, to devise the technical solutions, and to generate the funding models capable of setting both scholarship and public engagement in this field on a new platform, and of piloting the solution to analogous challenges in cognate fields as well. For this purpose, the only available funding mechanism is ideally suited: namely an Action designed to be funded by COST.

B.4 Complementarity with other research programmes

While its tight focus on early modern correspondence is a highly original contribution to the field, the Action will complement and benefit from synergies with several COST Actions completed or currently underway that apply similar techniques and perspectives to other thematic domains and manuscript genres. These include IS1203 ‘In Search of Transcultural Memory in Europe’; IS1301 ‘New Communities of Interpretation: Contexts, Strategies and Processes of Religious Transformation in Late Medieval and Early Modern Europe’; IS1005 ‘Medieval Europe: Medieval Cultures and Technological Resources’; and a now completed Action IS0704 ‘An Interoperable Supranational Infrastructure for Digital Editions’. It also complements, without reproducing, several other initiatives aiming towards the digital integration of Europe’s cultural heritage on a broader canvas, most notably Europeana (<http://www.europeana.eu/>), but also ICARUS (<http://icar-us.eu>).

C. OBJECTIVES AND BENEFITS

C.1 Aim

The immediate aim of this COST Action is to coordinate the discussions needed to plan a state-of-the-art digital system within which to collect, analyse, and visualise a pan-European pool of highly granular data on the Republic of Letters, and to experiment with the potential of such a system to facilitate new forms of radically multilateral scholarly collaboration and to communicate the fruits

of that collaboration to the general public.

C.2 Objectives

- The *primary technical aim* of the Action is therefore to agree – with an international community of stakeholders, data providers, and end users, including librarians, archivists, academics, and software engineers – a set of published standards for the digital description and online publication of early modern letters, and of systems and protocols for the exchange, analysis, and visualisation of such data.
- The *secondary technical aim* is to use these same emerging agreements to coordinate ongoing, externally funded IT systems development throughout the network, in order to pilot new functionality, demonstrate proof of concept, work toward enhanced interoperability, and provide fresh data and tools to assist the scholarly dimension of the Action.
- The *primary scholarly aim* of the Action is to ensure that these technical negotiations and work packages are informed by, and ultimately at the service of, cutting-edge scholarly conceptions at every level from the definition of metadata standards via holistic case studies to fresh perspectives on the Republic of Letters as a whole.
- The *secondary scholarly aim* is to use this emerging infrastructure to experiment with new means both of collaboratively generating a genuinely transnational intellectual history of early modern Europe and of communicating it to students and the general public.

The *ultimate aim* of building this new scholarly infrastructure is to benefit the field of early modern European intellectual history in five transformative respects:

1. Pooling data will create *an extremely powerful finding aid*, greatly increasing the discoverability of resources while allowing scholars to navigate efficiently through the millions of records of letters exchanged between tens of thousands of individuals across and beyond Europe;

2. This same system will create *a platform for unprecedented forms of radically multilateral scholarly collaboration* from the local to the global level, allowing individual scholars in possession of precious scraps of data to contribute, archive, and gain permanent recognition for micro-publications relevant to other scholarly projects;
3. The attraction of contributing data will be increased by *a comprehensive set of powerful tools for analysing and visualising* ‘big data’ on every aspect of these correspondence networks;
4. Networking scholars using new tools to analyse unprecedented quantities of data will *transform the understanding* of scholarly communication in the early modern period and help lay the foundations of a truly transnational intellectual history of Europe in this formative period;
5. Since many of the most effective ways of interrogating and comprehending these masses of data will be visual and interactive, *many of the fruits of cutting edge international research in this field can easily be rendered interesting and accessible to the broader public via animated, interactive, web-mounted visual presentations*, extending the impact of this work into both the classroom and the broader public sphere, thereby helping to situate letters and national historiographies within broader European narratives.

Given the advanced state of IT systems development in several of the participating projects, these longer-term deliverables are both realistic and acceptably low-risk. Proof of concept of the crucial features of the proposed system for collecting, standardising, merging, and publishing epistolary records from diverse sources is already available in Early Modern Letters Online – generously funded since 2009 and permanently hosted by one of the oldest great university research libraries – around which the further technical developments specified in the Action will be assembled. However, a crucial precondition for creating this infrastructure is a period of highly structured, intensive, international, and interdisciplinary networking of precisely the kind fostered by a COST Action.

