Project no. 727040

GIFT
Meaningful Personalization of Hybrid Virtual Museum Experiences Through Gifting and Appropriation

Horizon 2020

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Virtual museums and social platform on European digital heritage, memory, identity and cultural interaction.

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D1.2
Data Management Plan

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Lead beneficiary: IT University of Copenhagen

Author(s): Anders Sundnes Løvlie, Benjamin Bedwell, Mace Ojala

Project Consortium

Beneficiary no.	Beneficiary name	Short name
1 (Coordinator)	**IT University of Copenhagen**	**ITU**
2	Blast Theory	Blast Theory
3	Next Game	NextGame
4	University of Nottingham	UoN
5	Uppsala University	UU
6	Europeana Foundation	EF

Dissemination Level

PU	**Public**	**X**
CO	Confidential, only for members of the consortium (including the Commission Services)	
EU-RES	Classified Information: RESTREINT UE (Commission Decision 2005/444/EC)	
EU-CON	Classified Information: CONFIDENTIEL UE (Commission Decision 2005/444/EC)	
EU-SEC	Classified Information: SECRET UE (Commission Decision 2005/444/EC)	

Type

R	Document, report	
DEM	Demonstrator, pilot, prototype	
DEC	Websites, patent filling, videos, etc.	
O	Other	X
ETHICS	Ethics requirement	

Data Management Plan

Introduction

In the course of the project data will be collected and analyzed for the purposes of development of prototypes, a design framework and research publications. In addition, user generated content (UGC) is created by self-selecting, opt-in users. Much of the data in design work is observational, qualitative, pragmatic and interactional, situated in the contexts of the experiments and design iterations, rather than collected through instrumentation. GIFT is committed to Open Access publishing.

1. Data Summary

As stated in deliverable D8.1 on processing of personal data, such data will be collected through the following types of activities:

- Interviews and observations of users in museum settings (qualitative); both through ethnographic research as well as user testing
- Participatory art interventions
- Data from social media login, user profiles etc registered by our prototypes
- Server statistics documenting use and traffic of our prototypes
- Social media statistics documenting sharing, liking and other forms of engagement with our prototypes and content shared on social media
- Video/photo documentation of user testing/play sessions with prototypes
- Users will generate data (user generated content) through use of our prototypes; e.g. digital "gifts" produced with the gifting prototype
- The researchers and collaborators in GIFT will themselves be subjects of ethnographical research, conducted by a PhD student working on WP5

Different types of data will be collected:

- Notes from interviews and observations
- Data from social media login, user profiles etc
- Audio from interviews
- Photos and video of users testing the prototypes
- Server statistics/logs from use of prototypes
- Social media statistics
- User generated content produced with the prototypes

All the above data are collected and used on a flexible ad hoc basis to support the methods described in the Grant Agreement: Performance-Led Research in the Wild, action research and theoretical/ethnographic research. All of these methodologies have in common that there is no structured collection of data that can be specified ahead of the process. Instead, decisions about which data to collect and how are taken on a pragmatic, continuous ad hoc basis to facilitate discovery of the best possible opportunities for insight and constructive results. For this reason, it is also not meaningful to estimate quantities of data, or formats, ahead of time. At this time, our shared data

repository contains 47.8 GB of data from user tests, of all the types mentioned above except social media statistics, as none of the prototypes so far have used (public) social media.

GIFT consortium partners remain responsible for collection, primary storage and use of the data collected, following what is given in this DMP. The sorting and presentation of data that can be useful for other researchers is an important part of the research process. At this point in time, we have identified two categories of shareable data, outlined below.

1. Source code

The type of data that is most likely to be useful for other researchers is the source code for the software prototypes developed as part of work packages 2, 3 and 6. In the case of work packages 2 and 6, this software will be published as open source, and the code will be made available in a public repository. (As stated in the Exploitation Strategy and Consortium Agreement, software developed by NextGame as part of Work Package 3 is exempt from our open source commitment.)

2. 3D models

In an experiment in Work Package 6, 3D models have been created from scanning personal objects brought to the museum by visitors (see deliverable D6.1). These models are shared publicly via an online repository (details below).

