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WORKSHOP REPORT

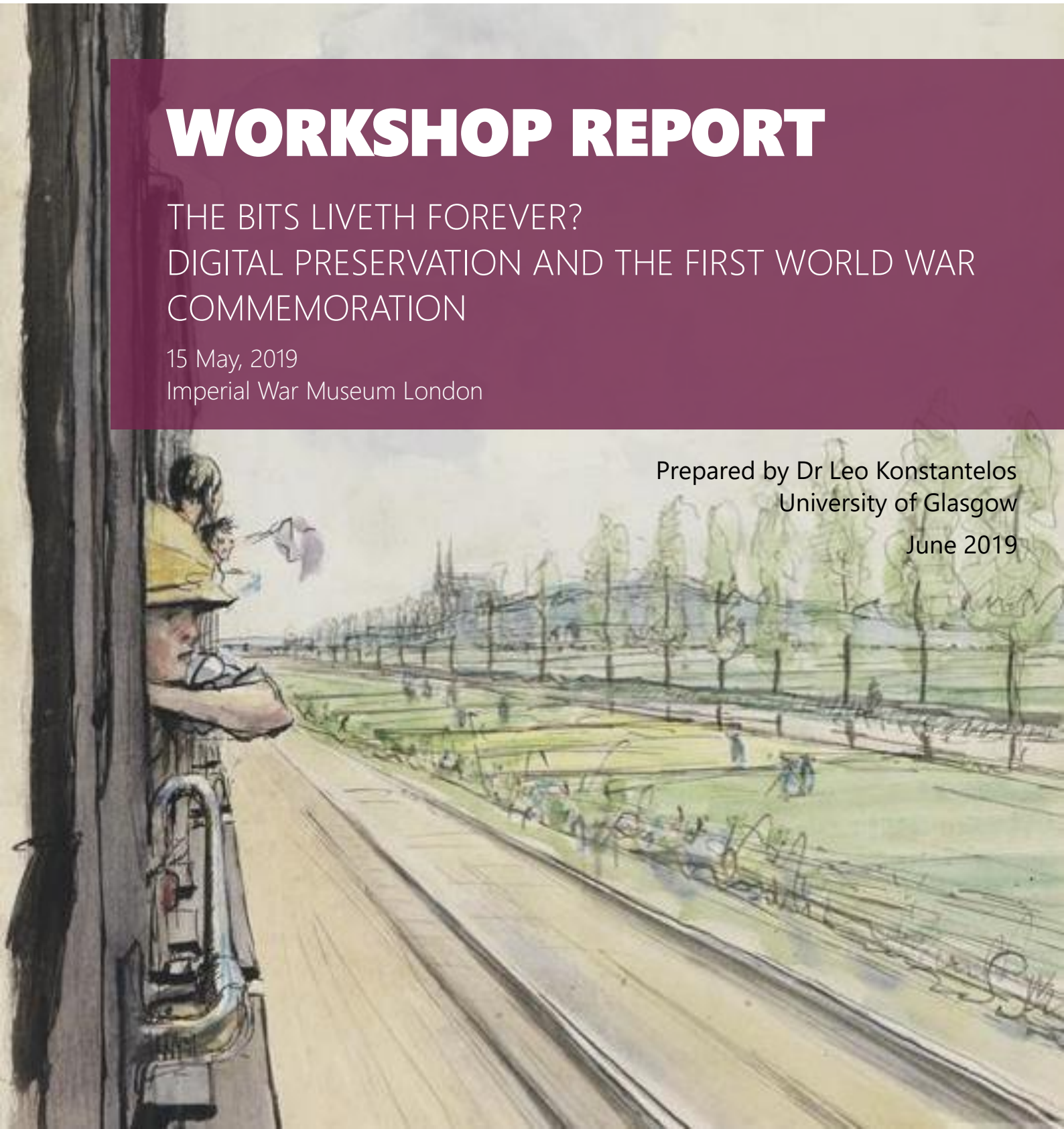
THE BITS LIVETH FOREVER?
DIGITAL PRESERVATION AND THE FIRST WORLD WAR
COMMEMORATION

15 May, 2019

Imperial War Museum London

Prepared by Dr Leo Konstantelos
University of Glasgow

June 2019





University of Glasgow, 2019

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On the Troop Train: The First Day, 20th May 1917
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Further contributions made by workshop speakers; summaries of their presentations are available in the Case Studies section of this report.

INTRODUCTION

The Centenary of the First World War has created an unprecedented opportunity for community groups and archival agencies to collaborate on sharing and documenting the experience of the war. It is arguably been the longest and most diverse programme of cultural activities ever held in the UK. A significant by-product of these activities, and in some cases their stated purpose, has been the creation of a newly accessible digital record of war-time experiences. This expansive digital collection is rich and varied, a latent asset to scholarship and a form of memorialisation in its own right. But as the programme of centenary anniversaries comes to a close, so the processes and networks which have sustained these digital outputs face emerging threats of loss.

Community archives and community-generated content have been listed as 'Critically Endangered' on the Global List of Digitally Endangered Species. The end of First World War centenary commemorations means that digital content generated in these projects face significant threat in the immediate future.

This invitational workshop, organized jointly by the University of Glasgow, the Digital Preservation Coalition and the AHRC Living Legacies First World War Engagement Centre, explored the challenges faced in winding up such a large and diverse, public-facing cultural programme. It examined policies for appraisal and disposal, and the infrastructure already available to ensure robust digital access for the long term. Gaps in policy and provision were noted, and recommendations for action suggested. The scale of the challenge was illustrated through and experience of cognate programmes whose efforts were presented on the day.

This report provides an overview of the workshop, a summary of presentations and discussions, as well as suggestions for next steps.

Professor Lorna Hughes
University of Glasgow

Dr William Kilbride
Digital Preservation Coalition

BACKGROUND

At the outset of the Centenary, there was no agreed digital legacy plan. In many cases, organisations have been creating digital content and utilising social media for the first time, and have little or no history of archiving this sort of content.

Liz Robertson, Head of Partnerships, Strategy and Governance, Imperial War Museum

The United Kingdom has made significant investment in commemoration activities for the Centenary of the First World War (FWW), which officially started on July 28, 2014 and ended in November 2018.

In October 2012, the then Prime Minister David Cameron announced the allocation of more than £50m for a "historic" commemoration of the centenary of the start of the First World War¹. The funding was meant to comprise three elements: a transformation of the Imperial War Museum (IWM); a national programme of commemorative events; and an educational programme to create an enduring legacy for future generations.

In 2014, the IWM launched the first phase of the museum's £35m transformation, with the opening of the new, permanent First World War Galleries in the London branch².



Figure 1. The front of the Imperial War Museum London

From 2010-2019, IWM led a national programme of FWW commemoration activities, including the *First*

World War Centenary Partnership. The Partnership created a network of organisations (museums, archives, libraries, universities, colleges, and special interest groups through to broadcasters) with the aim to "work strategically together with a collective voice to commemorate this landmark anniversary to a wide and diverse audience"³. By 2019, the Partnership had more than 4,000 member organisations, producing a collective global programme of "cultural events, exhibitions, activities and online resources, which engaged with millions of people across the world."⁴

Equally significant to the commemoration of the FWW centenary has been the contribution of the Heritage Lottery Fund (HLF), the largest dedicated funder of heritage in the UK⁵. By March 2018, the HLF has awarded £12.3 million to more than 1,400 community projects to support education and outreach for local and family history, preservation of war memorials and historic artefacts, as well as youth heritage projects. A further investment of £2m has been available during 2018-19 for projects commemorating the centenary⁶.



Figure 2. #OneCentenary100Stories ran until Armistice Day 2018 and highlighted 100 stories from HLF-funded First World War Centenary projects across Twitter, Instagram and Facebook

The projects funded through HLF are expected to contribute to three kinds of legacy⁶:

- a physical one, enabled through management and sustainability of FWW cultural heritage.
- A people legacy, realised through knowledge sharing and skills development.
- A digital legacy, facilitated through digital sustainability activities to preserve the centenary's digital content for future generations.

