



D1.1.5 IPR Management Plan v2

DURAARK

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Executive Summary

This report presents the current plans for the intellectual property rights (IPR) management of the DURAARK project which aims at ensuring the wide accessibility and availability of all outcomes produced by the project. The document outlines the management structure in place, which will debate and decide issues concerning Intellectual Properties (IP) and their rights (IPR), including a discussion of the intended licensing schemes for specific foreground artifacts, namely, reports, software, and datasets.

This document is the second version of D1.1.3 IPR Management plan. Newly introduced in this report with respect to the previous version are: (i) a detailed and complete description of the actual Intellectual Properties (IP) implications and licenses for each work package (WP); (ii) the introduction of an exploitation strategy together with a DURAARK specific constraint.

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1 Introduction

This report presents the current plans for the intellectual property rights (IPR) management of the DURAARK project which aims at ensuring the wide accessibility and availability of all outcomes produced by the project. The document outlines the management structure in place, which will debate and decide issues concerning Intellectual Properties (IP) and their rights (IPR), including a discussion of the intended licensing schemes for specific foreground artifacts, namely, reports, software, and datasets.

This document is the second version of D1.1.3 IPR Management plan. Newly introduced in this report with respect to the previous version are: (i) a detailed and complete description of the actual Intellectual Properties (IP) implications and licenses for each work package (WP); (ii) the introduction of an exploitation strategy together with a DURAARK specific constraint.

This is partially based on the best practices reported in documents such as:

- Guide to Intellectual Property Rules for FP7 projects. Version 3. European Commission. Seventh Framework Programme (FP7).
ftp://ftp.cordis.europa.eu/pub/fp7/docs/ipr_en.pdf. Document fetched in March, 2013
- Introduction to IP rules in FP7 Projects. IPR Help Desk. European Commission.
<http://www.iprhelpdesk.eu/node/420>, 2011
- How to Manage IP in FP7 During and After the Project. IPR Help Desk. European Commission. <http://www.iprhelpdesk.eu/node/587>, 2011
- M. N. Oonagh. Make Research Work for Your Company. The European Communities. http://ec.europa.eu/research/sme-techweb/pdf/use_diffuse.pdf, 2009
- Case Study: DIRA–GREEN: The Importance of an IP Management Structure in a Research Project. IPR Help Desk. European Commission.
<http://www.iprhelpdesk.eu/node/1461>, 2012
- ERC Scientific Council guidelines for open access. European Research Council.
<http://erc.europa.eu/>, 2007

In order to successfully achieve the potential impact of project results, the DURAARK consortium has established an appropriate management structure to properly deal with

the different issues related to intellectual property (IP), likely to arise during the development of our collaborative project. DURAARK's management structure has the function of ensuring smooth implementation of the project and good exploitation of the resulting knowledge represented by tangible and intangible assets.

DURAARK will produce a range of IP types, involving reports and publications, software as well as data. The dissemination and sustainability strategy will ensure a wide dissemination and availability of any project results, by defining and assessing the licensing implications of any used background (e.g. software libraries), allowing the early consideration of such aspects in project-related decisions and design choices, and will also define the licensing models for individual project outcomes together with the general sustainability strategy. To this end, this deliverable will be aligned with and complement the dissemination plan (defined in D8.8.2 and D8.8.4). While IPR assessment and strategy are strongly dependent on the project-specific outcomes (for instance, the software and data produced within individual work packages), this document will be updated to reflect the progress in the project.

2 IP in DURAARK

In DURAARK, we distinguish three main types of generated foreground artifacts subject to IP protection, namely, **reports**, **software**, and **datasets**, defined as follows, together with their default intended licensing scheme. Note that the Executive Board can revise this licensing scheme on a case-by-case basis if necessary, and according to the voting scheme defined in the CA.

- **Reports.** This category includes Publications, Technical Reports and Best Practices Documents generated within DURAARK.

For example, the technical reports corresponding to the following deliverables:

- Requirement Document (D2.2.1)
- System Architecture and Specification (D2.2.2 and D2.2.3)
- Meta Data Schema Extension for Archival Systems (D3.3.1)
- Ontological Framework for Semantic Digital Archive for Building Components (D3.3.2)
- Current State of 3D Object Digital Preservation and Gap-analysis Report (D6.6.1)
- Ingest and Storage of 3D Objects in a Digital Preservation System (D6.6.2)
- Report on Sample Preservation Planning for 3D Objects (D7.7.1)
- Use case (show case) SME: Design and Reconstruction (D7.7.2)
- Use case (show case): Long term Archiving (D7.7.3)
- Evaluation (D7.7.4)

The technical reports associated to the prototypes developed within DURAARK also fall in this category.

DURAARK Best Practices documented in the following deliverables are also examples of foreground artifacts of type *Reports*:

- Project Collaboration & Communication Infrastructure (D1.1.1)
- Quality Assurance & Risk Management Plan (D1.1.2, D1.1.4, and D1.1.6)

- IPR Management Plan (D1.1.3, D1.1.5, and D1.1.7)
 - Dissemination Master Plan and Publicity Material (D8.8.2 and D8.8.4)
 - Market Study and Exploitation Plan (D8.8.5 and D8.8.7)
 - Dissemination Reports (D8.8.3, D8.8.6, and D8.8.8)
- **Software.** This category includes any piece of software (e.g., prototypes, components, demonstrators) developed within DURAARK, for example:
 - Software Prototype (D2.2.4, D2.2.5, D4.4.1, D4.4.2, and D4.4.3)
 - Recognition of Meaningful Shapes – Point Cloud Compression – IFC storage prototype (D5.5.1, D5.5.3, and D5.5.5)
 - Shape Grammars for Almost Invisible Objects Software Prototype (D5.5.2, D5.5.4, and D5.5.6)
 - **Datasets.** This category includes data collections produced as foreground within the project, including raw data and metadata produced within WP3, WP7, etc.

