

# MEMORISE: An Infrastructure to Preserve Memories on Nazi Persecution

## XML

The rise in anti-Semitism has been discussed in a diversity of realms in the past years (Goldhagen 2013; United Nations 2021; Booth 2022; Steinacher 2023). The level of anti-Semitism has risen even more sharply since the start of the Israeli-Hamas war in October 2023 (Keaten / Kellman 2023). As part of this latest conflict, we witness implicit and direct references to the history of Nazi persecution and accusations that Israel allegedly commits genocide in Gaza. Such accusations prove the importance of increased historical education that sheds light on crimes related to the Holocaust in particular, and on Nazi persecution in general. Considering the recent discourse about the potential failures in Holocaust education, the Horizon Europe MEMORISE project's mission is to develop new, digitally supported educational strategies to keep memories of Nazi persecution alive, particularly important for a growing digital native generation.

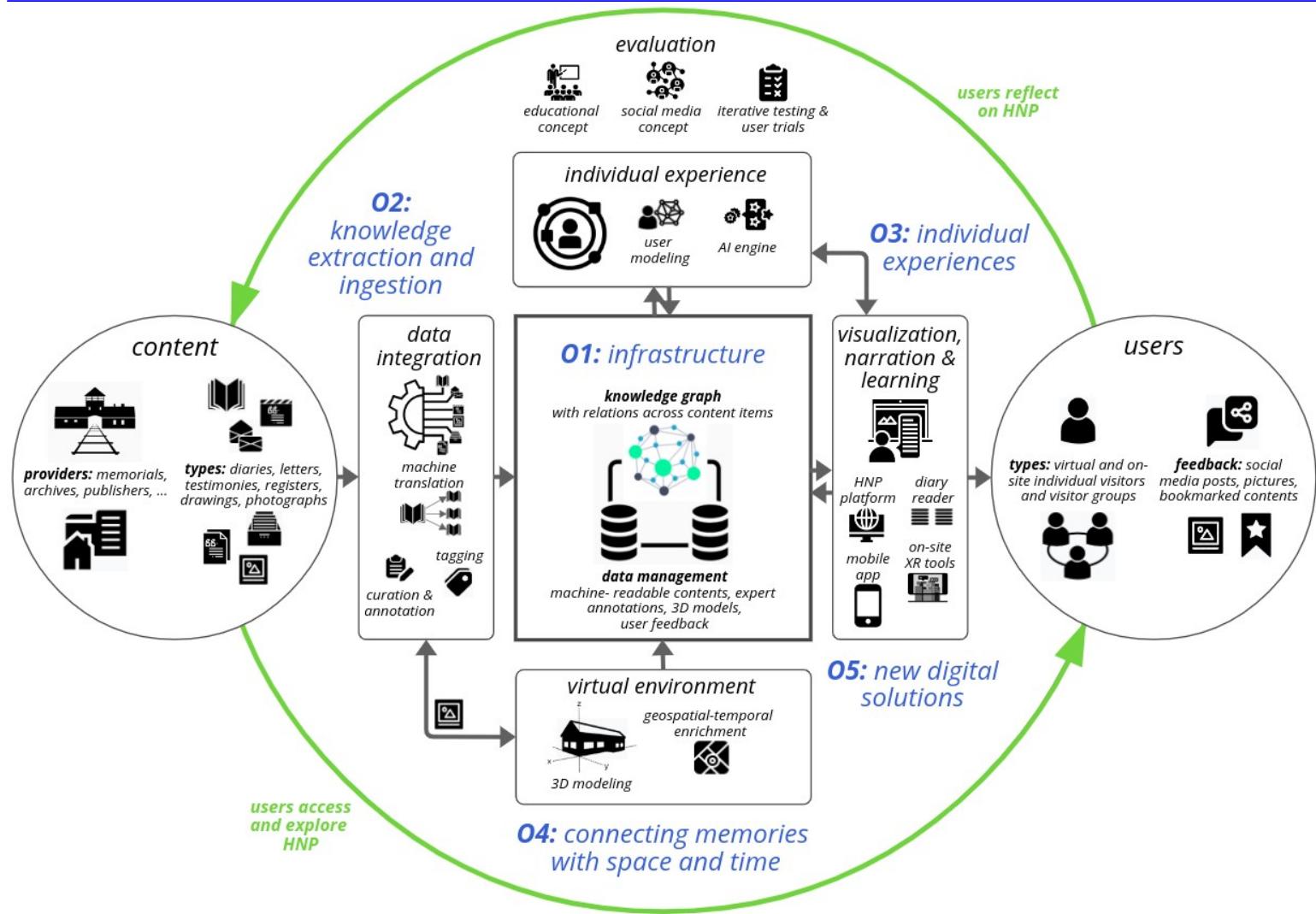


Figure 1. MEMORISE methodology and objectives

The work on MEMORISE started in October 2022 (Jänicke 2023), and the project's methodology is illustrated in Figure 1. Our main objectives and first solutions include:

