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KA2- Cooperation for Innovation and the exchange of good practices strategic partnerships for vocation education and training

IO7. VALORIZATION & EXPLOITATION STRATEGY

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Contributor(s)	LIST, Cardiff University
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Erasmus+

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The partners of the project are LIST, Cardiff University, and Commissariat à l'Energie Atomique et aux Energies Alternatives.

Acronym

BIM	Building Information Modeling
AEC	Architecture Engineering and Construction
OAI	Ordre des Architectes et Ingénieurs-Conseils
CRTI-B	Centre des Ressources et de l'Innovation pour le Bâtiment
BSI	BuildingSmart International

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1. Experts panel

The experts panel has been set up in order to contribute to the repository of the BIM expertise (see IO1. Report: Repository of BIM expertise). A large part of the experts panel has contributed to Delphi Survey Method which has been used to develop this repository of BIM expertise. Other experts have been solicited during interviews and presentations of results, or during the experimentations of the tangible device (see Table 1).

Table 1: List of the individual experts of the panel

	First Name	Surname	Institution / Company	Delphi method
1	Steven	Arthur	Cardiff University – Engineering Dept, UK	×
2	Jiping	Bai	University of South Wales, UK	×
3	Amalia	Banteli	Cardiff University – Architectural Dept, UK	×
4	Thomas	Beach	Cardiff University – Engineering Dept, UK	×
5	Calin	Boje	Cardiff University – Engineering Dept, UK	×
6	Charlie	Boon-Bellinaso	Aiplus, Luxembourg	
7	Jason	Burke	Arup, UK	×
8	Andres	Cabrera	Ferrovial, UK	×
9	Mario	Caputi	In2it, Italy	
10	Tan	Dan	Post Doctoral Fellow - Tongji University, China	×
11	David	Determe	Betic, Luxembourg	
12	Tom	Fasham	Atkins, UK	×
13	Jaliya	Goonetillake	Cardiff University – Engineering Dept, UK	×
14	Mehdi	Halal	BIM Consult, Luxembourg	
15	Timo	Hartmann	Civil Engineering Institute, TU Berlin, Germany	×
16	Michał	Juszczyk	Cracow University of Technology, Poland	×
17	Dany	Lockman	CLK-Home, Luxembourg	
18	Sébastien	Maurice	CESI, France	
19	Emmanuel	Meriot	Luxconsult S.A., Luxembourg	
20	Emmanuel	Natchitz	BuildingSMART France-Mediaconstruct, France	
21	Paolo	Odorizzi	Harpaceas srl, Italy	×
22	Ignasi	Pérez Arnal	BIM Academy, Spain	
23	Gilles	Pignon	BIM consult, Luxembourg	
24	Guersendre	Nagy	BuildingSMART France-Mediaconstruct, France	
25	Guoqian	Ren	Cardiff University – Engineering Dept, UK	×
26	Sylvain	Riss	Assystem, France	×
27	Martin	Simpson	University of Liverpool / UK BIM Alliance, UK	
28	Antonio	Tort	CEO, BIM Freelance Corp, USA	×

29	Josée	Thyes	House of Training, Luxembourg	
30	Leslie	Vandenbussche	Aiplus, Luxembourg	
31	Moreno	Viola	CRTI-B, Luxembourg	
32	Li	Yungui	China State Construction, China	×
33	Jisong	Zhang	Cardiff University – Engineering Dept, UK	×
34	Daniel	Zignale	Argest, Luxembourg	

A total of 9 countries are represented through the panel of experts.

2. Dissemination targets

Beyond its partners institutions, BIM4VET addresses several targets involved with BIM:

1. The **professionals** themselves referred to as “BIM actors”, who are impacted directly or indirectly by the digital transformation of the Architecture, Engineering and Construction business.
2. **Associations** involved with BIM standardization. The project targets in particular BuildingSmart International, at European level, and its France and UK local independent chapters (Luxembourg does not have a specific chapter). In Luxembourg, CRTI-B is in charge of the standardization of BIM. For classification purpose we distinguish the **standardization associations**, mainly involved in communication and dissemination of BIM-related information, and **professional association**, aiming at informing their professional members.
3. **Training providers** are also important targets, and have been solicited at different times in the project, for information gathering, validation purpose and dissemination of results.
4. **Academic actors and universities** in their role of knowledge production and results validation.

Table 2: List of associations and institutions involved in the project (non-exhaustive)

Name	Country	Profile	Face-to-face meetings	Large audience presentations
BuildingSmart International	Intl.	Standardization Association	X	X
Mediaconstruct	France	Standardization Association	X	X
BuildingSmart UK	UK	Standardization Association		
UK BIM Alliance	UK	Standardization Association	X	
OAI	Luxembourg	Professional Association	X	
CRTI-B	Luxembourg	Professional Association	X	X
BRE	UK	Training provider	X	
IFSB	Luxembourg	Training provider	X	
House of Training	Luxembourg	Training provider	X	
CESI	France	Training provider	X	

3. Valorization activities

3.1. Website

The BIM4VET web site is available at the following url: www.bim4vet.eu. The website has largely contributed to the international visibility of the project. Several institutions have contacted the project partners after consulting this website.

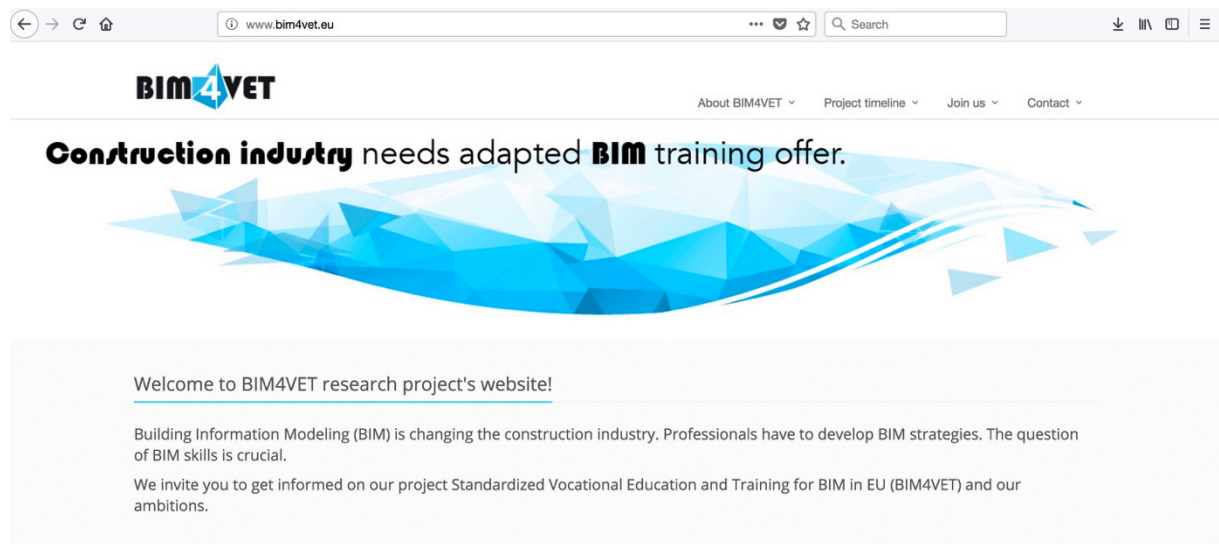


Figure 1. Website BIM4VET

3.1.1. Website analytics

Figure 2 shows the statistics of frequentation. It can be seen that 800+ unique visitors used the website, and half of them for more than one time (1,54 sessions per visitor).

