



ASSOCIATION OF RESEARCHERS IN **CONSTRUCTION MANAGEMENT**

Volume 37 Issue 2

September 2020



36th Annual Conference, 7-8 September 2020

A virtual experience: Professor Lloyd Scott chairing from his office
in Technological University Dublin

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Welcome from the Chair

36th ARCOM Annual Conference

General Theme: Building a Common Good in Construction



"....the ARCOM community should come together and move forward with 'the common good'"

The Technological University Dublin extends a very special welcome to the delegates of the 2020 ARCOM conference.

As we began to roll out the early stage planning for the 36th Annual ARCOM CONFERENCE, the world came face to face with the unprecedented challenges of the COVID-19 pandemic. While the immediate global priority remains to tackle this public health emergency, society's long-term response must also address the underlying causes of such a pandemic and certainly the ARCOM community can make a strong contribution to this. So, with the COVID-19 restrictions and the speed with which the pandemic took hold, the conference organising committee were left with a decision, back in early April, whether or not to hold the conference and if so what type of conference might it be. The shared consensus was that some form of conference needed to be had. After all, it might be said, spread around the world, the ARCOM community should come together and move forward with 'the common good'. We hope, indeed expect, that an effective vaccine will be developed quickly but, in the meantime, we are left to our own resources and virtual it is for this year. So, I am humbled to welcome you to the first ever virtual ARCOM conference.

This year's conference attracted 294 submissions in January 2020. Following three rounds of double-blind peer-review, a total of 110 papers were eventually accepted for presentation at the conference. In a field that is now saturated with so many international conferences, this success rate demonstrates the rigour applied to the ARCOM peer-review process. Of course, this cannot be achieved without the support of 110 reviewers drawn from across the world, including 21

ARCOM Committee members and 78 members of the extended Scientific Committee. Thank you to all involved in the peer-review process.

This is the fourth year in which the ARCOM Conference has been themed. There were also eight thematic tracks proposed for the conference, covering a range of issues from community engagement to the tyranny of metrics and including sustainable entrepreneurship in construction and building for the common good. These thematic tracks now form an important part of shaping the papers received and accepted and, we hope, of steering the discourse at the conference. Another significant area in this year's conference is the focus on sustainability in the built environment, where authors address questions around low energy and low carbon construction along with governance and the common good in construction.

It is also very encouraging to see authors becoming more engaged about the position and research that addresses construction education. The construction management community of researchers can be seen to mature and expand their research activity within the fast changing environment in which society finds itself and particularly the emerging aspects/impacts of COVID-19. The opening plenary session appropriately focuses on addressing the common good in the context of sustainable cities where two keynote addresses - the first by Professor Ann Bradley from the Construction Leadership Council and the second from our own, Dr Alex Opoku - will be provoking us to think about the role of the AECC in addressing the climate change agenda.

The second plenary session chaired by Dr Craig Thomson with keynote addresses by Professor Martin

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Continued—Welcome...

Loosemore and Dr Ani Raiden addresses the topic of “The rise of Social Value within the Construction Industry: the Challenges and Opportunities presented by COVID-19”. The session will include a contribution from Mr. Dave Higgon from Multiplex Australia as a discussant. It gives me great pleasure to introduce this year’s Langford Spotlight where the topic of “The Politics of Construction” is explored by Ms. Chrissi McCarthy, chaired by Dr Vivien Chow. It promises to be a lively session and one that David Langford would be very proud of.

The virtual setting allows for the exploration of three one-hour workshops where three distinct topics cater for the divergent needs of the ARCOM community. Construction 4.0 is explored by Professor Paul Chan while Dr Nicola Callaghan leads the session on research methodology exploring what Grounded Theory is or even is not. The third workshop looks at mental health and wellbeing in the COVID-19 world in which we are now all living. ARCOM chairman, Professor Chris Gorse explores this important topic with some personal reflections. I am delighted to also add to the discourse in this workshop.

ARCOM continues to attract an international audience, and we have delegates joining us this year from, inter alia, Europe (with colleagues from the Netherlands and across Scandinavia), the United

States of America, South Africa, Sri Lanka, India, China, Malaysia, Australia and New Zealand. It is good to welcome colleagues from both developed and emerging economies alike. Following the successful ‘Meet the Editors’ session back in ARCOM 2017, we will run this session again at the virtual ARCOM 2020 Conference. Gemma Hemming from Emerald and Ed Needle from Taylor and Francis have teamed up and planned a very interactive session on day two. They will discuss what post COVID-19 in the field of construction management research may look like.

Lastly, but not least, I also wish to express my sincere appreciation to a number of key individuals for their support and help over this past year; the ARCOM Committee, Cath O’Connell, Rosalind Oxley and Katie Clements, all the folk who helped us at iVent, and of course, this conference would not have been possible without the relentless and unwavering efforts of our conference secretary, Chris Neilson. I would like to finally thank ARCOM chairman, Professor Chris Gorse, who has been a rock of support to me in navigating my new experience.

Welcome to ARCOM 2020 and to the virtual experience. Enjoy!

*Lloyd Scott
Conference Chair, ARCOM 2020*

Editor letter....

Welcome to this issue of ARCOM Newsletter!

I hope you and your family are keeping well during these extra-ordinary times.

The impact of COVID-19 pandemic is unprecedented; it has impacted aspects of our life. In the last few months, we saw that construction management community has adapted well with few practices (such as online teaching) becoming part of ‘new normal’. As we continue to progress, I am delighted to publish another issue for this first-ever online ARCOM conference.