The IPR management activities for all these artifact types have to consider, right from the start of the project, any implications arising from potentially reused or exploited third-party material. For instance, while service- and component-based software development usually involves the reuse of a range of software libraries and public Application Programming Interfaces (APIs), DURAARK will consider any implications arising from such reuse and steer the project towards the possibility, availability and re-usability of its outcomes. Assessment of used data, software or knowledge has been established as a continuous process to be carried out throughout the project as a means to inform all design decisions.

3 IPR Strategy and Management

In this section we describe the overall strategy, the related decision-making procedures and the current licensing consideration for the identified artifact types.

3.1 Ownership

Any IP generated jointly by several beneficiaries will be assumed by the DURAARK IPR strategy, as being jointly owned, unless the beneficiaries concerned agree on a different solution, as specified in Section 8 of the CA. The details of the joint ownership management will be developed during the project in the Dissemination Plan (D8.8.4), and finalized in the final Market Study and Exploitation Plan (D8.8.5) developed within WP8 and led by the Dissemination and Sustainability Manager.

3.2 Intellectual Property Implications and Licenses

We consider three main types of generated foreground artifacts subject to IP protection: reports, software, and datasets, whose default intended licensing scheme is presented as follows. Note that the Executive Board reserves the right to revise this licensing scheme on a case-by-case basis.

- **Reports.** Preferred license scheme: Creative Commons license (creativecommons.org). Which by default will be a **Attribution + No Derivatives** or **CC BY-ND**. This license grants permissions to share, copy, distribute, and transmit the work, and it also allows to make commercial use of the work, provided that the work is attributed in the manner specified by the author or licensor (but not in any way that suggests that they endorse you or your use of the work) and that the work may not be altered, transformed, or be used to built upon. The full text of the license is available at <http://creativecommons.org/licenses/by-nd/3.0/legalcode>.
- **Software.** DURAARK preferred IP scheme for the software is an Open Source License approved by the *Open Source Initiative – OSI* (<http://opensource.org/>). In particular and by default, we intend to use the GNU Lesser General Public License or LGPL (<http://www.gnu.org/copyleft/lesser.html>). LGPL allows developers (e.g., in academia and companies) to use and integrate LGPL software into their own (even proprietary) software without being required to release the

source code of their own software-parts. This represents a compromise between the strong *copyleft* of the GNU General Public License or GPL and permissive licenses such as the BSD licenses and the MIT License¹.

In cases where proprietary libraries are needed to carry out the project, this might prevent the use of an Open Source license. If this case arises, a different protection scheme will be discussed and agreed by the Executive Board on a case-by-case basis. The project philosophy is to also prefer open licenses for the external libraries or components to be used. This paradigm will also be considered during all design decisions, allowing the wide reuse and dissemination of project results.

- **Datasets.** Preferred license scheme: Creative Commons license (creativecommons.org). Which by default will be a **Attribution + No Derivatives** or **CC BY-ND**.

Note that datasets publicly available or made accessible to DURAARK by contributors, might be used to conduct part of the activities of the project, e.g., experimentation or model evaluation. Such datasets are protected by their original author and subject to licenses that might restrict redistribution. DURAARK will observe the licensing terms and abide to the terms of use.

¹http://en.wikipedia.org/wiki/GNU_Lesser_General_Public_License

4 Intellectual Property in DURAARK and IPR Implications

In this section, we present a description of the actual Intellectual Properties (IP) for each WP (i.e. what reports, software or dataset are produced or used) followed by a list of the Intellectual Property Rights (IPR) implications. This is an essential point for the sustainability study of the project. The list of used libraries and tools are preliminary and will change and be updated during the design and implementation of the software components.

Item	Main WP	IPR Type	IP used or generated	IPR implication
D1.1.1 Project collaboration and communication infrastructure	1	Technical Report	This deliverable entails the web-based collaboration and communication platform that will be used during the project.	CC BY-ND
D1.1.2 Quality Assurance and Risk Management Plan V1	1	Technical Report	This first version defines in detail all procedures (including templates) for quality assurance in project communication, collaboration and deliverables. It will also elaborate on risks identified during the proposal and update risk management procedures accordingly during the course of the project.	CC BY-ND

Item	Main WP	IPR Type	IP used or generated	IPR implication
D1.1.3 IPR management plan V1	1	Technical Report	The initial version of IPR management plan details the plan and specific procedures needed to implement the Consortium Agreement with respect to knowledge management.	CC BY-ND
D1.1.4 Quality Assurance and Risk Management Plan V2	1	Technical Report	The updated QA&RM plan defines in detail all procedures (including templates) for quality assurance in project communication, collaboration and deliverables. It also elaborates on risks identified during the proposal and updates risk management procedures accordingly during the course of the project.	CC BY-ND
D1.1.5 IPR management plan V2	1	Technical Report	The updated version of IPR management plan presents the plan and specific procedures needed to implement the Consortium Agreement with respect to knowledge management. It includes detailed descriptions of Intellectual Properties and their rights used and generated within the project.	CC BY-ND
D2.2.1 Requirement document	2	Technical Report	This deliverable reports the results from the requirements analysis	CC BY-ND

Item	Main WP	IPR Type	IP used or generated	IPR implication
D2.2.2 System architecture & specification V1	2	Technical Report	This report presents the description of the overall software architecture including all interface definitions between the involved tasks of WP3, WP4 and WP5	CC BY-ND
D2.2.3 System architecture & specification V2	2	Technical Report	This is the second release of the overall software architecture and system specification including full descriptions of all interface definitions between the involved components and their interaction methods.	CC BY-ND
D3.3.1 Meta data schema extension for archival systems	3	Technical Report	In this report relevant additional meta data identified in WP2 are captured in an OWL/RDF meta schema. Mappings from IFC data and inference methods are described.	CC BY-ND
Meta data schema extension for archival systems	3	Datasets	Generated datasets are intended for re-use and dissemination in DPR systems	CC BY

Item	Main WP	IPR Type	IP used or generated	IPR implication
D3.3.2 Ontological Framework for a Semantic Digital Archive and Observatory	3	Technical Report	In this report the upper meta-ontology and associated vocabularies are documented. The organizational framework for the semantic digital archive as well as its methodological and technological enablers are described. In addition, mappings with established datasets and vocabularies are provided.	CC BY-ND

