## APPENDIX 1: UPDATED LIST OF INTERESTED EVENTS

<table>
<thead>
<tr>
<th>Event</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>International Research Conference</td>
<td>Salford, UK</td>
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<tr>
<td></td>
<td>Sep 11-12, 2015</td>
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<td></td>
<td><a href="http://conference.org.uk/international-research-week/">http://conference.org.uk/international-research-week/</a></td>
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<tr>
<td>The R&amp;D Management conference</td>
<td>Cambridge, UK</td>
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<td></td>
<td>July 3-6, 2017</td>
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<tr>
<td>13th international Post-Graduate Research Conference</td>
<td>MediaCity, UK</td>
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<td></td>
<td>Sep 14-15 2017</td>
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</table>

In partnership for this event with the International Council for Research and Innovation in Building and Construction (CIB), The International Research Conference promises a huge gathering of key international players and speakers from industry, academia and the research community, forming an important networking point for all participants.

About the CIB: The International Council for Research and Innovation in Building and Construction (CIB) W78 is a leading forum in the area of IT in construction and is held annually. It was established in 1953 as an Association whose objectives were to stimulate and facilitate international cooperation and information exchange between governmental research institutes in the building and construction sector, with an emphasis on those institutes engaged in technical fields of research. CIB has since developed into a world wide network of over 5000 experts from about 500 member organisations with a research, university, industry or government background, who collectively are active in all aspects of research and innovation for building and construction.

Note: Design4Energy has presented a paper in the 31st & 32nd CIB

The R&D Management conference provides a platform for topics of key importance for research and development. The R&D Management Conference is a high quality conference attracting leading representatives from industry and academia in the field of R&D Management. It is closely linked to the RADMA association and the R&D Management Journal. It is held annually.

It includes the following topics:
- Tools, toolkits, techniques and processes for managing technology, R&D and innovation
- Entrepreneurship, investment, open innovation, business models and intellectual property
- Technology and innovation policy, systems of innovation, innovation impact and university-industry interaction
- People, organisation, skills and learning for R&D effectiveness
- The programme will feature keynote speakers, academic and industrial tracks, workshops, tutorials and a range of social events including a conference dinner. It will be preceded by a two day PhD Colloquium.

The 13th international Post-Graduate Research Conference is set to provide an important opportunity for researchers to gain an insight into state-of-the-art international research in their field. Led by key academics, there will be opportunities to enhance and develop research skills, to network and exchange research ideas in a supportive environment. The conference will provide a forum for novel discussions into the development and application of new and emerging practices to challenge current design and construction practice in the areas of people, process and technology issues.
23rd ICE/IEEE International Technology Management Conference
Madeira, Portugal
27-29 June 2017
www.ice-conference.org

The International Conference on Engineering, Technology and Innovation (ICE) is one of the conferences associated of the IEEE TEMS Society for Technology and Engineering Management, every year it brings together leading academics, researchers and practitioners, contributing to the global debate on engineering, technology and innovation.

For 20 years now ICE is a place of high business and academic reputation, which calls for original ideas, papers, initiatives and projects.

The ICSAEEEDS 2017
Venice, Italy
August 14 - 15, 2017
https://www.waset.org/conference/2017/08/venice/ICSAEEEDS

The 19th International Conference on Sustainable Architectural, Environmental and Ecological Engineering Design for Society aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Sustainable Architectural, Environmental and Ecological Engineering Design for Society. It also provides the premier interdisciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Sustainable Architectural, Environmental and Ecological Engineering Design for Society.

Important Dates
Paper submissions: May 26, 2017
Notification of acceptance: June 30, 2017
Final paper submission and authors’ registration: July 13, 2017
Conference Dates: August 14 - 15, 2017

Sustainable places
Middlesbrough UK
28th-29th June, 2017
http://www.sustainableplaces.eu/

Sustainable Places 2017 (SP2017) is the fifth iteration of the annual international conference focused on the commercial, technological and scientific intersections between Energy-efficient Buildings (EeB) and the collaborating smart grids, policies, and communities. These advances to the state of the art enable future low-carbon economies and clean energy-based behavioral practices.

7th International conference on Energy and Sustainability
Seville, Spain
20 - 22 September, 2017
http://www.wessex.ac.uk/conferences/2017/energy-and-sustainability-2017
http://www.sustainableplaces.eu/

Energy and Sustainability 2017 is the 7th International Conference in a very successful series which started in the New Forest, UK, home of the Wessex Institute in 2007; followed by meetings in Bologna (2009); Alicante (2011); Budapest (2013); Kuala Lumpur (2014); and Medellin, Colombia (2015).

