CVCE Strategy

Building the integrated digital research infrastructure on European integration

CVCe

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I. Introduction

This Strategy Paper provides the framework for the full deployment of the CVCE as a documentation and e-research centre as laid out in its mission statement. It is in line with the CVCE's strategic development as defined by the Board of Governors and assessed by the Committee of Experts in 2013 and 2014 (Mission Statement, Strategic Plan, Implementation Plan 2014–2017).[1]

The centre is characterised by an innovative integrated approach which links European integration studies and ICT-based methods and tools, thus giving it a unique position at both national and international level.

Based on its constitutive law[2] and mission statement, the CVCE focuses on **building an integrated digital research infrastructure on European integration** encompassing publications, resources, tools, services, skills and networks. The centre promotes a **cross-disciplinary and cross-sector approach** that supports researchers investigating European integration issues and engages with the wider scholarly and educational communities.

Working in an emerging digital environment adds **layers of complexity to the scholarly research, documentation and publication processes.** The centre relies on experienced and highly skilled staff and an inclusive approach towards collaboration in and outside academia. The centre is actively participating in the paradigm shifts currently taking place in the fields of humanities and social sciences, addressing the **inherent challenges** of this evolution in an innovative and forward-looking way.

The concepts developed in this paper will evolve over time with the ultimate goal of **contributing to innovation and guaranteeing sustainability**. This Strategy Paper builds on the **past developments and long-standing experience of the CVCE** in the relevant fields.

The conceptual framework, overall methodological approach and various components of the research infrastructure are described in the subsequent sections of the paper. It is a work in progress, as some strategic elements such as the design of ePublication models will emerge as part of our ongoing projects during the 2014–2017 period.[3] Since the CVCE's strategies are closely interrelated, the paper also incorporates the e-collection development, target audience and information technology strategies.

The Strategy Paper is based on **an informed understanding of the needs of the centre's main target communities within their respective and evolving environments**.

A formal review of the strategy is planned in 2017 at the end of the four-year period. To allow for a flexible and responsive approach, a yearly monitoring will ensure that priorities reflect and adapt to any changes in the centre's strategic goals or major external developments.

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[1] See in annex CVCE Mission Statement adopted by the Board of Governors on 25 July 2013 and CVCE Strategic Plan 2014–2017 adopted by the Board of Governors in 3 February 2014 (especially strategic goal A). See also CVCE Implementation Plan 2014–2017 adopted by the Board of Governors on 28 July 2014.

[2] Law of 7 August 2002 establishing the Centre Virtuel de la Connaissance sur l'Europe (*MEMORIAL, Journal Officiel du Grand-Duché de Luxembourg*, A — No 109, 13 September 2002, page 2751).

[3] See CVCE Implementation Plan 2014–2017 Project Overview adopted by the Board of Governors on 28 July 2014.

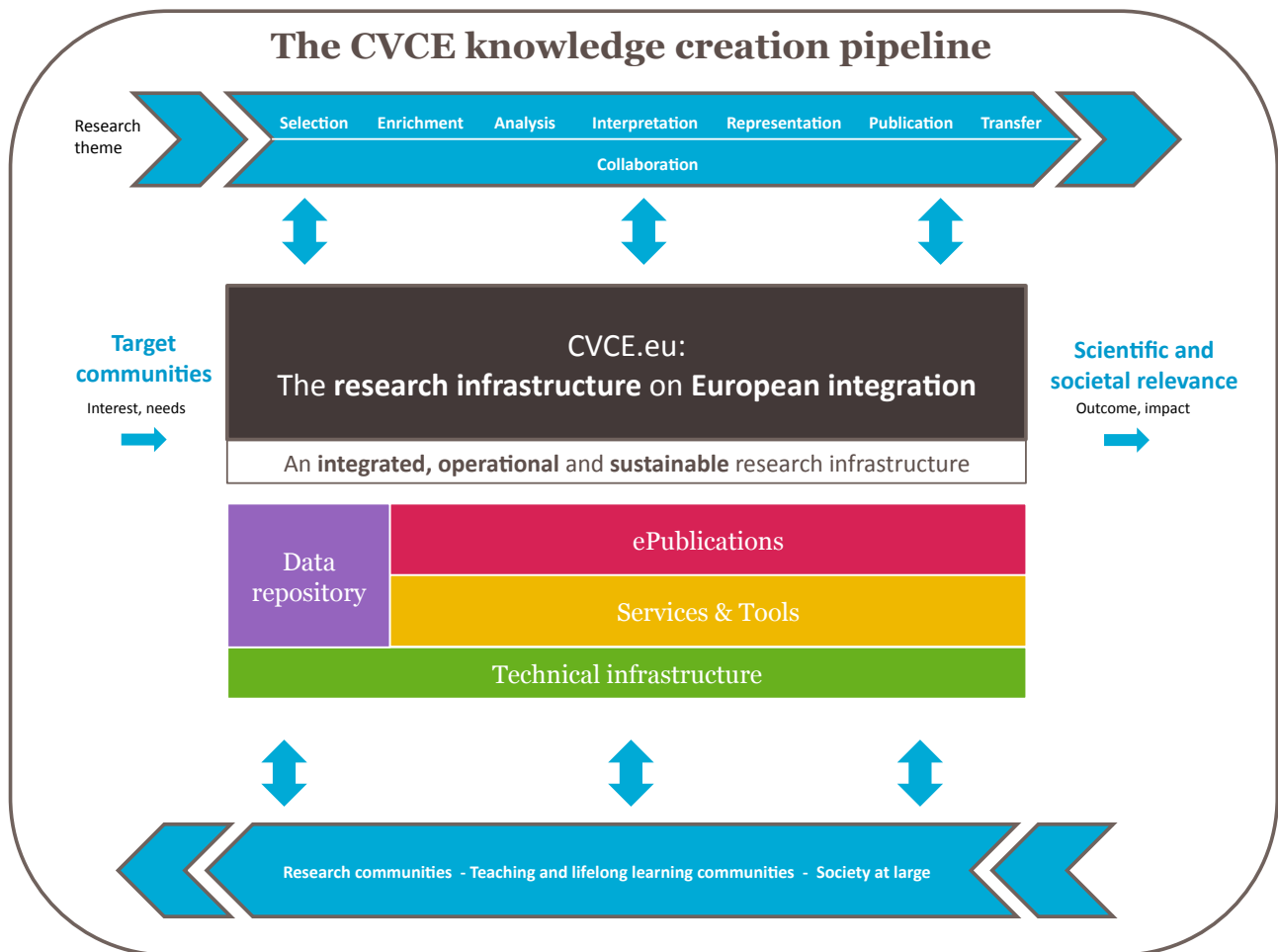# II. The CVCE.eu research infrastructure on European integration

'[…] *cyberinfrastructure* is more than a tangible network and means of storage in digitized form, and it is not only discipline-specific software applications and project-specific data collections. It is also the more intangible layer of expertise and the best practices, standards, tools, collections and collaborative environments that can be broadly *shared across* communities of inquiry. "This layer," as the Atkins report notes, "should provide an effective and efficient platform for the empowerment of specific communities of researchers to innovate and eventually revolutionize what they do, how they do it, and who participates." […] "if *infrastructure* is required for an for an *industrial* economy, then we could say that *cyberinfrastructure* is required for a *knowledge* economy."' [4]

A. Conceptual framework

Digital humanities and digital research infrastructures [5] are emerging concepts within the field of humanities and social sciences (HSS). Terminology and concepts have changed over the years with the common ambition to integrate ICT-based methods and tools into the HSS research and publication process. In a digitally enabled environment, new possibilities for analysing data, for innovative publication models and for collaborating and sharing are emerging and will support the knowledge creation process and encourage interactions with both scientific target groups and society at large.

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[4] *See Our Cultural Commonwealth*. The report of the American Council of Learned Societies Commission on Cyberinfrastructure for the Humanities and Social Sciences, page 6. [Accessed 1 September 2014]. Available from: www.acls.org/cyberinfrastructure/OurCulturalCommonwealth.pdf. See National Science Foundation, *Revolutionizing Science and Engineering through Cyberinfrastructure: Report of the National Science Foundation Blue-Ribbon Advisory Panel on Cyberinfrastructure* (January 2003). Available from: http://www.nsf.gov/cise/sci/reports/atkins.pdf (referred to as the 'Atkins report').

[5] The European Commission defines research infrastructures as 'facilities, resources, systems and related services that are used by research communities to conduct top level research in their respective fields. This definition covers major scientific equipment or sets of instruments, as well as knowledge-containing resources such as collections, archives, and thematic data infrastructures, together with the associated human resources. Research infrastructures may be "single-sited" (a single resource at a single location), "distributed" (a network of distributed resources), or "virtual" (the service is provided electronically). […]
The research infrastructures are at the centre of the knowledge triangle of research, education and innovation, producing knowledge through research, diffusing it through education, and applying it through innovation.' European Commission, Research & Innovation, *Research infrastructures, What are RIs?* [Accessed 8 September 2014]. Available from: http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=what.

The CVCE knowledge creation pipeline

Research theme

Selection   Enrichment   Analysis   Interpretation   Representation   Publication   Transfer

Collaboration

Target communities

Interest, needs

CVCE.eu:
The **research infrastructure** on **European integration**

An **integrated, operational** and **sustainable** research infrastructure

Scientific and societal relevance

Outcome, impact

Data repository

ePublications

Services & Tools

Technical infrastructure

Research communities - Teaching and lifelong learning communities - Society at large

Against this backdrop, the CVCE has built and is continuing to develop **an integrated subject-specific digital research infrastructure on European integration** (**CVCE.eu**), as laid out in its mission statement adopted by the CVCE Board of Governors in July 2013.[6]

The CVCE.eu research infrastructure includes **publications, resources, tools, services, skills and networks**. It supports ICT-based methods and tools for analysis, data visualisation and representation. It provides access to enhanced thematic publications on key subjects relating to the European integration process and incorporating relevant source material in a variety of media formats, in several languages and with diverse geographical, cultural and political origins.

The dimensions of the CVCE.eu digital infrastructure are threefold. It incorporates:

- a dissemination platform giving access to digital publications and enriched data on European integration and related ICT-based tools and services;
- a platform for knowledge creation, experimentation, information processing and analysis;
- a collaborative platform for sharing and interacting with communities of practice.[7]

The centre particularly focuses on the **selection, enrichment, analysis, representation, publication and sharing of relevant source material on specific European integration research themes**. Topics are identified in cooperation with scientific and societal stakeholders.

The foundations of the centre's investigations consist in the documented analysis of the European integration process in a broad sense. Specific areas of study are laid down in a four-year programme (see the Implementation Plan) with the overall aim of developing a multidimensional understanding of the process of building a united Europe by adopting an interdisciplinary approach (historical, legal, economic and political) and working from a contextual, comprehensive and long-term perspective. Relevant materials are selected, analysed, processed and published as **enhanced digital publications** within the CVCE.eu research infrastructure.

The centre also creates **primary sources** for European integration studies: a specific methodological focus is placed on oral history and the production of interviews with key players or witnesses of events that have shaped European integration, particularly in relation to the centre's major thematic research and documentation topics.

The centre provides external users and collaborators with an environment in which to interact with the digital resources provided and the tools developed for studying them, thus acting as a generic test bed for the creation of new kinds of digital scholarship. The centre also focuses on the use and development of content navigation and semantic exploration tools that facilitate retrieval, identification, correlation and dissemination of the resources and that allow for interaction between scholars and stakeholders interested in European integration studies.

The CVCE develops high-value resources and innovative services and tools for, and in cooperation with, the **research, teaching and lifelong learning communities** on a global level. They are **openly accessible** to a wide range of users, reflecting the centre's public engagement and focus on knowledge transfer activities.

Given the CVCE's integrated approach and unique positioning, the CVCE.eu research infrastructure is **internationally cross-linked** with other environments and serves as an international test bed in the field of European studies and digital humanities. The CVCE's research infrastructure is listed by the MERIL platform (*Mapping the European Research Infrastructure Landscape*), a European Science Foundation initiative. The centre also contributes to the Europeana cultural heritage platform and is the National Coordinating Institution in DARIAH-EU, the pan-European digital research infrastructure for the Humanities (see below).

The CVCE also ensures the **sustainability of and long-term access** to its research infrastructure which includes tools for data storage, management and retrieval.

The CVCE.eu research infrastructure on European integration is founded on the following **four main components** (details in subsequent sections):[8]

1. ePublications
2. Services & tools
3. Data repository
4. Technical infrastructure

By building the digital research infrastructure on European integration, the CVCE is contributing to Luxembourg's position in an international competitive environment in two crucial areas: Europe and ICT. More specifically the CVCE is helping to put Luxembourg on the global map as a trusted knowledge hub on European integration and as an open and innovative ICT-enabled environment by:

- fostering an enriched understanding of the foundations, functioning and values of Europe, issues of growing importance in the current political and socio-economic context; connecting national perspectives, temporal viewpoints and ideological and institutional approaches;
- contributing to the empowerment of citizens and an open and participative society;
- consolidating the national position in an enlarged Europe and a globalised environment;
- strengthening the role of Luxembourg as a founding member of the European Union and a recognised bridge-builder in multilingual, multicultural and complex political contexts;
- strengthening the country's position as a recognised and forward-looking player in a highly competitive digital world, going beyond technical infrastructure and regulatory frameworks;
- participating in the national 'IT revolution' and the diversification of the national IT sector;
- promoting digital technologies and digital innovation in a cross-disciplinary approach that connects humanities and computer science and exploring spill-over effects for other fields and society at large (e.g. the socio-economic impact);
- attracting specialists in relevant fields with highly competitive skills and expertise;

- participating in competitive European programmes using innovative ICT methods and consolidating the country's contribution to the European digital agenda;
- placing Luxembourg on the ESFRI map as a founding member of the pan-European digital research infrastructure DARIAH-EU.

Communication and advocacy activities to support the interaction and engagement with the different communities as well as with relevant stakeholders are an inherent part of the building of the CVCE.eu research infrastructure on European integration.

B. Overall methodological approach

'We have remarkable opportunities to bring new analytic and interpretive power to bear on the materials and the methods of the humanities and the social sciences: by so doing, we can advance our understanding of human cultures past, present, and future. In the process, however, scholars, librarians, publishers, and universities will also have to re-examine their own academic culture, rethinking its outward forms, its established practices, and its apparent assumptions.'[9]

The building of an innovative digital research infrastructure entails an **integrated, cross-disciplinary and cross-sector approach**, creating an intrinsic link between European integration studies and computer science, engineering and information sciences as well as taking into account editorial and publishing tasks (including multimedia production, multilingual aspects and IPR issues) (see also Crane et al., 2007).[10]

The centre **combines humanities research strategies with emerging ICT-based methods and tools** for information processing and exploration and for knowledge creation and transfer. The development and deployment of digital technologies is considered as being an integral part of the HSS research process with the aim of creating knowledge in the field of European integration studies.

The centre aims to develop a multidimensional understanding of the process of building a united Europe by adopting an **interdisciplinary approach** (historical, legal, economic and political) and working from a contextual, comprehensive and long-term perspective.[11]

Relevant source material is at the basis of the **research process** in the humanities and enables critical enquiry into specific subjects or questions. Within this framework, the centre's research process incorporates a documentation strategy that guides the selection and gathering of relevant source material independently of its provenance, format or language. Relevant materials are analysed, processed and published in contextualised **ePublications** within the digital research infrastructure. This documentation is also accessible through the centre's **data repository**, comprising curated and enriched digital representations of relevant source material which is subsequently used for further enquiry and examination.

Situating European integration studies in a **digital environment** adds layers of complexity and broadens humanities research and dissemination methods.[12] The possibilities of cross-disciplinary collaboration between digital humanities specialists and humanist researchers and the development of a dialogue with citizens contributes to the **formation of new knowledge** and the creation of new research questions from a volume of information that cannot be grasped by conventional reading, for example. Furthermore, the development of **innovative forms of scholarly contribution**, such as the centre's ePublications, is an integral part of the research process within a digital environment. In this context, the centre's ePublications are considered as a research output and at the same time a product for further study and use.[13]

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[9] See *Our Cultural Commonwealth, op. cit.*, page 8.

[10] See Crane, G., Babeu, A. and Bamman, D. eScience and the humanities. In: *International Journal on Digital Libraries*, 7(1), 2007, pages 117-122.

[11] See CVCE Mission Statement, *op. cit*.

