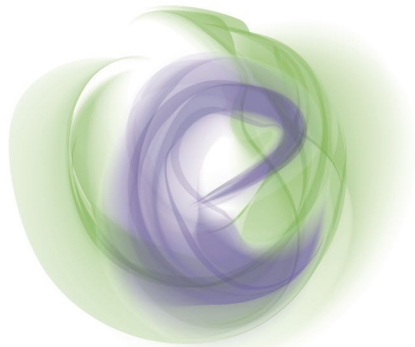


Data Management Plan

Deliverable D1.4

Version FINAL



Odeuropa

NEGOTIATING OLFACTORY AND SENSORY EXPERIENCES IN CULTURAL HERITAGE PRACTICE AND RESEARCH



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Abstract: Data Management Plan for the Odeuropa project. As a participant in the Open Research Data Pilot, Odeuropa endorses the objectives of the European Commission to improve and maximise access to and re-use of research data generated by Horizon 2020 projects. In this Data Management Plan, we aim to provide a complete overview of the data collected and generated in the Odeuropa project, and the measures we take to meet the FAIR-principles. We follow the template of the Horizon 2020 FAIR Data Management Plan to increase compliance with the EU's data requirements.	

Table of Revisions

Version	Date	Description and reason	By	Affected sections
0.1	May 2021	Started with black document and created	Ronald Sluijter	All
0.2	June 2021	Revised version	Ronald Sluijter, Sara Tonelli, Peter Bell, Mathias Zinnen, Cecilia Bembibre, Arno Bosse, William Tullett, Raphael Troncy, Inger Leemans	All
1.0	30 June 2021	approval by project manager	Marieke van Erp	-

Executive Summary

As a participant in the Open Research Data Pilot, Odeuropa endorses the objectives of the European Commission to improve and maximise access to and re-use of research data generated by Horizon 2020 projects. In this Data Management Plan we aim to provide a complete overview of the data collected and generated in the Odeuropa project, and the measures we take to meet the FAIR-principles. We follow the template of the Horizon 2020 FAIR Data Management Plan to increase compliance with the EU's data requirements.

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1 Data Summary

What is the purpose of the data collection/generation and its relation to the objectives of the project?

Data collection and generation are the foundations of the objectives of the Odeuropa project. We use recent advances in deep learning-based computer vision and natural language processing methods to identify scent and smell references in different image and text data sets spanning three centuries and seven European languages. The extracted references are linked and consolidated through semantic web techniques and heritage science vocabularies/taxonomies into the European Olfactory Knowledge Graph, which will then be interpreted and contextualised as storylines by cultural history research. The storylines will be narrated to the public through demonstrators and olfactory museology, while measuring the impact of these activities, and developing policy plans for the recognition, protection and preservation of olfactory heritage.

What types and formats of data will the project generate/collect? Will you re-use any existing data and how?

Images and annotations (WP2): we will collect images from various (early) modern European digital collections: [Dokumentationszentrum für Kunstgeschichte - Bildarchiv Marburg](#) (2 Million images), [Joconde](#) (408k images), [Rijksmuseum](#) (675k images), [RKD](#) (254k images), [Zeri](#) (290k images), [Ambrosiana](#), [Artstor](#), [Ashmolean](#), [British Museum](#), [Europeana](#), [Galleria Borghese](#), [NGAWashington](#), [Omniart](#), [Princeton Art Museum](#), [Prometheus](#), [Reunion des Musees Nationaux](#), [SLUB Dresden](#), [SMB Berlin](#), [Stadel Museum](#), [Warburg Institute](#), [National Museum Slovenia](#). Under art historical guidance we select the most promising images from these corpora from an olfactory perspective through a partly manual, partly automatic process. The smell-related areas of these images will be annotated, first manually and later machine-supported, with terms derived from the Taxonomy of Olfactory Phenomena in Images (see below, '**Taxonomies**'). If available, we also use existing metadata at image level for this task, which will first be standardized. The result is a deeply annotated database of images containing olfactory components.