The following list covers some of the topics to be presented at Energy and Sustainability 2017.

- Energy policies
- Renewable energy resources
- Sustainable energy production
• Environmental risk management
• Green buildings
• Energy storage
• Energy management
• Biomass and biofuels
• Waste to energy
• Processing of oil and gas
• CO2 capturing and management
• Pipelines
• Energy efficiency
• Smart grids
• Energy
• Energy and transport
• Case studies

<table>
<thead>
<tr>
<th>Energy7</th>
<th>7th international symposium on Energy</th>
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<tr>
<td>13-17 August 2017</td>
<td>Manchester, UK</td>
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<tr>
<td>Manchester, UK</td>
<td>13-17 Aug, 2017</td>
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<tr>
<td><a href="http://energy7.nscj.co.uk/Submission.html">http://energy7.nscj.co.uk/Submission.html</a></td>
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This event is the Seventh International Symposium on Energy; it combines previous two symposia: ISECM - working on small scales (ECM4, ECM5); ISECM – towards a big picture (ECM3, ECM6) into one. The conference involves multiple disciplines in technology, science, economy and policy-making. The purpose is to gain a complete view of energy challenges and solutions from a global perspective.
APPENDIX 2: NEWSLETTERS #5

Newsletter 05# 31 March 2016

DESI G N 4 E N E R G Y

Exploitation Workshop | Meetings | Papers

Networking with EeB CA² and SWIMing project

Design4Energy cooperates with EeB CA² and SWIMing projects in different topics.

An interview on the TRL level of Design4Energy and future potential collaboration in dissemination and exploitation was carried out in Oct 2015 with EeB CA² project. In November, a conversation with SWIMing project was initialised to discuss the contribution of Design4Energy in SWIMing platform and data models.

EeB PPP Project Review 2015

Design4Energy is published in the Issue V of the E2BA annual publication.

Digital Cities & Regeneration Workshop

Design4Energy is presented in the workshop held in Manchester (UK) June 2016.

About 30 delegates attended the workshop to explore the neighbourhood topic: digital cities and regeneration.

Public Exploitation Workshop

The 1st Design4Energy public exploitation workshop was held at Solintel’s office in Madrid (Spain) to demonstrate current prototypes and methodology, thus to get feedback and visions from external parties, principally views of architects who are envisioned as the main potential user of Design4Energy platform.

39 participants in total presented in the workshop. The ideas of enhanced lifecycle, optimised methodology by getting early consideration and information of energy efficiency and feasibility received good feedbacks from the participants, the improved prototypes based on the versions issued on M18 were demonstrated, other potential tool and platform like Archwizard and Open eeBIM which are having closed collaboration with Design4Energy were presented

Current practice problems were identified but treated as opportunities for Design4Energy, values of the project outputs were identified and explained.
The 3rd Consortium Meeting And 6th Technical Meeting

The 3rd consortium meeting was held at Solintel's office in Madrid (Spain) to define an implementation plan and next prototypes for the next period.

Based on the feedback collected in the public workshop and the previous discussion in different teleconferences, intensive technical discussions were carried out during the meeting. Technical challenges and solutions were identified, solved and agreed by the consortium for some specific tools, an implementation plan by M30 was defined.

Exploitation issues were discussed mainly focusing on the accessibility of the future tools, supports from consortium partners toward the development and clustering activities with the Open eeBIM platform were demonstrated, some tools will be publicly accessible and published in the open eeBIM platform. The importance of openness of tools and ideas were presented by the end of the meeting.

The 7th Technical Meeting

The 7th technical meeting was held in TUD's office in Dresden (Germany) to discuss in detail about the integration of different tools, models, eeBIM and implementation plan for the next 4 months.

3 different approaches towards the D4E Design Methodology were intensively discussed and the corresponding flow charts were developed. Development of gbXML-IDF converter, integration and extension of eeBIM have been brought into schedule.

Possibility of EnerBIM Solar integration for daylight simulation were discussed, demo projects from the 3 architects were presented and implementation plan was defined for the next month.

EeBers large Stakeholders workshop

SOL, FHR, VTT and LU joined the EeBers workshop held in November 2015 in Munich, Germany.

The main purpose of this expert workshop was to assess technologies that were identified by the EeBers consortium. In the workshop, European research projects, including Design4energy have been analysed and most important ICT have been identified and described. Design4Energy will contribute continuously to the EeBers project in the next project period.

