

ARCOM

ASSOCIATION OF RESEARCHERS IN **CONSTRUCTION MANAGEMENT**

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Reflection on Productivity, Performance and Quality at the 35th Annual ARCOM Conference



".....we welcomed over 200 of the world's leading academics and researchers, who together presented and discussed their work, further raising the profile and significance of construction management research."

The 35th Annual ARCOM Conference, with its main theme focused on 'Productivity, Performance and Quality', was a highlight of the 2019 Construction Management Research Calendar. From the people I talked to throughout the conference, it was clear that academics and industry partners alike are committed to thinking about how best to move the construction sector forward. It was also clear that as a community, we are determined that the built environment has the necessary research infrastructure to enable a more sustainable and productive industry. In demonstration of this focus, we welcomed over 200 of the world's leading academics and researchers, who together presented and discussed their work, further raising the profile and significance of construction management research.

The City of Leeds and Leeds Beckett University, offered a venue that is steeped in industrial heritage and recognised as leading hub for smart digital technology and commerce. The mix of technology and an embracing

social culture, was all that ARCOM could have asked for. Yorkshire is the largest and, some would argue, the friendliest County in England. So, we took the liberty of visiting places that are of worldwide significance.

ARCOM's main events were held at the Headingley Campus, the area being renowned for its cricket and education. The venue was magnificent offering an excellent forum for sporting academic debate. With the ARCOM social event taking place at Salts Mill's World Heritage Site, it was a privilege to let the learning commence in these exceptional places of embedded industry knowledge.

Without delay, our leading lights took to the stage and presented their work. With the headline speakers shining a light on the transforming construction agenda, it was clear that our guests had taken the Conference theme to heart. Professor Peter Slee, Vice Chancellor of Leeds Beckett University, opened ARCOM and welcomed delegates to Leeds, introducing the importance of academic endeavour in the field and noting the energy and building performance

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Conference delegates

Continued – Reflection...

research that takes place at the Leeds Sustainability Institute.

Professor Jacqui Glass, of the University College London, provided a visionary perspective on a new era for our research, introducing the Network plus programme and the need for researchers to maintain strong industrial links as we tackle the transforming construction agenda. Jacqui's association with ARCOM is a long one, her work has demonstrated how researchers in the field can make a difference, transforming the way we think and showing how impact that can be achieved. Few have the network and strength of conviction that Jacqui carries, there was so much to gain from the knowledge and experience shared by Professor Glass.

Chair of Operations and Supply Chain Management, Professor Jan Godsell of the University of Warwick, provided the second keynote and shared her research insight on Supply Chain Strategy. The talk addressed the need to balance demand and supply, and how to approach things differently, dealing with complexity and the right processes for the right product. Jan encouraged us to learn from those that manage their supply chains well, such as the fast-moving consumer goods industry.

Our pursuit for transformation and learning from perfection, continued into the second day of the conference. Professor Jennifer Whyte of Imperial College London, Director of Innovation in Construction, explored digital and systemic innovation in major construction projects and the challenges faced. Examples of the world's largest off-site developments were used to explore our understanding, or lack of it, when we view



Panellists of the discussion session

construction through systems. Jennifer reflected on the Hackitt's review and discussions with Judith Hackitt and the problems of systems and systemic failure in our sector. Dr Wei Pan from the University of Hong Kong was inspiring and insightful in his presentation on the move from blocks to modules. Providing experience of digitisation, standardisation and integrated processes as we move to more productive and efficient building processes, reducing the impact on the environment.

We were honoured to have a very distinguished panel of experts for our panel discussion. Professor Charles Egbu President of the CIOB, former alumnus of Leeds Beckett University and past ARCOM Chair opened the discussion with a passionate interjection on the role of education, research and industry, as we move towards a smarter more integrated field. Dr Chrissi McCarthy Managing, Director of Constructing Equality; Dr Colin Harrop, Partner of Sanderson Weatherall; Jonathan

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Editor letter....



Welcome to this issue of ARCOM Newsletter!

This issue is dedicated to ARCOM 2019 conference, starting with a reflection piece from the Conference Chair, Professor Chris Gorse, followed by social value sessions and ARCOM prizes, by Dr Ani Raiden and Professor David Boyd. It also features a summary of doctoral workshop on research methodology and call for contribution to a workshop on BIM, Blockchain and IoT. This issue also features four PhD abstracts by Dr Azuka Onyeme, Dr Faisal Alsedairy, Dr Millicent Asah-Kissiedu and Dr Alastair Oliver. It is a pleasure to report that the 2019 conference was enriched by Inaugural ARCOM Run, initiated by Dr Ani Raiden and supported by colleagues from ARCOM committee. This issue concludes with a call for participation in the ARCOM 2020 and track summaries. I wish to thank the contributors to this issue and, particularly Dr Simon Smith whose photos have graciously decorated this issue and past issues of ARCOM newsletter!

I would welcome any comments, and wish to invite your contributions to the newsletter. Please get in touch, by sending e-mail to R.Soetanto@lboro.ac.uk.

*Robby Soetanto
Loughborough University*

Continued – Reflection...

Wilson, Development Director for CITU; and Stuart Norris, President of Insulation Manufacturers and Portakabin's Senior Product Development Engineer, all took part in one of the most engaging and enlightening panel discussions that we've seen.

We were honoured to have George Denny-Smith, providing us with his research journey on social value. George, referencing his work with Martin Loosemore, provided us with a vision and understanding of social value principals, based on research into indigenous social procurement policies in Australia.

A particular highlight that I took away from the Leeds conference, was Professor Paul Chan's reflection on ARCOM during the gala meal. His speech focused on memories of events and those that have made such a difference to the community. Paul is one of the most humble yet passionate academics in the field. His presentation, not surprisingly mentioned nothing of his own significant achievements and impact. Instead was a review of ARCOM's 35 formative years and shone a light on the accomplishments of ARCOM, the Chairs and members that had exerted so much influence on the field. From fond memories of David Langford, he went through the ARCOM chairs and the journey and development that has taken place. With a sense of compassion and recognition, praise was given to Howes, Duff, Cusack, Fellows, Skitmore, Thorpe, Stephenson, Hughes, Akintoye, Greenwood, Khosrowshahi, Boyd, Dainty, Egbu, Smith and Raiden, for the way they had all contributed and shaped the field of construction management and ARCOM. Paul Chan offered the assembly a perspective that embraced all that the community offers and left us wanting for more and waiting for his next reflection.

With the proceedings all now digital, for all to access, and some Youtube footage of keynotes, most of the



Professor Paul Chan, giving a reflection on ARCOM over the past years

academic journey is captured. However, to experience the full benefit and flavour of ARCOM there remains a need to attend and present at the conference. The abstract call is out and for the next stage of our journey we're now in the safe hands of Professor Lloyd Scott, Chair of ARCOM 2020. The work never stops for the committee and Dr Chris Neilson, who as I write, are already paving our way northwards to Scotland.