[12] See Cohen, D. and Rosenzweig, R. *Digital History: A Guide to Gathering, Preserving, and Presenting the Past on the Web*. Pennsylvania: University of Pennsylvania Press, 2005. [Accessed 1 September 2014]. Available from: http://chnm.gmu.edu/digitalhistory/

[13] '[…] Scholars are not only constructing environments where more people can do research more conveniently, they are also creating new research. Like other scholarship in the humanities, research takes place in the production of the resource, and research is advanced as a result of it. Thus, scholarship is embedded in the product and its use. And like research generated in the fields of engineering, computer science, and information science, some of the research contribution lies in the technical design, functionality, and innovation that makes new kinds of research possible.(…)'. See Palmer, Carole, L. *A Companion to Digital Humanities*, page 3. [Accessed 1 October 2014]. Available from: http://people.lis.illinois.edu/~clpalmer/bwell-eprint.pdf.

Target group-oriented services and tools allow for relevant usages within communities of practice as well as society at large. The CVCE notably focuses on **innovative tools and services** for (1) object enrichment, (2) analysis of objects and the exploration of relationships both within and between different objects and corpora, (3) new methods for indexation within and between objects, (4) new tools for complex analysis across corpora, (5) advances in the representation of knowledge, (6) innovative e-learning opportunities and (7) improving the impact and reach of CVCE ePublications by enhancing searchability and discoverability. The research infrastructure is **continuously being developed** to incorporate the experience of researchers and to integrate technological and conceptual innovations.

In order to build trust and develop high-quality outputs, the **transparency of the research and development process** is a corollary to the development of these new forms of scholarly resources, including the publication of related methodological and editorial apparatuses as well as technical documentation. Peer reviews as well as interactions with users/ contributors and researchers/citizen scientists are at the basis of the centre's approach. This methodological approach will be implemented over the coming years, progressively including the enhancement of legacy resources.

The overall methodological approach for building the CVCE.eu research infrastructure is based on a **scholarly information cycle**,[14] which takes into account the needs of the main target groups in an iterative process.

Store & Maintain → Search & Discover → Convert & Create → Select & Enrich → Analyse & Experiment → Interpret & Represent → Publish & Disseminate → Transfer → Store & Maintain

Collaborate & Share
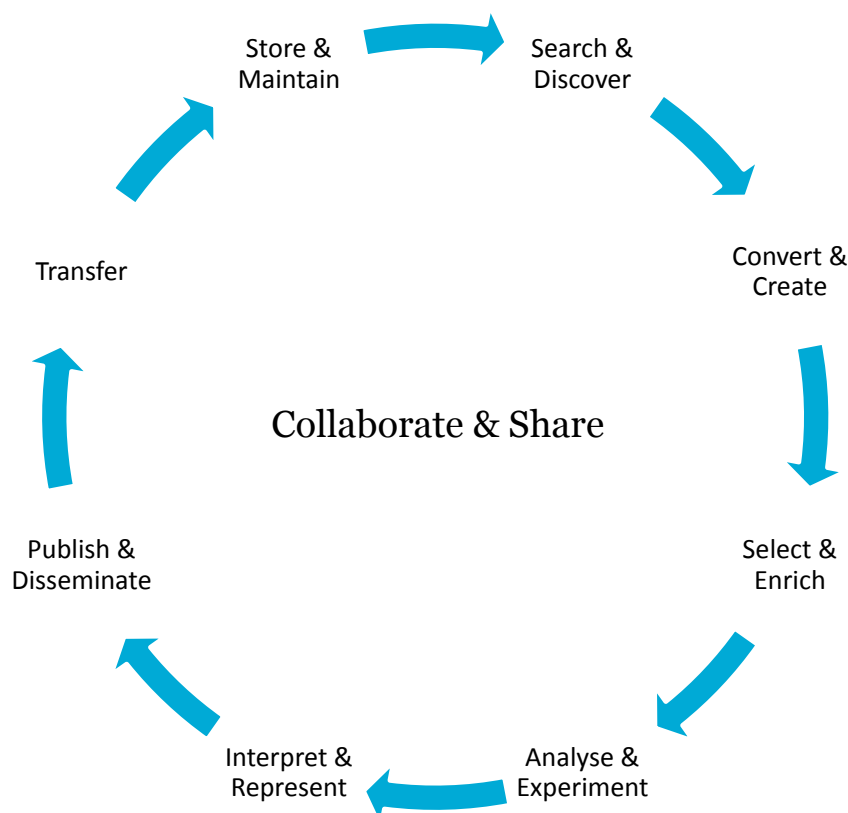
[14] See, for example, Unsworth, J. 2000. 'Scholarly Primitives: what methods do humanities researchers have in common, and how might our tools reflect this?', part of a symposium on 'Humanities Computing: formal methods, experimental practice' sponsored by King's College London, 13 May 2000. [Accessed 1 October 2014] or Bamboo: Scholarly practices and needs. [Accessed 1 October 2014]. Available from: https://googledrive.com/host/0B3zU098zQ8VMc2xfMUJZaWxXNWs/wp-content/uploads/Project-Bamboo-Scholarly-Practices-Report.pdf. See also TaDiRAH — Taxonomy of Digital Research Activities in the Humanities. v. 0.5.1, 05/2014. [Accessed 1 October 2014]. Available from: https://github.com/dhtaxonomy/TaDiRAH).

Furthermore, services and tools developed by the centre must relate to the needs of the target communities, in particular researchers in European Integration Studies in and outside the CVCE. Technological progress exposes researchers to new tools and methods which they have not previously encountered, and it can be difficult to identify their needs before they have actually used these methods and tools. To counter this effect and to enable innovations that extend the methodological vocabulary, the CVCE is implementing a highly user-centred development process that places user needs (and their uncertainty) at its heart. This process is derived from a framework for developing and sustaining complex products known as Scrum[15] and is ideally suited to circumstances where solutions are required for complex adaptive problems requiring creative approaches.

C. High-level principles

Based on the conceptual and methodological framework, the CVCE.eu digital research infrastructure on European integration pursues the following high-level principles:

1. Innovation and sustainability

The CVCE law (art. 2) provides for the establishment of a relevant research infrastructure on European integration **based on innovative concepts and technology and guaranteeing at the same time the operation and sustainability** of it. This mandate emphasises the importance of the sustainability of research outputs and also demonstrates that they are part of a larger thematic and methodological concept. The absence of a reliable, operational and long-term environment for project results (including data, publications,
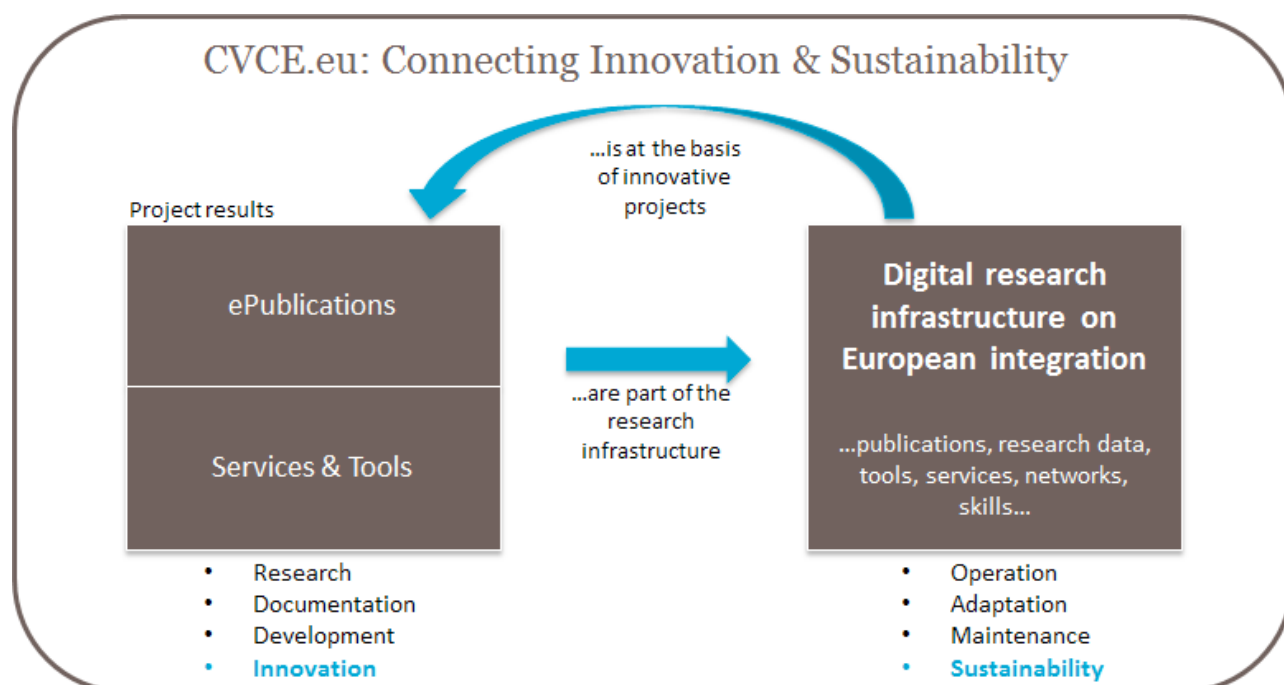
Innovation and sustainability are therefore the backbones of the CVCE.eu research infrastructure.

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software, tools and services) is currently one of the major drawbacks in "making sense" out of ICT-based methods and tools in HSS.

Since the CVCE.eu research infrastructure is being built in an emerging field, innovation is taking place at all levels of development.

2. Cross-disciplinary and cross-sector approach

European integration studies is at the heart of the CVCE.eu research infrastructure. It is an interdisciplinary field combining contemporary history, law, political science and economics. Analysing source material and publishing in a digital environment while developing new publication models and analytical tools results in a cross-disciplinary approach that incorporates computer science, engineering and information science.

At the same time the centre acts as an editor and publisher, adding cross-sector aspects to the work carried out (including multimedia production, multilingual aspects and copyright issues). By integrating current trends, the centre is helping to **blur the boundaries between academia, heritage institutions (as holders of source material), publishers and technology providers**.

Based on this integrated approach, the centre engages in the production of **new and innovative types of research outputs** which are not limited to monographs and scientific articles but also include software, tools, enriched (smart) databases, enhanced publications, algorithms, teaching modules, etc.

3. Collaboration and engagement

Collaboration between researchers and experts in or outside the centre and with academic or non-academic institutions at national or international level is an essential part of the CVCE.eu research infrastructure, notably in the fields of European studies and digital technologies.

As well as addressing the scientific communities, the centre engages with the teaching and lifelong learning communities as well as with society at large. In a digital environment, the lines between **researchers, domain experts, citizen scientists**, between **users and producers** are blurred. The CVCE.eu research infrastructure interacts with its target communities at various levels, including expert/ crowd-sourcing and participation in competitive projects.

As a corollary, the CVCE is involved in the development of high-quality research outputs that are relevant in a scientific and societal context.

4. Quality

Scientific and technical quality is an essential principle in building the CVCE.eu research infrastructure since it fosters a high level of **trust** in the centre's outputs. The centre invests in the **transparency** of its research and documentation process and the development of well-performing, relevant services and tools. **Quality assurance and control procedures** (e.g. peer review and other forms of assessment) are an integral part of building the CVCE.eu research infrastructure.

The **Committee of Experts**, whose composition reflects the cross-disciplinary and cross-sector nature of the centre, supports and assures this commitment to quality at different levels (e.g. by setting up external peer-review committees for its ePublications).[16]

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[16] See Quality assurance in sections III.B.8 and III.C.8 below.

D. Subject scope and key thematic research areas

The CVCE.eu research infrastructure is dedicated to the interdisciplinary study of the **European integration process** in a broad sense, from the pioneering plans of the 20th century to the latest developments. This includes the various intergovernmental cooperation and integration initiatives — mainly political, economic and security-based — launched after the Second World War. Against this backdrop, specific attention is paid to the study of the origins and evolution of the European Union. The CVCE is thus contributing to the creation of an enriched understanding of European integration and its past, present and future dimensions.[17]

Specific areas of study are laid down in a four-year programme with the overall aim of developing a multidimensional understanding of the process of building a united Europe by adopting an interdisciplinary approach (historical, legal, economic and political) and working from a contextual, comprehensive and long-term perspective.[18]

During the 2014–2017 period, the CVCE will focus on two major objectives:

a) the development of further ePublications, with the objective of creating new high-quality research corpora, educational outputs and primary sources in the 'Oral history of European integration' collection; and

b) the adaptation, enhancement and further development of existing ePublications (contributing to their sustainability).

To this end, the CVCE will analyse and experiment with advanced digital concepts and methods for knowledge creation and scholarly publication.[19]

The CVCE places priority on relevant trends within the field of European studies by addressing cross-cutting issues and particularly by tackling issues with a societal impact at national and international level. The potential contribution to knowledge advancement (filling gaps or adding inter/cross-disciplinary approaches to discipline-based and fragmented research), the link to current issues and the potential interest for Luxembourg remain the primary criteria. Against this backdrop, the **key thematic research areas** are as follows:

1. The European economic, monetary, financial and social model in a context of recurrent crisis and revival

Since 2008, the European Union, its Member States and citizens have been in the throes of a major financial, economic, social and political crisis. The impact of this crisis on European socio-economic structures calls into question the strength of the political relationship between public authorities (the EU, the states and the local authorities) and citizens. The project for an 'ever closer union between the peoples of Europe', originally designed to underpin the post-war reconstruction effort and strengthen links between the people of Europe, appears to be at a standstill. Europe seems unable to move forward from the crisis: tensions are rising within the community of states and communities of individuals, and positions are hardening.

The aim of this research area is to place the current crisis in context, providing keys to understanding and interpreting events via a series of complementary themes: the European economic, monetary and financial model, the European social model, the reaction of the

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[17] See CVCE Mission Statement, *op. cit.*

[18] See CVCE Mission Statement, *op. cit.*

[19] See strategic goal B, objectives 6, 7, 8 and 9 of the CVCE Strategic Plan 2014–2017, op. cit. See section IV below on services and tools that support and enhance European integration studies.

people of Europe to the crisis in 2010–2014, their reaction to a similar crisis in the interwar period, etc.[20]

2. Luxembourg and European integration

Luxembourg, a country at the heart of Europe, has undergone a remarkable transformation from the early 1950s to the present day, evolving from a country specialising in the primary sector and the steel industry to a country diversifying its industrial activities and developing tertiary activities with high added value. This change is a result of various exogenous factors (European integration and the development of the financial markets) and endogenous factors (political stability). This research area examines the drivers for Luxembourg's transformation and its close interaction with the European environment. In this context, the vision and work of the main architect of this transformation, Pierre Werner, are being analysed, notably in the light of the Pierre Werner family archives. More generally, this area looks at the historical relationship between Luxembourg and Europe from a broad perspective: Luxembourg's impact on and contributions to the European integration process, the process of Europeanisation in Luxembourg and Luxembourg's European policy through the analysis of diplomatic documents.[21]

The development of the CVCE's ePublications is in line with these key thematic research areas for 2014–2017.[22]

As regards the **enhancement** of the CVCE's existing ePublications, the thematic focus is on the **institutional system of the European Union and its recent developments** in the light of the legal and political changes that have occurred over the last five years: the adoption and implementation of the Treaty of Lisbon, the adoption of new treaties (the 'Fiscal Compact' and the Treaty establishing the European Stability Mechanism), the European elections in June 2014 and the appointment of new members of the major EU institutions (European Commissioners, the High Representative of the Union for Foreign Affairs and Security Policy, the President of the European Council, the President of the Eurogroup, etc.).[23]

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[20] These topics are dealt with in the CVCE Implementation Plan 2014–2017 Project Overview, adopted by the Board of Governors on 28 July 2014. See projects 'Tommaso Padoa-Schioppa' (TPS), '2010–2014. Recent development in European integration: overcoming the crisis and facing new challenges' (REDE10-14), '1919–1945. The European idea in the inter-war period' (EUROOTS), 'Building a European economic and financial model after the crisis', 'The European social model from past to future'. These last two projects integrate a new three-year project, RESuME ('Resources on the European socio-economic model'), supported by the EU's Erasmus+ programme.

[21] See topics in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit*. See projects 'Pierre Werner and Europe (final phase)' (WERNER-EU), 'La politique européenne du Luxembourg (Documents diplomatiques luxembourgeois – Europe)' (EULUX-DIPLO), 'European online source publication on European integration policy' (ERIPO).

[22] See section III below.

[23] See section III.B.12 below on the maintenance of the 'European integration studies' collection. The focus is on the 'European organisations' section.