SWIMing VoCamp Workshop

Partners from other EU project, and researchers on the ifcOWL, SAREF, or PIEMSER ontologies joint on 22-23 March 2016 in Dublin, Ireland to discuss the data model. Design4Energy is presented in the workshop and will contribute the data models research.
Papers published

Title: Decision Support to Enable Energy Efficient Building Design for Optimised Retrofit and Maintenance
Author: Loughborough University, UK
Published in the 32nd CIB W78 Conference 2015, Eindhoven, The Netherlands
Date: 27-29 Oct 2015

Title: Impact of occupant behaviour on the energy-saving potential of retrofit measures for a public building in the UK
Author: Loughborough University, UK
Published in Intelligent Buildings International, pp.1-11, ISSN: 1750-897 (Journal)
Date: 06 Feb 2016

Upcoming Events

CIB World Building Congress 2016
Date: 30 May - 3 June 2016
Place: Tampere, Finland

Joint workshop with other Projects (HOLISTEE, STREAMER, eeEmbedded) in SUSTAINABLE Place 2016
Date: 29 June 2016
Place: Anglet, France.

2nd annual BIM conference
Date: 12 July 2016
Place: Salford, UK

ECPPM 2016 (11th EU conference on eWork and eBusiness in Architecture, Engineering and Construction)
Date: 08 Sep 2016
Place: Limassol, Cyprus

Project coordinator: Solintel M&P S.L.
Coordinator: Juan Manuel Mieres
Project Managers:
Xiugang He: xiugang.he@solintel.eu
Javier Royo: javier.royo@solintel.eu
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Scientific Coordinator:
Prof. Terrence Fernando
Email: t.fernando@salford.ac.uk
APPENDIX 3: NEWSLETTERS #6

Design4Energy

Workshops | Meetings | Exhibitions

EeB-PPP Impact Workshop 2016

On 18 and 19 April, an EC workshop was held in Brussels. A joint presentation was prepared by DESIGN4ENERGY, STREAMER, HOLISTEEC, EE-EMBEDDED and other projects. Expected impacts from these 4 projects, project highlights, cross-cutting issues, synergies and benefits of clustering are presented in the session Session 2: ICT for design, monitoring and management of energy-efficient buildings and districts.

Genera 2016

This event was held in Madrid Spain during 15 and 16 Jun 2016. As an international transfer technology day to exchange information between possible technological partners.

The project partner IZNAB attended the meeting presenting Design4Energy to the participants and discussed the potential exploitation opportunities with the partners.

The 8th Technical And Exploitation Strategy Seminar

The 8th technical meeting was held in Uninova’s office to present current progress in integration, development of sub tools, discuss in detail about the Integration of other tools, KP, evaluation methodology and implementation plan for the next 3 months. Exploitation Strategy Seminar was also held focusing on the identification of Key Exploitable Results, IPR issues, openness of each tools and business model.

CIB World Building Congress And Exhibition 2016

Location: Tampere, Finland
Date: 30 May - 3 Jun 2016
Summary: The WBC 2016, as the leading conference and exhibition for the global construction and real estate market,
'Future Cities' Conference

Location: Beijing, China
Date: 15-19 May 2016
Organised by: the Institute of Global low carbon economy, UIBE (University of International Business and Economics)

Design4Energy project was presented by the project partner Loughborough University, new concepts and technologies from Design4Energy platform were shown and discussed with the other Participant.

Smart Homes Conference

Location: Manchester, UK
Date: 13 July 2016
Insights from pioneers in smart home technology on different topics were given, including the Ethical and Social issue, Building Management, Standards and Technology, smart home technology applications.

Design4Energy project was presented by the project partner Salford University, new concepts and technologies from Design4Energy platform were shown and attracted attention.

Joint Workshop BIM-Based Design - ICT Tools For Building Design Simulation And Assessment Of High Performance Buildings

With the idea of reinforcing the collaboration in research, output sharing and exchanging, and leverage synergies between the European Commission FP7 flagship projects in the EeB domain, namely HOLISTEEC, STREAMER, eeEmbedded and Design4Energy, a clustering workshop with title “BIM-based design: ICT tools for building design simulation and assessment of high performance buildings” was prepared starting from March and held in June 2016 in a special session of SUSTAINABLE PLACES 2016. The topic addressed were:

- Collaborative and integrated approach in order to involve in the decision-making process all the strategic stakeholders, increasing the harmonization among the design of the different building design components
- BIM (Building Information Model) use since the early design
Meeting With China Torch, Technology Bureau Of Yangzhou, Sunleada Ltd

Location: Yangzhou, China


During the visits to Sunleada Limited in August and September 2016, Design4Energy project was introduced. Among the attendees, there were officers from Chinese governmental organization Torch China, and Technology Bureau of Yangzhou.

