

IMPROVING INDUSTRY PERFORMANCE IN THE UK INFRASTRUCTURE SECTOR

**Report of the Infrastructure Forum Workshop
held on 29 June 2006**

The next Infrastructure Forum Development workshop will take place on:

14th November 2006 9.00-12.30 followed by lunch

DTI Conference Centre, London

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August 2006

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1 Summary

This report is the result of a workshop attended by 60 senior representatives from client organisations and supply side firms across the infrastructure sector. It was led by Andrew McNaughton, Managing Director of Balfour Beatty Civil Engineering and Chairman of Constructing Excellence's Infrastructure Forum, and Don Ward, Chief Operating Officer of Constructing Excellence. Constructing Excellence would like to thank all those people for their support and participation.

The report outlines the challenges facing the industry over the next 3-5 years and proposes an agenda, objectives and initial action plan for the Infrastructure Forum to take forward.

2 Purpose of the workshop

The purpose of the workshop was to consider the current and future challenges for the Infrastructure Sector. Clearly identify the role of Constructing Excellence, setting realistic objectives for the Forum to make a difference, working in collaboration with strategic organisations, clients, government and the supply chain operators in the sector. The workshop allowed the Infrastructure representatives attending to collectively develop a proposal for an Infrastructure Forum as a Constructing Excellence membership offering to the Infrastructure Sector. In this context the Infrastructure Sector has been defined 'narrowly' as civil engineering, transport (roads, rail etc) and utilities.

3 Invitees and agenda

Invitations were sent to the following target groups:

- participants in an earlier Constructing Excellence initiative ("the Infrastructure Task Force"),
- attendees of a workshop in summer 2005,
- members of the Highways Term Maintenance Association,
- members from other Constructing Excellence forums (ie Buildings and Estates, Construction Clients Group) who are active in the civil engineering sector,
- those customers of CWC, the Collaborative Working Centre, who are local authority highways clients,
- key sector clients (eg BAA, Highways Agency, Network Rail),
- visitors to the Constructing Excellence stand at the Civils 05 exhibition in November 2005 who expressed an interest.

The target was for 50 people and Annex A shows the 60 who actually attended.

4 Some sector challenges

The agenda for the half-day workshop is attached as Annex B. After the chairman's introduction explaining the purpose of the day, the first session of the workshop heard three perspectives on the challenges facing the industry over the next 3-5 years from an academic, a product supplier and a logistics company. In addition a client view was provided but not presented on the day due to late unavailability – the key points from that presentation are also reported here.

4.1 Professor Peter Morris, Head of Construction and Engineering, University College London

The challenges presented by Peter from an academic's perspective focussed on 'future proofing' and sustainability:

Background

- Infrastructure has several sub-sectors
- Hard and soft issues; longer term and near term
- The sector faces truly major challenges:
 - energy security, water, CO₂, road & rail capacity
 - funding
- Projects are long-term
 - scenarios needed (e.g. flooding, water supply)
 - future proofing (hazards & robustness) and sustainability (ecological, socio-economic, whole life)
- UK is lucky compared with most....
 - partnering alliances
 - Planning, traffic & community constraints
 - Grey water recycling

Transport

- General: sustainability, policy & planning (demand, space, integration)
- Rail: Signalling, CrossRail, LCR, metros, London Underground.
- Roads:
 - Capacity [congestion, pollution, sustainable communities] tolling/charging, IT (ATMS), PFI, integrated transport planning
- Consistent funding; Olympics
- Seaports: Capacity: road/ rail linkage
- Airports:
 - BAA/Ferrovial; LHR plans, Stansted, Birmingham, etc; access links
 - CO₂ emissions

Energy

- Capacity shortage over next 3+ years
- Energy policy - reliability of the 'dash for gas'?
- Mixed sourcing; little immediate new construction
- CO₂ emissions: Coal CO₂ re-absorption; rising sea levels; Part L
- Nuclear: cost, waste, planning, security

Waste

- "no connection between energy and waste is being made"
- Landfill directive implications

Water

- Water supply in the South (lower rainfall, removal of abstraction rights): leaks; reservoirs, desalination, 'national grid'
- Sewer capacity & flood run-off
- Flood water: run-offs, flood plain construction, rising sea levels. Thames Gateway!
- Continued heavy investment by water cos. to meet AMP4 (EU standards):
 - demanding performance standards

Implementation

- Political leadership: funding
- Skills availability: quantity & quality (project management; graduate recruitment)
- Innovative capacity in supply chains
- Value
- Procurement arrangements (frameworks; ECI; partnering/ risk allocation)
- Limits of PFI
- Design management (fast-track, D&B, O&M)
- Rail cycle times & costs; signalling/ systems engineering
- Learning & knowledge management.