The core objectives of this COST Action are therefore:

- *to assemble from across Europe a representative community* of highly-placed librarians, archivists, systems developers, and scholars in this field (see section C.5);

- *to coordinate* the extended period of *intensive communication* amongst them needed
 - to analyse the challenge of creating this system into its component problems;
 - to delegate responsibility for proposing solutions to those problems to Working Groups of qualified experts; and
 - to agree on standard solutions;
- *to employ those emerging solutions* in ongoing IT systems development and resources creation within the independently funded institutions and research projects which make up the network;
- *to train* a new generation of scholars to standardise and merge the huge amounts of existing metadata, distributing the most labour-intensive aspect of this process through sustainably and reliable scholarly crowd-sourcing;
- *to accelerate* by all of these means *the pooling of relevant data*;
- *to use this accumulating data and emerging infrastructure to develop case studies* demonstrating the capacity of this new infrastructure to help *generate fundamental new insights*;
- *to package these fresh insights for broad public consumption*;
- *to plan a campaign of further grant applications* at the institutional, regional, national, European and global level, necessary for the full implementation of those solutions.

C.3 How networking within the Action will yield the objectives?

Networking is the necessary and sufficient condition for reaching the Action's aims and objectives (C.1-2). It is necessary because the scholarly conceptualisations and technical agreements delivered by the Action (C.4) can only be obtained by bringing together international representatives from the four stakeholder communities (C.5) for sustained and structured discussion (outlined in D.1-2 and E.2). It is sufficient because these discussions do not require additional funding beyond that

furnished by the COST grant to resource the networking activities themselves. Any research, systems development, or resource creation undertaken in relation to the Action will be funded by the partner institutions and projects from their own independent resources.

C.4 Potential impact of the Action

Pursuing the objectives outlined in C.2 in the manner indicated in C.3 will result in the following *deliverables*:

1. the *detailed technical specification of a world class, state-of-the-art, shared European digital platform* for radically multilateral scholarly collaboration in assembling and analysing ‘big data’ in a central field of humanistic research, capable of expanding from the early modern period to earlier and later centuries, from European to global coverage, and from the history of the Republic of Letters to related forms of documentation and enquiry;
2. a comprehensive set of *detailed agreements* on the crucial legal and editorial questions necessary for the smooth functioning and ongoing population of that infrastructure;
3. the establishment of a *Europe-wide network of institutions and projects* implementing these new standards and working to execute plans for this new infrastructure;
4. the training of a *new generation of researchers* in this field in this new set of standards, systems, methods, and research questions;
5. increasing quantities of standardised and shared *data and metadata* produced by that work;
6. the coordination of *further work* on many of the components of this infrastructure, constituting proof of concept of its key technical features; an expanding suite of shared *interfaces and tools* for exploring and analysing that data;
7. a series of *case studies* designed to illustrate the fertility of these new working conditions;
8. a series of *video presentations* designed

1. to introduce these objectives and agreements to scholars, digital humanists, librarians, archivists, and funding organisations;
 2. to engage secondary and tertiary students with cutting-edge work on earlier phases of European integration; and
 3. to convey to a broad, non-specialist public audience the excitement of this approach to an aspect of Europe's intellectual heritage; and
9. a series of inter-connected *spin-off grant applications* for the further funding necessary for the systematic implementation of these plans and for harvesting additional data across, and potentially beyond, Europe.

C.5 Target groups/end users

Participants and stakeholders in the structured discussions central to this Action will be drawn principally from three overlapping communities, supplemented by a smaller number of figures from a fourth:

1. *archivists and librarians*, many of them in national libraries and other major research collections, responsible for preserving and providing public access to manuscript letters, with special expertise in preservation, metadata standards, copyright, licensing, and other legal questions;
2. *scholars*, many of them already leading individual or collaborative epistolary research projects, possessing further data and metadata, and generating the fresh research questions on and case studies of the chronological, geographical, social, and thematic dimensions of early modern intellectual networks;
3. *IT systems developers*, many of them working in the contexts of these libraries, archives, universities, and research projects, capable of refining digital means of sharing, standardising, analysing, and visualising chronological, geographical, bibliographical, prosopographical, and textual data and metadata;

4. *educators and media experts*, overlapping with the scholarly and IT communities, skilled at communicating cutting edge scholarly and technical work to a range of public audiences in a variety of media.

These four groups are also the principal immediate beneficiaries and end users of the system intended to emerge from this Action. The IT systems developed are designed to help libraries and archives increase the discoverability of their data, and to allow scholars to collect, analyse, and visualise it as well as collaborate with one another on its refinement. Ultimately, however, this system is also designed to make both the rich documentation of this European cultural heritage incomparably more accessible to the general public and to present the new scholarly perspectives emerging from it to the public in the most engaging and interactive manner possible. The full involvement of these ultimate end users must await the implementation of these plans in a subsequent phase of work, however, but the intention to address them is evident in the involvement of educators and media experts in the project from the outset.

D. SCIENTIFIC PROGRAMME

D.1 Scientific focus

The initial agenda of the Action will be formally agreed during the First Workshop and refined by subsequent feedback and discussion during the First and Second Conferences (see section D.2). Activities will fall into two broad strands, one technical, the other conceptual and historiographical. Successful delivery of both strands relies on the presence of an existing, highly developed, yet still fluid and extensible technical infrastructure on the one hand (especially <http://emlo.bodleian.ox.ac.uk>) and the detailed involvement of an interdisciplinary community of academics, librarians, archivists, and systems developers on the other.

