DURAARK

D8.4 Dissemination Master Plan and Publicity Material V2

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Executive Summary

This deliverable (D8.4 Dissemination Master Plan and Publicity Material V2) is an update of D8.2. In order to keep it highly informative, those parts which have already been described in detail in D8.2 are presented in condensed form in this deliverable.

The document covers the dissemination plan for the entire remaining period of the DURAARK project. Since this means a forecast for the next two years, not all plans can be presented in a detailed form, as for example dates and agendas for conferences during 2015 are in many cases not published yet.

The DURAARK project covers many areas such as digital preservation, semantic enrichment and the comparison of as-planned and as-built state of architectural structures. The outcomes of each area have, so far, mainly been disseminated one by one through subject-specific channels. In the remaining project period these dissemination activities will be complemented by joint consortium activities, where all main outcomes of the project will be presented and discussed at joint events. Special attention has been put on DURAARK´s potential for contribution to standardization. Amongst other efforts this includes the envisaged extension of an IFC file format towards the IFC/A standard, which will provide vast possibilities of semantic enrichment as well as support for efficient 3D point cloud storage.

Our assessment is furthermore that DURAARK can substantially contribute towards the development of standard procedures for the preservation of 3D architectural objects.

Table of Contents

1. Introduction to dissemination

The DURAARK project is in the process of developing an innovative solution for long-term digital preservation (LDP), particularly in the context of 3D architectural objects. Ensuring that the results of this project meet the expectations of and be beneficial to cultural, industrial and scientific sectors is of high importance. The overall dissemination strategy of the DURAARK project is broken down into different dissemination tasks. The main objective of WP8 is to ensure that the dissemination activities adequately represent the project´s progress and final outcomes – a necessary prerequisite for facilitating exploitation of the results among the consortium partners as well as among potential stakeholders across Europe. Examples for potential stakeholders include national libraries, archival centers, real estate owners as well as the architecture, engineering and construction (AEC) industry including involved SMEs. Furthermore, the dissemination strategy follows a flexible approach, allowing for continuous adaption to changing requirements of events, target groups, and communication channels. Dissemination of the project´s outcomes internally to the project partners as well as externally to the aforementioned designated communities makes twofold contributions: firstly, by providing a common and shared understanding of the project goal to the consortium partners, secondly, by informing general, scientific, and targeted audiences about the outcomes and their implications. In light of the diverse nature of the relevant audiences, it is of high importance that all groups of identified main stakeholders are covered and to adjust specific dissemination strategies towards specific audiences.
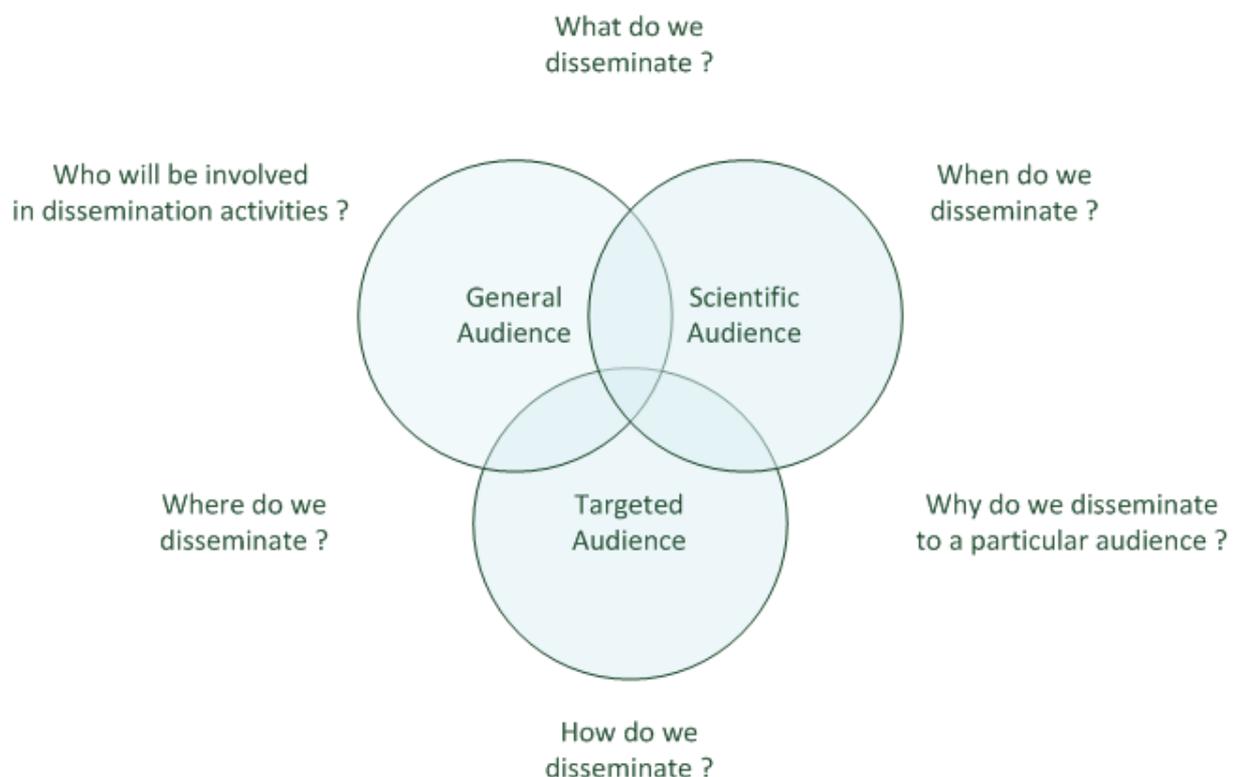
Fig 1. Threefold strategy for Dissemination