As we head to the city of Glasgow and I hand the baton over to Professor Scott, I look forward to meeting everyone again. Thank you all for making 35th ARCOM conference such a wonderful experience.

*Chris Gorse
Conference Chair, ARCOM 2019*



Delegates at the conference dinner



Professor Stuart Green, questioning innovation in construction

Social Value in Construction at ARCOM 2019 and 2020



Social value is concerned with how we contribute positively to the communities in which we work. It is emerging as an increasingly important theme within the construction management research community, and this is reflected in the number, quality and diversity of

contributions to the ARCOM conference too. Social Value is of course also a prominent theme in practice. Many governments across the globe and all major professional bodies and associations currently support the idea, and a number of commercial sector organisations are developing innovative procurement strategies and realising new ways of securing competitive advantage. Law sets out some of the minimum requirements; for example in the UK The Public Services (Social Value) Act 2012 requires organisations “to consider, at the pre-procurement stage, how procurement could improve the social, economic and environmental well-being of the relevant area, and also to consider how in conducting the process of procurement, the commissioner might act with a view to securing that improvement.” Good practice delivers more than the minimum requirements; it sets out value-based practice, and our research community showcases some very good practice on social value. Importantly, our research community has also explored the challenges in creating social value from many different angles, including methodology and methods, ethics, policy and practice.

At the 2019 ARCOM conference in Leeds, I was honoured to chair the 2019 social value track with separate sessions on all the three days of the conference. This is now the second time social value has had such a spotlight. In 2016, we also hosted a social value session within the 32nd annual ARCOM conference in Manchester, UK and enjoyed presentations by Sylvia Hammond, University of Cape Town, South Africa; Daniella Petersen, Chalmers University of Technology, Sweden; Fady Farag, University of Salford, UK; and Jemma Bridgeman, Construction Youth Trust, Wales, UK, which all stimulated much discussion and debate. Many of the papers in the 2019 track were prize-winning contributions to the conference (see a separate news item on the prizes in pages 8-11); and importantly we continue to benefit from having a range of researchers from PhD students to esteemed

professors on stage. The organisations that had participated in research and/or were supporting the research efforts were from the public, private and third sectors. This is encouraging since cross-sector collaboration is one of the ways in which we can advance and deliver social value effectively.

On Monday 2 September 2019 in Leeds, the first parallel session on social value saw the following papers consider measuring social value, public participation, community-based research methods, and the considerate constructors scheme:

Measuring Social Value in UK Construction - Gregg Watts, Andrew Dainty and Scott Fernie

Public Participation in UK NHS Construction Projects - Hatim Fakhri, Chris Harty and Shu-Ling Lu

Decolonising Indigenous Social Impact Research Using Community-Based Methods - George Denny-Smith, Martin Loosemore, Debbie Barwick, Riza Sunindijo and Leanne Piggott

The Considerate Constructors Scheme: Improving the Image of Construction, But How Considerate Are They to Contractors? - Michael Curran, John Spillane and Daniel Clarke-Hagan

On Tuesday 3 September, the social value session included presentations on the barriers disadvantaged groups face in engaging in employment, social procurement, the Social Value Act, and ethics:

Barriers to Employment Faced by Disadvantaged Groups Targeted by New Social Procurement Policies - Martin Loosemore, Suhair Zaid Alkilani and Robert Mathenge

Social Procurement in the Real World: How Employment Requirements Unfold in Construction Projects - Daniella Troje and Pernilla Gluch

Challenges to Embedding Social Value Act 2012 in the Strategic and Operational Processes of Public Sector Construction Projects - Niraj Thurairajah, Joan Muchena and Hong Xiao

Lévinas' Ethics in Practice: A Construction Contractor's Account - Henning Grosse

The social value track in Leeds culminated in George Denny-Smith from the University of New South Wales, Sydney, Australia, delivering the Langford Lecture on Wednesday morning. George's research on Decolonising social value research in construction is supported by Martin Loosemore, Debbie Barwick, Riza Sunindijo, and Leanne Piggott from the University of New South Wales, Sydney, and New South Wales Indigenous Chamber of Commerce, Rutherford, Australia.

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Continued – Social value...

In his presentation George highlighted the longstanding and complex, policy-resistant issues; developed critical analysis of those issues and evaluated practical challenges; and presented his theorising of social value in a culture specific context and related methodological challenges.

Many thanks to all the delegates who supported this track in reviewing papers, attending presentations, presenting papers, and engaging in thinking about social value and how we contribute positively to the communities in which we work.

I look forward to seeing the regulars and hopefully many new faces too in Glasgow next year. Together with Martin Loosemore, Chris Gorse, and Andrew King, I shall look forward to hosting yet another social value track as part of the 2020 ARCOM conference. In this track, we wish to look at social value from the perspective of different professionals and organisations involved with the entire life-cycle of construction from planning through design, construction, operations and facilities management. We also call for contributions that give voice to those who may have benefitted from social value initiatives, for example workers, trainees or apprentices, social enterprises working within wider construction supply chains, clients, etc. We want to show that there are many different motives, rationales and methods for creating social value and build on the dialogue from past ARCOM conferences and key literature (e.g. Burke and King, 2015; Denny-Smith and Loosemore, 2018; Doloi, 2018; Macmillan, 2006; Watson and Whitley, 2017).

There are many untapped opportunities to grasp and challenges to overcome in creating social value and we recognise that we are at the beginning of an ongoing and interesting journey which will draw knowledge from many disciplines and fields of knowledge. No one organisation, government

department, or research project can alone solve the complex social challenges we face, and it is clear that solutions will need to be co-created through cross-sector collaboration between a wide range of stakeholders. We are optimistic since health and safety is a parallel journey which illustrates how the built environment can change its culture. Whilst construction sites are still unacceptably dangerous workplaces, the advances in the industry's safety record in recent years are the result of sustained effort combining legislative measures; research, education and training; and leadership. We believe that the same shifts can be achieved in the field of social value.