D.1.a Technical Agenda

The following account is a preliminary indication of the range of editorial/technical, procedural, and scholarly issues to be discussed. The technical issues to be resolved by various combinations of these experts include

1. the analysis of epistolary materials into *six different types of data*:

1. *chronological* (for date of sending and receipt, prosopographical and bibliographical data);
 2. *geographical* (for place of sending and receipt, prosopographical and bibliographical data);
 3. *bibliographical* (for books mentioned and transmitted with letters);
 4. *prosopographical* (for sender, recipient, and people mentioned);
 5. *textual* (for the texts of the letters themselves); and
 6. *archival* (for physical attributes of letters, manifestation history, provenance history, and current locations);
2. the definition of *standards* to describe each of these six kinds of data and of *authorities* to govern nomenclature and provide cross-references;
 3. the articulation of a *data model* and *ontology* describing the relationships within and between these six kinds of data;
 4. the refinement of *technical systems* to help collect, analyse, map, and visualise these six data types and the relationships between them in a manner designed to help answer cutting-edge scholarly questions; more specifically:
 1. to *tag personal and place names* from free-text files and to extract them for separate listing as ‘people mentioned’ and ‘places mentioned’, thereby enriching epistolary metadata;
 2. to *semi-automate the standardisation of personal and place names* within the catalogue and the assignment of geographical coordinates and other standard references to them, thereby accelerating the merging of new records;
 3. to *search for personal relationships across data types* (epistolary, prosopographical, and bibliographical);

4. to *visualise relationships* between people captured in prosopographical and epistolary data (including genealogical relationships, co-citation, institutional affiliation, friends and opponents, etc.);
 5. to *map geographical information* within epistolary, bibliographical, and prosopographical data, using a variety of visual conventions to plot their positions on early modern and modern maps of physical, political, confessional, and economic geography;
 6. to *topic-model and text-mine free-text data* of the letters themselves;
 7. to *graph* the chronological dimensions of epistolary data; and
 8. to *animate* the chronological dimensions of epistolary, bibliographical, and prosopographical data as expressed cartographically or through other visualisations;
5. the formulation of *legal and licensing protocols* necessary for the free exchange of epistolary data, metadata, images and code between scholars, projects, and repositories;
 6. the development of *editorial and technical quality control structures* to safeguard the standards of scholarly crowd-sourced data and the intellectual property of contributors, including:
 1. the provision of an *editorial and advisory board*, to oversee the introduction of new data into the system;
 2. the definition of *authorial rights and responsibilities*, restricting changes to submitted content without the contributor's consent; and
 3. the provision of a *technical board*, to prioritise, specify, and cost technical enhancements to the system;
 7. the agreement of *citation standards* ensuring that entire data sets, individual records, and specific data can be concisely referenced and their authorship acknowledged without lengthy and unintelligible URLs;

8. the coordination of ongoing *IT systems development and resource creation*, independently funded within network institutions and projects, with a view to applying standards, increasing the pool of shared data, building interoperable systems, and developing software collaboratively;
9. the collection of information on *funding sources* at the institutional, regional, national, European, and global level; collective consideration of how they might be used; and coordination of a series of grant applications at all levels to implement of the technical blueprint worked out;
10. the devising of long-term *sustainability strategies* for a permanently evolving, collectively built and populated resource.

D.1.b Conceptual, Historiographical, and Outreach Agenda

It is vital to the success of this Action that these technical issues be discussed, not in isolation, but in dialogue with related scholarly issues. Scholarly input is necessary in order both to sharpen the conceptual definitions on which the IT infrastructure must be developed and to ensure that this infrastructure contributes to the transformation of scholarly working practices and assists in the formulation and answering of a new generation of research questions.

The *primary scholarly aim* (C.1) will be pursued through dialogue between scholarly and technical stakeholders within the Working Groups. This dialogue will be structured with reference to the six basic types of data itemised in Section D.1.a.1. Each of these data types will be assigned to a Working Group within which the issues arising are discussed from both technical and scholarly vantage points, under the joint chairmanship of a scholar and a librarian/archivist or IT expert. Although the scholarly contributions to these discussions will have intrinsic scholarly interest, the precise topics discussed will be selected for their bearing on the task of raising and resolving the key questions arising from the task of designing a networking platform for the study of past networks. For further information regarding the Working Groups and the kinds of questions they will be tackling, see section D.2.

The secondary scholarly aim (C.1) will be pursued through experimentation with collaboratively generated studies and overviews and through the involvement of educators and media experts in designing the Action's video presentations.