Item	Main WP	IPR Type	IP used or generated	IPR implication
Semantic Digital Archive Prototype	3	Software	jena: Semantic Web an Linked data libraries framework http://jena.apache.org/ OWL-API: http://owlapi.sourceforge.net Sesame: http://www.openrdf.org/ Virtuoso: http://virtuoso.openlinksw.com Bimserver.org: http://www.bimserver.org JSDAI: http://www.jsdai.net JHOVE: http://jhove.sourceforge.net BagIt-Library: https://github.com/LibraryOfCongress/bagit-java	jena: Lic.: Apache 2.0 http://www.apache.org/licenses/LICENSE-2.0 OWL-API: Lic.: LGPL Sesame: Lic.: BSD-style Virtuoso: Lic.: GPLv2 and proprietary Bimserver.org: Lic.: AGPL v3 JSDAI: Lic.: AGPL v3 JHOVE: Lic.: LGPL BagIt-Library: Lic.: Apache 2.0 Generated: AGPLv3, BSD
Semantic Digital Interlinking and Clustering Prototype	3	Software	See Semantic Digital Archive Prototype	AGPLv3, BSD

Item	Main WP	IPR Type	IP used or generated	IPR implication
Point cloud semantic enrichments IFC models	3	Dataset	Generated datasets are intended for re-use and dissemination in DPR systems	CC BY
D4.4.1 Documenting the Changing State of Built Architecture	4	Technical Report	This report introduces the motivation for the LDP curation tool that enables building change documentation and describes the prerequisites. It first reports on the state-of-the-art in point cloud-to-point cloud as well as in point-cloud-to-mesh alignment. The alignment methods used in the LDP curation tool as well as the tool itself including a workflow are described. The report concludes with an analysis of state-of-the-art 3D BIM software regarding their suitability of serving as a host application for our newly developed curation tool.	CC BY-ND

Item	Main WP	IPR Type	IP used or generated	IPR implication
LDP curation tool for building change documentation	4	Software	<p>This software item is one of the building blocks for the curation task within the DURAARK project. It allows to synchronize and align various representations (including point clouds and IFC files) of an architectural entity that were created at different points of the object's lifecycle. Size: Source code: 1-2 MB (without libraries). Binary: ca. 50 MB (Linux)</p> <p>Used libraries:</p> <p>libE57: Library providing basic operations for point clouds in the E57 file format, http://www.libe57.org/</p> <p>Apache Xerces: XML parsing library, http://xerces.apache.org/</p> <p>ICU: Libraries providing unicode and globalization support for software applications, http://source.icu-project.org/</p> <p>IfcOpenShell: Library providing support for IFC files, http://ifcopenshell.org/</p>	<p>libE57: Lic. at http://www.libe57.org/license.html (which basically looks like the Boost Software License, http://www.boost.org/users/license.html)</p> <p>Apache Xerces: Lic.: Apache License 2.0</p> <p>ICU: Lic.: http://source.icu-project.org/repos/icu/icu/trunk/license.html</p> <p>IfcOpenShell: Lic.: LGPL v3</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
			<p>Open CASCADE Technology: IfcOpenShell dependency used for triangulation of IFC models, http://www.opencascade.org/</p> <p>Point Cloud Library: Library providing various data structures and operations for point cloud data, http://pointclouds.org/</p> <p>Eigen 3: Linear algebra library, http://eigen.tuxfamily.org/index.php?title=Main_Page</p> <p>Boost: Versatile C++ library, http://www.boost.org/</p> <p>Flann: Library for fast approximate nearest neighbor searches, http://www.cs.ubc.ca/research/flann/</p> <p>OpenMesh: Versatile library providing data structures and basic operations for 3D meshes, http://www.openmesh.org/</p>	<p>Open CASCADE Technology: Lic.: LGPL-like Open CASCADE Technology Public License http://www.opencascade.org/getocc/license</p> <p>Point Cloud Library: Lic.: 3-clause BSD</p> <p>Eigen 3: Lic.: Mozilla Public License 2.0 (except for few parts that are under LGPL)</p> <p>Boost: Lic.: Boost Software License, http://www.boost.org/users/license.html</p> <p>Flann: Lic.: 2-clause BSD</p> <p>OpenMesh: Lic.: LGPL v3 (with exception clause that "you may use any file of this software library without restriction", http://www.openmesh.org/index.php?id=381)</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
			<p>Qt5: Cross-platform C++ application and UI framework, http://qt-project.org/</p> <p>OpenGL: Cross-language, multi-platform application programming interface for 2D and 3D computer graphics, http://www.opengl.org/</p> <p>GLEW: cross-platform C++ extension loading library for OpenGL, http://glew.sourceforge.net/</p> <p>Zlib: A compression library, http://www.zlib.net/</p> <p>Graphene: A modular visualization framework, https://github.com/paulhilbert/graphene</p>	<p>Qt5: Lic.: Different licensing schemes available (http://qt-project.org/doc/qt-5.0/qt5doc/licensing.html). We would suggest using LGPL 2.1</p> <p>OpenGL: Lic.: Depends on specific implementation, http://www.sgi.com/products/software/opengl/license.html</p> <p>GLEW: Lic.: Modified BSD License, Mesa 3-D License and Khronos License, http://glew.sourceforge.net/credits.html</p> <p>Zlib: Lic.: zlib/libpng License, http://opensource.org/licenses/zlib-license.php</p> <p>Graphene: Lic.: CC0 https://creativecommons.org/about/cc0</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
D5.5.1 Recognition of meaningful shapes - point cloud compression - IFC storage	5	Technical Report	This report introduces the motivation for the LDP curation support tool as well as for the preview creation tool. It first reports on the state-of-the-art in point cloud structuring and annotations. The method used in our software as well as the results produced by the software itself are described. The report introduces the state-of-the-art in point clouds compression for (IFC-based) preview generation and comments on the first results obtained by our prototype.	CC BY-ND

