



D9.3: Dissemination and Standardisation Results

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0.2	2016-10-20	Francisco Morán Burgos – Second draft including updates based on Y3 results from UPM
0.3	2016-10-25	Francisco Morán Burgos – Third draft including updates based on Y3 results from IMT and UPM
0.4	2016-10-27	Francisco Morán Burgos – Fourth draft including updates based on Y3 results from CED, FHG, HUA, IMT, RAI, TI, UNIS and VA
1.0	2016-10-28	Francisco Morán Burgos – Almost final version
1.1	2016-10-31	Helen Cooper – Minor additions to Sections 1.6.6 and 1.7 prior to submission following e-mail messages

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Executive Summary

The present deliverable D9.3 explains, in its Section 1, the dissemination results of the BRIDGET project, which include the project's own public deliverables (e.g., its website), workshops and user trials, as well as the publication of research papers in prestigious journals and conferences, the filing of patents, and the active participation in both public events (other workshops, conventions, etc.) and clustering activities. The most notable results of BRIDGET, on the dissemination front, are the publication of seven peer-reviewed research papers at major international journals, plus fourteen at prestigious international conferences, the filing of three patents, the participation at six events, and the joint establishment, together with another three EU-funded research projects, of the "Second Screen CC Content Convergence" mini-cluster.

Perhaps more importantly, D9.3 elaborates as well, in its Section 2, on the standardisation results of the project, which are remarkable, since BRIDGET partners are very active in the development of ISO international standards, and firm believers in their societal impact. The BRIDGET Consortium has designed its various technological tools and system architecture, together with the corresponding module interfaces, based on previously existing international standards, with the aim of lowering the threshold of their acceptance, and helping create a horizontal market/ecosystem for interactive media applications. What is more, BRIDGET has managed as well to have an impact on future international standards by submitting its tools and system architecture/interfaces to the relevant standardisation fora, notably MPEG (Moving Picture Experts Group, formally, ISO/IEC JTC 1/SC 29/WG 11). The most important outcome of BRIDGET in this respect has been the adoption by MPEG of what will soon be published by ISO as its 23000-18 international standard, more commonly known as MLAF (Media Linking Application Format) [21].

1. Dissemination Results

1.1. BRIDGET's Public Deliverables (e.g., Website)

The following twenty-six public Deliverables have been produced during BRIDGET's lifetime (one of them, D2.8, will actually be delivered at the end of M37, not M36, as agreed with the Project Officer). This list includes two WP8 Deliverables originally meant to be confidential in the project proposal.

More notably, it includes as well BRIDGET's website, <http://ict-bridget.eu/>, which has been live since M3 and constantly updated during 33 months to incorporate new publications and news of interest to the Internet community. Our website contains public sections regarding the project aims and example scenarios, basic project contact and participant information, as well as news and publications details. It also contains non-publicised sections, e.g., <http://ict-bridget.eu/data/videos/>, which was used during the Second BRIDGET Workshop to host the video demo of the BRIDGET Authoring Tool.

- [1] D1.4: First Year Annual Report
- [2] D1.5: Second Year Annual Report
- [3] D1.6: Final Report
- [4] D2.1: First BRIDGET Workshop and Use Scenarios – Version A
- [5] D2.2: Requirements and Functionalities – Version A
- [6] D2.3: User Validation – Version A
- [7] D2.4: Second BRIDGET Workshop and Use Scenarios – Version B
- [8] D2.5: Requirements and Functionalities – Version B
- [9] D2.6: User Validation – Version B
- [10] D2.8: Third BRIDGET Workshop
- [11] D3.1: System Architecture and Interfaces – Version A
- [12] D3.2: Content Transport Specification – Version A
- [13] D3.3: System Architecture and Interfaces – Version B
- [14] D4.1: Media Analysis Tools – Report – Version A
- [15] D4.3: Media Analysis Tools – Report – Version B
- [16] D5.1: Visual Search Tools – Report – Version A
- [17] D5.3: Visual Search Tools – Report – Version B
- [18] D6.1: 3D Media Tools – Report – Version A
- [19] D6.3: 3D Media Tools – Report – Version B
- [20] D7.1: BRIDGET Authoring Tools and Player – Report – Version A
- [21] D7.3: BRIDGET Authoring Tools and Player – Report – Version B
- [22] D8.2: Validation Framework – Report – Version A (confidential according to the proposal)
- [23] D8.7: Validation Framework – Report – Version B (confidential according to the proposal)
- [24] D9.1: Dissemination and Standardisation Plan
- [25] D9.2: BRIDGET Website (launched at M3 and continuously updated since then)
- [26] D9.3: Dissemination and Standardisation Results (this document)

1.2. BRIDGET's Workshops

Although the organisation of the BRIDGET's Workshops, and the analysis of their results, fall mainly within WP2 since the project proposal was written, WP9 was certainly meant to be, and has in fact been concerned as well with them, because they have offered a perfect environment for dissemination.

BRIDGET's first Workshop (see D2.1), held in Paris, FR on 2013-12-16, was a classic physical meeting, which was attended by all project partners and a broad representation of key stakeholders:

- six business players from five different countries: BBC (British Broadcasting Corporation), UK; Mediaset, IT; NRK (*Norsk RikskringKasting*), NO; ProTV, RO; RTP (*Rádio e Televisão de Portugal*), PT; Sky Italia, IT;
- four standards groups: DVB CM-GEM; DVB TM-CSS; HbbTV; MPEG.

Instead, BRIDGET's second Workshop (see D2.4) took the form of a distributed set of on-line/telephone interviews carried in parallel by several partners in September and October 2015. As a large number of professional content producers were already engaged in the user trials that were carried out during the summer of 2015, all efforts of this Workshop were directed towards other broadcast and media typologies. After targeting and contacting many more, 28 professionals working at companies and institutions from 13 countries were actually interviewed, the industries they represented being the following:

- Broadcast (14);
- CATV (3);
- Commercial companies (2);
- Consulting, Cultural, Education, OTT, Publishing, Research, and Technology (1 each).

As instructed at the Y2 review, BRIDGET's third Workshop (see D2.8) reverted to the format adopted for the first one. However, its implementation had to take into account the fact that few –if any– of the companies contacted expressed their willingness to attend a “physical” meeting, in spite of our promise to let everybody experience our Authoring Tool, and to make a detailed presentation of the user trials. So the project decided to hold this Workshop where a significant number of potential users were expected to be: it was held on 19 October in Chengdu, CN, co-located with the 116th MPEG meeting, and had a highly qualified attendance of 20 people.

1.3. BRIDGET's User Trials

During the two validation cycles of BRIDGET, corresponding to Versions A and B of its system architecture and technological tools, RAI conducted both professional user trials and end user trials. The former involved employees of the broadcasting industry who tested BRIDGET's AT (Authoring Tool) and, to a lesser extent, its Player/App, and the latter involved different kinds of people from outside of the broadcasting industry who tested BRIDGET's App. In total, 136 users filled in, at the end of the trial sessions, (anonymous) questionnaires provided by TI, which were later analysed and yielded the conclusions presented in D8.2 and D8.7. Table 1 summarises BRIDGET's user trials.