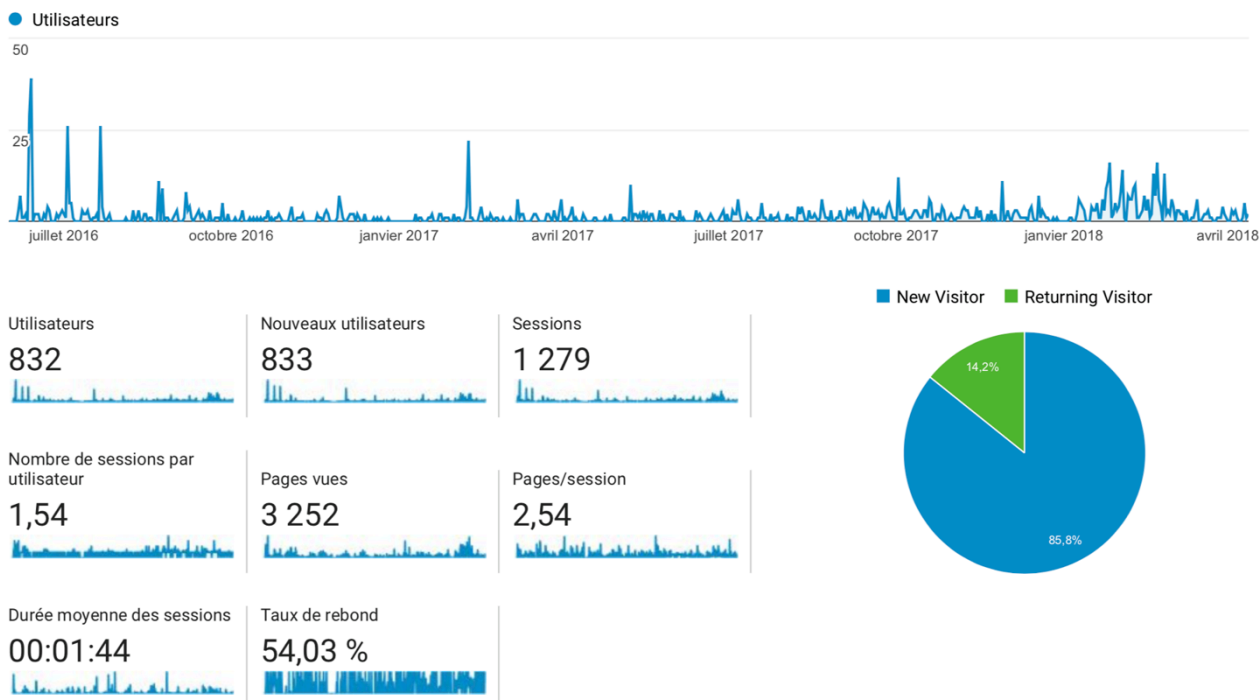


Figure 2: Visitors having consulted the website, from June 2016 to April 2018

Regarding the origin of these visitors (Figure 3 & Figure 4), a large majority of them visited the website from Luxembourg, United Kingdom and France. Canada, Spain, Belgium as well as United States can also be mentioned, as a lot of traffic has been generated from these countries, demonstrating also the interest of the project and its results outside of Europe.

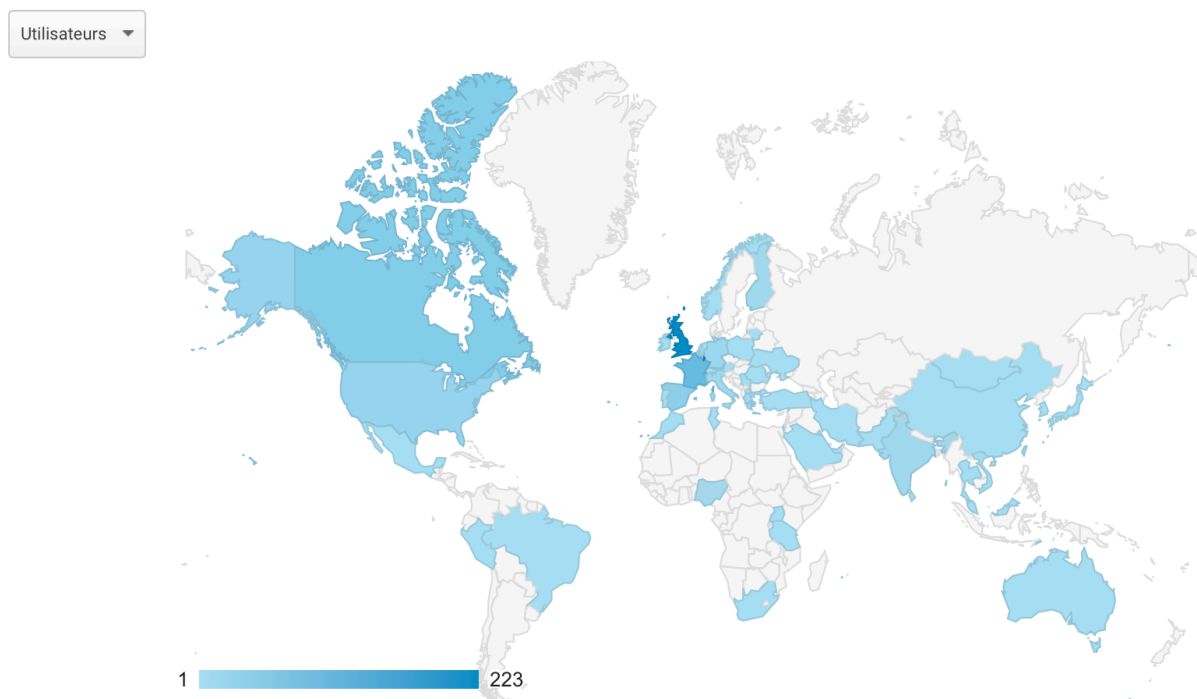


Figure 3: Geographical origin of visitors

Pays	Acquisition		
	Utilisateurs	Nouveaux utilisateurs	Sessions
	832 % du total: 100,00 % (832)	833 % du total: 100,00 % (833)	1 279 % du total: 100,00 % (1 279)
1. Luxembourg	223 (26,33 %)	219 (26,29 %)	431 (33,70 %)
2. United Kingdom	215 (25,38 %)	213 (25,57 %)	340 (26,58 %)
3. France	90 (10,63 %)	88 (10,56 %)	119 (9,30 %)
4. Canada	47 (5,55 %)	47 (5,64 %)	47 (3,67 %)
5. Spain	39 (4,60 %)	39 (4,68 %)	50 (3,91 %)
6. Belgium	37 (4,37 %)	32 (3,84 %)	58 (4,53 %)
7. United States	25 (2,95 %)	25 (3,00 %)	25 (1,95 %)
8. Germany	15 (1,77 %)	15 (1,80 %)	21 (1,64 %)
9. Finland	14 (1,65 %)	14 (1,68 %)	29 (2,27 %)
10. Taiwan	11 (1,30 %)	11 (1,32 %)	15 (1,17 %)

Figure 4: Number of visitors per country

3.1.2. Twitter

Although BIM4VET project has not been communicated through a specific Twitter account, numerous tweets have been published about the project progress using the hashtag #BIM4VET.

3.2. Public communication

Over its duration, the BIM4VET project has been presented in several events, as described in the table below.

Table 3: Public presentations

Event	Location	Date	Attendance ¹
BIM Symposium Cardiff	Cardiff University, UK	21 June 2016	50
Défi & Co	Paris, F	22 September 2016	NC
Mediaconstruct GT Formation	Paris, F	18 October 2016	40
BuildingSmart International Summit 2017	Barcelona, Spain	05 April 2017	30
Digital Skills and Jobs Coalition Lëtzebuerg	Luxembourg, L	29 May 2017	20
BSi Professional Certification Meeting	Barcelona, Spain	05 October 2017	13
BIM certification Paris	Paris, F	19 October 2017	50
BIMLux conference	Luxembourg	14 November 2017	250
Presentation to CRTI-B, BIM Training working Group in Luxembourg	Luxembourg	13 January 2018	8
BIM4VET multiplier event	Luxembourg	21 February 2018	95
Total			556

¹ The attendance has been approximated when the real value were not available.

A total more than **550 persons** have been directly informed about BIM4VET project activities and results, through the participation to 9 events (i.e. conferences or public meetings).

3.2.1. BIM Symposium Cardiff

21-22 June, 2016, Cardiff University, Cardiff, the United Kingdom
About 50 participants were involved in this symposium.



Figure 5: BIM Symposium in Cardiff, UK

Sponsored by Royal Academy of Engineering (UK) and Engineering School in Cardiff University, this international BIM symposium intends to leverage the joint forces from UK, USA and China to bridge BIM research with policy making and industry implementation.

The BIM4VET project has been presented to a large audience of academics. See Annex 1: International BIM Symposium agenda for further details.

3.2.2. Défi & CO, Paris, France

BIM4VET project and first results have been presented during the meeting of the “Comité de Pilotage stratégique” of the DEFI&Co project in Paris.

Some exchanges on both competency matrices have taken place. A certain alignment has already been observed.

3.2.3. Mediaconstruct meeting of the working group on training

18 October, 2016, Paris
+/- 40 participants.

College Formation RD Mediaconstruct : réunion et CR
 Attendance is required for sylvain.kubicki@ist.lu.
 Chair: guersendre.nagy@mediaconstruct.fr [Show Details](#)

✓ You have **accepted** this meeting invitation.

Time: Tue 10/18/2016 02:00PM - 05:00PM
 Location: salle 2 au 6-14 rue La Pérouse 75016

▼ **Invitees** (31 Required, 57 Optional)

Required:
 luigi.palma@archimatique.com, vdupeloux@gmail.com, stephaneimbert971@gmail.com, S.LEGUIRIEC@cerib.com, sriss@cesi.fr, hanser@crai.archi.fr, souheil.soubra@cstb.fr, Matthieu.DEFENIN@domolandes.fr, ifasse@free.fr, olivier.celnik@enpc.fr, Jacques.porte@st-etienne.archi.fr, marie.bagieu@esit-caen.fr, b.leroux@eskal-eureka.fr, fdamon@adm.estp.fr, celnik@zstudio.fr, jp.p@wanadoo.fr, jean-claude.habault@wanadoo.fr, Sylvain Kubicki, ferries@laurenti.com, celine.henninger@ac-strasbourg.fr, maher@editions-ml.com, stephane.ramon@ofib.fr, srigaud@cef.international.com, plechafotec@ctcm.com, jean-baptiste.carpentier@insa-rouen.fr, jean-yves.chenebault@univ-poitiers.fr, aboissieu@gmail.com, Valerie.Delierre@afpa.fr, emmanuel.natchitz@eivp-paris.fr, ghislaine.pinierdavid@ccca-btp.fr, nathalie.champion@education.gouv.fr