Much of this FWW Centenary legacy derives from community-generated content. The *World War One Engagement Centres*, funded by the Arts & Humanities Research Council (AHRC), have supported “a wide range of community engagement activities across the UK since 2014, connecting academic and public histories of the First World War as part of the commemoration of the War's centenary”⁷. Each of the five Engagement Centres has a set of themes/areas of expertise on which they are able to provide support to communities undertaking commemorative activities relating to the centenary of the First World War.

Karen Brookfield, the Deputy Director (Strategy) at the Heritage Lottery Fund, has suggested that

*The digital legacy is by far the most challenging to secure. [...] Professor Lorna Hughes has noted that the FWW is now the most digitally documented period in history, thanks not least to the vast amount of material on community websites, but it is not clear that this material will be discoverable or useable in 5, let alone 50 or 100, years' time.*⁶

Indeed, in its 'Bit List' of Digitally Endangered Species (Figure 3), the Digital Preservation Coalition has included community archives and community-generated content as one of ten types of **critically endangered digital materials** — i.e. ones that “face material technical challenges to preservation, there are no agencies responsible for them or those agencies are unwilling or unable to meet preservation needs.”⁸



Figure 3. The Risk Classifications of the DPC 'Bit List' of Digitally Endangered Species. © DPC

Alongside uncertainty over the sustainability of the centenary's digital content, there is lack of evidence on the impact that this content actually has on user communities. Ian Anderson has noted that “one recommendation for funders would be to require applicants to provide more detail on expected impacts, especially regarding usage levels, type of engagement, and success criteria” but “more research in this area would be welcome and could yield the most improvement in our understanding of the impact of digital resources.”⁹

The issues of sustainability, preservation and impact of digital materials produced as part of the FWW Centenary activities were the remit of the “Bits Liveth Forever? Digital Preservation and the First World War Commemoration” workshop.

The workshop was co-organised by Information Studies at the University of Glasgow, as part of the collaboration with the AHRC Living Legacies First World War Engagement Centre; and the Digital Preservation Coalition, a not-for-profit company that enables organisations to deliver resilient long-term access to digital content and services, helping them to derive enduring value from digital assets and raising awareness of the strategic, cultural and technological challenges they face.

The workshop took place on May 15, 2019 and was hosted by the Imperial War Museum London, as part of a project funded by the UK Department for Digital, Culture, Media & Sport to support the digital legacy of the First World War Centenary.

WORKSHOP

OBJECTIVES AND QUESTIONS

The main objectives of the workshop were to bring together UK and international expertise in order to:

- Communicate good practice and subject-matter knowledge generated from projects and initiatives relating or similar to the FWW Centenary activities.
- Provide an overview of the issues and challenges pertaining to the preservation of the Centenary's digital legacy.
- Showcase successful case studies and approaches that emphasise digital sustainability broadly, and specifically in relation to FWW Centenary materials, community archives and community-generated content.
- Promote reflection and critical evaluation of key strengths and challenges of digital sustainability approaches in the UK and beyond, through group work and follow-up discussion.
- Invite and motivate participants to share knowledge, collaborate and develop networks with other subject-matter experts, in order to address the persistent challenges of digital sustainability of the FWW Centenary outputs.

The key questions that the workshop invited participants to consider were:

- What gaps in policy, skills and institutional capability need to be filled to ensure a secure digital legacy?
 - Are any existing pathways for digital sustainability clear? Do people developing projects understand what they provide?
 - In terms of digital preservation of community generated content: what is good enough?
 - What solutions are still needed? Should they be top-down, or grassroots?
 - Is the problem a lack of guidelines and understanding, or lack of solutions?
-



IWM

The First Tractor at Jerusalem

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FRAMING THE ISSUES

THE PROBLEM OF ARCHIVING AND ACCESSING DIGITAL COMMUNITY-GENERATED CONTENT

Sustainability turns out to be the major problem facing the future of our digital heritage.

William Kilbride, Executive Director, Digital Preservation Coalition

DIGITAL PRESERVATION: WHAT WE'VE LEARNT

William Kilbride, Digital Preservation Coalition
presented by Lorna Hughes

There is an exponentially increasing volume of information created, used and disseminated in digital form. The 2014 Digital Study by the International Data Corporation suggests that our *digital universe* is

*"growing 40% a year into the next decade [...] doubling in size every two years, and by 2020 the digital universe – the data we create and copy annually – will reach 44 zettabytes, or 44 trillion gigabytes."*¹⁰

Organisations, governments and individuals operating in the digital age rely on continuing access and availability of digital information — both what they create themselves and what they use that has been created by others. The pervasive and ubiquitous nature of technology makes us increasingly dependent on our ability to access, understand and use digital information effectively. Examples are numerous and can include:

- Structured and unstructured data
- Born-digital and digitised content
- Office documents
- Digital photography, audio and video
- Transactional records and financial data
- Computer-assisted design plans, geo-mapping and Geographic Information Systems data
- Grey literature, eBooks and eJournals
- Web pages, email and social media messages
- Databases
- Medical data and scientific outputs.

Yet, our ability to access digital information now and into the future is constantly under threat: digital media are fragile and prone to failure over time; digital data stored in unstable media are prone to 'bit rot' and degradation; and continuing access and rendering of digital information is machine-dependent¹¹. Storage media and software failure and obsolescence, inaccessible file formats, viruses and malware, but also human error such as inadvertent or malicious deletion, poor documentation and poor rights management are just a few of the problems that digital preservation is tasked to address¹².

There has been a sustained trend to develop and launch 'long-lived digital media' which promise a longer lifespan in comparison to standard digital storage. Is this the solution to digital preservation? Experts in the field seem unconvinced. David Rosenthal noted that "...announcements of very long-lived media have made no practical difference to large-scale digital preservation"¹³. Beyond technology and machine-dependency, William Kilbride suggests three further problems:

- People with something to hide are as big a threat to the digital estate as obsolescence. The *Bit List of Digitally Endangered Species* describes this problem as "digital content where the knowledge to preserve exists and there is no threat to obsolescence, but where political interests may be served by elimination, falsification or concealment."⁸
- Changing business plans are as big a threat to the digital estate as obsolescence. Kilbride provides numerous examples of defunct online services as evidence, including Nook, Geocities, GoogleWave, Knol, MySpace, BeBo and others.

- Sustainability turns out to be the major problem facing the future of our digital heritage. This is due to both technical issues and allocating resources to support digital preservation. According to Rosenthal, the demand for storage is growing about 60% per annum, at a time when storage capacities grow at approximately 20% per annum and IT budgets in recent years have grown between 0-2% per annum.¹⁴

Considering when to hold a digital preservation intervention during the lifecycle of digital objects and/or business processes / projects, can be a complicated question. From a cost perspective, the further down the lifecycle of a digital object, business process or project, the higher the cost to preserve becomes (Figure 5).

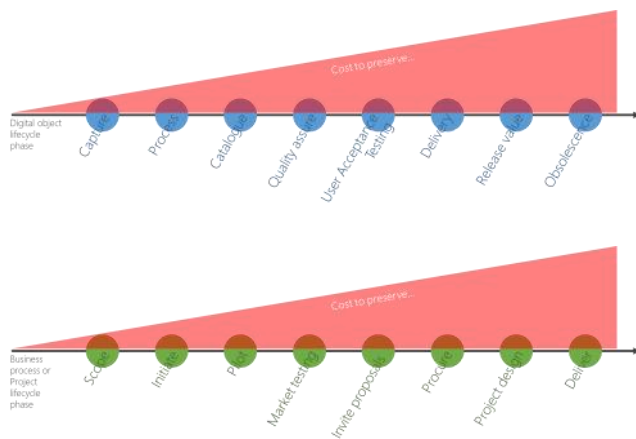


Figure 5. When to intervene? A complicated question... © DPC

In the simplest of terms, the solution to digital preservation issues is for organisations to invest in preservation-ready infrastructure, which encompasses not only technology but also organisational policies and cultures, as well as people in various roles, skills development and capability-building.

