

Supply Chain School Horizon Group Meeting

Date: Thursday 15^h June 2017; 10am to 1pm

Venue: Royal Holloway, University of London, 11 Bedford Square, Bloomsbury

Attendees: Laura Spence (*Royal Holloway, University of London – Chair*), Gareth Rondel (*Kier-Deputy chair*), Jacqui Glass (*Loughborough University*), Donna Hunt (*Aggregate Industries*), Ben Lever (*Construction Industry Training Board - CITB*), Iain Walpole (*Hanson*), Ian Heaseman (*Taylor Wimpey*), Cat Hirst (*UKGBC*), Cathy Berry, (Horizon Group Manager) Shaun McCarthy (*Action Sustainability*), Erica Russell (*Carillion*), Maeve O'Loughlin (*Middlesex University*), Diego Vasquez-Brust (*Royal Holloway*), Tony Parry (*University of Nottingham*), Alexander Trautrimms (*University of Nottingham*), Wyn Pritchard (*Neath Port Talbot College*), Sophie Sharpe (*Costain*).

Apologies: James Upstill-Goddard (*Responsible Solutions*), Kieran Brocklebank (*United Utilities*), Paul Worland (*EMCOR UK*), Steve Morton (*GBR*), Paul Wyton and Ray Nolan (*Sheffield Hallam University*), James Douglas (*Lendlease*), Mohammad Rickaby (*Action Sustainability*), Martin Crow (*Hanson*), Andy Swain (*Tarmac*), Alice Owen (*University of Leeds*), Simon Tranter (*Willmott Dixon*), Mark Gaterell (*University of Portsmouth*), Stephanie Van De Pette (*Skanska*),

Minutes of the Meeting/ Workshop

1. Introductions

- Laura Spence welcomed everyone to the meeting and completed brief introductions. The tragedy of the nearby Grenfell Tower disaster 14 June 2017 was acknowledged.

2. Actions from previous meeting

- All actions from the previous meeting were completed except Tony Parry did not receive any circular economy case studies. **ACTION for all members: Please highlight potential case studies, note that they can extend beyond the utilities sector.**

3. Brief School Update

- Shaun McCarthy provided a brief update on School matters. It was noted that the School currently has over 20,000 registered users and 64 partners, the target for this financial year is 72 partners. The supply chain mapping special interest group (SIG) has now concluded and the board has approved its recommendations to move to a strategic category based approach which will cut across sector groups and enable the School to use its collective voice and to drive supply chain (SC) improvements. This approach will bring in the materials group and funding from that group will be transferred. It is anticipated that 5 category groups will be established and will tackle broader sustainability issues arising in the supply chain with a particular emphasis on modern slavery. Mobilisation activity is underway and a briefing will follow. Partner managers will issue a briefing note, offer follow up discussions and build consensus on priority strategies. Note that the Off site School has also recommended a category /value chain based approach.

- **ACTION Gareth Rondel to share category risk profiles that were previously completed with Shamir Ghumra to Shaun and Cathy.** (Previously Responsible Solutions). Gareth also noted the need to pay close attention to potential bribery and corruption in the SC which is a prominent issue and concern for organizations