We define social value, simply, as the 'social impact' any construction organisation, project or programme makes to the lives of internal and external stakeholders affected by its activities, including those working in the industry and in the communities in which it operates (Raiden et al, 2019). In this track, for the ARCOM 2020 conference, we call for a rich discussion on the basis of broad range of material, including but not limited to research papers which present empirical evidence, reflections and/or critical reviews of academic knowledge, and exemplars of industry practice on social value. Some indicative themes for this track include:

- Co-creating social value involves multiple project partners in a network of operations working together to make a difference. Such networks may involve public sector bodies, private sector organisations, and third sector enterprises. Often the partners' priorities and mission vary widely, and it may be challenging to maintain focus and momentum on creating social value, especially when other pressing business concerns (such as economic constraints) are brought to fore. How do project partners then negotiate and re-negotiate the terms so that the potential social impact is not compromised? Which networks/ partnerships are doing things well and what can we learn from their experiences? What are the key challenges in the field and what does the future look like? What can different industry players do together to consolidate efforts and drive improvements?
- Ownership of social value: There are considerable differences in how social value is perceived and who owns it. Some practitioners and researchers tend to see social value as an issue specific to the procurement team only; something to consider as part of supply-chain management (akin to social procurement). Others take a more holistic view and consider social value an organisation wide issue for multi-functional teams to manage with the



George Denny-Smith presenting

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Continued – Social value...

involvement of a range of internal and external stakeholders. Fundamentally, different ways of organising may help and/or hinder the creation of social value. Who takes ownership for social value and how does this impact on practice?

- Assessment and measurement of social value: The whole issue of social value assessment is arguably the most contested and hotly debated area in the field. We believe that the process of assessing social impact should not be an end in itself but a means to target strategy and change behaviours amongst stakeholders that can maximise positive outcomes for the communities in which we build (Raiden et al, 2019). Yet, we acknowledge that management thinking is often dominated by concrete outputs and measures, quantitative metrics, and rankings. How useful is this? How and when is the industry recording and measuring social value and its effect? What are the key challenges in moving away from a focus on numbers? Does the current problem with 'fake news' and mistrust in experts (and the stats they produce) allow us to open up discussion and debate about qualitative ways of considering impact?

Ani Raiden
Nottingham Business School
Nottingham Trent University

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PhD Abstract: "Strategic measures for effective healthcare delivery in rural Nigeria" by Azuka Onyeme, Loughborough University



Healthcare as a system has been and will always be a vital public provision to support human existence. Research within the last decade shows significant barriers such as geographical location (terrain and transportation concerns); local health issues and availability of healthcare facilities are common concerns that affect effective delivery practices in rural settings. These barriers have affected the actualisation of a healthy environment and have regrettably led to high mortality rate from preventable and or curable causes. Consequently, in this study, findings was generated from literatures and field study and divulge that health polices, infrastructures and health service schemes are available in Bayelsa state (focus region of study), created to improve health status of the people especially those situated in the remote and riverine communities but economic, topographical and social challenges which are still prevalent have dawdled progress in attaining this goal.

In response to these challenges, the study investigates and propose strategic measures to improve the delivery practices hence, making healthcare services available and accessible to the rural poor. Therefore, the study aimed at developing a guide for effective healthcare delivery to meet current challenges, especially where access issues are prevalent for various demographic and geographic rural settings. Review of several literatures, survey of 1700 completed questionnaire carried out between August 2016 and July 2017 within seven selected states in the Niger Delta region of Nigeria and, 16 semi - structured interviews conducted randomly across respondents from the public and health sector within Bayelsa state, Nigeria. The mixed method approach was employed to evaluate existing healthcare strategies, assessment of the rural and health needs in different settings and, the required improvements to the healthcare policies.

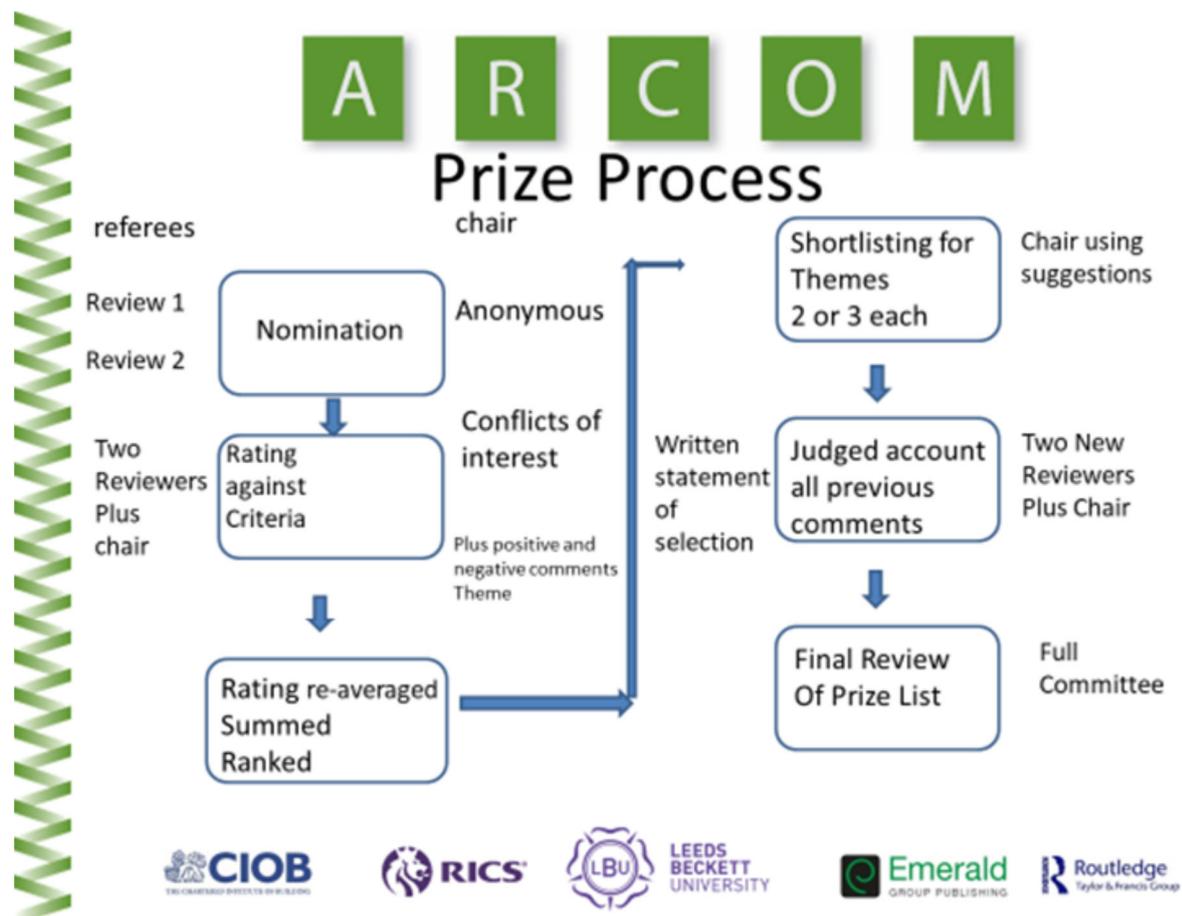
A guide using models which serves as strategical approach is developed and proposed for the desired improvement in the healthcare system in these rural settings following results from analysed data sets that established health and rural needs, government neglect and, accessibility issues (terrain and transportation) as the significant factors of concern.