Item	Main WP	IPR Type	IP used or generated	IPR implication
LDP curation support tool for point cloud structuring and preview rendering	5	Software	<p>This software item consists of several components that make efficient curation with the LDP curation tool for building change documentation (see above) feasible. It additionally contains components for creating lightweight versions of even huge point cloud to ensure efficient preview rendering when accessing the archive.</p> <p>Used libraries:</p> <p>libE57: Library providing basic operations for point clouds in the E57 file format, http://www.libe57.org/</p> <p>Apache Xerces: XML parsing library, http://xerces.apache.org/</p> <p>ICU: Libraries providing unicode and globalization support for software applications, http://source.icu-project.org/</p> <p>IfcOpenShell: Library providing support for IFC files, http://ifcopenshell.org/</p>	<p>libE57: Lic. at http://www.libe57.org/license.html (which basically looks like the Boost Software License, http://www.boost.org/users/license.html)</p> <p>Apache Xerces: Lic.: Apache License 2.0</p> <p>ICU: Lic.: http://source.icu-project.org/repos/icu/icu/trunk/license.html</p> <p>IfcOpenShell: Lic.: LGPL v3</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
			<p>Open CASCADE Technology: IfcOpenShell dependency used for triangulation of IFC models, http://www.opencascade.org/</p> <p>Point Cloud Library: Library providing various data structures and operations for point cloud data, http://pointclouds.org/</p> <p>Eigen 3: Linear algebra library, http://eigen.tuxfamily.org/index.php?title=Main_Page</p> <p>Boost: Versatile C++ library, http://www.boost.org/</p> <p>Flann: Library for fast approximate nearest neighbor searches, http://www.cs.ubc.ca/research/flann/</p> <p>OpenMesh: Versatile library providing data structures and basic operations for 3D meshes, http://www.openmesh.org/</p>	<p>Open CASCADE Technology: Lic.: LGPL-like Open CASCADE Technology Public License http://www.opencascade.org/getocc/license</p> <p>Point Cloud Library: Lic.: 3-clause BSD</p> <p>Eigen 3: Lic.: Mozilla Public License 2.0 (except for few parts that are under LGPL)</p> <p>Boost: Lic.: Boost Software License, http://www.boost.org/users/license.html</p> <p>Flann: Lic.: 2-clause BSD</p> <p>OpenMesh: Lic.: LGPL v3 (with exception clause that "you may use any file of this software library without restriction", http://www.openmesh.org/index.php?id=381)</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
			<p>Qt5: Cross-platform C++ application and UI framework, http://qt-project.org/</p> <p>OpenGL: Cross-language, multi-platform application programming interface for 2D and 3D computer graphics, http://www.opengl.org/</p> <p>GLEW: cross-platform C++ extension loading library for OpenGL, http://glew.sourceforge.net/</p> <p>Zlib: A compression library, http://www.zlib.net/</p> <p>Graphene: A modular visualization framework, https://github.com/paulhilbert/graphene</p>	<p>Qt5: Lic.: Different licensing schemes available (http://qt-project.org/doc/qt-5.0/qt5doc/licensing.html). We would suggest using LGPL 2.1</p> <p>OpenGL: Lic.: Depends on specific implementation, http://www.sgi.com/products/software/opengl/license.html</p> <p>GLEW: Lic.: Modified BSD License, Mesa 3-D License and Khronos License, http://glew.sourceforge.net/credits.html</p> <p>Zlib: Lic.: zlib/libpng License, http://opensource.org/licenses/zlib-license.php</p> <p>Graphene: Lic.: CC0 https://creativecommons.org/about/cc0</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
			<p>Primitive Shapes: A library for the detection of primitive shapes in point clouds, http://cg.cs.uni-bonn.de/en/projects/point-cloud-processing-with-primitive-shapes/</p>	<p>Primitive Shapes: This software is provided by the copyright holders and contributors “as is” and any express or implied warranties, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose are disclaimed. In no event shall the copyright owner or contributors be liable for any direct, indirect, incidental, special, exemplary, or consequential damages (including, but not limited to, procurement of substitute goods or services; loss of use, data, or profits; or business interruption) however caused and on any theory of liability, whether in contract, strict liability, or tort (including negligence or otherwise) arising in any way out of the use of this software, even if advised of the possibility of such damage.</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
D6.6.1: Current state of 3D object digital preservation and gap-analysis report	6	Technical Report	This report describes the current state of the art of digital preservation, covering all levels of an object regardless of its format- or content type. In a second step, current practises and available tools for 3D object preservation are described. A juxtaposition of the state of the art and current practises in 3D object preservation will lead to a definition of gaps.	CC BY-ND
Current state of 3D object digital preservation and gap-analysis report	6	Software	Software used for sample file format identification and characterization No software is generated. FITS: http://code.google.com/p/fits	FITS: Lic.: GNU Lesser GPL

Item	Main WP	IPR Type	IP used or generated	IPR implication
Ingest and Storage of 3D objects in a digital preservation system	6	Software	<p>In addition to the software produced in the DURAARK project, the proof-of-concept Ingest and Storage of 3D objects into a digital preservation system uses a number of tools. The existing digital preservation system is the Ex Libris proprietary “Rosetta” software. Rosetta can be extend using third-party tools as plugin-ins for tasks such as identification (DROID, fido) or technical metadata extraction (jhove).</p> <p>DROID: https://github.com/digital-preservation/droid</p> <p>Fido: https://github.com/openplanets/fido</p> <p>Jhove: http://jhove.sourceforge.net/</p> <p>Ex Libris Rosetta: http://www.exlibrisgroup.com/category/RosettaOverview</p>	<p>DROID: Lic.: 3-clause BSD</p> <p>Fido: Lic.: Apache License 2.0</p> <p>Jhove: Lic.: LGPL</p> <p>Ex Libris Rosetta: Lic.: proprietary</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
D7.7.1 Current state of 3D object processing in research and practice	7	Technical Report	This deliverable describes the current state of 3D object processing in research and practice. A collection of 3D Point Scan data, Legacy 3D CAD and IFC models from profession and research is the prominent part.	CC BY-ND