They showed high interests in this international bilateral collaboration, wished more exploitations can happen in China, as well as contribution to the enhancement of energy efficiency in buildings and improvement of the collaboration between EU and China entities.

Design4Energy

The 2nd Annual BIM Conference

In the Second Annual BIM Conference, high level speakers built on the discussions of last year and explored what more can be done to achieve the widespread benefits that BIM has to offer. Topics covered the successes of BIM Level 2, how BIM Level 3 will benefit the industry and UK as a whole, advancements in technology and the benefits and barriers of widespread BIM.

Design4Energy project was presented by the project partner Salford University, new concepts and technologies from Design4Energy platform were shown and attracted many attention. Participants showed their high interested in exploring the platform.
**OneResilience Conference**

Location: Manchester, UK  
Date: 7. SEP 2016  
The event focused on the transformation of resilience challenges through exploiting science, innovative technology, open source data, social media and crowd engagement.

About 400 delegates attended from industry and academia. Design4Energy project was presented by Salford University, new concepts and technologies from Design4Energy platform were shown.

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**ECPPM 2016**

Location: Limassol, Cyprus  
Date: 8. SEP. 2016  
Summary: The biannual ECPPM (European Conference on Product and Process Modelling) conference series, as the oldest BIM conference, has provided a unique platform for the presentation and discussion of the most recent advances with regard to the ICT (Information and Communication Technology) applications in the AEC/IFM (Architecture, Engineering, Construction and Facilities Management) domains. The ECPPM was targeted as a key dissemination and exploitation channel in Design4Energy.

Two special sessions were organized by the project partner SALD and TUD:  

1. Modelling and Simulation for Energy Efficient-Neighbourhoods  

Besides the projects in collaboration with Design4Energy in ECPPM 2014 (Streamr, eEEmbedded, Holistic and ISES), more related projects (e.g. MOEEBILS, FASULIDIR) and external partners (buildingSMART, IABI, AEC5 UK Ltd, Politecnico di Torino, Tecnalia, Granlund Oy etc.) were invited aiming to create more synergy within the cluster and share recent research outputs in the targeted areas. Finally, twelve papers were presented in the two sessions, four of them are from Design4Energy with contributions from SALD, TUD, VTT, LU and LinNova.
41st IAHS World Congress On Housing
Location: Algarve, Portugal    Date: 13-16 SEP. 16

The 41st IAHS World Congress was an ideal forum to disseminate recent advances and discuss future trends towards a more sustainable, innovative and energy-efficient construction industry. The main purpose of the congress is to debate topics related to new environmentally friendly construction materials and technologies, energy efficiency in buildings, waste management, and other topics linked to sustainability in construction.

In this conference, the project partner presented a key research outputs from Design4Energy, including the Decision Support of EE Building Design in Retrofit and Maintenance Stage, New KPs and tools for planning energy efficient buildings and neighbourhoods. Two papers were publish in the congress.

EGETICA, Feria de las Energías
Location: Valencia, Spain     Date: 28-30. SEP. 2016

The "EGÉTICA, FERIA DE LAS ENERGÍAS" is a meeting point of the energy sector in Spain, a reference fair in which professionals and companies can find the latest trends in design, materials, technology and products. EGETICA provides its visitors with access to the latest products and services in sustainable production and distribution, new energy and environment technology solutions and everything related to efficiency in transport and sustainable mobility. Meeting point of the energy sector in Spain where you can find the latest trends in design, materials, technology and products.

Design4Energy project was presented by the project partner Symelec during the speech to the public, leaflet and posters were also presented.
APPENDIX 4: NEWSLETTERS #7

Design4Energy Newsletter

This issue
Workshops | Meetings | Exhibitions

The 2nd Review Meeting And 4th Consortium Meeting

Organizer: Solintel and Fraunhofer IAO

Location: Brussels
Date: 22 - 24 Nov 2016

Summary: The 4th Consortium Meeting & 9th Technical Meeting were held in Brussels to demonstrate current project achievements, identify technical challenges and explore the corresponding solutions. During the meeting, all the developed tools, like the collaborative virtual workspace, gbXML-IDF converter, technology database, eBIM tools were presented. Technical discussion were focused on the database, component library, case studies, implementation plan for the next two months and approach to complete all the tools for evaluation. Future collaboration and exploitation issues were discussed, more ideas were collected. By the end of the meeting, a first training plan was agreed among project partners, including the deployment and schedule of public workshops and training materials.