In this issue, the Conference Chair, Professor Lloyd Scott, welcomes the delegates. Then, it features a summary of papers of a workshop on BIM, Blockchain and IoT. The workshop was planned on 25th March 2020, but was subsequently cancelled following government-imposed lockdown. COVID-19 has also impacted individual PhD students. Here, Suryani Ahmad shares her experience of viva during lockdown. ARCOM has been a cradle of new knowledge and ideas; we wish to congratulate our own, Dr Patrick Manu, who, with his colleagues, Professor Fidelis Emuze, Associate Professor Tarcisio Saurin and Professor Bonaventura Hadikusumo, have won the 2019 Taylor & Francis Outstanding Book and Digital Product Award. Dr Ani Raiden and Professor Martin Loosemore invite book contributions on Social Value in the Built Environment. I also wish to congratulate Dr Dilek Ulutas Duman, Dr Ali Kankhir Alotaibi, Dr Cormac Flood who recently completed their PhD; their abstracts are featured. I further extend my congratulation to Professor Paul Chan and Professor Chika Udejaja for their promotions. This issue also features update on ARCOM membership, before a call for ARCOM 2021 concludes. I wish to thank the contributors to this issue.

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*

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

(ARCOM Doctoral Workshop planned on 25th March 2020 in Newcastle-Upon-Tyne, UK)

Distributed ledger technologies (DLT) such as blockchain, the underlying technology for cryptocurrency bitcoin, has started to receive increased attention in the construction sector. As more and more PhDs are being funded in the field, we wanted to take the opportunity to build a peer network of researchers with the help of ARCOM to support each other and identify potential areas for collaboration. The workshop was scheduled for 25th March 2020, which, of course was postponed as a result of the COVID-19 nation-wide lockdown. So, while the workshop did not take place, we wanted to make sure the researchers' work received the attention it deserves.

My colleagues, **Prof. Mohamad Kassem** and **Richard Watson**, and I continued with the peer-review of the submitted papers and were able to put together proceedings of the thwarted event. The result is a small collection of promising areas of research that have the potential to impact digitalisation of the construction sector in the coming years. The proceedings are now available in the ARCOM workshop section of the ARCOM website.

Jens Hunhevicz from ETH Zurich in Switzerland proposed his research on Crypto-Economic Incentives in the Construction Industry by positing the potential effect of smart contract based processes and tokenization to introduce new incentive structures in construction to address trust and collaboration between contracting parties.

Alistair Wilson from Loughborough University discussed The potential of Distributed Ledger Technologies to improve product traceability assurance in the construction industry. Alistair explores the current level of traceability in construction and presents a framework for

increasing traceability in the construction supply chain through the lens of stakeholder and information management theory.

Hakan Altay from the University of Strathclyde presented An Investigation on the Applicability of Smart Contracts in the Construction Industry in the form of a thorough literature review to identify the relationship between smart contracts and traditional construction contracts resulting in a discussion on the potential impact the new technology could have on the construction process.

Denis Scott from University College London (UCL) conducted an Archival Study of Blockchain Applications in the Construction Industry from Literature Published in 2019 and 2020 reviewing 21 of the most relevant papers and identified 19 different applications under five main categories of 1) integrated asset delivery; 2) automated systems; 3) decentralised public services; 4) supply chain and life cycle; and 5) technology components.

Graham Coulby from Northumbria University considered how blockchain and other technologies could support integration into a toolbox of principles, workflows and technologies to underpin living lab research in buildings in his paper on The Building as a Lab: Towards the development of a toolbox.

We look forward to being in a position to announce a date for the rescheduled workshop once we are in a position to safely meet with large groups indoors. We will be putting out a call for all new papers to share the most up-to-date doctoral research in the field of Blockchain, BIM, IoT and smart contracts for construction.

*Jennifer Li
PhD Candidate
Northumbria University, UK*



Doctoral researchers (left to right): Jens Hunhevicz, Alistair Wilson, Hakan Altay, Denis Scott, Graham Coulby

A Viva in Lockdown... Suryani Ahmad (Yani)



Suryani Ahmad (Yani), PhD Student at Loughborough University, wife and working mother of three children, started her PhD Journey in October 2015 and successfully defended her thesis on 24th March 2020, titled: "A work process model of Industrialised Building System in Malaysian Construction Industry". Her Viva is

unique because it happened, just after government-imposed COVID-19 lockdown in both the UK and Malaysia. Kay Davey (KD) asked Yani about her experience of an online Viva, shortly after the event.

KD: What was the hardest part of conducting your PhD Viva online?

SA: Following a year away from the University and the UK, my laptop failed to update so I contacted IT Services to help resolve log in issues and install Microsoft Teams (as requested by the examiners). This was resolved with one hour ahead of my Viva start. I arrived in the UK on the 18th March and it was unclear how the Viva would be conducted, but in consultation with the examiners and the Doctoral College Office just two days ahead of the Viva, we finally decided to proceed with it online due to the lockdown. I would like to thank IT Services, my supervisory team Dr Robby Soetanto and Dr Chris Goodier as well as my Examiners Professor David Proverbs and Dr Vivien Chow, who made my Viva come true and memorable.

KD: What was the most interesting part of undertaking it online? And what advice would you give others to prepare for an online Viva?

SA: Find the most comfortable space in your home with no distractions – I chose to use the dining table in the living room because it has good lighting and I like plenty of space. I was able to prepare and organise my thesis in advance and found it helpful to practice alone and get used to it before the real session. The support from IT Services team and supervisory team played an important role, especially in the situation of COVID-19 pandemic issue.

