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SAVING UKRAINIAN CULTURAL HERITAGE ONLINE : A GLOBAL INITIATIVE

Saving Ukrainian Cultural Heritage Online (SUCHO) is a unique global rapid-response initiative focused on safeguarding the digital cultural heritage of Ukraine, which is under threat due to the ongoing Russian invasion. The project unites an international team of 1500 volunteers led by digital humanities specialists and is in partnership with a number of organizations who provide technological and/or financial support for the initiative. The project archives websites and digital collections of Ukrainian cultural institutions, with the intention of being able to provide the originating institutions with access to this web archive in the event of content loss. In addition to web archiving, the project is developing metadata for all of the archived websites and collections, raising funds to procure and distribute emergency digitization equipment to cultural institutions in Ukraine, and facilitating the creation of training materials for that equipment. In order to promote Ukrainian cultural heritage across the globe, SUCHO has launched two curated online galleries: Exploring Ukrainian Cultural Heritage Online and SUCHO Meme Wall.
Keywords: web archive, websites, Ukrainian culture, cultural heritage, online content, digital preservation, war.

SUCHO project. Saving Ukrainian Cultural Heritage Online (SUCHO) [9] is a global rapid-response initiative focused on safeguarding the digital cultural heritage of Ukraine, which is under threat due to the ongoing Russian invasion of Ukraine. Following the February 24, 2022 attack, Anna Kijas, Quinn Dombrowski, and Sebastian Majstorovic came together to form and launch the initiative on March 1, 2022 [1]. All three co-founders are digital humanities specialists working in academic institutions; Kijas is a music librarian and music historian, Dombrowski is an academic technology specialist with expertise in Slavic linguistics and library and information science, Majstorovic is an IT consultant and is pursuing a doctorate in history.

SUCHO is unlike other rapid-response projects mainly due to the size and scope of the initiative [15]. By the end of the first week of March 2022 there were around 1,000 volunteers (eventually growing to over 1,500) from over 38 countries, with a variety of expertise and backgrounds including libraries, archives, and museums, technology, archaeology, humanities, and more. These volunteers signed up to work on web archiving websites and digital collections using a variety of tools, mainly the Internet Archive, Wayback Machine, Browsertrix, and the Webrecorder suite, situation monitoring of on-the-ground threats and attacks, searching for content to web archive through various means, including on Wikidata and Open Street Maps, and curating metadata for web archived objects and sites [7]. By June 2022, SUCHO volunteers had web archived over 50 TB of data and over 5,000 websites [10]. For context, 1 TB of storage is equal to 1,000 GB of data or 16 entry-level smartphones. The scope of the web archived content is broad and aims to include a vast and rich sampling of cultural heritage – tangible and intangible – from all regions of Ukraine. The archived websites include various types of institutions: small local to large national museums, music academies, theaters, monasteries, university archives and libraries, church archives, public libraries, children's programs, local history societies, memorials, and more.

From the very beginning, the primary goal of SUCHO was to safeguard the digital cultural heritage of Ukraine through web crawling, archiving, and curating publicly accessible data, metadata, digital objects and collections, and websites hosted on servers in Ukraine, with the intention of being able to provide access to this web archive to the original institutions after the war in the event that they had lost some or all of their digital content. In addition to volunteer labor and tools developed by the open-source community, we developed partnerships with a number of organizations and institutions who have provided technological and/or financial support that enables the initiative to continue moving forward [5]. In August 2022, SUCHO moved into Phase 2 of the initiative, which is focused on these three goals: Curate, Donate, Educate [6]. After five months into the war and web archiving of Ukrainian cultural heritage websites, we were finding fewer cultural heritage related websites that were in need of archiving. With over 50 TB and 5,000 web archived websites, it was time to focus on developing an inventory or database with metadata describing all of the archived websites and collections, which will be accessible for institutions who may have lost their digital content.

There was a key moment during Phase 1 when we realized that we would have to provide physical digitization equipment to cultural heritage institutions in Ukraine who were only now beginning or scaling up their digitization efforts. SUCHO's original goal was to web archive already digitized websites and digital content, but as the war continues, there is an urgent need to digitize cultural heritage objects that may be at risk of being destroyed, damaged, or looted. In addition to donating equipment, SUCHO is facilitating and supporting the creation of training materials and compiling existing resources about the use of digitization equipment during emergency situations. The SUCHO Wiki on the conservation, digitization, and evacuation of cultural heritage contains training resources in several languages, including Ukrainian and/or with Ukrainian subtitles [17]. For example, one of our recent partners at the Taras Shevchenko National University of Cherkasy created a YouTube video in Ukrainian [18] demonstrating how to scan books with a CZUR M3000 Pro Professional Book Scanner so that we could list it in our resources.