E. Target communities

'[…] Fifteen years ago, the challenge before us was to imagine how new technology might provide a new platform for the practice of scholarship in the humanities, but today our challenge is the reverse. It is no longer about opening the university and inviting the public in: it's about getting out where they already live, and meeting the public in the information commons, on the same terms that everyone else does. […]' [24]

'[…] A cyberinfrastructure for humanities and social sciences must encourage interactions between the expert and the amateur, the creative artist and the scholar, the teacher and the student. It is not just the collection of data–digital or otherwise–that matters: at least as important is the activity that goes on around it, contributes to it, and eventually integrates with it. […]' [25]

1. Definition

The CVCE's outputs on European integration are developed for research, education and lifelong learning. They are open to a large interested public.[26]

• Research communities

The CVCE's scientific outputs are tailored for the requirements of research communities in European integration studies. This primary target group is composed of researchers, experts or networks approaching the analysis of European integration on an interdisciplinary basis or through disciplines such as contemporary history, international and European law, political science and economics. It is also extended to other scholarly communities or individual researchers from other disciplines or neighbouring fields (e.g. international relations) who find added value in the resources provided by the centre. This target group also includes communities focused on the methodological issues applied by the CVCE's research team, in particular oral history and ICT-based methods (digital humanities).

• Teaching and lifelong learning communities

In terms of the knowledge transfer and valorisation of research results and expertise, the CVCE's primary target groups are the teaching and lifelong learning (LLL) communities, notably in higher education at Bachelor's and Master's level.

The outputs generated by the centre in this field also address other teaching and LLL communities, such as teachers and students in upper secondary schools that can benefit from the CVCE's ePublications and from the related services and tools.

The needs of this target group include: access to and (re)use of resources and tools as teaching aids, access to ready-made selections of documents on specific subjects in relation with curricula, interactions with peers, etc.

• Extended target audience: society at large

The results of the CVCE's work are open to a large interested public (citizens, national/international media, national/international institutions and political organisations, civil servants, and other professionals).

The needs of this enlarged target audience relate to an enhanced understanding of the multiple facets of the European integration process, particularly current issues.

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[24] See Unsworth, John. University 2.0. In: Richard N. Katz, ed., *The Tower and The Cloud*. EDUCAUSE, 2008, pages 235-236.

[25] See *Our Cultural Commonwealth*, *op. cit.*, page 11.

[26] See CVCE Mission Statement, *op. cit.*

2. Engagement with target communities

A study carried out by the CVCE in collaboration with the Laboratoire lorrain de psychologie (Université de Lorraine in Metz, France), together with other studies in the field (e.g. University of Oxford, 2006),[27] [28] have helped identify the needs of the CVCE's target communities. They basically relate to issues such as:
- • accessing, (re)using and enriching sources and resources;
- • producing, sharing and disseminating knowledge;
- • interacting with peers.

This is also in line with the scholarly information cycle described above.[29]

Furthermore, the involvement of the communities in the design and development of the digital research infrastructure is essential to create trust and acceptance among the target communities.

Target communities actively engage with the CVCE through their use of the digital research infrastructure in multiple ways, for example through expert/crowdsourcing tasks or by using the infrastructure for collaboration activities. The CVCE's engagement with its target audiences is therefore shaped by three activities: first to make potential users aware about the uses and benefits of CVCE.eu, second to encourage users of CVCE.eu to explore the site in more depth, for example by using different types of ePublications, making use of services and tools or actively participating in different projects, and third to provide feedback on the different elements of CVCE.eu to identify emerging needs and requirements among the target audiences.

Measures to engage with target communities and activities to increase their awareness of the results produced are included and planned within specific projects or developed as an ongoing or recurrent activity.

The CVCE.eu research infrastructure is at the core of activities such as:
- organising and participating in seminars, lectures, symposia, conferences, workshops, courses, etc. within research and educational environments;
- participating in collaborative projects and cooperation networks (see below);
- organising and participating in training and information sessions, exhibitions, public presentations and conferences;
- using social networks and hybrid communication resources — such as Twitter, Facebook and YouTube — to share research results and interact with target communities;
- developing press relations and organising press events;
- publishing outreach articles, books, posters and blogs;
- providing widgets — as a window to resources — that are actively incorporated into external websites or blogs;
- sending out newsletters and mailshots;
- inviting feedback and active participation in the development of the centre's activities;
- inviting others to link to and reference our resources, etc.

[27] Kirkham, Ruth. *Building a Virtual Research Environment for the Humanities. Report of the User Requirements Survey*. University of Oxford, September 2006. [Accessed 1 October 2014]. Available from: http://bvreh.humanities.ox.ac.uk/files/User_requirementsBVREH.doc

[28] Unsworth, J. 'Scholarly Primitives: what methods do humanities researchers have in common, and how might our tools reflect this?'. In: Symposium on 'Humanities Computing: formal methods, experimental practice', King's College London, 13 May 2000. [Accessed 1 October 2014].

[29] See II.A above.

F. Cooperation strategy

The CVCE's aim is to further develop high-level international and national collaboration networks in European integration studies and digital humanities to interact with peers, exchange best practices and develop common projects related to the centre's mission.[30]

Cooperation is a vital element of the CVCE's strategy and is primarily based on a series of privileged partnerships at national and international level. This network of expertise contributes to the development of the centre's research topics and the promotion of knowledge transfer through collaborative projects. It also plays a role in the exploitation and valorisation of results in an academic and societal context.

Cooperation is promoted through:
- joint/collaborative projects;
- participation in competitive programmes (FNR programmes, H2020, ERASMUS+, etc.);
- participation in transnational/national infrastructures and networks (DARIAH-EU,[31] Europeana,[32] NeDiMAH,[33] EADH,[34] DIG-HUM,[35] DHBeNeLux,[36] Jean Monnet Programme Community Network,[37] UACES,[38] RICHIE,[39] AFHé,[40] etc.);
- the hosting of visiting researchers and experts;
- participation in academic lectures, seminars and workshops;
- organisation of/participation in scientific/public events (conferences, exhibitions, fairs), etc.

Cooperation generally leads to the signing of partnership agreements.

The development of the CVCE.eu research infrastructure is based on cooperation with public and private institutions (universities, research centres, heritage institutions such as libraries and documentation centres, archives and other owners/holders of source material, etc.), individuals and networks specialised in European integration studies and in digital humanities/ICT.

The cooperation strategy is in line with the CVCE's strategic orientations. It focuses on strengthening a limited number of strategic partnerships with a strong connection to the centre's core activities and further developing project-related cooperation.

The orientations governing cooperation during the 2014–2017 period are as follows:

- further development of strategic partnerships in Luxembourg, notably the University of Luxembourg, the future Luxembourg Institute for Science and Technology, the National Library and the National Archives;
- priority placed on building the DARIAH-LU consortium (see below);
- further development of cross-sectoral cooperation in Luxembourg, particularly with the Ministry of National Education (Centre for Education Technology), the Ministry of Foreign Affairs, the Ministry of State (Media and Communications Department),

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[30] See CVCE Mission Statement, *op. cit.*

[31] Digital Research Infrastructure for the Arts and Humanities, see https://dariah.eu

[32] See http://www.europeana.eu/

[33] Network for Digital Methods in the Arts and Humanities, see http://www.nedimah.eu

[34] European Association for Digital Humanities, see http://eadh.org

[35] Digital Humanities im deutschsprachigen Raum, see http://www.dig-hum.de

[36] Digital Humanities Benelux, see http://dhbenelux.org

[37] See http://jeanmonnet.ning.com/

[38] University Association for Contemporary European Studies, see http://www.uaces.org/

[39] Réseau International de Jeunes Chercheurs en Histoire de l'Intégration Européenne, see http://www.europe-richie.org/public/presentation.php

[40] Association Française d'Histoire économique, see http://afhe.hypotheses.org/

the Ministry of the Civil Service and Administrative Reform (National Institute of Public Administration, State Centre for Information Technologies), etc.;
- priority placed on cooperation for competitive projects;
- strengthening participation in networks and associations;
- hosting visiting researchers;
- further development of strategic regional and international partnerships.

The CVCE aims to enhance the synergies between digital humanities stakeholders (e.g. public research centres, the university and cultural heritage institutions) at national level, notably through the DARIAH-ERIC (European Research Infrastructure Consortium). DARIAH is supported by the European Commission under the ESFRI[41] roadmap and 15 European states are currently members of the consortium. The CVCE is the National Coordinating Institution for Luxembourg. Within the framework of DARIAH-LU, a working group composed of representatives of the different stakeholders meets regularly in order to develop a national approach in this emerging field and to prepare for common projects.

In addition to strategic cooperation, specific partnerships are built at project level.

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[41] European Strategy Forum on Research Infrastructures.

III. The CVCE ePublications on European integration

	CVCE.eu: The **research infrastructure** on **European integration**	
	An **integrated, operational** and **sustainable** research infrastructure	
Data repository	ePublications	
	Services & Tools	
Technical infrastructure		
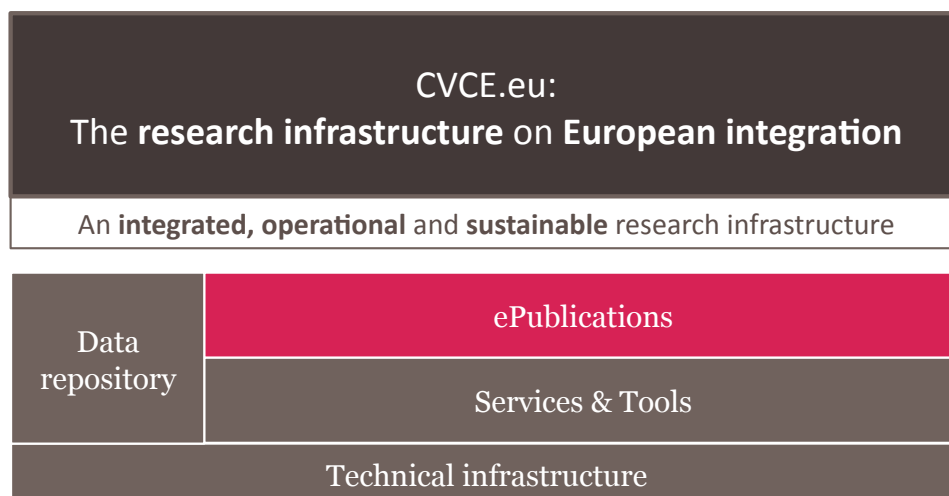
A. General framework

The CVCE ePublications are the main component of the CVCE.eu research infrastructure and the core of the CVCE's outputs. During the 2014–2017 period, the development of ePublications is the first programmatic strategic goal. One particular objective is to analyse and experiment with advanced digital concepts and methods of knowledge creation and scholarly publication.[42]

Through its ePublications the CVCE aims to contribute to the needs of the research and teaching communities providing scientific outputs for research and knowledge transfer purposes. The report from the DRIVER project notes that:

> […] The need for enhanced publications that are embedded in the publisher or repository environment is urgent, as the number of digital scholarly objects on the internet (such as multimedia materials, data sets, and blogs) is growing enormously. Without such an environment, it is difficult to discover whether related objects (such as movies, images, data sets and commentaries) are available.

In order to make it easy for researchers to trace publications and related objects (research data, extra materials or post-publication data), an appropriate infrastructure should be developed. […][43]

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[42] See strategic goal B, objective 9 of the CVCE Strategic Plan 2014–2017, *op. cit*. See section IV Services & Tools below.

[43] DRIVER II, Digital Repository Infrastructure Vision for European Research II, *Report on Enhanced Publications State-of-the-art*, p. 7. [Accessed 1 September 2014]. Available from: http://www.driver-repository.eu/component/option,com_jdownloads/Itemid,83/task,summary/cid,53/catid,8/

CVCE ePublication categories

The CVCE ePublications are organised according to the following categories, which vary in terms of their nature, composition, aim and target audience:
- Thematic ePublications (which form the 'European integration studies' collection)
- eInterviews (which form the 'Oral history of European integration' collection)
- ePapers (which form the 'CVCE ePapers' series)
- Teaching and lifelong learning eModules
- Reference databases

A **CVCE thematic ePublication** is an enhanced scholarly digital publication composed of a wide range of relevant and enriched source material on a particular theme. It is geared towards research communities as well as teaching and lifelong learning communities. The focal point is the source material in both qualitative and quantitative aspects.

A **CVCE eInterview** is an enhanced scholarly digital publication composed of an oral account and related selected material. It constitutes a primary source for research, combined with a legacy dimension. It is also a useful source for teaching and lifelong learning.

CVCE ePublications on European integration

Data Repository

Reference databases			
European integration **Biographies**	**European integration studies collection** Collection of thematic ePublications	**CVCE ePapers** Series of ePapers on European integration research themes, methods and tools
European integration **Bibliographies**		
European integration **Thesaurus**	**Oral history of European integration collection** Collection of eInterviews	**Teaching eModules** Series of Teaching and lifelong learning eModules

Services & Tools

A **CVCE ePaper** is an enhanced scholarly digital publication composed of a scientific article linked to related relevant and enriched source material. It serves research purposes. The focal point is the article.

A **CVCE teaching eModule** is a digital educational resource which provides access to teaching resources and to a selection of relevant and enriched source material.

The **CVCE reference databases** (biographies, bibliographies and thesaurus) are a valuable resource for scholarly work and a means to enhance the quality of services and tools offered to all the CVCE.eu target audiences.

Interrelations
The CVCE's ePublications are the main component of the CVCE's digital ecosystem that connects creators, publications, sources and users. They all are part of a major concerted effort by the CVCE to produce and transfer knowledge in an interconnected way. The CVCE's ePublications are therefore closely interrelated:
  - The thematic ePublications incorporate oral history primary sources in the form of selected interview excerpts and are linked to reference databases.
  - The eInterviews are primarily produced for research purposes in line with the development of the thematic ePublications and are linked to reference databases.
  - The ePapers are also a result of the research process and are connected to the development of the thematic ePublications, the eInterviews and reference databases.
  - The teaching eModules are knowledge transfer outputs based on the resources contained in the thematic ePublications, the eInterviews and the reference databases.
  - The reference databases (particularly the biographies, bibliographies and thesaurus)

provide resources and enrich all the other categories, and the development of ePublications also leads to the creation of new entries in the reference databases.

Furthermore, interrelationship exists between the CVCE's ePublications are other CVCE.eu components: the services and tools and the data repository.[44]

Common features
The CVCE ePublications share common features, with additional specific features for each category.

In line with the high-level principles governing the development of CVCE.eu research infrastructure,[45] the CVCE ePublications are a result of a cross-disciplinary/cross-sector work combining European integration studies and disciplines/expertise related to the application of ICT-based methods and tools. They are new forms of born-digital publications whose development provides an opportunity for experimentation and innovation. They are based on a collaborative approach resulting from the broad range of expertise available at the centre and from external cooperation with the CVCE's target communities (research and teaching). They are developed for research and/or educational purposes and they are open to the society at large.

The CVCE ePublications are multimedia and, as such, composed of a wide range of source material (texts, images, video and audio clips, etc.). They are available in several languages and are composed of multilingual source material.

As regards quality, the CVCE ePublications undergo internal/external peer review.

[44] See sections IV and V below.

[45] See section II.C above.

The CVCE favours **open access** and provides users free of charge online access to its ePublications.[46] In compliance with intellectual property rights, the CVCE ePublications provide information on copyright and the terms and conditions governing their use and reuse at various levels. They are also developed in compliance with protection of personal data and confidentiality.

The CVCE ePublications are citable.

In connection with the high-level principle of sustainability of CVCE.eu, the CVCE ePublications are maintained and updated and they are enhanced with new features in order to guarantee a high level of quality and to provide long-term access under a persistent URL to target communities.

A common ePublication methodology

The development of the CVCE ePublications is based on a series of activities and processes resulting from a combination of traditional and innovative methods and the application of wide-ranging expertise. In accordance with the CVCE scholarly information cycle,[47] the process of building a CVCE ePublication involves a series of activities that are steered and managed by the European Integration Studies Department in close cooperation with other entities at the CVCE, particularly the Digital Humanities Lab, the Multimedia Production Unit, the Translation Office, the IPR & Legal Affairs Office and the Communication Office. A variety of external collaborations, with research and teaching communities as well as with providers and holders of source material, complete this process.

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[46] The CVCE's ePublications are reusable within the limits of intellectual property rights.

[47] See overall methodological approach in section II.B above.