An online Viva is more stressful because of the need for familiarising yourself with the software and preparing the space while remaining focused on your thesis. There are so many additional things to prepare compared with a face-to-face Viva. The best advice I can give to anyone is to make your own drinks before your Viva begins. Remain calm and confident, have a positive attitude, enjoy the moment and give it your best.

KD: Was it particularly challenging to steer the panel

without the personal experience of 'face-to-face' contact?

SA: Honestly, it depends on having a good service provider - and good quality, clear audio. My advice would be to use headphones and a collar mic instead of the laptop mic, to ensure clear communication with the examiners. Apart from that, I don't think there is much difference.

KD: What were your circumstances when going into and during quarantine?

SA: I received the news that my country was going into Movement Control Order (MCO) on my way to the airport to depart for London. Fortunately for me, I was able to proceed with my journey, because two days later no-one was allowed to leave Malaysia. In fact, I took a risk to fly all the way to the UK because I had just recovered from illness and was still on medication. While I was in the UK, the UK Government announced lockdown just one day before my Viva and to make matters worse, on the morning of my Viva, I found out that my return flight had been cancelled. I remained calm and focused while my husband resolved the flight issue, which luckily was rescheduled. Back in Malaysia on 27th March, I was ordered to go through mandatory self-quarantine for 14 days at home until 10th April. I am so grateful that after facing the challenging journey (16 March to 10th April) I survived the COVID-19 ordeal.

KD: We're relieved too, Yani. Since your Viva, are you now reunited with your family back in Malaysia?

SA: It's been almost two months since I left home for my Viva and I'm still apart from my children. They have been living with my mother and I returned straight into self-quarantine at my home which is three hours away from my mother's house. I'm still awaiting an update for when I will be allowed to travel so I can bring them home. Until then we keep in touch through video call.

KD: Do you have any projects underway right now and how is that going?

SA: I'm currently focusing on my thesis corrections and conducting lectures online while giving students moral support to complete their studies, especially for final year students.

KD: What work plans do you have longer term, beyond the coronavirus pandemic?

SA: I plan to publish several articles on systematic literature review, quantitative data and exploratory study from chapters in my thesis regarding Lean Construction in Industrialised Building System (IBS).

KD: Thank you and congratulations on passing your Viva, may you be reunited with your family soon and good luck with your future publications.

*Kay Davey
School of Architecture, Building and Civil Engineering
Loughborough University*

New Book Series: Social Value in the Built Environment

Series Editors: **Dr Ani Raiden, Nottingham Trent University, UK, and Professor Martin Loosemore, University of Technology Sydney, Australia**

Social Value in the Built Environment is a new book series published by Routledge, part of the Taylor & Francis Group.

The built environment sector has a major impact on the lives of people, the prosperity of businesses, and the resilience, health and well-being of communities through planning, design, construction and management of urban environments, buildings and infrastructure. The aim of this series is to present a sequence of books that address the many ways in which 'social value' can be created (and potentially destroyed) in and by the built environment.

The series defines social value as the impact that built environment has on the lives of people living in communities it builds and those who work in the sector.

Recognising the critically important contribution that the built environment makes to the achievement of the UN Sustainable Development Goals globally, the series will be multidisciplinary and international in outlook. It will address questions of both theory and practice, and it will be broad in scope, reporting new empirical work, ground-breaking approaches and exposing good and bad practice through real-life case studies.

The series will cover many subjects including, but not limited to community involvement and development,

design, urban planning, environmental management practices, human rights, procurement, social enterprise, managing people and labour practices, organizational governance, fair business practices, and consumer issues.

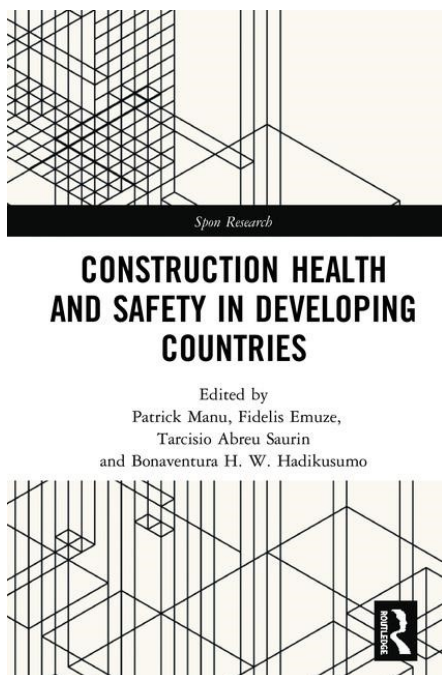
We are seeking expressions of interest from thought-leaders and researchers who are interested in social value relating to the planning, design, construction and management of the built environment. We are particularly interested in books that include scholarship from practice, and cross-disciplinary co-authorship is encouraged but not a requirement.

Expressions of interest should include your name and contact details, information on the book's subject, an indicative table of contents, an estimated completion date of the manuscript, and target audience. Edited books are appropriate to the series, but we are particularly interested in commissioning authored books and research monographs.

Please send expressions of interest by email to the series editors: Dr Ani Raiden (ani.raiden@ntu.ac.uk) and Professor Martin Loosemore (martin.loosemore@uts.edu.au).

Please note that the series editors have no role in the peer-review or Routledge's final decision. All proposals need to go through peer-review and be accepted by Routledge before a contract is issued.