4. Terms of Reference (ToR's):

1. Revised, draft ToRs were shared with the group for input and comment, the deliverables section has not been completed to allow the group to discuss and come to consensus. Key comments noted
 1. Include a bi-annual Horizon scanning summary review to inform the Board and other School users (i.e. a landscape overview approach)
 2. Group to provide a route for academic network to challenge industry in a safe constructive way and consider using the group as a means for the School to challenge the industry
 3. Consider where our influence lies, do we have the capacity, desire, wherewithal to change business practices? Many partners individually do not have such influence and should our emphasis be on larger or smaller players?
 4. Need to clarify our time horizons, with near and long term goals, the overlap and connectivity with SIGs and identify ways of working between the two.
 5. We should ensure that we demonstrate connectivity of research, which should ultimately produce learning content for the School. It is important we provide value back to the School and this group should provide learning content for sector groups, category groups and SIGs
 6. Make clear in the ToRs that we are not just about horizon scanning but understanding the wider construction industry picture. (This raised the question as to whether the Horizon Group name in itself is misleading...)
 7. Group could contribute to providing a better landscape view of issues and improving awareness of what research is underway to improve information sharing and provide insight to the industry. This approach would bring academic rigour and industry together and help link partners through the value chain.
 8. Research and reality of the industry on the ground is very different. The Horizon Group could play a role in bridging the gap between research and adoption.
 9. We should ultimately develop a 'prospectus' of areas that the Group is interested in.

The conclusions of the discussion where to ensure we capture the essence/wording associated with the following themes: CHALLENGE, BRIDGE, WHERE & HOW FAR, INTERCONNECTIVITY, IMPACT. **ACTION: Cathy Berry, Laura Spence, Gareth Rondel and Shaun McCarthy to review and revise draft ToRs and reissue to the group.**

5. Industry Foresight Discussion

- Cathy Berry presented an overview of the emerging global mega trends and construction industry emerging issues (this was an action from the previous meeting). The purpose was to provide a high level overview of the emerging themes to help shape the Groups discussions on its research priorities moving forward. The presentation will be shared with the group alongside these minutes. **ACTION All members to review the presentations and send any thoughts or priority themes to Cathy**

- Cat Hirst (UKGBC) presented insights from the Innovation Lab; an on going collaborative, open innovation project involving approximately 20 organizations. 45 'pain point' were initially identified which were subsequently combined to form 4 high level potential challenges covering multiple relevant issues. The presentation is included with these minutes, key insights include:
 - - Two possible routes to identifying a research challenge- a) Looking outside in with global challenges feeding down to industry level, which may be more applicable to academics or b) inside looking outwards i.e. existing or anticipated business and customer pain points at an operational level
 - - Research ultimately must address a 'pain point' and to be successful absolute clarity is needed about the problem that needs to be solved. i.e. A clear problem definition is essential.
 - - The process takes time and can be uncomfortable and stressful. It is not easy to identify and select the right challenge but it is essential to get everyone on board in an energised and engaged way.

The group welcomed these insights and agreed that the presentation was very informative providing an insight into a route forward. Laura Spence asked everyone to record their initial thoughts on the feedback sheets provided and then asked individuals to share their comments on emerging themes and challenges. **ACTION: Cathy to type up the comments and share with the Group (included in these minutes as an appendix).**

- Wyn Prichard suggested looking into collaboration and the benefits and issues of really working together. A discussion took place and the following related issues were identified: How do we measure the impacts and benefits of collaboration? Who benefits and how? What does collaboration really mean? Industry competitive aspects; do we really demonstrate the right behaviours? Mindset issues. What are the drivers of collaboration? If no collaboration took place what would the results be?
- Ben Lever suggested an analysis of moving to different business models, for example both off-site and BIM require collaboration. Why is the industry clinging on to old business models and trying to adjust them to respond to new technology and ways of working? How do you change mindsets and why are we fearful of change when they can bring positive benefits? It may be useful to engage Construction Leadership Council (CLC) moving forward.
- Ian Heasman pointed out that construction industry business leaders and boards are both rational and they are risk sensitive and are not likely to discard business models. The possibility of unintended consequences of technology adoption and alternative solutions was also discussed.
- Alex Trautrim pointed out that construction industry uses the word value but in reality acts on 'cost' factors. A better understanding of non-financial matters in terms of meeting client expectations, safety and well being, social sustainability

could be useful to demonstrate and measure long term business value and enable better decision making (not just financial cost).