The portfolio of holistic *historical case studies* will be assembled from ongoing research within the network projects to sharpen up the research questions driving the development of the chronological,

geographical, bibliographical, prosopographical, and textual dimensions of the data and the digital system and to show how these multiple dimensions can be combined with one another. The emerging infrastructure of the Action will also be employed to experiment with the collaborative generation of broad perspectives on the historical and historiographical trajectory of the Republic of Letters scarcely possible for individual researchers and research projects.

In addition, the Action will subject to sustained historiographical scrutiny the very concept of the Republic of Letters, which is too often treated unreflexively or taken at face value in the existing scholarly literature. More specifically, it will explore the origin, trajectory, and demise of the Republic of Letters as an imaginary self-conception of scholars themselves; the shifting respects in which that self-conception corresponded to reality; and the historiographical question of the ways in which subsequent generations of historians treated the Republic of Letters, including the contemporary purposes served by idealising it.

Three *video presentations* will be designed to convey some of the essential features of the Action, its technical agreements and scholarly findings, as crisply as possible to a variety of different audiences. More particularly:

1. the first video, produced in Year 1, will introduce stakeholders and funding organisations to the basic objectives of the COST Action;
2. the second will present some of the basic scholarly insights emerging from the project to secondary and tertiary students;
3. the third will convey to a broad, non-specialist public audience the excitement of this approach to an aspect of Europe's intellectual heritage.

D.2 Scientific work plan methods and means

The programme of events and collaboration is designed to focus experts' attention on these urgent questions. In order to ensure proper dialogue between specialised Working Groups and the Steering Group, on the one hand, and the Management Committee and broader communities on the other, the basic timetable of the Action will alternate between open conferences and more focused Working Group meetings along roughly the following lines:

- **Planning Workshop** (Month 6). This meeting is designed to generate a preliminary specification of the capabilities and methods of the system. Posted on the Action website, this specification will serve as the key discussion document for consideration before and examination during the first Conference.
- **First Conference** (Month 12). This first conference is designed to introduce potential partners to one another, to survey the full range of relevant ongoing initiatives, air the basic aims and objectives, analyse the task into its component parts, assign these to the Working Groups, and to assemble the Working Groups from the relevant experts. These tasks can be further broken down into the following strands:
 - *Existing Resources* showcases sources of data – epistolary, textual, prosopographical, cartographical – of potential benefit to the system.
 - *Ongoing Projects* presents a selection of the digital and other projects currently devoted to the early modern Republic of Letters.
 - *Scholarly Perspectives* collects historical case studies and theoretical models useful in conceptualising both intellectual exchange and a digital system designed to capture aspects of it.
 - *Digital Methods* demonstrates some of the tools in use or in production for dealing with the various kinds of data and relationships central to the Republic of Letters.
 - *Desiderata* will be explored in a concluding round-table discussion, aimed at prioritising the capabilities of the system, and distributing detailed work on aspects of it amongst the Working Groups.
 - *Potential Funding Options* will broach a longer-term discussion of means of funding the implementation of the digital system specified in this Action.
- **Working Groups** (Year 2). The key task of the Working Groups is to negotiate standard solutions to the issues itemised in section D.1 above. For further details, see section E.2.

- **Second Conference** (Year 3). This conference will reassemble representatives of all four communities and all six Working Groups. Each Working Group's recommendations will be presented in non-technical language and issues arising will be discussed, with a view to reaching consensus on as many issues as possible. Issues on which consensus has proved elusive will be reassigned to the respective Working Groups, as will second-order questions and secondary priorities for technical discussion.
- **Training Schools** will be organised during the first and second conferences for doctoral students, postdocs, archivists, and librarians: the first set to increase the pool of expert assistance in preparing metadata for uploading; the second to update those skills on the basis of the agreements reached in the second conference.
- **Working Groups** (Year 4). All groups will reconvene as business requires, to resolve outstanding issues or to broach new ones.

E. ORGANISATION

E.1 Coordination and organisation

This COST Action will not fund new research, software engineering, or scholarly resource creation. Instead, it exists to coordinate nationally funded research on specific aspects of the early modern Republic of Letters; to negotiate a package of standards, protocols, and technical systems prerequisite to future scholarly resource creation; to plan the funding and implementation of these agreements and systems immediately after the COST Action; and to experiment with the means of bringing both these exciting technical developments and their prospective scholarly results to more widespread public attention. All of this coordination, negotiation, planning, and communication can be accommodated comfortably within the networking activities proper to a COST Action.

- **Management Committee (MC)**

The COST Action will be overseen by the Management Committee (MC), composed of representatives of the participating COST countries, in accordance with the 'Rules for Participation and Implementation of COST Actions' (4112/13) and the rules regarding 'COST Action management' (4114/13). The MC will maintain general oversight of the Action's overall structure and strategy, the balanced participation from all COST countries, the programme of events and

activities, and the budget. The principal means of doing so will be by considering the recommendations of the Working Groups, after preliminary consideration by the Steering Group, which will highlight issues requiring further discussion.