Outstanding Book Award: Construction Health and Safety in Developing Countries



While the global construction industry is notorious for a high prevalence of accidents and illnesses, the situation is worse in developing countries. However, the bulk of published construction health and safety literature has focused on issues in developed countries. To help address this gap, the first book collection to focus on construction health and safety issues in developing countries was published in 2019. The book, "Construction health and safety in developing countries", which was edited by **Dr Patrick Manu, Professor Fidelis Emuze, Associate Professor Tarcisio Saurin and Professor Bonaventura Hadikusumo**, has been awarded the 2019 Taylor & Francis Outstanding Book and Digital Product Award in the 2019 Outstanding Monograph in Engineering Category. **Congratulations to the authors** of the foreword and chapters of the book, which covers construction safety and health issues in several countries in Asia, Africa, Europe and South America. It is particularly encouraging for a text on construction management to be given this award within the broad engineering discipline category.

It is noteworthy that the initiative to produce this book started to unfold as **one of the thematic tracks for ARCOM's 2017 conference**, and thereby reflecting ARCOM's continued contributions towards birthing and shaping ideas for the field of construction management.

PhD Abstract: Strategy narratives in Turkish international contracting: Mobilising the past as a means of creating a heroic identity by Dilek Ulutas Duman, University of Reading



This research is about competitive strategy in the international construction sector. Drawing on the 'narrative turn' in organisation studies, it emphasises the temporal and discursively constructed nature of competitive strategy. The central argument of the narrative approach is that individuals, and by extension practitioners involved in strategy, make sense of the world by telling stories. Such stories are continuously mobilized to constitute an overall sense of coherence and direction with direct material implications. This ongoing process of narrative construction resonates with 'identity work'. The current study, therefore, proposes 'identity work' as a key strategic practice which is directly implicated in shaping not only the trajectory of individual contracting firms, but also the Turkish construction sector as a whole.

The empirical analysis focuses on strategy narratives as mobilized within the Turkish international contracting sector. Competitive strategy narratives are seen to provide a means of understanding the formation and enactment of strategy. Turkish contractors have projected themselves increasingly successful, often operating in turbulent, high-risk markets characterized by conflict, political discord and stark discontinuities. They describe themselves as the heroes of turbulent markets, especially in the Middle East and North Africa (MENA) and former Soviet Union (USSR) countries. In contrast, much of the literature on competitive strategy is characterised by assumptions of economic and political stability. Such assumptions may well be justified in the markets of North America and Western Europe, but they have little resonance with the regions targeted by Turkish contractors.

The adopted narrative approach provides a retrospective and contextual understanding of the competitive strategy of Turkish contractors through the analysis of sectoral and individual narratives. The empirical data covers a sectoral narrative, published as a quasi-historical book and 30 narrative interviews carried out with experienced managers from Turkish contracting firms. The empirical analysis focuses on the 'narrative infrastructure' as continuously co-constructed by the narratives at sectoral and individual level. The findings highlight the multi-actor and multi-level processes of strategy making. Narrative analysis demonstrates the way in which actors, actions and events are positioned within a plot structure, with direct implications for the enactment of future strategic practices. The findings suggest that strategic actions can only ever be identified in retrospect, and that such arguments are always made with an eye on the future.

Dilek undertook her PhD research, with guidance from Professor Stuart Green and Dr Graeme Larsen .

ARCOM Committee during Lockdown



ARCOM Committee held a quarterly meeting in May 2020 and several extra-ordinary meetings via Zoom to deliberate the organisation of 2020 conference. This was never been held before. This online meeting platform was efficient and effective in maintaining discussion throughout, and also enabled all members to be present in most meetings. Whilst in-person meetings are critical to develop collegiality, the experience of online meetings during COVID lockdown raises a question whether this online mode will become a regular choice for future meetings?

PhD Abstract: A Framework for Implementing Social Responsibility in Mega-Projects in Saudi Arabia by Ali Kankhir Alotaibi, Loughborough University



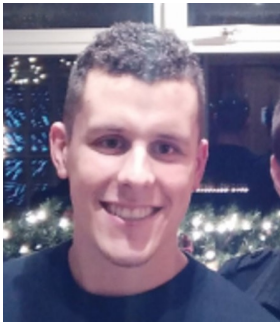
The size and scale of modern mega-projects in construction call for a systematic consideration of their economic, environmental and social impacts throughout their lifecycle in order to minimise

any potential negative consequences that such schemes can impose on society. Such adverse impacts often pose significant challenges when it comes to social responsibility (SR) that developers of mega-projects in construction must address. The SR issue is of increasing importance to all projects and particularly so for mega-projects and particularly for countries wanting to take advantage of their natural resources by converting such natural capital into physical assets necessary to propel economic growth and development for the present and future generations. As the second largest industry in the Kingdom of Saudi Arabia (KSA), the construction sector accounts for more than GBP 92 billion of total government annual expenditure, with a disproportionate level of this spend mostly directed at a limited number of mega-projects. However, implementation of comprehensive SR has often been given little or no attention. Current research thinking suggests that the lack of attention is due to the absence of materials to support a critical appreciation of the strategic importance of SR as well as protocols for its effective implementation. Consequently, the resources needed for the successful implementation of SR at both organisational and project levels are either unaccounted for or at best grossly underestimated. To account for the SR dimension of such projects, a common framework for addressing the different aspects making up need to be established. The research from which this thesis is founded was designed such an effective SR framework for mega-projects in construction, with specific emphasis on the context of the KSA. A comprehensive coverage of current SR implementation practices