4.2 Jaz Vilkhu, Marketing Director, Marshalls

The challenges presented by Jaz from a product manufacturer's perspective included:

- Financial stability
- Collaboration through early involvement with clients
- Claims for Liability
- Research and Development
- New product development
 - Automation, machine lay
 - Partnering with machine suppliers
- Link productivity and safety by design
- Skills shortage and training centre response
- Industry KPI – Volume to produce before generating a complaint
- Deliveries
 - on time
 - logistics
 - haulage costs
 - fuel demand
- Social agenda – absenteeism, occupational health.

4.3 Grant Robertson, Business Development Director, DHL-Exel

The challenges presented by Grant from a logistics company's perspective included:

- Regulatory review
- Communications and connection between procurer, operator and user
- Demand forecasting
- Waste at all levels of the supply chain
- 30% on cost for products in the construction industry
- Skills and workforce
- Supply chain strategies aligned with business strategy
- Infrastructure poor productivity
- Off-site production will increase.

5 Priorities themes for the infrastructure sector over the next 3-5 years

In the second session of the workshop, tables of 6-8 delegates each were asked to discuss the challenges for the sector and to record their key points on post-it notes. These were initially collated into the following themes:

- Government leadership
- Funding policies
- Long-term strategic planning
- People
- Waste and its reduction
- Design and Innovation
- Supply chain
- Integration
- Procurement.

Delegates were then given three votes to choose the themes which they felt were the most important for Constructing Excellence's Infrastructure Forum to address. The following results of this prioritization, including some collation of the headings, include the numbers of votes cast against each heading or individual post-it note in square brackets [].

5.1 Long-term strategic planning, Government leadership and funding policies [17+20]

Under this heading there was a huge consensus that an holistic, integrated, long-term investment strategy for UK infrastructure is required which is independent of 'Party' politics. Individual points were as follows:

- Long term strategic planning and partnering for infrastructure development [17]
- Own our legacy – tackle tomorrow's problems today [5]
- Understand needs, demands, capacity and strategically plan
- Holistic approach and planning
- National integrated planning and funding strategy
- Look at investment in holistic terms to achieve better outcomes [2]
- Leadership at government level and in industry [1]
- Lobbying government for strategic decisions [2]
- Political drive of infrastructure programs
- Political [1]
 - Minister for infrastructure
 - Integrated long term planning
 - Government co-ordination
- No political party politics in infrastructure [5]
- Skills shortage in strategic planning
- Funding is not robust to allow strategic planning
- Funding [5]
 - Political leadership
 - Strategic planning
 - Understanding of inter-linkages
- Bridge to party politics
- Treasury annualisation [2]
- Overcoming constraints
- Plan for national investment

- Inflation volatility (petroleum-related)
- Infrastructure 'Tsar'?
 - Public face
 - Define what it means and how important it is to all
- Constructing Excellence to influence infrastructure supply
 - Influence regulatory bodies and highway agency through full supply chain involvement
- Government, clients and suppliers [1]
- Long-term partnership [2]
- Getting more out of the infrastructure we have already [1]
- Old infrastructure in UK
 - We are refurbishing and re-using.

5.2 People and skills shortages [19]

This was the second most popular priority, with a consensus that the sector has a skills shortage which needs to be addressed, with the sector's image and pay levels part of the problem. Individual points were as follows:

- Getting the people with the right skills to build our infrastructure
- The intellectual property we have is people, not products [4]
 - Efficiency
 - Health and Safety
 - Training
 - Diversity (language skills)
- Skill shortages
- People resource shortfall will hold back projects
- Skills shortage in design professions
- Resources
- Industry image doesn't attract new talent
- Industry does not pay well enough to retain workers
- Individual behavior to influence others.

5.3 Supply chain, integration and procurement [7]

This was the third most popular priority when taking into account votes for specific issues within the category. It covers a wide-ranging set of topics, key messages are to improve processes generally by implementing collaborative working, supply chain integration, smarter procurement based on whole life value (including design, construction, operation, maintenance), and early involvement of the supply chain in projects. Individual points were as follows:

- Envision what full integration looks like and sell it to the government [1]
- Key Performance Indicators [1]
 - Need to ensure process costs are reduced by measuring performance
- Collaborative working [4]
 - Private developers have a lack of awareness of contract types
 - Education is required to improve
 - Collaborating working

- Supply chain integration
- Cost and value improvement through better supply chain integration [3]
- Supply chain integration
- Process improvement
 - In the supply chain
 - Embedded cost up to 30%
 - Opportunity for saving and re-investment
- Appropriate risk management within the supply chain e.g. Bitumen/steel etc. [2]
- Drive supply chain changes [3]
 - What are the barriers?
- Early involvement of entire project team [5]
- Integration of design with maintenance, operation and safety [7]
- Early operator and stakeholder involvement [4]
- Procurement and sustainability
- Move away from price to value
- Smarter procurement
- Client education
 - Acceptance of the need for profit.

