TUESDAY 13 September			
18:00	Registration Desk Opens		
19:00	TAPAS at Scandic Lerkendal Floor 2		
WEDNESDAY 14 September			
08:30	Registration and Coffee		
09:00 – 09:45	Conference opening: Eilif Hjelseth - Conference Chair Plenary 1: Raimar Scherer: History and Future of ECPPM Room: San Siro 1		
	Coffee break		

	Parallel Session 1A A) Sustainable and Circular Driven Digitalisation: Life-Cycle Assessment A) Sustainable and Circular Driven Digitalisation: Product Data Room: Mesanin 1 Chair: Diego Calvetti	**Parallel Session 1B** F) Human Factors: Implementation F) Human Factors: Education Room: San Siro 2 (Round) Chair: Mustapha Munir	**Parallel Session 1C** D) Enabling Technologies: Machine Learning Room: San Siro 1 (Classroom) Chair: Helga Tauscher	**Special Session 1: Early BIM Scientific Session - Evaluation of building designs in early planning phases using adaptive detailing strategies** Room: Mesanin 2 Chair: Markus König
10:00	How can LCA inform the early-stage design to meet Danish regulations? The sustainability opportunity metric. Paper Number=42 Aliakbar Kamari	Information Management when using BIM: Benefits and Challenges of Mobilisation Paper Number=33 Jharna Tirath Shukla	Automated Floorplan Generation using Mathematical Optimization Paper Number=57 Yingcong Zhong	
10:15	Challenges and experiences with the reuse of products in building design Paper Number=69 Artur Tomczak	Understanding "resistance to change" for organizational BIM adoption and new research ways forward Paper Number=36 Anna Nast	Predicting the Construction Duration in the Predesign Phase with Decision Trees Paper Number=122 Svenja Lauble	The topic for the special session: Research Group Early BIM - Evaluation of building designs in early planning phases using adaptive detailing strategies
10:30	Probabilistic Life Cycle Analysis as a Sustainability-Focused Design Tool for Industrialized Construction Paper Number=141 Tess Hegarty	Same same, but different – or how BIM is taught in Norwegian and Swedish universities Paper Number=59 Christoph Merschbrock	International assessment of Artificial Intelligence applications offered in the AEC industry Paper Number=125 Diego Cisterna	The universities involved are: Ruhr University Bochum (Prof. Dr.-Ing. Markus König), Technical University of Munich (Prof. Dr.-Ing. André Borrmann, Prof. Dr. Werner Lang), University Duisburg Essen (Prof. Dr.-Ing. Martina Schnellenbach-Held), Leibniz University Hannover (Prof. Dr.-Ing. Philipp Geyer).
10:45	Integrating Level(s) LCA in BIM: A tool for estimating LCA and cost impacts in design Paper Number=83 Maria Teresa Henriques Alves Ferreira	A framework for meta-disciplinary building analysis Paper Number=60 Tim Pat McGinley	Improving Early Phases of Building Design by Predicting Pedestrians' Evacuation Times Using Deep Learning Methods Paper Number=126 Jan Clever	
11:00	Construction product identification and localization using RFID tags and GS1 data synchronization system Paper Number=167 Adam Glema		Information extraction from project-related text documents using natural language processing and machine learning methods Paper Number=150 Meiling Shi	
11:15			Tower crane layout planning through Generative Adversarial Network Paper Number=152 Rongyan Li	
11:30	Coffee break			