As shown in figure 1, three types of audiences have been identified in the project's context: general, scientific, and targeted. Therefore, a need for a threefold strategy exists. To ensure an effective strategy with maximum consortium input, we formulated the following dissemination objectives:

- To spread the project results within the project partner's organizations in order to encourage adoption of the technology.
- To disseminate project results to the relevant target groups across the European community through publications, presentations, and written material.
- To promote understanding and re-usability of ideas and artefacts developed in the project.
- To encourage commercialization of the 'DURAARK' artefacts.

2. Threefold Strategy

In order to attain the previously mentioned objectives the WP8 deliverable is built on input from all project partners. The input is formulated in activities, which aim to carry the results of the project beyond the project´s boundaries and provide visibility and public awareness of the project's objectives, technologies, and achievements. Keeping a wider target group in mind, the dissemination plan differentiates between three main levels: three levels of a dissemination plan have been formulated: General, Scientific and Targeted. The dissemination plans for each level are described in the subsequent sections.

2.1. General Dissemination

The general dissemination activities are meant for a general audience. The activities for this level are as follows.

- To create, host and maintain the DURAARK website. This activity will produce the project website and a first set of publicity material. For example, the website - http://www.duraark.eu - is already available to the public.
- To create a logo for the project that can be used for all internal and external publications. The project logo is already finalized.
- To produce publicity materials like posters and flyers after developing the first version of the prototype.
- To demonstrate the DURAARK prototype at various conferences, seminars, and workshops.
- To publish the project outcome via various website media channels, such as Wikipedia, websites, social media, etc. These activities can be done in an on-going manner to keep the various audiences informed about the project´s progress.

2.2. Scientific Dissemination

The scientific dissemination activities target an academic audience. The research partners will organize and participate in national and international academic events to inform about the respective research activities on the topics covered by the DURAARK project. According dissemination activities can be conducted by the consortium partners in collaboration or individually. Activities at the scientific dissemination level will be carried out through:

- Presentation of papers at international and national conferences.
- Professional networks established by the project partners.
- Publications in peer-reviewed academic journals, in both paper and electronic formats.
- Participation in conferences, workshops and courses related to long-term preservation of 3D architectural objects. Participation will be done pre- and post- production of the artefact i.e., the long term preservation system for the 3D architectural data.

2.3. Targeted Dissemination

The targeted dissemination activities are tailor towards industrial and commercial audiences, such as SMEs involved in the architecture, engineering and construction (AEC) industry. Raising awareness of the DURAARK artefacts' benefits amongst the industrial audience is a particularly challenging task, as it requires cooperation by multiple parties to provide valuable service offerings. Thus critical success factors in the business domain need to be analyzed early. To meet this goal, organizations and companies with significant potential of exploiting the project results will be identified and contacted. Further more a market study will be conducted. This activity includes: on-site illustration, demonstrations, seminars and/or

workshops. The result will guide the further development of the DURAARK prototypes to address commercially viable functionality with relevance to both industry and memory institutions. The dissemination plan will be updated and will become the basis for preparing the exploitation planning among all partners within the consortium. The DURAARK exploitation plan will be formed as a result of the user and system test evaluations and as a result of the output of the market study.

3. Dissemination Master Plan

This section describes the existing plan and strategy for the dissemination of the project activities and outcomes. In the following section, the specific activities derived from the internal discussions among consortium partners through DURAARK's wiki page, online and face-to-face meetings are listed. Parts that have already been described in D8.2 and have not been updated since are presented in a condensed form.

3.1. Dissemination channels in place

As the first dissemination activities a **website** and a **logo** were established. Building on the design layout set in these first activities, a **flyer** and a **poster** were created next. While the flyer gives a basic overview of the project, the poster is meant to be adjusted to the respective events where it is going to be used. In order to widen our contact area, we use **social media** like Facebook, Twitter and a blog.

Videos usually get high attention and some are already present with more to be added over the course of the project. After the first prototype has been launched a newsletter will be produced to promote the prototype.

3.2. Scientific Publishing Targets

The work package for dissemination and exploitation (WP 8) also describes the work that will be done to disseminate the research findings. With regards to the academic community, the respective DURAARK partners intend to disseminate the results of the project via publication of articles and submission of technical papers in the specialized press (journals, scientific magazines and/or newspapers, also on-line, audio or video media, at international, European, national, regional or local level in order to reach the target stakeholders) and to renown scientific conferences and industrial events, focused on digital preservation, semantic web, computer graphics or the AEC[1] community.