For the communities and organisations involved in FWW commemoration activities with digital outputs, three distinct but interrelated questions should guide efforts to preserve the centenary's digital legacy:

- Which of the digital materials generated out of the FWW centennial commemorations will be available by the time we commemorate the Second World War?
- Considering all of the challenges that digital preservation presents, how confident are we that relevant digital materials generated out of the FWW centennial commemorations will find their way to a properly mandated and sustainably funded digital preservation facility?
- What gaps in policy, skills and institutional capability need to be filled to ensure a secure digital legacy?

The mission of the Digital Preservation Coalition (<http://www.dpconline.org>) is to address these kinds of questions, which albeit complex are not intractable. To achieve this mission, DPC member organisations engage in six areas:

- **Advocacy**—raising awareness about digital preservation.
- **Community Engagement**—a mutually supportive, global digital preservation community.
- **Workforce Development**—competent and responsive workforces.
- **Capacity building**—high quality and sustainable digital preservation.
- **Good practice and standards**—making digital preservation achievable.
- **Governance**—a stable and trusted platform for collaboration.

FWW COMMUNITY-GENERATED CONTENT RESEARCH AT THE UNIVERSITY OF GLASGOW

Lorna Hughes, University of Glasgow

As part of the activities undertaken by the AHRC-funded *Living Legacies 1914-18* Engagement Centre, Information Studies at the University of Glasgow has been working on two research projects to identify and evaluate the digital sustainability of community-generated content for the FWW centenary: the Sustainability of Digital Resources Framework; and the Digital Legacy of Community-generated Historical Content of The First World War.

SUSTAINABILITY OF DIGITAL RESOURCES FRAMEWORK (SDRF)

The Framework forms part of a larger study undertaken by Information Studies at the University of Glasgow. The study seeks to promote a better understanding of the digital legacy produced by projects on the First World War.

The primary aims of the SDRF is to inform policy recommendations and interventions in key digital sustainability issues; and identify existing and emerging digital sustainability ‘pathways’ in order to understand and address the specific sustainability challenges of community-generated digital content.

Methodology

To achieve its aims, the project has developed a sustainability evaluation matrix, which builds on existing methodologies and frameworks, adapting and synthesising assessment criteria and metrics from a number of sources¹⁵. The sustainability evaluation matrix consists of 55 metrics, organised into assessment criteria in three Sustainability Dimensions: Content, Technology, Preservation, and Promotion (Figure 6).

The SDRF methodology is based on a broad definition of digital sustainability, whereby the latter is perceived as “as encompassing the wide range of issues and concerns that contribute to the longevity of digital information [...] and provides the context for digital preservation by considering the overall life cycle, technical, and socio-technical issues associated with the creation and management of the digital item.”¹⁷ Digital preservation is therefore one dimension of the sustainability evaluation, which is examined alongside the Content, Technology and Promotion dimensions in order to situate FWW commemoration materials as part of digital ecosystems. These ecosystems involve “not only the technical components, but also social elements”—such as individuals and organisations—that in turn hold “know-how and experience related to the creation and use of a digital artifact”¹⁸.

To populate the metrics in the evaluation matrix, the SDRF recommends using research methods drawn from the *Toolkit for the Impact of Digitised Scholarly Resources* (TISDR)¹⁵ and the *Jisc Guide on making digital collections easier to discover*¹⁶. Methods include content analysis, surveys and interviews, referrer analysis, direct observation and webometrics¹⁹.

Sustainability assessment dimensions	CONTENT	TECHNOLOGY	PRESERVATION	PROMOTION
Assessment criteria & Indicators	<p>Currency</p> <ul style="list-style-type: none"> • Updates • Current status <p>Relevance</p> <ul style="list-style-type: none"> • Project objectives • Project history • Audience • Value <p>Authority</p> <ul style="list-style-type: none"> • Organisation details • Ownership • Partners • Agreements • Ongoing support <p>Quality</p> <ul style="list-style-type: none"> • Availability and location • Impact 	<p>Development</p> <ul style="list-style-type: none"> • Type • Development platform <p>Maintenance</p> <ul style="list-style-type: none"> • Responsibility • Planning <p>Usability</p> <ul style="list-style-type: none"> • Design • Browsing <p>Findability & Optimisation</p> <ul style="list-style-type: none"> • Searching • Green 	<p>Ongoing support</p> <ul style="list-style-type: none"> • Funding • Staff <p>Best practice</p> <ul style="list-style-type: none"> • Documentation • File formats • Persistent identifiers • Web harvesting & archiving <p>IPR</p> <ul style="list-style-type: none"> • Copyright • Trademarks • Terms & Conditions / Disclaimers 	<p>Channels</p> <ul style="list-style-type: none"> • Events • Documents • Social media • Web • Public media

Figure 6. Summary view of the SDRF evaluation matrix, showing the assessment criteria and indicators in each of the four Sustainability Dimensions.

Implementation and results

A sample of HLF-funded community projects reviewed in 2018-19, and their sustainability was assessed against the SDRF evaluation matrix. The aim was both to create a use case of an SDRF implementation; and use its results to better understand the picture of the digital sustainability landscape of community projects.

In total, 63 projects across the UK were examined that varied in size, scale, funding received, scope and types of digital output produced. The evaluation was based on data originally collected by the Living Legacies Engagement Centre, which were enriched with further data collected through direct observation of resources produced by the community projects examined; desk research; and automated data collection via analytics tools (especially for the Technology dimension).

Each project was assessed against the criteria and metrics across all four sustainability dimensions. Individual metrics were assigned a score, and each dimension was scored out of 100. An overall sustainability evaluation score was produced, by calculating weighted scores per dimension (25% each).

The overall sustainability score does not represent an evaluation of project quality or achievement. Instead, it provides a comparative measure to numerically represent the extent to which digital sustainability criteria are met by each project examined.

Across all community projects examined, the lowest average score per dimension was on Preservation, closely followed by Promotion. This indicates that sustainability criteria relating to digital preservation and digital content promotion through various channels (social media, websites, press etc.) were poorly met or addressed by the projects evaluated.

Although the evaluation of Content and Technology sustainability produced better results, the average scores across all projects showed that half the criteria relating to content and technology sustainability were not met or addressed.

For instance, looking at the status of digital outputs across all projects at the time of evaluation, only 30% were reported as maintained in secure storage; 48% were only available online but not securely stored; and 22% of digital outputs were neither online nor maintained in secure storage (Figure 7). In terms of digital archiving, only 10% of the projects examined had used a digital repository or archival service to maintain outputs for the long-term (Figure 8).

Next steps

The team at the University of Glasgow will continue to evaluate the sustainability of FWW centenary commemoration projects, focusing on community activities and partnerships developed under the hospices of the Living Legacies Engagement Centre²⁰.

The SDRF methodology will be published as an open document in Autumn 2019 and distributed for community consultation. The results of SDRF implementation will be documented in a separate open report.

A guide developed on “Saving the Centenary’s Digital Heritage: Recommendations for Digital Sustainability of FWW Community Commemoration Activities”, which contains vital advice on creating and managing sustainable digital outputs, will be available by Autumn 2019.

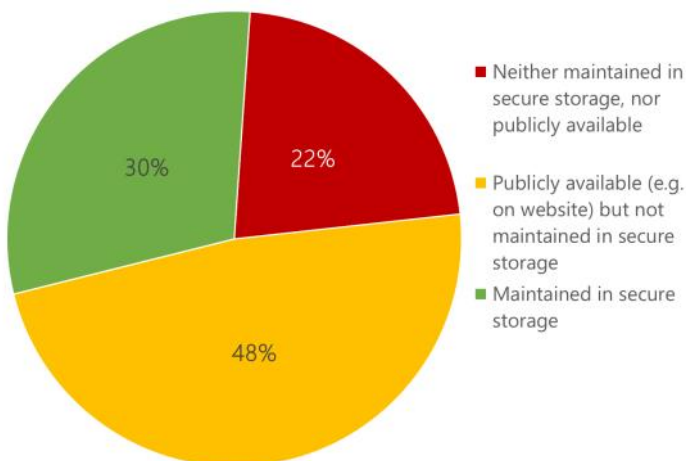


Figure 7. Are digital outputs maintained, either online or in secure storage?