5.4 Waste [8]

This was the fourth most popular priority when taking into account votes for specific issues within the category. A particular priority for the sector is to focus on waste in all its forms and physical waste in particular, with energy use, water saving and sustainability in general as important sub-topics. Individual points were as follows:

- Waste reduction
 - Long term planning
 - Government planning
 - People
 - Integration
 - Supply
 - Demand safety
- Consumers should not disbenefit from wastage of suppliers
- Energy usage
 - Innovative ways to produce, eg solar energy capture
- Energy
 - Stand alone
 - Green
 - Waste management
- Improved labor efficiency
 - Mechanization
 - Training
 - Supply chain management
- Water management
 - Grey water recycling
- Waste/efficiency
- Reduction in waste (Sustainability) [4]

- Greater sustainability awareness [3]
 - Reduced waste (25% of waste is construction derived)
- Remove waste from procurement process [1]
- Sustainability [2]
 - Waste
 - Landfill
 - Efficient supply chain
 - Sustainable communities.

5.5 Innovation (and design) [8]

These two topics together were the fifth most popular priority. A particular priority is to develop a long-term structure for, and culture of, innovation in the sector. Individual points were as follows:

- Overcome barriers to innovation
- Developing long term structure for delivery of innovation [5]
- Designs need to reflect modern/new innovations (eg recycled materials)
- Getting the culture right
 - Respect for people
 - Trust
 - Risk sharing
- Innovation [2]
 - Tendering
 - IT
 - Knowledge management
- Technology
 - R & D
 - Adoption
 - Common standards
- Need for more factory produced products
 - Initiatives appear to have stalled
 - Perhaps lack of focus on innovation
- Standardisation
 - Across industry
 - Design, contracts etc.
- Public sector engineering bases have been dispersed and directed to consultants - have we lost the plot?
- Sharing of good practice across the industry [1]
- Learning from other sectors [2].

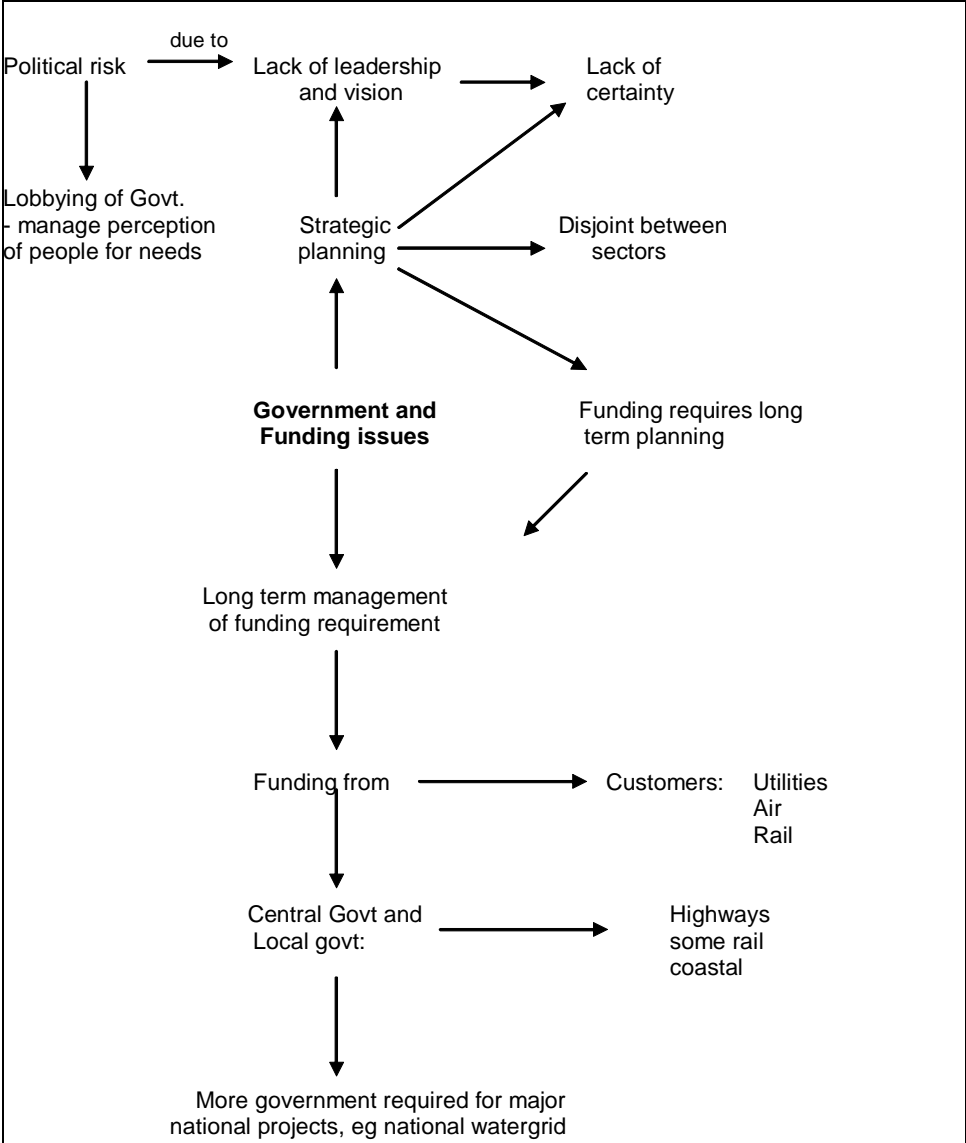
6 Suggested way forward for each priority theme