The CVCE ePublications are developed within a reference framework that includes the following activities:

Phase 1. Definition
- Identification of the research theme and the general research question;
- Literature review;
- Definition of the scope of study (definition of the theme and detailed research questions, aims and methods, sources) and the schedule for the review process in a specification document;[48]

Phase 2. Development
- Documentary research and aggregation of source material;
- Selection of source material;
- Digitisation, conversion of formats, recording, transcription of manuscripts or audio/video recordings;
- Creation of source material (writing texts, creating tables, designing interactive maps, diagrams and timelines, carrying out interviews, translation, etc.);
- Enrichment of source material through (1) annotation by adding metadata such as bibliographical references, keywords or contextual captions and by cross-linking, (2) data cleanup and (3) editing;
- Analysis of source material;
- Interpretation – contextualization of source material;
- Intellectual property rights management;
- Quality assurance;

Phase 3. Publication, dissemination and knowledge transfer
- Representation and publication in the CVCE.eu research infrastructure;
- Dissemination of the ePublication;
- Organisation of and participation in events such as seminars, lectures, conferences and workshops;
- Organisation of and participation in teaching/training activities, public events, etc.;
- Communication via social networks;
- Outreach articles;
- Communication activities (widgets, newsletter, mailshots, etc.);

Transversal activities
- Storage (archiving, identifying, organising and preserving content);
- Maintenance (updates and enhancement);
- Collaboration activities (notably with target communities);
- Project management.

In order to carry out these activities, the CVCE. eu digital infrastructure provides the necessary services and tools to support the various stages of the CVCE's research process, the dissemination of results and their valorisation via knowledge transfer.[49]

During the 2014–2017 period, the CVCE will develop a general editorial policy for the CVCE's ePublications, with additional specific guidelines for each category.

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[48] A specification document is part of the peer-review process for thematic ePublications (see section III.B.6 below).

[49] See section IV below.

B. European integration studies collection
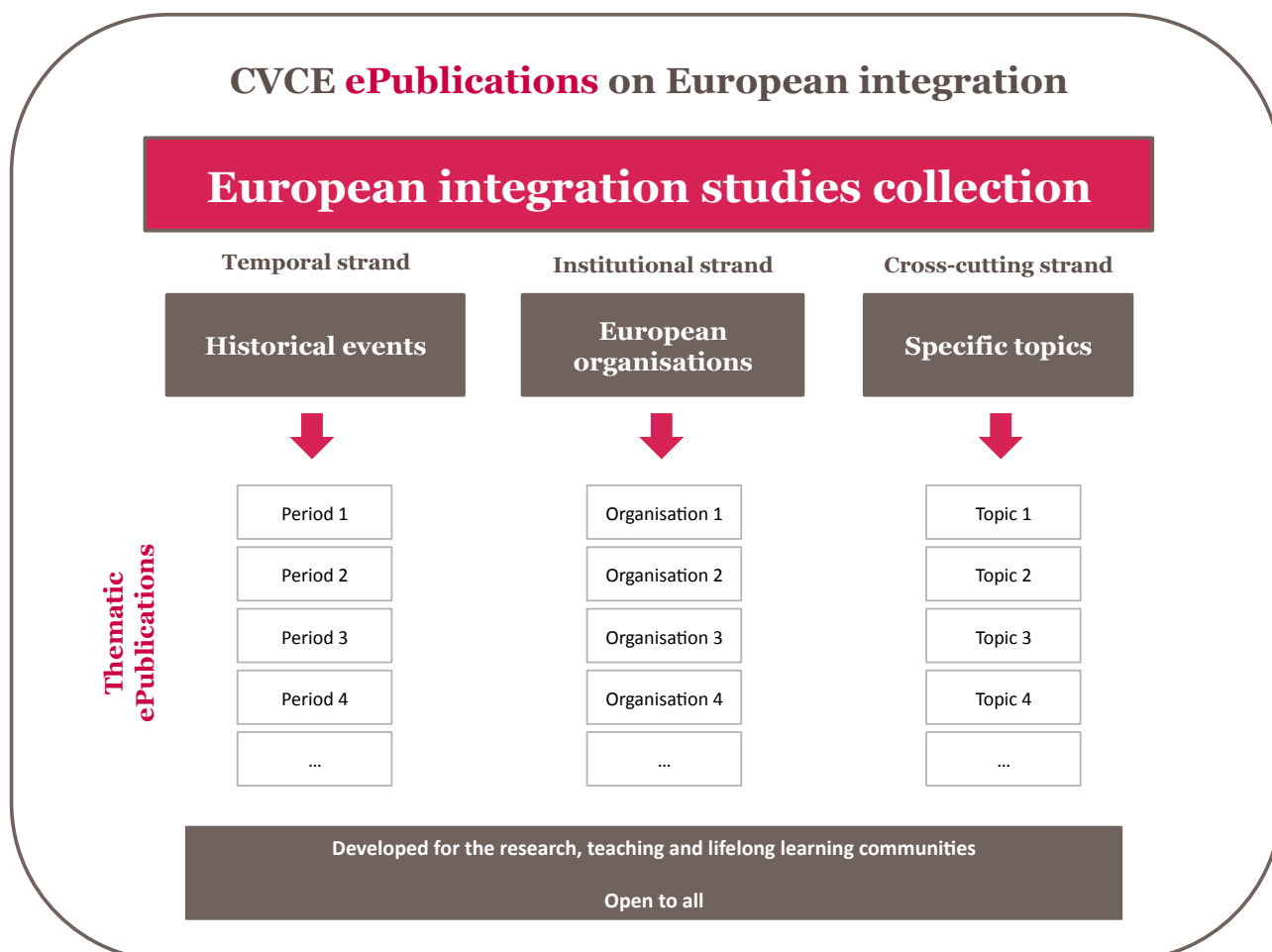
CVCE ePublications on European integration

European integration studies collection

Temporal strand	Institutional strand	Cross-cutting strand
Historical events	**European organisations**	**Specific topics**
Period 1	Organisation 1	Topic 1
Period 2	Organisation 2	Topic 2
Period 3	Organisation 3	Topic 3
Period 4	Organisation 4	Topic 4
…	…	…

Thematic ePublications

Developed for the research, teaching and lifelong learning communities

Open to all

1. Description and aims of the collection

The 'European integration studies' collection is a **reference work** on the European integration process. It is a collection of **thematic ePublications** analysing and documenting this process from a multidimensional and transnational perspective.

The collection aims to provide a wide range of relevant and enriched source material combining multiple approaches to gain a better understanding of the manifold aspects of the European project. It thus contributes to scientific reference material on the past, present and future dimensions of European integration which informs current debate and allows for further research and use.

The collection is developed for the research communities as well as for teaching and lifelong learning purposes. It is also open to a public interested in the subject.

The thematic ePublications which form the collection may as such be qualified as research

corpus (for intensive research) or thematic file (for reference),[50][51] although these categories are not necessarily relevant for the user (and may vary over time). The interest for and the usage by the target communities goes beyond the mere format and relies foremost on navigational concepts as well as related services and tools.[52]

2. Overall structure and organisation of the collection

The CVCE thematic ePublications which form the 'European integration studies' collection are organised into **three key strands**: temporal, institutional and cross-cutting.

1. The **temporal strand** analyses European integration as a historical process from a chronological perspective, examining when events occurred and in what order. European integration is not seen as something ineluctable, but as a process where proposals were made, options where chosen, decisions were taken. The origins and evolution of the European integration are examined through an integrated and global perspective with a special focus on political, legal, economic and social factors.

The related thematic ePublications are part of a comprehensive work entitled '**Historical events in the European integration process**', which is divided into different chronological periods and is subdivided into thematically coherent units. Each period constitutes a thematic ePublication.

The objectives[53] for 2014–2017 are to adapt, enhance and further develop the existing thematic ePublications and to create a new one on the recent developments in European integration from 2010 to 2014 with a focus on the impact of the economic and financial crisis.

2. The **institutional strand** analyses the European integration process from the perspective of the international organisations operating at European level as leading players in this process. The focus is on studying their origins, structure and functioning as well as their role and contribution to European integration. The approach is mainly political and legal while keeping within a historical perspective.

The related thematic ePublications are part of a comprehensive work entitled 'The origins and development of the European organisations', which documents the major international organisations involved in European integration that have been established in Western Europe since the end of the Second World War: the European Communities/European Union (EU), the Council of Europe, Western European Union (WEU) and the Organisation for Security and Cooperation in Europe (OSCE).

From 2014 to 2017, the priority will be to review and enhance the existing ePublications, particularly by updating content relating to applicable European legislation and focusing on current developments in the EU institutions.

3. The **cross-cutting strand** offers a thorough analysis of specific issues on European integration.

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[50] These categories were integrated in the 2011–2013 period and are available in CVCE.eu. Their evolution will be considered within the framework of several projects for 2014–2017, in particular the B-TEP project ('Building e-thematic publications') and the ENHANCE project ('Re-modelling and enhancing the European integration studies collection'). See in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

[51] "[…] Thematic research collections are evolving as a new genre of scholarly production […]. They are digital aggregations of primary sources and related materials that support research on a theme.
Humanities scholars are participating in this movement, bringing their subject expertise and acumen to the collection development process. In taking a thematic approach to aggregating digital research materials, they are producing circumscribed collections, customized for intensive study and analysis in a specific research area. In many cases these digital resources serve as a place, much like a virtual laboratory, where specialized source material, tools, and expertise come together to aid in the process of scholarly work and the production of new knowledge. […]". Palmer, Carole, L. *A Companion to Digital Humanities, op. cit.*, page 1.

[52] See section IV below.

[53] See strategic goal B, objectives 6 and 7 of the CVCE Strategic Plan 2014–2017, *op. cit.*

The related thematic ePublications are mainly designed to fulfil the strategic objectives of creating new high quality research corpora during the 2014–2017 period, developing national and international collaboration strategies as well as maintaining a good level of participation in competitive European programmes.

New thematic ePublications will be developed on the following specific topics: Pierre Werner's European vocation and achievements, diplomacy within WEU, the European socio-economic model, and Luxembourg's European policy.[54]

3. Definition and main features of thematic ePublications

A thematic ePublication is an enhanced digital scholarly publication composed of a wide range of relevant and enriched source material on a particular theme.

It is a self-contained and open-ended publication which is citable and accompanied by a scholarly apparatus. It is composed of purposefully selected, extensive documentary evidence supporting the study of a chosen theme and includes computer-based data analysis and visualisation.

The source material is heterogeneous, composed of a selection of primary, secondary and tertiary material of varying provenance and comprising different media and languages. The material may be digitised or born-digital, newly created or pre-existing.

A thematic ePublication is an enhanced form of digital publication based on hyper-textual narratives and navigational concepts with multiple points of entry and various pathways through the publication as well as integrated tools that enable a personalised approach in accordance with user interests and needs.

Thematic ePublications are subject to an external peer review prior to their publication within the CVCE.eu research infrastructure.

Thematic ePublications have a twofold dimension as a scientific product and a product for further research and use in teaching and lifelong learning activities as well as by society at large.

4. Composition of a thematic ePublication

Thematic ePublications contain the following elements:
(i)   a structure (detailed plan);
(ii) a methodology note explaining the scientific approach and the ICT-based methods applied;
(iii) a selection of source material (produced by the CVCE or from external sources) which is enriched;
(iv) a series of texts (contextual articles) that place the created and selected resources in context;
(v)   filmed and recorded interviews with relevant players or eyewitnesses (oral history);
(vi) biographies;
(vii) a bibliography;
(viii) a chronology;
(ix) the use of ICT-based methods and tools.

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[54] See project on Luxembourg diplomatic documents in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

5. Categories of source material

The source material is heterogeneous. It can be divided into four broad categories:

1. **Texts**. This category includes the following resources: books (or extracts), academic publications (or extracts), contextual articles, press articles, written interviews (including transcriptions), letters and correspondence, written speeches, official documents, treaties, diplomatic documents, academic literature (working papers, research reports, notes, briefing papers, etc.), bibliographies, biographies, academic material (any material specifically intended for teaching or training: manuals, presentations, lecture notes, dictionaries, encyclopaedias, technical datasheets, etc.), non-interactive chronologies or timelines, non-interactive tables and other texts.

2. **Images**. This category comprises the following resources: posters, cartoons, non-interactive maps and diagrams, photographs and other images.

3. **Audiovisual material**. This includes the following resources: interviews (video and/or sound recordings), speeches (video and/or sound recordings), video footage (short documentaries, video or music clips, etc.) and sound recordings (podcasts, radio broadcasts, etc.).

4. **Multimedia material**. Interactive maps, interactive diagrams, interactive tables and interactive timelines.

These categories cover all existing resources and are broad enough to incorporate any new resource types.

6. General criteria for source selection and production

Documents should be selected and produced with a view to providing useful resources for research on a given subject. A description of the theme, the research questions that a thematic ePublication will address, and its aims and methods are set out in a specification document that is assessed by the peer-review committee.[55]

The choice of source material is based on the following quality considerations:
- relevance to the subject;
- relevance to the research questions;
- interdisciplinarity (integration of historical, legal, political and economic dimensions);
- diversity, which can be assessed according to:
  • the nature of the sources: private/family archives, diplomatic archives, collections of legal texts, databases, etc.;
  • the plurality of political and scientific viewpoints and approaches;
  • the geographical coverage of the sources;
  • the language(s) of publication;
  • formats (texts, images, audio and video material, tables, diagrams, etc.);
  • the type of document (institutional documents, correspondence, biographies, comments from academic doctrine/literature, press articles, etc.);
- reliability, in other words sources that can be precisely identified (title, author, date, place of publication, etc.);
- originality, based on the quantity of original and previously unpublished texts included.

The volume of material offers wide-ranging and extensive documentary evidence of the subject. There is a balanced distribution of documents between the various sections and sub-sections.

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[55] See III.B.8 Quality assurance below.

The documents selected and produced should provide a coherent whole within the ePublication; overly comprehensive or exhaustive approaches are neither sustainable nor appropriate. Thematic ePublications reflect the analysis made by the authors and demonstrate the researchers' knowledge and skills.

Finally, the development of thematic ePublications is inevitably influenced by the restrictions associated with the acquisition of copyright, the conditions required for the creation of sources (e.g. securing the agreement of potential interviewees), the accessibility of documents and the need to comply with confidentiality regulations governing documents.

7. Use of ICT-based methods and tools

The 'European integration studies' collection is built on ICT-based methods and tools throughout the various stages of the knowledge creation process: selection, enrichment, analysis, interpretation, representation, publication, knowledge transfer and collaboration.

The choice of specific methods and tools issued from digital humanities is directly related to the theme and research questions addressed by a given thematic ePublication. In view of the key thematic research areas for 2014–2017 and the related topics which will be covered in the CVCE's ePublications, the focus will be on tools for entity extraction and annotation in text documents, the edition of documents in XML-TEI and the use of tools for text analysis, network visualisation and analysis.[56]

More generally, a new thematic ePublication model and digital tools for faceted and customised search and semantic annotation will be made available for users of CVCE.eu. Finally, a lightweight collaborative platform will allow for further cooperation on ePublication projects.[57]

8. Quality assurance

The quality assurance process for the CVCE's thematic ePublications is based on a multiple approach: ex-ante/ex-post, internal/external.

Thematic ePublications are reviewed internally by peers in the respective entities as part of the project quality assurance process. A peer-review committee composed of three or four external experts (including members of the CVCE's Committee of Experts) assesses both the results and the rigour of the method employed in the thematic ePublications. The following committees are set up on an interdisciplinary basis by the CVCE's Committee of Experts:
  - a peer-review committee for the thematic ePublications which form the temporal strand;
  - a peer-review committee for the thematic ePublications which form the institutional strand;
  - specific peer-review committees for each thematic ePublication within the cross-cutting strand.

Quality is reflected ex-post in the use and recognition of scholarly outputs by the target communities. An 'open' review system is also under consideration; to this end, an online feedback system has already been introduced.[58]

9. Intellectual property rights — principles

The intellectual property regime that governs the development of the collection is based on the following principles:
  1. Protection by intellectual property legislation as established at national, European and international level;

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[56] See sections IV.D and IV.E below for further details.

[57] See section IV.G below.

[58] At a later stage, the CVCE will explore new ways of interacting with communities that will allow it to gradually incorporate user comments and annotations.

2. Free authorisations/licences to use material in research and education or in exchange for visibility/partnerships;

3. Authorisations/licences granted in return for payment;

4. Freedom to reproduce material under specific conditions (e.g. not misrepresenting the meaning and mentioning the source in accordance with specific requirements);

5. Use of Creative Commons licences (optional on the request of the author).

Intellectual property management at the CVCE is governed by strict rules laid down in legislation, which establish a general framework, and also specific conditions set by individual right holders. As regards for the resources of the collection, there is a distinction between the CVCE's own productions[59] and material from third-party sources. CVCE.eu includes detailed information for its users to inform them of the terms and conditions governing the use of its resources:

- A copyright notice for each document informing the user of the identity of the right holder and of any conditions relating to the reproduction of the document;
- A legal notice reminding the user of the importance of complying with third-party rights and authorising the user to create hyperlinks, quote short passages and analyse extracts of the document.