Optional:
 eric.lebegue@cstb.fr, guillaume.picinbono@cstb.fr, bruno.hilaire@cstb.fr, p.dupret@free.fr, paris.gilbert@wanadoo.fr, omessa.henri@neuf.fr, pierre.surdeau@essia.fr, philippe.petit@enpc.fr, celine.boua@enpc.fr, aphrodite.michail@enpc.fr, gilles.robin@enpc.fr, jacques.grandjean@enpc.fr, alain.jung@ac-strasbourg.fr, jeanpierre@mats-linger.com, bernadette.jugan@marseille.archi.fr, peter.ireman@esit-caen.fr, guillaume.carpentier@esit-caen.fr, direction@esit-caen.fr, dang.nguyen@esit-caen.fr, sabine.goudard@st-etienne.archi.fr, laure.buisson@st-etienne.archi.fr, lionel.ray@st-etienne.archi.fr, benoit.desjeux@st-etienne.archi.fr, gilles.rochette@st-etienne.archi.fr, hmatino@adm.estp.fr, cmaillat@adm.estp.fr, amorel@adm.estp.fr, ecroquesel@adm.estp.fr, vyoupardin@cesi.fr, juny@cesi.fr, koeddiar@cesi.fr, spacitto@cesi.fr, schaumel@cesi.fr, p.sauvage@cerib.com, s.rodriguez@cerib.com, sherbin@ctcm.com, ofillatre@ctcm.com, abureau@ctcm.com, jcdelongueville@ctcm.com, aymeric.le.borgne@insa-rouen.fr, younes.aoues@insa-rouen.fr, alain.szewczyk@univ-poitiers.fr, stephen.hedane@univ-poitiers.fr, jean-michel.lallis@afpa.fr, alexis.liotard@afpa.fr, philippe.corsaut@afpa.fr, catherine.saunard@afpa.fr, frank.jung@eivp-paris.fr, youssef.diab@eivp-paris.fr, nathalie.baudusson@eivp-paris.fr, joachim.broomberg@eivp-paris.fr, marc.vuillet@eivp-paris.fr, sadia.mamen@eivp-paris.fr, florence.jacquino@eivp-paris.fr, christophe.mousseron@ccca-btp.fr, jchristophe.triponei@ccca-btp.fr, herve.renier@ccca-btp.fr

▼ **Description**

Bonjour
 Voici le CR avec ppt de la dernière réunion du collège Formation-R&D. Pour rappel si vous souhaitez faire remonter des sujets pour les journées EDUBIM 2017 : contacter sylvain RISS du CESI.

Prochaine réunion : 18/10 de 14h à 16h (codes pour accès à distance : communiqués le 16/10.)

- Actualités de l'association
- Retours du dernier sommet technique de bSI : B.Ferriès
- Présentation de BIM4VET : S.Kubicki
- Point sur Défi&Co par le CESI
- Présentation des actions BIM du réseau GRETA : N.Champion
- Echanges

Bonne journée à toutes et tous
 Guersendre NAGY - Mediaconstruct

(See attached file: 160831-CR-college-formation-RD-v160926.pptx)

Figure 6: Invitation and agenda

3.2.4. BuildingSmart International Summit 2017

April 3-6, 2017, Barcelona, Spain

BIM4VET team participated in the BuildingSmart summit in Barcelona, the largest event related to standardization and deployment of Building Information Modeling (BIM) in Architecture, Engineering, Construction and Operation (AECO) industry.



Figure 7: Attendees of the BuildingSmart International Summit

During the session related to “Professional Certification Program”, BIM4VET results and the recently accepted BIMEET projects have been presented. Almost 30 participants were present during the session.

3.2.5. Digital Skills and Jobs Coalition Lëtzebuerg

May 29th, 2017. Parc Hotel Alvisse, Luxembourg.
 +/- 20 participants.

A presentation of BIM4VET challenges related to digitalization of skills in the construction sector has been made during the “Digital Skills and Jobs Coalition Lëtzebuerg” launching event in Luxembourg (Parc Hotel Alvisse).

3.2.6. BSi Professional Certification Meeting

October 05th, 2017. Hotel Europark. Barcelona, Spain.
13 participants.

BSI invited a member of BIM4VET project to a meeting of the restrained committee working on the BIM certification of professionals.

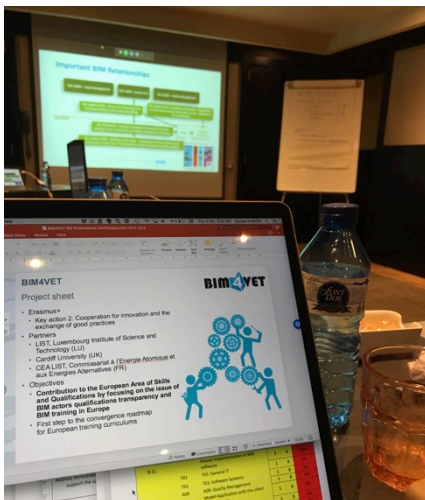


Figure 8: Participation to the BIM Professional Certification Committee Meeting

This meeting was very important for BIM4VET, as the competency matrix has been presented in details to the committee and has been considered by them as one of the major international achievements in this field.

BuildingSmart will consider relying on BIM4VET matrix in the phase 2 of the professional certification process, where detailed competencies should be elaborated for each discipline in relation with BIM.

3.2.7. BIM certification Paris

October 19th, 2017. Meet'ING meeting in Paris La Villette.
+/- 50 participants.



BIM4VET results have been presented during the meeting of the engineer's schools in Paris, France. In this event a specific session has been organized on the competencies and certification related to BIM in France and in Europe.

[Retour à la liste des événements](#)

19/10/2017

Compétences et certifications BIM : en France et à l'international

Conférence organisée par Mediaconstruct avec Syntec Ingénierie et l'EIVP

au sein de l'événement Meet.Ing

Horaire : 14h30-16h30

Lieu : Cité des Sciences et de l'Industrie - 30 Avenue Corentin Cariou 75019

[Inscription gratuite](#) via le site de Meet.Ing où vous pouvez indiquer si vous participerez aussi à la Plénière et au cocktail en plus de la conférence "BIM"

Pour découvrir les travaux actuels sur la certification de personnes menés par buildingSMART international, mais aussi les travaux européens sur les référentiels de compétences BIM, avec un regard croisé de professionnels et d'établissement de formation, **Mediaconstruct avec Syntec Ingénierie et l'EIVP** organise une conférence **le 19 octobre de 14h30 à 16h30** au sein de **l'événement Meet Ing** :

- exposé de Mark BALDWIN, chapitre Suisse de buildingSMART International en charge du développement de la Certification de personnes
- exposé de Sylvain KUBICKI, List au Luxembourg, en charge de BIM4VET
- échanges avec Marie-Claire COIN (experte normalisation, EGF-BTP, VCF) et Sylvain RISS (EDUBIM) et Emmanuel NATCHITZ (EIVP).
- signature du code éthique BIM présenté par Hervé HALBOUT.

Comme le prouve le baromètre du PTNB mais aussi l'étude de l'OPIIEC, la filière Bâtiment a besoin de personnes formées au BIM d'ici à 2020. Marché des formations en explosion et compétences non définies placent les acteurs dans l'expectative de la valorisation des compétences. En sus de la prise en main des logiciels, masters spécialisés, formations professionnalisantes et certifiantes, etc. se sont multipliés à tel point qu'il est aujourd'hui difficile de faire le tri. Des projets français et européens – tels BIM4VET, Defi and Co, EDUBIM ou encore du PTNB – travaillent aujourd'hui l'élaboration de référentiels et de profils de postes liés au BIM. In fine, il faut donner confiance dans la valeur digitale du projet réalisé, ce qui pourrait passer par la certification, encore faut-il savoir sur quoi elle porte (outils, personnes, entreprises, projets).

Figure 9: Details about the event

3.2.8. BIMLux conference

November 14th, 2017

+/- 250 participants.

BIM4VET has been presented by LIST in Luxembourg during the BIMLUX conference on November 14th, 2017.



Figure 10. Presentation of BIM activities at BIM Lux conference (Luxembourg) by the LIST team to Xavier Bettel (Prime Minister of Luxembourg)

It could be noticed that a special presentation has been made to Luxembourg's prime minister Xavier Bettel, who visited LIST's booth (see Figure 10).

3.2.9. Presentation to CRTI-B, BIM Training working Group in Luxembourg

January 23rd, 2018.

8 participants.

Luxembourg construction sector defined a working group in 2017, hosted by CRTI-B, with the aim of addressing the topic of BIM Training in Luxembourg, and providing a whole, coherent BIM training offer to the construction sector.

LIST has been invited to provide a presentation of BIM4VET results during a meeting of this working group.

GT "BIM formations"

Attendance is **required** for Sylvain Kubicki (sylvain.kubicki@list.lu).

Chair: moreno.viola@crtib.lu

✔ You have **accepted** this meeting invitation.

Time: Tue 01/23/2018 10:00AM - 12:00PM

Location: Chambre des Métiers, Luxembourg

▼ **Invitees** (7 Required, 0 Optional)

Required:

david.determe@betic.lu, Fabrice Absil, Josee.THYES@houseoftraining.lu, l.toumpsin@neobuild.lu, m.deravet@ifsb.lu, Sylvain Kubicki, thierry.hirtz@bp.etat.lu

Figure 11: Meeting Working Group at CRTI-B

Following it, LIST has been invited to take an active part in the CRTI-B work, in order to define the OAI (Ordre des Architectes et Ingénieurs-Conseils)/ CRTI-B training offer on the basis of the BIM4VET results. Details are provided in section 5.1.