Azuka undertook her PhD research, with guidance from Professor Andrew Price and Dr Francis Edum-Fotwe.

ARCOM Prizes 2019

We were honoured to award prizes for the many outstanding contributions to the 2019 ARCOM conference in Leeds with the support of the ARCOM prize committee, which consisted of the following ARCOM committee members: Professor Paul Chan (TU Delft), Dr Craig Thomson (Glasgow Caledonian University), Dr Libby Schweber (University of Reading), Dr Ani Raiden (Nottingham Trent University), Dr Vivien Chow (Loughborough University), Professor Lloyd Scott (TU Dublin), Professor David Boyd (Birmingham City University).

We presented the prize process that is used to identify the final prize-winning papers. Each year we reflect on this process, and review and revise it, in order to feel secure in that we have worked to the utmost rigour and tried our very best to eliminate any uncertainty, favouritism and/or lack of transparency. As well as ongoing developments to the process, we also change the composition of the prize committee periodically so that we benefit from fresh pairs of eyes.



The nine prizes we awarded this year were:

1. Paul Townsend Commemorative Award for Research into Practice
2. Rod Howes Commemorative Award for Conference Theme
3. David Langford Commemorative Award for Social Impact
4. CIOB best International paper
5. CIOB CRI best paper for Construction Transformation
6. RICS, best paper on Sustainability
7. Taylor and Francis best Theoretically Informed paper
8. Emerald best Research Methodology paper
9. ARCOM award for conference campus run

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For the **Paul Townsend Commemorative Award for Research in Practice**, papers were judged on their contribution towards or exploration of practice. This category included papers that access and explore difficult or previously unexplored aspects of practice and included methodological issues. This might involve challenging current thinking on practice, advancing debate of a practice area, providing a new understanding of practice, or reporting on and analysing insightful data on practice.

The award was presented by Chrissi McCarthy from Constructing Equality Ltd, UK, to Richard Brett, Derek Thomson and Andrew Dainty from Loughborough University, UK, for their paper:

“Coping with stone: a short-term ethnography of skilled work in UK housebuilding”

This paper is a unique exploration of practice and was the obvious choice for the Paul Townsend award. It uses “short-term” ethnography to get up close to the on-site realities of skilled workers and their interactions with managers, tools and materials.

The **Rod Howes Commemorative Award for the Conference Theme**, papers were judged on their contribution towards the conference theme. This might involve reporting on and analysing theory, advancing the debate on the theme, providing a new understanding of the theme, or offering a challenge to current theory, practice and/or method about the theme. The 2019 conference theme was Productivity, Performance and Quality Conundrum and involved challenges to both practice and theory and featured in a number of conference tracks.

The award was presented by Chris Gorse from Leeds Beckett University, UK, ARCM 2019 Conference Chair, to Chris Ivory from Anglia Ruskin University, UK, for his paper:

“Using a relational ontology in the analysis of project tools”

This paper offers a critical reflection on tools that purport to deliver greater productivity. It is theoretically very well developed and addresses recent growing concerns on sociomateriality and brings to the conference a different angle to the dominant way management tools are presented.

For the **David Langford Commemorative Award for Social Impact/Significance**, papers were judged on their contribution to advancing social impact and exploring the relationship that the production of the built environment has with society. This might involve reporting on and analysing attempts at providing social impact, critically analysing the failures and successes to achieve social impact, advancing debate on the meaning and adoption of social impact, providing a new understanding of existing theory, or contributing to the challenge to current thinking on social impact.

The award was presented by Martin Loosemore from the University of New South Wales, Australia, to Daniella Troje and Pernilla Gluch from Chalmers University of Technology, Sweden, for their paper:

“Social procurement in the real world: how employment requirements unfold in construction projects”

This paper explores the social impact that procurement can have in shaping employment. It focuses on how companies can develop better social measures and employment requirements in procurement.



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Continued – ARCOM Prizes...

For the **CIOB Best International Paper Award** the conference contributions were judged on their contribution to a better understanding of the international context of construction. This might involve reporting on and analysing explicitly cross national projects, critically analysing the wider context of internationalisation in construction, advancing debate on the flow of ideas about construction across borders, providing a critique of existing literature or recognising the work of an international research team.

The award was presented by Patrick Cusworth from the CIOB, UK, to Ammar Azzouz from the University of Oxford, UK, and Abeer Abdelal from Al-Wataniya Private University in Syria for their paper:

“Young Syrian Architects (YSA) at the time of crises”

This paper gives voice to young architects working in Syria in war time conditions. It documents their concern with how to salvage their cities and preserve their heritage. The creative solutions which they proposed both attests to the specific perspective which construction professionals bring to cities and their communities in times of crisis and offers suggestions for other places suffering similar devastation.

For the **CIOB CRI Award for Construction Transformation**, papers were judged on their contribution towards new thinking or practices in the transformation of the industry. This might involve reporting on and analysing an intervention, advancing the debate on change, providing a new understanding of existing theory of transformation, or offering a challenge to current thinking, practice and/or method about transformation.

This award was also presented by Patrick Cusworth from the CIOB, UK, to Yazan Osaily and Alex Copping from the University of Bath, UK, Stephen McCann from Perses, Edinburgh, UK, and Tamil Uddin from the McGee Group, London, UK, for their paper:

“Exploring the value of demolition contractor involvement at the design stage of construction”

This paper deals with broader aspects of construction transformation moving away from a focus on cost and speed to seeing the sustainability benefits. The consideration of demolition contractors in this transformation is original and provides an important move to the circular economy.

For the **RICS Award for Sustainability**, papers were judged on their application of sustainability or on the thinking, practice and/or method of achieving sustainability. This might involve reporting on and analysing a project with demanding sustainability objectives, advancing the debate on practice of sustainability. This includes work all aspects of the Global Sustainable Development Goals, environment, renewable and clean energy; management of energy, water and resources in general; control in built environment, pollution control, climate control and related fields.

The award was presented by Akin Akintoye from Leeds Beckett University, UK, to Marc van den Berg, Hans Voordijk, and Arjen Adriaanse from the University of Twente, Netherlands, for their paper:

“Circularity challenges and solutions in design projects: an action research approach”

This excellent paper tackles an important but under-researched area to explore how life cycle sustainability can be embedded in design. The paper puts forward a strong case for using action research methodology to study processes which have yet to be fully implemented. The findings inform future action research and sustainable practice.