10. Principles for the protection of data and confidentiality

The CVCE also places particular emphasis on the protection of data and confidentiality. With regard to personal data, as a rule, it only publishes photos of figures, either official portraits or photos at public events, not photos in private situations. Any information published by the CVCE regarding these people is publicly available data. On the matter of confidentiality, the CVCE occasionally has access to information or documents that are governed by specific confidentiality requirements. In these cases, the CVCE complies scrupulously with the disclosure rules (confidential, highly confidential, secret, top secret, etc.) or degree of confidentiality imposed by the right holders.

11. Language policy principles

The 'European integration studies' collection is available in several languages. The language policy applies to the various elements that make up its infrastructure, as follows:

- The interface languages provide access to all the content on CVCE.eu. They are French, English and German.
- The publication languages provide access to the various versions (original and translated versions) of the thematic ePublications. The main publication languages are French and English. Other languages chosen for specific projects are German and Spanish. Occasionally a thematic ePublication is published in just one original language.
- The documents within each ePublication are available in several languages — both in their original language[60] and in translated versions (depending on the publication language(s), whether there are existing translations and the availability of resources).

12. Maintenance of the collection

The 'European integration studies' collection is a long-term sustainable work: it is maintained and accessible over time.

Maintenance, updating and enriching data is an integral part of the CVCE's daily activities.

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[59] The CVCE's own intellectual property includes articles, interviews, video clips, photos, expert contributions, interactive maps and diagrams, tables, etc.

[60] There are currently archive documents available in 26 different languages.

During the 2014–2017 period, particular attention will be paid to these aspects with a view to implementing the strategic principles and the guidelines resulting from a new thematic ePublication model.[61]

The principles governing the update process for the collection are as follows:

- Focus on the thematic ePublications which form the institutional strand (the 'European organisations' section has particular requirements since there have been changes to applicable legislation), with priority being placed on the European Union and its institutions.
- Regular updates based on:
  • changes to legal texts;
  • changes in the composition of an organisation (a new Member State) or an institution (new Members of the European Parliament, European Commission, Court of Justice, etc.);
  • the six-month Presidency of the Council of the European Union;
- One-off updates based on:
  • a major historical or legal event such the refusal of a state to ratify a treaty, the adoption of new case law, the resignation of a member of an institution, etc.;
  • the opening of new archives/document collections.

The need to update publications is assessed on the basis of the importance of the historical or legal event in the light of the research questions being examined. As far as possible, updates should be restricted to information which is now obsolete in historical terms (e.g. a new historical interpretation) or legal terms (e.g. a new treaty).

In addition to the updates described above, substantial revisions and updates are dealt with in a specific project which will result in a new edition of the thematic ePublication.

With regard to data curation and enrichment of the collection, a metadata model will be available for the 2014–2017 period.[62]

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[61] See ENHANCE and 'Building thematic ePublications (B-TEP)' projects in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

[62] See project on 'Data curation and enrichment' in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

C. Oral history of European integration collection

CVCE ePublications on European integration

<div style="text-align:center">

Oral history of European integration collection

Oral history

⬇

eInterviews

| Account 1 |
| Account 2 |
| Account 3 |
| Account 4 |
| ... |

Developed for the research, teaching and lifelong learning communities

Open to all

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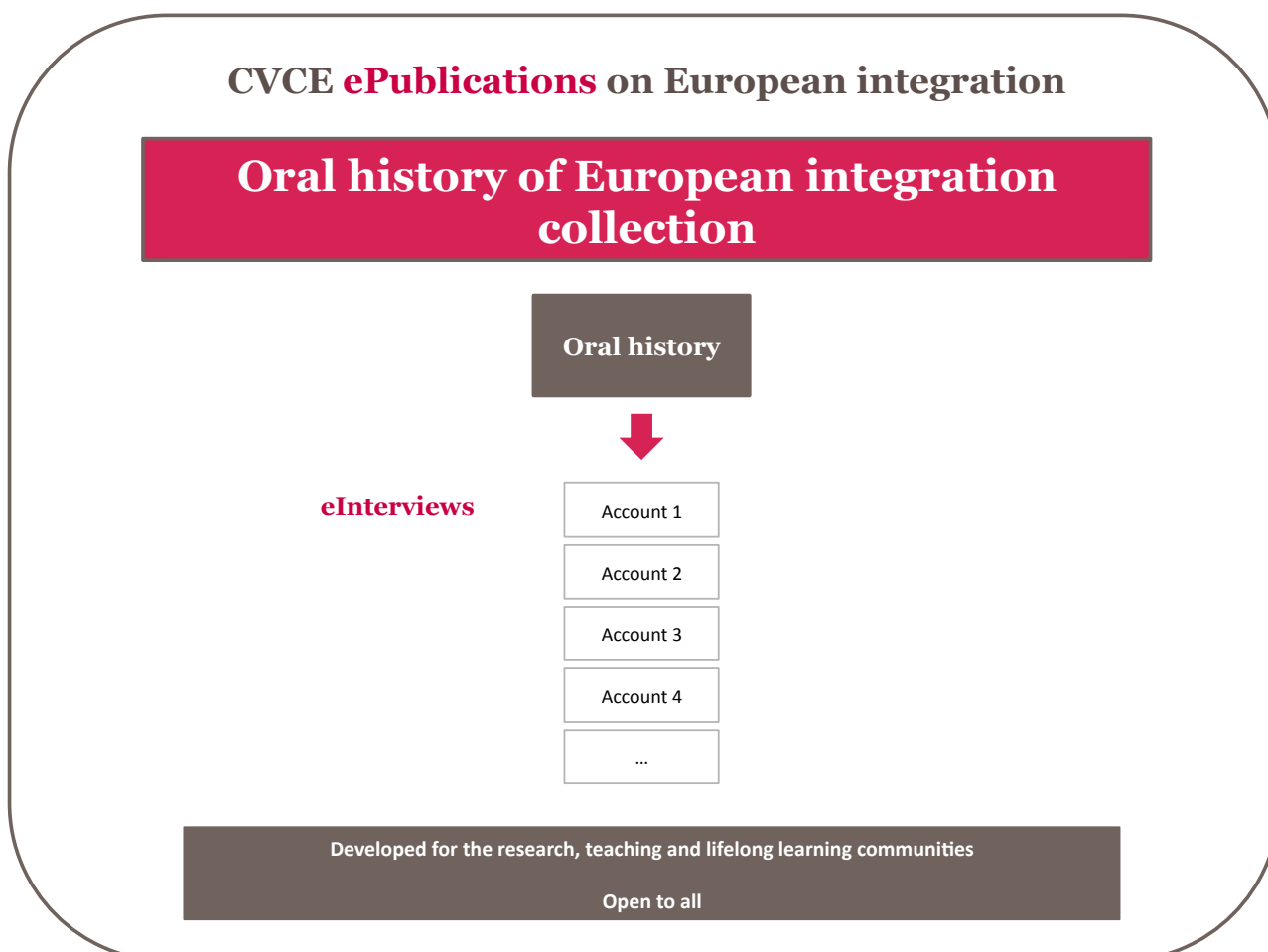
For more than ten years now, the CVCE has been gathering accounts from people who have witnessed and/or been involved in the major events that have shaped the European integration process. The development of a dedicated collection of ePublications within the CVCE.eu research infrastructure reflects the unique nature of oral history, which is both a research method and a method of preserving history, as applied to interdisciplinary European integration studies.

The development of primary sources with a focus on oral history is one of the strategic objectives for 2014–2017.[63]

1. Description and aims of the collection

The 'Oral history of European integration' collection is a collection of eInterviews. It brings together the oral accounts of players and observers of the European integration process as a collection of primary sources. It aims to provide new primary sources to study the contribution made by different

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63 See strategic goal B, objective 8 of the CVCE Strategic Plan 2014–2017, *op. cit.*

figures to European integration, examining their careers and exploring their reflections on Europe. Improving our understanding of the role of these figures can help us to refine and contrast research findings by putting them into perspective and adding multiple and complementary points of view.

The interviews are chiefly conducted for research purposes, namely to provide new primary sources for researchers specialising in European studies. These sources often represent a useful complement to other resources and archive material, and may even serve to shed new light on this material.

The CVCE's interviews also constitute a precious legacy for present and future generations. These personal accounts offer an effective and appealing way to get closer to the history of the European integration process so as to develop a better understanding of past and current European issues. Several excerpts also have clear educational applications or may be of interest to the media and the society at large.

2. Structure and organisation of the collection

The collection is published in a dedicated section of CVCE.eu. It is organised according to the recorded accounts (each of which forms an eInterview), which are presented in alphabetical order by the last name of the interviewee. Other means of access (e.g. via an index of topics) will be explored during the 2014–2017 period.

3. Definition and main features of eInterviews

An eInterview is an enhanced form of ePublication. It is self-contained, coherent and open-ended. It includes a variety of materials (using different media and in different languages) that are derived from the newly created oral primary source. It is enriched and documented by a scholarly apparatus. It is citable and accessible over time.

4. Composition of an eInterview

A CVCE eInterview consists of the following main elements:
- a structure;
- a biography of the interviewee;
- a full video/audio recording;
- a selection of excerpts organised by theme;
- a transcription in the original interview language and in translated versions;
- documentation of the process (questionnaire, photos, notes, etc.);
- use of ICT methods and tools.

Each account is systematically published in full and accompanied by a short biography of the interviewee. It is also indexed by theme and selected excerpts are published to offer easy access to the different topics covered. All the excerpts are given a title and an explanatory caption which present the excerpt and set it in context. The excerpts are also used in the relevant themed sections of the CVCE's other ePublications. Finally, a transcription of the interview is published, together with a translation into English and/or French.

5. Selection criteria

The development of the 'Oral history of European integration' collection is closely linked to the development of the 'European integration studies' collection. Each research project dedicated to a specific thematic ePublication involves the production of a series of eInterviews which are exploited first and foremost for the purposes of the project.
The selection criteria for the interviewees

are based on both the research and legacy dimensions of the collection.

The choice of interviewees is firstly determined by the CVCE's key thematic research areas for 2014–2017.[64] More particularly, interviewees are selected in accordance with the themes covered in the CVCE's research projects. Finally, the CVCE's oral history programme includes career interviews with individuals who have made a substantial lifetime contribution to European integration. This approach enables the CVCE to seize opportunities which arise to interview people while remaining in connection to the CVCE's themes.

The profile of the CVCE's interviewees varies enormously and can include Heads of State or Government, ministers, members of parliament and other political leaders, senior officials or members of ministerial cabinets, diplomats, judges, bankers, journalists and figures from civil society.

In addition to the diversity of profiles, the representation of several viewpoints remains a primary selection criterion.

Finally, the choice of interviewees takes into consideration the variable of age as well as the aim of achieving an adequate balance of gender and geographical origin (including non-European players).

6. The interview method

The interviews are semi-structured; they are loosely based on a questionnaire which covers biographical elements and points of interest for specific research topics. Before drawing up the questionnaire, the researchers identify the main themes on which the interviewee is likely to be able to provide valuable information or offer a particular viewpoint. The questionnaire or a list

of topics is sent to the interviewee, who is free to make any adjustments he or she considers appropriate. The questions are often open-ended to stimulate the development of ideas and the production of knowledge. The interview is therefore a participatory process involving a degree of improvisation and interaction, and the researchers tailor their approach depending on the interviewee. Questions can be adapted or extended during the interview. The aim is to generate an account that contains as much relevant information as possible.

7. Use of ICT-based methods and tools

The 'Oral history of European integration' collection is essentially cross-disciplinary and its development requires a wide range of skills and expertise. The full value chain of services and tools provided by the CVCE.eu digital infrastructure is used, starting from the creation of the interviews to their enrichment and analysis up to their dissemination and exploitation.[65]

During the 2014–2017 period, the focus will be on the multilingual indexation of interviews and on the edition and annotation of transcriptions and subtitles in XML-TEI. This will allow for better findability of the content through search engines, a better edition quality and the exploitation of analytical tools on the collection.

More generally, the priority is to build and implement a new ePublication model applied to oral history.[66]

8. Quality assurance

The quality assurance of the 'Oral history of European integration' collection is performed through internal peer review and a twofold external peer review.

Firstly, an oral history peer-review committee

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[64] See section II.D above.

[65] For further details see section IV below.

[66] See CVCE-ECHO project in close connection to B-TEP project in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit*.

composed of three or four external experts (including members of the CVCE's Committee of Experts) will assess the implementation of the four-year 'Oral history of European integration' programme based on the Strategy Paper at the end of the period in 2017 and provide advice to further develop the collection over the next four-year period of development.

Secondly, each peer-review committee set up for a specific thematic ePublication is called on to assess the relevance of a list of potential interviewees in relation with the given research theme.[67]

9. Legal principles

The development and production of each eInterview and its subsequent exploitation is covered by a specific contract between the CVCE and the interviewee.

The eInterviews are freely available for consultation on CVCE.eu. Oral history material is protected by intellectual property rights. A copyright notice for each document informs the user of the identity of the right holder and of any conditions governing the recordings and use of the eInterview in accordance with the agreement signed with the interviewee. The CVCE respects the name, the image and the words of the interviewee.

The confidentiality and protection of personal and private data are essential principles that govern the development of the collection.

10. Language policy principles

The CVCE eInterviews are available in several languages.

The publication languages are French and English.

The interviews themselves are conducted in a range of languages (French, German, English, Spanish, Portuguese, Italian, etc.) according to the choice of the interviewee; preference is given to the interviewee's mother tongue where possible. They are published in the original language.

The transcription is available in the original language of the interview and is translated into the publication languages (French and English within the limits of the resources available).

11. Maintenance of the collection

The 'Oral history of European integration' collection is the result of an ongoing programme and is constantly being enriched with new eInterviews linked to the different research topics set out in the CVCE's strategy and four-year implementation plan. The collection remains accessible in the long term.

Maintenance of the collection is an important activity during the 2014–2017 period, with priority being given to consolidating the methodological and scholarly apparatus of the existing eInterviews (e.g. by further documenting the creation process or updating biographies).

The collection will also be enhanced notably through the implementation of a new index of topics and cross-linking with other ePublications on CVCE.eu.

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[67] See quality assurance of the 'European integration studies' collection in section III.B.8 above.

D. CVCE ePapers

The CVCE ePapers are a new and enhanced form of ePublication, exploring the results of work done, notably by researchers and visiting researchers at the CVCE. They result from the scientific exploitation of existing relevant source material available in other ePublications,[68] of new source material and of applied digital methods and tools. The CVCE ePapers are research publications designed as part of a series within the CVCE.eu digital research infrastructure.

The CVCE ePapers are geared towards the research communities in European integration studies and digital humanities. The aim is to build on the unique positioning of the CVCE's expertise, which combines the interdisciplinary study of European integration with ICT-based methods and tools. As with all the results of the CVCE's work, this publication is open to a broader public via the Web with no access restrictions.

The CVCE ePapers are based on the creation of a dedicated research publication space, developed as a result of the close link between EIS and DH, which complies fully with international research standards. This space is part of the CVCE.eu digital research infrastructure and will contain:
- in-depth articles in the field of European integration studies;
- methodological articles in the field of European integration studies, including articles on oral history methodology and ICT-based methods and tools;
- articles in the field of digital humanities in all areas relating to the potential use of ICT in support of European integration studies.

These scientific articles demonstrate a cross-disciplinary approach and are centred on all relevant disciplines related to the CVCE's areas of expertise, e.g. European studies, contemporary history, European law, political science, economics, and information technology. They are in line with the CVCE key thematic research areas in European integration studies and the CVCE's activities in digital humanities. The CVCE ePapers are enhanced publications composed of articles providing not only references to sources but also access to source material and relevant related resources. They undergo external peer-review. They are citable and are available in open access (in compliance with intellectual property rights) via a unique persistent URL.

The development of the CVCE ePapers is part of two specific projects conducted by the centre in the 2014–2017 period.[69]

E. Teaching and lifelong learning eModules

The CVCE's teaching and lifelong learning eModules are educational resources which provide access to selected and enriched source material on a given subject relating to the European integration process as well as relevant teaching resources.

The main objective of the eModules is to enhance teaching and training activities by providing support to professors, lecturers, teachers, trainers, etc. for preparing and teaching courses, seminars or workshops.