3.2.10. BIM4VET multiplier event

The final conference, aiming at disseminating the results of BIM4VET project, has been organized in Belval, on February the 21st, 2018.

This conference gathered more than 100 participants.

Details are provided in the section 3.2.10.

3.3. Published articles

The results of the BIM4VET project have been published in a magazine dedicated to AEC professionals as well as in a scientific conference dedicated to the construction research community.

3.3.1. Neomag

Article published in the Neomag (journal dedicated to AEC professionals) in November 2017.

RENCONTRE AVEC ANNIE GUERRIERO,
DOCTEUR ARCHITECTE, SENIOR RESEARCH AND TECHNOLOGY ASSOCIATE AU LIST

Standardiser les compétences des professionnels du BIM



Une des questions essentielles autour de l'adoption du BIM est la question de la formation. En effet, nous constatons aujourd'hui que les professionnels de la construction ne sont pas suffisamment formés aux méthodes et outils du BIM.

UNE NÉCESSAIRE MONTÉE EN COMPÉTENCES LIÉE À LA NUMÉRISATION DU SECTEUR

Le déploiement du BIM dans les projets de construction nécessite une véritable montée en compétences des professionnels actuellement trop peu armés pour faire face à ce challenge. Il est par conséquent nécessaire pour les organismes de formation initiale et continue de proposer une offre de formations adaptée. Celle-ci doit être en adéquation avec les politiques nationales et le positionnement des différentes professions, de la maîtrise d'œuvre à la construction y compris la gestion, l'entretien et la maintenance. Pour répondre à la demande du marché, de nouvelles formations ont été mises en place ces dernières années. Cependant, elles sont encore trop peu coordonnées tant à l'échelle nationale qu'europpéenne. Sur base de ce

constat, le projet BIM4VET¹ (Standardized Vocational Education and Training for BIM in EU) propose de se focaliser sur l'alignement de l'offre de formation à partir d'une matrice de compétences transparente et harmonisée à l'échelle européenne.

CHIFFRES-CLÉS

3 partenaires

Durée : 2,5 ans

BIM4VET, UNE INITIATIVE EUROPÉENNE POUR STANDARDISER LES PROFILS ET RESPONSABILITÉS

Le projet Erasmus+ BIM4VET, financé par l'Anefore (Luxembourg), réunit l'Université de Cardiff (Royaume-Uni), le Commissariat à l'énergie atomique et aux énergies alternatives

¹ www.bim4vet.eu

(CEA, France) dans un partenariat piloté par le Luxembourg Institute of Science and Technology (LIST, Luxembourg). Les trois institutions travaillent à la coordination d'un groupe d'experts qui a pour mission de mettre en place une matrice de compétences et une méthode d'évaluation de la maturité, toutes deux structurées autour de quatre profils :

- Le **modélisateur BIM junior**, qui a pour mission de produire les modèles de données graphiques et non-graphiques, et d'assurer l'interface avec le coordinateur BIM en vue du maintien d'un modèle collaboratif exempt de conflits.
- Le **modélisateur BIM sénior**, qui a la même mission que le modélisateur BIM junior. Il doit produire les modèles de données graphiques et non-graphiques exempts de conflits et de par sa séniorité, il a la capacité de transmettre son savoir en termes de maîtrise des outils informatiques de modélisation et de standards associés.

NEOMAG

- Le **coordonateur BIM**, qui a pour mission non seulement de coordonner les productions des différents modélisateurs BIM en vue d'assurer leur bonne conformité aux standards établis, mais également de superviser la détection des conflits et de gérer leur résolution.
- Le **BIM manager**, qui est responsable de la gestion des activités BIM à l'échelle du projet. Il définit les éléments à produire selon les exigences du client, il rédige et maintient les standards du projet et assure la mise en place d'un système informatique pour le partage d'informations entre les participants du projet.

Ces profils sont à relier aux postes, traditionnels ou nouveaux, dans les entreprises, bureaux et institutions. Un ensemble de responsabilités y est associé et permet de mieux cibler les attentes en matière de compétences des professionnels.

UNE PLATEFORME INFORMATIQUE

Sur base de ces quatre profils et des compétences associées, le projet a pour objectif de proposer un outil de recommandation de formations BIM. Cet outil, en cours de développement, permettra aux professionnels de déterminer la maturité de leurs compétences BIM actuelles, de formaliser leur besoin en matière de compétences BIM à acquérir, et enfin d'affiner leur choix de formation (collectivement) afin de renforcer la cohésion des équipes.

Projet soutenu par le programme ERASMUS+ et l'ANEFOR. Cette communication reflète uniquement le point de vue de ses auteurs. Les agences ne sont pas responsables de son contenu.

Site web : www.bim4vet.eu



RENCONTRE AVEC SYLVAIN KUBICKI,
DOCTEUR ARCHITECTE, SENIOR RESEARCH AND TECHNOLOGY
ASSOCIATE AU LIST

Le modèle BIM/4D pour mieux construire ensemble

Le projet de recherche «4DCollab» a pour objectif d'améliorer les pratiques et les usages collaboratifs du BIM/4D durant la phase de pré-construction.

LA VALEUR AJOUTÉE DU BIM, UN VÉRITABLE CHAMP DE RECHERCHE

Les pratiques et usages collaboratifs du BIM permettent un échange et un enrichissement des maquettes numériques par des informations utiles au processus de conception et de construction ainsi qu'à la maintenance. Durant la phase de conception et plus particulièrement de pré-construction, on clame aujourd'hui que les usages du BIM facilitent grandement l'activité des professionnels. À travers le monde, cette affirmation fait l'objet de nombreuses recherches afin de caractériser le retour sur investissement réel pour les professionnels concernés.

4D ET COLLABORATION, UN PROJET DE RECHERCHE

L'usage de simulation 4D comprend la modélisation 3D enrichie par des données temporelles. En associant les tâches de construction à leur visualisation en 3D, elle permet de simuler les étapes de construction d'un bâtiment. Même si ces technologies se présentent souvent comme support au travail collaboratif, leur usage est encore relativement peu utilisé dans le secteur. Le monde scientifique est plus confiant sur l'apport du BIM/4D aux pratiques métiers, mais cela reste encore à être démontré.

Le projet de recherche «4DCollab» a pour objectif d'améliorer les pratiques et les usages collaboratifs du BIM/4D. Il associe 3 partenaires académiques et 2 partenaires industriels : l'Université de Lorraine (laboratoire PERSEUS), le Luxembourg Institute of Science and Technology (LIST), l'UMR CNRS/Culture MAP (équipe Map-CRAI), les sociétés Immer-sion et Félix Giorgetti.

La démarche déployée dans ce projet comprend plusieurs étapes. Dans un premier temps, les partenaires vont tenter de comprendre les pratiques émergentes de collaboration 4D et d'en mesurer l'apport en valeur et en qualité sur le projet. Les chercheurs détermineront ensuite les usages et interactions innovantes pour la collaboration avec des ►

NEOMAG

3.3.2. CIB-w78 (scientific conference)

Abstract submitted on January 31, 2018 and accepted.

Authors: Annie Guerriero, Sylvain Kubicki, Valérie Maquil, Nico Mack, Yacine Rezgui, Haijiang Li, Simon Lamb, Alex Bradley and Jean-Philippe Poli

Title: **BIM4VET, towards BIM training recommendation for AEC professionals**

The BIM4VET partners plan to write other publications after the end of the project (e.g. submission to "Fuzzy sets and systems" journal).

3.4. Other communications

3.4.1. Mentions of BIM4VET in other sources

3.4.1.1. European Commission / European Construction Sector Observatory report

A report published in 2017 by the European Commission, European Construction Sector Observatory, on the topic of “Improving the human Capital Basis” (<http://www.buildup.eu/en/practices/publications/ecso-report-improving-human-capital-basis>, last accessed April 14th, 2018), mentioned BIM4VET.

Indeed, it should be mentioned that “given the relatively recent start of many digital skill-related initiatives at national level, Member States are currently joining efforts to better understand and define the needs for digital skills in the construction sector and subsequently develop suitable curricula”.

Digital skills in EU-funded projects

Given the relatively recent start of many digital skill-related initiatives at national level, Member States are currently joining efforts to better understand and define the needs for digital skills in the construction sector and subsequently develop suitable curricula. In this respect, Member States are often participating in EU-wide projects, benefiting from EU financial support. Some of the most relevant projects are illustrated in the boxes below.

BIM4VET – assessing BIM skills

Standardised Vocational Education and Training for BIM in EU (BIM4VET) starts by assessing the BIM skills of all actors working together on a digital model project using BIM processes. The project aims to devise a skills matrix for BIM users, as well as standardising training and certification schemes across Europe. Indeed, the development of this matrix will allow the assessment of the skills of BIM actors, consequently resulting in the development of their skill-base by allowing for a recommendation of the most appropriate training courses to be attended based on the initial skill assessment. The project will enable the development of new and improvement of existing BIM training courses for construction professionals. In the long-term it is expected that such efforts will contribute to facilitating the recognition and certification of professionals involved in the use of BIM, as well as their mobility within the EU.