Winner represented by Professor Lloyds Scott



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For the **Taylor and Francis Award for Best Theoretically Informed Contribution**, papers were judged on their theoretical contribution to the debate and practice of construction. This might involve the presentation and use of a new or complex theory applied to construction, the excellent application of a theory to analyse construction, a critical review of theory used in construction, or offering a challenge to current theories about construction.

The award was presented by Patrick Hetherington from Routledge/Taylor and Francis, UK, to Henning Grosse from the University of Gloucestershire, UK, for his paper:

“Lévinas' ethics in practice: a construction contractor's account”

This paper offers a genuine engagement with ethics, to a considerable and personal depth. Grosse uses auto-ethnography as reflection on the challenging responsibilities of managers in business/construction. A solid methodological position applied to what Grosse encounters are then reflected upon and shared.



For the **Emerald Award for Best Methodological Contribution**, papers were judged on their methodological originality or excellence in their research into the built environment. This might involve the presentation and use of a methodology not usual for the built environment, the excellent application of a methodology in research, a critical review of methodological theory, or offering a challenge to a conventional methodology used in construction research.

The award was presented by Gemma Hemmings from Emerald, UK, to Hiral Patel from the University of Reading, UK, to her paper:

“Are we looking at the same thing? Multiple methods to frame 'occupancy' of a library building”

The paper challenges methodological choices and assumptions in the study of building occupancy. The exploration of different methods and theoretical frames provides a valuable insight for the study of building use and building performance.



Finally, the inaugural **ARCOM award for conference run** was judged on the capability of completing a 5km conference run against the odds including time, diversity, adversity and social contribution, with a note that this is a social event and competitive within the 'spirit of ARCOM'. This was awarded to Martin Lennartson from Jönköping University, Sweden, on balance of meeting the above criterion. (Please also see a separate news item on the conference run on pages 13-14)



Congratulations to all the prize winners!

All indexed papers are now available via the ARCOM abstracts service on the ARCOM website:

<http://www.arcom.ac.uk/abstracts-results.php?s=35th%20Annual%20ARCOM%20Conference&b=b>.

*David Boyd, Birmingham City University
Ani Raiden, Nottingham Trent University*

ARCOM Research Methodology Workshop Series

Contemporary Advances in Research Methodology in Construction Management Glasgow Caledonian University (UK), 1st November 2019

This ARCOM workshop represents the third in a series of focused workshops which seek to provide a forum to present and explore approaches to research methodology (www.arcom.ac.uk). These workshops seek to provide a support mechanism for researchers either engaged in their doctorates or in the early stage of their research careers. The previous two were held in Dublin at Dublin Institute of Technology (now Technological University Dublin (TUD)) in 2015 and 2017, and placed emphasis on establishing a better understanding of what approaches are available, why they exist, underpinning theories and their applicability. This workshop series is complemented at ARCOM 2019 conference in Leeds by Track 5 focused on Developments in Research Methodology (<http://www.arcom.ac.uk/conf-next-track-details.php?t=25>).

On Friday 1st November 2019, the Built Environment and Asset Management (BEAM) Centre (www.gcu.ac.uk/assetmanagement/) at Glasgow Caledonian University jointly hosted a full day workshop with the Association of Researchers in Construction Management (ARCOM) (www.arcom.ac.uk) exploring contemporary advances in research methodology. Aimed at doctoral students and early career researchers the workshop sought to provide an environment where they can present a paper, exchange ideas and engage in critical discussions surrounding contemporary advances in the field.



The workshop was convened by Dr Craig Thomson (Senior Lecturer, SCEBE), Professor Lloyd Scott (Technology University of Dublin, Ireland and Vice ARCOM Chair) and Dr Nicola Callaghan (Lecturer, SCEBE) with 24 participants attending with 8 papers presented by researchers coming from as far afield as Stevenson Institute in New York; Northumbria University, Huddersfield University, Heriot Watt University, University of Strathclyde with Laura Rodriguez-Labajos and Dayna Rodger both representing BEAM Centre at GCU. Each presenter provided a paper which following feedback will be published in proceedings of the workshop. Also participating in the workshop was a number of invited

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Workshop attendees

Continued – Methodology Workshop...

guest speakers and practitioners in the field who contributed through talks and discussions including: Professor Paul Chan (Delft University of Technology, Netherlands).

Professor Lloyd Scott led a discussion session around the role of contemporary methodological approaches in bridging the gap between theory and practice (i.e. the quest for theoretical research which also has a pragmatic output).

Thanks are passed to all who participated in a very successful workshop.

Workshop convenor: Dr Craig Thomson (GCU)

Participant (institution)	Title of presentation
Dr Laura Rodriguez Labajos Glasgow Caledonian University	Constructivist grounded theory for supporting collaborative-embedded research in construction management
Ellyn Lester Stevenson Institute, New York	Exploring the role of mentorship as an effective means of knowledge sharing in New York City's built environment- a qualitative approach
Mahmud, Abba Tahir Heriot Watt University	Developing a coding framework for conceptual system dynamics modelling based on qualitative data
Dayna Rodger Glasgow Caledonian University	Integrating social housing retrofit practice for Ageing in Place: A methodology
Ambark Bareka University of Strathclyde	A lifecycle-orientated SNA framework for BIM adoption in major construction projects
Danstan Chiponde Northumbria University	Learning from project failure by PBO's in the UK Construction Industry – A mixed methods research approach
Joas Serugga Huddersfield University	A Framework for Benefits Realisation in Front End Design of Construction Projects in Dynamic Contexts
Ozaer Zaed University of Strathclyde	A methodological approach to excellence in BIM orientated architectural education
Mohamed A. Tweijer (University of Strathclyde)	A lean construction overlay to RIBA Plan of Work

PhD Abstract: "The Dynamics of Mega Infrastructure Decision-Making in Saudi Arabia" by Faisal Alsedairy, University of Edinburgh



This research aims at understanding the dynamics of the macro institutional set up of decision-making regarding Mega infrastructure projects (MIP) in the Saudi context. It was noted in the literature review that, in the domain of project management, there are gaps of knowledge about decision-making in MIPs, that can be filled by studying the institutional culture of decision making in specific contexts. Because of the uniqueness of the context and the scarcity of studies on this aspect of the MIPs within Saudi Arabia, any meaningful inquiry must involve direct engagement with the key decision makers. Therefore, this research conducted interviews with key decision makers and high government officials regarding their process for decision-making for major projects.

The researcher looked into the relation of the Five-Year plan (FYP) to MIP in planning and development. The main findings from this research suggest that there are minor impacts of the FYP on the decision-making process in MIPs, and that there are conflicts between several key institutions on the vision and implementation of the FYP. The research concluded that MIPs are developed outside the hierarchy of national plans and that the development of MIPs play into power geometries by their political champions. This raises the long-term strategizing risk for the MIPs. The research also presents what can be deduced from the fifteen interviews as internal and external issues that can affect the MIPs decision making and development. The study concludes with recommendations for the overall institutional setup of decision-making in Saudi Arabia and recommendations for the FYP formation stages.

