

ARCOM Newsletter

Salford Hosted ARCOM Conference 2005



ARCOM 2005 took place at a time when there was revived concern about the unsettling era in which we are living: an uncomfortable proportion of earth's population were suffering from malnutrition while the other parts were faced with extreme acts of violence such as wars and terrorism. While we are not indifferent towards these calamities, as a learned society we aim at making our mark by attempting to assist our industry to thrive through less waste, better processes, practices and products. To this end, the ARCOM conference plays its continuing important role: a substantial number of researchers gather to debate and share the outcome of months and years of research work with their fellow researchers from various parts of the globe. This is exactly what happened at the 2005 conference. About 140 delegates gathered from over 32 countries to engage in the discussion and dissemination of state-of-the-art research in the usual tranquil ARCOM conference environment.

Interestingly, the very first ARCOM conference which also coincided with its inaugural meeting, took place in London in 1984. After 20 years we were back, this time at the heart of London in an impressive venue at the Brunei Gallery within the School of Oriental and African Studies.

At this conference, a number of new ideas were tested and proved successful. After intensive deliberation and discussion, the committee decided to experiment with a new automated web-based approach to conference organisation. As a result, we significantly cut down on the volume of paper that is typically exchanged every year. More importantly, we managed to reduce the amount of administrative work that unusually goes into sorting, acknowledging, managing, informing, deciding and re-deciding abstracts and papers, as well as timely provision of information to authors about the state of their papers. Added bonuses of the web-based system were the automatic generation of abstracts (in HTML) and the search engine leading to these abstracts. Also, the choice for authors to select their preferred theme helped to remove some of the past problems associated (**cont...**)



Dear readers,

This issue reports on a number of exciting ARCOM activities, such as the success of ARCOM 2005 and the two annual workshops hosted by Northumbria University and Teesside University. This issue also reports on the QUT research week in Queensland and an update of the Construct IT activities. With great pleasure, this issue also shares the Profile of Prof. Chimay Anumba, a leader in his own right within the academic community.

Vian Ahmed

On behalf of the ARCOM committee, I thank all the contributors to this issue, with special thanks to Dr. Paul Stephenson for reporting on the major events and Prof. Farzad Khosrowshahi for leading ARCOM 2005 and reporting on its success. I hope you will enjoy reading this issue and look forward to receiving your articles to share your research activities and successes.

The Editor

The Salford Hosted ARCOM Conference 2005 (cont...)



with paper-theme allocation.

Last year we experimented with two forms of open debates: the Question Time and Topic-based discussions. Due to their success last year, we repeated them this year and again they were received favourably, so be prepared for another in 2006. As ever, the conference benefited from the hard work of the committee. This year, for the first time, we decided to extend the size of the Review Committee and opened up to members outside the committee. Therefore, special thanks are due to these added members. In order to gauge the ARCOM standard, these patrons had some quick learning to do and there were plenty of papers to practice with. No conference is complete without a Keynote speaker. This year we had two. Linda Clarke is a Professor of European Industrial Relations at the Westminster Business School at University of Westminster. Professor Steve Rowlinson is no stranger to ARCOM. The after dinner speaker – Professor Matthew Cusack - is yet another ARCOM veteran. Both Steve and Matthew were involved with ARCOM during its formative period, before deciding to leave UK for warmer places. I am told that the events were enjoyable. The River Thames boat trip on the first night was followed by the conference dinner on the second night where, in a unique cultural exchange programme, over 25 delegates from 9 countries daringly executed various artistic performances in a friendly competition. As for the AGM, I am glad to report that this year we had one of the highest-attended AGMs ever, where we discussed several issues including the report on the result of the ARCOM committee away day. Also, during the AGM we acknowledged the hard work by the members of the committee.

Finally, could I invite you all to start working on your papers for ARCOM 2006 which will take place in Birmingham. David Boyd has been working hard to get the show on the road and for that we let him believe that Birmingham is the second biggest city in the UK.

By: Prof. Farzad Khosrowshahi



Professor Chimay Anumba's Profile



Chimay Anumba

It doesn't take long for those of us who have met Professor Anumba to learn that behind that calm facade, humble attitude and pleasant personality, there hides an extreme intellect, a sharp individual and genuine academic with a strong presence. Professor Anumba has been a source of inspiration and an international figure of excellence to many within the UK and beyond. It is therefore a great pleasure to share his profile with the ARCOM community in this issue.

Chimay Anumba is currently Professor of Construction Engineering and Informatics and the Founding Director of the Centre for Innovative and Collaborative Engineering (CICE) at Loughborough University.