BIM4VET is being carried out between 2015 and August 2017 by a consortium of partners led by the Luxembourg Institute of Science and Technology and including the University of Cardiff and the French Atomic Energy and Alternative Energies Commission (CEA). The project is part-funded by the European Commission and by the Erasmus+ scheme, with a total budget of EUR 270,000.

Figure 12: Extract of the report mentioning BIM4VET

BIM4VET is described in p.52 (see Figure 12) as well as p.53 were the report highlights teaming up amongst Member States, which obviously shows the dynamism of Luxembourg in addressing skills and competencies related to digital technologies and BIM.

3.4.1.2. Development of a BIM Competency Framework in Scotland

An initiative has been launched in Scotland, in 2017, aiming at defining a BIM Competency Framework. A specific workshop has been held on October 23rd, 2017.

A contact has been established by Rohan Bush from the Construction Scotland Innovation Centre, responsible for this initiative, and the BIM4VET team in Luxembourg. Details about the project results have been provided and used by the Scotland committee during their workshop.

- The Standardized Vocational Education and Training for BIM in EU (BIM4VET) is a research project aimed at promoting the coordination of BIM training offer in EU and raising awareness about the necessity to adopt a EU transparency of this offer. The project started in September 2017.

Figure 13: BIM4VET mentioned in the scoping workshop report

This is mentioned in the workshop summary report, available from:

<https://www.scottishfuturetrust.org.uk/storage/uploads/workshopreport.pdf> (last access April 14th, 2018)

3.4.2. Application BIM4VET available on three sites

The BIM4VET application and the tangible table are available in the three partners organizations (LIST (LU), Cardiff University (UK) and CEA (FR)). These devices have been used during experimentations with users during the project and could be used for demonstrations after the end of the project and contribute to the wider dissemination of the BIM4VET results.

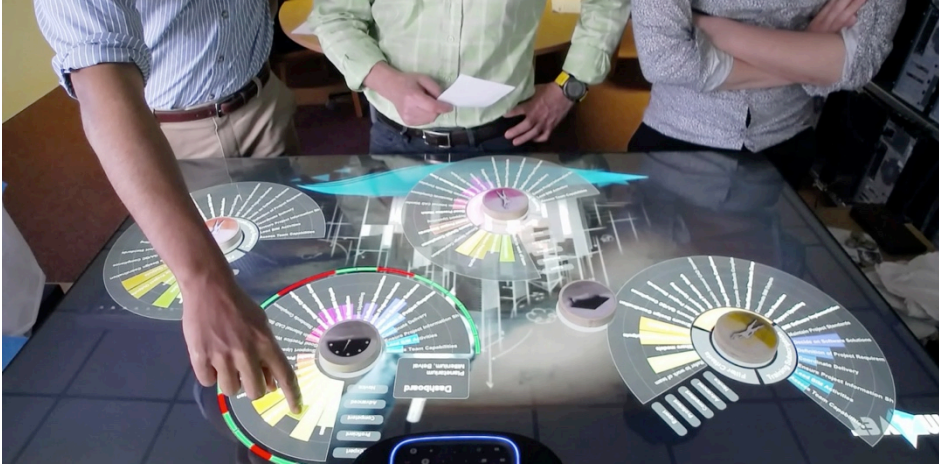


Figure 14. Application BIM4VET & Tangible table at CU (UK)

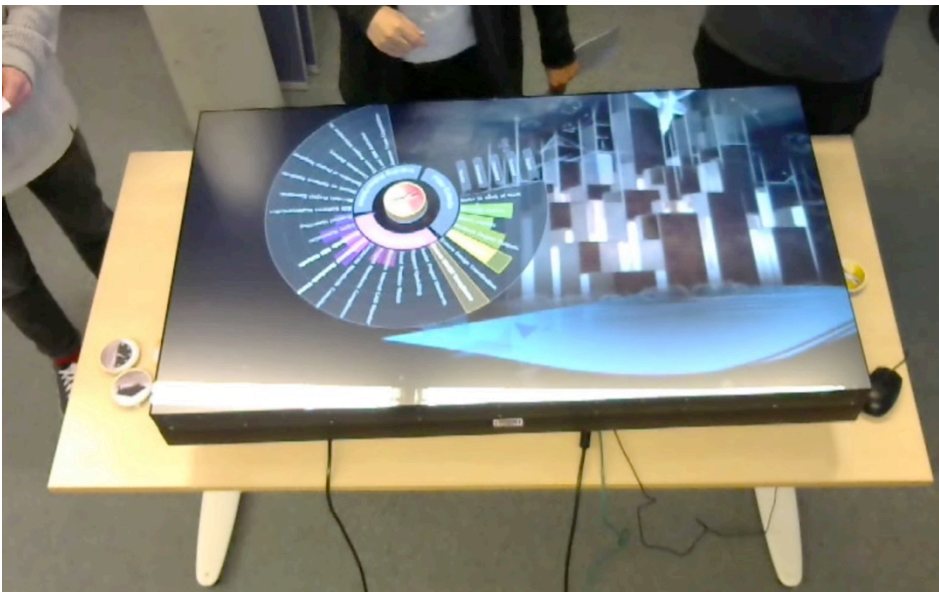


Figure 15. Application BIM4VET & Tangible table at CEA (FR)



Figure 16. Application BIM4VET & Tangible table at LIST (LU)

4. Multiplier event

4.1. Invitation and programme

On 21 February 2018, the Luxembourg Institute of Science and Technology (LIST) organized a conference at the Belval Innovation Campus (Luxembourg) entitled "Passez au BIM: Formez-vous!" [Switch to BIM: Training options].

Around **one hundred professionals** from the construction sector took part in the event, which covered the BIM (Building Information Modelling) work process, allowing the creation, management and sharing of digital information in a construction project throughout its lifecycle. The results of the BIM4VET have been presented by the partners and well welcomed by the AEC professionals. New interesting prospects related to the results transfer have emerged following this event.



The screenshot shows the website for the conference "Passez au BIM : Formez-vous !". The header includes the LIST logo and navigation links: RESEARCH, COOPERATIONS, INSTITUTE, CAREER, MEDIA, CONTACT, and social media icons. The main content area features the conference title, a description, and the BIM4VET logo. A sidebar on the right contains a registration button and practical information.

CONFÉRENCE "PASSEZ AU BIM : FORMEZ-VOUS !"
 DÉCOUVREZ LES MÉTIERS DU BIM, LES COMPÉTENCES LIÉES ET L'OFFRE DE FORMATION ACTUELLE

BIM4VET

Vous êtes en train de passer au BIM ou souhaitez le faire prochainement ?
 Vous recherchez les formations les plus adaptées à vos besoins ?
 Vous souhaitez savoir quelles sont les compétences nécessaires pour mener à bien un projet BIM ?

Trouvez les réponses à vos questions en participant à la conférence gratuite "Passez au BIM : Formez-vous !" organisée par le Luxembourg Institute of Science and Technology (LIST) le 21 février à Belval, Luxembourg

Cette conférence qui a lieu dans le cadre du [projet BIM4VET](#) a pour objectif de rassembler l'ensemble des acteurs de la construction - ingénieurs, architectes, entreprises de construction, maîtrise d'ouvrage etc. - issus de la Grande Région afin d'aborder la question des compétences BIM (voir programme détaillé ci-dessous) et l'offre de formations associée. Celle-ci sera mise en valeur dans un espace stands dédié (liste complète des exposants ci-dessous) accessible durant un walking lunch.

CONFÉRENCE "PASSEZ AU BIM : FORMEZ-VOUS !"

INSCRIPTION

PRACTICAL INFOS

Date : 21 février, 2018
 Horaires : de 09h30 à 14h00
 Lieu : Halle des poches à fonte, avenue des Hauts-Fourneaux, Esch-sur-Alzette
 Tarif : gratuit
 Contact : event@list.lu

Figure 17. View of the website

Participants were also able to find out about a wide range of training offers in this area in the Greater Region:

- In Luxembourg: the Training Institute for the Construction Sector (IFSB), the Order of Architects and Consulting Engineers (OAI), BIM Consult, as well as the following companies: Greenock CAD service and CBC Informatique;
- In Belgium: the Faculty of Architecture of Liège University and the following companies: Tase Solutions and SCIA;
- In France: the Training & Evaluation Platform of the National Institute of Solar Energy (INES) and the Technical and Scientific Centre for Construction (CSTB).

Below is a copy of the conference programme. It shows that the results of the BIM4VET project have been extensively disseminated, while also providing time for external presentations, aligned with BIM4VET and interesting the Luxembourg's audience. The external speakers are part of the wider BIM4VET network, thus showing the impact of BIM4VET beyond its core partners.