Table 1: Number of people involved in BRIDGET's user trials

Validation cycle (Version)	1 (A)	2 (B)	Total
Professional user trials conducted by RAI: several focus groups evaluated mostly the AT with Italian content	14	12	26
End user trials conducted by RAI: several focus groups evaluated the App with Italian content	13	11	24
End user trials conducted by IMT, UNIS and UPM: separate individuals evaluated the App with English content	-	86	86
Total	27	109	136

Obviously, all of these 136 people became acquainted with the BRIDGET system and concepts.

1.4. Papers

1.4.1. Journal Papers

Seven peer-reviewed research papers co-authored by BRIDGET members have been published (or accepted for publication) in major international computer vision/graphics/science and signal processing journals:

- [1] G. Gallego (UPM), A. Yezzi, “A compact formula for the derivative of a 3-D rotation in exponential coordinates”, Springer Journal of Mathematical Imaging and Vision, vol. 51, nr. 3, p. 378-384, March 2015 (available on-line since August 2014), DOI: [10.1007/s10851-014-0528-x](https://doi.org/10.1007/s10851-014-0528-x).
- [2] R. Pagés, D. Berjón, F. Morán, N. García (UPM), “Seamless, Static Multi-Texturing of 3D Meshes”, EuroGraphics CGF (Computer Graphics Forum), vol. 34, nr. 1, p. 228-238, February 2015 (available on-line since October 2014), DOI: [10.1111/cgf.12508](https://doi.org/10.1111/cgf.12508).
- [3] D. Berjón, G. Gallego, C. Cuevas, F. Morán, N. García (UPM), “Optimal Piecewise Linear Function Approximation for GPU-based Applications”, IEEE Tr. Cybernetics, vol. 46, nr. 11, p. 2584-2595, November 2016 (available on-line since October 2015), DOI: [10.1109/TCYB.2015.2482365](https://doi.org/10.1109/TCYB.2015.2482365).
- [4] P. Carballeira, J. Cabrera, F. Jaureguizar, N. García (UPM), “Analysis of the depth-shift distortion as an estimator for view synthesis distortion”, Elsevier SPIC (Signal Processing: Image Communication), vol. 41, nr. 2, p. 128-143, February 2016 (available on-line since January 2016), DOI: [10.1016/j.image.2015.12.007](https://doi.org/10.1016/j.image.2015.12.007).
- [5] S. Husain, M. Bober (UNIS), “Improving large-scale image retrieval through robust aggregation of local descriptors”, IEEE Tr. PAMI (Pattern Analysis and Machine Intelligence), vol. ?, nr. ?, p. ?? (in print), ? 2017? (available on-line since September 2016), DOI: [10.1109/TPAMI.2016.2613873](https://doi.org/10.1109/TPAMI.2016.2613873).
- [6] S. Madeo, M. Bober (UNIS), “Fast, Compact and Discriminative: Evaluation of Binary Descriptors for Mobile Applications”, IEEE Tr. Multimedia, vol. ?, nr. ?, p. ?? (in print), ? 2017? (available on-line since October 2016), DOI: [10.1109/TMM.2016.2615521](https://doi.org/10.1109/TMM.2016.2615521).
- [7] P. Carballeira, J. Gutiérrez, F. Morán, J. Cabrera, F. Jaureguizar, N. García (UPM), “Multiview Perceptual Disparity Model for Super Multiview Video”, IEEE Journal of Selected Topics in Signal Processing, vol. 11, nr. 1, p. ?? (in print), February 2017 (available on-line since October 2016), DOI: [10.1109/STSP.2016.2617302](https://doi.org/10.1109/STSP.2016.2617302).

Besides, the following research paper was published in a German journal:

- [1] O. Schreer, I. Feldmann, S. Ebel (FHG), “*Fotorealistische 3D-Modellierung von Gebäuden*”, *FKT-Fachzeitschrift für Fernsehen, Film und Elektronische Medien*, nr. 10, October 2015.

1.4.2. Conference Papers

Other than the journal papers listed above, fourteen equally peer-reviewed research papers co-authored by BRIDGET members have been published/accepted at the best international conferences on image processing and computer graphics/vision, and at worldwide famous broadcasting conventions:

- [1] S. Husain, M. Bober (UNIS), “Robust and Scalable Aggregation of Local Features for Ultra Large Scale Retrieval”, Proc. IEEE ICIP (Intl. Conf. on Image Processing) 2014, p. 2799-2803, Paris, FR, October 2014, DOI: [10.1109/ICIP.2014.7025566](https://doi.org/10.1109/ICIP.2014.7025566).
- [2] N. Piotta, G. Cordara (HUA), “Statistical Modelling for Enhanced Outlier Detection”, Proc. IEEE ICIP (Intl. Conf. on Image Processing) 2014, p. 4280-4284, Paris, FR, October 2014, DOI: [10.1109/ICIP.2014.7025869](https://doi.org/10.1109/ICIP.2014.7025869).
- [3] S. García, R. Pagés, D. Berjón, F. Morán (UPM), “Textured Splat-Based Point Clouds for Rendering in Handheld Devices”, Proc. ACM Web3D (Intl. Conf. on 3D Web Technology) 2015, p. 227-230, Heraklion, GR, June 2015, DOI: [10.1145/2775292.2782779](https://doi.org/10.1145/2775292.2782779).