At the age of 18, Professor Anumba obtained a 1st Class Honours degree in Building from the University of Jos, Nigeria in 1984, followed by a PhD in Civil Engineering (Computer-Aided Engineering) from



Professor Chimay Anumba's Profile (cont...)

the University of Leeds (1989). Prof. Anumba worked for a number of years in industry and was a Senior Lecturer and Reader at the University of Teesside (1993-1998) before joining Loughborough University in April 1998. Prof. Anumba has set up the Engineering Doctorate (EngD) programme at Loughborough, supervised 21 PhD/EngD students to successful completion (with another 16 ongoing), published over 350 technical papers and 11 books, and generated more than £15 million worth of research funded projects. He is a Co-Editor of the ITCon Journal (following its recent merger with IT-AEC), and Chair of the Institution of Civil Engineers' Information and Communications Technology Panel. To add to his achievements, Prof Anumba is a member of several journal editorial boards, a reviewer for over 22 international journals and 50 international conferences, an external examiner for more than 25 PhDs in the UK and overseas, and a Visiting Professor at more than 7 universities across the world. His achievements have also been recognized through several international appointments, awards and keynote speeches at many international conferences. Professor Anumba's research interests include advanced construction informatics, collaborative communications, concurrent engineering, intelligent and knowledge-based systems, and knowledge management. His most recent books include 'Knowledge Management in Construction' (Blackwells, 2005) and 'Agents and Multi-agent Systems in Construction' (Taylor & Francis, 2005).

I asked Prof. Anumba about his vision for the industry, to which he replied ... "I would like to see an innovative and forward-looking industry where academics and practitioners work in close partnership to solve the industry's problems" and his advice to the construction research community is to think for the sector...quoting... "We must continue to do this even when our views are not popular. There is also an urgent need for better communication of our outputs to all stakeholders in the construction industry..."

Professor Anumba is a proud father of two and enjoys playing tennis, football, table tennis, traveling and photography. He is a keen Arsenal supporter and is patiently awaiting a wild card for the next Wimbledon.

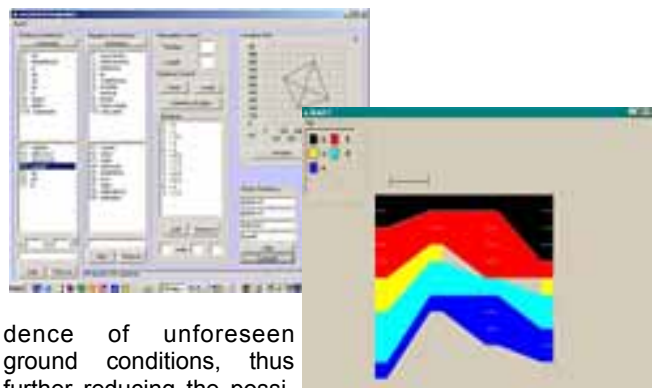
I am sure our readers agree that great academic noise is measured by integrity, credibility and impact on the research community, and without a shadow of doubt, Professor Anumba's academic achievements reflect all these, making one of the loudest noises in the field. Therefore on behalf of ARCOM and its members, we wish Professor Anumba the best in his career and many more great achievements.

The Editor

Software Factory Grant for Researchers at Sheffield Hallam University



From left to right: Adrian Oram, David Cooper, Paul Stephenson, Ian Morrey



Researchers at Sheffield Hallam University have been successful in securing a research grant of £35k for the application of artificial intelligence to site investigation. The work funded by the Software Factory in South Yorkshire, UK involves the use of grammatical inference for ground investigation (GiGi) and elastic matching techniques to provide information during site exploration work. A prototype system has already been developed and has attracted much interest from a leading software house in addition to design engineers and construction organisations. The system prototype provides the opportunity for improved confidence in the type of ground to be encountered leading to reduced material costs, the selection of appropriate types of foundations, and a reduction in the inci-

dence of unforeseen ground conditions, thus further reducing the possibility of contract variations and project time/cost overruns.

The research grant will allow the previous work to be further developed resulting in the development of a commercial software tool to assist in decision making for use during the design and production stages of construction. The work is being undertaken by Adrian Oram, Ian Morrey, Paul Stephenson and David Cooper. A research assistant has been appointed to work with the GiGi team during 2006 and 2007.

By: Dr Paul Stephenson

ARCOM Doctoral Workshop on Skills, Training and Development in the Construction Industry—30th November 2005

The Association of Researchers in Construction Management (ARCOM) held its second doctoral workshop for 2005 at Northumbria University on 30th November. The workshop provided doctoral candidates the opportunity to present their work, exchange ideas on research methodology and network with other researchers researching in the area of skills, training and development in the construction industry. For the first time, guest presenters were also invited from academic experts and industrial practitioners.