Papers for conferences and journals are intended to be published to maximize awareness and impact. In section 6 each partner presents a more detailed plan for their dissemination plans. In general, a selection of most important conferences, with respect to target audience and ranking, for the DURAARK project are:

- **WWW**, International World Wide Web Conference[2]
- **JCDL**, Joint Conference on Digital Libraries[3]
- **ISWC**, International Semantic Web Conference[4]
- **iPRES**, International Conference on Preservation of Digital Objects[5] '
- **CIB W78**, IT in Architecture Engineering and Construction[6]
- **ECPPM**, European Conference on Process and Product Modelling[7]

Regarding journals, it has been assessed that the following titles are key targets for the DURAARK project:

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[1] Architecture Engineering Construction
[2] http://www2015.it/
[3] http://www.jcdl.org/
[4] http://iswc2014.semanticweb.org/
[5] http://iswc2014.semanticweb.org/
[6] http://cib-w78-2015.ddss.nl
[7] http://www.ecppm.org/

- **ACM Transactions on the Web[8]**
- **Semantic Web Journal (SWJ)[9]**
- **Journal of Web Semantics (JWS)[10]**
- **Automation in Construction[11]**
- **Advanced Engineering Informatics[12]**
- **International Journal for Architectural Computing[13]**

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[8] http://tweb.acm.org/
[9] http://www.semantic-web-journal.net/
[10] http://www.journals.elsevier.com/journal-of-web-semantics/
[11] http://www.journals.elsevier.com/automation-in-construction/
[12] http://www.journals.elsevier.com/advanced-engineering-informatics/
[13] http://www.architecturalcomputing.org/

4. Expected outcome of the project

This chapter contains an updated analysis of the respective outcomes of WP 2 to WP 7. The outcome for each WP is shown below in table 2. Stakeholders are suggested for each outcome, and dissemination actions matching the respective stakeholders are suggested.

Outcome	Stakeholder Science	Dissemination activities/places	Stakeholder end user	Dissemination activities/places
WP 2: **D2.4** Software prototype v1: Workflow from collecting files to ingest, as well as search and retrieval of ingested data (selection, file identification, extraction of technical metadata, semantic metadata enrichment, SIP packaging and delivery to preservation system, search and retrieval of ingested data)	Preservation community, system design community	Participation in preservation conferences, for example TPDL[14]	Memory institutions, system design companies	Presentations, workshops and networking event "Bauen auf Fraunhofer"
D2.5 Software prototype v2 (See also D2.4)	Preservation community, system design community	Participation in preservation conferences, for example TPDL	Memory institutions, system design companies	Presentations and workshops
WP3 **D3.3** Semantic Digital Archive Prototype. Ingest module for approach of temporal snapshots of Linked Datasets	Preservation community, Semantic Web, Linked Data communities	Conferences, journals other publications	Preservation institutions, system providers, standardization organizations e.g. for METS and PREMIS profiles,	Publications, open source software, best practice recommendations, workshops and other dissemination activities in WP7

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[14] http://www.tpdl.eu/

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			Library of Congress, Getty etc.	
D3.4 Semantic Digital Interlinking and Clustering Prototype Bi-and one-directional linking between BIM and Linked Data. Linked Data Profiling	AEC/FM[15] community, Linked Data community	Conferences, Journals other publications	Software and building product manufacturers in AEC/FM, service providers, end-users (Public institutions, building owners, architects and engineers	Publications, open source software, best practice recommendations, workshops and other dissemination activities in WP7
D3.5 Point cloud schema extension for the IFC models standardization	AEC/FM, Computer Graphics communities	Conferences, journals other publications	Software and manufacturers in AEC/FM, building-SMART standardization body	Software prototypes, publications, workshops, implementation guidelines, demos, WP7
WP4: **D4.2/3** Software prototype for i) Semi-automated registration of point cloud data and IFC representation of the same underlying building ii) Detection and classifi-cation of differences between the two representa-tions iii) Transfer of semantics from the IFC representation to the point cloud rendering it structured and	Computer Graphics & AEC[16] communities	Computer Graphics, Engineering, Architectural conferences and journals	LDP community, AEC industry, facility management, building owners, lawyers, AEC educators	Mainly through WP7, Revit Plugin

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[15] Architecture Engineering Construction/Facility Management
[16] Architecture Engineering Construction

easy to navigate				
WP5: **D5.3/5** i) Semi-automated structuring of architecture related point clouds along with means for the recognition of meaningful shapes ii) Efficient point cloud compression along with the storage of such compressed data in IFC files. *Contribution to standards: Integration of point cloud storage and compression in the IFC file format in close cooperation with D3.5*	Computer Graphics & AEC communities	Computer Graphics conferences and journals, for example eCAADe[17]	LDP community, AEC industry, facility management, building owners, lawyers, AEC education people	Mainly through WP7, Revit Plugin
D5.2/4/6 Shape grammars for almost invisible objects software prototype	Computer Graphics & AEC communities	Computer Graphics conferences and journals, for example eCAADe	Real estate owners, architects	Networking-Event "Bauen auf Fraunhofer"
WP6: **D6.2** Ingest and storage of 3D objects in a digital preservation system	Preservation community	Participating in conferences, workshops and networks for the preservation community	Memory institutions, real estate owners, architects and construction companies	Conferences and workshops for memory institutions Conferences for realestate owners Conferences for architects and construction