- [4] R. Pagés, S. García, D. Berjón, F. Morán (UPM), “SPLASH: A Hybrid 3D Modeling/Rendering Approach Mixing Splats and Meshes”, Proc. ACM Web3D (Intl. Conf. on 3D Web Technology) 2015, p. 231-234, Heraklion, GR, June 2015, DOI: [10.1145/2775292.2775320](https://doi.org/10.1145/2775292.2775320).
- [5] A. Messina (RAI), F. Morán (UPM), M. Preda (IMT), S. Lepsøy (TI), M. Bober (UNIS), D. Bertola (CED), S. Paschalakis (VA), “Making Second Screen Sustainable in Media Production: the BRIDGET Approach”, Proc. ACM TVX (Intl. Conf. on Interactive Experiences for TV and Online Video) 2015, p. 155-160, Bruxelles, BE, June 2015, DOI: [10.1145/2745197.2755517](https://doi.org/10.1145/2745197.2755517).
- [6] M. Bober (UNIS), I. Feldmann (FHG), S. García (UPM), A. Messina (RAI), S. Paschalakis (VA), G. Perrone (TI), V. Scurtu (IMT), G. Vavalà (CED), “BRIDGET: an approach at sustainable and efficient production of second screen media applications”, Proc. IET IBC (Intl. Broadcasting Convention) 2015, p. 1-9, Amsterdam, NL, September 2015, DOI: [10.1049/ibc.2015.0001](https://doi.org/10.1049/ibc.2015.0001).
- [7] E. Vidal, N. Piotto, G. Cordara (HUA), F. Morán (UPM), “Automatic Video to Point Cloud Registration in a Structure-from-Motion Framework”, Proc. IEEE ICIP (Intl. Conf. on Image Processing) 2015, p. 2646-2650, Québec City, CA, September 2015, DOI: [10.1109/ICIP.2015.7351282](https://doi.org/10.1109/ICIP.2015.7351282).
- [8] E. Ong, M. Bober (UNIS), “Improved Hamming Distance Search Using Variable Length Substrings”, Proc. IEEE CVPR (Intl. Conf. on Computer Vision and Pattern Recognition) 2016, p. 2000-2008, Las Vegas, NV, US, June 2016, DOI: [10.1109/CVPR.2016.220](https://doi.org/10.1109/CVPR.2016.220)? (not yet confirmed as of 2016-10-31).
- [9] S. Husain, M. Bober (UNIS), “On Aggregation of Local Binary Descriptors”, IEEE ICME (Intl. Conf. on Multimedia and Expo) Workshop on MMC (Mobile Multimedia Computing) 2016, p. 1-6, Seattle, WA, US, July 2016, DOI: [10.1109/ICMEW.2016.7574762](https://doi.org/10.1109/ICMEW.2016.7574762).
- [10] W. Waizenegger, I. Feldmann, O. Schreer, P. Kauff, P. Eisert (FHG), “Real-time 3D Body Reconstruction for Immersive TV”, Proc. IEEE ICIP (Intl. Conf. on Image Processing) 2016, p. 360-364, Phoenix, AZ, US, September 2016, DOI: [10.1109/ICIP.2016.7532379](https://doi.org/10.1109/ICIP.2016.7532379)? (not yet confirmed as of 2016-10-31).
- [11] I. Feldmann, T. Ebner, S. Ebel, S. Renault, O. Schreer (FHG), “Real Persons and Objects for Virtual Reality Applications”, Proc. SID-ME (Society for Information Display – Mid-Europe) Intl. Mtg. Fall 2016, p. ?? (in print), Berlin, DE, November 2016, DOI: ? (unknown as of 2016-10-31)..
- [12] I. Feldmann, O. Schreer, T. Ebner, P. Eisert, A. Hilsmann, N. Nonne, S. Haeberlein (FHG), “Digitization of people and objects for virtual museum applications”, Proc. Intl. Conf. EVA (Electronic Media and Visual Arts) Berlin 2016, p. ?? (in print), Berlin, DE, November 2016, DOI: ? (unknown as of 2016-10-31).
- [13] S. Renault, T. Ebner, I. Feldmann, O. Schreer (FHG), “Point Cloud Compression Framework for the Web”, Proc. IEEE IC3D (Intl. Conf. on 3D Imaging) 2016, p. ?? (in print), Liège, BE, December 2016, DOI: ? (unknown as of 2016-10-31).
- [14] D. Berjón, R. Pagés, F. Morán (UPM), “Fast feature matching for detailed point cloud generation”, Proc. IEEE IPTA (Intl. Conf. on Image Processing Theory, Tools and Applications) 2016, p. ?? (in print), Oulu, FI, December 2016, DOI: ? (unknown as of 2016-10-31).

Besides, the following research paper was published in a German conference:

- [1] I. Feldmann, O. Schreer, S. Ebel, T. Ebner, W. Waizenegger (FHG), “3D Rekonstruktion von Personen”, Proc. FK TG (Fernseh- und Kinotechnische Gesellschaft) 2016, Munich, DE, April 2016.

1.5. Patents

- [1] S. Lepsøy, M. Balestri, G. Francini (TI), “Method and System for Comparing Video Shots”, Intl. patent [WO/2016/058626](https://patents.google.com/patent/WO/2016/058626), April 2016 (filed as PCT/EP2014/071878 in October 2014).
- [2] W. Waizenegger, O. Schreer, I. Feldmann, P. Eisert, P. Kauff (FHG), “Apparatus and method for performing 3D estimation based on locally determined 3D information hypothesis”, Intl. patent application PCT/EP16172527.0, filed in June 2016.

- [3] P. Setiawan, M. Marković (HUA), “Dual Core Multichannel Audio Coding Scheme based on Eigenvalue Analysis”, Intl. patent application PCT/EP2016/065395, filed in June 2016.

1.6. Events

1.6.1. TVX 2015

TVX is ACM’s yearly international conference on interactive experiences for TV and online video. IMT represented BRIDGET at TVX 2015, and presented one of the papers listed above [5].

1.6.2. EBU MDN 2015

MDN (Metadata Developer Network) is a workshop organised every year by EBU to introduce technological innovations and new applications in the area of metadata, and its audience includes technology experts from EBU members, as well as external experts coming from industry and academia. During the first day of MDN 2015, BRIDGET presented a contribution about applications of CDVS in media and broadcasting.

1.6.3. IBC 2015

IBC (International Broadcasting Convention) is Europe’s largest professional trade show for broadcasters, content creators/providers, equipment manufacturers, professional and technical associations, and other participants in the broadcasting industry. However, in recent years IBC has de-highlighted its broadcasting focus, and instead marketed its exhibition as the world’s largest focused on media and entertainment. IBC is held annually in September in Amsterdam, NL.

BRIDGET had a successful time at IBC 2015: not only we presented one of the technical papers listed above [6], but we also shared with three companion EU projects the “Second Screen CC (Content Convergence)” mini-cluster stand, which received the “What Caught my Eye – Blue Sky Thinking” award for the most promising technologies. BRIDGET presented demos including its full delivery chain, with one main screen plus two second screen devices, and bridglets being served from a remote server. We got a lot of good feedback from the many broadcasters and content providers who visited our booth, and many joined our user group. We also showed off the BRIDGET Authoring Tool to create bridglets, and the underlying technical tools, namely visual search for images and videos, and 3D reconstruction.

1.6.4. 67th Prix Italia

Prix Italia is an annual international competition for TV, radio and online media, which attracts hundreds of visitors from around the world. RAI demonstrated BRIDGET at the 67th edition of Prix Italia, organised in Torino in September 2015. The event helped the project increase its visibility inside RAI’s production department and among the widest audience of international producers and programme makers with an overall good feedback.

1.6.5. IFA 2016

The IFA (*Internationale FunkAusstellung Berlin*, i.e., intl. radio exhibition Berlin) is one of the oldest industrial exhibitions in Germany, and one of world’s leading trade shows for consumer electronics and home appliances. It is (currently) an annual event held in Berlin at the beginning of September. FHG had a booth at IFA 2016 and took this opportunity to show the 3D reconstruction tools developed within BRIDGET and to distribute flyers publicising the whole project.