National representatives on the MC will be responsible for circulating proposals generated by the Action to other experts and interested parties in their home countries, in order to ensure that the set of standards, agreements, and protocols emerging from the Action meets the needs of the widest possible group of stakeholders and will therefore be broadly implemented. National representatives will also help recruit Early Stage Researchers (ESRs) for participation in the Action's activities and act as intermediaries between the European, national, and regional academic communities and funding agencies.

- **Steering Group (SG)**

Since the number of participating countries and communities within this Action is large and likely to increase during the Action, the MC will be supported by a Steering Group (SG) consisting of the Action's Chair and Vice-Chair, the Leaders of the Working Groups (see below), the organisers of the two main conferences, an STSM coordinator and a small number of additional members chosen to ensure breadth of expertise and balance of representation of countries, expertise, and gender. In order to obtain the necessary balance, the MC will first appoint a small selection committee and then ratify the selection committee's proposed SG membership, as well as authorising any subsequent changes of SG membership.

The task of the SG will be to monitor conference planning and the progress of the Working Groups; to provide the first and most compact forum within which the recommendations of the individual Working Groups are discussed by a committee representing the Action as a whole; to prepare material for consideration by the MC, to implement the decisions taken by the MC, to coordinate the activities of the Action, to facilitate communication between the WGs and the Action as a whole, and to assist the MC in disseminating news of developments to the broader academic community and the general public.

- **Working Groups (WG) and Conference Organisers**

Responsibility for coordinating Working Groups and organising Conferences will be delegated as far as practicable to WG Leaders and Conference Organisers, who will be advised by the SG and MC as appropriate and supported in matters of finance and communication by the administrative team. WG Leaders will suggest WG members in consultation with the Action Chair, the SG, and

the MC.

- **Administrative Support**

The administrative resources of the Action will be devoted to serving four principal functions:

- *Project coordination and reporting*: monitoring the planning of events and the productions of deliverables to an agreed timetable as well as assembling material for and drafting annual and final reports;
- *Budget management*: monitoring the budget, arranging payment and reimbursement, and assembling budgetary figures for annual and final reports;
- *Communications and visual media*: building and maintaining the Action's website, conference microsites, email list, social media, and communication within the Working Groups; preparing graphic materials, PowerPoint presentations, podcasts of conference presentations; and contributing to the preparation of digital and hard-copy publications for general audiences; and
- *Editorial assistance* in the production of hard-copy publications.

- **Milestones**

The Action will be organised around the following milestones:

- **Milestone 1** (Year 1, Months 1-6): Development and launch of Action website and creation of flyers;
- **Milestone 2** (Year 1, Month 6): Planning Workshop (preparation of first Conference; preparation of WG agendas; preparation of Training School);
- **Milestone 3** (Year 1, Month 12): First Conference; publication of working papers and video presentations on Action website; Training Schools;
- **Milestone 4** (Year 1, Month 12): Workshops of WGs 1–6 (discussion and implementation of WG agendas phase A);

- **Milestone 5** (Year 2, first half): Meeting of the SG (evaluation of WG progress; planning of second Conference and Training Schools);
- **Milestone 6** (Year 2, second half): Workshops of WG 1–6 (agenda phase A; preparation of agenda phase B);
- **Milestone 7** (Year 3, first half): Second Conference (presentation and discussion of WG results phase A, and agreement on WG agenda phase B); publication of working papers and video presentations on the website training session;
- **Milestone 8** (Year 3, second half/Year 4 first half): Workshops of WG 1–6 (agenda phase B, including grant proposal preparation);
- **Milestone 9** (Year 4, first half): Meeting of the SG (evaluation of WG progress; planning of final meeting);
- **Milestone 10** (Year 4, second half): Final meeting of the MC and the WGs.

E.2 Working Groups

The negotiations central to the delivery of this Action's Objectives (C.2) will be conducted primarily in the context of the six following Working Groups (WG). Each WG will bring together representatives (from a range of countries, projects and institutions) from at least two of the four stakeholder communities listed in C.5: librarians/archivists; scholars; IT experts/digital humanists; and media experts/educators. Each WG will be chaired by experts from the two main communities most relevant to its agenda, who will also be SG members. Wherever appropriate experts are available, one WG Leader will be senior and the other an Early Stage Researcher, one male and the other female. WG Leaders will be responsible for ensuring the fulfilment of the agenda, and will supervise communication within and between the WGs. For further organisational details, see section E1. The WGs will include Early Stage Researchers and, occasionally, participants from non-COST countries. Each WG is responsible for establishing and maintaining adequate contact with relevant institutions, stakeholders, and communities outside the Action (on which see section H1). In order to maximise opportunities for sharing expertise on related issues, Working Groups may decide to convene collectively rather than separately.