[17] http://www.ecaade.org/

				companies
Contribution to standards: metadata descriptions for buildm, ifcm and e57m Contribution to best practice: Workflow for preservation of 3D objects	*PREMIS editorial board*	*PREMIS Implementation Fairs*	*Memory institutions, preservation community, real estate owners*	*Conferences, workshops that gathers the specified stakeholders*
D6.3 Sample preservation planning for 3D objects	Preservation communities	Participating in conferences, workshops and networks for the preservation community	Memory institutions, real estate owners, architects and construction companies	Conferences and workshops for memory institutions conferences and workshops for real estate owners, and the AEC domain
WP7: **D7.2** Use case SME - design and reconstruction	AEC[18] communities	Conferences related to AEC, computation and geospatial communities	AEC industry, facility management, building owners, lawyers, AEC educators, and land surveyors	Presentations and workshops, articles in AEC magazines
D7.3 Use case long term archiving	AEC & preservation communities	Conferences related to AEC and preservation community.	Memory institutions, AEC industry, facility management, building owners	Presentations and workshops with stakeholders, articles in AEC magazines
D7.4 Evaluation	AEC & preservation communities	Conferences related to AEC and preservation community.	Memory institutions, AEC industry, facility management, building owners	Presentations and workshops with stakeholders, Articles in AEC magazines

Table 1. Outcomes from the DURAARK project, stakeholders of the outcomes and where/how to reach them

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[18] AEC – Architecture Engineering Construction

5. Contribution to standardization

DURAARK will also engage in the production of best practices and standards. For instance, within the preservation planning activities in the DURAARK project, Building Information Models (BIM) in the IFC-SPF format and architectural point cloud scans in form of E57 will be examined in order to identify crucial significant properties. The goal is to establish a body of recommendations for significant properties of this content type. This is a specific way, in which the project will contribute towards the development of standard procedures for the preservation of 3D architectural objects. Apart from standards and best practices directly originating from the long-term archiving nature of the project, DURAARK offers the opportunity to set a standard for 3D point cloud compression algorithms and the associated storage format. Key players in the building industry are working towards harmonized policies on the European level and their implementation on national levels. DURAARK is engaged with organizations that are concerned with the future development in the industry such as buildingSMART Nordic. For digital preservation policies, it is important that the formats are uniquely identifiable and can be validated in a reliable way. One of the aims of this project is to develop and provide access to tools which meet these requirements. Furthermore, in the same way that the examination and identification of significant properties serves towards the contribution of standards, it also contributes towards long term preservation policies themselves. In our case standardization work also contains contribution via participation in working groups, release of schemas/vocabularies, etc. and is not strictly limited to dedicated standardization organizations.

5.1. Contribution to best practices and standard procedures

In the DURAARK project the metadata standards METS and PREMIS are currently used. The project will possibly extend PREMIS by integrating technical and descriptive metadata in our own buildm / ifcm / e57m metadata schemas. It is not per-se changing PREMIS, as PREMIS allows for the inclusion of other metadata schemas in itself, but DURAARK is rather developing a new implementation case for the PREMIS-in-METS standards.
The metadata descriptions for buildm, ifcm and e57m are strong candidates for standard suggestions. Especially ifcm and e57m could be considered good candidates for a technical metadata subset which is at the moment non-existent. Current planning foresees presenting the DURAARK approach at the PREMIS implementation fair 2015. Before that it will be discussed within the preservation community.

5.2. Curation and sharing of open vocabularies & schemas

The landscape of schemas, vocabularies and ontologies used to describe concepts in the architectural and urban planning field is highly diverse. This involves a wide range of schemas and vocabularies for engineering concepts as well as the even more heterogeneous landscape of schemas used to describe contextually relevant knowledge, for instance about geo data, the history of buildings, infrastructure and environmental data. DURAARK is actively contributing to the establishment of de facto standards in these areas, by gathering most established schemas and providing mapping proposals. Here the project is actively contributing to community efforts and projects in the area, such as

http://smartcity.linkeddata.es/ and http://linkedbuildingdata.net. While not intending to reinvent existing efforts, DURAARKs activities focus on gathering relevant vocabularies, providing mappings among these and to suggest schema extensions only in cases where gaps can be identified.

5.3. Point cloud compression standard and integration into the IFC model

The envisaged extension of the most important interoperability standard for Building Information Models (BIM) – the Industry Foundation Classes (IFC) – has received the attention and appreciation of the buildingSMART community. In November 2012 the plans for an integration of compressed point cloud data into the IFC schema has been presented during the International Technical Meeting. The suggestion was endorsed by the Technical Committee and plans for the formal submission of the proposals are being coordinated with the respective institutional members and bodies. As the technical implementation of this is projected later on in the project (month 30), the execution of these standardization plans are still pending.

5.4. Semantic enrichment of Building Information models

Current practices for the enrichment of Building Information Models are focused on traditional enrichment sources such as classification systems, product libraries or other standards that are paper based or currently reside in specialized and dedicated information silos such as the buildingSMART Data Dictionary (bSDD). As a result from developments in the DURAARK project, specifically on the semantic enrichment and interlinking WP3, the DURAARK consortium members will recommend the use of generic linked datasets using methods, technologies and best practices of the Semantic Web community. Specifically the suggested way of the integration of arbitrary RDF triples and graphs into unmodified, legacy STEP Physical files as well as its ifcXML counterparts and the expected standardization of ifcRDF/OWL is being promoted in the buildingSMART community.

6. Joint and Individual Dissemination Strategies

The DURAARK project covers several interesting areas including digital preservation, semantic enrichment and identification of inconsistencies between BIM models and point clouds. Many of the dissemination activities focus on just one area. To maximize the effectiveness of the dissemination and exploitation plan, it is therefore important to align the partners´ individual strategies to DURAARK's overall strategy. Results from several WP´s are tied into a single prototype, showcasing how the different results interact in a "complete" solution. The plan therefore includes joint participation in events that cover more or less the whole project. One example of such an event is ESWC (http://2014.eswc-conferences.org/program/eu-project-networking). This will be further examined and discussed within the consortium under the leadership of WP8.