Faisal completed his PhD research in May 2019, with guidance from Dr Simon Smith.

ARCOM Doctoral Workshop

Exploring the mutual role of BIM, Blockchain and IoT in changing the design, construction and operation of built assets

25 March 2020

304E Sandyford Building, Northumbria University, Newcastle

The architecture, engineering, construction and operations (AECO) industry is going through a period of digital transformation with many new technologies, processes and practices improving day-to-day operations at pace. Distributed ledger technology (DLT), (e.g. Blockchain, the underpinning technology for cryptocurrency Bitcoin) is suggested as a key technology to support this digital transformation due to its inherent characteristics to redefine the trust relationship between parties leading to better collaboration and information sharing. DLT offers decentralisation, privacy, anonymity, immutability, traceability and transparency among others. When coupled with smart contracts, it offers a powerful tool to support solutions to the industry's many challenges such as low productivity, poor procurement models, fragmentation, and the need for payment and regulatory reform.

DLT is still at a nascent stage in its development. This workshop is proposed to support doctoral researchers in broadening their knowledge and understanding of the application of DLT in AECO through sharing their research and networking with their peers.

Call for participations

We are inviting participations in the workshop. Participants have the option to submit an abstract to present an academic paper or propose an interactive breakout session to support data collection on one or more of the themes detailed above. Following notification of acceptance of abstracts, authors will be invited to submit a full paper of between 6 and 10 pages. Please send abstract submissions to: Jennifer.Li@Northumbria.ac.uk.

Abstracts should be themed on the following topics:

- Building Information Modelling (BIM)
- Internet of Things (IoT)
- Digital Twins
- Construction supply chain
- Digital construction
- Payments
- Smart contracts
- Smart technologies
- Smart buildings
- Smart cities
- Health and safety
- Automation
- Data provenance
- Integration with existing technologies
- Industry 4.0
- Other AECO-related topics

Key dates:

Abstract submission: 5 January 2020

Notification of acceptance: 13 January 2020

Full paper submission: 1 March 2020

Notification of full paper: 9 March 2020

Workshop: 25 March 2020

Workshop Conveners

Jennifer Li, PhD Candidate

(Jennifer.Li@Northumbria.ac.uk)

Dr Mohamad Kassem, Associate Professor

(Mohamad.Kassem@Northumbria.ac.uk)

Dr David Greenwood, Professor

(David.Greenwood@Northumbria.ac.uk)

Proceedings

Following the workshop, papers will be published in the Workshop Proceedings, and made publicly available on the ARCOM website.

Registration

Attendance at the workshop is free. Registration will open in January 2020.

Travel Grants

A limited amount of financial support is available to presenters who do not have their own funding to travel to the workshop from within the UK. Please contact Jennifer Li for further information.

Inaugural ARCOM Run



During the conference dinner at the fabulous Titanic Belfast in September 2018, an idea was born to add a new dimension to the ARCOM social calendar: an ARCOM run.

The inaugural ARCOM run took place in Leeds, on Monday morning 2 September 2019, just before registration and the formal conference programme opened for the 35th annual ARCOM conference at Leeds Beckett University, Headingley Campus.

The sun was out and we had great fun.

The run was truly representative of the construction management community. In the words of Professor Stuart Green “everyone was running in different directions” and no one had read the instructions or looked at the map.

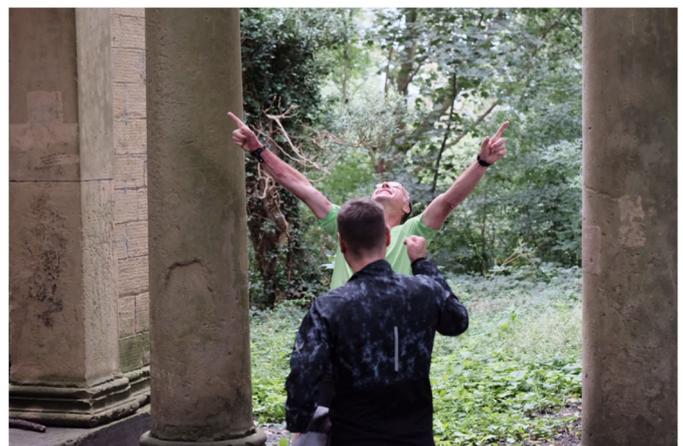
What emerged was a great diversity of ways in which the conference delegates chose to participate in this event. During July and August, as the run was formally announced, some delegates showed exemplary efforts to stimulate interest and recruit fellow runners to take part in the event.

On the day, a “car park team” (comprising Stuart Green and Robby Soetanto) made it clear that the planned route was rather too focused on making most of the natural environment and parkland adjacent to the Headingley Campus, and so, very fittingly given that the ARCOM conference celebrates research

within the built environment, they went off-piste and toured the car parks and building sites on campus instead of the beautiful Beckett Park.

Amazingly, one of the runners was a mother of a two-month old baby; another runner was suffering from severe jetlag having arrived on campus only hours before the run after a 14hr long haul flight and a five-hour coach journey; and one of the participants had never ran before.

One of the ARCOM committee members, Alex Copping from University of Bath, was our hare and led the front group runners to an exhilarating finish through the historic Victoria Arch.



Continue next page...

Continued – Inaugural ARCOM Run...

The secretary of the ARCOM committee, Fred Sherratt, was timekeeping and recorded the 5k completions as follows:

- 20.24 Alex Copping, University of Bath
- 20.59 Henning Grosse, University of Gloucestershire
- 21.21 Craig Thomson, Glasgow Caledonian University
- 22.50 Ad Straub, Delft University of Technology
- 22.56 Martin Lennartson, Jönköping University
- 23.24 Dimos Kifokeris, Chalmers University of Technology
- 25.05 Ruben Vrijhoef, Delft University of Technology
- 31.29 David Boyd, Birmingham City University (5.65k)
- 31.45 Henrik Linderöth, Jönköping University
- 31.38 Jakob Berg, Technical University of Denmark
- 38.00 Emmanuel Aboagye-Nimo, Nottingham Trent University

Other runners completed 4k, 3k, or other distances as follows:

- 4k
- 32.47 Emmanuel Omopariola, University of Cape Town
- 32.31 Muhammed Dulaimi, Leeds Beckett University
- 3k
- 23.48 Kate Simpson, University of Leeds
- 28.48 Mustafa Selcuk Cidik, London South Bank University
- 28.55 Vivien Chow, Loughborough University
- 29.05 Neema George Opiyo, The University of Manchester
- 29.28 Chika Udeaja, University of Salford
- 39.21 Upeksha Madanayake, London South Bank University

Other:

- Robby Soetanto, Loughborough University (5.65k)
- Stuart Green, University of Reading (5.65)
- Walaa Salah, The British University in Egypt
- Yi-Hsin (Carrie) Lin, Southeast University, China (2k)



There was a prize: an ARCOM award for conference run. This prize was judged on the capability of completing a 5km conference run against the odds including time, diversity, adversity and social contribution, with a note that this is a social event and competitive within the 'spirit of ARCOM'. This was awarded to Martin Lennartson from Jönköping University on balance of meeting the above criterion.