The key task of the Working Groups is to coordinate negotiations on standard solutions to the issues itemised in section D.1 above. The technical agenda of the WGs is outlined in D.1.a and summarised below. The scholarly agenda of the WGs is summarised at D.1.b and outlined in more detail below. WG discussions will be framed by the preliminary survey of the field provided by the first conference; the findings of individual WGs will be presented to the entire group at the second conference.

- **WG 1: Space and Time.** *Key technical issues:* metadata standards, authorities for nomenclature, semi-automated standardisation, extracting place names from free text, geographical coordinates, historical GIS, mapping conventions, cartographic standards, and animation. *Sample scholarly questions:* How was the Republic of Letters shaped by physical geography, by confessional struggles, and warfare? To what extent was intellectual correspondence superimposed on systems of commercial, confessional, academic, and diplomatic exchange and on the public and private spaces and institutions created to serve them? How can scholars attend simultaneously to every geographical scale, from the global to the domestic, and to subjective ‘mental maps’ as well as objective coordinates? What was the influence of physical distance and proximity on the regularity and content of correspondence? *Chaired* by an expert on historical GIS and an intellectual geographer.
- **WG 2: People and Networks.** *Key technical issues:* metadata standards, authorities for nomenclature, semi-automated standardisation, extracting personal names from free text, prosopographical data models, biographical data sources, and network and co-citation visualisations. *Sample scholarly questions:* Were early modern intellectuals typically static or itinerant? Did the intellectual diasporas of the period increase its intellectual fertility? Are intellectual networks primarily communities of practice (e.g. astronomers) or communities of experience (e.g. exiles)? Was learned correspondence normally based on pre-existing relationships (e.g. teacher/student) and other fora of exchange? What was the ‘social depth’ of the Republic of Letters? What was the role of women and gender? Was intellectual correspondence animated by generosity or rivalry, friendship, or conflict? What ‘codes’ governed entry into and participation in the Republic of Letters? How were they disseminated and policed? Did they evolve during this period? *Chaired* by a prosopographer and an expert on intellectual networks.

- WG 3: Texts and Topics.** *Key technical issues:* transcription tools and standards, text coding standards, annotation tools, topic modelling, data mining, and visualisation. *Sample scholarly questions:* Can the contents of letters be reduced to a manageable number of topics, genres, and typologies? How closely can the discussion of specific topics be located in time and space? How important was rhetoric in intellectual communication? What was the relationship between learned letters, intelligencing, and other kinds of early modern news-gathering? What was the role of secrecy and intellectual property in the Republic of Letters? *Chaired* by an expert in textual analysis and corpus linguistics and an intellectual historian.
- WG 4: Documents and Collections.** *Key technical issues:* stages in letter composition (draft, fair copy, copy sent; autograph and scribal texts); modes of dissemination (forwarding, circulation, and reading by recipients; recipients' copies and extracts); modes of preservation (auto-archiving; institutional archives; letter collectors; contemporary printed letters and letter collections; modern editions and digital archives); dispersion and destruction (missing letters; deliberate destruction and theft; accidental or collateral loss or destruction); reciprocal relationships between letters and other documents and media (oral discussions, minutes, diaries, commonplace books, printed books, news media, scholarly journals, enclosures). *Sample scholarly questions:* How frequently and in what ways did letters circulate beyond their specified recipients? How and why did contemporaries 'auto-archive' their own letters? What was the role of collectors, evolving tastes, and reputations in the evolution of collections? How significant are the deliberate destruction, accidental loss, theft, and forgery of learned correspondence? *Chaired* by an archivist or librarian and a scholar.
- WG 5: Data Exchange and Strategic Planning.** This WG will address broader technical and strategic issues not primarily depending on IT expertise. It will help finalise a range of legal agreements for sharing texts, images, and metadata. It will devise editorial structures for controlling the quality of scholarly crowd-sourced catalogue metadata, transcriptions, and annotations, and formulate citation standards. A full list of funding options will be assembled, and long-term sustainability strategies discussed. *Chaired* by a librarian or archivist and the Action Chair.

- **WG 6: Synthetic Studies and Outreach.** Instead of bringing together scholars, librarians/archivists, and IT experts, this WG will combine scholarly with media expertise. Its principal task will be to experiment with the use of the emerging infrastructure to communicate both the scholarly and the technical interest of the Action to a variety of audiences within and especially beyond the academy. It will begin by enriching some of the suggestions of the ‘Scholarly Perspectives’ strand of the first conference in light of other discussions. Its work on theorising and illustrating the impact of IT on the study of intellectual networks will be showcased in the first video presentation and material for hard-copy articles aimed at non-specialist audiences, both of which will be produced by this WG. *Chaired* by a scholar and a media expert.