The 2nd review meeting was held to present the project achievements, concepts, methodologies, plans, administrative, legal and financial status to the EC. Project concept and values, prototypes of different tools were presented during the meeting and valuable feedbacks were received from our Project Office José Riesgo and PTA Horia Petran.

Agenda: 2nd Review Meeting.pdf
Design4Energy Public Training Workshop

**Organizer:** Izab
**Co-organizer:** TPF and Solintel
**Location:** Warsaw
**Date:** 2 Mar. 2017

**Summary:** The Design4Energy public training workshop was held at the Hotel Mercure Warszawa Centrum in Warsaw (Poland), to give to present our recent research results to the public, train the architect and the invited stakeholders with the project outcome regarding methodology, tools for designing energy efficient building in neighbourhoods and to collect valuable views on the project results.

34 participants in total presented in the workshop. Dr. inż. Zbigniew Kacprzyk, from the Department of Structural Mechanics and Applied Informatics of Warsaw University of Technology was invited as a speaker presenting challenges in BIM methodology. Following that, different research outcomes were presented with different presentations and tool demonstration. Many technical questions regarding the methodology and tools were raised and clearly explained by the consortium. Participants shown high interest in building model to gbXML model and preparation for simulation, collaborative cooperation and other sub tools produced in the project.

During the interactive section, participants were even able to try the tools and get more details, interact with the key developer of the tools and learn how to use them.

Real challenges in BIM implementation and energy efficient building design were further addressed, showing Design4Energy is in line with the need of the sector and will contribute the energy efficient design.

**Agenda:** Design4Energy Training Workshop.pdf
**Training Material:** Design4Energy training
The 5th Consortium Meeting
MARCH UPDATE

Organizer: Izmab
Co-organizer: TPF and Solintel
Location: Warsaw
Date: 3.Mar.2017

Summary: The 5th Consortium Meeting was held at the Hotel Mercure Warszawa Centrum in Warsaw (Poland) to discuss the feedback reaction after the training workshop, technical implementation for pending integrations, planning of system optimization, financial data integration, next workshops and meetings. Current status of different tools were presented, recent research outcomes on guidelines for optimal building design was also introduced. The final demonstration workshop is scheduled to September together with other event.

Mini conference
Dec UPDATE

Organizer: Loughborough University
Location: Loughborough, UK
Date: 8-Dec-2016
The mini-conference was organised in Loughborough University for the MRes CDT students as part of their taught modules 'Building Energy Modelling' and 'Energy Measurement and Interpretation'. It was an opportunity for students to engage with researchers. The main aim

The First International Conference on Mosques Architecture 2016
Dec UPDATE

Organizer: University of Dammam
Location: Kingdom of Saudi Arabia
Date: 5-7-Dec-2016
The First International Conference on Mosques Architecture was addressing all aspects related to mosques architecture including energy performance of mosques. The conference was attended by high level international Architects, academics, researchers and students.
was to increase the students’ understanding on how measurement and modelling techniques are applied in research, how challenging research can be and how creative problem solving is all part of the research process. The mini-conference format was a 10 minute presentation, followed by questions and discussion. Design4Energy project was presented with the new concepts and technologies developed, a speech titled "From BIM to BEM challenges" was given by Dr. Vanda Dimitriou from Loughborough University. Oral feedback and students’ reflections on the work presented was received at the last session of the event.

**Agenda:** Miniconference Agenda.pdf

### The 7th ECTP Conference

**Location:** Brussels, Belgium

**Date:** 17-18. Nov. 2016

**Summary:** The 7th ECTP open conference is organised at the Centre for fine arts (25 Rue Ravenstein, 1000 Brussels) on 17-18 November 2016. The event is dedicated to present and discuss current and anticipated innovation in the built environment field. Plenary sessions with high-level speakers from academia, industry and the European Commission introduced the global scheme and visions from various stakeholders. Meanwhile, thematic parallel sessions addressed diverse specific issues under the five current challenges of the ECTP.

A presentation titled “Barriers for market uptake and energy efficient business models” was given by Juan Manuel from Solintel, addressing the challenges also encountered in Design4Energy project. The ECTP conference has been a good opportunity for networking and to have bilateral meetings for promoting D4E and exploring ways for exploitation and building on the results.