Within the consortium, each partner has an interest in the result, and therefore each partner has an individual dissemination and exploitation plan which is described below. *The initial description of each party below is strongly condensed in order to not repeat what has already been described in D8.2.*

6.1. LUH (L3S/TIB)

LUH will contribute to the exploitation and dissemination of overall project results (e.g. DURAARK software, datasets and stores, vocabularies and schemas), of results relating to the Semantic Web (LUH/L3S) and of results relating to digital preservation (LUH/TIB). This will be achieved through conferences, workshops and journal publications.

LUH (TIB) will furthermore make use of its involvement in digital preservation networks, such as the German "nestor"[19] network as well as the international OPF[20], LUH also will use its strong involvement in standardization working groups as well as dissemination events to ensure a wide uptake of DURAARK results.

The specific dissemination plans of LUH (L3S/TIB) are listed in the following table.

What	How	When	Who
International World Wide Web Conference (WWW) http://www2015.it/	Paper submissions and presentations	May 2015	Academia and industry in Web Search, Web engineering, Web Archiving, Semantic Web and Linked Data
Ready4SmartCities project http://www.ready4smartcities.eu/	- Reusing the SmartCities Data Catalog - Publishing DURAARK data and vocabularies in SmartCities catalog	2014 - beyond (continuous activity)	Urban planners, architects, computer scientists, Semantic Web and Linked Data community

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[19] http://www.langzeitarchivierung.de/
[20] http://openplanetsfoundation.org/

The International Conference on Theory and Practice of Digital Libraries (TPDL) Joint Conferences on Digital Libraries 2015 http://www.tpdl.eu/	Paper submission/presentation	2015	Librarian, Archivists, Museums
International Semantic Web Conference (ISWC2015) http://iswc2014.semanticweb.org/	Paper submission, participation	2015	Semantic Web & Linked Data Community
Extended Semantic Web Conference (ESWC2015) http://eswc-conferences.org/	Paper submission, participation	2015	Semantic Web & Linked Data Community
International Conference on Data Engineering (ICDE) http://www.icde2015.kr/	Paper submission, participation	2015	Databases, Data Integration, Semantic Web
CIDOC 2014 http://www.cidoc2014.de/index.php/en/	Presentation	September 2014	Museum, Archives, Libraries, Cultural Heritage
Digital Specimen Workshop http://www.digitalspecimen2014.naturkundemuseum-berlin.de/	Poster, participation	September 2014	Museums, Archives, Cultural Heritage
Conference of Ex Libris Users (IgeLu) http://igelu.org/	Presentation	September 2014	Libraries
International Conference on Preservation of Digital Objects (iPRES) http://iswc2014.semanticweb.org/	Paper, participation	October 2014	Digital Preservation Researchers and Practitioners
2nd Data Management Workshop at University of Cologne http://crc806db.uni-koeln.de/news/detail/article/2nd-data-management-	Poster	November 2014	Data management practitioners from DFG founded collaborative research initiatives

workshop-cfp/			
International Journal of Digital Curation (IJDC) http://www.ijdc.org/	Paper submission	2015	Digital Curation and Digital Preservation Researcher and Practitioners
International Digital Curation Conference (IDCC) http://www.dcc.ac.uk/	Paper submission, participation	February 2015	Librarian, Archivists, Museums
Open Planets Foundation Hackathons http://www.openplanetsfoundation.org/category/event-types/hackathon	Networking-Event	Ongoing	Librarian, Archivists, Digital Curation and Preservation Practitioners
nestor Praktikertag http://www.langzeitarchivierung.de/	Poster participation	2015	Librarians, Archivists, Museums
International Conference on Preservation of Digital Objects (iPRES) *Link not published yet*	Paper submission/presentation. Attending the PREMIS Implementation Fair	2015	PREMIS editorial board and preservation community, especially those interested in preservation of 3D objects
Rosetta FLWG (Format Library Working Group)	Participation in working group	Ongoing	Digital preservation practitioners using Rosetta
Open Planets Foundation (OPF) http://www.openplanetsfoundation.org/	Community participation	Ongoing	Digital curation and preservation practitioners

Table 2. Dissemination plan of LUH (L3S/TIB)

6.2. UBO

UBO will especially exploit the results of WP 4 and WP 5 in terms of conferences, workshops and journal publications. Additionally, apart from academic activities, UBO will also make use of its strong network to industry partners working on point cloud data in general. UBO will also consider the exploitation potential for the developed 3D point cloud compression techniques to become a standard for industrial branches and research fields that rely on such data.

The specific dissemination plans of UBO are listed in the following table.