1.6.6. IBC 2016

[NB: For a description of IBC, see Section 1.6.3.] As in the case of IFA 2016, FHG had a booth at IBC 2016 and used it to show the 3D reconstruction tools developed within BRIDGET and to distribute flyers publicising the whole project. Furthermore, UNIS and VA demonstrated BRIDGET's delivery and visual search tools in the IBC Future Zone. The demonstration attracted strong interest and was seen by over 60 visitors, leading to preliminary discussions on commercialisation opportunities.

1.6.7. Various Talks

- [1] G. Francini (TI), "*La ricerca visuale e lo standard MPEG CDVS*", talk (in Italian) at the Video Intelligence Conference, Milano, IT, April 2015.
- [2] F. Morán (UPM), "*Reconstrucción 3D en el proyecto europeo BRIDGET*" (32:55-37:15), talk (in Spanish) on RNE (*Radio Nacional de España*) with other professors from ETSIT-UPM, Madrid, ES, May 2015.
- [3] M. Preda (IMT), "*Interactions visuelles et représentations pour la réalité augmentée*", talk (in French) at the *Bourse aux Technologies Publishing & Multimedia*, Paris, FR, September 2015.

1.7. Clustering Activities

Following the recommendation from the Y1 review, BRIDGET established direct links with three related EU projects, LinkedTV, MediaScape and SAM, creating the so-called "Second Screen Content Convergence" mini-cluster. It is a collaborative initiative of EU-funded research projects focused on developing innovative solutions for production, delivery, consumption and ecosystems for monetisation of second screen content. We worked together to successfully demonstrate and disseminate our results at IBC 2015: see Section 1.6.3. This fruitful clustering was again shown at IBC 2016 where SAM and BRIDGET shared a booth in the future zone: see Section 1.6.6.

2. Standardisation Results

NB: a number of MPEG-related acronyms are used in the following two Sections, and expanded in the third.

2.1. MPEG Input Documents

Sixty-eight proposals and technical contributions co-authored by BRIDGET members have been submitted to MPEG, and discussed at its meetings. As a response to the comments contained in the report from the Y1 review regarding the actual effect of these contributions, we have included Table 2 in this deliverable, hoping it will help explain the impact of our work on MPEG standards more clearly than a simple list of input documents.

Table 2: Contributions submitted to MPEG during BRIDGET’s lifetime, and status of the corresponding activities

MPEG mtg.	Contribution	Description and status
107 (Jan. 2014)	M32330: M. Bober, S. Husain, S. Paschalakis, K. Wnukowicz, “Improved RVD in TM8 - CE2 Response from University of Surrey and Visual Atoms”	This document presented an improved global descriptor, the RVD (Robust Visual Descriptor), which resulted in an improvement to the overall performance of TM8 in both pairwise matching and retrieval, especially in the non-planar 3D objects experiments. Furthermore, the proposed method introduced a very simple control mechanism for the global descriptor matching process, using just a single threshold to control the TPR-FPR (True-False Positive Rate) balance in pairwise matching. Our proposed bit-selection mechanism for rate control and simplified matching process with a single threshold was adopted in the final CDVS standard (activity completed).
	M32336: T. Lavric, M. Preda, “Updates on M26114 (Initial proto design for server-side processing for AR)”	This contribution proposed a new functionality that adds the possibility of creating augmented reality scenes where some of the processing is done by specialized remote services. An initial design for server side processing was previously proposed (doc. M26114) specifically for remote image detection support. This contribution was accepted, and triggered others related to server-side processing in AR and in the BRIDGET context.
	M32546: K. Wnukowicz, S. Paschalakis, “MPEG-7 XM Update and Testing”	The visual descriptors of the MPEG-7 XM were updated for operation with the latest versions of the required external libraries, namely ImageMagick (v. 6.8.8), Xerxesc (v. 3.1.1) and OpenCV. The proposed changes were accepted and integrated.

MPEG mtg.	Contribution	Description and status
108 (Mar.-Apr. 2014)	M33380: M. Balestri, M. Bober, L. Chiariglione, G. Cordara, G. Francini, D. Gibellino, T. Lavric, A. Messina, F. Morán, S. Paschalakis, M. Preda, "Proposal for a definition of CDVS engine APIs"	This contribution proposed to start a technical activity in MPEG aimed to identify one or more new MPEG-M Technology Engines providing functionalities such as extraction and compression of CDVS, and to define the related APIs as suitable extensions to MPEG-M Part 2. This proposal was accepted (new activity started).
	M33489: S. Paschalakis, G. Francini, G. Cordara, M. Bober, L. Duan, K. Iwamoto, V. Chandrasekhar, "Editors' Proposed Improvements on Study Text of ISO/IEC CD 15938-13 CDVS"	The proposal for improvements to the draft text was accepted and is reflected in the final ISO CVDS standard.
	M33382: T. Lavric, M. Preda, "ARAF guidelines: PROTOs implementations"	This contribution describes the full set of supported functionalities to support visual augmentation and gives guidelines for the prototype implementations. The processing is divided in two categories, local and remote, based on the capabilities and power consumption of the device, the time constraints and the storage. This contribution was accepted and the work on the actual implementation of the prototypes started.
	M33434: K. Wnukowicz, S. Paschalakis, "MPEG-7 XM Update and Testing"	The XM software was tested against MPEG-7 schema file mpeg-7-v3.xsd (doc. N14205) and passed the XML schema validation after minor editing (e.g., updates to the schema name and the ImageSignature descriptor). The Advanced-FaceRecognition software was also tested passed the validation. The proposed changes were accepted and included in the updated software XM.
109 (July 2014)	M34079: S. García, P. Carbal-leira, F. Morán, G. Lafruit, "EE1 and EE2 results on Bee"	This contribution was presented and discussed with great interest during the meeting of the AHG on FTV. It was accepted and taken into account, as well as other related contributions from this list, to produce the Call for Evidence on FTV at the 113th MPEG meeting.

MPEG mtg.	Contribution	Description and status
	M34338: M. Preda, G. Kim, C. Perey, "Contributions to MAR RM"	The MAR-RM is intended to be used as a basic reference by any MAR related standards developing organizations. It can also be used as a guideline for MAR component, system, application and service developers a mean for fluid communication among the MAR practitioners. The document structure, the list of the symbols and abbreviated terms, the MAR terminology, the MAR system classes and the use cases were discussed and updated in a joint ad-hoc meeting with ISO/IEC JTC 1/SC 24.
	M34360: A. Gabrielli, Y. Lehiani, T. Lavric, M. Preda, "ARAF: remote recognition – analysis and preliminary results"	This contribution presented an implementation of a remote recognition service developed for smartphones running Android OS. The goal was to analyse the architecture and the performance of the service and to validate its interface against one of the existing prototypes that were previously defined and implemented (docs. N14199, M33382). This contribution was acknowledged.
	M34466: M. Balestri, D. Bertola, D. Gibellino, G. Vavalà, "Compact Descriptors Engine API"	In order to facilitate integration and interoperability of services, products and applications including CDVS functionalities, a first set of core APIs were consolidated in a new MXM Technology Engine defined according to MPEG-M's architectural model (ISO/IEC 23006-1) and documented following the structure of MXM (ISO/IEC 23006-2). This proposal was accepted.
	M34478: M. Bober, S. Paschalakis, "Proposal on evaluation protocol for responses to CDVA CfP"	This document proposed an evaluation framework for assessing the responses to the CfP on CDVA. It focused on the media and entertainment domains, and in particular on scenarios of visual search in the video domain. This proposal was accepted and forms the core of the present MPEG CDVA evaluation framework.
	M34479: A. Freestone, M. Bober, "Development of GUI for MPEG-7 XM software"	MPEG recently reviewed and updated the MPEG-7 Visual XM software to ensure that it can be compiled with the latest compilers and used as a reference software implementation for the standard. However, the reference software is command line driven and, while this is sufficient for many tasks, it may be difficult for the less experienced users to understand what visual properties are represented by various MPEG-7 visual descriptors. We have therefore set out to develop a GUI extension for the XM, which can be used for simple testing and demonstration. The purpose of this document is to inform about our project, results of which will be shared with MPEG on completion. The work is ongoing at low priority.