led to the identification, evaluation and ranking of barriers to, and drivers along with potential benefits of SR implementation. The research uses a mixed method design, in which both qualitative and quantitative data are collected in parallel. Quantitative data was collected through a questionnaire survey of 136 construction personnel involved in delivery and management of two construction mega-projects from the rail sectors. Qualitative data was collected through semi-structured interviews with 12 key construction personnel to further explore the benefits and drivers of SR implementation. The two datasets combined produced the essential elements for developing a framework that established the SR factors to be addressed within each phase of mega-projects in construction. The main findings of this research include the following: (i) implementation of the concept of SR in KSA mega-projects is not adequately balanced, and more focused on economic impacts; (ii) additional cost together with lack of awareness and knowledge were the main barriers to SR implementation; (iii) regulations and client demand are the key drivers to SR implementation; (iv) operational efficiency and customer satisfaction are the prime benefits associated with SR. A structured framework was developed to facilitate a comprehensive consideration of SR for the project throughout its lifecycle which provided a more robust treatment and implementation of SR. The development of the framework makes an important contribution to identifying SR factors-related activities that are crucial to mega-projects in construction, which can enable their prioritisation. Beneficiaries of this research include all stakeholders seeking transformation in the construction industry for beneficial impacts on society in general, and these include construction industry practitioners, governments, governmental and non-governmental organisations in KSA and beyond.

Ali's PhD work was under the guidance from Dr Francis Edum-Fotwe and Professor Andrew Price.

PhD Abstract: A Framework for Integrated Thermal Assessment and Design by Cormac Flood, Technological University Dublin



The residential sector in Ireland accounted for 25% of energy related CO₂ emissions in 2016, through burning fossil fuels; a major contributor to climate change. Space heating in dwellings accounts for

60% energy used in the residential sector and 13% of Ireland's overall CO₂ emissions. In support of Ireland's CO₂ reduction targets, the existing housing stock could contribute greatly to the reduction of space-heating energy demand through retrofit. Approximately, 50% of Ireland's 2 million dwellings pre-date Building Regulations and are predominantly of cavity and solid wall construction, the performance of which has not been extensively investigated, at present. Although commitment to thermal upgrade / retrofit of existing buildings may increase under future government policies, the poor characterisation of actual thermal performance of external walls may hinder the realisation of these targets.

Thermal transmittance (U-values) of exterior walls represent a source of uncertainty when estimating the energy performance of dwellings. It has been noted in research that the standard calculation methodology for thermal transmittance should be improved. Subsequently, hygrothermal analysis has been used as an accurate building design tool due to its incorporation of climate specific effects on construction assemblies, such as moisture retention and release. In-situ measurement of thermal transmittance could also be an effective tool for evaluating the material performance of assemblies of a building.

This thesis provides the context, research process, and analysis of 4 case studies situated in Dublin, Ireland. The case studies offer an account of the in-situ thermal transmittance of exterior walls and link these to hygrothermally-simulated comparisons, along with more traditional design U-values. The findings of this the-

sis identify discrepancies between in-situ and design U-values, using measurement, hygrothermal simulation, and standard method U-value calculations. The findings from this research enquiry have the potential to form the basis for further research on retrofit of the Irish housing stock. Furthermore, the thesis offers information and guidance for researchers and designers exploring the performance of external walls, to anticipate best practice detailing and in-situ thermal performance values.

This PhD used transient hygrothermal modelling and in-situ heat-flow measuring techniques to improve and expand upon the knowledge and understanding of standard calculated U-values, as applied to external walls. Findings revealed several key points of note; most significant was that obtaining accurate construction assembly data is crucial to accurate simulation / calculation. Generally, a significant disparity was identified between calculated and in-situ U-values. Standard calculations appeared to underestimate the in-situ U-values, while the modelled transient U-values were a much closer reflection of in-situ U-values. A key supposition is that hygrothermal simulation can be used to derive thermal transmittance comparable to in-situ results. This research is intended to serve as an introduction to issues emanating from a larger research project in order to encourage researchers to understand and further explore the topic.

Implementing current U-value calculation methods may result in misguided retrofit strategies due to the considerable discrepancies between in-situ measurements and calculated wall U-values, as documented in the case studies of this research. If the method of hygrothermal analysis were to be employed as a replacement for the current standard calculation, it could have significant implications for policy and retrofit decision-making.

This PhD work was under the guidance from Professor Lloyd Scott, Technological University Dublin.

ARCOM Membership 2020



Membership Secretary Dr John Spillane provides an update:

The number of individual and institutional members remains very healthy and continues to grow year on year. Figure 1 shows that the number of individual members increased significantly over the previous ten years: from 88 in 2010 to 641 this year. Similarly, Figure 2 shows that the number of institutional members has increased from 14 in 2011 to 20 this year.