Papers presented ranged from knowledge management to career development to the definition of skills and its relationship with productivity. The importance of human resource management (HRM) was highlighted, not only in terms of tackling the issues of skills, training and development in the construction industry, but also in securing the long-term future of the sector. The growing emphasis of HRM in construction management research is a welcome move, albeit at late one! In particular, there was the recognition of the need to move

away from traditional “command and control” HRM systems, in favour of softer approaches to recruit and retain high quality employees.

Udayangani Kulatunga focused her presentation on skill requirements and achieving excellence in construction. This included the role of research and development, skill shortages within a construction research database and ways of addressing important issues. The training needs in the management of human resources for knowledge management was covered by Anthony Olomalaiye through the results of a managerial survey which indicated there was little evidence of construction organisations providing required training. Thus the development of a management training programme to help share knowledge is the next stage of his research.



ARCOM Doctoral Workshop on Virtual Reality and nD Modelling of construction processes—6th June 2005

The ARCOM research workshop held in June this year was hosted by Professor Nashwan Dawood of the University of Teesside. The doctoral workshop, as all those organised by ARCOM, is primarily to provide PhD researchers with the opportunity to present their work which may be on-going or recently completed. This also provides an excellent forum in which to learn and obtain feedback as well as an opportunity to network with other presenters and attendees.

The workshop brought together four researchers working in this exciting field which covered various aspects of technology and its use in a practical context. This included presentations from Zaki Mallasi from the University of Teesside, Kenny Tse from The Hong Kong Polytechnic University, Ahmed Khatab from the University of Teesside, and Bingunath Ingirige from the University of Salford.



With his recently completed doctorate, Bingunath, was able to focus on ‘My PhD Experience’ which included some useful insights and important issues for those currently engaged in PhD work. His presentation addressed the various challenges along the way, in addition to

expectations and the importance of research supervision. Particular issues surrounding progress and the maintenance of interest, enthusiasm and motivation featured

strongly as important requirements for a PhD programme of research. Additionally, the requirements of a shift in thinking to arrive at a focus for the research and the achievement of major milestones in pursuit of completion were also highlighted. Bingunath also stressed the importance of a sound methodology, and advised researchers that there was no silver bullet solution to success. Commitment and endurance were seen as being key to a successful PhD completion.



The presentation by Zaki Mallasi covered various aspects of VR which included both current and future issues related to research in the area. Zaki also illustrated VR as a solution to technological integration and gave an insight

into the approaches of implementing VR within a construction environment. This was followed by several examples in connection with his on-going research work including an illustration of a VR roadmap. Zaki concluded by covering the challenges in future VR systems that must be realised in order to meet the requirements of professionals and industry.

Kenny Tse presented his doctoral research looking at a BIM-Centric information Interoperability Model for the construction industry. The work presented included the results



The recognition of the importance of “tacit” skills of construction workers in a knowledge environment was presented by Chaminda Pathirage, which focused on the knowledge worker, human knowledge and a knowledge framework for construction. Mohamed Abdel-Wahab presented some interesting Engineering Doctoral work on the relationship between skills and productivity. The overall direction of the work will be the development of policy options to facilitate productivity gains.



Following a networking period and lunch, the afternoon session commenced with a keynote presentation from Professor Linda Clarke from Westminster University. Linda expressed her concerns that focusing on statistics might resonate with political propaganda, but do little to deliver real improvements in the skills agenda. In her keynote presentation, she provided insights into the different ways of defining skills, as she urged the participants to move away from task-based skills definition to a more holistic, socially constructed approach that addresses skills at the industry level.

Hugh Price from Sir Robert McAlpine Ltd gave an insight into the employment of direct labour. This included consideration of other forms of labour employment and how Robert McAlpine is able to balance these during the production process. Joseph Kappia, who is now in the latter stages of his doctoral work, reminded us of considering career development of craft

labour as he suggested a more qualitative approach in research. Moreover, the use of qualitative research to balance the dominance of quantitative methods certainly emerged in Simon Murray’s (from ConstructionSkills North-east & Cumbria) update of the skills and productivity observatories and how these might operate in the future.

David Brown from Frank Haslam was able to provide a contractor’s perspective of the recruitment and training of construction operatives. The issues of attracting young people into construction was previously considered to be problematic, but certain identified recruitment initiatives have been found to be successful. David raised the question of whether this recruitment will be followed up with successful training in the future.

The final presentation at the workshop came from Mike Pappas from the University of Texas. Mike focused on skills definition and measurement and presented the challenges from a US perspective. This included issues surrounding skill labour shortages, a baseline data survey and a two-tier workforce strategy.