Item	Main WP	IPR Type	IP used or generated	IPR implication
Datasets from Partners	7	Datasets	The IP sits with the external partners (“Licensor”) that provide the data to DURAARK (“Licensee”). A power of attorney is signed between all DURAARK partners and gives the members of DURAARK the right to act as Licensee and sign license contracts with external partners. These contracts give DURAARK the right to use the data internally to a full extend, but is due to the value and IP of the datasets restrictive in how DURAARK may provide 3rd parties access. Dissemination of the datasets given are usually only allowed in form of screenshots and derived metadata from the original dataset. The licensor can as well give the right for the publishing of the full dataset.	CC BY-NC-ND

Item	Main WP	IPR Type	IP used or generated	IPR implication
Pointcloud extraction tool	7	Software	<p>The tool investigates Point Cloud sets in E57 format for typical values that characterize PointClouds, such as Distance between points, Distance between scanner and point.</p> <p>Used libraries:</p> <p>libE57: Library providing basic operations for point clouds in the E57 file format, http://www.libe57.org/</p> <p>Apache Xerces: XML parsing library, http://xerces.apache.org/</p> <p>ICU: Libraries providing unicode and globalization support for software applications, http://source.icu-project.org/</p> <p>IfcOpenShell: Library providing support for IFC files, http://ifcopenshell.org/</p>	<p>libE57: Lic. at http://www.libe57.org/license.html (which basically looks like the Boost Software License, http://www.boost.org/users/license.html)</p> <p>Apache Xerces: Lic.: Apache License 2.0</p> <p>ICU: Lic.: http://source.icu-project.org/repos/icu/icu/trunk/license.html</p> <p>IfcOpenShell: Lic.: LGPL v3</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
			<p>Point Cloud Library: Library providing various data structures and operations for point cloud data, http://pointclouds.org/</p> <p>Eigen 3: Linear algebra library, http://eigen.tuxfamily.org/index.php?title=Main_Page</p> <p>Boost: Versatile C++ library, http://www.boost.org/</p> <p>Flann: Library for fast approximate nearest neighbor searches, http://www.cs.ubc.ca/research/flann/</p> <p>OpenMesh: Versatile library providing data structures and basic operations for 3D meshes, http://www.openmesh.org/</p>	<p>Point Cloud Library: Lic.: 3-clause BSD</p> <p>Eigen 3: Lic.: Mozilla Public License 2.0 (except for few parts that are under LGPL)</p> <p>Boost: Lic.: Boost Software License, http://www.boost.org/users/license.html</p> <p>Flann: Lic.: 2-clause BSD</p> <p>OpenMesh: Lic.: LGPL v3 (with exception clause that "you may use any file of this software library without restriction", http://www.openmesh.org/index.php?id=381)</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
			<p>Qt5: Cross-platform C++ application and UI framework, http://qt-project.org/</p> <p>OpenGL: Cross-language, multi-platform application programming interface for 2D and 3D computer graphics, http://www.opengl.org/</p> <p>GLEW: cross-platform C++ extension loading library for OpenGL, http://glew.sourceforge.net/</p> <p>Zlib: A compression library, http://www.zlib.net/</p> <p>Graphene: A modular visualization framework, https://github.com/paulhilbert/graphene</p>	<p>Qt5: Lic.: Different licensing schemes available (http://qt-project.org/doc/qt-5.0/qt5doc/licensing.html). We would suggest using LGPL 2.1</p> <p>OpenGL: Lic.: Depends on specific implementation, http://www.sgi.com/products/software/opengl/license.html</p> <p>GLEW: Lic.: Modified BSD License, Mesa 3-D License and Khronos License, http://glew.sourceforge.net/credits.html</p> <p>Zlib: Lic.: zlib/libpng License, http://opensource.org/licenses/zlib-license.php</p> <p>Graphene: Lic.: CC0 https://creativecommons.org/about/cc0</p>

Item	Main WP	IPR Type	IP used or generated	IPR implication
IFC extraction tool	7	Software	Bimserver.org: The tool is an extension to the bimsync server developed by the DURAARK partner Catenda. The tool browses through a set of datasets in IFC format and extracts information about typical values, as amount of objects, type of this objects, amount of geometry, http://www.bimserver.org	Bimserver.org: Lic.: http://bimserver.org/2013/01/30/license-issues/
D8.8.2 Dissemination Master Plan and Publicity Material V1	8	Technical Report	This deliverable describes a communication strategy for how to address important external stakeholders	CC BY-NC-ND
D8.8.3 Dissemination report Year 1	8	Technical Report	This report summarizes all dissemination activity of year 1.	CC BY-NC-ND
DuraArK public web site	8	Software	The web site at http://www.duraark.eu/ provides the general public with information on the project, its objectives, partners and results.	CC BY-NC-ND

Table 1: **Important IPs and IPRs identified.**

4.1 General Strategy

The DURAARK management structure includes an *Executive Board* and a *Technical Board*.

The strategic direction is assigned to the **Executive Board**, which is appointed, reported and is accountable to the *General Assembly*, as specified in the CA. Amongst the Executive Board issues concerning intellectual property rights (e.g., patent filings and fees payments, IP licensing, royalty schemes and the like) are debated and decided by a two-thirds majority, as established in Section 6 of the CA.

Issues of a technical nature, e.g., analysis and evaluation of innovative technology suitable for prospective patent protection, are debated and decided by two-thirds majority within the **Technical Board**, where all members are represented, and it is overseen by the Technical Manager.

The Executive and Technical Board abide by the obligation of mutually reporting their respective activities, as well as exercising a mutual control over them. The consortium has specifically appointed a **Dissemination and Sustainability Manager**, to coordinate and report on the exploitation activities. The Executive Board and the Dissemination and Sustainability Manager are therefore collectively responsible for the management of the project foreground.

The Executive Board furthermore governs the background access rights, from their initial definition set out in the CA. In particular, the latter states that Background Access Rights can be extended during the project by the owner, while only the Executive Board can permit a party to withdraw any of its background from the CA.