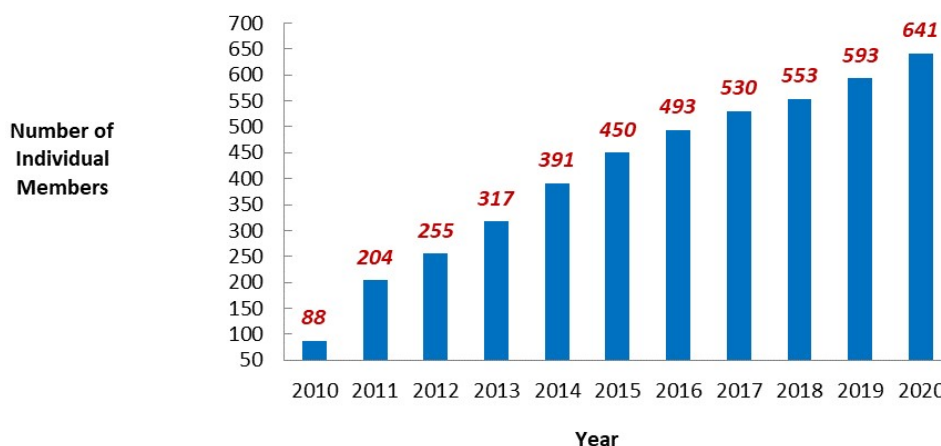


Figure 1 Number of individual members between 2010 and 2019

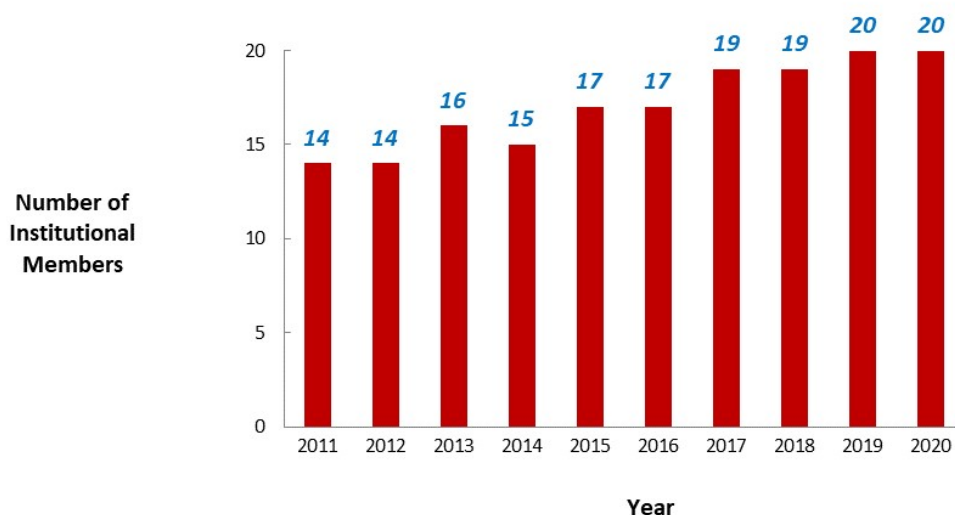


Figure 2 Number of institutional members between 2011 and 2019

The geographic breakdown of individual membership from 2012 to 2020 is shown in Figure 3.

- In 2020, 86% of members originate from Europe (33%), Sub-Saharan Africa (28%) and Asia Pacific (25%), with the Middle East, North Africa and Other Regions, accounting for the balance (14%).
- In Europe, there is a 7% decrease in 2020 compared to 2019 levels, where the majority of members come from the UK (70%), followed by Ireland (9%); which represents a fall of 5% and increase of 2% in these regions respectively, on 2019 figures.

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Continued—Membership...

- In Sub-Saharan Africa region, there is a 5% increase in 2020 compared to 2019 levels: rising from 23% to 28% in the past 12 months. Compared to 2012 level, it is a 1% decrease overall. The majority of the members originate from Nigeria (61%), followed by Ghana (22%) in 2020, which represents a fall of 2% and increase of 3% respectively, on 2019 figures.
- In Asia Pacific region, there is a 1% reduction in 2020 compared to 2019 figures. Compared to 2012, there is a 3% increase in 2020. The membership in this region is historically more equally distributed, which again proves to be the case this year with India (23%), Malaysia (19%), China (11%), Sri Lanka (11%), Australia (8%), and Pakistan (7%) accounting for 79% of the region in 2020. There is only slightly changes for these six countries since 2012.
- In Middle East and North Africa, 9% of members originate from this region; up 1% on 2019 figures, but more so, an increase of 5% since 2012. Iran, Saudi Arabia, and Egypt account for 36%, 24% and 14% of the members within this region, respectively.
- In Other Regions, 5% of members originate, where Latin America (1.5%) and North America (2.5%) make up the majority of this region, with Turkey and Western Balkans making up the balance (1%).