09.30 – 10.00 *Accueil*
 10.00 - 10.10 *Introduction, A. Guerriero, LIST*
 10.10 - 10.40 *BuildingSmart professional certification program, D. Rossiter, Building Research Establishment (BRE)*
 10.40 - 11.00 *Vers un référentiel de compétences BIM européen, S. Kubicki, LIST & A. Bradley, Cardiff University*
 11.00 - 11.20 *Un retour d'expérience au Luxembourg, D. Zignale, BIMConsult*
 11.20 - 11.40 *BIM4VET, un outil pour sélectionner des formations BIM, A. Guerriero & N. Mack, LIST ; J-P. Poli, CEA*
 11.40 - 12.00 *Une démarche sectorielle pour la formation BIM au Luxembourg, M. Viola, CRTI-B*
 12.00 - 12.15 *Conclusion, S. Kubicki, LIST*
 12.15 - 14.00+ *Walking lunch et visite des stands*

4.2. Evaluation and feedback

The evaluation questionnaire was filled in by 22 persons. The analysis reveals that 87,5% of the persons were completely satisfied and the quality of the presentations as well as the content were predominantly assessed as excellent.

Figure 18 shows the evaluation of the overall quality of the conference by the participants. The overall satisfaction is high, as well as the evaluation of the programme proposed (topics, clarity).

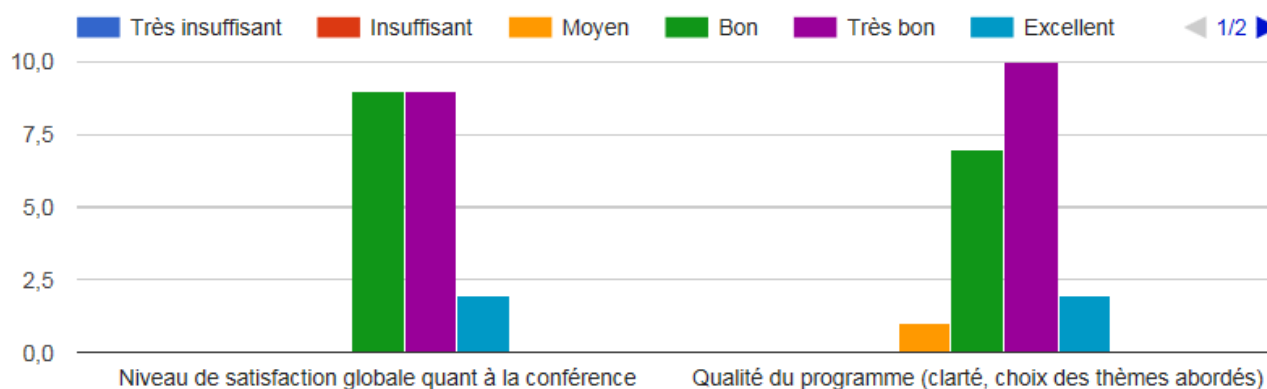


Figure 18: Evaluation of the overall quality of the conference

Figure 19 specifically highlights the quality of the presentations proposed, and the regulation of the exchanges (questions & answers).

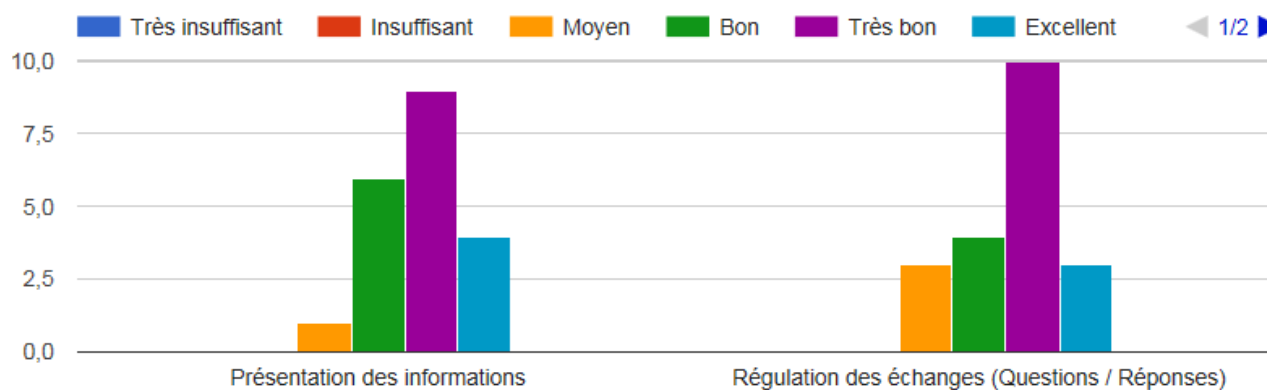


Figure 19: Evaluation of the quality of the presentations given during the conference

Figure 20 finally demonstrates that the programme and the topics addressed (i.e. BIM and training) were very applicable and useful for the practitioners who had participated.

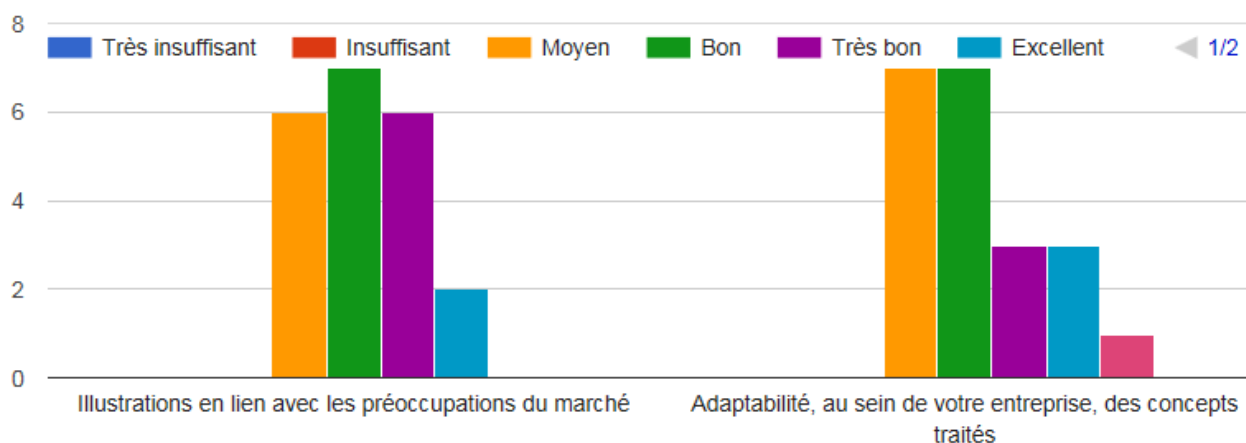


Figure 20: Evaluation of the applicability and usefulness of the conference in relation with needs of professionals

4.3. Presentations and annexes

For consulting the presentations, see the following url:

<https://www.list.lu/en/event/conference-passez-au-bim-formez-vous/>

<https://www.list.lu/en/news/implementer-le-bim-au-coeur-du-secteur-de-la-construction-par-la-formation/>

See annexes (section 7.4) for a presentation of the communication components produced for this event.



Figure 21. Photos of the multiplier event

5. Exploitation of results during the project

5.1. Luxembourg OAI & CRTI-B BIM training offer

5.1.1. Initial demand from Ordre des Architectes et Ingénieurs-Conseils

BIM4VET team has been solicited by OAI in order to help defining the training offer for the OAI members in Luxembourg.

Several workshops have been held, and the BIM4VET team used the competency matrix to organize the training of architects and engineers (two profiles have been defined for the training offer in 2018: OAI BIM modeler and OAI BIM coordinators).

It can be first noticed that BIM4VET has proved to be fully aligned with the vision of Luxembourg practitioners regarding the profiles to be defined in construction projects in relation with BIM, as they are presented in the Luxembourg BIM guideline published in July 2017: <http://www.digitalbuilding.lu/guide-application-bim>.

A subset of BIM4VET responsibilities has been selected in order to match the profiles to be trained for OAI members, as shown in Figure 22.

Then, for the two OAI BIM profiles to be trained, the BIM4VET team, associated with OAI members, defined the learning outcomes associated with each responsibility.

It finally allowed House of Training to prepare a “training parcours” based on these learning outcomes.