3. Other data

Regarding other types of data, where such data does not contain person data or can be anonymized with no undue extra burden on the researchers, and without violating the ethical guidelines set out in deliverable D8.1 (on protection of personal data), we will share these data through an open data repository. Details about data format, amount, type of repository etc. must be decided on a case-by-case basis, because of the nature of the methodology we are following and the types of data collected.

Digital heritage objects, both digitized and born-digital, are contributed to the GIFT project by the participating cultural heritage organizations. These include images, scans and metadata of cultural heritage objects. Their management and provenance beyond their re-use in GIFT project, including Intellectual Property Rights (IPR), is outside the scope of this document. When these objects are re-used in the GIFT project (e.g. as content for prototypes), they are used in compliance with the respective cultural heritage organization's data management policies.

2. FAIR Data

Data that are considered useful for academia, cultural heritage institutions, creative industries, or other users will be made available according to the FAIR principles. Below, we outline how we will apply the FAIR principles to the types of data outlined above

2.1 Making data findable, including provisions for metadata

The project website collects links to all data made openly available. Research publications may cite the repositories, where relevant.

2.1.1 Source code

Any source code produced in work packages 2 and 6 and deemed potentially useful for outside users will be made available through open source repositories on GitHub. GitHub is the most widely used repository for sharing open source code, and is the natural place to look for this kind of data for anyone who might be interested. In order to further make the repositories and documentation findable by other researchers in our particular area, we will link to it from the relevant parts of the GIFT

framework, so that researchers with an interest in source code may find the code that relates to the relevant part of the framework.
To this date, we have shared source code for the WP2 gifting prototype, the GIFT exchange tool, the GIFT platform, the GIFT schema and other relevant parts of the WP6 toolkit (described in deliverable D6.1) in the GitHub repository https://github.com/growlingfish.

2.1.2 3D models

The 3D models from photogrammetry experiments are shared via the widely used online sharing platform sktechfab, initially as a test at https://sketchfab.com/ddarz/models/ and now officially at https://sketchfab.com/MixedRealityLab/models. Sketchfab is currently the go-to web platform for user-generated 3D models, where 3D artists and 3D content specialists, including cultural heritage researchers, demonstrate and share their work. It is the natural place to look for this kind of data for anyone who might be interested.

2.2 Making data openly accessible

2.2.1 Source code

Our aim is to develop and release an open-source software toolbox that any potential service provider can deploy on their web server stack of choice to enable gifting applications. Extensive documentation for how to adopt or adapt our source code is presented at the framework website, https://toolkit.gifting.digital/tools/prototyping/.

In terms of data generated by the Platform, the documented CMS API will allow gifts to be passed to and from "wrapping" and "unwrapping" apps, but only within a private ecosystem. Although the API could be made public, we anticipate that the content created as gifts will be personal and possibly sensitive, i.e. inappropriate for revealing publicly. As such, unless the gift creator explicitly chooses to release their gift for public consumption, the gift is only available to the specified receiver and administrators of that instance of the GIFT CMS.

2.2.2 3D models

All the 3D models created in the WP6 photogrammetry experiments are openly accessible via the Sketchfab repositories cited above. The models are shared with a Non-Commercial Share-Alike Creative Commons License (CC-BY-NC-SA). Thus, anyone can download the models and use them for non-commercial purposes as long as they attribute them, and they can also make derivatives, but have to distribute those under a similar licence.

2.3 Making data interoperable

2.3.1 Source code

The GIFT platform will include a notification server - designed to be interoperable with existing mobile and desktop messaging clients - that will keep gift givers and receivers informed about their progress through the stages of gifting. It will also include a CMS server with a documented REST API, to allow gifters to create hybrid gifts via the CMS admin interface. The gift data structure is documented in the developer documentation. The REST API also allows gift service providers to use their application platform of choice (web, hybrid or native) to develop and release bespoke authoring/"wrapping" apps (which users can use to push new gifts to the CMS) and "unwrapping" apps (which users can use to receive and consume gifts built with the authoring tools).