E-modules are developed in accordance with the specific needs of the educational communities, particularly for those working in higher education. They are open to a broad public including students, interested citizens,

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[68] Notably from the 'European integration studies' collection and the 'Oral history of European integration' collection.

[69] See projects 19 and 23 in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

journalists, civil servants and politicians, thus promoting a proactive lifelong learning approach.

The eModules are thematically introduced (with written and/or video accounts) and contain source material organised into units according to the defined teaching objectives. Further teaching resources include bibliographies, biographies, glossaries and exercises based on specific documents.

The source material is based on the CVCE's thematic ePublications, and relevant links are provided to these publications to enable users to find out more about the subject. Associated tools are provided for enhanced usage of the modules including the use of source material in class, the annotation of source material or working in an individual, group or public setting.

E-modules are produced by experts in the relevant field who are actively involved in teaching and/or training. The centre provides supporting services to facilitate the use and development of its teaching eModules. It interacts closely with professors/lecturers/teachers/trainers to develop use cases and gather feedback for the iterative development of the eModules (content and tools).

The CVCE guarantees long-term access to its teaching eModules. It places the priority on Master's-level modules.

The eModules can also be used as a complement to or a basis for the creation of MOOCs[70] by higher education institutions. The possibility of linking the eModules to institutional e-learning platforms for further assignments and interactions with students will also be explored.

The development of the CVCE teaching eModules is part of two specific projects led by the centre in the 2014–2017 period.[71]

F. Reference databases

The CVCE's reference databases are a valuable resource for scholarly work in the field of European integration studies and a means to enhance the quality of services and tools offered to CVCE.eu users. They create a link between the centre's platform and external sources, for example in the field of linked open data.

Reference databases provide a curated collection of highly structured information that is referenced to other scientific sources and can be referenced through persistent identifiers. As the information in the reference databases is machine readable and structured, the reference databases become a building block in the interlinking of resources within the CVCE.eu data repository and towards external sources. For the period from 2014 to 2017 it is planned to create three reference databases with different focal points:

1. European integration biographies
2. European integration bibliographies
3. European integration thesaurus

1. European integration biographies

The aim of the European integration biographies reference database (EIBIO) is to create a structured repository of information about people who have played a role in the European integration process. Each person is identified with a unique and persistent identifier that is linked to existing identifiers such as VIAF[72] or metagrid.[73] Additional information about the person, such as the date and place of birth, educational background and career, can be stored and are accessible for further processing.

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[70] MOOC: massive open online course.

[71] See projects 18 and 22 in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

[72] VIAF: the Virtual International Authority File, see https://viaf.org.

[73] See http://metagrid.ch.

The development of EIBIO will provide a solid foundation for the indexation of digital objects and the annotation of information in digital objects (e.g. a reference to a State Secretary in the German Ministry of Defence in 1967 is linked to the identity of the actual person). In turn this information improves searches for objects related to specific people and enhances computational analysis and visualisation approaches. Information about people is also rendered on CVCE.eu, thereby offering a human-readable overview.

EIBIO builds on previous work on the CVCE's 'passports' format and seeks to create a highly structured and thoroughly cross-referenced collection of both human- and machine-readable information about relevant players in the European integration process.

References to people in EIBIO are primarily used within CVCE.eu (notably in the oral history eInterviews and the thematic ePublications) but are also open to the research, teaching and lifelong learning communities as well as to society at large.

The choice of people is based on the following criteria:

- relevant key people involved in the European integration process who are mentioned in the CVCE thematic ePublications or ePapers;
- relevant players and eyewitnesses of European integration identified within the 'Oral history of European integration' collection.

The goal is to position the CVCE as the main authority for structured, machine-readable and referenced information about key players in the field of European integration.

2. European integration bibliographies

The European integration bibliographies reference database (EIBIB) is a database of bibliographical references published in the CVCE.eu research infrastructure that includes entries for all documents on CVCE.eu as well as for documents and other publications that are relevant for the European integration process. It is updated and extended on an ongoing basis.

The focus of EIBIB lies in the cooperative creation of bibliographies related to specific, predefined topics. The choice is based on bibliographical references which are identified within a research project on a specific theme, notably for the development of thematic ePublications and ePapers.

The possibility of using EIBIB to develop user-curated or crowd-sourced bibliographies will be reviewed.

3. European integration thesaurus

The European integration thesaurus reference database (EITHES) contains a structured thesaurus of terms related to European integration studies. As with EIBIO, each term is linked with external sources[74] and can be referenced through a unique identifier. Particular attention is devoted to the temporal nature of the terms and their changing meaning through time.

EITHES provides a basis for the indexation of documents through a controlled, structured and organised terminology database in the specialist field of European integration. Priority is given to building on previous CVCE work on an interdisciplinary thesaurus on European integration and to standardising the entries of EITHES in accordance with existing multilingual thesauri (e.g. EuroVoc).

The development of the CVCE reference databases is part of five specific projects led by the centre in the 2014–2017 period.[75]

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[74] EuroVoc, the EU's multilingual thesaurus see http://eurovoc.europa.eu/drupal/

[75] See RDB, EIBIO, EIBIB, EITHES projects 17, 24-27 in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

IV. Services & Tools

CVCE.eu: The **research infrastructure** on **European integration**		
An **integrated, operational** and **sustainable** research infrastructure		
Data repository	ePublications	
	Services & Tools	
Technical infrastructure		
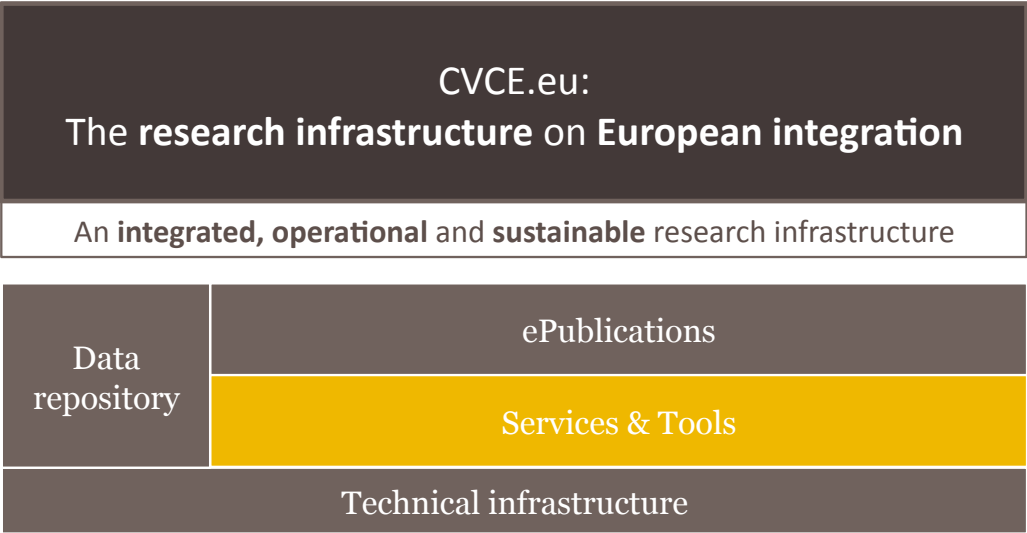
A. Conceptual framework

Services and tools are based on the overall technical infrastructure and together with the data repository and the ePublications they form one of the core components of the CVCE.eu research infrastructure. In general, services and tools are designed to support the research process at the CVCE, but they also play a significant role in the interaction with target audiences outside of the academic field, such as the teaching and lifelong learning communities and society at large.

Within the CVCE.eu research infrastructure, services and tools can be classified according to their function in different domains:[76]

• Capture and creation
This domain covers tools and services that allow the selection of new source material as well as its aggregation and transformation into digital data or its conversion from one digital format into another. It also covers the creation of new source material, for example through the recording of audio or video material for interviews or the creation of interactive diagrams and maps.

• Data enrichment
Tools and services in this domain allow the linking of digital source material and metadata with external sources, the annotation of source material with additional information (e.g. references to external data sources) as well as the clean-up of metadata and source material.

• Data storage, management and retrieval
Tools and services in this domain facilitate access to digitally stored source materials and metadata. They also provide efficient management and retrieval procedures.

• Analysis
This section covers tools and services that enable the analysis of digital source material and metadata that allow a new perspective on research topics. It is the specific goal of these tools to enable insights that goes beyond what is possible with conventional approaches.

• Dissemination
Tools and services in this domain support the activity of making a variety of ePublications available to the target audiences of CVCE.eu.

The specific tools and their implementation on CVCE.eu will be discussed in more detail below.

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[76] The classification is derived from TaDiRAH — Taxonomy of Digital Research Activities in the Humanities. v. 0.5.1, 05/2014. [Accessed 1 October 2014]. Available from: https://github.com/dhtaxonomy/TaDiRAH).

B. Methodology

Services and tools on CVCE.eu aim at three different target audiences, in particular researchers in European Integration Studies at the CVCE. The CVCE will implement during the 2014–2017 period a highly user-centred development process that places user needs (and their uncertainty) at its heart to foster the emergence of innovative solutions.[77] This process is derived from a framework for developing and sustaining complex products known as Scrum[78] and is ideally suited to circumstances where solutions are required for complex adaptive problems requiring creative approaches.

At the CVCE the process comprises three distinct phases whose individual complexity and duration might vary depending on the actual project and its associated products (outputs). See figure 1 for an illustration of the process as applied to the cooperation between three different entities at the CVCE, the department for European Integration Studies (EIS), the DHLab and the Development and operations team (DEVOPS). The process has been designed to provide transparency of development for the European Integration Studies Department and allows them to inspect products regularly from early on in the process. It also provides a framework to adapt products based on knowledge gained by users during the process.

In *phase one — prototyping and product definition*, users are introduced to new tools and services that might become useful for their specific activities (e.g. research, teaching or interaction with historical sources) through different methodologies such as workshops, brainstorming sessions, guided interviews or prototyping. Members of the DH Lab work together with their colleagues from the European

Integration Studies department to organise exploratory sessions, conduct interviews and record observations of working practices. The information collected during these sessions is used to define a coherent product from which user stories can be derived. These stories are then written, prioritised and organised to create an ordered inventory of items[79] that need to be developed during the second phase of the process. The user stories model user requirements and feedback in a standardised way, identifying which target audience will benefit and providing a description of the required functionality, the value of the requirement and the acceptance criteria that will ensure developments are fit for purpose. They are a critical part of the overall development process as they provide a common and unambiguous understanding of what the user wants from the product. In practice, each user story focuses on a specific item and provides a high-level definition of a user requirement. More complex workflows are described by a sequence of user stories to capture the expected behaviour of the targeted products. Once validated, the user stories are added to the related product backlogs and can then be considered for implementation.

Phase two of the development process focuses on the implementation of the user stories as a piece of releasable software. To this end, members of the DH Lab prioritise and review the user stories stored in the backlog with the development team to initiate an agile development cycle using the Scrum methodology. In line with this methodology a set of user stories are selected for implementation from the top of the product backlog (i.e. the most important requirements) and gathered into a 'sprint backlog'. This sprint backlog forms the team's to-do list. In the sprint, the development team creates a potentially releasable product increment based on the content of the sprint

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[77] See section II.B above.

[78] https://www.scrum.org/scrum-guide

[79] Also called a product backlog.

backlog. This product increment is then used to discuss implementation with the different stakeholders (in our example DH Lab, EIS and the development team) so as to review and refine the product backlog. The cycle of sprint implementation, review and updated backlog continues until the software is deemed ready for release, which initiates phase three of the development process.

In *phase three* of the development process, the members of the DH Lab who have guided the process from beginning to end hand over the software to the final users, who put it into productive use. Besides the software itself, additional material such as documentation, manuals, frequently asked questions and editorial guidelines are developed and handed over. After the go-live, tools and services are continuously reviewed to improve functionalities based on the changing preferences and needs of the users and to take into account lessons learned from the application of the tools.

To take into account the requirements and needs of other target groups of CVCE.eu the same principle is applied but the process varies. As it is unfeasible in practice to reproduce the tight cooperation within the CVCE with external partners, phases one and two will build on a limited number of focus groups and workshops. Depending on the complexity of the project, one or two focus groups with external stakeholders will be arranged in phase one and two or three workshops will be held in phase two. For phase three, direct user feedback, sourced for example through the feedback mechanisms on CVCE.eu, will be applied to improve services and tools that are in production

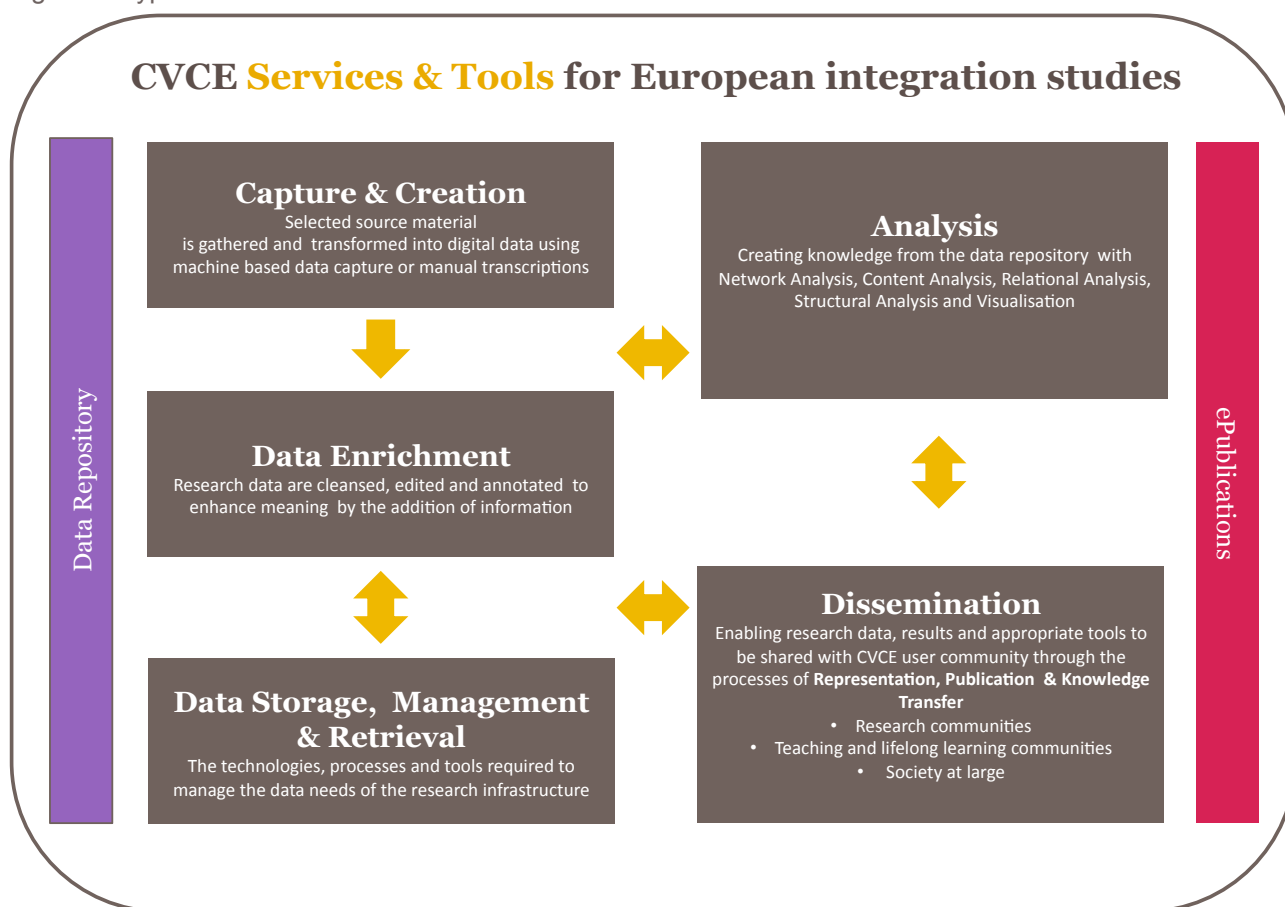Figure 1: Development process for CVCE Services & Tools
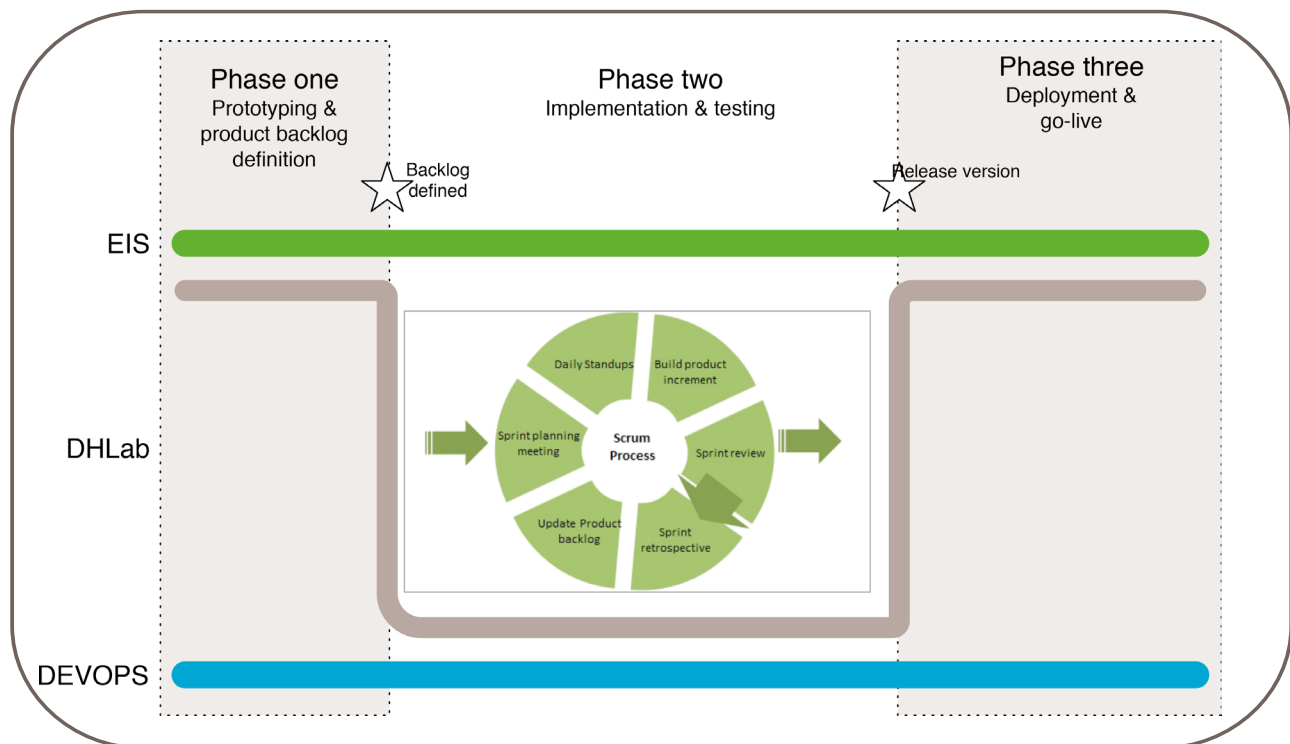
C. Capture and creation