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What	How	When	Who
Eurographics (EG) http://www.eg.org/	Paper submission	April 2015	Computer graphics community
International Conference on Computer Graphics Theory and Applications (GRAPP) http://www.grapp.visigrapp.org/	Paper submission	January 2015	Computer graphics community
Vision Modeling and Visualization (VMV) *Link not published yet*	Paper submission	2015	Computer graphics and computer vision communities
Shape Modeling International Conference (SMI) *Link not published yet*	Paper submission	2015	Researchers, developers, students & practitioners
International Conference in Central Europe on Computer Graphics, Visualization and Computer Vision (WSCG) http://www.wscg.eu/	Paper submission	June 2015	Computer graphics and computer vision communities
Computer Graphics Forum http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1467-8659	Paper submission	2014/2015	Computer graphics community
Computer Graphics and Applications (IEEE) http://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=38	Paper submission	2014/2015	Computer graphics community

Table 3. Dissemination plan of UBO

6.3. FhA

FhA hosts network activities to discuss research topics for industrial customers and research partners from architecture and/or construction industry. These activities based on the results of DURAARK will deal as a door opener for FhA and for the consortium for further innovative and cooperative research projects or third-party funding from industry.

The specific dissemination plans of FhA are listed in the following table.

What	How	When	Who
Theory and Practice of Digital Libraries (TPDL) http://www.tpdl.eu/upcoming-events	Paper submission	2014	Academia (and industry) in digital libraries
German Conference on Pattern Recognition (GCPR) *Link not yet published*	Paper submission	Paper submission	Academia (and industry) in Computer Vision
British Machine Vision Conference (BMVC) http://www.bmva.org/bmvc/?id=bmvc *Link to conferences 2015 and 2016 are not published yet*	Paper submission	2015, 2016	Academia (and industry) in Computer Vision
Austrian Association for Pattern Recognition (ÖAGM) http://aapr.icg.tugraz.at/	Paper submission	2015, 2016	Academia (and industry) in Computer Vision
"Bauen auf Fraunhofer", Austria	Networking-Event	September 2015	Potential industrial users and architects

Table 4. Dissemination plan of FhA

6.4. TUE

The overall outcomes of the archival framework will be proposed to the wide network of industry partners of the TUE and promoted among public institutions within the Netherlands such as municipalities, and the federal building agency. Together with Catenda and other partners in the buildingSMART and ICIS organizations roadmaps and plans for further exploitation and governance will be made.

The specific dissemination plans of TUE are listed in the following table.

What	How	When	Who

3TU Lighthouse platform Semantic Web in AEC/FM, Tech. University of the Netherlands	Internet platform	Fall 2015	Raise awareness of DURAARK topics and solutions among industry stakeholders, higher education, research and development
European Conference on Process and Product Modelling (ECPPM) http://www.ecppm.org/	Paper presentation	Fall 2015	Research community IT in AEC/FM
CIB W78 conference (IT in Architecture Engineering and Construction) http://cib-w78-2015.ddss.nl	Paper submission, workshop TUE is hosting organization	October, 2015	Conference: Research community for IT in Architecture, Engineering and Construction Workshop: Industrial and institutional stakeholders including LOI signees from proposal
Design and Decision Support Systems conference (DDSS)	Presentation. TUE is the hosting organization	March, 2016	Research community in Urban Planning and Architectural Design and Decision support.
eg-ice – European Group for Intelligent Computing in Engineering http://eg-ice-2015.ddss.nl	Presentation, workshop TUE is the hosting organization	July 2015	Conference: Research community for IT in Architecture, Engineering and Construction Workshop: Industrial and institutional stakeholders including LOI signees from proposal
LDAC 3rd Workshop on Linked Data in Architecture and Construction http://linkedbuildingdata.net/	Presentation, workshop. TUE is the hosting organization	Summer 2015	Research community Application of Linked Data in Urban Planning and Architecture
buildingSMART international technical meetings http://iug.buildingsmart.org/	Presentation, workshops, standardization proposals	November, 2014, Spring 2015, Fall 2015	Standardization organization. Promote semantic enrichment best practices, raise awareness for DLP, promote point cloud inclusion into IFC standard.
CB-NL project community http://public.cbnl.org/61	Presentation, standardization		Building and infrastructural sector in the Netherlands,

			public building owners, Ministry of Infrastructure
Start a W3C community group	Community forming and standardization	2014-2015	Bring together the experts from using linked data in building and construction.
Start a buildingSMART task group for linked data	Community forming and standardization	2014-2015	Standardization body members mostly from industry and public organizations and building owners
Start a buildingSMART task group for point cloud standardization	Standardization	2014-2015	Standardization body members mostly from industry and public organizations and building owners

Table 5. Dissemination plan of TUE

6.5. CITA

CITA will disseminate the results of the DURAARK project to its industrial and scientific network. An emphasis is here set on providing information and creating awareness among stakeholders working with existing building stock about the relevance of long-term archiving strategies and the reuse of digital data. CITA will as well use the DURAARK results for teaching on Master Level.

The specific dissemination plans of CITA are listed in the following table.