	Responsabilités	Compétences	BIM author (junior)	Modélisateur BIM OAI	BIM author (senior)	BIM coordinator	Coordinateur BIM OAI
1	Faire référence aux tâches réalisées par les collaborateurs de l'équipe projet	O08: Linking & Extending					
2	Développer et maintenir les modèles (maquettes géométriques, paramètres et informations liées) conformément aux standards des projets	T04: Modelling T07: Model Management					
3	Préparer les modèles pour le partage avec les collaborateurs en interne	T04: Modelling T07: Model Management					
4	Produire les livrables (modèles, documentations) à partir des modèles (maquettes et autres données liées)	O01: General Modelling O09: Custom Modelling T05: Documentation					
5	Contrôler les livrables, y compris détection des problèmes dans les maquettes : qualité géométrique (collision) et qualité de l'information (cohésion, complétude)	O01: General Modelling O02: Capturing and Representing					
6	Référencer les autres modèles (interne et/ou externe) pour assurer la coordination de la conception et éviter les collisions géométriques	O08: Linking & Extending					
7	Contrôler les livrables en suivant les protocoles de contrôle qualité	T04: Modelling A09: Quality Management					
8	Assister le coordinateur dans la maintenance de standards des projets	A09: Quality Management I01: Implementation Fundamentals I04: Standardization and Templates					
9	Régler les problèmes logiciels simples et assister la montée en compétences des autres collaborateurs (intra-formation)	I05: Technical Training R03: Teaching and Coaching					
10	Rester informé des évolutions, nouveautés, retours d'expérience et bonnes pratiques sur les thèmes de la production et l'échange d'informations	R01: General Research and Development R07: Industry Engagement and Knowledge Sharing					
11	Assister dans la maintenance des standards CAO et workflows internes en fournissant un feedback au BIM Coordinateur	A09: Quality Management I01: Implementation Fundamentals I04: Standardization and Templates					
12	Assurer le respect des standards mis en place dans les projets	A09: Quality Management I01: Implementation Fundamentals					
13	Assurer le respect des standards mis en place en interne dans l'organisation	A09: Quality Management I01: Implementation Fundamentals I04: Standardization and Templates					
14	Assurer le respect des standards nationaux ou internationaux applicables	A09: Quality Management I01: Implementation Fundamentals I04: Standardization and Templates					
15	Coordonner les modèles et livrables des différents auteurs BIM pour assurer leur qualité vis-à-vis des standards de projet externe (BIM Project Execution Plan / BIM Protocol / Exigences du Maître d'Ouvrage)	A09: Quality Management F02: Collaboration F03: Facilitation I041: Implementation Fundamentals					
16	Superviser les tâches de contrôle et détection de problèmes en lien avec les modèles externes (détection de collision, qualité des informations), gérer le suivi des listes de problèmes et le statut de leur résolution	A09: Quality Management F04: Project Management I01: Implementation Fundamentals O04: Simulating and Fabricating O08: Linking and Extending					
17	Régler les problèmes logiciels simples et assister la montée en compétences des autres collaborateurs (intra-formation)	I05: Technical Training R03: Teaching and Coaching S04: Software Support					
18	Gérer la mise en place des logiciels BIM	T1: General IT T02: Software Systems A09: Quality Management					

Figure 22: Selection of responsibilities to match the OAI profiles to be trained

5.1.2. Handover to CRTI-B

During the course of this activity, a special interest has been mentioned by CRTI-B to contribute to this exercise, with the aim of standardizing the training offer at Luxembourg Construction sector level, beyond the Architects and Engineers professions.

Several presentations have been made to CRTI-B working group on BIM training, and resulted in the handover of the OAI results to CRTI-B.

At the moment of writing this report, a global approach for the training of BIM practitioners at Luxembourg's level is being developed by CRTI-B. IT should result, later in 2018, in a whole, coherent, training offer to be provided to Luxembourg's construction practitioners through adequate "parcours".

BIM4VET competency matrix is at the heart of this Luxembourg offer.

5.2. BuildingSmart Professional Certification program

This deliverable mentions several discussions between the BIM4VET project team and the BuildingSmart committee responsible for the development of professional certification.

BuildingSmart initiative is divided into two phases: 1) individual qualification (not directly related to BIM4VET) and 2) professional certification. Regarding this second phase, started late in 2017, BuildingSmart association looked at the existing frameworks available to structure the competencies and activities related to BIM.

The Barcelona workshop (see section 3.2.6) has been dedicated to reviewing the major frameworks available in Europe, US and Australia, from both industry institutions and academia-research.

It is worth noticing that BIM4VET competency matrix proved to be interesting to the BuildingSmart committee group. It has been recognized as a quite exhaustive framework, not too detailed nor complex. It will therefore be considered as a valuable input in the next steps of the work on Phase 2, although the committee would like to stick to actual jobs profiles in Architecture and Construction, therefore not referring directly to BIM.

6. Post-project exploitation

6.1. Exploitation policy

The team uses a creative commons license for the BIM competence matrix produced:

Attribution-NonCommercial-ShareAlike 3.0 Unported (CC BY-NC-SA 3.0)

<https://creativecommons.org/licenses/by-nc-sa/3.0/>

This choice is motivated by the reuse of components produced by the BIMexcellence initiative regarding competency description, which is provided under this license.

All the reports are available under the following license:

Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

<https://creativecommons.org/licenses/by-nc-nd/4.0/>

Regarding the computer-based tools developed, they will be published with a specific license allowing use for the public while preventing from commercial exploitation. There is an exception for the recommendation system (which is proprietary software from CEA, and mentioned as such in background IP).

6.2. BIMeet project

6.2.1. Relation between both projects

While BIM4VET was running, both Cardiff University and LIST decided to anticipate its follow-up and to contribute to a call for projects of the European Commission (H2020) in the field of Construction Skills. The call specifically mentioned the topic of BIM and digital transformation of skills, while suggesting building on previous BuildUp Skills initiatives and/or Erasmus+ projects.

A proposal involving BIM4VET approach on BIM Skills, as well as the associated BIM4VET toolset, has been developed with the aim of addressing widely the construction value chain, from blue collar workers to architects/engineers, also considering all the phases of building lifecycle (incl. operation).

The proposal has been funded, and the project started in September 01st, 2017, involving 9 partners from 5 countries (<http://www.bimeet.eu/>). The extension of BIM4VET for 6 additional months enabled a close collaboration between the activities of both projects, and ensured the follow-up on many topics/results of BIM4VET.

6.2.2. Potential for further developing and re-using BIM4VET results within BIMEET

BIM4VET provides a global framework for defining profiles, responsibilities and competencies, which will form the basis of BIMEET's approach. Moreover, as BIMEET comprises associated partners from the training engineering domain, it is expected to further develop and improve it.

A specific Work Package of BIMEET relies on BIM4VET to develop a competency matrix for BIM & Energy Efficiency applications. It is expected to cover the whole value chain (incl. blue collar workers) through the whole building lifecycle point of view.

Moreover another work package re-uses the BIM4VET software to develop a new platform for training in BIM & Energy Efficiency. This platform is already available and accessible through: www.energy-bim.com

A detailed presentation of BIM4VET outputs has been given to BIMEET's partners during a workshop in Cardiff on April 19-20, 2018.

6.3. Results transfer to a certification organism

The results of the BIM4VET are of interest for multiple organisms, and the project partners have been solicited multiple times during the project by institutions or professional's organizations, which want details about the project. At this stage, the future exploitation of the results is not completely determined. The results are currently used by the OAI (Ordre des Architectes et Ingénieurs-Conseils, LU) and the House of Training for the constitution of the BIM training offer in Luxembourg.

Moreover, discussions for the results exploitation are opened with several institutions: EdelCert & InSpectorat, a Swiss certification body, for the certification of the BIM trainings and of BIM actors, and the CRTI-B and OAI in Luxembourg, for BIM4VET platform and service to professionals.

This lets place to a new potential project for the BIM4VET platform transfer.

7. ANNEXES

7.1. Annex 1: International BIM Symposium agenda

International BIM Symposium 'Building Information Modelling'



Tuesday 21 June, 2016.

Venue: Lecture Theaters T2.08-09 Trevithick Building, Cardiff School of Engineering, Queen's Buildings, The Parade, Cardiff. CF24 3AA

Day 1 of this inaugural 2-day symposium brings together a multi-national cohort of leading BIM researchers and practitioners from academia and industry to showcase the full potential of BIM and the future of focused policy making.

Research Focus of Cardiff University, Georgia Institute of Technology and the University of Maryland	
8.30 - 9.00	Coffee and arrival
9.00 - 9.15	Welcome from Cardiff University BIM team Dr. Haijiang Li & Prof. Yacine Rezgui
9.15 - 9.35	BIM research in Georgia Institute of Technology, USA Prof. Charles Eastman
9.35 - 9.55	BIM research in University of Maryland, USA Prof. Mirosław Skibniewski
9.55 - 10.15	BRE Institute overview - Prof. Yacine Rezgui
10.15 - 10.35	BIM research in Cardiff University, UK Dr. Haijiang Li
10.35 - 10.50	Discussion and break
BIM and Knowledge based modelling Research	
10.50 - 11.10	Integrated Smart cities modelling and data analytics Shaun Howell PhD Candidate Cardiff University
11.10 - 11.30	Ontological approach for real time building and district energy management - Bejay Jayan PhD Candidate Cardiff University
11.30 - 11.50	An Intelligent System for Facility Management Michael Dibley, Masey Ltd
11.50 - 12.10	BIM Knowledge mining from large scale computer game based virtual simulation - Calin Boje PhD Candidate Cardiff University
12.10 - 12.30	Crowd Simulation with MassMotion, merging people with BIM Rhys Lewis Business Development & Channel Manager, Oasys Ltd
12.30 - 13.30	Lunch

Symposium Partners:



International BIM Symposium 'Building Information Modelling'



Tuesday 21 June, 2016

Day 1 Cont...