The recommendations of all six Working Groups will be disseminated to the entire group via the Action website well before the second conference.

E.3 Liaison and interaction with other research programmes

This COST Action will bring together representatives of libraries and archives across Europe and from research projects and resources supported by at least a dozen of public and private, regional, national, and international funding agencies, in and outside Europe. Because the early modern Republic of Letters was so widespread, and the surviving documentation of it is scattered across and beyond Europe, this wide geographical spread of resources, perspectives, and expertise is vital for the success of this Action.

In addition to devising standards and systems necessary to bring together the data collected by these projects and institutions, this COST Action will also coordinate the development of a series of further grant applications at the institutional, regional, national, and international levels necessary for the implementation of those standards to existing datasets; the creation of further systems and protocols for aggregating that data; the population of those systems with fresh data; and the analysis and dissemination of scholarship around collected data.

E.4 Gender balance and involvement of early-stage researchers

This COST Action will create a representative gender balance in all aspects of its activities, including its organisational structures (Management Committee, Steering Group, and Working Groups) and the activities targeted to the Early Stage Researchers and other Action participants, and

the Management Committee will place this as a standard and high-ranking item on all of its agendas. Women are currently leading and conducting excellent research both independently and on major projects in many countries throughout this field, and hold key strategic and management positions within libraries and archives. Active promotion of careers by women is therefore in the interests of the field in general and of this Action in particular. With a large number of colleagues already telegraphing a keen interest in participating, it should not be difficult to achieve gender balance within Working Group Leaders and other leadership roles as well as in the Action more generally.

The Action will also be committed to the involvement of Early Stage Researchers. This item will be placed as a standard and high-ranking item on all MC agendas. Indeed, the involvement of colleagues in the earlier stages of their careers is in fact vital to the success of this Action for several reasons. First, since the purpose of this Action is to develop and disseminate new standards, methods, and technologies for collaborative research in this field, it is crucial to train the new generation of scholars in the use of these methods. Second, since that same generation is very often more computer literate than their elders, emerging scholars and digital humanists should also be directly involved in the design of this new technology and in applying it to attractive multimedia presentations. Third, doctoral and postdoctoral researchers working intensively with epistolary and related materials on prototypes of this emerging system are a source of fresh data, of cutting-edge research questions, of experiments with new collaborative working methods, and of the constant feedback that can develop it in the most innovative and user-friendly way. A broad-based community of younger colleagues dedicated to the goals of the Action can also help train their peers in the use of the evolving infrastructure, thereby playing a vital role in capacity building. Early Stage Researchers will therefore be integrated into the activities of the Actions through participation in the Management Committee, workshops, conferences, mailing lists, and blogs. Short Term Scientific Missions – in which typically an early-stage researcher from one institution joins another institution for a fixed period of time – will be an excellent way of pursuing all of these aims by exchanging technical expertise, scholarly insights, and training opportunities within the network of partner institutions.

F. TIMETABLE

The Action as a whole will take four years to complete. The outline timetable can be summarised as follows:

- **Year 1, Months 1-6:** Development and launch of Action website and creation of flyers;
- **Year 1, Month 6:** Planning Workshop (preparation of first Conference; preparation of WG agendas; preparation of training session);
- **Year 1, Month 12:** First Conference; publication of working papers and video presentations on Action website; training sessions;
- **Year 1, Month 12:** Workshops of WG 1–6 (discussion and implementation of WG agendas phase A);
- **Year 2, first half:** Meeting of the SG (evaluation of WG progress; planning of second Conference and training session);
- **Year 2, second half:** Workshops of WG 1–6 (agenda phase A; preparation of agenda phase B);
- **Year 3, first half:** Second Conference (presentation and discussion of WG results phase A, and agreement on WG agenda phase B); publication of working papers and video presentations on the website training session;
- **Year 3, second half/Year 4 first half:** Workshops of WG 1–6 (agenda phase B, including grant proposal preparation);
- **Year 4, first half:** Meeting of the SG (evaluation of WG progress; planning of final meeting);
- **Year 4, second half:** Final meeting of the MC and the WGs.

G. ECONOMIC DIMENSION

The following COST countries have actively participated in the preparation of the Action or otherwise indicated their interest: AT, BE, CZ, DE, DK, FR, IE, IT, NL, PL, SK, UK. On the basis of national estimates, the economic dimension of the activities to be carried out under the Action has been estimated at €48 million for the total duration of the Action. This estimate is valid under the assumption that all the countries mentioned above but no other countries will participate in the

Action. Any departure from this will change the total cost accordingly.

H. DISSEMINATION PLAN

H.1 Who?