**Presentation:** Juan Manuel - Barriers for market uptake and energy efficient business models

### Big data, Internet of Things and Blockchain Conference

**March Update**
**Location:** Manchester, UK  
**Date:** 07. Mar. 2017  
**Summary:** The Big Data, Internet of Things and Blockchain Conference boasts a variety of outstanding speakers from multiple sectors. Each one has been handpicked based on their experience and professional background to ensure that all delegates benefit from relevant, high-quality presentations. Expect speakers to cover a wide variety of topics including: Digital infrastructure, Revolution in analytics, Government and big data and Turning data into profit.

Professor Terrence Fernando, Director of the THINKlab from University of Salford chaired the sessions, gave the Opening and closing Remarks, addressing the key technologies. Technologies used in Design4Energy collaborative virtual workspace, like city data explorer were presented in the conference. Project concepts and approaches were also introduced during the networking and bilateral meetings to promote D4E.

**Agenda:** [2nd Review Meeting.pdf](https://example.com)

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### Coming Events

**Event Name:** Sustainable Places 2017  
**Place:** Teesside University, Middlesbrough UK  
**Date:** 28th-30th June 2017  
**Description:** Design4Energy will publish papers in the conference and have a common workshop with eeEmbedded, Streamer and HolisteeC.

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### Final Demo Workshop

**Organizer:** Solintel and Salford University  
**Place:** Salford, UK  
**Date:** 14th Sep 2017  
**Description:** The final demo workshop will be presented in the industrial data after the "International Research Conference", which is in partnership with the International Council for Research and Innovation in Building and Construction (CIB) and will be held during 11th and 12th September in Salford, UK. The "International Research Conference" promises a huge gathering of key international players and speakers from industry, academia and the research community, forming an important networking point for all participants. Design4Energy will publish several papers in such conferences contructing the research community.
APPENDIX 5: THE PROJECT LEAFLET_V3
Effective Technologies for EeB Design

Collaborative Holistic Design
- Holistic Design Optimisation
- Retrofit Design Alternative Exploration
- Neighbourhood Influence Exploration

Cloud-based Collaboration Platform
- eeComponent Based Design
- M&O Decision tool
- eeBIM
- Virtual Workspace
- Multi-simulation
- Energy Matching

Processes & Methodologies
- Holistic Design Strategy
- EE Indicator Framework
- D4E Process Map
- Future Scenarios

Design4Energy Integrated Lifecycle Process

High Level Process
- Needs Identification and Feasibility Stage
- Concept Design Stage
- Detail Design Stage
- Final Design Stage
- Construction and Use and Operation Stage

Low Level Process
- Requirements’ Capture, neighbourhood analysis
- Sketching New Design within Neighbourhood Context: Design Check and Energy matching
- Detailed Design & Optimisation: Design Analysis & Improvement
- Collaborative Design Review: Design Performance Check
- Collaborative Design Review: Design Check & Clash Detection
APPENDIX 6: FLAT POSTER V3

Building life-cycle evolutionary Design methodology able to create Energy-efficient Buildings flexibly connected with the neighborhood energy system

Objectives:
- Building life-cycle evolutionary Design methodology able to create Energy-efficient Buildings flexibly connected with the neighborhood energy system
- Allow the stakeholders to predict the current and future energy efficiency of buildings (both at individual level and neighbourhood level)
- Make better informed decision in optimising the energy performance at building life cycle level, including operation and maintenance.

The D4E framework supports architects and energy system engineers to design energy efficient buildings

Collaborative Holistic Design
- Holistic Design Optimisation
- Retrofit Design Alternative Exploration
- Neighbourhood Influence Exploration

Cloud-based Collaboration Platform
- eeComponent based Design
- Retrofitting decision tool
- eeBIM (energy enhanced BIM)
- Virtual Workspace
- Multi-simulation
- Energy Matching

Processes & Methodologies
- Holistic Design Strategy
- E.E. Indicator Framework
- D4E Process Map
- Future Scenarios

Budget/Funding: 6.49 M€ / 4.94 M€
Start Date: 01 Oct. 2013
End Date: 30 Sep. 2017

Project Coordinator: SOLINTEL M&P S.L.
Juan Manuel Mieres Royo
Email: design4energy@solintel.eu / xiuziang.he@solintel.eu