4.2 General Dissemination

The general dissemination strategy of DURAARK was described in detail in D8.8.2, reported in D8.8.3, and it will be updated in D8.8.4 while we provide an overview of some general aspects in this section. DURAARK dissemination policy is to disseminate as swiftly as possible, always in a way that is compatible with the protection of the IPRs, confidentiality obligations and legitimate interests of the owners (any disclosure, prior to filing for protection, may invalidate a subsequent or potential valuable protection). Therefore, before any foreground is made available to the public, a decision on its possible protection is made by the Executive Board.

Any dissemination activity should be informed to all beneficiaries (at least 45 days prior notice), and may object to the dissemination activity if their legitimate interests in relation to their foreground could suffer great harm.

Any foreground artifact, e.g., reports, software, and datasets, which is made available through the project Website, must clearly specify the corresponding license, which includes the terms of use that have to be accepted before accessing (e.g., reading or downloading) the artifact and acknowledge the European Commission and grant agreement under which it was produced.

For **scientific peer-reviewed publications**, DURAARK policy is to make them available through research repositories, DURAARK's Website, or an institutional repository, and subsequently made Open Access within 6 months of publication.

All public DURAARK deliverables will be made accessible through the project's website as soon as they are approved by the commission.

Beneficiaries shall always highlight the financial support obtained by the EU to carry out the project by adding a specific statement of financial support, when the foreground is protected, used and/or disseminated, mentioning the following text:

The research/work leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under Grant Agreement no 600908 - DURAARK -.

5 Exploitation Strategy

Internally generated datasets within the DURAARK project are intended for re-use and dissemination. Furthermore, we leverage stakeholders' models; they are usually mainly driven by economic nature, where the creation of any of the datasets demands the investment of paid labor. Several means were undertaken in order to secure the investment of the stakeholders and provide them with a base that justifies their trust into the research project. The most important issue is the assurance that all data will stay within the DURAARK consortium and dissemination of the datasets given is usually only allowed in form of screenshots and derived metadata from the original dataset. This has usually no commercial value for the owners and does furthermore not breach security interest, when buildings represented in the dataset have for instance security relevant parts. Owners of datasets have nevertheless the ability to provide datasets that can be published publicly. The detailed terms of the relationship between DURAARK and the owners of the datasets is described in a standardized license agreement, currently under discussion (Appendix A), which is signed between the external partners ("Licensor") and DURAARK ("Licensee"). The license agreement gives DURAARK the right to use the data internally to a full extent, but is due to the value and IP of the datasets restrictive in how DURAARK may provide 3rd parties access. The license agreement has as well passages that describe means to secure the datasets against accidental public dissemination on filename basis and describes a strategy to anonymize data, if the owner allows publishing them. The power of attorney, currently under discussion (Appendix B), gives the members of DURAARK the right to act as Licensee and sign license contracts with external partners.

Specific Constraints: WP7 is concerned with the acquisition of architectural data from building for the DURAARK project. These datasets are provided free of charge from the companies.

With a data volume of more than 11GB until mid of November, the datasets provide the Consortium with the ability to include real world data which provide real world challenges into its research and development work and hence align the research with the building professions needs.

The work in WP7 showed already the differences between the datasets in DURAARK and datasets usually used in research projects, i.e. the IFC provided by the buildingSMART consortium <http://www.ifcwiki.org/index.php/Examples>. These differences

are mainly related to the complexity within the datasets, the amount of metadata, as well as the coherence within the datasets. The so far collected datasets in IFC format and the point cloud scans from practice represent the actual reality and constraints that are found by the diverse stakeholders.

DURAARK consortium has until now received models that represent all relevant fields by the stakeholders identified by WP2:

- Data creators - Land Surveyors and 3d Scanning Companies
- Architects and Engineers
- Construction companies
- Researchers
- Building Owners and Real Estate Managers
- Public Administrations Public Planning Policy Makers
- Cultural Heritage Institutions

Stakeholders' models are usually mainly driven by economic nature, where the creation of any of the datasets demands the investment of paid labor ranging between approximately two hours for a single scan and its registration and post-processing off-site to several years of interdisciplinary team effort to create the design and construction planning of the building for the headquarter of a major company. The models given to the DURAARK consortium are hence carriers of a huge economic investment. They have as such still an economic value for their owners and the DURAARK consortium is glad to have found partners that are willing to provide the data on a non-cost basis anyway.

6 Conclusion

We have successfully established the necessary strategy for IPR management as a best practice to achieve the overall project goals. We also outlined the dissemination policies, as well as the intended licensing schemes for the DURAARK's outcome, in specific, for **reports**, **softwares** and **datasets**. Furthermore, we presented a description of the actual Intellectual Properties (IP) and Rights Implications (IPR) for each WP. The processes and mechanisms outlined in this document reflect the DURAARK spirit to make the foreground as accessible and open as possible, within the restrictions of the Consortium Agreement.

References

- [1] Guide to Intellectual Property Rules for FP7 projects. Version 3. European Commission. Seventh Framework Programme (FP7).
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- [5] Case Study: DIRA–GREEN: The Importance of an IP Management Structure in a Research Project. IPR Help Desk. European Commission. <http://www.iprhelpdesk.eu/node/1461>, 2012.
- [6] M. N. Oonagh. Make Research Work for Your Company. The European Communities. http://ec.europa.eu/research/sme-techweb/pdf/use_diffuse.pdf, 2009.



AGREEMENT

(Status: 2013/11/08)

between

(„Licensor“)

Contact information

represented by

and

Centre for Information Technology and Architecture, The Royal Danish Academy of Fine Arts, Schools of Architecture, Design and Conservation („**LICENSEE**“) Philip de Langes Allé 10,1435 Copenhagen K, Denmark

in relation to the provision of data for the purposes of the DURAARK research project <http://www.duraark.eu/> (FP7 - ICT - Digital Preservation, Grant Agreement No: 600908)

Preamble

LICENSEE provides Architectural Data to the members of the DURRARK research project and TIB in order to enable these to undertake research on and with the data. The data is distributed internally via web.

The Architectural Data will be subject to long-term preservation according to concepts developed within the research period.