MPEG mtg.	Contribution	Description and status
	M34480: M. Bober, A. Free-stone, S. Stoll, "CDVA CfP - Example annotations for the test material and comments on the annotation tools"	This document introduced annotations on the test material performed at Surrey University. It also summarised our negative experience with the WisW annotation tool that was initially considered by MPEG. Our recommendation was accepted: the WisW tool was abandoned and replaced with a more suitable alternative.
	M34481: S. Paschalakis, M. Bober, "Refined Requirements for the CDVA in Media and Entertainment for Video Search Scenarios"	This document presented a refined set of requirements for the CDVA in the media and entertainment domains, focusing on the video search scenarios. Its recommendations were accepted and incorporated in the MPEG CDVA evaluation criteria.
	M34507: K. Wnukowicz, S. Paschalakis, "Further Development Work on MPEG-7 XM"	Various changes and updates were made upon the MPEG 108 release to allow the MPEG-7 XM to compile in Linux, specifically Ubuntu 12.04 LTS. All changes were accepted and formed a new SW release.
	M34573: D. Gibellino, "Comments on Metadata support in ISOBMFF"	This contribution highlights potential limitations concerning Metadata support in the current ISOBMFF design. This proposal was accepted, and clarifications and additional text were included in the latest edition of ISO/IEC 14496-12.
	M34582: M. Bober, M. Barnard, S. Paschalakis, "Proposal for the evaluation framework of MPEG-7 visual descriptors in scene classification task"	This document proposed a testing framework and datasets in order to set a benchmark performance levels for scene classification tasks based on MPEG-7 image descriptors. This proposal was accepted.
110 (Oct. 2014)	M35072: A. Fiandrotti, M. Matteliano, M. Balestri, G. Francini, S. Lepsøy, "A CDVS library with minimal dependencies"	This contribution proposed a refactoring of the CDVS TM into a new structure based on an abstract API using a namespace "cdvs", a library set composed by four variants of the CDVS library ("libcdvs_{main,bflog,fast,lowmem}"), and a reimplementaion of the five main executables using the CDVS library. We also proposed a patch to the TM implementation to reduce the computational complexity associated with keypoint description without affecting the generated SIFT descriptors. Experiments on x64 and ARM-v7 based hosts, on Linux and Windows OSs, showed reductions in keypoint description in excess of 30%, and reductions in the overall extraction time up to 10%. The proposed changes were accepted and implemented in CDVS TM12

MPEG mtg.	Contribution	Description and status
	M35079: S. García, P. Carbal-leira, F. Morán, G. Lafruit, "EE1 and EE2: Bee results"	These three contributions were presented and discussed with great interest during the meeting of the AHG on FTV. They were accepted and taken into account, jointly with other related contributions from this list, to produce the Call for Evidence on FTV at the 113th MPEG meeting.
	M35111: P. Goorts, P. Carbal-leira, S. García, K. Wegner, F. Morán, G. Lafruit, "EE2: San Miguel results"	
	M35112: P. Goorts, P. Carbal-leira, S. García, K. Wegner, F. Morán, G. Lafruit, "EE3B: Soccer-corner results"	
	M35117: L. Chiariglione, D. Bertola, A. Messina, M. Preda, T. Lavric, "Proposal for MLAF"	This contribution is the first of the seven related to MLAF that were submitted during the first two years of BRIDGET. They were all accepted and finally yielded MLAF CD [15], and later the corresponding DIS [17] and FDIS [21].
	M35129: M. Bober, M. Barnard, S. Paschalakis, "Evaluation of MPEG-7 visual descriptors in scene classification tasks"	The classification of the scene depicted in an image or video forms an important component in automatic visual media annotation systems. In this contribution we presented a preliminary investigation of scene classification using a small subset of the MPEG-7 visual descriptors in combination with SVM classifiers. We combined individual descriptors on feature or classifier levels to create a computationally efficient and robust system for scene classification. This proposal was accepted: CEs on the classification using MPEG-7 were launched by MPEG.
	M35132: K. Wnukowicz, S. Paschalakis, "Further Development Work on MPEG-7 XM"	Work was carried out on the MPEG 109 release of the MPEG-7 XM, including fixing Perceptual3DShape and IlluminationInvariantColor tools, which did not compile under Linux. The descriptor ParametricMotion was fixed to output valid XML. A new library (libqhull-dev) has been added under Linux, as required by the Perceptual3Dshape. Various other fixes were applied to remove link errors. The modifications and fixes were accepted and integrated in the MPEG-7 XM SW and documentation.
	M35222: T. Lavric, M. Preda, "ARAF: remote audio recognition"	Following the work of the visual augmentation (local and remote) this contribution proposed the remote audio recognition functionality. The use-cases were presented along with the prototype interface and implementation details. The work was accepted and the prototype implementation is being used in the BRIDGET context in both the recognition of the main screen programme and the synchronization of the second screen application with the first screen.

MPEG mtg.	Contribution	Description and status
	M35391: G. Francini, M. Balestri, S. Lepsøy, "CDVS: Removal of the orientation parameter from feature selection"	This contribution aimed at reducing the computational time required to extract MPEG CDVS descriptors by removing the keypoint orientation from the list of parameters used in the feature selection stage. This helps to avoid unnecessary computation of the orientation for all the extracted key-points. This proposal was accepted and is now inside MPEG-7 Part 13.
111 (Feb. 2015)	M35667: D. Bertola, T. Lavric, C. Tulvan, A. Gabrielli, A. Messina, M. Preda, G. Vavalà, "An initial demonstration of MLAF technologies"	These three contributions are among the seven related to MLAF that were submitted during the first two years of BRIDGET. They were all accepted and finally yielded the MLAF CD [15], and later the corresponding DIS [17] and FDIS [21].
	M35668: L. Chiariglione, A. Messina, M. Preda, "Proposal for update of MLAF requirements"	
	M35767: T. Lavric, A. Gabrielli, V. Scurtu, M. Preda, G. Vavalà, "High level presentation layer for MLAF"	
	M35823: P. Carballeira, J. Gutiérrez, F. Morán, "Subjective evaluation of SMV in legacy displays"	This contribution was presented and discussed with great interest during the meeting of the AHG on FTV. It was accepted and taken into account, as well as other related contributions from this list, to produce the Call for Evidence on FTV at the 113th MPEG meeting.
	M35824: M. Balestri, G. Francini, S. Lepsøy, A. Bay, A. Fian-drotti, M. Mattelliano, "CDVS test model code optimizations and enhancements"	This contribution introduced various optimizations and enhancements to the CDVS TM code that result in faster execution, invariant binary representation of CDVS descriptors, and equivalent performances in pairwise matching and retrieval. The document also proposed a modification needed to align the TM code with the CDVS specification, which breaks backward binary compatibility of CDVS descriptors but does not change in any way the performances of the TM. The proposal was accepted and implemented in CDVS TM13.