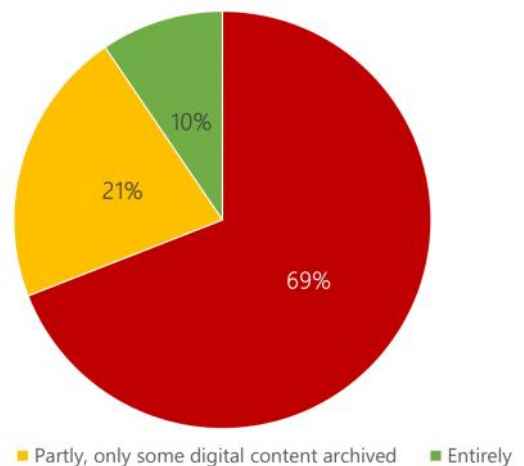


Figure 8. Is the project’s digital content harvested or archived by a digital repository or archive?

COMMUNITY GENERATED HISTORICAL CONTENT OF THE FIRST WORLD WAR: THE DIGITAL LEGACY

The commemoration activities of the FWW Centenary have resulted in an unprecedented amount of digital cultural production, which ranges from outputs created by universities and memory institutions to the digitised heritage of community groups and the historical artefacts of personal collections shared by individuals and families.

The aim of this project is to empirically gather information about the ways that community-generated content (CGC) pertaining to the FWW Centenary has been collected, curated, exposed and used within the UK and internationally, in order to examine the sustainability of community archives and community-generated histories. The main outcome will be a critical framework for historical CGC in the digital domain.

Methodology

The methodological approach for this project draws on Digital Humanities and Digital Cultural Heritage, Archival Studies (community archives), Ethnography and History (modern, contemporary, military, medical). The topic is investigated through the lens of three interrelated strands:

1. The relationship between development of community-generated content (including incentives and motivations to contribute) and the value of such activities for engagement with cultural heritage, primary sources and history.
2. The potential of community-generated content beyond its original scope to engage communities, as a primary source for research and scholarship.
3. The parallels between community-generated digital content and the establishment of community archives and 'people's history'²¹, as indicators of community value and sustainability.

Figure 9-11. Examples of community-generated content. From left to right: Military Cross belonging to Rev. W.J. Carroll; Box housing Canadian "Widow's Cross" with inscription and signature of Minister of Militia and Defence; Leather Cross Badge Belonging to Michael Burns. All images donated to Wikimedia Commons from the [Europeana 1914-1918 collection](#) under the Creative Commons Attribution-Share Alike 3.0 Unported license.



To investigate these strands, the project has designed, carried out, fully transcribed and is currently analysing semi-structured interviews with both teams or individuals who created CGC for FWW in the digital domain; and "meta-experts" who guided, advised on and used these digital collections for their own research purposes. The findings are analysed, compared with and contrasted against mainstream views on reuse and sustainability of CGC, further contextualised from an extensive literature review.

Progress-to-date and next steps

To date, 12 interviews with stakeholders across Europe have been conducted, which—alongside the critical literature review—form the basis for comparing and contrasting findings between countries, methods of collection, level of reuse and sustainability expectations. In doing so, the team is examining co-dependencies between the main actors that the project has engaged with: CGC creators, "meta-experts", CGC providers, research communities, as well as the general public.

The first set of results from the project show that community-generated digital content parallels many of the fragilities of community archives, which are on the DPC Critically Endangered List. As a norm, digital sustainability—albeit an expectation from communities, funders and other stakeholders—is not a reality.

The critical framework for historical CGC in the digital domain developed by the project will present a detailed case study to address the value and digital legacy of community generated content, which will be situated within the broader area of sustaining digital histories.

A more extensive analysis of these results will be presented by Lorna Hughes and Agiatis Benardou at the Digital Humanities (DH) 2019 Conference in Utrecht, The Netherlands²².

WELCOME ADDRESS FROM THE IWM

Liz Robertson

Head of Partnerships at Imperial War Museums

Welcome to IWM, and many thanks for taking the time to attend today, it's a pleasure to see so many people here. In conversations with colleagues across the sector, I am constantly reminded that, whilst official commemorations have ended, activity certainly has not, and there remains a real drive and enthusiasm to support the legacy of the Centenary.

In the next five or so minutes, I am going to give you a brief introduction to what has been billed as "IWM and the Centenary Legacy Project" – a rather grand title, which I must admit to finding a little daunting at times, but one I think fitting given the scale of activity over the last five, ten years.

IWM's involvement in today stems, of course, from our involvement in the Centenary, and in particular our leadership of the First World War Centenary Partnership. By 2019 the Centenary Partnership had 4,159 member organisations in 62 countries, engaging with millions of people across the globe. What has been remarkable about the centenary from the beginning, is this sheer breadth of involvement; from high profile national commemorations to community-led initiatives, academic researchers to community historians. That variety, the combination of grassroots activity and national moments, has given commemorations a far greater impact.

This was arguably the first major commemoration of the digital age, which resulted in the creation of an unprecedented quantity of digital content, and supported the development of digital skills and engagement with new audiences. But of course, as touched on by Lorna, the digital legacy of this activity is not always secure. Whilst some organisations developed legacy plans for their activities, not all did. At the outset of the Centenary, there was no agreed digital legacy plan. In many cases, organisations have been creating digital content and utilising social media for the first time, and have little or no history of archiving this sort of content.

Working with the breadth of organisations across the Centenary Partnership, we are well aware of the scale of the challenge, but also positive activity ongoing and organisations working to support a sustainable legacy – many of whom are of course here today. We were keen, as we have done across the Centenary, to work to bring these groups together, to facilitate the exchange of information and development of skills, and support ongoing access to digital content. Through conversations with the First World War Centenary team at DCMS, we were aware that these were key concerns for the Department as well.

In late 2018 we launched a consultation with organisations working across the Centenary, to scope what a digital legacy would look like.

Fortuitously, in late 2018 we were very pleased to be awarded funding from ACE for the War and Conflict Subject Specialist Network. The War and Conflict SSN will support skills and provide a home for our partnership working after the Centenary:

- Create a digital portal that is available on a long term basis, which will protect and retain access to as much content as possible from FWWC projects across the UK.
- Support a communications campaign and roadshow style events which will support smaller heritage organisations to sustainable archive their material.
- Create a digital legacy for the Centenary by creating a standard practice for the archiving of similar activity and content.





Kuneitra : Australians Setting Out From Kuneitra. On The Left Is Mount Hermon.
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CASE STUDIES

IN ARCHIVING AND ACCESSING DIGITAL COMMUNITY CONTENT

CASE STUDY 1: THE “INSPIRING IRELAND” PROJECT

Kevin Long, Digital Repository of Ireland (DRI)

In this case study, Kevin Long—Digital Archivist at the Digital Repository of Ireland—discusses the *Inspiring Ireland 1916: Weaving Public and Private Narratives* project.

Introduction to the DRI

The Digital Repository of Ireland is a national digital repository for Ireland’s humanities, social sciences, and cultural heritage data. DRI is a trusted digital repository that promotes the long-term preservation and access to digital data, thus satisfying requirements from both funding bodies and researchers looking to publish their scientific outputs and maximising the impact of their work. Funded by the Higher Education Authority (HEA)²⁵ and the Irish Research Council²⁶ and launched in June 2015, the DRI is certified by CoreTrustSeal (CTS)²⁷, which offers a core level certification to data repositories based on the DSA-WDS Core Trustworthy Data Repositories Requirements²⁸ catalogue and procedures.

Digital Preservation and Open Access are at the core of DRI. The repository brings together digital preservation infrastructure (hardware and open access software) with policy infrastructure (ethics, data protection, open access, metadata) in order to provide active management of digital content and access continuity in the long term. Open Access is supported through a number of features, including metadata standards; Creative Commons and Open Data licenses; persistent identifiers (DOIs); machine readable exports and API access for developers; as well as advanced collection searching and faceting.