Procuring and distributing equipment in a war zone is a logistical nightmare and something that we were not prepared to do when we first started the initiative. This has required the cooperation of several partners at the National Library of Sweden and the

Society of Archives and Records Management in Sweden (FAI), NFDI4Culture, the Polish Institute for Cultural Heritage, and the Vernadsky National Library of Ukraine to help us procure and distribute a variety of digitization equipment to institutions in Ukraine. In order to be able to purchase and send this equipment to Ukraine, we have a fundraising page on the Open Collective platform [8] where individuals and organizations can donate to support the work of SUCHO. At this point we have raised over 200,000 Euros and have been sending donations of digitization equipment to Ukraine since August 2022.

We have also started curating a selection of web archived content to make it visible and accessible to people around the globe who may not be familiar with Ukrainian cultural heritage. We are doing this work through the creation of a gallery, Exploring Ukrainian Cultural Heritage Online [2], built on Omeka platform. Volunteers are also curating an archival collection of visual internet memes related to the Russo-Ukrainian war [13]. Additionally, the gallery and meme collection can be used for pedagogical purposes. These two projects will be described in greater detail in the following sections.

Metadata work. All of SUCHO's data forms a cooperative ecosystem across our projects and operates under a model of digital stewardship wherein our primary focus is to develop and preserve data that can be repatriated to its home institution; we have been curating materials with the understanding that institutions likely do not have the capacity to do so at this time, but also with the understanding that Ukrainian culture needs Ukrainian stewards and these materials must be returned to their home institutions when they are in a position to resume their work as data stewards. All of our metadata is developed with the core of its design focused on making this repatriation possible.

Each of our projects requires metadata to function. Volunteers develop metadata for items made available through the gallery and Internet Archive in order to support searchability and provide historical context. Every file created from the web scraping of a site requires associated technical metadata to maintain its operation, as well as descriptive and administrative metadata that contains the necessary information for us to repatriate it. Data from across our ecosystem is collected in a database that includes technical metadata essential to the function of the files and integrates data from Wikidata to augment existing descriptive and administrative metadata that will assist us in repatriating materials.

One of the challenges with the metadata work lies in the fact that the greatest shared language competency between SUCHO volunteers is English and many of the volunteers can't read or write Ukrainian at the level of proficiency necessary for metadata creation. That being said, we place a strong emphasis on providing metadata in both Ukrainian and English, utilizing volunteers who can act as translators and information from the host institutions to provide the Ukrainian-language metadata. In both the gallery and the Internet Archive metadata, we provide Ukrainian-language metadata, accompanied by English translations, making the information equally accessible in both languages. This emphasizes the role of the Ukrainian language in presenting and understanding Ukrainian culture.

SUCHO Gallery. The Exploring Ukrainian Cultural Heritage Online gallery saw its first planning begin in May 2022 and the launch of its first items in July 2022, moving our work into Phase 2 of the initiative. The initial focus of the gallery is to provide materials from institutions whose websites were webscraped in Phase 1 of the project, using volunteer-curated items from their websites to act as access points that allow users to explore the institutions and their work and collections in greater detail. We curate items of tangible and intangible cultural heritage spanning across eras, art forms, and geographical regions within Ukraine with the added goal of making this material available for pedagogical use where it might otherwise be unavailable. Across the site we offer opportunities for users to donate to SUCHO's equipment fund, connecting our goals of curation and education with our goal of fundraising.

The funds raised from the interest in the web scraped content allows us to purchase and distribute digitization equipment, as discussed above. We are currently working with partner institutions in Ukraine to build or improve their digitization capabilities and will use the gallery to host the digital objects they produce. If they want to make their digitized materials available to the public, we can do so through digital collections and exhibitions. This will develop a reciprocal relationship between content and fundraising that will allow us to continue acting as a helping hand to support our partners in their work.