MPEG mtg.	Contribution	Description and status
112 (July 2015)	M36246: D. Buzzi, A. M. De Cristofaro, G. De Santis, A. Messina, G. Perrozzi, S. Proscia, "RAI dataset for CDVA: monuments of Italy"	This document proposed one dataset for CDVA experimentation in MPEG which is composed of about 2000 clips depicting about 200 monuments from all over Italy. This dataset was accepted for inclusion in the MPEG CDVA evaluation framework.
	M36247: A. Messina, "A possible implementation of MLAF in MPEG-21 DIDL"	This document presented a hypothesis of implementation of MLAF using MPEG-21 DIDL model. The proposal was accepted and implemented first in the MLAF CD [15], and later in the corresponding DIS [17] and FDIS [21].
	M36391: A. Fiandrotti, M. Mattelliano, M. Balestri, G. Francini, S. Lepsøy, A. Bay, P. Porto Buarque de Gusmão, "CDVS test model code maintenance"	This document presents various optimizations, enhancements and bug fixes to the CDVS Test Model code that result in a more robust code, faster to execute, preserving invariant binary representation of CDVS descriptors, and having equivalent performances in pairwise matching and retrieval. MPEG adopted the proposed changes in CDVS TM14.
	M36393: S. Lepsøy, M. Balestri, G. Francini, "Turin buildings: a dataset for CDVA"	This dataset consisting of 1800 video clips was presented during the meeting of the AHG on CDVA. This dataset was accepted for inclusion in the MPEG CDVA evaluation framework.
	M36418: T. Lavric, M. Preda, "Presentation layer for MLAF"	In the MLAF model proposed during BERIDGET's Year 1, among other concepts, a bridget representation was introduced, but it only considered a layout information referring to an "anyURI" type. The scope of this contribution was to define a bridget layout format that can be uniquely interpreted and presented by a BRIDGET player. The new bridget layout representation extends the already proposed MLAF XML schema. The contribution was accepted and the updated XMT-A related work and the BridgetedMedia XSD have been introduced in MLAF.
	M36448: P. Carballeira, J. Gutiérrez, F. Morán, N. García, "New view-sweep parametrization and subjective evaluation of SMV content"	These three contributions were presented and discussed with great interest during the meeting of the AHG on FTV. They were accepted and taken into account, as well as other similar contributions from this list, to produce the Call for Evidence on FTV at the 113th MPEG meeting.

MPEG mtg.	Contribution	Description and status
	M36494: P. Carballeira, S. García, J. Gutiérrez, F. Morán, N. García, "Champagne anchor results"	
	M36525: S. García, P. Carballeira, F. Morán, G. Lafruit, "Soccer corner anchor results"	
	M36765: S. Paschalakis, K. Jouneau, "Visual Atoms Contribution to CDVA Datasets"	
113 (Oct. 2015)	M36908: M. Balestri, S. Lepsøy, G. Francini, "Proposal of a CDVA evaluation framework implementation"	This document describes a set of tools for the automated evaluation of CDVA proposals, implemented according to the guidelines set in the CDVA evaluation framework. The proposed CDVA evaluation framework implementation was accepted, with a simplified way to measure complexity (doc. N15729).
	M37411: S. García, A. Meyer, P. Carballeira, F. Morán, "Scene reconstruction with hybrid SPLASH 3D models"	These two contributions were presented and discussed with great interest during a joint meeting of the Requirements, Video and 3D Graphics subgroups. They were accepted and taken into account, as well as other similar contributions from this list, to produce the Call for Evidence on FTV at the 113th MPEG meeting.
	M37415: S. García, F. Morán, P. Carballeira, "Proposal for efficient coding of hybrid SPLASH 3D models"	
	M37433: T. Lavric, M. Preda, "A proposal for MLAF reference SW"	This contribution proposes GPAC (an open source multimedia framework) as a starting point for the MLAF reference SW, and presents the generic features that are already supported by GPAC. The recommendation was to use a GPAC-based solution for MLAF reference SW, and to continue the implementation of MLAF description layer interpretation in GPAC.

MPEG mtg.	Contribution	Description and status
	M37466: M. Bober, S. Paschalakis, A. Freestone, "Evaluation of MPEG-7 descriptors in scene classification tasks"	This document proposed a testing framework and datasets in order to establish benchmark performance levels for scene classification tasks for the MPEG-7 image descriptors. We also presented results on the MIT8 dataset, containing eight semantic categories. The proposal was accepted, and the activity is ongoing.
114 (Feb. 2016)	M37528: T. Senoh, A. Ishikawa, M. Okui, K. Yamamoto, N. Inoue, P. Carballeira, F. Morán, "Results of newer HTM codecs on FTV test sequences"	This contribution was presented and discussed with great interest during the meeting of the AHG on FTV. It was accepted and taken into account, jointly with another two related contributions from this list, to continue the exploration work on the FTV activity at the 114th MPEG meeting.
	M37828: L. Cui, H. Xu, S.-H. Lee, M. Preda, C. Tulvan, E. S. Jang, "Efficient color data compression methods for PCC"	This contribution deals with the geometry data compression, the reference software and the datasets for PCC, and focuses on colour compression efficiency, which has rarely been considered so far. We proposed two colour data compression methods for PCC, based on run-length coding and vector quantization, which exploit the spatial redundancy of the colour data among adjacent points. The proposal was accepted and the decision was to continue the exploration work on PCC at the 114th MPEG meeting.
	M37880: M. Balestri, G. Francini, S. Lepsøy, M. Bober, S. Husain, S. Paschalakis, "BRIDGET Response to the MPEG CfP for CDVA - Search and Retrieval"	This documents describes the proposal of the BRIDGET Consortium to the new MPEG CDVA standard, which is based on the ALP keypoint detector, the binarized SIFT local descriptor, and the RVD global descriptor. The video shot segmentation is based on global descriptor matching scores and the comparison between videos is performed considering multiple frames simultaneously. The evaluation of the proposals was postponed to the following meeting because all the proposals were unable to meet the timing constraints of the CfP.
	M37887: A. Bay, M. Balestri, "CDVS: Matlab code maintenance"	Improvement of the Matlab interface to MPEG CDVS functions. The proposal was accepted and the code inserted in the CDVS Reference Software.
	M37909: T. Lavric, M. Preda, "White Paper on ARAF 2 nd Edition"	This document is purely informative. It introduces AR technology and give existing examples, then describes ARAF: principle and context, scene description, sensors and actuators management, list of currently supported features, examples of use, and finally conclusions. The contribution was acknowledged.