As of July 2019, the DRI membership scheme has 19 members²⁹.

Inspiring Ireland 1916: Weaving Public and Private Narratives

First conceived in 2013, the project represents a “novel approach to writing in the digital age because of its approach to the authorship of history: it combines exhibitions with archival preservation, public and private content, personal memory, storytelling, and expert commentary, and it preserves these digital historical artifacts for future study.”²⁴

The FWW theme is part of the broader *Inspiring Ireland* project—a “large scale, unprecedented collaborative project between the Digital Repository of Ireland and the Irish Government’s Departments of Arts, Heritage and the Gaeltacht, Foreign Affairs and Trade, and the Office of Diaspora Affairs, and eight of Ireland’s national cultural institutions”³⁰—that seeks to make Ireland’s digital cultural heritage available to everyone, and to provide rich themes and narratives to contextualise that heritage.

The project organised collection days held in Dublin, London and New York to gather and digitise publicly held content and memorabilia:

*Capturing personal memories about 1916 is an essential part of writing our collective national history. Often these stories are linked to photos, diaries, objects and ephemera that may be lying buried under beds or in attics and cupboards throughout Ireland and further afield. [...] Contributors attended these events, along with members of their families. Some brought single objects such as a diary, a photograph or some medals. Others arrived with suitcases full of memorabilia, including correspondence between political prisoners and their families, Cumann na mBan artefacts, albums of poetry and artwork and many other objects.*³¹

The stories shared by contributors during the collection days were recorded as standardised metadata, and ingested—alongside digitised artefacts—into the DRI collections under a CC-BY license. A Drupal-based website was used as a front-end to draw content from the DRI collections, and contextualise it with essays and blog posts from historians and other experts.




Figure 11-12. Photography from the collection days organised as part of the Inspiring Ireland 1916 project. © DRI

Challenges and lessons learnt

The project identified a number of challenges, which are common in large-scale projects of mass community content collection and archiving. The first was the disanalogy in the relationship between the volume of content shared by contributors and collected by the project; and the availability of staff to document, catalogue and curate the content. The second challenge related to issues of copyright and orphan works, where the rightsholders of the content were either indeterminate or uncontactable. A third challenge was associated with legacy components of the front-end Drupal website.

Contacts

[www https://www.dri.ie/](https://www.dri.ie/)
 @dri_ireland

CASE STUDY 2: COLLECTING THE UK WEB

Jason Webber, British Library

Jason Webber, Web Archive Engagement Manager at the British Library, talks about the work of the UK Web Archive (UKWA) and highlights cases of archiving FWW Centenary commemoration web content.

The UK Web Archive

The UKWA is a collaboration between all of the UK Legal Deposit Libraries³² that aims to capture and preserve the entire UK Web Space at least once per year. Included in the UKWA collections are millions of websites, billions of individual assets, and hundreds of terabytes of data. However, certain digital materials are not archived, such as emails, intranets, content that requires user authentication for access, Adobe Flash content, most audio and video materials, as well as most social media (with the exception of selected tweets).

The UKWA website sets out the rationale for this endeavour:

Websites constitute a significant witness to our times. However, it is typical for them to be created quickly, changed regularly and sometimes to disappear altogether often without notice. Despite this lack of permanence, the UK Web Archive attempts to collect, preserve and give access to this material for current and future researchers of all kinds, from scholars and professionals to family historians and those with a general interest.³³

Indeed, a study of a slice of 1,000 websites from the Open UKWA conducted in 2016, revealed that very little of the web content produced during the 2004-2007 period remains, or at least not without errors (Figure 13).

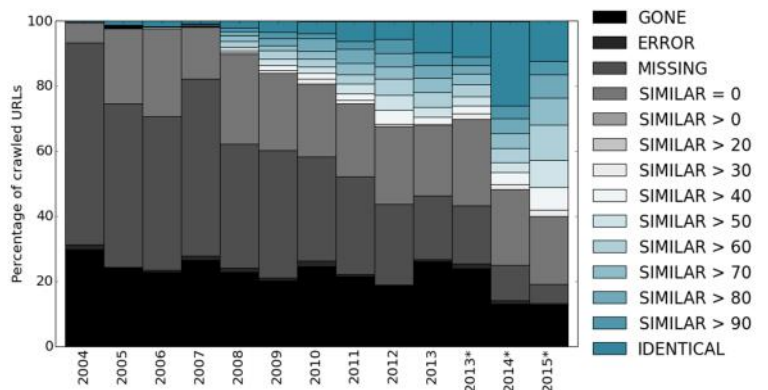


Figure 13. Study done in 2016, slice of 1,000 websites from Open UKWA. Grades show changes of websites. © British Library

Collections, Topics and Themes

The UKWA has been archiving websites with permission since 2004. An automated collection (web crawl) of identified ‘targets’ that are in scope (i.e. websites in the UK) is performed at least once a year, with snapshots of some targets—most notably news websites—collected more frequently. Once snapshots are collected, the identified targets are indexed to allow for full-text searching, and made openly available via a website interface ([webarchive.org.uk](https://www.webarchive.org.uk)), provided that an open access agreement with the content owner exists.

According to the British Library, the “selective nature” of the Open UKWA “means that the sites are of high quality, and the archival copies have been manually quality-checked and carefully annotated.”³⁴ Curated content on specific events, subjects or areas of interest are organised in Topics and Themes. Among aspects of UK life and culture—such as resources relating to 19th century English literature and literary figures; British countryside; and Celtic studies—the curated collection also features focused collections on specific events, such as general elections, the 2012 Olympic Games, the Grenfell Tower Fire and the London Terrorist Attack on 7th July 2005.

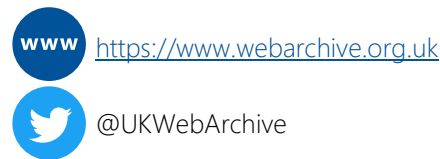
One such curated collection is dedicated to “websites related to the First World War (1914-1918), particularly the various events which took place in the Centenary period 2014-2018. The collection also includes resources about the history of the war; academic sites on the meaning of the conflict in modern memory and patterns of memorialisation and critical reflections on British involvement in armed conflict more generally.”³⁵ A subsection of this collection includes open access archival copies of the websites of all HLF-funded First World War Centenary projects that were created during the 2014-2018 period, which can be found at: <https://www.webarchive.org.uk/en/ukwa/collection/127>

Designing archivable websites

Jason Weber offered advice for website projects that wish to ensure their web content is suitable for archiving. Namely:

- Audio-visual material is not embedded in the website from a third-party provider, e.g. YouTube, Flickr or SoundCloud.
- Database-driven websites should include a sitemap.
- Access to areas of the site which may cause problems if crawled—e.g. databases, including shopping baskets etc.—should be prevented by use of robots.txt
- ArchiveReady³⁶, an online tool which evaluates if a website will be archived correctly by web archives, should be used.

Contacts



CASE STUDY 3:

CHECK BEFORE, CHECK DURING, CHECK AFTER

Claire Newing, The National Archives (TNA)

In this case study, Claire Newing—Web Archivist at TNA—discusses the efforts to archive UK Government websites before they close.

The UK Government Web Archive

The role of the UK Government Web Archive is to capture, preserve, and make openly accessible the UK Central Government web estate, including videos, tweets, and websites dating from 1996 to present. This covers all material made publicly available on the web by UK Central Government, but excludes materials produced by the devolved governments or local government bodies. In addition to traditional web content, the Archive also captures YouTube, Twitter and Flickr accounts; and is currently working on a new front-end for a social media archive which is planned for launch soon.

Around 800 sites are captured at least twice each year via remote crawling, and archived in full. The process is largely automated, but does require human intervention to ensure websites are captured to a high standard, as completely as is technically possible. In parallel, several hundred social media channels are captured daily; and ‘Exceptional crawls’ are set up when needed to capture websites outside of the regular crawl schedule.