Craig Thompson is organizing the ARCOM conference run for the ARCOM conference in Glasgow 2020. We may see this develop into an event that is social and competitive within the 'spirit of ARCOM' on different distances, perhaps 3k, 5k, and 10k?

*Ani Raiden
Nottingham Trent University*

*Race photography thanks to Simon Smith
University of Edinburgh*



PhD Abstract: "Development of an Integrated Safety, Health and Environmental Management Capability Maturity Model (SHEM-CMM) for Ghanaian Construction Companies" by Millicent Asah-Kissiedu, University of the West of England



The adoption and implementation of environmental management systems (EMS) and safety management systems (SHMS) to manage safety, health and environmental (SHE) risks effectively in the construction industry, particularly in developing countries like Ghana, has been slow and generally low, this is mainly due to cost and the bureaucracy that comes with the parallel implementation of standalone management systems. There is, therefore, a need for an integrated SHE management framework for effective SHE risks management and control. However, there is no single integrated SHE management framework for construction organisations to use, especially those within developing countries. Neither is there any mechanism by which construction companies can ascertain their capability in implementing integrated SHE management in order to guide efforts to improve their SHE performance. This research was undertaken to develop an integrated SHE management capability maturity model (SHEM-CMM) that can be used by construction firms in the Ghanaian construction industry.

The study involved a literature review and a survey of experienced SHE experts to verify the suitability of the identified integrated SHE management capability attributes. Subsequently, a three-round Delphi technique was undertaken with experienced SHE management experts, and accompanied by the application of voting analytical hierarchy process, to generate consensus on the relevant attributes and also ascertain the relative weight/priority of the capability attributes. This study found 20 integrated SHE management capability attributes which are clustered into five categories, namely: strategy; process; people; resources; and information. Collectively, the attributes within the 'strategy' category are the most important, followed by the 'people' and then 'process' attributes. An integrated SHE management capability maturity model (SHEM-CMM) is composed of 20 integrated SHE management capability attributes which are mapped on to five levels of capability maturity ranging from Level 1 to Level 5. The integrated SHEM-CMM was then validated by 59 construction professionals including SHE experts in Ghanaian construction companies to ensure the adequacy and practical usefulness of the model. The model provides a systematic approach for SHE management capability evaluation and improvement. It is anticipated that the developed capability maturity model would be used by construction firms to systematically assess their current SHE management capability and identify ways to further improve their SHE management in order to obtain better SHE performance outcomes.

Millicent undertook her PhD research, with guidance from Dr Patrick Manu, Dr Colin Booth and Dr Abdul-Majeed Mahamad.

PhD Abstract: "Perceptions of sustainability and their influence in the design and delivery of Scottish housing" by Alastair Oliver, University of Edinburgh



The sustainability 'agenda' is expected to be firmly embedded in the policies and practices of the Construction Industry. A multitude of sustainability indicators and the concurrent development of different Assessment Methods, intended to direct and inspire designers towards sustainable practices, emerged in the late 20th and early 21st Century. In the UK and the domestic sector in particular, many of these indicators have now been subsumed by the Building Regulations and Standards, which set the minimum levels of achievement for 'sustainability'. Each of these approaches are underpinned by a particular understanding or interpretation of the best way to meet a perceived set of sustainability needs. This situation raises questions surrounding how notions of sustainability and sustainable development are assimilated and interpreted by Industry Professionals. These questions revolve around how a designer perceives sustainability and how this influences their personal design approach. However, one issue that persists is the lack of a shared sense or understanding of what sustainability is and why it is important to our industry and society.

In order to explore the breadth of perception within the domestic housing sector in Scotland, a series of semi-structured interviews with architects have been thematically analysed. This research reveals that there are clear elements visible of a shared goal of working towards sustainability amongst architects. It also confirms that the level of understanding around sustainability practices and procedures among designers is diverse and not clearly understood across the profession. Further to this, several themes are explored in this research including; the role and impact of project cost, the significance of minimum standards being incorporated into the Scottish Building Standards - including levels of engagement and aspiration to higher levels of achievement.

The outcomes of this study will be beneficial in several ways - they will contribute to the understanding of sustainability practices within the domestic housing sector; knowledge dissemination via guidance and design guides could help limit the variability of approaches of design teams; the understanding developed will allow a more informed approach to policy development and, finally, they will provide invaluable insight for the further development of the educational and continuing professional development needs of Architects in particular.

Alastair completed his PhD research in September 2019, with guidance from Dr Simon Smith.

ARCOM 2020

Building A Common Good in Construction

7-9th September - Glasgow Caledonian University, UK

ARCOM 2020 returns to Glasgow, Scotland after some twenty years absence, drawing on the hospitality of Glasgow Caledonian University in partnership with the Technological University Dublin. It is right and fitting that we should focus on the chosen theme for the conference in 2020 and it is also fitting that Glasgow host us for this tremendous opportunity! Our research communities are coming together to achieve more than political rhetoric.

At a time when the modern world grapples with the challenges of divided nations, the need for greater collaboration to build communities of practice for common good, resilience and sustainability seems paramount. In the AEC sector, is it appropriate to say we have championed 'building a common good' and can we be recognised as a leader in this area? We have an opportunity to create an environment where this agenda can be researched, discussed and shared.

We invite paper submissions that address the central theme, "Building A Common Good in Construction". The ARCOM community has been building the "Common Good" throughout its thirty- five year history, that is what makes it such a strong network today. The bringing together of like-minded individuals conspiring to make the world in which we live a better place has been an underpinning goal of the organisation since its inception. There is a need to deepen our understanding of the common good and to understand whether it is not only problematic, but also a productive force for societal good. Questions are raised around whether the inclusion of explicit values around common good are necessarily a bad thing, and whether their integration is always possible. Should we be striving for the full inclusion of the common good principles in what we do in the AEC sector? What would this balance appear like, and what implications will its integration have on policy, practice and research in construction?