Scientific Coordinator: Prof. Terrence Fernando
Email: t.ferando@salford.ac.uk

This project has received funding from the EU FP7 under grant agreement No 609380
http://www.design4energy.eu
APPENDIX 7: PRESENTATION FOR THE 'FUTURE CITIES' CONFERENCE

Integration of Buildings with Neighbourhoods for Improved Energy Efficiency

Future Cities Conference
Beijing, May 2016

Prof. Tarek Hassan
Professor of Construction Informatics
Loughborough University, UK
T.Hassan@Lboro.ac.uk

Contents
- My background
- The University
- The School
- Design4Energy
- ICT Roadmap for Energy Efficient Neighbourhoods (IREEN)
- Neighbourhood planning and Integration
- People Involved
- From BIM to Energy Modelling and Simulation
- Conclusions

Tarek Hassan's Background
- BSc. Civil engineering
- MSc in Civil Engineering, MSc in Construction management
- PhD in Construction Management
- Fellow of the Chartered Institute of Building (FCIOB)
- Advanced construction informatics
- ICT for energy efficiency, smart buildings / homes, collaborative engineering, Information Modeling, BIM, simulation, virtual enterprise business relationships, eBusiness, legal aspects of ICT, etc.
- Research into engineering higher education
- Close involvement in European Commission research projects as leader, partner, evaluator of proposals and reviewer of projects
- Participated in 29 EU projects
- Reviewer and evaluator of research proposals / projects for the Academy of Finland, National Research Foundation of Singapore, national research councils of Poland, Norway and Russia
- Visiting Professor at the British University of Egypt
- 49 Million Euros of research funding
- 180+ publications

Loughborough University
Largest single-site UK campus (438 acres/177 hectares)

Achievements

By train:
- Birmingham 1 hour
- London 1½ hours
- Manchester 2 hours
- Leeds 2 hours

Adjacent to M1 motorway
School of Civil and Building Engineering

Academics: 60 (20 full professors)
Support staff: 23
Technicians: 18
UG students: 879
PDT students: 80
Researchers: 249 (152 Rf, 40 RA, 46 RE, 21 DTC)
Visiting Professors: 11
Research spend: £4.5m p.a.

One of the largest multidisciplinary Construction Schools in the UK

Design4Energy

An innovative Integrated Evolutionary Design Methodology that
- Allows the stakeholders to predict the current and future energy efficiency of buildings (both at individual level and neighbourhood level)
- Makes better informed decision in optimising the energy performance at building life cycle level, including operation and maintenance.
- Develops information platform to connect design process with neighborhoods and grid configuration, predicting relevant information for energy matching and performance optimization.
- Mapping of the building design solutions that increase energy efficiency in building, maximising the use of local energy matrix.
- 5 Million Euros – 48 Months – 17 Partners

Integration of buildings, Infrastructures and Public Space

Conceptual View of the Design4energy Technology Platform

People Involvement

2017-3-31
D4E: From BIM to Energy modelling and Simulation

The Conversion Tool:

The gbXML export of an example building following the good gbXML export guidelines:

The mapping process for the creation of the Conversion Tool:

Design4Energy — D10.5 Final version of the Awareness & Dissemination plan  Page 4 of 26
Conclusions

- There is a lack of tools for architects and designers to assist them in taking correct energy decisions in early stages of design of new buildings and retrofitting.
- Optimised energy design of buildings, infrastructure and public spaces should take into consideration interactions between different neighbourhood components.
- People involvement is essential to achieve the vision for active and informed inhabitants with maximum energy efficiency behaviours.
- Energy management for neighbourhoods should take into consideration planning, monitoring, control and management systems for dynamic energy market enabling energy positive neighbourhoods.
- There is a need to link BIM with energy performance modelling and simulation tools to optimise energy decisions across the life cycle taking into consideration neighbourhood aspects.

Thank you for listening

T.Hassan@lboro.ac.uk
# APPENDIX 8: PROGRAM OF THE PUBLIC TRAINING AND SMEs WORKSHOP IN POLAND

## 2nd March 2017 – Public Training Workshop

<table>
<thead>
<tr>
<th>Design4Energy – Training Workshop</th>
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<tbody>
<tr>
<td>Far beyond BIM design processes</td>
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</tbody>
</table>

**Design4Energy Approach, methodology and new tools for designing energy efficient buildings in neighbourhoods**

**Address:** Hotel Mercure Warszawa Centrum  
ul. Zlota 48/54, 00-120 Warsaw – Poland

**Date:** the 2nd of March, 2017  
**Time:** Starting at 9:00, closing at 17:00 (Lunch: 13:00 – 13:45, Free sandwich buffet for the participants of the Workshop)

**Description:** Buildings’ energy efficiency is closely related with the initial design, designer’s knowledge, available information and decision during the design phase. Following the example of the FP7 Design4Energy project, this workshop focuses on the principal challenges of design methodologies optimization along with integrated platform and tools.