- Erica Russell noted that investment trends are increasingly focusing on green credentials with 25% of all global investment requiring some element of sustainability.
- Diego Vasquez-Brust noted that the Group could benefit from wider collaboration, securing a panel of experts to identify trends and form our own agenda through future thinking and scenario planning. He suggested that the Delphi technique could be adopted which is a structured communication technique or method, originally developed as a systematic, interactive forecasting method which relies on a panel of experts with the aim of arriving at a consensus around a particular research question
- Donna Hunt queried our focus on the built environment and suggested that the group could benefit from wider collaboration, engagement and interaction with other industries
- Gareth Rondel was interested to understand how we could link our priorities into the 13P approach including its potential research agenda and funding.
- Shaun McCarthy suggested we roadshow the fore-sighting presentation around the school to gain more input but later discussions concluded that we could be more effective by identifying our own themes and then consulting more widely on them.
- Tony Parry noted an interest on big data approaches, their potential uses and effectiveness. This could promote flexibility for built assets and their uses, understanding where value lies across the supply chain and promotion of whole life thinking.
- Sophie Sharpe was also interested in how we could better utilize big data platforms and identify what information we want from our supply chains, what the ideal content looks like and the technological transformation required within an organization to create that platform.
- Iain Walpole noted the benefit of making non-financial value more visible
- Cat Hirst was asked to reflect on the group discussion and noted that high level themes were beginning to emerge around
 - Use of big data and the need for simple and meaningful interfaces
 - Collaboration
 - Capturing the value of sustainability (which could also bring in the need for big data to help drive a more sustainable supply chain)

She recommended identifying options within the group and then taking it out to the wider School community for input and refinement.

Laura Spence asked the group to take time to review the presentations and discuss the anticipated or emerging pain points within their own organizations. **ACTION: All**

members to review the megatrends and identify top 3 issues. This will enable everyone to download their inputs in the next meeting that will continue to refine our research priorities and find consensus on problem definitions/ high-level challenges

6. **Brief project updates** were provided by:

- **Maeve O’Loughlin- SoSafe-** This project evaluates how we treat employees to promote improved worker welfare and improved social sustainability outcomes using behaviour-based approaches. The response to the main survey has been disappointing and further responses are still needed. **Action: All members to let Maeve know if they can help facilitate more responses through their own contact network.** Cathy pointed out that School members are increasingly being requested to complete surveys for various projects and so surveys must now be scheduled in with at least 2 weeks between survey requests.
- **Erica Russell- Whole Life Sustainability.** This University of Surrey PhD project is sponsored by Carillion and is progressing. Currently looking at the category management approach and how it aligns with value.
- **Tony Parry- Circular Economy Metrics-** This project is funded by United Utilities, it commenced in April and must be completed in 9 months. A focus group session has been completed and Tony is still looking for case studies which may extend beyond utilities. **Action: All members to forward any Circular economy case studies or contacts to Tony**
- **Diego Vasquez-Brust- Construction Externalities-** Desk Research- Literature review has been completed. Semi-structured interviews with representatives of School partners. Interviews now need to take place - this will take up to 60-120mins of time. **Action: All members to let Diego know if they are able to help identify and introduce suitable interview candidates**

7. **AOB**

- Cat Hirst noted that she is undertaking an annual state of the sector report that will be issued in September. **Action: All members to forward any good data sources to Cat.**

8. **Actions:**

- **Cathy** to circulate the meeting minutes, slides and summary comments/themes from the individual feedback forms (attached as an appendix to these minutes)
- **Gareth** to share category risk profiles that were previously completed with Shamir Ghumra with Shaun and Cathy.
- **Cathy, Laura, Gareth and Shaun** to review and revise draft ToRs and reissue to the group.
- **All members** to review the megatrends/fore-sighting presentation and identify top 3 issues. (This will enable everyone to download their inputs in the next meeting helping us continue to refine our research priorities and work towards consensus on problem definitions/ high-level challenges)
- **All members** to let Maeve know if they can help facilitate more survey responses through their own contact network (Maeve’s email is: M.Oloughlin@mdx.ac.uk)