The workshop presentations and proceedings are available at the ARCOM website (www.arcom.ac.uk).



By: Dr Paul Stephenson and Paul Chan



of a survey of Building Information Modelling used in architectural design. Specific problem areas and barriers to its utilisation were highlighted, together with a proposed model for future use. It was further identified that governing factors for success include the engagement of members of the project team, the requirements of industry guidelines, and the requirements of free exchange of data among project team members.

Ahmed Khatab presented his doctoral work with details of the development of an integrated VR decision-support systems (IVR-DSS) for conceptual design. The work illustrated VR technology combined with CAD to develop a new 3D prototype modelling system. The particular system properties and struc-

ture were outlined which included the research method used, the tools and technology, and the development of computational algorithms and a system data processor. Further developments are continuing with the IVR-DSS tool and particularly the co-ordination interface issue between CAD and VR.



While the presentations represented different areas of specialisation in the field of VR and nD modeling, the workshop promoted some interesting debate and highlighted the quality of work being carried out in this important area of research.

By: Dr Paul Stephenson



QUT Research Week 2005



By: Dr Paul Stephenson

The international research conference at Queensland University of Technology (QUT) in July proved to be a popular venue. The conference hosted by COBRA (the construction research conference of the RICS foundation) was in association with QUT, RICS Oceania and the Australasian Universities Building Educators Association. The research week attracted a world-wide audience from the construction industry which included academics, researchers, and industrialist who came together to present and discuss construction-related research and practical applications. The welcome and opening address to delegates was given by Professor Tony Sidwell of QUT who also gave an insight into the week's activities. This included a comprehensive programme of academic research presentations combined with a research day organised by the CIB student chapter, QUT. A sustainable living workshop was also organised, in addition to an industry day and technical tour.



**Professor Ron McCaffer,
Loughborough University**

Several keynote presentation were provided from industry and academia including Murray Coleman from Bovis Lend Lease who gave an insight into the importance of 'Safety First', and Professor Ron McCaffer who addressed delegates on the 'Research Assessment – The emerging experience'. Professor McCaffer was able to highlight the important issues regarding the forthcoming RAE in the UK, including the metrics involved, and the major issue of 'impact' that researchers must be able to demonstrate in their work.

Following the presentation of papers from academics and researchers, the research day proved an interesting experience for both academics and researchers alike. Additionally, a sustainable living workshop was arranged looking firstly at basic current transdisciplinary work and observation, and the future environment for sustainable business and communities; and secondly to consider the strategic issues and priorities for the built environment.



**Professor Tony Sidwell,
QUT**

The industry day provided the opportunity to see some exciting work and examples of construction currently being carried out in Australasia. Several themes were covered from prominent figures in industry and included case studies of major projects, sustainable solutions, infrastructure and asset management, project delivery, improved organisation capacity, and ICT breakthrough technologies within the construction sector.

Delegates were also treated to a technical tour on the last day of the research week which took in Kelvin Grove Urban Village, an inner-city development for a new integrated community bringing together education, residential areas, health, retail, recreation and business. This was followed by a visit to the Australian Wool Shed which gave visitors an insight into the workings and operations of a typical outback sheep station.



Professor Tony Sidwell congratulating Professor Ron McCaffer



Delegates in attendance



Closing address to delegates

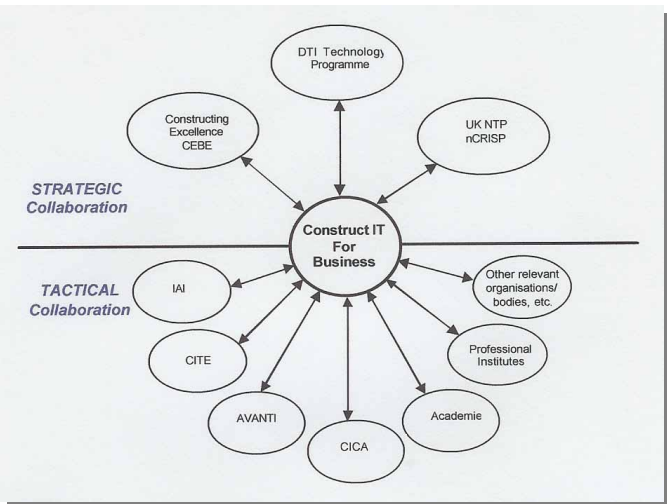


Construct IT for Business

Since the formation of Construct IT in 1994, the organisation has become much more focused on business issues within the construction sector and the processes by which organisations operate. Information technology (IT) now tends to be viewed as more of a strategic enabler, and it is in this area where Construct IT can offer industry its expertise, knowledge and guidance. Construct IT is a non-profit making organisation which is industry led with a network of members comprising industrial organisations, academics, research institutes, and other associations including government bodies. Its aim is to improve industry performance through the innovative application of IT and act as an enabler for academia and industrial collaboration. Thus Construct IT provides an innovation network for the communication and dissemination of leading edge thinking and developments in IT within construction. It is able to promote research and manage IT project developments in addition to providing support and help to its members. Moreover, it is able to facilitate international links with other similar organisations within the field of IT in construction.