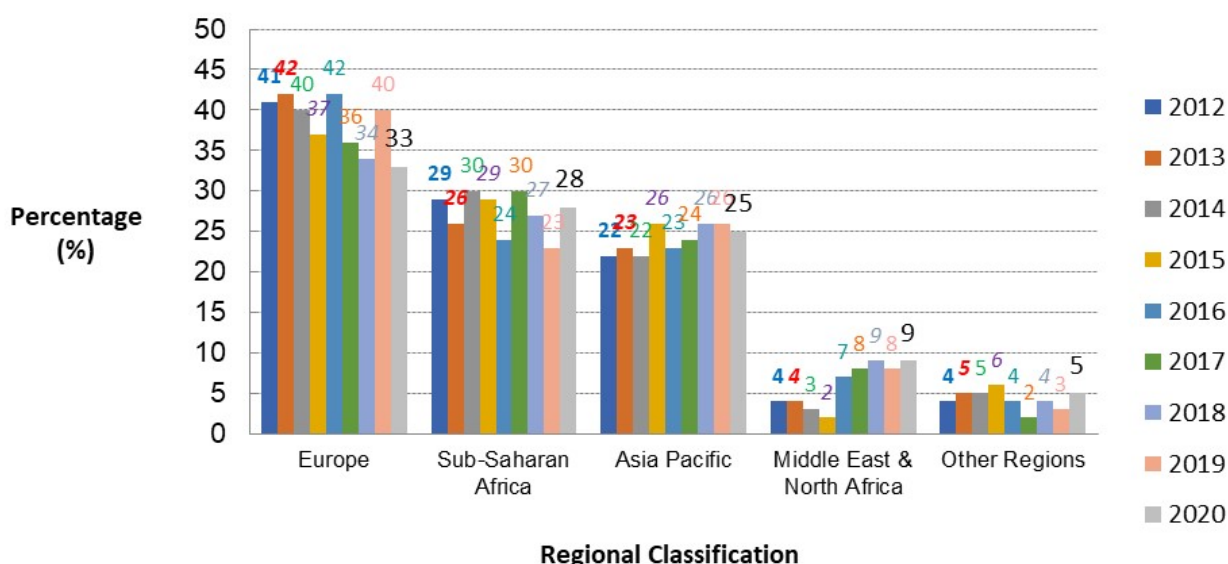


Figure 3 Geographic breakdown of the individual membership (2012 to 2019)

- ARCOM currently has 20 Institutional Members:
- 16 Institutions from the UK - Birmingham City University, Glasgow Caledonian University, Queen's University Belfast, Leeds Beckett University, Liverpool John Moores University, Loughborough University, Northumbria University, Robert Gordon University, University of Brighton, University College London, University of Manchester, University of Reading, University of Salford, University of the West of England, London South Bank University and the University of Huddersfield.
- 2 Institutions from Sweden - Chalmers University and Luleå University of Technology.
- 2 Institutions from Ireland - Technological University Dublin and University of Limerick.

For any ARCOM Membership inquiries, be they Individual or Institutional Membership, please feel free to email the Membership Secretary, Dr John Spillane on membership@arcom.ac.uk, where I would be more than happy to help.

Finally, as this is my first year as ARCOM Membership Secretary, I would like to thank the outgoing ARCOM Membership Secretary, Dr Shu-Ling Lu, for her many years of service, time and dedication in developing ARCOM's Membership portfolio and for easing the transition that has and continues to take place.

Constructing Futures: De-sign-ing boundaries of practice

By Paul W Chan, Delft University of Technology



In February 2020, I delivered my professorial inaugural lecture in Delft University of Technology entitled 'Constructing Futures: De-sign-ing boundaries of practice'. In this lecture, I reflected on my previous research and education

experiences, which tended to highlight the discrepancies between the principles of delivering construction projects and the realities of organisational and management practices. From my PhD study that examined differences in the discourses of productivity between managers and workers, to more recent projects that investigate how people cope with business model change in construction, I have mainly used qualitative and interpretive research to identify multiple lived experiences in construction work. It is through finding the common ground between these differentiated organisational perspectives that positive change can happen. Examples from working with environmental protestors in airport projects, to learning across construction and non-construction disciplines to

deliver a mental health hospital were used to illustrate how innovation and new ways of working can be brought to fruition. Constructing Futures is the title of my co-authored book with Professor Rachel Cooper from Lancaster University. Often, designers are motivated by creating the perfect future. By reflecting on what de-sign-ing means in constructing the ideal future, I concluded by calling for more finer-grained analysis that de-scribes the messy realities of everyday practices, paying attention to the power dynamics especially of the signatories of authority, and understanding the ongoing processes of change. In so doing, there is a need to take a step outside of our knowledge comfort zones to find what is common across different knowledge domains as we come together to co-create better societal outcomes in the production of the built environment. This 'Stepping Out' will be part of a five-year research effort, funded by the Dutch Research Funding Agency (NWO), that I will be leading as part of the Behaviour and Sustainable Transitions Programme in the Netherlands from 2020-2025. The inaugural lecture can be accessed through [www.tinyurl.com/de-sign-ing boundaries](http://www.tinyurl.com/de-sign-ing-boundaries).



Committee Member Profile



Professor Chika Udejaja is a professor of project management and construction at London South Bank University (LSBU). Prior to joining the School, He worked as a site engineer and as a design engineer before undertaking postgraduate studies in Concrete structures at Imperial College London. This was followed by a spell as a bridge engineer in Malaysia. When he came back to the UK, he undertook a postgraduate research in Construction IT at the London South Bank University. On completion of his PhD, he joined the University of Newcastle as a researcher, and was involved in developing CAPRIKON and other research projects. His career as an academic in the UK started in 2005 at Northumbria University as a lecturer and later promoted to a senior lecturer in the School of the Built Environment. He later joined the University of Salford in March 2016 as the programme director for the Construction Project Management programme in the School of the Built Environment. His research interests cover technology, people and process related aspects of the project management including how organisations manage information/knowledge and support decision making in a project environment. He has over 80 publications in these fields and have received grant support from industry, Royal Academy of Engineering, Art and Humanity Research Council, and a variety of national and international agencies. In addition, he has supervised over 10 doctoral candidates, numerous MS students, and mentored postdoctoral researchers. Over the years, he has contributed to a number of scientific and academic committees. For example, as a committee member of ARCOM, he has been instrumental in facilitating doctoral workshops in order to promote/disseminate construction management research globally. Professor Udejaja's motto has always been to work with other members to achieve the ARCOM charter and advance knowledge in the area of construction management globally.