What	How	When	Who
ACADIA conference series www.acadia.org	Paper submission	2014, 1015, 2016	International academic architectural computing community
Ecaade conference series www.ecaade.org	Paper submission	2014, 1015, 2016	European academic architectural computing community
BIPS conference / Denmark http://bips.dk/konferenc e	Paper Submission	2014, 1015, 2016	Danish BIM related community
CIPA http://www.cipa2013.org/	Paper submission	2014, 2015	International cultural heritage related community
Geospatial World	Paper	2014	Geospatial community

Magazine http://geospatialworld.net/Magazine/	submission		
BIM UK http://bimaarhus.dk/kalender/	Presentation	2014	Danish BIM related community
buildingSMART BIM WEEK & FORUM http://www.buildingsmart.de/kos/WNetz?art=Project.show&id=111	Presentation	2014	International BIM related community
FARO user meeting http://user-meeting.faro.com/	Presentation	September 2014, 2015, 2016	International 3d scanning related professional community
Presentations at architectural and engineering offices public administrations, land and building owners, Land surveying and knowledge institutions	Presentations	2014-2016	Danish Architectural and Engineering Community
European Geospatial Digest http://geospatialworld.net/Newsletter/index.aspx?nType=EU	Newsletter	August 2014	Geospatial community

Table 6. Dissemination plan of CITA

6.6. LTU

LTU is the university in Sweden which cooperates most with the industry within research. In this project LTU continues in the same spirit and will make several dissemination activities towards the end use stakeholders. In the scientific field, dissemination activities will concentrate on the preservation community.

The specific dissemination plans of LTU are listed in the following table.

What	How	When	Who
APARSEN workshop at the TPDL conference http://www.alliancepermanentaccess.org/index.php/category/community/projects/aparsen/	Presentation of the project	September 2014	Preservation community
ENSAM seminar, Sweden http://www.ltu.se/centres/Centrum-for-langsiktigt-digitalt-bevarande-LDB/Vara-	Attending the seminar and making presentation of the	Autumn 2014, 2015 and 2016	Swedish National corporation

projekt/ENSAM?l=en	DURAARK project		group on digital presser-vation
Long-term preservation day: National Archives and National Library, seminar	Arrange the seminar and present state and plans for the project	October 2014, 2015 and 2016	National Archives and National Library
International Conference on Preservation of Digital Objects (iPRES) *Link not published yet*	Paper submission	October 2015	Preserva-tion community

Table 7. Dissemination plan of LTU

6.7. CATENDA

Catenda will participate in the consortium activities within dissemination and exploitation, but also spread the knowledge of DURAARK's work and results to industry and co-operators in Norway as well as internationally. Catenda will use its network to disseminate the results through conferences, customer meetings, buildingSMART groups, articles and through the commercial sale of developed software solutions.

The specific dissemination plans of CATENDA are listed in the following table.

What	How	When	Who
Meetings with industrial and governmental organizations	Meetings	Continually throughout the project period	Industrial and governmental organizations, including Statsbygg, Skanska survey, NIKU and others

Table 8. Dissemination plan of CATENDA

7. Clustering activities

During year one clustering activities were conducted with several other projects. In some cases outcomes from other projects were used in the DURAARK project, in other cases there is an ongoing cooperation during the project. In the following subsections actively continuing or new clustering activities are named:

7.1. buildingSMART

BuildingSMART[21] is a neutral, international and unique not-for-profit organization supporting open BIM. This world-wide alliance includes architects, engineers, contractors, building owners, facility managers, manufacturers, software vendors, information providers, government agencies, research laboratories, universities - and more.
BuildingSMART is developing global standards for the AEC community, such as the IFC format. The exchange between DURAARK and buildingSMART is intense and takes part in personal exchange during conferences and workshops, leading towards the development of extensions to existing standards. DURAARK intends to start a buildingSMART task group for point cloud standardization and linked data.

7.2. D3D - Digital 3Dimensional objects for reuse

D3D[22] is a Swedish "follow up" project where knowledge from DURAARK will be transferred to Swedish stakeholders for evaluation and implementation. While D3D picks up DURAARK's outcomes, the DURAARK project will directly benefit from an overall evaluation of the preservation aspects of the work. Beside LTU, the following Swedish organizations will be involved in the project: the Swedish National Archives[23], the National Property Board[24] of Sweden and the Swedish Fortifications Agency[25]. The latter is the largest real estate owner in Sweden. The project is co-funded by the Swedish Governmental Agency for Innovation Systems.

7.3. CUNECO / BIPS

Cuneco[26] is the centre for productivity in construction and bips[27] (Bips byggeri - informationsteknologi - produktivitet - samarbejde" - Danish for building industry, information technology, productivity and collaboration) are two major drivers of development in the BIM related part of the national AEC community. Both are establishing standards and best practice examples for the building industry. DURAARK is in close exchange with these two stakeholders in order to create awareness for long-term archiving aspects and the reuse of digital data in the AEC industry. As both organizations are simultaneously active on an international level, as e.g. in buildingSMART, and on a policy making national level, e.g. through close ties to the Danish government, it is a clustering activity of high impact relevance.

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[21] http://www.buildingsmart.org
[22] http://www.ldb-centrum.se/D3D (the link will be active from September 2014)
[23] http://riksarkivet.se/startpage
[24] http://www.sfv.se/en/
[25] http://www.fortv.se/en/
[26] http://cuneco.dk/english
[27] http://bips.dk/

7.4. R4SC – Ready 4 Smart Cities

The R4SC[28] project runs a dataset and vocabulary catalog at http://smartcity.linkeddata.es/ for the urban planning & architecture domain. While we have been working on similar efforts, the consensus was to merge our efforts and start using their dataset catalog (exposing dataset metadata in RDF/Turtle using DCAT) as a first entry point for curating datasets of relevance. The enrichment, profiling and preservation components in WP 3 would then use that catalog for retrieving initial dataset metadata. As the SmartCities team already spent some efforts here and also crowd-sourced the dataset curation through open calls we can build on their work and - in return - feed data from our profiling efforts within the WP 3 SDO (semantic digital observatory) back into their catalog.