MPEG mtg.	Contribution	Description and status
	M37910: T. Lavric, M. Preda, V. Scurtu, "Big Data for personalized user experience in AR"	The goal of this proposal was to identify how Big Data can be useful in AR and which are the specifications that have to be met by ARAF to be able to take advantage of such technology. To achieve better results, an AR application or browser must be aware of the user context, user preferences, device capabilities, etc. By collecting and analysing specific information about the user and his environment, ARAF would allow creators to better design their content and improve the way how bridged content is consumed by the end user. This contribution was acknowledged and used to create a new use case in the Big Media project.
	M37934: C. Tulvan, E. S. Jang, M. Preda, "Web3D Coding for large objects with attributes and texture"	In this document we presented the work done to implement two 3D graphics coding tools for web browsers: the SC3DMC (Scalable Complexity 3D Mesh Coding) codec for static meshes, and the BBA (Bone-Based Animation) codec for animated ones. Both were completely implemented in JavaScript, thus no installation is necessary at the client side, and the validation was done by implementing a basic rendering engine based on WebGL which was then used to display the decoded objects. The scene representation was implemented in glTF (JSON) referencing the encoded data directly from this format. The proposal was accepted and the decision was to include this contribution as three amendments of Parts 5, 16 and 27 of the MPEG-4 standard.
	M37936: C. Tulvan, M. Preda, "Big Data platform for 3D reconstruction and diffusion"	In this document we presented the work done in designing and implementing the 3D reconstruction and diffusion platform based on a scalable cluster model. The architecture was designed based on the OpenStack model with the corresponding web services and interface. The results were presented as preview images and the available data was provided in digital format. The proposal was accepted and the decision was to create a new use case in the Big Media project.
	M38037: S. García, P. Carbal-leira, F. Morán, "Further re-sults on scene reconstruction with hybrid SPLASH 3D mod-els"	These two contributions were presented and discussed with great interest during the meeting of the AHG on FTV. They were accepted and taken into account, jointly with another related contribution from this list, to continue the exploration work on the FTV activity at the 114th MPEG meeting.
	M38063: P. Carballeira, J. Gutiérrez, F. Morán, N. García, "SMV/FN subjective assessment: MultiView Perceptual Disparity Model"	

MPEG mtg.	Contribution	Description and status
115 (May-June 2016)	M38631: J. Cubelos, P. Carbal-leira, F. Morán, “SMV player for HMDs”	These two contributions were presented and discussed with great interest during the meeting of the AHG on FTV. They were accepted and taken into account to continue the exploration work on the FTV activity at the 115th MPEG meeting.
	M38633: J. Gutiérrez, P. Car-balleira, N. García, “Factors on QoE assessment for lightfield representations”	
	M38664: M. Balestri, G. Fran-cini, S. Lepsøy, M. Bober, S. Husain, “BRIDGET report on CDVA CE1”	This documents describes the proposal of the BRIDGET Consortium to the new MPEG CDVA standard. The approach is similar to M37880 with the exception of the keyframe detection algorithm based on colour histograms. This change improved the performance in terms of speed and true positive rate of the pairwise matching experiment. The proposal was partially adopted in CXM v0.2.
	M38667: M. Balestri, G. Fran-cini, S. Lepsøy, “CDVA Evalua-tion Framework: a C++ imple-mentation of the MATLAB functions”	Various computations performed by the CDVA Evaluation Framework contained in CXM are implemented as MATLAB functions. In order to test various aspects of the code in this proposal, some of them are reimplemented in C++. The proposal was accepted and the code included in CXM v0.2.
	M38676: C. Tulvan, M. Preda, E. S. Jang, “Proposal for updat-ing MPEG-4 Requirements, re-lated to point clouds”	In this document, we proposed several updates to the MPEG-4 Requirements focusing on adding information for PCC. The sections related to 3D mesh were updated accordingly with the details related to PCC. The proposal was acknowledged and the decision was to create a CfP for MPEG PCC.
	M38677: C. Tulvan, M. Preda, “Updates on Big Media use-cases description”	In this document, we proposed several updates on the Big Media use cases, mainly focusing on the 3D reconstruction and diffusion platform, in the context of MPEG Big Media. We reported on the analysis performed to determine the tools and MPEG standards necessary for implementing the platform. The proposal was accepted and the decision was to include this contribution as a new use case in the Big Media project.
	M38678: C. Tulvan, A. Gabri-elli, M. Preda, “Datasets up-date on PCC for cultural ob-jects”	In this document, we proposed a dataset of reconstructed 3D objects provided to the repository as digital content as 3D PCs and Meshes. This dataset was accepted for inclusion in the MPEG PCC evaluation framework.

MPEG mtg.	Contribution	Description and status
116 (Oct. 2016)	M39299: P. Carballeira, J. Gutiérrez, N. García, "MVPDM software tool"	This contribution was presented and discussed with great interest during the meeting of the AHG on FTV. It was accepted and taken into account to continue the exploration work on the FTV activity at the 116th MPEG meeting.
	M39394: T. Lavric, M. Preda, "DeviceInfo PROTO in ARAF"	This contribution introduces a prototype in charge of collecting the characteristics of the device running an ARAF experience. Based on this information, the ARAF application can be programmed by the experience creator so as to provide the best user experience on each particular device, given its screen size, default orientation, camera capabilities, etc. In the BRIDGET scenario, this prototype would improve the way how bridged content is consumed by the end user, considering terminals with different capabilities. This contribution was acknowledged as technology under consideration for the 3rd Edition of ARAF.
	M39420: H. Xu, S. Lee, M. Preda, C. Tulvan, E. S. Jang, "Enhanced entropy coding method based on octree depth for PCC"	In this document, we proposed an enhanced entropy coding method based on octree depth, which first classifies the octree nodes in two groups, depending on whether they are leaves or not, which are then used as a context for two probability models. Experimental results show that the proposed method reduces the geometry data size up to 8% on average. The proposal was accepted and the decision was to continue the exploration work on PCC at the 116th MPEG meeting.
	M39430: C. Tulvan, M. Preda, "Datasets update on PCC"	In this document, we proposed obtaining collections of PC datasets with different types of characteristics, such as: large PCs obtained by scanning the static environment; dynamic PCs obtained by scanning the environment with a moving scanner; and dynamic/changing objects. These datasets were selected based on their characteristics to be used as test material for the MPEG PCC project. Owners of these datasets were contacted. The proposal was accepted and the decision was to include the new datasets in the list of anchor candidates in the PCC exploration.
	M39433: M. Balestri, G. Francini, S. Lepsøy, "Improved temporal localization for CDVA"	This proposal addresses two problems of CXM v0.2: the insufficient performances on temporal localization, and the relatively low speed of the CXM in pairwise matching computation. The proposed technology improves substantially the localization index, while at the same time speeding up pairwise matching computing. The proposal cuts the video in shots using colour histograms and introduce a method for speeding up the comparison of the set of keyframes representing queries and references. The proposal was accepted and the code included in CXM v1.0.