- **All members** to let Diego know if they are able to help identify and introduce suitable interview candidates for structured discussion on Externalities lasting 60-120mins. (Diego's email: diego.vazquez-brust@port.ac.uk)
- **All members** to forward any Circular economy case studies or contacts to support Tony Parry's Circular Economy Metrics project (Tony's email: Tony.Parry@nottingham.ac.uk)
- **All members** to forward any good data sources to Cat Hirst to support UKGBC annual state of the sector report (Cat's email: cat.hirst@ukgbc.org)

9. Next meeting

- **Date:** Wednesday 13th September 2017
- **Venue:** Aggregate Industries, Bardon Hill. Coalville. Leicestershire. LE67 1TL. Hosted by Donna Hunt

(Appendix over page)

Appendix: Member feedback summary following fore-sighting presentations

Areas of interest

Collaboration:

Mechanisms for value chain collaboration

Measuring the impact of collaboration

Benefits/impacts of 'real' working together

Who are the beneficiaries?

Ways to collaborate more effectively in and out of industry (who benefits though?)

Impacts of building performance for users

Identification of user requirements and then understanding where material producers can feed into delivery of the end product- the building

Buildings and infrastructure that perform better 'in use'

Solutions across the value chain: better client requirements/ better supply chain performance/ better outcomes in use.

Do we build what the user wants? Or does the user not know what is available/ or what they want?

Workforce/Resourcing/ learning and development

Impact of new technologies on the sector/workforce

Recognition of sustainability as a core learning/development requirement- leading to development of approaches

Creation of a structured training academy for supply chains

Shrinking workforce/age structure

Supply chain understanding, visibility and management

Use of blockchain technology within the supply chain management process and its practical usage

Small businesses- Global supply chains- beyond the UK

Extended community of construction industry

The industry is dominated by SME's, what is their role and involvement? (Forgotten 75% minimum)

Big data

Big data possibly interfacing with BIM used to understand the opportunities for flexibility/ optimisation/promoting lifecycle thinking. Could include climate change adaptation/?

Traceability/supply chain integration

Productivity

Productivity- Digitization

Industrialization

Align with CLC and Industrial strategy themes. What do they want to know to achieve goals?

Business models

Circular economy and future fitting business models

Rethinking procurement

Other

Responsibility

Gender and diversity

What is the purpose of business and other stakeholders?

Policy influence

Themes members would like more information /exploration into

Social Impacts

Social impacts of the built environment- (health and well being)- scale of issue “no one building”
 Health and wellbeing in /from the built environment
 Social sustainability for communities
 Social sustainability including well being and broader impacts

Resilience

Resilience in business models and supply chain operations

Culture and change

Industry culture and change management
 How can you change industry as quickly as the workforce is ageing?
 Barriers to circular economy in construction industry (social reform)
 Why is the sector resistant to change? Other sectors work on thin margins and still manage to be innovative
 Board room prioritisation

Business models

Price v's value- need a finance/insurance model that puts onus and value on the end user to create pull
 Circular economy

Other

Gaps that Construction Leadership Council(CLC) /IS/BEIS have identified (via industry) e.g. barriers to digitisation in SME SC's- see McKinsey work for CLC
 Sustainable consumption
 Sustainable transport
 Sustainable affordable homes
 Off site
 Resource efficiency
 Climate change impacts along the supply chain and identification of the key influencers.
 Balance between construction and in use issues across
 Toolkits – to benchmark and measure outcomes
 Other sectors use of data driven approaches
 How could the open market deliver better performance in use?
 Will AI robots make better quantity surveyors?
 Supply chain indicators for sustainability
 How have other countries responded to challenges highlighted e.g. Ageing demographics in Japan who have experienced this problem for approx. 30 years or SMART cities- Singapore's smart city policy, automation in Australia's mining industry