7.5. RADAR - Research Data Repository

RADAR[29] is a DFG-funded infrastructure project to develop and establish an interdisciplinary data preservation and optional publication service for various research disciplines. As such, RADAR makes a key contribution to ensure a better availability, sustainable preservation and publishability of research data. Exchanges with DURAARK on RDM-topics and the building of information infrastructures are envisaged.

7.6. APARSEN

APARSEN[30] is organizing a workshop at the TPDL conference in London, 8th to 12th September 2014, entitled "Digital preservation sustainability on the EU policy level". The workshop will showcase ongoing and past digital preservation projects, thus providing an overview of activities to meet the digital preservation sustainability challenge. DURAARK was invited to take part in the workshop and will present the current project activities and results. Further cooperation is planned.

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[28] http://www.ready4smartcities.eu/
[29] http://www.radar-projekt.org/display/RE/Home/
[30] http://www.alliancepermanentaccess.org/

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8. Risk analysis

A certain amount of dissemination activities in the DURAARK project are generic to research projects and therefore similar to what is done in other projects. Each partner has a good overview of suitable dissemination activities in their domain. In contrast to other projects, DURAARK, however, has a high potential for involvement in standardization processes. To actively engage in these processes, the right partners need to be identified and collaboration needs to be actively developed to achieve success.

Risk description. The consortium might have missed important partners and initiatives (collaborations) in order to generate the best impact on standardization.

Risk assessment

> **Impact**: High
> **Probability**: Low
> **Description**: Dissemination activities are planned according to the best opportunities which are identified at this stage.

Contingency Solution A plan for how the work is and will be carried out exists, but all available communication channels need to be monitored carefully to ensure that no crucial existing or new initiative - for standardization or other collaborations - are missed. The state of the art and ongoing research developments will be monitored through ongoing clustering activities, via network activities and through regular attendance of scientific and industrial conferences. Furthermore, WP8 and the DURAARK coordination will keep a close contact with the DURAARK Advisory Board in order to ensure input is taken into account from all communities of relevance for DURAARK. Should new initiatives emerge which are so far unrecognized, the WP8 team will assess any collaboration opportunities and, if applicable, will plan new dissemination activities involving the new entities. The status of our efforts will be examined and, if needed, further plans adjusted during regular WP 8 meetings.

Risk description. Attention to different stakeholder groups gets out of balance (i.e. biased towards certain communities).

> **Impact**: Medium
> **Probability**: Low
> **Description**: The project has stakeholders in many areas which have to be reached through different activities at different times. While this involves a risk to underrecognise certain communities in favor of others, a certain focus might also emerge throughout the course of the project.

Contingency Solution: While the DURAARK consortium involves partners from all key areas relevant to the project (digital preservation, building information modeling/architecture, semantic web), individual activities of partners are assumed to contribute to a balanced dissemination approach (individual plans in section 6 of this document) and will be complemented through additional dissemination actions. WP8 will permanently monitor dissemination activities and orchestrate joint dissemination activities which specifically target the identified dissemination needs.

9. Contribution and impact

This section presents a short analysis of benefits of this deliverable.

9.1. Contribution to this Work Package (WP8) & project as a whole

Within the DURAAK project WP8 is responsible for strategic planning, organization and evaluation of the dissemination and exploitation activities. A first dissemination and exploitation plan was delivered in month 6 of the project. Since then a more precise understanding of the project's outcomes has developed. Furthermore, a better understanding of our stakeholders has evolved through presentations, workshops and meetings where feedback has been gathered and exchange of knowledge, experience and opinions has taken place. We now more clearly understand what actions we shall take to make our dissemination more effective with higher impact. This deliverable presents an update of our dissemination and exploitation plan and aims to make the original dissemination efforts more effective. As such, this document will define the dissemination activities of the second half of the DURAARK project and will provide guidance and define important targets and activities for upcoming dissemination activities across all WPs.

This deliverable´s contribution to the project is a plan for future dissemination and exploitation work that can make our activities more effective and increase the impact from our efforts. DURAARK offers the opportunity to set a standard for 3D point cloud compression algorithms and the associated storage format. The plan focuses on the potential standardization impacts, and as such helps the partners (especially WP3 and WP5) to achieve the best impact. Additionally, WP6 has the potential to contribute to best practices in digital preservation, especially through the pre-ingest workflow and preservation planning tasks. This deliverable outlines comprehensive dissemination activities which shall contribute towards the pick-up of DURAARK recommendations as best practice:

- targeted dissemination addresses audiences with a direct interest in the implementation of workflows, such as memory institutions;
- scientific dissemination address audiences with a research interest who may reference, spread and built on the best practices
- general dissemination addresses the wider community, including possible multiplicators such as policy makers who may in return recommend the established best practices

9.2. Impact

This dissemination plan contains around 30 paper submissions. Realistically, not all of them will be accepted, but the amount that will be accepted will significantly contribute to the knowledge advancement of effective management of 3D models.
Additionally, our contribution to standardization and best practices will streamline preservation and reuse of 3D objects for architectural content.

In the longer perspective real estate owners, architectures and construction companies will be able to plan more effectively, especially for repair and refurbishment of existing buildings. The cultural sector will be able to preserve and showcase older 3D models of buildings. This material can both be used as cultural heritage and teaching materials.

10. ANNEX-I: Snapshot of the DURAARK Website