Texts and annotations (WP3): we will collect texts from extensive historical open access digitized text collections covering different domains such as art, history, medicine, and travel narratives, with a main focus on Europe from the 17th to the 20th century, and across seven different languages: English ([Anteriosis / TCP](#) (including [EEBO](#), [ECCO](#)), [The Helsinki Corpus of English Texts](#), [Zurich English Newspaper Corpus](#), [Old Bailey Criminal Records](#), [Archer](#), [Early modern Philosophy](#), [Wellcome Trust collections](#)), Dutch ([DBNL](#), [Delpher](#), [Nederlab](#), [Notary Archives](#), [Ceneton](#)), French ([ARTFL](#), [Mapping the Republic of Letters](#)), German ([Deutsches Textarchiv](#)), Italian ([LiberLiber](#), [InternetCulturale](#)), Slovenian ([IMP Language Resources for historical Slovene](#), [eZISS](#)), Latin ([Cameno](#), [Nova Scientia](#)), Multiple Languages ([Hathitrust](#), [ProjectGutenberg](#), [WikiSource](#), [Epistolarium](#)). Domain specialists select the most promising texts from these corpora from an olfactory perspective. The texts are reformatted and normalised to fit our natural language processing pipelines. The selected texts will be manually annotated according to a previously drawn annotation scheme, containing both the olfactory terms based on the multilingual taxonomy of olfactory information (see below, '**Taxonomies**') and variables connected to olfactory 'events' (e.g. source of smell, quality, perceiver, etc.) (see **Deliverable 3.1**). These manually created benchmarks are the basis of semi-supervised and self-supervised approaches to extract olfactory information from the larger text corpora.

Taxonomies (WP2-3-4): Both the work on the images and the texts will deliver a taxonomy. The Taxonomy of Olfactory Phenomena in Images is mapped with the vocabularies used in existing image databases such as [ImageNet](#) (See also Deliverable D2.1). The Multilingual Taxonomy of Olfactory Phenomena in Texts is compiled by revising and merging existing olfactory lexicons

and general lexicons such as [WordNet](#) as a starting point. This taxonomy is likely to be further enriched by the process of information extraction from the text, as this will yield more olfactory terms. The first version of the taxonomy is described in Deliverable D3.1.

Knowledge graph (WP4): The structured information extracted from the images and texts through computer vision and natural language processing methods will be harmonised, aligned with the appropriate ontologies, and stored as semantic data into the European Olfactory Knowledge Graph. To accomplish this, we will implement a semantic model best suited for representing olfactory information in the knowledge graph following Semantic Web and Linked Data principles. The European Olfactory Knowledge Graph merges the different Odeuropa perspectives on olfactory experiences—art historical and cultural perspectives from the automatically analysed images and texts, as well as the chemical analyses and museological perspectives—in a data structure (model, taxonomies, vocabularies). It will represent these different perspectives on olfactory classification together with their provenance, including the temporal and spatial dimensions of their sources. As there are currently no data models that adequately describe the different perspectives on olfactory information and heritage, we will adapt the [CIDOC-CRM](#) ontology and its [CRMSci](#) extension with (in the first instance) mappings to the [Europeana Data Model](#) and [Linked Art ontologies](#). Other cultural heritage ontologies, such as [ArCo](#) may also be drawn on pending further review. The data model will also benefit from controlled vocabularies and taxonomies describing the different aspects of olfactory information. These will be mapped via the widely-used [SKOS](#) ontology to maximise re-use.

Encyclopaedia of Smell Heritage (WP5): Domain specialists will produce a 120-entry online Encyclopaedia of Smell Heritage, arranged according to a series of storylines containing key smells, smell identities, fragrant sites, smell feelings, smell practices, and key noses. The storylines are based on research in academic literature and on the collected, enriched and linked data in the knowledge graph.