- **Infrastructure:** We are setting up a Kubernetes Cluster (<https://k3s.io/>) that hosts and connects all required backend services and frontend components. Longhorn (<https://longhorn.io/>) is used as a distributed block storage solution. It includes MEMORISE's knowledge graph architecture based on Apache Jena Fuseki (<https://jena.apache.org/documentation/fuseki2/>). Our major aim is to create a scalable, long lasting solution that can be easily extended with additional components.
- **Knowledge extraction and ingestion:** We develop services for annotating and extracting structured data from textual sources like testimonies, letters or diaries. Whereas these written personal documents are important for storytelling purposes, we further experiment with visual memories in the form of prisoner paintings and historical photographs to convey visual impressions about life in concentration camps and to connect textual with visual memories.
- **Individual experiences:** In order to create engaging and memorable experiences, we tailor our infrastructure to serve a diversity of user needs. The main target groups were identified as laypersons interested in the subject (teenagers and adults), people with family history connected to the Holocaust, and school classes. Users will be able to receive individualized content,

either based on user data, respecting their consent to include private information and tracking data, or through visual interfaces that invite users with diverse interests to explore a large collection of personal documents; an example is shown in Figure 2.

- **Connecting memories with space and time:** Connecting multimodal data is important for modern dissemination and engagement (Khulusi et al. 2020). We develop a workflow to enrich 3D models showing the historical structure of concentration camp sites (Oliva et al. 2015; Waagen et al. 2023) with contextual information such as text, images, or audio, aiming to tell stories on Nazi persecution in an immersive three dimensional space. In addition, we overlay the structural models with 3D artworks as visual testimonies on life in concentration camps (see Figure 3).
- **New digital solutions:** Modern dissemination approaches require full support of user tasks, including the ability to explore HNP freely and thoroughly, as well as guiding users through expert-curated stories. We are developing different tools, including a comparative document reader (see Figure 4) embedded in an HNP portal (see Figure 2) that allows for unguided exploration of the project's knowledge graph. In addition, we develop three storytelling solutions for guided exploration, making use of the individual experience framework.