SUCHO Meme Archive. At the end of April 2022 SUCHO began building a curated archive of internet memes related to the Russo-Ukrainian war, recognizing the importance and the fragility of these memes as an element of contemporary culture. Since the beginning of the war, they have been shared widely on social media as a sharp commentary on a variety of war-related subjects, from the specific military operations and diplomatic efforts to everyday life of civilians. Memes use wit and humor to provide Ukrainians with a welcome relief [4], to effectively convey to the Western audience the importance of supporting Ukraine [16], and to create powerful weapons in internet battles with pro-Russian opponents [11]. At the same time, memes are ephemeral by their very nature and if not purposefully preserved, they lose their meaning and are quickly forgotten.

The SUCHO meme archive is being collected by crowdsourcing. Volunteers and members of the public submit memes they find on the internet via a Google form [14]. The answers to the questions on the form create metadata for each meme. That metadata includes the following elements: the URL and the date when the meme was posted, the transcription of the text inside the meme in the original language and in English translation (if the original language is not English), the meme's subject and template, names of people and animals prominently featured, country the meme refers to and the meme's language.

The submissions are curated and published to the interactive online meme gallery (The SUCHO Meme Wall), built by Simon Wiles (Stanford University) and hosted on GitHub Pages [12]. The wall uses the archive's metadata elements (with exception of URL and date) as content filters. At the time of writing, the wall contains over 1300 memes that feature 85 subjects, 86 personalities, 37 countries/world areas and use 82 templates and 7 languages (with Russian, English and Ukrainian dominating the collection). The primary sources for the memes are Twitter (29%) and Telegram (28%).

The SUCHO meme collection is fully using the advantages created by the project's collaborative workflows. The international community of dedicated volunteers not only provides a constant stream of submissions of massive numbers of memes, but it also ensures the truly diverse coverage by submitting memes from various countries and in various languages.

Memes are an important part of cultural communication. As noted by Michele Knobel and Colin Lankshear, "Memes are contagious patterns of "cultural information" that get passed from mind to mind and directly generate and shape the mindsets and significant forms of behavior and actions of a social group" [Knobel 2007: 199.]. We strongly believe that by building the Ukrainian war meme archive complete with metadata we not only attempt to preserve the extraordinary spirit of creativity as means of resistance during the horrible war, but also to create a unique resource for research and teaching about the war discourse that could be used both in Ukraine and internationally.

Conclusion. Saving Ukrainian Cultural Heritage Online is a project that is unique in many respects: it has brought together an unprecedented international team of volunteers determined to preserve the digital heritage of a country ravaged by war. A task of that scale called for innovative logistics, technology and workflows. Nine months since its launch, the project is developing metadata for all of the archived websites and collections, raising funds to procure and distribute emergency digitization equipment to cultural institutions in Ukraine, and facilitating the creation of training materials for that equipment. In order to promote Ukrainian cultural heritage across the globe, SUCHO has launched two curated online galleries featuring web archived and openly available ephemeral digital content. As the project grows and evolves, its main focus and raison d'être remains the relentless commitment to saving Ukrainian digital heritage.

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ЗБЕРЕЖЕННЯ УКРАЇНСЬКОЇ КУЛЬТУРНОЇ СПАДЩИНИ ОНЛАЙН: ГЛОБАЛЬНА ІНІЦІАТИВА

Saving Ukrainian Cultural Heritage Online (SUCHO) – це унікальна глобальна ініціатива швидкого реагування, спрямована на збереження цифрової культурної спадщини України, яка перебуває під загрозою через російське вторгнення. Проєкт об'єднує міжнародну команду з 1500 волонтерів на чолі з цифровими гуманітаріями та співпрацює з кількома організаціями, які надають технологічну та/або фінансову підтримку ініціативі. Проєкт архівує вебсайти та цифрові колекції українських закладів культури з наміром надати установам-початківцям доступ до цього вебархіву в разі втрати вмісту. Крім вебархівування, проєкт розробляє метадані для всіх архівних вебсайтів і колекцій, збирає кошти для закупівлі та розповсюдження обладнання для екстреного оцифрування серед установ культури в Україні, а також сприяє створенню навчальних матеріалів для цього обладнання. З метою популяризації української культурної спадщини в усьому світі SUCHO запустив дві кураторські онлайн-галереї: Exploring Ukrainian Cultural Heritage Online та SUCHO Meme Wall.

Ключові слова: вебархів, вебсайти, українська культура, культурна спадщина, онлайн-контент, цифрове збереження, війна.