Demonstrators

The project will deliver three demonstrators:

Image retrieval and visualization A Jupyter notebook-based demonstrator,¹ written in Python, to search through the Taxonomy of Olfactory Phenomena in Images and the annotated image data, and map the images according to similarities in visual appearance and olfaction.

Demonstrator to explore the olfactory information The interactive Jupyter notebooks will help users retrieve and analyse olfactory information extracted from textual data through guided examples and display the output through numerical and graphical representations.

Olfactory Knowledge Explorer This application will offer access to the content of the European Olfactory Knowledge Graph through an exploratory search and visualization interface via an interactive Observable notebook, written in JavaScript. In addition to visualisations, the explorer will propose synoptic pages which make use of interactive maps and charts for reporting trends and aggregated data about given geographic places, specific odorants, and time periods.

Toolkits:

The project will deliver two toolkits:

¹<https://jupyter.org/>

Olfactory Storytelling Toolkit An information package for heritage professionals interested in making use of scents to present their collections / sites. The kit will consist of: 1) Database with overview of use of olfaction in heritage presentations; 2) Best practices/ state of the art in sensory museology / olfactory events; 3) Measured impact, and the reports/publications resulting from these. The toolkit will be a combination of texts, images, short information clips, concise database.

Olfactory Heritage Toolkit A toolbox with future-oriented recommendations and methodologies for sensory heritage policies and practices, including a report on the significance of scent in current intangible cultural heritage practices, an olfactory ontology enabling heritage documentation systems to include olfaction and smelling, and a publication in an international ICH journal (e.g. International Journal for Intangible Heritage).

Olfactory Serious Game: To enable people to find a smell which may be difficult to name, we will develop a serious game application. The game poses a series of questions to the user to iteratively filter the European Olfactory Knowledge Graph results until a set of matching entries is reached. User feedback about the correctness of the results will be collected for improving the algorithm and connecting the evolution of feelings from the past (as described in our dataset) to our modern lives (current users).

Chemical composition data: We will document two sample smells from the UCL museums and archives chosen for their historic relevance and cultural significance. *Olfasense* will record the chemical and sensory information of these scents using gas chromatography-mass spectrometry (GCMS) and GColfactometry for future digitisation. The resulting data will consist of graphics (chromatograms, plots, word clouds) and spreadsheets (deconvolution/chemical data/sensory data).

For formats: see Table 1 below.

What is the expected size of the data?

Data/software	Format/language	Size	Storage during project	Storage after project
Project website	HTML5, XML	<5 GB	KNAW	KNAW, DANS
Documentation	Markdown, PDF/A	<5 GB	Servers of partners	Zenodo, GitHub
Images of artworks	JPG	400 GB	Servers FAU	Zenodo
Annotations on artworks	JSON	<5 GB	Servers FAU	Zenodo
Multilingual corpus	XML, TXT	200 MB	Nextcloud via EURECOM	Zenodo
Multilingual benchmarks	XML, TEI	2 MB	Servers FBK	Zenodo
Computer vision models	ckpt, binary files	<10 GB	Servers FAU	GitHub
NLP-models	ckpt, binary files	1.5 GB per language	Servers FBK, KNAW, JSI	GitHub
European Olfactory Knowledge Graph and APIs	RDF	millions of nodes and tens of millions of edges	EUR	KNAW, DANS
Encyclopaedia (content)	HTML5, XML	<5 GB	KNAW	KNAW, DANS
Encyclopaedia (database)	MySQL	5 GB	KNAW	KNAW, DANS
Demonstrator image retrieval and visualization	Python	<500 MB	GitHub (private)	GitHub
Demonstrator text retrieval	Python	<1MB	GitHub (private)	GitHub
Olfactory Knowledge Explorer	Javascript	<1MB	GitHub (private)	GitHub
Olfactory Storytelling Toolkit	HTML	<5MB	KNAW	KNAW, DANS
Olfactory heritage Toolkit	HTML	<5MB	KNAW	
Olfactory Serious game	Python, Javascript	<5MB	GitHub (private)	GitHub
Chemical composition data	XLM, JPG/PDF	<1MB	UCL	DIGILAB
Interviews	PDF	<1MB	UCL	DIGILAB

Table 1: Overview of Data and Software²

²For the sake of clarity, a division has been made between storage during and after the project. However, data, software, and documentation will be made publicly available earlier if possible. That is, once it has reached a sufficient level of maturity and utility to others, and/or is needed to validate the results presented in scientific publications.