Capture and creation[80] covers tools and services that either transform selected source material into digital objects or lead to the creation of new digital objects which can be stored in the CVCE.eu data repository. Capture and creation is one of the key building blocks of the CVCE.eu infrastructure and is an enabling service for all other research activities. A significant part of tools and services in this area deal with the digitisation of analogue source material and the integration of born-digital sources, e.g. by transcoding them from a storage format into a dissemination format (as in the case of digital video).

This class of services and tools also deals with the creation of new sources, for example through the production and post-production of interviews that form the basis of the eInterviews or through the creation of new maps and diagrams or other content formats such as tables, sounds, images, videos, articles, etc.[81] Another important aspect is the translation of source documents into one of the other main languages of CVCE.eu.[82]

The following tools and services for capture and creation have already been implemented into CVCE.eu.

Figure 2: Types of services & tools on CVCE.eu

CVCE Services & Tools for European integration studies

Data Repository

Capture & Creation
Selected source material is gathered and transformed into digital data using machine based data capture or manual transcriptions

Data Enrichment
Research data are cleansed, edited and annotated to enhance meaning by the addition of information

Data Storage, Management & Retrieval
The technologies, processes and tools required to manage the data needs of the research infrastructure

Analysis
Creating knowledge from the data repository with Network Analysis, Content Analysis, Relational Analysis, Structural Analysis and Visualisation

Dissemination
Enabling research data, results and appropriate tools to be shared with CVCE user community through the processes of **Representation, Publication & Knowledge Transfer**
• Research communities
• Teaching and lifelong learning communities
• Society at large

ePublications

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[80] The concept of capture and creation is derived from TaDiRAH — Taxonomy of Digital Research Activities in the Humanities, *op. cit*.

[81] See section III.B.5, page 21 for an overview of the different types of source material.

[82] See section III.B.11 for details on the CVCE.eu languages.

Backend: Content ingestion

The CVCE.eu backend provides a series of interfaces to turn source material into digital objects. In the course of this process, digital content is indexed with basic metadata to ensure findability and transformed into derived content formats that allow efficient access to and dissemination of the digital objects through CVCE.eu.

Multimedia production

The CVCE.eu multimedia production service provides an in-house service to create new content ranging from audio or video recordings to interactive maps and diagrams. Close cooperation between the service and other parts of the CVCE, leads to an efficient creation of source material.

Translation

To reach a wide audience in Europe, content on CVCE.eu is available in several languages. The interface of the digital research infrastructure CVCE.eu is translated in English, French and German. Sources are translated whenever possible to English and French and to other languages depending on the available funding and the requirements of the ePublications.

Content digitisation: OCR

The vast majority of source material that is relevant for the work of researchers on CVCE.eu was originally created as paper documents. To make these sources available on CVCE.eu, CVCE.eu provides services to digitise documents and to turn scanned images into searchable text through OCR (optical character recognition).

Tools and services for capture and creation are highly relevant for CVCE.eu because of their role as building blocks of the research pipeline. To emphasise the relevance of this domain, the following new tools and services will be implemented between 2014 and 2017.

Content digitisation: Double keying

The automatic extraction of text from digital images has improved significantly in recent years but its results are still limited, particularly when the quality of the source documents has degenerated through storage and wear or if it was initially limited by its print quality. As OCR results for sources of this type often require reworking and manual correction, a new digitisation process will be implemented that builds on the manual transcription of text.

Content transcription: Crowdsourcing

While the digitisation of printed text documents provides specific challenges for automatic processing, handwritten documents are currently beyond the reach of computational methods and require a significant involvement of human resources to process them. Projects like Transcribe Bentham,[83] Old Weather[84] or Ancient Lives[85] have demonstrated that large-scale public involvement in the transcription of handwritten documents could become an economically attractive way of making these sources accessible online with a high degree of accuracy. It is therefore planned to integrate similar existing tools for CVCE.eu users to digitise manuscripts while preserving existing copyright or non-disclosure agreements.

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[83] See http://www.transcribe-bentham.da.ulcc.ac.uk/td/Transcribe_Bentham.

[84] See http://www.oldweather.org.

[85] See http://www.ancientlives.org.

D. Data enrichment

Tools and services in this domain allow the enrichment[86] of digital source material through data cleanup, editing and annotation. Enrichment plays an integral part in the value creation pipeline of CVCE.eu as it allows the creation of an integral surplus value on different levels, for example through the association of extended metadata, the structuring and editing of digital texts or the annotation of sources with additional information such as linking them with internal and external references. In turn this process enables both basic services as the maintenance of copyright information or the association of translation to digital objects as well as advanced uses such as a richer display of text documents, an improved findability through internal and external search engines and new approaches for the analysis of documents. An adapted metadata model has been developed in 2014 and data has been cleaned accordingly to allow for further project related enrichment.[87]

Backend: Data Management
Digital objects on CVCE.eu are not only enriched through descriptive metadata but also through detailed information about the intellectual property rights that are associated with the digital object and the translations of the source.
For the period from 2014 to 2017, a particular emphasis will be put on tools and services that offer data enrichment through semantic annotation.

Digital edition: XML-TEI
XML-TEI[88] has become the de facto standard for the digital publication of literary resources. Applied mostly to institutional archive documents available on CVCE.eu, the approach offers new possibilities for the side-by-side presentation of edited text and scanned originals as well as for the annotation and enrichment of text documents. The reproduction of text documents in XML-TEI will become one of the main services in the area of capture and creation.

Semantic annotation tools
Tools for semantic annotation combine the automatized extraction of high- and low-level features (for example through text analysis or text mining but also face detection and face recognition) with human input to verify results. These publicly accessibly tools will allow CVCE.eu users to annotate entities in texts and images with links to persistent references for people, places and events in time. The links build on reference databases for European integration biographies and the European integration thesaurus, which are in turn linked to common identifiers such as VIAF.[89]

E. Data storage, management and retrieval

Tools for data storage,[90] management and retrieval provide access to the CVCE.eu data repository and enable the persistent storage of objects as well as their management and retrieval. With the growing size of a repository, tools in this domain gain increasing relevance.

The following tools and services for data storage, management and retrieval are currently implemented on CVCE.eu.

Backend: Object management
The object management tools in the backend can be used to access and modify digital objects. Functionalities include object modification or the selection of digital objects for new ePublications.

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[86] The concept of data enrichment is derived from TaDiRAH — Taxonomy of Digital Research Activities in the Humanities. *op. cit.*

[87] See Implementation plan 2014-2017: project on Data curation and enrichment

[88] See http://www.tei-c.org/index.xml for further information about TEI (the text encoding initiative) and the development of the XML-TEI format.

[89] See section III.F on the reference databases of CVCE.eu.

[90] The concept of data storage, management and retrieval is derived from TaDiRAH — Taxonomy of Digital Research Activities in the Humanities, *op. cit.*

Backend: Object retrieval

The search engine in the backend offers access to existing digital objects through full text searches and enables users to filter their search by object type.

Frontend: Search engine

The search engine on the frontend is similar to the object retrieval tool in the backend but is geared towards all CVCE.eu users. New features are constantly being added, for example to enable a faceted search that filters results for specific people, places and events in time.

Backup service

All digital tools and services are inherently material and are therefore exposed to the wear of the underlying machinery. To preserve the digital objects on CVCE.eu, a backup service has been implemented that creates regular backups of all digital information.

For the period from 2014 to 2017, the previously mentioned services and tools will be constantly reviewed and refined to improve the quality of service and the user experience on CVCE. eu. A long-term archiving service will also be implemented to ensure the persistent availability of the digital objects.

F. Analysis

Tools and services for analysis[91] are a new domain that the CVCE is keen to explore in the period from 2014 to 2017. Work in this domain will build on the results of the FP7-funded research project CUbRIK and the newly developed tool histoGraph. The integration of this tool into the CVCE.eu research infrastructure and the incorporation of lessons learned from the project will enable users to apply network visualisation and network analysis approaches to the wider field of European integration studies. Further

analytical approaches such as text analysis and data mining will be reviewed.

G. Dissemination

Tools and services for dissemination[92] play a significant role for CVCE.eu as they provide the main means to reach our audiences. In essence, the tools and services enhance research community building through ePublications, the development of the digital toolbox and a lightweight collaborative platform.

Existing tools and services cover primarily the domain of CVCE ePublications.

Backend: Publication

The development of new tools and services for CVCE ePublications, as well as the enhancement of existing tools and services, will enable the seamless integration of research objects (maps, images, documents, videos, etc.) and their metadata together with an explanation of research methods and decisions taken by the researcher. By improving its ePublication policy, the CVCE will be able to develop a cutting edge ePublication model incorporating an end-to-end process that includes updating editorial policies and scientific guidelines, improving display and interaction by using XML-TEI technology with documents and migrating legacy objects that currently use old formats (e.g. Flash).[93]

Tools and services for the CVCE ePublications will be continuously extended in 2014–2017.

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[91] The concept of tools and services for analysis is derived from TaDiRAH — Taxonomy of Digital Research Activities in the Humanities, *op. cit.*

[92] The concept of tools and services for dissemination is derived from TaDiRAH — Taxonomy of Digital Research Activities in the Humanities, *op. cit.*

[93] See 'Building thematic ePublications (B-TEP)' project in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*
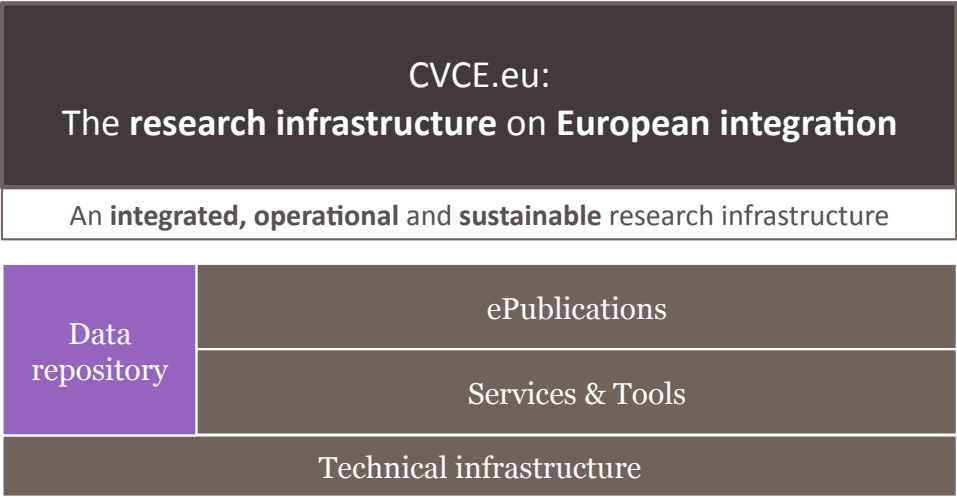
Digital toolbox

The digital toolbox will enable users to customise content from all the CVCE ePublications, offering them the opportunity to develop individual publications based on their specific research/teaching needs. During the 2014 to 2017 period, the digital toolbox will enable users to create, collaborate and comment on personal publications based either on their choice of themes and periods. The timeline tool will offer users the possibility of creating a visual presentation of different CVCE objects based on a chronological sequence of particular events or themes. The 'MyPublications' tool will allow users to create their own ePublication by organising and structuring CVCE objects as part of their personal selection of resources.

Lightweight collaborative platform

The collaborative platform will enable distributed groups of researchers to comment, discuss, share and cooperate while using the digital research infrastructure of CVCE. eu. A lightweight approach will be used that integrates existing software solutions, which will add a collaborative layer to the existing digital infrastructure.

V. Data repository for European integration studies

CVCE.eu:
The **research infrastructure** on **European integration**
An **integrated, operational** and **sustainable** research infrastructure

| Data repository | ePublications |
| | Services & Tools |
| Technical infrastructure |

The CVCE.eu data repository provides access to a wealth of relevant source material for European integration studies from a wide variety of sources and in different formats (text, video and audio, maps, interactive material, etc.).[94] Sources are stored as digital objects containing the digital representation of the source and additional metadata such as information about the author, the nature of the object (e.g. treaty, legal text, interview), copyright information and, if available, other language versions of the source.

The data repository forms a core building block of the research infrastructure and is closely intertwined with the ePublications as well as the Services & Tools while building on the foundation delivered by the technical infrastructure. The data repository stores ePublications and also provides access to the source material (digital objects) that composes the ePublications. Services & Tools interact with the data repository in different ways[95] and are for example used to create and manage objects in the repository.

For the period from 2014 to 2017, the data repository will face an evolution process to meet the challenges laid out in this strategy. The data repository will provide a more granular access through computational means, e.g. by an API (application programming interface) both at the level of the digital object and for information within digital objects. By introducing digital editions of documents, the data store will be extended to cover digital reproductions, transcriptions and edited versions of transcriptions. This approach is closely connected with the introduction of XML-TEI[96] and will significantly extend the usefulness and reach of the platform.