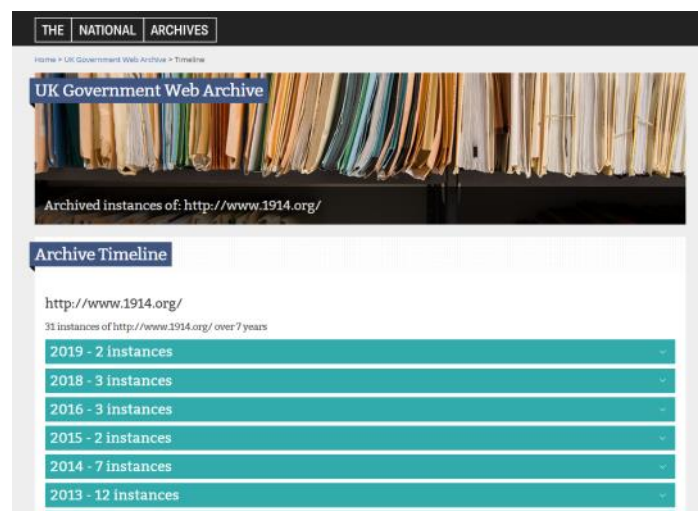


Figure 14. The UK Government Web Archive includes 31 instances over the period 2012-2019 of the First World War Centenary Partnership website led by IWM.

Checking before, during and after

Through experience, the web archiving team has learnt that checks are necessary before the crawl begins, during the crawling part of the process and after the crawl is complete.

Before the crawl, web content that can be difficult to capture must be identified. Common types of content that present issues for archiving include pagination, certain cases of JavaScript, embedded video and audio, content only accessible via in-site search, games and other interactive content, as well as large database/catalogue-type websites. The Archive has produced guidance for Government departments advising them how to design their websites to ensure they can be archived well. However, checks are still necessary before exceptional crawls, in order to identify problematic content and advise website owners if we certain content cannot be captured, or if content will not work in the web archive. Website owners can then chose to make changes to the site before it is crawled, make arrangements to preserve certain content via other methods or, at least, communicate to their stakeholders that some content or functionality cannot be archived.

During web crawling, the process is closely monitored and the website owner is notified if issues occur—e.g. the live website is serving the crawler with many error codes. If such problems are not noticed during the crawl, it can be too late to remedy after the crawl has completed.

After the crawl is complete, Quality Assurance is undertaken as soon as possible, so that any problems can be fixed while the live websites are still available. The checks take a variety of forms, ranging from purely visual checks to more automated checks using browser plugins and custom tools, such as link checkers. In addition, website owners are asked to inspect archived sites before they are published, so as to ascertain that the content in the archive closely represents the original and meets their needs. Lastly, website owners are encouraged to maintain ownership of domains after websites have closed, so that redirection can be set up from the live domain to the archived website or another suitable location on the live web.

Contacts

 <http://nationalarchives.gov.uk/webarchive>

 @UkNatArchives

CASE STUDY 4: LIVES OF THE FIRST WORLD WAR— CREATING A DIGITAL LEGACY

Charlotte Czyzyk, Imperial War Museum

Charlotte Czyzyk, Project Manager of the *Lives of the First World War* project, talks about their work at IWM to “tell the stories of individuals from across Britain and the Commonwealth who served in uniform and worked on the home front.”³⁷

About the project

The IWM's *Lives of the First World War* project ran from 12 May 2014 to 19 March 2019. “From individuals and families, to communities and organisations, more than 160,000 people collaborated to piece together the lives of people who experienced the conflict, through sharing anecdotes and digitising material that has been hidden away in attics until now.”³⁷

The project's commitment to its members and the wider community was to create a ‘**permanent digital memorial**’, using both seed record sets, such as Medal Index Cards, to identify people to include in Lives of the First World War; and contributions from members of the public to propose a new Life Story for someone who was missing from the project's database, based on information they had uncovered. *Lives* provides access to 7.7m life stories and 3.1m facts and images; as well as more than 8,000 communities, which “connect First World War stories that have something in common - from names on a local war memorial, to members of the same family.”³⁷

Figure 15. Example Life Story from the project's website, here showing Alexina Dussault's timeline. The tabs provide access to further details, media, communities and stories associated with this person.

Project phases

Planning the legacy of the *Lives* project was organised into four phases:

- Phase 1 ran from December 2017 to February 2018 in order to assess and define the scale of the task, with options and indicative project costings and timescales.
- Phase 2 ran from March to April 2018, and focused on creating a full project plan with external costs and internal resource required to take to tender.
- Phase 3, from June 2018 to March 2019, dealt with preparation of the Permanent Digital Memorial (PDM), which uses data migrated from the *Lives of the First World War* platform in order to preserve them for future generations. Two work streams run concurrently in order to complete this phase: a technical one, tasked with cleaning and migrating the data; and a creative work stream, responsible for building a permanent digital memorial on iwm.org.uk.
- Phase 4, due for completion in June 2019, involves developing and deploying the PDM. The phase also includes user testing and refinement, prior to launch at the end of June.

Contacts

 <https://livesofthefirstworldwar.iwm.org.uk/>

 @LivesOfFWW1

CASE STUDY 5: FROM THE TRENCHES TO THE WEB

Ad Pollé, Europeana 1914-1918

In this case study, Ad Pollé—Collections Manager at Europeana 1914-1918—discusses the initiative's efforts to collect, showcase and share Europe's "hidden" history around the FWW.

About the initiative

Europeana 1914–1918 is a major project to digitise and publish primary and secondary historical sources on the First World War. Coordinated by the broader Europeana programme, the initiative started as a pan-European engagement project concerning the FWW, focusing on the human

aspects of the conflict. The idea was first piloted by the University of Oxford in 2008, amassing a remarkable collection of 1914-18 papers, pictures, souvenirs and memorable stories, digitised by people across the UK and the Commonwealth in the Great War Archive³⁸.

At present, Europeana 1914-1918 represents one of the world's biggest resources of FWW-related material, providing access to more than 600,000 objects from 24 countries in 15 languages. The collections feature both pan-European user-generated and institutional content, providing access to a unique combination of personal stories, public documents and audio-visual material through a multilingual and responsive thematic portal. Most of this content can be made available for (commercial) re-use under a CC-BY-SA licence through the Europeana API or search widget.

Collection campaigns

One important aspect of Europeana 1914-1918 is the application of crowdsourcing as a means to identify and collect community-generated content. The initiative organises events in collaboration with cultural heritage institutions in order to collect input from people at large, thus assembling a wide variety of private memorabilia which is then made accessible to the public and to researchers. Since 2011, over 200 Europeana 1914-1918 events have been held in more than 20 countries. Throughout the 2018, the European Year of Cultural Heritage, Europeana continues to run collection days and 'transcribathons', along with museums, galleries, libraries and archives across Europe.

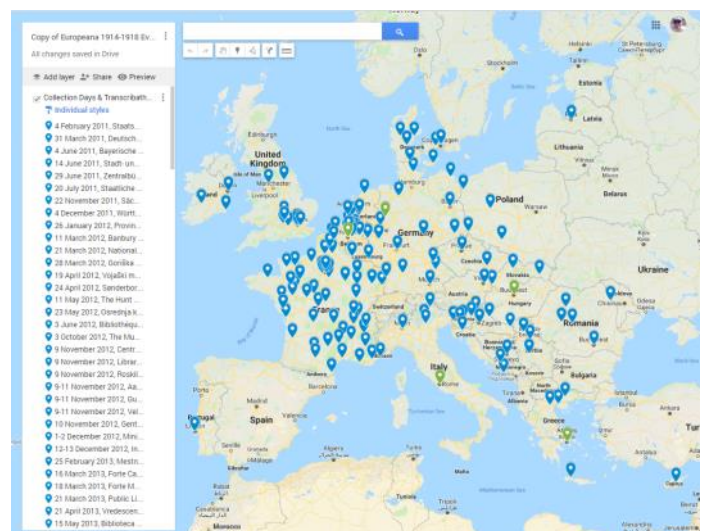


Figure 16. Map of collection campaign events organised since 2011 for Europeana 1914-1918, showing locations across Europe.