To whom might it be useful ('data utility')?

- Galleries, Libraries, Archives and Museums (digital collection curators as well as other professionals in this field)
- Academia
 - IT (Computer Vision, Computational Linguistics, Semantic Web)
 - Social Sciences and Humanities (Cultural History, Art History)
 - Science, Technology, Engineering and Maths (Heritage Science and Olfactory Museology)
- Industry (including Creative Industries)
- Cultural Heritage Policy Makers (Regional, National, EU, International)
- General Public including Immaterial Heritage Communities

2 FAIR data

2.1 Making data findable, including provisions for metadata

Are the data produced and/or used in the project discoverable with metadata, identifiable and locatable by means of a standard identification mechanism (e.g. persistent and unique identifiers such as Digital Object Identifiers)?

Datasets stored in [Zenodo](#) will automatically receive a DOI. Software applications stored in [GitHub](#) will also receive DOIs via a connection with Zenodo. For the datasets stored at KNAW after the project, KNAW will create DOIs. When these datasets are stored at [DANS](#), the Dutch National Centre of Expertise and Repository for Research Data, after a five year period (see below, *'Where will the data and associated metadata, documentation and code be deposited?'*) they receive a DOI automatically. The [DIGILAB](#) platform of the European Research Infrastructure for Heritage Science on which the chemical data are to be stored is scheduled to become operational in 2022. DIGILAB will be based on FAIR data principles, and thus will provide DOIs itself or through a linked system. On the level of specific entities, persistent identifiers are used in the form of URIs in the European Olfactory Knowledge Graph.

What naming conventions do you follow?

For file naming conventions we use the [guidelines](#) from Pinceton University Library as a basis.

Will search keywords be provided that optimize possibilities for re-use?

The datasets and code stored in Zenodo, GitHub (via Zenodo), DIGILAB, DANS and KNAW will have keywords associated with them.

Do you provide clear version numbers?

Storage of data and code in Zenodo, GitHub, DIGILAB, and DANS ensures that new releases receive version numbers.

What metadata will be created? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.

For administrative, descriptive, and technical metadata of the datasets as a whole we follow the standards of the above mentioned repositories, using the following elements: creator, date of creation, DOI, keywords, description, grants, version information, related datasets or software, communities, license information, export formats.

The structural metadata will consist partly of already existing metadata of the resources we use, e.g. the catalogue records of the texts and images that will be annotated, and partly of metadata specifically for the description of olfactory information, for which there are no widely accepted metadata standards yet. Developing these standards is in fact one of the objectives of this project.

2.2 Making data openly accessible

Which data produced and/or used in the project will be made openly available as the default? If certain datasets cannot be shared (or need to be shared under restrictions), explain why, clearly separating legal and contractual reasons from voluntary restrictions. Note that in multi-beneficiary projects it is also possible for specific beneficiaries to keep their data closed if relevant provisions are made in the consortium agreement and are in line with the reasons for opting out.

In principle, all data produced will be made openly available, partly during, but at least after the duration of the project. The images and texts including metadata we are to use for training and evaluating computer vision and NLP-models will be made available along with the associated datasets, as long as this is not prohibited by copyright licenses of the above mentioned repositories or other repositories that might be used during the project.

How will the data be made accessible (e.g. by deposition in a repository)? What methods or software tools are needed to access the data?