During the project we will deploy an exemplar instance of the notification server and CMS server on the Azure VM-hosting platform (VMs running the open-source and widely used OS Ubuntu) both to enable research trials, and for reference by potential gift service providers. For the research trials we will also develop and deploy hybrid (Ionic) iOS/Android mobile apps for "wrapping" and "unwrapping" gifts, and a range of web-based "wrapping" apps accessible via web browser. Again, these will provide a set of exemplars for potential gift app developers.

Although the design of the Platform may change, it will make use of exclusively open-source and free-to-use software. The CMS will make use of the Roots framework (roots.io) - an optimised and secured stack of the popular WordPress CMS, configured via Ansible and deployable via Vagrant. WordPress allows for extensive customisation and extension via plugins and themes, meaning that the final GIFT platform will be fit for purpose, but also extensible by other developers. The notification server will allow developers to connect to any messaging services of choice, but our reference instance will use open source EJabber software to pass notifications to a wide range of existing jabber-compatible clients, including the open-source web-based ConverseJS client that will be integrated in the CMS and OSX Messages client that we will use for testing; it will also connect to the Amazon SNS service to allow SMS-messaging and the MailGun service to provide email notifications.

2.3.2 3D models

The models can be downloaded in the widely used .OBJ format, at which point they can be imported into 3D modelling software and 3D application engines.

2.4 Increase data re-use (through clarifying licenses)

2.4.1 Source code

Deliverables D6.4 and D4.4 will document how to practically re-use the outcomes of the project. They will explain deployment, use and maintenance of the software products developed in the project.

Source code from work packages 2 and 6 will be released under the widely recognized MIT License, which permits derivative work and commercial exploitation. A first version of the toolbox will be made publicly available through the release of deliverable D6.2, the final version will be made available through D6.4.

The exemplary instance of the Platform will be operated for 2 years after the duration of the project, until the end of 2021.

2.4.2 3D models

The models released on the official Mixed Reality Lab sketchfab page have a Creative commons CC-BY-NC-SA licence which allows users to freely download, edit and redistribute them, as long as they use similar licencing and appropriate attribution.
There are no licenses of any kind attached to the project-related 3D models on the ‘ddarz’ sketchfab account. Researchers interested in clearing rights for re-use (e.g. regarding derivative work or commercial exploitation) should contact the researcher in charge of the photogrammetry experiments, Dimitrios Darzentas at Dimitrios.Darzentas@nottingham.ac.uk.

3. Allocation of Resources

Consortium partners are responsible for ongoing management of the data they collect and use. Project coordinator ITU, is responsible for data that are shared within the consortium. Data sharing within the consortium will be facilitated via a secure, encrypted, and locally managed ownCloud data storage service maintained by ITU for the duration of the project. This service is offered freely to ITU researchers and will not incur any costs for the consortium.

Source code will be shared as described above. Using GitHub repositories cover no cost for open source projects, and guarantees a valid and reliable record for the source code. UoN will be responsible for maintaining the open source repositories up till the end of the project, after which it will be up to the open source community to maintain and develop the software further.
The Sketchfab accounts that are being used to share the 3D models are currently incurring no additional costs as they are using the free account plan.

4. Data Security

Secure storage of personal data is described in deliverable D8.1. Security of data shared through GitHub and Sketchfab is handled by the operators of those websites. As these are extremely widely used and trusted platforms for this kind of data, and given the amounts and types of data set out in this document, there is no discernible need for any project-wide plans for data backup and recovery. However, each participating researcher is expected to make backups of their data as they deem necessary and reasonable, on a case-by-case basis.

5. Ethical Aspects

Ethical aspects of data management are comprehensively covered in deliverables *D8.1 POPD - Requirement No. 3*, and *D8.2 NEC - Requirement No. 6*.

For any issues not already described in the above deliverables, we will abide by the ethical guidelines and considerations of the research communities associated with particular methodological approaches. In case of a collision between the disciplinary requirements for collecting and analysing data associated with a particular approach and the general guidelines presented in D8.1, the latter will serve as the reference document.