The primary target audience for involvement in and dissemination of results of this Action are the four communities of practice itemised above. Preliminary, informal networking within these communities is already well underway; this will extend to many more institutions and individuals, and will be intensified and pursued systematically during the Action proper through meetings and the systematic dissemination of official findings and recommendations via existing infrastructure and consortia serving each of these communities:

- Libraries and Archivists (dissemination via the Consortium of European Research Libraries [<http://www.cerl.org/>], and the International Council on Archives [<http://www.ica.org/>]);
- Academics (dissemination via learned societies and scholarly mailing lists [e.g. <http://www.h-net.org/>]);
- Systems developers and digital humanists (dissemination via standards groups [e.g. <http://wiki.tei-c.org/index.php/SIG:Correspondence>] and discussion fora [e.g. <http://digitalhumanitiesnow.org/>]).

Another main target audience is the network of funding agencies – institutional, regional, national, European, and global – which can finance the implementation of parts of the blueprint, to which participants of the Action will be applying in Year 4. In particular, placing accounts of the Action’s objectives in as many popular outlets as possible will reinforce in the minds of grant-making bodies its capacity to project considerably beyond the four communities central to the Action itself both its material and the excitement generated by the project.

H.2 What?

As befits the digital nature of this Action, dissemination will be organised around the Action’s website and a suite of digital communication options integrated into and around it:

- **Website:** From the outset, the Action website itself will include a statement of aims and objectives; lists of relevant projects, institutions, and resources; a list of participants and interested parties; and a timetable of events. A blog will also be maintained, providing a means of updating visitors on relevant developments both within and outside the Action. Visitors to the site will be invited to receive these updates via an RSS feed and to join the Action email news list.
- **Discussion Fora:** Public discussion fora, open to all Action participants and other interested parties, will be provided to facilitate discussion within each Working Group as well as issues pertaining to the Action as a whole.
- **Social Media:** To raise the profile of its activities and to drive visitors to the main website, the Action will also develop a lively robust presence for the Action on social media platforms, chiefly through the creation of a Twitter feed and a dedicated page on Facebook.
- **Grant Applications:** Likewise, a password-protected section of the site will also include draft grant applications, allowing participants to make use of material developed for related funding purposes.
- **Workshops and Conferences:** In advance of each workshop and conference, microsites will be created, informing both participants and onlookers of all relevant intellectual organisational details. After each meeting of the Action, relevant material will be added to the website: preliminary specifications from the first workshop; podcasts and reports from the first conference; technical proposals from the Working Groups; final draft technical agreements and specifications; the two introductory videos; and training materials.
- **External Conferences:** In addition to the internal series of workshops and conferences, the Action will showcase its objectives in Years One and Two and its results in Years Three and Four at a wide range of relevant national and international conferences, workshops, and symposia. Events serving each of the four communities will be targeted, including library science gatherings (e.g. ALA [<http://ala13.ala.org/>]); digital humanities events (e.g. the annual ADHO gathering [<http://dh2013.unl.edu/>]); and more traditional academic gatherings. The Action will also disseminate flyers and various

publicity materials at other major international events known to attract large numbers of early modernists, e.g. the meetings of the American Historical Association, the Renaissance Society of America, and Sixteenth Century Studies.

- **Popular and Non-Technical Publications:** Images, visualisations, and texts will also be assembled from which participants can generate articles for popular history magazines, institutional newsletters, learned society bulletins, and similar publications in a variety of languages. The list of interested parties includes individuals with excellent contacts with such publications in many different countries.
- **Scholarly Articles and Books:** Although the methods described above represent the primary modes of dissemination, Action participants will also be encouraged to develop academic essays and monographs out of collective discussions, especially of a theoretical, methodological, technical, and programmatic nature.

H.3 How?

An initial round of publicity at the very outset of the Action will be designed to ensure that stakeholders across these four communities are aware of the *objectives* of the Action and of the *opportunities* to participate in it. The medium will be a brief announcement, circulated via the institutions listed in H.1 as well as the Action's own email and social media accounts, linked to a statement of objectives and basic timetable on the Action's website.

After the first Workshop (Month 6), preliminary *specifications* of the capabilities and methods of the system will be posted on the Action's website.

Podcasts of presentations at the first Conference (Month 12) – of existing resources, scholarly case studies, and digital methods – will be posted on the Action website, allowing stakeholders unable to attend the conference or in parallel sessions to view the proceedings.

A second round of publicity will convey the objectives of the Action in a more engaging manner via a first *video presentation*, derived in part from extracts from the podcasts and interviews conducted at the first Conference.

The *technical proposals* drafted in the Working Groups in Year 2 and finalised during the second Conference in Year 3 will be posted on the website, and feedback on them will be solicited through the channels employed in H.1.

A second *video presentation* will then be derived in part from the second Conference, describing the blueprint of this pan-European infrastructure in non-technical terms, designed to support the effort being made in Year 4 to raise the resources needed to implement fully these plans through institutional, regional, national, European, and global funding agencies.