For the deposition see Table 1, and also under ‘Where will the data and associated metadata, documentation and code be deposited?’. The demonstrators on image retrieval and visualization, text retrieval as well as the Olfactory Knowledge explorer will be in the form of interactive notebooks, where data, software, and documentation is made accessible together in one environment. See above ‘What types and formats of data will the project generate/collect? Will you re-use any existing data and how?’, section ‘demonstrators’.

Is documentation about the software needed to access the data included? Is it possible to include the relevant software (e.g. in open source code)?

See ‘How will the data be made accessible (e.g. by deposition in a repository)?’

Where will the data and associated metadata, documentation and code be deposited? Preference should be given to certified repositories which support open access where possible.

Most of the data and metadata will be deposited on Zenodo, which has been created as a FAIR-compliant repository for EC research to strengthen the community’s Open Data policy (see also Table 1). Code and its associated documentation will be deposited on GitHub, the most widely used platform for this end. Furthermore, we will use the option GitHub offers to connect repositories to Zenodo. The Odeuropa website, the European Olfactory Knowledge Graph and its APIs, as well as the Encyclopaedia of Smell Heritage will be hosted by KNAW for at least five years after the project, to safeguard these applications to be accessible and queryable by the demonstrators,

and by other researchers and projects while new opportunities for collaboration and funding are pursued. Hosting by the KNAW is guaranteed for at least five years. If the KNAW will no longer be able to host after this five year period, the data model, data, and documentation of the European Olfactory Knowledge Graph, as well as the project website and the Encyclopaedia Of Smell Heritage will be deposited at DANS.

Have you explored appropriate arrangements with the identified repository?

Currently, no prior arrangements are needed for depositing data and code on Zenodo, GitHub, and DIGILAB, which we expect still to be the case at the end of the duration of the grant. An arrangement has been made with the KNAW for hosting the above mentioned data. When depositing data at DANS, an agreement is made automatically.

If there are restrictions on use, how will access be provided?

There will be no restrictions on use.

Is there a need for a data access committee?

No.

Are there well described conditions for access (i.e. a machine readable license)? How will the identity of the person accessing the data be ascertained?

The above mentioned repositories (see Table 1) are openly accessible. No arrangements to ascertain the identity of users is needed.

2.3 Making data interoperable

Are the data produced in the project interoperable, that is allowing data exchange and re-use between researchers, institutions, organisations, countries, etc. (i.e. adhering to standards for formats, as much as possible compliant with available (open) software applications, and in particular facilitating re-combinations with different datasets from different origins)?

We use widely used and available formats which guarantee a maximum level of interoperability and re-use, both from a technical point of view as with regard to content. See Table 1.

What data and metadata vocabularies, standards or methodologies will you follow to make your data interoperable?

As no widely accepted and used scientific standards for recording, storing and sharing of historic smells exist yet, an important objective of the project is to develop these standards. However, to ensure maximum reuse and interoperability, we build these standards on top of existing initiatives, for example the earlier mentioned scent-related taxonomies and vocabularies, and connect our data with more generic vocabularies like [AAT](#), [TGN](#), [CDWA](#), [IconClass](#), [PeriodO](#), and [Wikidata](#); with ontologies like [CIDOC-CRM](#), [CRMSci](#), [EDM](#), [SEM](#) or [LODE](#), [schema.org](#), and [LinkedArt](#); and with authority files like [ISNI](#) and [GND](#).

Will you be using standard vocabularies for all data types present in your data set, to allow interdisciplinary interoperability?

The above mentioned vocabularies, ontologies and authority files are used worldwide by a wide range of disciplines.

In case it is unavoidable that you use uncommon or generate project specific ontologies or vocabularies, will you provide mappings to more commonly used ontologies?

As mentioned above, we will map our ontologies and vocabularies to widely used existing ontologies and vocabularies. Specific olfactory concepts and terms will be proposed as extensions of these ontologies and vocabularies (for example [WordNet](#)), thus making them available for use in future olfactory research and improve further standardisation in this field.

2.4 Increase data re-use (through clarifying licences)

How will the data be licensed to permit the widest re-use possible?