**Language:** English

**Registration:** Fill in the on-line registration form at: [http://design4energy.eu/Events.html](http://design4energy.eu/Events.html)  
Registration fee: Free of charge
<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
</tr>
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<tbody>
<tr>
<td>09:00</td>
<td>Registration of External Stakeholders</td>
</tr>
<tr>
<td>09:30</td>
<td>Welcome speech</td>
</tr>
<tr>
<td>09:35</td>
<td>Challenge in BIM methodology</td>
</tr>
<tr>
<td>09:55</td>
<td>Design4Energy: Project Concept</td>
</tr>
<tr>
<td>10:15</td>
<td>KPI framework for designing energy efficient buildings in neighbourhoods</td>
</tr>
<tr>
<td>10:35</td>
<td>Neighbourhood data toward low-carbon district and building</td>
</tr>
<tr>
<td>10:50</td>
<td>Q&amp;A</td>
</tr>
<tr>
<td>11:05</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>11:15</td>
<td>Novel workflow for considering energy issues in collaboration setting</td>
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<tr>
<td>11:30</td>
<td>Best practice in preparing CAD models (Revit) for energy simulation via gbXML</td>
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<tr>
<td>11:50</td>
<td>Q&amp;A</td>
</tr>
<tr>
<td>12:05</td>
<td>Exploration of design options through simulations</td>
</tr>
<tr>
<td>12:25</td>
<td>Design4Energy workflow for new designs</td>
</tr>
<tr>
<td>12:35</td>
<td>Design4Energy workflow for retrofitting design</td>
</tr>
<tr>
<td>12:45</td>
<td>Q&amp;A</td>
</tr>
<tr>
<td>13:00</td>
<td>Lunch (Free sandwich buffet for the participants of the Workshop)</td>
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<tr>
<td>13:45</td>
<td>Demonstration 1: New building design with Design4Energy platform (3L building)</td>
</tr>
<tr>
<td>14:15</td>
<td>Demonstration 2: Retrofitting design with Design4Energy platform (GSM building)</td>
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<tr>
<td>14:45</td>
<td>IFC based eeBIM approach</td>
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<tr>
<td>15:10</td>
<td>Interactive training</td>
</tr>
<tr>
<td>14:50</td>
<td>Exhibition of Design4Energy Components &amp; Use Cases, Q&amp;A, including (parallel sessions):</td>
</tr>
</tbody>
</table>

**Welcome Address**

Dr. Emil Lezak, General Manager, IZNAB Sp. z o.o

Dr. inż. Zbigniew Kacprzyk, Department of Structural Mechanics and Applied Informatics, Warsaw University of Technology – Invited Speaker, BIM expert

**Design4Energy integrated Approach far beyond a BIM design process**

Prof. Terrence Fernando, Scientific Coordinator, University of Salford, UK

Krzysztof Klobut, Tarja Mäkeläinen, VTT, Finland

David Garcia, Gaspar Sanchez Moro Arquitectos S.L., Spain

Dr. May Bassanino, University of Salford, UK

**Interactive training**

Energy efficient enabled BIM component library and database

Jonathan Masior, Fraunhofer IAO, Germany

Decision support tool for retrofitting
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:50 – 16:35</td>
<td>Exploitation scenarios &amp; discussion: How Design4Energy Platform matches your needs?</td>
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<td></td>
<td>What’s your expectation, business opportunity through the design process, business model with D4E</td>
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<tr>
<td></td>
<td>Xiugang He, Solintel M&amp;P S.L, Spain</td>
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<tr>
<td></td>
<td>Prof. Terrence Fernando, University of Salford, UK</td>
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<tr>
<td>16:35 – 16:50</td>
<td>Progress achieved - lessons learned</td>
</tr>
<tr>
<td></td>
<td>Prof. Terrence Fernando, Scientific Coordinator, University of Salford, UK</td>
</tr>
<tr>
<td>16:50 – 17:00</td>
<td>Closing words</td>
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<tr>
<td>17:00 – 18:00</td>
<td>Informal meeting and networking</td>
</tr>
</tbody>
</table>

(Coffee is available during this session)