The centre will also strive for compliance as a sustainable and trusted data repository (e.g. Data-Seal-of-Approval) with high quality, curated data according to pre-defined standards and documented processes, enabling long-term preservation and access.[97] The adapted metadata model[98] is the basis for this development.
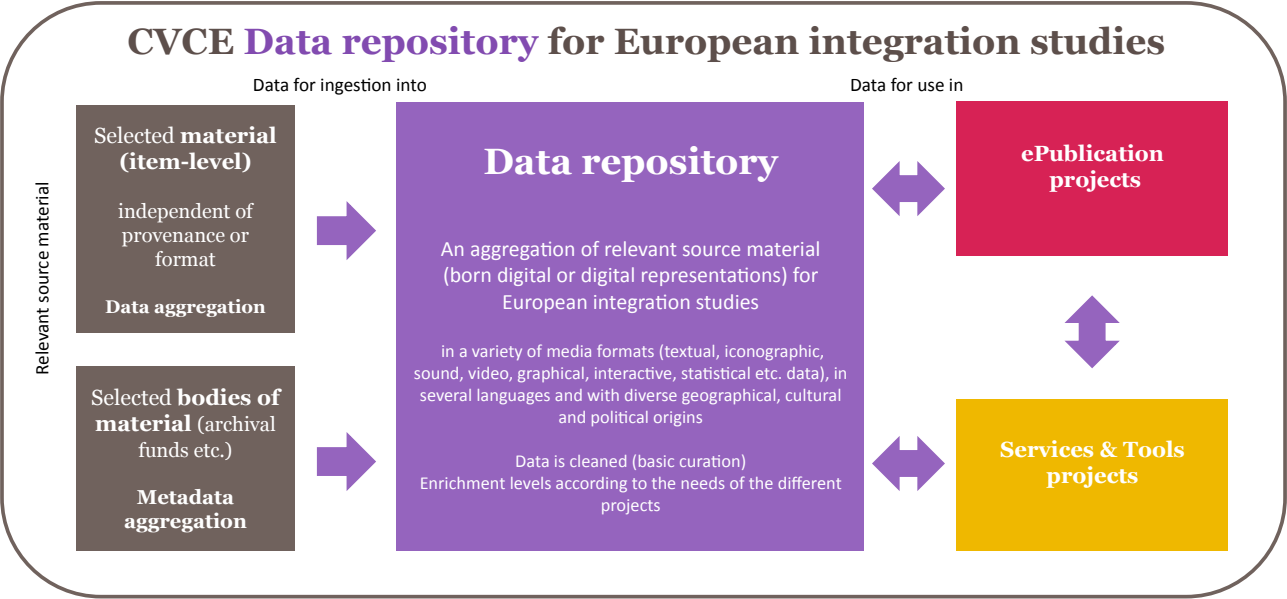
Even though CVCE.eu focuses on the selection and integration of specific items, access to wider bodies of material such as digital archive

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[94] See the section III.B.5 above for an overview of the different types of source material.

[95] See section IV above.

[96] See the section on digital editions in section IV.D above.

[97] See also strategic goal C, objective 11 of the CVCE Strategic Plan 2014–2017, *op. cit.*

[98] See project on 'Data curation and enrichment' in the CVCE Implementation Plan 2014–2017 Project Overview, *op. cit.*

collections is becoming increasingly relevant to support researchers in their work. In the period from 2014 to 2017, a solution to integrate these sources will be reviewed that incorporates the ability to perform a federated search of different sources either within the CVCE.eu data repository or by accessing an external service.
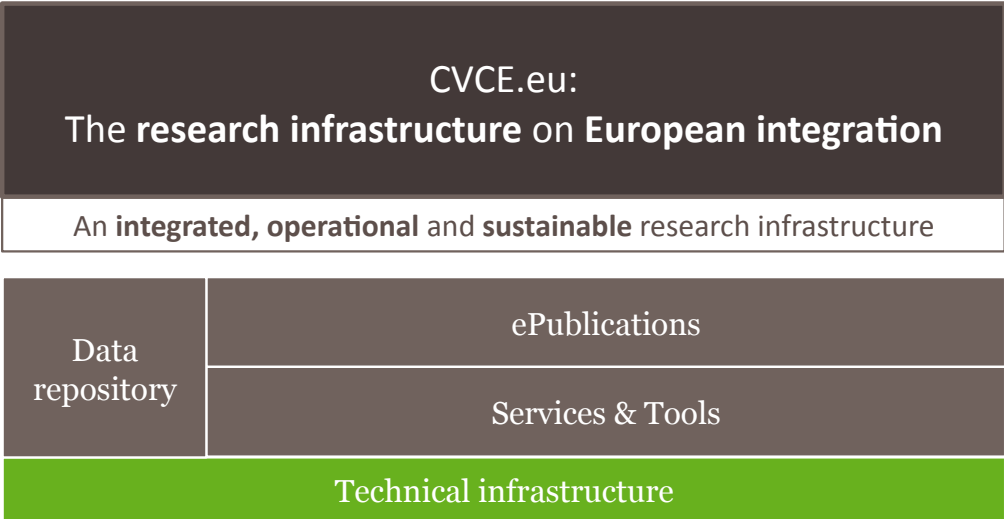
CVCE.eu in general and the data repository in particular are part of a larger ecosystem for research in European integration studies. It is therefore becoming vital not only to use metadata provided by other institutions but also to increase the spread of CVCE.eu resources as much as possible and to share information with other institutions. Particular emphasis will therefore be put on the dissemination of metadata stored in the CVCE.eu data repository through services such as OAI-PMH (Open Archives Initiative Protocol for Metadata Harvesting) to improve interoperability with other repositories.[99]

Figure 3: Interaction of the data repository with other elements of CVCE.eu

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[99] See http://www.openarchives.org/OAI/openarchivesprotocol.html for details on the OAI-PMH protocol.

VI. Technical infrastructure

CVCE.eu: The **research infrastructure** on **European integration**		
An **integrated, operational** and **sustainable** research infrastructure		
Data repository	ePublications	
	Services & Tools	
Technical infrastructure		

The technical infrastructure provides the backbone of CVCE.eu and is crucial for the delivery of services and tools, ePublications and the data repository. It comprises a wide variety of different elements and includes their implementation, management, operation and maintenance.

For 2014–2017, work will focus on both the improvement of the existing infrastructure and the integration of new approaches that offer significant added value to the research infrastructure as a whole.

With regard to the improvement of the existing infrastructure the adaptation, consolidation and maintenance of all software components for the frontend and backend are of prime importance. This includes technological improvements such as the migration to new frameworks but also the continuous adaptation to the requirements of the CVCE.eu users.

As well as focusing on the management of existing technologies, the period from 2014 to 2017 will be dedicated to improving the infrastructure through new technological approaches. This includes for instance the implementation of a new WiFi infrastructure on the CVCE premises that will allow external visitors to connect to the Internet easily via their personal computers, laptops and mobile phones, as well as new monitoring services for the hardware and software of the CVCE.eu infrastructure. The general storage infrastructure will also be updated and a system for archive storage and long-term preservation will be implemented.

Figure 4: Overview of the CVCE.eu technical infrastructure
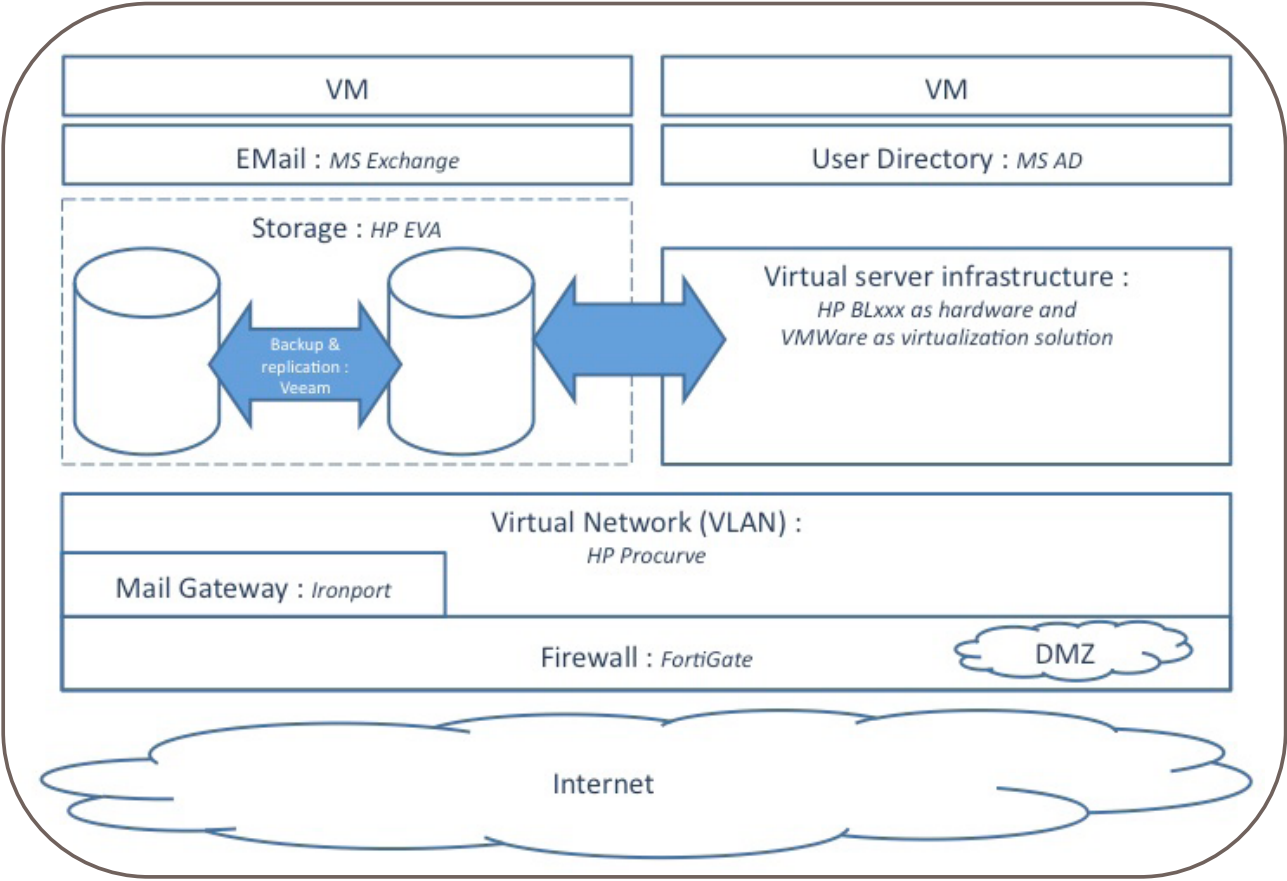
VII. Other outputs

Other **research outputs** of the CVCE are notably scientific publications in internationally recognized peer-reviewed journals/platforms or books outside the CVCE.eu research infrastructure and conferences, lectures, seminars, workshops, etc.[100]

The subjects focus on issues addressed by the different projects and activities carried out by the centre in the fields of European integration studies and digital humanities. Particular attention is paid to publications linking both fields. These publications contribute to demonstrate the centre's recognition within an international scholarly environment as well as its knowledge transfer capacity.

In addition to the dissemination of research outputs within the scientific communities, the knowledge, insight and expertise gained during the research process is transferred and transformed and thus made available in a suitable form for groups and individuals outside these communities.

The centre's **knowledge transfer outputs** outside CVCE.eu include events such as public conferences, outreach articles (press, social media, etc.), blogs, posters and presentations.

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[100] Events such as conferences and lectures may also be recorded and published as a complementary output in the CVCE.eu research infrastructure.

Annex

CVCE Mission Statement (adopted by the Board of Governors in July 2013)

The CVCE is a documentation and e-research centre in European integration studies.

The CVCE contributes to the creation of an enriched understanding of European integration, its past, present and future dimensions.

The centre's main mission is to create valid, rich, curated, meaningful online documentary resources on the European integration process for research, education and lifelong learning, open to a large interested public. These resources are published within the centre's digital infrastructure enabling collection, processing, exploitation, analysis, study and dissemination of the relevant materials, developing and deploying state of the art Digital Humanities tools and methods.
The centre aims to become a reference centre on the European integration process, documenting its historical, legal, economic and political dimensions. It fosters Digital Humanities research and sets out to create a subject-specific collaborative virtual research environment encompassing publications, resources, tools, services, competencies and networks. It promotes a scientific and interdisciplinary approach that supports researchers investigating issues of European integration and engages with the wider scholarly and educational communities.

The centre's aim is to further develop high level international and national collaboration networks in European integration studies and Digital Humanities to interact with peers, exchange best practices and develop common projects related to the centre's mission.

Topics for documentary collections are identified in cooperation with scientific and societal stakeholders. The foundations of the centre's investigations consist in the documented analysis of the European integration process in a broad sense, including intergovernmental initiatives, launched after the Second World War. Specific areas of study are laid down in a 4 year program with the overall aim to develop a multidimensional understanding of the process of building a united Europe by adopting an interdisciplinary approach (historical, legal, economic and political) and working from a contextual, comprehensive and long-term perspective.

Documentary material on the chosen topics is spread out all over the world in digital and analogue formats. It comprehends not only textual artefacts but also iconographic, sound and audio-visual documents, as well as born-digital material in different languages and formats.

Relevant materials are selected, analysed, processed and published in contextualized and comprehensive online collections, with the adequate scholarly apparatus by the centre.

The centre also participates in the creation of primary sources for European integration studies: a specific methodological focus is put on oral history and the production of interviews with key players or witnesses of events that have shaped European integration, particularly in relation to the centre's major thematic research and documentation topics.

Two major types of documentary collections are created at the centre and openly accessible to a large public: research corpora for scientific investigations and subject files for e-teaching and lifelong learning purposes.

The centre further aims to implement Digital Humanities tools and methods, ranging from documentary analysis tools to visualization approaches, to enhance and study the material and thus acting as a generic test bed for the creation of new kinds of digital scholarship. The centre will provide external users and collaborators with an environment in which to interact with the digital resources provided and the tools developed for studying them. The centre will also focus on the use and development of content navigation and semantic exploration tools that facilitate retrieval, identification, correlation and dissemination of the resources and operate well-formed communication languages between the scholars and stakeholders interested in European integration studies.

In order to achieve its objectives, the centre promotes an integrated and interdisciplinary approach, joining together European integration, Digital Humanities, Information and Technology experts.
The centre's resources, as well as its services and tools are openly accessible to communities of teachers, journalists, scholars and public in general underlining the centre's public engagement and focus on knowledge transfer activities.

International and national collaborations are of utmost importance to the centre. In this context the centre participates in and/or initiates conferences and seminars as well as collaborative documentation, research and innovation projects and initiatives. The centre also submits, within its competency domains, papers to scientific journals and other peer-reviewed publication platforms.

CVCE Strategic Plan 2014–2017 (adopted by the Board of Governors in February 2014)

	Strategic Goals 2014–2017	Objectives
Strategic	A. Develop a sound **strategic framework** enabling the deployment of the full potential of the CVCE as a documentation and e-research centre	1. Develop and maintain the centre's **Documentation and e-Research** strategy including an adapted **target audience strategy** 2. Develop and maintain the centre's **Information technology** strategy 3. Develop and maintain the centre's **e-Collection development** strategy

Programmatic	B. Concentrate on the development and the publication of **e-collections** on the European integration process	4. Establish an iterative **process** for analysing and evaluating **scientific and societal needs** regarding documentation themes and research topics on European integration
		5. Establish an iterative **process** for analysing and evaluating **scholarly information activity needs** applied to e-collection development and study
		6. **Adapt, enhance and further develop** the centre's **legacy collections and data** by aligning them with reviewed strategies and policies, i.e.
		   a. by aligning them to the e-collections conceptual framework for research corpora and educational collections and modules,
		   b. by adding/reviewing the collection's scholarly apparatus,
		   c. by implementing the reviewed meta-data policy
		   d. by integrating core ICT based tools and services to enable a more sophisticated management and use of the collections (digital scholarly toolbox)
		7. Create **new high quality research corpora and educational collections**
		8. Continue the development of **primary sources** and focus on the "**Oral history** of European integration" collection
		9. Analyse and experiment with **advanced digital concepts and methods of knowledge creation and scholarly publication**

Programmatic	C. Intensify the design and the implementation of the centre's **digital infrastructure and related services and tools** to support and enhance European integration studies	10. Design, develop and implement **core knowledge organisation services** that enable discovery, analysis and management of collections and related material 11. Strive for compliance as a *Trusted digital repository* (i.e. Data-Seal-of-Approval, DIN, ISO) 12. Adapt, consolidate and maintain **existing tools and services** within the on-going front-end and back-end developments 13. Design, develop and implement core ICT based tools (**digital scholarly tool box**) to be applied to all collections 14. Analyse and experiment with **advanced digital tools and services** for knowledge creation and scholarly publication
Cross-programmes	D. Further develop dissemination, **knowledge transfer**, community and network building initiatives	15. Develop coherent and targeted national and international collaboration strategies 16. Maintain good level of participation in European competitive programs and initiate participation in national programs 17. Intensify the engagement with target communities and stakeholders, notably through the centre's e-platforms and by social networking 18. Streamline and further develop the visiting fellows and masters/post-doc programmes 19. Align scientific and outreach articles, conferences, workshops with the centre's documentation and e-research strategy
Organisational	E. Strengthen **corporate** governance	20. Improve coordination within governance bodies 21. Enhance and further develop planning and monitoring procedures 22. Clarify decision-making processes

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