Collections and Exhibitions

Europeana Collections⁴⁰ is a multilingual resource for discovering and using digital cultural heritage material, which currently provides access to more than 53 million artefacts from 3,500 institutions in 35 countries. These artefacts include books, newspapers, journals, letters, diaries, archival papers, paintings, maps, drawings, photographs, music, spoken word, radio broadcasts, film, newsreels, television, fashion, sculpture, 3D objects, and more.

In parallel, Europeana's *Thematic Collections* are "curated, selected and developed by cultural heritage partners throughout Europe. [...] Partners provide subject-specific editorial to bring the collection to life and to get audiences even more deeply involved."⁴¹ Currently, six thematic collections are available, one of which is the Europeana 1914-1918 collection.

Alongside collections, Europeana Exhibitions⁴² provides an online space for partners to combine collection content with interesting information and knowledge, in order to create "stories that can be viewed in a new, visually appealing format."⁴² One such exhibition is the 2018 *Visions of War*⁴³, which uses "archive material from Europeana 1914-1918 and artworks held in museum collections" so as to examine "how serving soldiers and official war artists depicted conflict on the Western Front."⁴⁴ The exhibition, which features mostly open access content, amassed record visitor numbers—more than 30,000 in the first two months from its launch. *Visions of War* kicked off the 2018 *Europeana 1914-1918 Centenary Tour*⁴⁵, a campaign to commemorate the centenary of the end of the First World War.

Other than the Europeana portal, the initiative shares collection content and information via a number of social media platforms, including the Europeana Blog, Facebook, Pinterest, Twitter, as well as donating content to Wikimedia Commons⁴⁶. Europeana 1914-1918 content has been re-used in video games⁴⁷ and iTunes U courses⁴⁸.

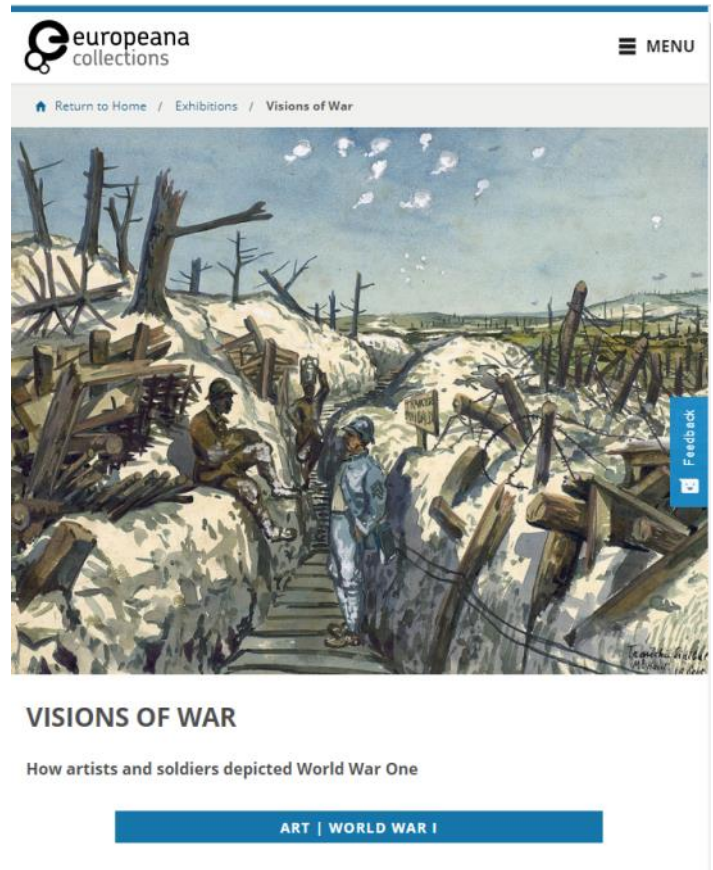


Figure 17. The *Visions of War* exhibition front page on Europeana.

Future plans

In September 2018, the *Enrich Europeana*⁴⁹ project was launched, which will run until the end of February 2020. *Enrich Europeana* provides a crowdsourcing platform to transcribe and enrich cultural heritage material from Europeana Collections and national aggregator portals. Among its features, the platform will allow semantic enrichment of transcribed text by incorporating natural language processing, named entity recognition, machine translation and manual validation. It will also adopt the *International Image Interoperability Framework* (IIIF)⁵⁰ and web annotation standards, in order to accomplish interoperability and enhanced visualisation of those enrichments.

Other future plans include the continuation of Europeana Research projects and activities⁵¹, as well as initiatives to encourage re-use of Europeana Collections content in education and the creative industries.

Contacts



<https://www.europeana.eu/portal/en/collections/world-war-i>



@Europeana1914



Aleppo Station : the station was burnt and the stores rendered valueless. Armoured motor-cars are in the buildings to the left.

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GROUP SESSION

SUMMARIES

Participants worked in three groups, in order to provide their insights into the key questions that formed the basis of the workshop. This section summarises the main recommendations and corollaries drawn from these group sessions organised in themes.

GAPS IN POLICY, SKILLS AND INSTITUTIONAL CAPACITY

- Create opportunities for professionals in the digital cultural heritage sector to attend training, which focuses on lessons learnt, institutional good practice and further networking.
- Generate a pool of training opportunities offered by different institutions, which become available to communities of practice for cross-pollination, capacity and capability building beyond the confines of one institution.
- Strive for policy and workforce development that fosters the creation and/or ongoing maintenance of digital sustainability pathways, as well as sharing of relevant experience and expertise with communities of practice.

Use networks of experts as steering boards for focusing the attention of funders on resource requirements for planning, developing and implementing sustainability solutions for digital cultural heritage.

Build digital literacy from the ground up, bringing communities and projects up-to-speed with what the responsibilities for creating sustainable digital content are, as opposed to talking only about the opportunities.

Invest in the development of clear sustainability pathways, community agreed upon and accepted by communities of theory and practice. Maintain an open dialogue between memory institutions and the community-generated content space, in order to collaboratively build consensus around expectations, requirements, responsibilities, solutions and gaps.

PATHWAYS FOR DIGITAL SUSTAINABILITY

DIGITAL PRESERVATION: WHAT IS GOOD ENOUGH?

- Generate metadata for community-generated digital content. If digital objects are not available, then contextual and descriptive information should be provided as the minimum.
- Think about the legacy of the project throughout, and not just towards the end, be proactive.
- Provide a clear set of usage and access rights to community-generated content, ascertaining that issues of ownership over digital content are formally articulated.

Consult on the development of a purpose-built, autonomous, public-funded, digital cultural heritage repository, which would provide the definitive space for accessing and preserving digital outputs such as those generated by the FWW Centenary commemoration activities, (but not exclusively). Explore existing models, such as the Digital Repository for Ireland, People's Collection Wales⁵² and the Data Archiving and Networked Services (DANS)⁵³ in the Netherlands.

Explore avenues for coordinated communications and a common language that resonates with different stakeholders, and can be equally understood by different communities. .

Provide clear, non-technical information about capabilities and depositor agreements of third-party platforms that are used to access and store community-generated content, so as to dispel some of the ambiguity around what is considered permanent and open; who has ownership over what; and who is ultimately the

Organise activities for Community support and guidance for understanding functional requirements and capabilities of technical infrastructure and system solutions, as well as software platforms, in order to make informed decisions when generating digital content and ensuring that it aligns with digital sustainability requirements.

Deliver more clarity and transparency over the capacity of memory institutions to collect and preserve digital cultural heritage; as well as clear communications to communities about the future of the

SOLUTIONS, GUIDELINES AND UNDERSTANDING



First-Aid Treatment in Heavy Artillery Lines Behind the Front
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CONCLUSION AND NEXT STEPS

The workshop enabled participants with knowledge and expertise on the subject matter, who also represented different areas of sectoral leadership and previous experience of similar programmes, to discuss and debate aspects of how sustainably frameworks for digital cultural heritage could/should operate; and to consider the effectiveness of current solutions through a series of case studies.