The DURAARK Consortium and TIB develop new or implement known tools for the analysis of Architectural Data such as 3D point cloud feature detection or IFC model checker and modifiers to create additional content-related and structural metadata that can be of help for the longterm archiving and a future user for his search or processing of the data. For this purpose the DURAARK consortium and TIB collect, analyse and archive Architectural Data provided by the Licensor and process them if necessary (e. g. segmentation, creation of visual abstracts, thumbnails, indexing, converting to other data formats also for the purposes of long-term preservation).

Thus the parties conclude the following agreement:

1. Definitions:

a) The **Architectural Data** are 3D architectural models and Point Cloud Files.

b) **DURAARK Consortium** are the contractual members of the DURAARK research project.

c) **TIB** is the German National Library of Science and Technology (<http://www.tib-hannover.de/en/the-tib/>).

d) **Metadata** is the data related to the Architectural Data, Point Cloud Files and Preview Files.

e) **Preview Files** are renderings related to the Architectural Data as provided by the Licensor or created by the DURAARK Consortium.

f) A **Commercial Purpose** is the use of the Architectural Data, Point Cloud Files, Metadata or Preview Files for immediate financial reward.

g) **Users** are members of the public who use the services of LICENSEE, TIB and the members of the DURAARK Consortium via the Internet.

2. License Grant

The Licensor grants LICENSEE, TIB and the DURAARK Consortium the perpetual right to use the Metadata and Preview Files under the conditions of the Creative Commons License CC0 1.0 Universal (CC0 1.0) Public Domain Dedication (Link to the summary and legally binding version of the license text: <http://creativecommons.org/publicdomain/zero/1.0/>)

The Licensor grants LICENSEE, TIB and the DURAARK Consortium a perpetual, non-exclusive right to use the Architectural Data for the purposes of research, including but not limited to the right to reproduce, store and create adaptations, also for hitherto unknown kinds of use. In case Preview Files or Metadata are not provided by the Licensor, the DURAARK Consortium may generate Preview Files for the Architectural Data and use these Preview Files under the conditions of the License CC0 1.0. For the avoidance of doubt, LICENSEE and its partners may not distribute the Architectural Data or adaptations of the original Architectural Data to the public or other third parties.

This contract applies to all Architectural Data, Preview Files and Metadata provided to any member of the DURAARK Consortium or TIB by the Licensor at any time during the term of the contract.

LICENSEE, TIB and the members of the DURAARK Consortium may distribute the Architectural Data to its partners in the context of a contractual cooperation for the research purposes named above. LICENSEE, TIB and the DURAARK Consortium will inform the partners and commit them to adhere to these contract terms.

Please check, if applicable:

All Architectural Data provided may be distributed by LICENSEE, TIB and the members of the DURAARK Consortium to the public or other third parties in

anonymised form (individualisation of Licensor is made impossible and Licensor is not traceable).

Architectural Data provided and marked with Public in the filename or a descriptive element (such as a textfile or email) may be distributed by LICENSEE, TIB and the members of the DURAARK Consortium to the public or other third parties in anonymised form (individualisation of Licensor is made impossible and Licensor is not traceable).

3. Rights and obligations of Licensor

The Licensor will provide the Architectural Data, Metadata and Preview Files for free.

The Architectural Data will be made available to LICENSEE in the way listed in Schedule 3.

The Licensor will provide the Architectural Data, Preview Files (if available) and Metadata in the format laid out in Schedule 2.

The mode of delivery of the Architectural Data, Preview Files and Metadata will be agreed upon individually between Licensor and the LICENSEE. The Licensor informs the LICENSEE when access to the data has been provided or when the storage medium has been sent.

4. Rights and obligations of LICENSEE and TIB

LICENSEE will publish the Licensor (name and logo) as Associate Partner on the DURAARK webpage and set a link to the Licensors webpage.

LICENSEE, TIB and the DURAARK Consortium will display the Preview Files and Metadata within their services and will provide Users with links to the objects on the Licensors webpage.

In order to be able to offer a content based search, the Architectural Data, Preview Files and Metadata will be prepared, adapted and processed as Index Files.

LICENSEE, TIB and the members of the DURAARK Consortium will host the Architectural Data, Preview Files and the related Metadata on their servers or the servers of others linked to the DURAARK Consortium by contract.

The public may download the Preview Files and the related Metadata, but not the Architectural Data or the Index Files.

5. Prohibited Uses

LICENSEE, TIB and the DURAARK Consortium may not distribute the Architectural Data or adaptations of the original Architectural Data provided by the Licensor to third parties or use them for commercial or any other purposes than those named above, except if an express permission has been given.

7. Warranties and Liability

The Licensor declares that it has all necessary rights and authority to allow LICENSEE, TIB and the DURAARK Consortium the use of the Architectural Data, Preview Files and Metadata pursuant to the terms and conditions set forth in this Agreement and that this Agreement does not infringe the copyright of any third party.

Licensor shall indemnify LICENSEE, TIB and the DURAARK Consortium against any charges, costs or damages brought forth by third parties against LICENSEE, TIB and the DURAARK Consortium claiming that the use of the Architectural Data in accordance with this Agreement constitutes an infringement of copyright. The parties will cooperate closely to prevent any claims by third parties.

LICENSEE, TIB and the DURAARK Consortium are only liable if they act with intent or gross negligence. Liability for indirect damages is excluded. These limitations of liability do not apply in case of injury of life, body or health or infringement of essential contractual obligations.

8. Term and termination

The Agreement shall become effective at the date of signature and shall continue until 31st December 2016. Thereafter the agreement and the connected rights and obligations for the parties signing, TIB and the partners in the DURAARK Consortium will automatically be extended yearly unless previously terminated by written notice of one of the parties three months prior to the then current termination date or if the DURAARK Consortium ceases to exist.

This termination does not affect Architectural Data, Metadata, Indexes, Preview files that have already been published according to rights granted previously to LICENSEE, TIB and the DURAARK Consortium by the Licensor: LICENSEE, TIB and the DURAARK Consortium may continue to use the already published Architectural Data, Preview Files, Metadata and Indexes under the conditions layed out in this agreement also after the termination of the DURAARK project or if a member of the DURAARK Consortium leaves the Consortium prior to its termination.