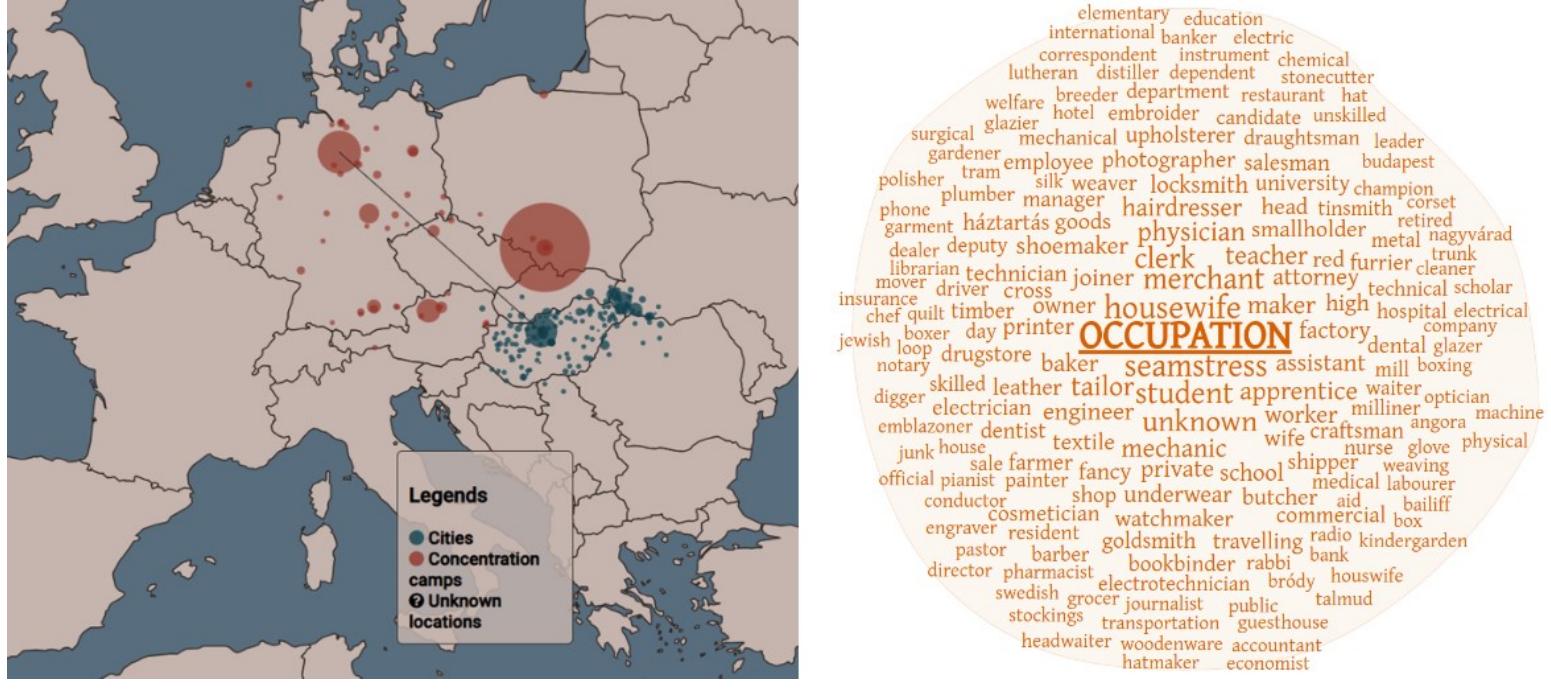


Figure 2. HNP portal prototype allows users to browse a testimony data set through a map (diversity of locations) and a word cloud (diversity of occupations) to provide users with entry points they can identify with

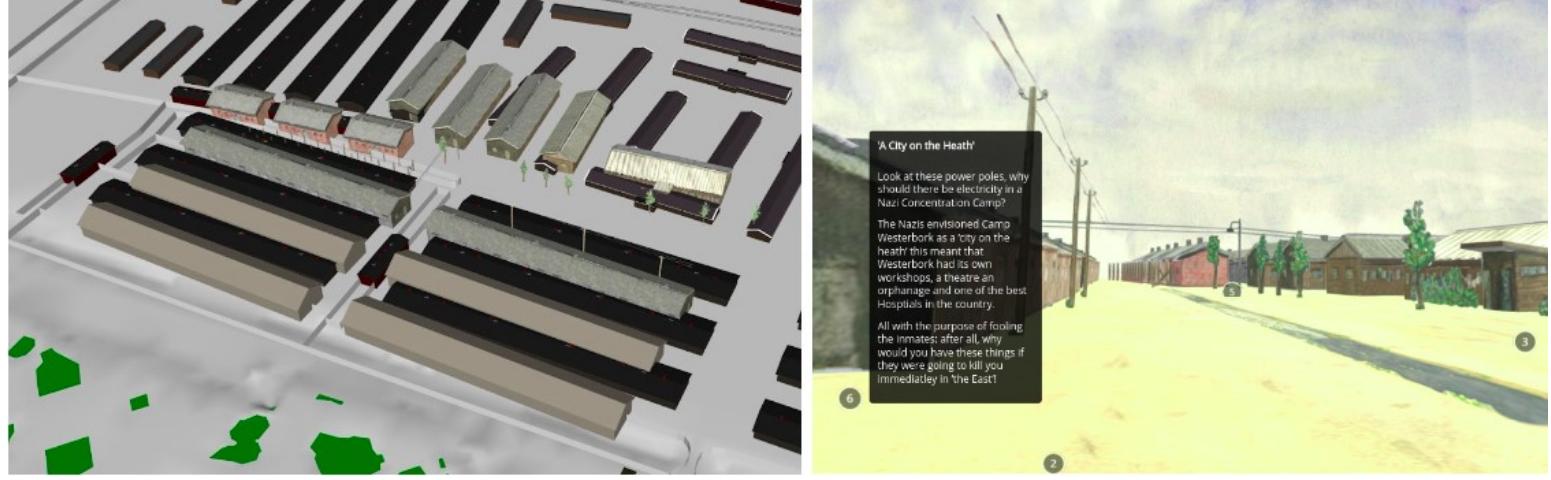
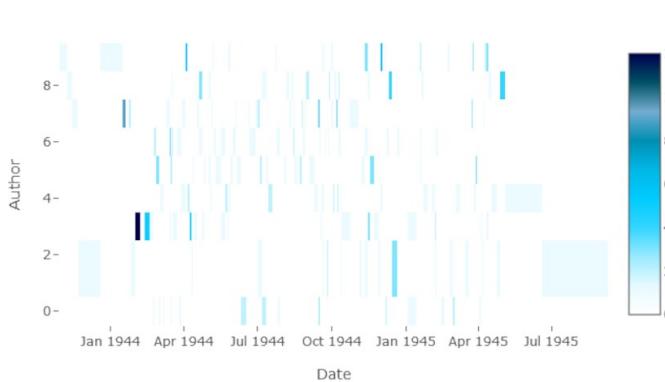