	Parallel Session 2A A) Sustainable and Circular Driven Digitalisation: Processes B) Digital Supported Collaboration: Processes Room: Mesanin 1 Chair: Gabrielle Bergh	**Parallel Session 2B** B) Digital Supported Collaboration: Processes B) Digital Supported Collaboration: VDC C) Digital Twin: Heritage Room: San Siro 2 (Round) Chair: Arto Kiviniemi	**Parallel Session 2C** C) Digital Twin: Facilities Management Room: San Siro 1 (Classroom) Chair: Peter Johansson	**Special Session 2: Scientific Projects Presentations** Room: Mesanin 2 Chair: Pedro Mêda
12:00	Barriers to digital traceability in the materials value chains for assets Paper Number=147 Knud Mohn	Automatic Generation of Work Breakdown Structures for Evaluation of Parallelizability of Assembly Sequences Paper Number=10 Jan Mathias Weber	Establishing A Digital Twin-enabled Smart Parking System Based on BIM and Computer Vision Paper Number=81 Mustapha Munir	SmartBuilt4EU: towards a strategic research and policy agenda for the European Smart Buildings Community Paper Number=64 Alain Zarli
12:15	Evaluating existing digital platforms enabling the reuse of reclaimed building materials and components for circularity Paper Number=166 Wendy Wuyts	Using metrics to compare VDC elements in practice by general contractors in Norway Paper Number=168 Tulika Majumdar	BIM integrated data management for the operation and maintenance (O&M) of railway Paper Number=103 Rui Tao	A strategic roadmap for the development of digital platforms in construction: The DigiPLACE Strategic Roadmap Paper Number=114 Claudio Mirarchi
12:30	Sustainability assessment of a novel reusable and demountable steel-concrete composite floor system Paper Number=90 Arghavan Akbarieh	BIM adoption in small-scale infrastructure projects – investigation on the German railway sector Paper Number=80 Anna Nast	A Lean Strategic FM Service Model Based on the Digital Twin Paper Number=132 Alex Mutethia Mbabu	Bridging the Gap Carmel Margaret Lindkvist
12:45	Life cycle potentials and improvement opportunities as guidance for early-stage design decisions Paper Number=43 Johannes Staudt	HBIM application in historic town: A scoping literature review of published case studies Paper Number=160 Bintang Noor Prabowo	Requirements for information management for unforeseen triggering events in the operational phase Paper Number=143 Bjørn Arild Godager	Growing Circle Project Pedro Meda
13:00	Lunch			

	Parallel Session 3A B) Digital Supported Collaboration: Processes D) Enabling Technologies: Scanning Room: Mesanin 1 Chair: Claudio Mirarchi	**Parallel Session 3B** F) Human Factors: Business Model C) Digital Twin: Facilities Management Room: Mesanin 2 Chair: Anna Nast	**Parallel Session 3C** C) Digital Twin: Facilities Management D) Enabling Technologies: Semantic Technology Room: San Siro 1 Chair: Nick Nisbet	**Special Session 3: Research Design and Paper Writing Workshop Part 1** Room: San Siro 2 Chair: Miroslaw Skibniewski
14:00	Visual Programming into BIM environments: a simulative framework to evaluate constructability through parameter optimization at early design stage. Paper Number=51 Francesco Livio Rossini	Legacy practices to boost innovation processes using a Portuguese case study Paper Number=46 Pedro Mêda Magalhães	Digital Twin for AECOO – Framework proposal and Use Cases Paper Number=134 Diego Calvetti	
14:15	Enriching BIM-based Construction Schedules with Semantic Information using BPMN and LBD Paper Number=40 Philipp Hagedorn	Digitalisation initiative of O&G offshore projects contractual procedures Paper Number=138 Daniel Nascimento	Correlation and comparison between Digital Twin and Cyber Physical Systems Paper Number=153 Asmat Ullah	
14:30	Occupancy Assessment for Lighting Evaluation using Digital Twin technology Paper Number=39 Peter Johansson	On transparency in construction industry materials value chains Paper Number=142 Jardar Lohne	Theory, ontology, application: Toward a structured representation of occupants in building simulation models Paper Number=6 Ardeshir Mahdavi	
14:45	Methods for automated deterministic model-based scan planning Paper Number=13 Florian Noichl	Designing the business model for the end-of-life phase Paper Number=149 Marijana Srećković	Leveraging text mining and network analysis for a semi-automated work order process analytics Paper Number=28 Soroush Sobhkhiz	
15:00	Robust BIM-based 2D-LiDAR Localization for Lifelong Indoor Navigation in Changing and Dynamic Environments Paper Number=14 Miguel Arturo Vega Torres	Data sovereignty within the construction process Paper Number=161 Beatrix Weber	A ontology-based experty system for quality inspection planning in the construction execution Paper Number=55 Sebastian Seiß	
15:15	Digital twinning of existing bridges from point cloud data through deep learning on parametric models Paper Number=38 Mr. M. Saeed Mafipour	TwinGen: Advanced technologies to automatically generate digital twins for operation and maintenance of existing bridges Paper Number=76 Andre Borrmann	Suitability of three national cost breakdown structures for automated quantity take-off in road projects Paper Number=11 David Fürstenberg	
15:30	Coffee break			
16:00 – 17:00	Plenary 2: Arto Kiviniemi - AECOO Education – Do we need a new teaching paradigm? Room: San Siro 1 Chair: Mustapha Munir			
17:15 – 18:00	EAPPM Assembly Meeting (Hybrid) Room: Mesanin 2			