Track Summary for ARCOM 2020

In 2016, the ARCOM Committee introduced thematic tracks in order to better steer conversations around the general theme of the conference. To build a productive relationship within and between academia and industry, and in finding a balance between fragmentation and integration, we invite authors to particularly consider and respond to the following themes and tracks when developing the full papers. Creating a forum for discourse and debate among researchers in construction on 'building our common good' will create a significant event where in time those in AEC education and research will celebrate our contributions! Creating a forum for discourse and debate among researchers in construction on 'building our common good' will create a significant event where in time those in AEC education and research will celebrate our contributions. We, therefore, have assembled track themes that address the changing nature of society through the built environment, in the construction industry. These include, but are not restricted to...

Track 1: The Tyranny Of Metrics

Metrics are all around us. To a large extent they dictate the issues which are seen to be important, and they dictate the parameters within which the debate is conducted. They prevail across scales, from measuring the contribution of the construction sector to national economies right through to the performance management of individuals. To express doubts concerning the efficacy of such metrics serves only to marginalise dissenters from the mainstream. Impact factors and citation counts are in danger of becoming ends in themselves as indicative proxies of research quality. Environmental assessment methods are similarly dominated by metrics setting out the rules of the game.

Continue next page...



Glasgow Caledonian University – conference venue



Kelvingrove Art Gallery and Museum

*Continued – ARCOM 2020...***Track 2: Social Value**

Social value is concerned with how we contribute positively to the communities in which we work. By this we mean looking at social value from the perspective of different professionals and organisations involved with the entire life-cycle of construction from planning through design, construction, operations and facilities management. There are many untapped opportunities to grasp and challenges to overcome in creating social value and we recognise that we are at the beginning of an ongoing and interesting journey which will draw knowledge from many disciplines and fields of knowledge. Setting a discourse around the shifts in the AEC sector in the field of social value can offer a huge contribution to the community.

Track 3: Building For The Common Good: Exposing The Potential And Challenges For Delivering A Construction Industry For The Common Good?

The Common Good agenda has emerged as a framework to help readdress the balance away from the pure interests of capital profit and towards the long term benefits of society. It is advocated to promote fairness, equity and social justice. Its roots are in many of the principle theorists in political and economic thinking such as Smith, Marx, Rawls, Keynes, Mills, Madison, Rousseau, Locke, Machiavelli, Aquinas. This raises many research questions which can provide a platform for debate about the future role of the construction industry within our national economy and importantly society. This requires theoretical exploration relating to the role of governance, comparisons between our dominant economic models and those emerging such as the Common Good framework. From an empirical perspective opportunity to explore examples where the built environment and corporations are successfully delivering these principles; whilst exposing the failings of the many. Different national contexts also provide an opportunity to learn and contrast the approach to governance, economic model and also the role which construction industry plays within that society.

Track 4: The Fourth Industrial Revolution (Industry 4.0) And The Future Of Construction: Promises, Premises, Practices And Problems

Practices in the construction industry have recently been transformed with the use of more digital technologies. This is arguably pursued at the relative neglect (and expense) of the analogue world. The Fourth Industrial Revolution, or Industry 4.0, a high-tech strategy to describe a new wave of technological advancements and applications that follows previous industrial revolutions of mechanisation, electrification and computerisation. Such a strategy promises efficiency gains, by integrating the value chain, through a combination of technologies and techniques, ranging from automation and robotics, additive manufacturing, sensing, cloud computing, machine learning, big data analytics, Internet of Things (IoT), augmented and virtual reality, and so forth. Despite the aspiration of these advancements, adoption of these technologies is slow and less than promising.

Track 5: The Sustainable Development Goals (SDGs): A Framework For Building A Common Good For The Built Environment

The SDGs are important in the context of the world in which we live today and that the academic community have a pivotal role in achieving these goals. This however requires connecting research and education with policy, industry, technology and civil society. The SDGs provide business organisation with a new lens through which to translate global needs and desires into business solutions. The construction industry as a sector has

*Continue next page...***ARCOM Committee 2018-2019**

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ARCOM 2020: Building A Common Good in Construction

Key dates

Submission of abstracts: 2359hrs GMT, Friday 10 January 2020

Notification of acceptance of abstracts: Monday 17 February 2020

Submission of full papers: 2359hrs GMT, Friday 10 April 2020

Editorial decision on full papers: Friday 15 May 2020

Submission of final papers: 2359hrs GMT Friday 19 June 2020

ARCOM 2020 Conference: 7 – 9 September 2020

Continued from overleaf

the opportunity to influence the realisation of the SDGs by formulating policies and regulatory frameworks that drive the adoption of sustainable construction practices in delivering a more sustainable built environment.

Track 6: Community Engagement: The Case For Service To The Community

Issues of community engagement is becoming increasingly popular in higher education programmes across the world, and there is also calls for engaged scholarship that bridges the divide between theory and practice. In some universities, this drive towards more community engagement is framed in terms of social responsibility, and this is in itself not unproblematic. There is a need to invite broader conversations that not only showcases the successes of such initiatives, but also critically reflect on the challenges and future prospects of doing more of what is framed as a 'good' thing for students, educators and societal stakeholders. This theme solicits papers that question the ways we evaluate educational effectiveness more generally and in service learning scenarios more particularly, and to also question the institutional enablers and inhibitors that make the ideals of service learning a reality.

Track 7: Sustainable Entrepreneurship in Construction

The entrepreneurial perspective is often missing in presenting a business case for sustainable development in construction. Sustainability entrepreneurs are defined as actors gaining competitive advantage through understanding and utilising sustainability issues. An objective of this track is to discuss sustainability management through the lens of sustainable entrepreneurship (including strategies, business models and management practices) in organisations operating in the built environment. This track offers a forum to discuss recent developments, results as well as ongoing interdisciplinary research activities in the intersection between construction management, sustainability management, and sustainable entrepreneurship.

Other Themes....

The ARCOM Conference is an inclusive conference that covers a wide range of topics pertinent to the Architecture, Engineering and Construction sector. We therefore invite authors to reflect on the aforementioned theme when developing papers that may also address:

Building information modelling; Equality and diversity; Human resources management; Information management; Infrastructure development; Offsite construction; Planning, productivity and quality; Research and education; Sustainability in the built environment; Construction design & technology; Disaster management; Health, safety and well-being; Law and contracts; Other related themes will be considered.

Submission of Abstracts

In the first instance, **we invite the submission of 300-word abstracts**, which should be uploaded via the MyARCOM portal on www.arcom.ac.uk before **2359hrs GMT on Friday 10th January 2020**.

Abstracts should be informative and contain a clear purpose statement and research question, and information about the methods and key findings. Abstracts that successful pass through the double-blind peer-reviewed process will be invited for full paper development.