More importantly, the workshop gave participants the opportunity to share their knowledge and experience, ask questions, and communicate the concerns, challenges and opportunities from the standpoint of the sector/institution they represent. The group sessions and discussion allowed participants to identify mid- and longer term solutions to digital sustainability issues within their areas of responsibility, and across the sector.

A number of points emerged from the discussion, which are summarised in categories below.

As a community of experts, and before we commemorate the
Second World War Centenary, we need to:

- Bridge this gap, by providing clear information about what current sustainability pathways provide, and what they do not.
- Develop and promote digital sustainability solutions that can be easily accessed and implemented by communities that generate digital content, especially those that lack the funding and expertise to understand the requirements of/for digital sustainability.
- Identify the role that national organisations play in the sustainability of community-generated digital content, but also the gaps in terms of what they currently do not offer that could in turn be rectified through cross-organisational collaboration.

DIGITAL SUSTAINABILITY GUIDELINES AND FRAMEWORKS EXIST, BUT THERE IS A GAP BETWEEN THIS AND GETTING COMMUNITIES TO IMPLEMENT THE GUIDELINES AND FRAMEWORKS

HOW DO WE DEAL WITH THE COMPLEXITY OF PRESERVING LARGE VOLUMES OF DISTRIBUTED, DISPARATE DIGITAL CONTENT

- Address the research and practice questions of providing access to and preserving digital content generated via FWW Centenary activities, which is distributed around the UK in terms of archives and local communities.
- Consider the role of big data analytics and Artificial Intelligence methods in order to extract valuable information from this distributed digital content, both for research and as a body of evidence that represents the legacy of the FWW Centenary.
- Advocate for Institutional frameworks and government initiatives to be created for supporting localised digital sustainability activities.

As a community of experts, and before we commemorate the Second World War Centenary, we need to:

- Provide clarity around what digital sustainability solutions are available for communities to maintain the digital output generated, by demarcating the capabilities, limitations and technical requirements of each solution.
- Develop and promote digital sustainability solutions that can be easily accessed and implemented by communities that generate digital content, especially those that lack the funding and expertise to understand the requirements of/for digital sustainability.
- Contribute to the shaping of new solutions and technologies for digital sustainability, which take into account the requirements and limitations of communities generating digital content.

PRESERVING THE ESSENCE AND EXPERIENTIAL ASPECT OF PARTICIPATION AND INVOLVEMENT IN COMMUNITY PROJECTS AS PRIMARY VALUE

- Consider ways to preserve the experiential aspects of participation and involvement in community project, taking into account the possibility that any digital outputs generated being ephemeral may be of secondary value.
- Articulate the value of the participation experience as a significant component for the sustainability of the digital content generated, but also as a body of evidence.

WHAT CAN WE LEARN ABOUT DIGITAL SUSTAINABILITY SOLUTIONS FROM THE FWW CENTENARY EXPERIENCE



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 - Sustainability of Digital Outputs from AHRC Resource Enhancement Projects, <http://www.ahrcict.rdg.ac.uk/activities/review/sustainability08.pdf>
 - Sustainability Health Check Tool for Digital Content Projects, https://sr.ithaka.org/wp-content/uploads/2015/08/Sustaining_Our_Digital_Future.pdf
 - Guidelines for sustainable online resources: Sustainability principles for ESRC -funded online resources, http://www.restore.ac.uk/guidance/downloads/documents/Guidance-Release_V1.4.pdf
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 - Content analysis “refers to a general set of techniques useful for analysing and understanding collections of text. There is considerable work done in this area, which predates Internet research by decades. In the context of understanding the impact of digitised collections and websites, one particularly relevant type of content analysis is the analysis of news articles. These news articles may be about the collection, or they may be about the type of resource in general.”
 - Referrer analysis is “a process by which you can determine more specifically how a digital resource is being used. You can find out, for example, if a collection or site is being used in a taught course or if a resource recommended by an academic library. Referrer analysis makes use of several webometric methods, including web log analysis and link analysis.”
 - Webometrics “is (a) a set of quantitative techniques for tracking and evaluating the impact of web sites and online ideas and (b) the information science research field that developed these ideas. Webometric techniques include link analysis, web mention analysis, blog analysis and search engine evaluation, but from the perspective of digital library evaluation the main method is link analysis.”

Note that some of the data collection processes relating to these research methods can be automated, while others require manual collection through observation.
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 - Facebook—<https://www.facebook.com/Europeana>
 - Pinterest—<https://uk.pinterest.com/europeana/>
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48. <http://blog.europeana.eu/2015/10/download-our-new-itunes-u-course-and-multi-touch-book-on-the-first-world-war/>
49. <https://pro.europeana.eu/project/enrich-europeana>
50. For more information about IIF, see: <https://iif.io/>
51. For more information, see: <https://pro.europeana.eu/tags/research>
52. <https://www.peoplescollection.wales/>
53. <https://www.knaw.nl/en/institutes/dans>



First Study for the Staff Train At Charing Cross Station (No 1881)
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WORKSHOP PROGRAMME

- 10:30 Registration and coffee
- 11:00 Introductions: Welcome and purpose of the day
- 11:10 Framing the Issues: the problem of archiving and accessing digital community generated content
- William Kilbride, Digital Preservation Coalition
 - Lorna Hughes, University of Glasgow: Community Generated Content re-search
 - Liz Robertson, IWM: IWM and the Centenary Legacy Project

Case Studies: Archiving digital community content

- 11:45 Case study 1: Digital repository of Ireland
Kevin Long, Digital Repository of Ireland
- 12:00 Case study 2: Web archiving significant events
Jason Webber, British Library
- 12:15 Case Study 3: The archives perspective - web continuity
Claire Newing, The National Archives
- 12:30 Case Study 4: Lives of the First World War
Charlotte Czyzyk, Imperial War Museum
- 12:45 Case Study 5: Europeana 14-18
Ad Pollé, Europeana
- 13:00 Lunch

Workshop session

- 13:45 Workshop set up
brainstorming around key questions in facilitated working groups, addressing specific questions
- 14:00 Workshop session
- 14:45 Groups reporting
- 15:00 Coffee

Discussion

- 15:30 Discussion
- 16:00 Next steps
- 16:30 Thanks and Close

LIST OF PARTICIPANTS

Name	Role	Affiliation
Ad Pollé	Senior UGC Projects Coordinator	Europeana
Adrian Stevenson	Senior Technical Coordinator for the Archives Hub	Jisc
Claire Newing	Web Archivist	TNA
David Evans		DCMS
Dawn Kanter	Digital Coordinator	IWM
Helen Mavin	Head of Photographs	IWM
James Wallis	Research Fellow	University of Exeter
Jason Webber	British Library Web Archive	British Library
Karen Colbron	Digital Content Manager	Jisc
Katherine McSharry	Head of Outreach	National Library of Ireland
Kevin Long	Digital Archivist	Digital Repository of Ireland
Kirsty Bennet	Digital Experience Manager	IWM
Leo Konstantelos	Lecturer, Information Studies	University of Glasgow
Liz Robertson	Subject Specialist Network Manager	IWM
Lorna Hughes	Professor in Digital Humanities	University of Glasgow
Luca Guariento	Research Officer	University of Glasgow
Marc Alexander	Professor in Linguistics	University of Glasgow
Matt Fox	Member of English	Oxford University
Paul Ell	Senior Research Fellow	Queen's University Belfast
Paul Glinkowski	Senior Manager, Arts and Technology	Arts Council
Paul McCann	Digital Research Projects Manager	NLW
Sandra Collins	Director	National Library of Ireland
Tom Pert	On-line Development Manager	Royal Commission for Ancient and Historic Monuments, Wales/People's Collection, Wales
Willian Kilbride	Director	Digital Preservation Coalition



University
of Glasgow



Digital **Preservation** Coalition

**LIVING
LEGACIES**
1914-18



WAR AND CONFLICT
Subject Specialist Network