THURSDAY 15 September

Time					Time	Industry Day
08:30	**Registration and Coffee**					**Industry Day Registration and Coffee**
09:00 – 09:45	**Plenary 3: Leif Granholm - Role of Open Standards and BIM (Model based information) in the Construction Industry workflow** **Room: San Siro 1** **Chair: Ian Smith**					
	Coffee break					

Time	Parallel Session 4A A) Sustainable and Circular Driven Digitalisation: Product Data Room: Mesanin 1 Chair: Christian Nordahl Rolfsen	Parallel Session 4B I) Integrated Technologies Room: Mesanin 2 Chair: Helga Tauscher	Parallel Session 4C B) Digital Supported Collaboration: VDC F) Human Factors: Implementation Room: San Siro 2 (Video Recorded Presentations)	Time	Industry Day Thematic Presentation Track D San Siro 1	Industry Day Workshops/Panel Debate Track E San Siro 2	Industry Day Best Practice Presentations Track F Mesanin 2
10:00	NLP-based Semantic model healing for calculating embodied carbon of early buildings design stages Paper Number=8 Kasimir Forth	Conceptual Design and Feature-Requirements for an Open Standards BIM-based FM System Paper Number=54 Martin Krammer	VDC framework proposal for curtain wall construction process optimization Paper Number=163 Alexandre Almeida Del Savio	10:00	Thematic Presentations: VDC Martin Fischer, Stanford Eilif Hjelseth, NTNU Chair: Sujesh Sujan Room: San Siro 1		
10:15	Machine learning integration on labeling building elements for reuse in circular economy practices Paper Number=18 Fabian Sellberg	Towards data mining on construction sites: Heterogeneous data acquisition and fusion Paper Number=15 Fabian Pfitzner	Construction process time optimization of a reinforced concrete reaction slab, implementing the VDC methodology Paper Number=164 Alexandre Almeida Del Savio				
10:30	Semantic Material Bank: A web-based linked data approach for building decommissioning and material reuse Paper Number=159 Arghavan Akbarieh	How practice is represented in BIM-based Model Checking research – A literature review Paper Number=17 Peter Nørkjær Gade	Agile implementation for BIM education. Role of the human factor to create Scrum teams. Paper Number=21 David Delgado Vendrell				
10:45	What Comes First when implementing Product Data Templates? A Portuguese social housing refurbishment case study Paper Number=47 Pedro Mêda Magalhães	Structure- and LCA-driven building design support in early phases using knowledge-based methods and domain knowledge Paper Number=72 Daniel Steiner	Can Traditional Delivery Model Still Fit in BIM Procurement? A Case of NZ Local Government Paper Number=29 John Jiang				
11:00	Digital Twin in Healthcare Facilities: Linking Real-Time Air Quality Data to BIM Paper Number=98 Walid Thabet	Practical experiences with 5D Building Information Modeling – a systematic literature review Paper Number=158 Anna Nast	Architectural Education Based on Integrated Design And Its Effects on Professional Life Paper Number=136 Zeynep Yazıcıoğlu	11:00	**Coffee Break**		
11:15	Importance of Digitalization and Standardization for Bridge and Tunnel Monitoring and Predictive Maintenance Paper Number=129 Matthias Weise	A BIM-based disaster response platform: Facilitating indoor path planning for first responders, UAVs, and UGVs Paper Number=34 Ann-Kristin Dugstad					
11:30	**Lunch Break**			11:30	Thematic Presentations: Transformation Catherine Mørch, Statsbygg Emma Hooper, Bond Bryan Chair: Gabrielle Bergh Room: San Siro 1	VDC Workshop 1: Create a plan to implement VDC throughout the business (See 1) Chair: Martin Fischer and Eilif Hjelseth Room: San Siro 2	