BIM Applications in Infrastructure	
13.30 - 13.50	Open Common Data Environment and its industry applications (Environment Agency, coBuilder & Alun Griffiths). Alex Bradley, PhD Candidate Cardiff University -
13.50 - 14.10	Context Aware Open Road Infrastructure Asset Management based on Common Data Environment Jaliya Goonetillake, PhD Candidate, Cardiff University
14.10 - 14.30	Smart Highway BIM in Asset Management Simon Lamb, PhD Candidate, Cardiff University
14.30 - 14.50	Challenges and advancements for BIM based bridge design and linear infrastructure John Farrow CEng Project Director for Mott MacDonald
14.50 - 15.10	Break
BIM Built Environment	
15.10 - 15.30	Cloud4Coordination: Cloud Based project co-ordination in the AEC Sector Dr. Ioan Petri, Research Associate Cardiff University
15.30 - 15.50	BIM based Holistic decision-making for large scale resilient and sustainable urban development Guoqian Ren, PhD Candidate Cardiff University
15.50 - 16.10	BIM based ontological approach supporting construction safety Shang Gao, PhD Candidate Cardiff University
16.10 - 16.30	BIM4VET team EU Erasmus + Project Standardized Vocational Education and Training for BIM in the EU; Introduction to the forthcoming MSc BIM programme of study at Cardiff University Dr. Haijiang Li
16.30 - 17.00	Discussion and closing address

Symposium Partners:



7.2. BSi Professional Certification Meeting agenda

Barcelona Workshop - Working Agenda

Day 1 – 4th October, 2017

Morning:

Overview of program status	
Chapter reports	(update from chapter representatives, plus other chapter feedback)
Policy & Process Document	
Website, Marketing and Communication	
Offering services	(online functionality (analytics) as well as face-to-face services)

Afternoon:

Review of online testing tool	(improvements and additional features)
LOF Development workshop	E-Learning / Analytics / more advanced testing / FAQ's
UKI Update 3-5pm GMT Skype	(developing 2 new modules in 2 groups) (Dan Rossiter)

Day 2 – 5th October, 2017

Morning:

Resolutions and actions for Phase 1 completion

Afternoon:

Brainstorming / planning for Phase 2	
BIM4vet presentation / input	(Sylvain Kubicki)
UK BIM Alliance presentation / input	(Martin Simpson)
VDI Presentation	(Sarah Merz)

Day 3 – 6th October, 2017

Morning:

BIM Excellence presentation / input (Bilal Succar online)
Workshop with Bilal Succar (online)

Afternoon:

- Discussion and planning development of Phase 2
 - Committee team
 - Budget, timeline, sponsorship
 - Policy and process
 - Content development

7.3. Annex 3: Poster BIM4VET



www.bim4vet.eu

Le secteur de la construction a besoin d'une offre de formations adaptée



Objectifs

- Contribution à l'Espace Européen des Compétences et des Qualifications en mettant l'accent sur la question de la transparence des qualifications des acteurs BIM
- Première étape vers la feuille de route de la convergence pour les programmes de formation BIM européens

Matrice de compétences

- Le **BIM manager**, qui est responsable de la gestion des activités BIM à l'échelle du projet. Il définit les éléments à produire selon les exigences du client, il rédige et maintient les standards du projet et assure la mise en place d'un système informatique pour le partage d'informations entre les participants du projet.
- Le **coordinateur BIM**, qui a pour mission non seulement de coordonner les productions des différents modélisateurs BIM en vue d'assurer leur bonne conformité aux standards établis, mais également de superviser la détection des conflits et de gérer leur résolution.

- Le **modélisateur BIM senior**, qui a la même mission que le modélisateur BIM junior. Il doit produire les modèles de données graphiques et non-graphiques exempts de conflits et de par sa séniorité, il a la capacité de transmettre son savoir en termes de maîtrise des outils informatiques de modélisation et de standards associés.
- Le **modélisateur BIM junior**, qui a pour mission de produire les modèles de données graphiques et non-graphiques, et d'assurer l'interface avec le coordinateur BIM en vue du maintien d'un modèle collaboratif exempt de conflits.

Partenaires






Financé par




Ce projet est financé par la Commission européenne. Cette communication reflète uniquement le point de vue de ses auteurs. L'Anefore et la Commission européenne ne peuvent être tenus responsables de l'usage qui pourrait être fait des informations qui y figurent.

7.4. Annex 4: BIM4VET multiplier event program

Programme

- 09.30 Accueil
- 10.00 Introduction
Annie Guerriero, Luxembourg Institute of Science and Technology (LIST)
- 10.10 BuildingSmart professional certification program
Dan Rossiter, Building Research Establishment (BRE)
- 10.40 Vers un référentiel de compétences BIM européen
Sylvain Kubicki, Luxembourg Institute of Science and Technology (LIST)
Alex Bradley, Cardiff University
- 11.00 Un retour d'expérience au Luxembourg
Daniel Zignale, BIMConsult
- 11.20 BIM4VET, un outil pour sélectionner des formations BIM
Annie Guerriero & Nico Mack, Luxembourg Institute of Science and Technology (LIST)
Jean-Philippe Poli, CEA
- 11.40 Une démarche sectorielle pour la formation BIM au Luxembourg
Moreno Viola & Thierry Hirtz, CRTI-B
- 12.00 Conclusion
Sylvain Kubicki, Luxembourg Institute of Science and Technology (LIST)
- 12.15 Walking lunch et visite des stands

Exposants

- ▶ Institut de Formation Sectoriel du Bâtiment (IFSB)
- ▶ Ordre des Architectes et des Ingénieurs-Conseils(OAI)
- ▶ BIM Consult
- ▶ LNA - Faculté d'Architecture de Liège Université
- ▶ TASE SOLUTIONS
- ▶ INES plateforme formation & évaluation
- ▶ Centre Scientifique et Technique du Bâtiment (CSTB)
- ▶ Greenock CAD service
- ▶ SCIA nv

Passez au BIM : Formez-vous !

Découvrez les métiers du BIM, les compétences liées et l'offre de formation actuelle

➔ 21 février 2018

📍 Esch-sur-Alzette | Halle des Poches à Fonte



Une conférence organisée par le Luxembourg Institute of Science and Technology (LIST) dans le cadre du projet BIM4VET

BIM4VET

Organisé par



Partenaires du projet



Avec le soutien de



www.bim4vet.eu

Standardized Vocational Education and Training for BIM in EU

Vers une formation continue BIM uniformisée en Europe

CONTEXTE

Aujourd'hui, le secteur de la construction connaît sa transformation numérique. Le BIM est en pleine expansion chez les professionnels confrontés aux nouvelles exigences nationales et internationales émanant des autorités, soucieuses de renforcer la productivité du secteur et d'optimiser la gestion des bâtiments. Le BIM, ce modèle de données qui s'enrichit tout au long du cycle de vie du bâtiment, modifie profondément la manière dont les acteurs du secteur travaillent ensemble. Aussi, la question des compétences des professionnels pour appréhender ces nouveaux modes de travail est centrale. La formation est un levier nécessaire à l'appropriation de ces nouveaux outils et processus. Si l'on constate que l'offre de formations BIM se développe très rapidement pour répondre aux besoins des professionnels, elle nécessite toutefois un cadre structurant, et une uniformisation à l'échelle européenne.

Objectifs du projet BIM4VET

Le projet BIM4VET se focalise sur deux objectifs principaux :

- ▶ Contribuer à l'Espace européen des compétences en mettant l'accent sur la transparence des qualifications des acteurs BIM et de la formation BIM en Europe
- ▶ Fournir un cadre initial pour la convergence des futurs programmes de formation européens



BIM4VET application | Training courses recommendation on tangible table

RÉSULTATS

En mobilisant un groupe d'experts, le projet BIM4VET a permis de constituer une matrice de compétences reposant sur quatre profils BIM :

- ▶ Le **modélisateur BIM**, qui a pour mission de produire les modèles de données graphiques et non-graphiques, et d'assurer l'interface avec le coordinateur BIM en vue du maintien d'un modèle collaboratif exempt de conflits.
- ▶ Le **modélisateur BIM sénior**, qui a la même mission que le modélisateur BIM junior. Il doit produire les modèles de données graphiques et non-graphiques exempt de conflits et de par sa séniorité, il a la capacité de transmettre son savoir en termes de maîtrise des outils informatiques de modélisation et de standards associés.
- ▶ Le **BIM coordinateur**, qui a pour mission non seulement de coordonner les productions des différents modélisateurs BIM en vue d'assurer leur bonne conformité aux standards établis, mais également de superviser la détection des conflits et de gérer leur résolution.
- ▶ Le **BIM manager**, qui est responsable de la gestion des activités BIM à l'échelle du projet. Il définit les éléments à produire selon les exigences du client, il rédige et maintient les standards du projet et assure la mise en place d'un système informatique pour le partage d'informations entre les participants du projet.

Outre la définition de cette matrice, le projet a permis de collecter les données liées à l'offre de formations BIM existantes en Europe et de développer la plateforme BIM4VET dont l'objectif est l'évaluation de la maturité BIM des professionnels associée à un système de recommandation de formations en fonction de critères établis tels que le niveau d'expertise attendu ou le coût des formations.

IMPACT





Le projet BIM4VET a fait l'objet de communications lors de multiples événements. La matrice est aujourd'hui utilisée pour la constitution d'une offre de formations BIM au Luxembourg. A plus long terme, les résultats du projet devraient contribuer à raffiner l'offre de formation, ainsi qu'accroître la reconnaissance et la certification des qualifications des acteurs du BIM tout comme leur mobilité en Europe.

Pour plus d'informations

Les livrables du projet seront accessibles dès le mois d'avril 2018 sur le site web du projet : www.bim4vet.eu
Contact : info@bim4vet.eu

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BIM4VET Partners

LIST / Luxembourg Institute of Science and Technology	 
Cardiff University	
LIST / CEA tech / Commissariat à l'Energie atomique et aux énergies alternatives	

BIM4VET contact & website

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