The extent of Construct IT's work can also be seen through its publications and the numerous 'How to guides' in addition to its benchmarking best practice reports, research reports and developed tools for implementation within construction organisations (www.construct-it.org).

Its recognition to date through the Queen's Anniversary prize for industry and the Learning Northwest Award has also allowed Construct IT to position itself and influence the development of stakeholder strategies through collaboration with various organisations. As the diagram indicates, strategic collaboration is through organisations such as Constructing Excellence, the DTI Technology programme and the National Technology Programme. Additionally, tactical collaboration can take place with organisations such as the Construction Industry Computing Association (CICA), Construction Industry Trading Electronically (CITE), International Alliance of Interoperability (IAI), and with research initiatives such as AVANTI and COM-MIT, in addition to academia and other organisations and professional bodies.



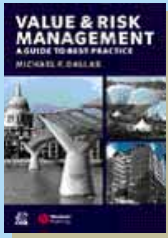
Collaboration of Construct IT with other organisations and initiatives

The communication and dissemination of strategies and developments are provided through the Construct IT members' meetings which are held during spring and autumn each year. Specific topical themes are identified which provide current information and developments presented by both leading academics and industrialists. Examples include Supply Chain Management, Knowledge Management, Collaborative Working, e-working and Facilities Information Management. Thus while technological developments are initially the focus of interest, such topics often have wider implications that impact on additional issues within the spectrum of construction management generally.

ARCOM is a member of Construct IT, and has non-elective representation on the Construct IT management board. As such, ARCOM is able, through its members, to represent the supply side of Construct IT by way of its wider diversification of research knowledge and activities. Moreover, ARCOM and its network of researchers in the UK and overseas are actively engaged in research and development work and represent the wider research community and knowledge base. ARCOM's members of researchers and academics are therefore well placed to offer advice on research issues, and would be able to debate and discuss relevant issues on research at Construct IT's members' meetings. The work of ARCOM, therefore, can be complementary to Construct IT since the focus of Construct IT's developments and innovations has shifted away from pure IT to IT within construction contexts. This work embraces not only IT business perspectives within the construction sector, but also those which may appeal to academia and the wider research community of construction management.

Additional information on Construct IT's work, research projects, publications, events and members' meetings can be found on their web site (www.construct-it.org).

By: Dr Paul Stephenson



Value and Risk Management First Edition
by Michael F Dallas

Published on behalf of the Chartered Institute of Building and endorsed by a range of construction industry institutes including the Association for Project Management, Institute of Civil Engineers, Institute of Value Management, Royal Institute of British Architects and Royal Institution of Chartered Surveyors this book explains the underlying concepts of value and risk, and how they relate to one another. It describes the different issues to be addressed in a variety of circumstances and at all stages of a project's life and reviews a number of commonly used and effective techniques, showing how these may be adapted to suit individuals' styles and circumstances.

Most books on value and risk management are long on technique, but short on sound, practical advice. This book provides both, and describes what works and what does not, in the UK and elsewhere in the world.

It features a range of case studies and explores value and risk management in sectors outside construction to show how these may influence future best practice in construction.

Joke....

Why executives make more money:

Engineers and scientists will never make as much money as business executives will. Now, for the first time we have a rigid Mathematical proof that explains why this is in fact true. Postulate 1: Knowledge is power.

Postulate 2: Time is money.

As every Engineer knows, $Work / Time = Power$

Since $Knowledge = Power$, and $Time = Money$, we have $Work / Money = Knowledge$

Solving for Money, we get: $Work / Knowledge = Money$ Thus, as Knowledge approaches zero,

Money approaches infinity, regardless of the amount of work done.

Conclusion: The less you know, the more you make.

Get in touch with us and contribute

For comments, ideas, articles, events, photographs, news in general, research experiences, achievements, workshops, funny stories, serious stories - anything that you would like to share with other members, through this newsletter please contact the editor, Dr Vian Ahmed.

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The committee of ARCOM is elected each year at the Annual General Meeting, which is held during the Annual Conference.

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