Time	Parallel Session 5A D) Enabling Technologies: Processes Room: Mesanin 1 Chair: Christoph Merschbrock	Parallel Session 5B C) Digital Twin: Building Performance Room: Mesanin 2 Chair: Carmel Margaret Lindkvist		Time			
12:30	The use of HBIM and scanning in cultural heritage projects Paper Number=41 Christian Nordahl Rolfsen	A-EYE Control Tower: An AI driven visibility platform to improve productivity on construction jobsites Paper Number=106 Ahmed Hassan					
12:45	A BIM-based workflow to configure construction processes for a modular robot system Paper Number=63 Shaowen Han	A Novel BIM Platform Paradigm for The Building Performance Domain Paper Number=58 Duygu Utkucu					
13:00	Development of augmented BIM models for Built Environment management Paper Number=127 Leonardo Binni	Semantic Enrichment of Object Associations Across Federated BIM Semantic Graphs in a Common Data Environment Paper Number=123 Zijian Wang		13:00	**Industry Day Lunch**		
13:15	**Coffee break**						
13:45	**ECPPM 2022 GROUP PHOTO**						

Time	Parallel Session 6A G) Interoperability: Technical Room: Mesanin 1 Chair: Claudio Mirarchi			Time			
14:00	A proposed IFC extension for timber construction buildings to enable sound insulation prediction Paper Number=9 Camille Châteauvieux-Hellwig			14:00	Thematic Presentations: Sustainability John Hainsworth, Mott MacDonald (online) Trine Dyrstad Pettersen, Byggevareindustrien Chair: Gabrielle Bergh Room: San Siro 1	Transformation Workshop 2 Create a plan that identifies which factors must be prioritized Chair: Eilif Hjelseth Room: San Siro 2	VDC projects with innovative use of digital solutions - HENT & NCC Product data as prosess support; Cobuilder Chair: Lars Chr. Christensen Room: Mesanin 2
14:15	Reference process for the transformation of unstructured object catalogues into interconnected data dictionarys Paper Number=87 Sven Zentgraf						
14:30	Effective use of inverse relation attributes in IFC Paper Number=109 Helga Tauscher						
14:45	Extending the IFC-Standard for fire safety building permit Paper Number=121 Janna Walter						
15:00	GreenBIM - fundamentals for the integration of building greening in openBIM projects. Paper Number=49 Julian Murschetz						
15:15	Artificially Intelligent Classification of Structural Plans for Automated Schematic Design of Reinforced Concrete Structures Paper Number=124 Alon David Argaman						
15:30	**Coffee break**						
16:00 – 17:00	**Plenary 4: Ardeshir Mahdavi - Why we need "HIM" in BIM** **Room: San Siro 1** **Chair: Christoph Merchbrock**			16:00 – 17:00		Panel Debate: How to integrate digitization and sustainability? Project presenatations Chair: Gabrielle Bergh & Pedro Meda Room: San Siro 2	
	Break						
19:00 – 22:00	**Conference Dinner at Scandic Lerkendal**						