Figure 3. 3D structural model overlaid with 3D artwork for storytelling

Heatmap



Donnerstag, 16.3.1944 Sonne - nichts Warmes im Zug, abends Brei, der nach Kampfer schmeckt. Brot (geschrieben 17.4.). - Lange stehen auf der Strecke und dann in Zelle. Da viele zerstörte Waggons. Langer Zug auf einer Seitenstrecke. Passieren ein Flugfeld, das gegen die Bahn durch stehengelassene Bäume abgegrenzt. Plötzlich Bahnsteiglohe Tafel. SS mit Hunden. Hilfe beim Gepäckausladen, hoffend mit Lastautomotzdrücken. Nur kleine Kinder fahren. Alles marschiert in Ser-Reihen. Kindererunterreiche [ich], daß sie gut gehen. Kommen an langem Lager vorbei. Zuerst Wald verborgene Fabrik, die so hoch wie Bäume. Bei Registration 2 Schreibmaschinen ein Mann. Gehe zu den Schulen [zur Arbeit] - da sitzt man wenigstens Ein Schlarbaum, rechts das Badehaus, links niedrige Baracken. Kantiner (echts) = eine Garage, wo Jungen arbeiten. Auch ein Weg Auto mit drauf Stacheldraht, dann noch ganz niedrige Baracke. Gepäck schon da. Frauen-Männer in extra Gebäuden. Bromberg ist Transportarzt. Plötzlich jemand (Daskberg) Leiter. Ein kleiner Vorräum. Kinderkästchen. Beim an Holz über Eisösen 2 hoch, sehr engen Gänge, bei den Frauen noch enger. Kommt weiß hinterüber Semmel zu liegen, auf Bitte [von] dessen Frau lege ich Leinwand unter denselben leichten Stoßsack. Kann für Gerda und Mutter nur am engsten Fensterplatz erlangen. Beate hustet stark. Die Kinder helfen auch etwas, das Gepäck hineinbringen. Um 7 [Uhr] müssen wir vom [aus dem] Frauen-Saal. Genau weiß ich nicht mehr alles, nur daß wir die erste Woche von 8-6 [Uhr] schliefen, und dieswar von Wanderungen nach dem [zum] WC unterbrochen, traumlos und tief. Benütz zedabei, da meine Hausschuhe naß, die Klompen [Holzschuhe] von zweitem Bett entfernt. Paul ist mein Schlafnachbar. Hat seine Decke eingerollt und viel indiese Rolle hineingelegt. Den Wandkasten habe [nutze ich zusammen] mit den 2 Neumanns, die anfangs angenehm. Der N. aus [Baracke] 8 schimpft viel mit dem anderen und läßt sich viel bedienen.

1944-03-27:

Wir erfahren, dass etwa 1000 KZ-Häftlinge in die benachbarten Lagerteile gekommen seien. Auf unser Gelände kamen drei Personen aus Reichenau (Schlesien) – zwei schwedische Juden und ein 77-jähriger rumänischer Jude. Sie sagen, etwa 60 für den Austausch bestimmte Personen würden seit fünf Monaten in Reichenau festgehalten. Ich referiere (auch in der Krankenstube) »Über die Räterepublik in Ungarn«. Csesia geht es sehr schlecht. Sie ist trotzdem aktiv – sie unterrichtet eine Kindergruppe.

Figure 4. Comparative document reader prototype

MEMORISE is a project that was funded in times of the COVID-19 pandemic, which showed the need to develop novel digital solutions to preserve and make cultural heritage accessible. Our poster will respond to the conference theme by discussing the suitability, added value, and effectiveness of digital solutions to educate on Nazi crimes and to make the associated memories accessible for everyone in a virtual space. Respecting the integrity of sources and personal boundaries of users, MEMORISE applications aim towards a responsible, ethically grounded experience that has empowering effects and fosters digital literacy and critical thinking.

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## Appendix A

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