The data will be shared under an [ODC](#) compliant (attribution only) license. All the software developed by the consortium will be made available under [OSD](#) conformant open source licenses with specific provision allowing future commercial re-use. The documentation and multimedia created will be shared under a [Creative Commons CC-BY 4.0](#) (attribution only) license.

When will the data be made available for re-use? If an embargo is sought to give time to publish or seek patents, specify why and how long this will apply, bearing in mind that research data should be made available as soon as possible.

All data, software and documentation will be made available for reuse at the latest at the end of the grant, but earlier if possible. That is, once it has reached a sufficient level of maturity and utility to others, and/or is needed to validate the results presented in scientific publications.

Are the data produced and/or used in the project usable by third parties, in particular after the end of the project? If the re-use of some data is restricted, explain why.

There will be no restrictions on the re-use of the data produced once published. Any images or texts with copyright restrictions that we might use for training the computer vision and NLP-models will not be published.

How long is it intended that the data remains re-usable? Are data quality assurance processes described?

In principle, the data remains re-usable as long as the above mentioned repositories continue running and keep our data accessible. The JavaScript and Python demonstrators will be accessible for a minimum of five years after the duration of the grant. The KNAW has committed to host the Odeuropa website, the European Olfactory Knowledge Graph, the Encyclopaedia of Smell Heritage for at least five years after the end of the project. If the KNAW will no longer be able to host after this five year period, the data model, data, and documentation of the European Olfactory Knowledge Graph, as well as the project website and the Encyclopaedia Of Smell Heritage will be first exported and subsequently deposited with DANS.

In the project, each deliverable will go through an internal review. It is not possible to check each data point in our datasets due to their size, but as we use data from trusted providers and ascribe to FAIR data and AI principles we are confident the Odeuropa project can deliver high quality data resources.

3 Allocation of resources

What are the costs for making data FAIR in your project?

As the project is from the outset intrinsically aimed at making the data as FAIR as possible in order to reach the maximum level of reuse by others, no specific costs for making data FAIR are budgeted, except for the prolonged usability of the JavaScript and Python demonstrators after the project (€ 5,360). The costs for keeping the Odeuropa Website, the European Olfactory Knowledge Graph, and the Encyclopaedia Of Smell Heritage running for a five year period after the grant will be covered as a contribution in kind by KNAW.

How will these be covered? Note that costs related to open access to research data are eligible as part of the Horizon 2020 grant (if compliant with the Grant Agreement conditions).

The costs for the prolonged usability of the JavaScript and Python demonstrators after the project (€ 5,360) are covered in the grant budget. The costs for keeping the Odeuropa Website, the European Olfactory Knowledge Graph, and the Encyclopaedia Of Smell Heritage running for a five year period after the grant will be covered as a contribution in kind by KNAW.

Who will be responsible for data management in your project?

Data management in the project is part of the overall project management in WP1, under responsibility of the KNAW. In this task the Odeuropa Management Team is supported by dr. Ronald Sluijter, who is a member of the Department of Data Management of the Huygens Institute for the History of the Netherlands (KNAW).

Are the resources for long term preservation discussed (costs and potential value, who decides and how what data will be kept and for how long)?

As we consider all the data to be created of high value for future research and reuse by the above mentioned groups (see 'To whom might it be useful ('data utility')?') we consciously made the choice for depositing the data in well known and widely used repositories which we assume to remain operational for a long time after the duration of the project, and which are without costs. Because we expect reuse of the data to be especially stimulated by a prolonged usability of the website, the European Olfactory Knowledge Graph, and the Encyclopaedia of Smell Heritage, KNAW guarantees to keep these specific deliverables operable for at least a five year period after the duration of the grant. The earlier mentioned demonstrators will be hosted on commercial platforms also for a five year period after the duration of the grant. As the consortium partner responsible for project and data management, KNAW will take the lead in discussing the operability of these deliverables after the five-year period in a timely manner.

4 Data security

What provisions are in place for data security (including data recovery as well as secure storage and transfer of sensitive data)?