2.2. MPEG Output Documents

Twenty-six (forty-one counting successively refined versions) output documents co-authored and/or co-edited by BRIDGET members have been agreed upon and approved at MPEG meetings.

2.2.1. 106th MPEG meeting (2013-10-28 ... -11-01 @ Genève, CH)

- [1] C. Tulvan (IMT), F. Morán (UPM), S. W. Lee, K. Mammou, M. Ahn, M.-L. Champel (eds.), “Description of 3DG Core Experiments”, MPEG output doc. N14031, 106th MPEG mtg., Genève, CH, November 2013. The following eight successive versions of this output doc., co-edited by slightly different people (always including the two BRIDGET members above, and in some cases others), were also produced during BRIDGET’s lifetime: N14195, 107th MPEG mtg., San Jose, CA, US, January 2014; N14476, 108th MPEG mtg., Valencia, ES, April 2014; N14764, 109th MPEG mtg., Sapporo, JP, July 2014; N15001, 110th MPEG mtg., Strasbourg, FR, October 2014; N15290, 111th MPEG mtg., Genève, CH, February 2015; N15356, 112th MPEG mtg., Warszawa, PL, June 2015; N15868, 113th MPEG mtg., Genève, CH, October 2015; N16037, 114th MPEG mtg., San Diego, CA, US, February 2016.

2.2.2. 107th MPEG meeting (2014-01-13 ... -17 @ San Jose, CA, US)

- [2] S. Paschalakis (VA), G. Francini (TI), G. Cordara (HUA), M. Bober (UNIS), L. Duan, K. Iwamoto, V. Chandrasekhar (eds.), “Study Text of ISO/IEC CD 15938-13 Compact Descriptors for Visual Search”, MPEG output doc. N14220, 107th MPEG mtg., San Jose, CA, US, January 2014. The following three successive versions of this output doc., co-edited by the same people, were also produced during BRIDGET’s lifetime: N14392, 108th MPEG mtg., Valencia, ES, April 2014; N14681, 109th MPEG mtg., Sapporo, JP, July 2014; N14956, 110th MPEG mtg., Strasbourg, FR, October 2014.

2.2.3. 108th MPEG meeting (2014-03-31 ... -04-04 @ Valencia, ES)

- [3] S. Paschalakis (VA), G. Francini (TI), G. Cordara (HUA), M. Bober (UNIS), L. Duan, K. Iwamoto, V. Chandrasekhar (eds.), “Test Model 10: Compact Descriptors for Visual Search”, MPEG output doc. N14393, 108th MPEG meeting, Valencia, Spain, March 2014. The following four successive versions of this output doc., co-edited by the same list of people, were also produced during BRIDGET’s lifetime: N14682, 109th MPEG mtg., Sapporo, JP, July 2014; N14961, 110th MPEG mtg., Strasbourg, FR, October 2014; N15129, 111th MPEG mtg., Genève, CH, February 2015; N15372, 112th MPEG mtg., Warszawa, PL, June 2015.

2.2.4. 109th MPEG meeting (2014-07-07 ... -11 @ Sapporo, JP)

- [4] S. Paschalakis (VA), G. Francini (TI), M. Bober (UNIS), W. Bailer (eds.), “Compact Descriptors for Video Analysis: Requirements for Search Applications”, MPEG output doc. N14558, 109th MPEG mtg., Sapporo, JP, July 2014.

- [5] S. Paschalakis (VA), G. Francini (TI), M. Bober (UNIS), W. Bailer (eds.), “Compact Descriptors for Video Analysis: Draft Evaluation Scenarios for Search Applications”, MPEG output doc. N14559, 109th MPEG mtg., Sapporo, JP, July 2014.
- [6] M. Balestri (TI), D. Bertola (CED), D. Gibellino (TI), G. Vavalà (CED), “WD of MXM APIs for CDVS”, MPEG output doc. N14659, 109th MPEG mtg., Sapporo, JP, July 2014

2.2.5. 110th MPEG meeting (2014-10-20 ... -24 @ Strasbourg, FR)

- [7] L. Chiariglione, D. Bertola (CED), A. Messina (RAI), M. Preda, T. Lavric (IMT) (eds.), “Draft Requirements for Media Linking Application Format (MLAF)”, MPEG output doc. N15049, 110th MPEG mtg., Strasbourg, FR, October 2014.
- [8] L. Chiariglione, D. Bertola (CED), A. Messina (RAI), M. Preda, T. Lavric (IMT) (eds.), “WD of ISO/IEC 23000-18 Media Linking Application Format (MLAF)”, MPEG output doc. N15061, 110th MPEG mtg., Strasbourg, FR, October 2014.
- [9] S. Paschalakis (VA), K. Wnukowicz (VA) (eds.), “Text of ISO/IEC 15938-6:201X Reference software (2nd edition)”, MPEG output doc. N14954, 110th MPEG mtg., Strasbourg, FR, October 2014.

2.2.6. 111th MPEG meeting (2015-02-16 ... -20 @ Genève, CH)

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2.3. Acronyms used in MPEG

- AHG = Ad-Hoc Group, created by one of the MPEG subgroups (i.e., Requirements, Systems, Video, Audio, or 3D Graphics) at the end of an MPEG meeting to work on a specific subject until (and to report on its progress at) the following meeting
- AR = Augmented Reality
- ARAF = AR Application Format, i.e., MPEG-A Part 13 (formally, ISO/IEC 23000-13)
- CD = Committee Draft
- CDVA = Compact Descriptors for Video Analysis
- CDVS = Compact Descriptors for Visual Search
- CXM = CDVA XM
- CfP = Call for Proposals
- DIDL = Digital Item Declaration Language
- DIS = Draft IS
- EE = Exploration Experiment
- FDIS = Final DIS
- FTV = Free-viewpoint TeleVision
- IS = International Standard
- ISOBMFF = ISO Base Media File Format
- MAR = Mixed and Augmented Reality
- MLAF = Media Linking Application Format, to be published soon thanks to BRIDGET as MPEG-A Part 18 (formally, ISO/IEC 23000-18): see [21]
- MXM = MPEG eXtensible Middleware, i.e., MPEG-M Part 2 (formally, ISO/IEC 23006-2)
- PC = Point Cloud
- PCC = PC Compression
- RM = Reference Model
- SMV = Super Multiview Video
- TM = Test Model
- XM = eXperimentation Model