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ARCOM 2021

“RECOVER, REBUILD and RENEW”:

Shifting mindsets and practices to change the future
6-8th September – Glasgow Caledonian University in partnership with
Technological University Dublin

While the ARCOM conference committee had planned to return to Glasgow in 2020, the fall-out from the COVID-19 pandemic impacted heavily on our community resulting in the need to hold a virtual conference. It is with great delight that we confirm that in 2021 our traditional face to face ARCOM conference will now take place in Glasgow, Scotland. This has been made possible due to the hospitality of Glasgow Caledonian University and in the continued partnership with the Technological University Dublin.

It is right and fitting that we should focus on the chosen theme for the conference in 2021 and in doing so create the opportunity for a community focused gathering! Our research communities are coming together to share the lessons learnt from/ during the ‘new normal’ having spent a significant time focused on the day to day challenges of the post COVID-19 pandemic impacts. As a result of a ‘world lockdown’ the challenges coping with many new demands on/ approaches to our existence, there is a greater need for collaboration to build communities of practice once again. 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, “RECOVER, REBUILD and RENEW”. The ARCOM community has traditional been underpinned by a spirit of adaptability, relevance and community. Throughout its thirty-seven year history, that is what makes it such a relevant and strong network today. The bringing together of like-minded individuals conferring to make the world in which we live a better place has been an underpinning goal of the organisation since its inception.

We are calling for abstracts that address the topics listed below, that continue to bind the ARCOM community together as well as those that address the central theme “RECOVER, REBUILD and RENEW”.

The ARCOM Conference is an inclusive conference that covers a wide range of topics pertinent to construction work, including but not limited to:

- Building information modelling
- Equality and diversity
- Human resources management
- Information management

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Glasgow Caledonian University – conference venue



Kelvingrove Art Gallery and Museum

Continued – ARCOM 2021....*Glasgow Caledonian University – conference venue**Glasgow City Chambers*

- Infrastructure development
- Offsite construction
- Planning, productivity and quality
- Research and education
- Sustainability in the built environment
- Construction design & technology
- Disaster management and resilience
- Health, safety and well-being
- Law and contracts
- Other related themes considered

Focus on the future

Preparing for the future of the built environment has become an integral part of all communities and the evidence shows that the agendas of recovery, rebuilding and renewal are in need of research, discourse and impact. The imperative for action in the AECO sector is particularly strong, particularly as modern approaches may profoundly alter the way project are conceptualised, designed and realised.

- How well is the AECO sector ready to respond in the post-COVID-19 environment?
- How will societal transformation ensure that your people are equipped to meet future knowledge, skills and competencies demands?

- How will the AECO sector evolve to address the climate change and sustainability agenda in a post-COVID-19 environment?
- Are there re-skilling programmes evolving to make effective use of new technologies and approaches to learning?
- What are AECO sector organisations offering existing and potential employees to ensure that it can attract and retain the talent it needs?
- How will the post-COVID-19 world impact on productivity, quality and performance?
- What theoretical research can we build on to ensure that the recovery, rebuilding and renewal is positive and offers a way forward?

These are some of the questions that may be addressed by the ARCOM community that can add to the quality debate, discussion and shared.

There is a need to deepen our understanding of the post-COVID-19 pandemic effects and to understand whether it is not only problematic, but also a productive force for societal renewal and change. To what extent should we be striving for the full inclusion of the output from our research on recovery post-COVID-19, on how the built environment could too should rebuild and what principles should underpin any renewal? What would this balance appear like, and what implications will its integration have on policy, practice and research in construction and beyond?

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ARCOM 2021

"RECOVER, REBUILD and RENEW"

Important dates

Submission of abstracts: 2359hrs GMT, Friday 8 January 2021

Notification of acceptance of abstracts: Monday 15 February 2021

Submission of full papers: 2359hrs GMT, Friday 9 April 2021

Editorial decision on full papers: Friday 14 May 2021

Submission of final papers: 2359hrs GMT Friday 18 June 2021

ARCOM 2021 Conference: 6 – 8 September 2021

Continued from overleaf

Submission of Abstracts and Keywords

Please submit your abstract of up to 300 words and include up to 5 keywords on-line via the MyARCOM portal where you can also select your preferred thematic track (see overleaf). Abstracts will be sent to two referees. Only the authors of abstracts that pass this peer-review process will be invited to submit full papers. The deadline for the submission of abstracts is 23:59hrs GMT on Friday 8 January 2021. Full papers must not exceed 10 sides of A4 and should adhere to the ARCOM paper template, which is available for download at www.arcom.ac.uk. Each paper will be reviewed by two members of the scientific committee. If the paper is accepted its authors will be invited to present the paper at the conference. At least one of the authors must be able attend the conference. Authors of accepted papers will have a choice to publish their paper as a working paper or an indexed paper.

Venue Information

Glasgow is a city that has survived only by creating and recreating economic, social and cultural bridges between individuals and communities. Our chosen venues for ARCOM 2021 reflect this city's famous ability to find a common good. We are based in Glasgow Caledonian University's stunning conference centre, we visit Glasgow's City Chambers for our traditional Monday evening social evening and the recently restored Kelvingrove Art Gallery and Museum for our Annual Conference Dinner.

Conference Updates

There will be regular conference updates so please visit the ARCOM website for conference 2021 updates at www.arcom.ac.uk

Contact and Further Information

Conference Organiser: Professor Lloyd Scott, Technological University Dublin E: Lloyd.scott@TUDublin.ie

Conference Secretary: Dr Christopher Neilson, The University of Manchester

Email queries should be directed to conference@arcom.ac.uk in the first instance