The deposition of the data in the earlier mentioned repositories guarantee data security, including data recovery. Zenodo servers are managed via OpenStack and Puppet configuration management systems, ensuring that the servers always have the latest security patches applied. Files are stored in CERN's EOS service. Each file copy has two replicas located on different disk

servers.³ We will also archive code stored in Github in Zenodo, thus assuring it to be secure and backed-up as well.⁴ The underlying data and code of the European Olfactory Knowledge Graph and the Encyclopaedia of Olfactory Heritage, which will be kept running for at least five years after the duration of the grant, will also be deposited in Zenodo.

Is the data safely stored in certified repositories for long term preservation and curation?

See above, 'Where will the data and associated metadata, documentation and code be deposited?'

5 Ethical aspects

Are there any ethical or legal issues that can have an impact on data sharing? These can also be discussed in the context of the ethics review. If relevant, include references to ethics deliverables and ethics chapter in the Description of the Action (DoA).

We will collect basic identifiers during a series of video interviews for WP6. However, these will be anonymised at transcript stage and the original videos deleted. Ethics approval will be obtained for all relevant studies including online and presential questionnaires and interviews; ethics committee reports and consent process will be included in the project Deliverables D8.1 and D8.3. Questionnaires gather data anonymously. Some video interviews will gather basic identifiers which constitute personal data; these identifiers will be anonymised at interview transcript stage and the original videos deleted to prevent re-anonymisation. These studies and the resulting data analysis will be carried out in compliance with the [UCL Code of Conduct for Research](#) and the [European Code of Conduct for Research Integrity](#).

Odeuropa's approach to the EU's requirements for realising trustworthy AI systems are discussed in Deliverable D8.2

The consortium has sub-contracted IFF for designing fragrant interpretations for several olfactory events (WP7). Following patent practices in the perfume industry the ingredients of these fragrances will be disclosed and shared, while the exact dosage remains the intellectual property of IFF.

Is informed consent for data sharing and long term preservation included in questionnaires dealing with personal data?

Yes. Details of consent process materials will be included in the project Deliverables D8.1 and D8.3.

6 Other issues

Do you make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones?

During the project several datasets will be securely hosted on internal servers of the relevant Odeuropa partners. Therefore, in the first instance, the management and preservation of these

³<https://about.zenodo.org/infrastructure>

⁴<https://guides.lib.berkeley.edu/citeyourcode>

data and their associated metadata are the responsibility of the respective technical partner in compliance with their institutional Data Management Plans.

Abbreviations:

AAT - Art and Architecture Thesaurus
ArCo - Architettura della Conoscenza
ARTFL - American and French Research on the Treasury of the French Language
CDWA - Categories for the Description of Works of Art
CIDOC Sci - Scientific Observation Model
CIDOC-CRM - Conceptual Reference Model
DANS - Data Archiving and Networked Services
DBNL - Digitale Bibliotheek voor de Nederlandse Letteren
ECCO - Eighteenth Century Collections Online
EDM - Europeana Data Model
EEBO - Early English Books Online
EUR - EURECOM
eZISS - Elektronske Znanstvenokritične Izdaje Slovenskega Slovstva
FAU - Friedrich-Alexander Universität Erlangen-Nürnberg
FBK - Fondazione Bruno Kessler
GND - German National Library
IFF - International Flavours and Fragrances
IIC - International Institute for Conservation
IMP - Intangible Cultural Heritage and Museums Project
ISNI - International Standard Name Identifier
KNAW - Koninklijke Nederlandse Akademie van Wetenschappen
LODE - Linking Open Descriptions of Events
NLP - Natural Language Processing
ODC - Open Data Commons
ONXX - Open Neural Network Exchange
RKD - Netherlands Institute for Art History
SEM - Simple Event Model
SKOS - Simple Knowledge Organization System
TCP - Text Creation Partnership
TGN - Thesaurus of Geographic Names
UCL - University College London