Persons, organizations or institutions that we could benefit by engaging

Include other voices in the supply chain, investors (GRESB - <http://www.gresb.com/>), designers, users and perhaps even stakeholders at the start of supply chains- 'raw material voice'
 Are there other sectors that have transformed from transactional, cost focused relationships to a value added approach?
 Paul Toyne- independent consultant for health well being and social sustainability
 Tim Jackson or Fergus Lyons- Centre for Understanding of Sustainable prosperity
 Forum for the Future- Scenario thinking and shifting the system of work
 Swansea University- re specific construction innovation projects and products
 Bangor University- re wood usage/ research and product

Tim Embley- Costain Group Knowledge and Innovation Director. (Note Costain is collaborating with universities and Innovate UK to fund PhD research projects)

Rolls Royce

Bombardier

Suggest we have a joint pow-wow with the materials/supply chain group to identify 'categories' that have problems to solve... This might help to identify key topics or greater interest to school partners.

Someone outside our industry where innovation is critical e.g. Rolls Royce, Amazon Industry 'leading' bodies or people. Why not get CLC reps to come and discuss how they formed their view?

CLC- see McKinsey work for CLC

BEIS

Ellen McArthur Foundation

Innovate UK/Catapults

World Business Council for Sustainable Development (WBCSD) -Have a whole life value chain paper that Holcim/Lafarge contributed to.

Emerging problem definitions or challenges

Lifecycle Value

Measuring or monetizing non-financial reporting in the supply chain

Whole life sustainability impacts and costs

Price v's value

Conflicting/ balancing impacts of decisions/actions

Innovation and industry business models

In our business we are not driven by the need for big innovation. Innovation is seen as more small-scale solutions to issues e.g. which new material to use as a site hoarding.

Can construction ever be an innovation- driven sector? Maybe it's a low clock speed industry

Smart use of resources and new materials that deliver the required benefits and address problems- how to mainstream use of cleaner, more effective innovative materials

How to bridge the gap between progressive sustainability thinking and the way businesses are run e.g. decisions by the board driven by investors

Big Data:

Technological transformation and implementation within organizations in the context of creating customised big data platforms

Data ownership and use

Too much data- unintended risks associated with the perceived benefits

Technology

Pace of change and reaction to it- Technology making the real case for working together as partnerships.

New technologies disruptive aspects (i.e. no need for 'space to make' as we understand it now)

Cost implications are not factored in

Policy

Government and legislative policy (associated with the pace of technology change?)

Available investment and policy alignment

Other

The consequences of 'informalising' of the economy has not been mentioned

Other comments/next steps

Creation of a virtual network of the group

Creation of LinkedIn group to facilitate on-going communications

Creating a set of criteria/quality controls of how we would use other research outside the Group
Understand the implications of technology on sustainability and associated planetary boundaries*

Scope out big data use in other sectors

Think about information needed for lifecycle thinking through supply chains etc. and data requirements to generate that information

Use today's discussion to inform the next set of industry interviews

Compare CLC and other industry body 'grandstanding' on risk/opportunity/pain points to company annual reports and what is made public

Organise a Delphi study to articulate foresight in a more controlled manner from a methodological point of view

Could use a Delphi process to make mega trends more robust

EPDs, BIM, BREEAM, CEEQUAL, certification and standards are not clearly aligned to regulation to allow informed choice/clearly comparable solutions- this is confusing to buyers or users

Need to link directly to skills interventions, either via School or with partners (CITB)

Session feedback and suggestions

Like the concept of taking fore sighting and 'vision' to ensure highly relevance to industry thinking

Need to link activity directly to skills interventions, either via the School or with partners. (CITB)

Cathy and Cat's presentations helped conceptualise the process, challenges, issues and how to move forward

Very useful session

* "planetary boundaries" aim to define a "safe operating space for humanity" for the international community, including governments at all levels, international organizations, civil society, the scientific community and the private sector, as a precondition for sustainable development.