9. Miscellaneous

This Agreement will be construed according to and will be governed by Danish law. All disputes are to be settled before the courts of Copenhagen.

The members of the DURAARK Consortium and TIB all hold power of attorney regarding the stipulation of licensing contracts by other members of the Consortium or TIB..

LICENSEE and TIB may transfer all rights and obligations derived from this contract to another institution, if other institutions permanently take over functions and responsibilities from LICENSEE or TIB. Otherwise, the parties may not assign the rights and obligations layed down in this contract to others unless the prior written consent of the other party is given.

Any changes to the Agreement must be made in writing and signed by all parties to this Agreement.

Signatures

Copenhagen,
(date)

Martin Tamke, Associate Professor, LICENSEE

.....,
(location, date)

Licensor

Declaration - Power of attorney

Within the project **DURAARK** (<http://www.duraark.eu/> - FP7 - ICT - Digital Preservation, Grant Agreement No: 600908) the members of the DURAARK Consortium and TIB develop new or implement known tools for the analysis of architectural data such as 3D point cloud feature detection or IFC model checker and modifiers to create additional content-related and structural metadata that can be of help for processing of the data in the context of longterm archiving and can be of assistance for the search of a future user. For this purpose the DURAARK Consortium and TIB collect, analyse and archive Architectural Data (3D architectural models and Point Cloud Files) licensed to them by other institutions and process them if necessary (e. g. segmentation, creation of visual abstracts, thumbnails, indexing, converting to other data formats also for the purposes of long-term preservation).

Participants of the project are the L3S Research Centre of the Leibniz University of Hannover, Institute for Computer Science (Computer Graphics) of the University of Bonn, Fraunhofer Austria Research GmbH, the German National Library of Science and Technology (TIB), the Design Systems Group of the department of Built Environment of the University of Eindhoven, Centre for Information Technology and Architecture (CITA), Lulea University of Technology and Catenda (hereafter referred to as partners).

Name of Institution: PLEASE ADD YOUR INSTITUTIONS LEGAL NAME

Address: PLEASE ADD YOUR LEGAL ADDRESS

represented by: LEGAL REPRESENTATIVE NAME
hereinafter “**Legal Representative**”,

authorizes:

- (1) **GOTTFRIED WILHELM LEIBNIZ UNIVERSITÄT HANNOVER**, having its principal office at APPELSTRASSE 9A, 30167 HANNOVER - GERMANY, hereinafter referred to as “LUH”; partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal
- (2) **RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITÄT BONN** established in REGINA PACIS WEG 3, 53113 BONN – GERMANY, hereinafter referred to as “UBO”, partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal
- (3) **FRAUNHOFER AUSTRIA RESEARCH GMBH** established in THERESIANUMGASSE 27, A-1040 VIENNA - AUSTRIA, hereinafter referred to as “FhA”, partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal
- (4) **TECHNISCHE UNIVERSITEIT EINDHOVEN** established in DEN DOLECH 2, 5612 AZ EINDHOVEN - THE NETHERLANDS, hereinafter referred to as “TUE”; partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal
- (5) **KUNSTAKADEMIETS ARKITEKTSKOLE** established in PHILIP DE LANGES ALLE 10, 1435 KOBENHAVN - DENMARK, hereinafter referred to as “CITA”; partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal

cipal

- (6) **LULEA TEKNISKA UNIVERSITET** established in UNIVERSITY CAMPUS, POR-SOEN, SE97187 LULEA - SWEDEN, hereinafter referred to as "LTU", partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal
- (7) **CATENDA AS** established in FORSKNINGSVEIEN 3B, 0373 OSLO - NORWAY, hereinafter referred to as "CATENDA", partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal
- (8) **CENTRE FOR INFORMATION TECHNOLOGY AND ARCHITECTURE** at the Royal Danish Academy of Fine Arts, Schools of Architecture, Design and Conservation School of Architecture, Philip de Langes Allé 10, 1435 Kbh. K, Denmark, referred to as "**CITA**", partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal
- (9) **TECHNISCHE INFORMATIONSBIbliOTHEK** established at Welfengarten 1B, 30167 Hannover, Germany, hereinafter referred to as "TIB", partner representative in DURAARK [ADDNAME], in the following principal investigator or short principal

to make all representations and perform all actions required or appropriate for the stipulation of contracts to acquire the necessary rights for Architectural Data, Metadata and Preview Files for the purposes of the DURAARK Project, as long as no costs are incurred and any other of the above named institutions concluding licensing contracts notifies the Legal Representative at least 2 weeks prior to the conclusion of a contract about the license terms.

This power of attorney expires on December 31st 2014, but automatically extends every year by one more year, unless the cooperation between the Legal Representative and the DURAARK project is terminated in advance, this Power of Attorney is revoked in writing vis-à-vis all project partners and TIB or this warrant of attorney is restituted in advance or declared void.

The Legal Representative grants the Principal the right to sign license agreements with external organisations (contracting party) on his behalf. The Principle acknowledges that he is obliged to the conditions and terms defined within this document.

The Legal Representative acknowledges that he is obliged to adhere to the license conditions stipulated by the partner concluding the licensing contracts with external organisations (contracting party). If claims are made against the contracting party due to a violation of the contract terms which has taken place in the sphere of the Principal and was caused by gross negligence or with intent of the Principal, the Principal indemnifies the contracting party (including all court and lawyer fees). Liability for indirect damages is excluded. These limitations of liability do not apply in case of injury of life, body or health or infringement of essential contractual obligations.

These limitations of liability are included in the license contracts of the partners. In case the Legal Representative or Principal have given his consent to the conclusion of a contract without limitation of liability, the Legal Representative and Principal are liable without limitation. The contracting party shall inform the Principal at least two weeks prior to the stipulation of the contract of such license terms. The Principal informs the contracting party within these two weeks in writing if an exception can be made.

(Place, Date, Signature, Legal Representative)