	FRIDAY 16 September			
08:30	Registration and Coffee			
09:00	Plenary 5: Léon van Berlo - Don't forget about the import Room: San Siro 1 Chair: Timo Hartmann			
09:45				
	Coffee break			
10:00	**Parallel Session 7A** **B) Digital Supported Collaboration: Multimodel** **C) Digital Twin: Facilities Management** **Room: San Siro 1** **Chair: Peter Johansson**	**Parallel Session 7B** **D) Enabling Technologies: Machine Learning** **Room: Mesanin 2** **Chair: Mustapha Munir**	**Parallel Session 7C** **B) Digital Supported Collaboration: Multimodel** **D) Enabling Technologies: Model Checking- I** **Room: Mesanin 1** **Chair: Nick Nisbet**	**Special Session 4: Research Design and Paper Writing Workshop Part 2** **Room: San Siro 2** **Chair: Miroslaw Skibniewski**
10:00	Multi-view KPConv For Enhanced 3D Point Cloud: Semantic Segmentation Using Multi-Modal Fusion With 2D Images Paper Number=26 Changyu Du	Towards a semantic enriching framework for visual understanding of construction site images Paper Number=111 Cheng Zeng	Extending ICDD Implementation to a Dynamic Multimodel Framework Paper Number=32 Nidhal AlSadoon	
10:15	A hybrid top-down,bottom-up approach for 3D parsing of Indoor Spaces using dense RGB point cloud Paper Number=131 Mansour Mehranfar	Inferring Interconnections of Construction Drawings for Bridges Using Deep Learning-based Methods Paper Number=65 Benedikt Faltin	Management of BIM-based Digital Twins in Multimodels Paper Number=100 Michael Polter	
10:30	How to represent damage data in BIM Models? A systematic literature review Paper Number=78 Wojciech Teclaw	Consideration of detailing in the graph-based retrieval of design variants Paper Number=73 Daniel Napps	Designing a framework for seamless integration of open data services to support disaster response Paper Number=104 Tim-Jonathan Huyeng	
10:45	OpenSantCugat: A platform for municipalities to integrate building energy information with public data Paper Number=107 Adirane Calvo	Machine Learning and Genetic Algorithms for conformal geometries in design support systems Paper Number=82 Herm Hofmeyer	Using RASE to represent normative, definitive and descriptive knowledge. Paper Number=68 Nicholas Nisbet	
11:00	Predicting annual heating energy use using BIM: a simplified method for early design phase Paper Number=137 Marie-France Stendahl	An ontology-supported case-based reasoning approach for damage assessment Paper Number=105 Al-Hakam Hamdan	Model Healing: Toward a framework for automatic adaptation of building designs to achieve code compliance Paper Number=77 Jiabin Wu	
11:15		Predicting semantic building information (BIM) with Recurrent Neural Networks Paper Number=110 Jessica Bielski	Information Extraction and NLP for the interpretation of building permits: an Italian case study Paper Number=133 Sara Comai	
11:30	Coffee break			
12:00	**Parallel Session 8A** **D) Enabling Technologies: Energy** **Room: San Siro 1** **Chair: Diego Calvetti**	**Parallel Session 8B** **G) Interoperability: Implementation** **Room: San Siro 2** **Chair: Leon Van Berlo**	**Parallel Session 8C** **D) Enabling Technologies: Model Checking _ II** **D) Enabling Technologies: Processes** **Room: Mesanin 1** **Chair: Timo Hartmann**	**Special Session 5: Direction for further research - Development of an ECPPM Research Road Map** **Room: Mesanin 2** **Chair: Eilif Hjelseth**
12:00	Aspects of BIM-to-BEM information transfer: a tale of two workflows Paper Number=7 Ardeshir Mahdavi	Systematic Investigation of Interoperability Issues Between BIM and BEM Paper Number=67 Muhammad Afzal	A multi-representation method of building rules for automatic code compliance checking Paper Number=156 Ms Zijing Zhang	
12:15	High order second-level space boundary topology calculation for building energy performance simulation modelling Paper Number=144 Georgios Nektarios	A Framework of Improved Interoperability for VGI3D Platform Paper Number=101 Gefei Kong	Training on digitised building regulations for automated rule extraction Paper Number=157 Stefan Fuchs	
12:30	Optimising Energy and Daylight Simulation Workflow through Open BIM and the WEB in the Nordics Paper Number=146 Franz Forsberg	A model to extend BIM interoperability for cast in-situ concrete monitoring Paper Number=162 Gunrid Kjellmark	Process-based building permit review – a knowledge engineering approach Paper Number=84 Judith Fauth	
12:45	Closing Session San Siro 1			
13:00	Lunch			
	NO ACTIVITY			