In the final session of the workshop, each table was assigned one of the top four themes and each 'sub-group' was asked to propose ideas for on "how to make a tangible difference?".

6.1 Long-term strategic planning, Government leadership and funding policies

As the most important topic, three different groups were asked to look at different aspects.

The group looking at Government and funding issues produced the following summary:



The group looking at long term strategic planning suggested the following ideas:

- 15-year vision for the UK to be developed within the industry
- Provide connections between waste, energy, water and transport
- The Forum (CE) should offer strategic planning service to government (OGC?)
- Central government can spend less to get more if strategic plan is integrated
- Strategic planning should be non-political e.g. as per bank of England monetary committee.

The group looking at funding made the following proposals for improvement:

- 5 year planning cycle by utility regulators is restrictive
 - coincidental issue is cycle of governments – don't always correlate
- Increase to 10 year planning cycles
 - Would lead to better, more efficient and accurate forecasting and then lower costs
 - Would also lead to increased investment in technology
- Long-term planning would require long-term shared agenda between private and public sectors
- Possibility of managing supply and demand effectively to deploy resources effectively and efficiently
 - anecdotal report of one utility which sold water reservoirs for housing developments to give short term returns to shareholders – so regulators need to regulate with a long term perspective
- Long term planning can enhance planned recruitment strategies, with knock on business efficiencies
- Analyze potential long-term benefits arising from integration of technology
 - this needs to be considered in light of training and product development

6.2 People and skills shortages

This group suggested the following agenda:

- Increase mechanization
- Retain and attract staff
- Attract more women
- Enhance image
- Career development and rewards
- Training and multi-skilling
- Modular construction

6.3 Supply chain integration, collaborative working and procurement

This group looked particularly at the first aspect and made the following recommendations:

- Need to understand the 'cost' of the supply chain - an analysis of the costs involved in the supply chain of the sector can actually reduce them
 - Where are the costs?
 - How big are they?
 - How can that change?

- Emphasis on solutions and recommendations
- How can technology help?
- Initially we need projects as examples to substantiate key points (eg through case studies)
- Approach government with the following objectives:
 - Help planners understand the issues
 - 'Time' case study reports to input to eg regulatory reviews
 - Studies to be used as a platform to go to government, regulatory bodies, highways agency etc and create demand for a 'white paper'
 - Involve the right people to lobby for the paper
 - eg supply chain participants, utility owners
- Learn from other industries
 - Identify best practice from other sectors
 - Encourage dialogue
 - Visits e.g. Tesco, Dell, and JCB etc.
- Early involvement of stakeholders
 - Actively promote the approach
 - Learn from integrated project teams in other sectors
 - Getting the culture right
 - Have we got the roles and responsibilities right?

6.4 Waste

Two groups worked on this, their conclusions are collated as follows:

- One voice across industry on waste
- What is waste?
 - Not adding value to processes or things that don't have another use.
- Reduction
 - Finding a value for everything we are going to throw away.
 - Corollary is that waste is **not** finding a value!
- Integrated process, eg MOD as a cost-neutral function
 - is this management contracting in its fullest sense, plus use of appropriate risk management?
- Design
 - Design waste treatment into projects and processes
 - CE to take a leadership role in promoting waste reduction by design from "cradle to grave"
- CE role to coordinate activity and make sure it happens
 - Waste Reduction Action Programme (WRAP) are a key lead body – work with them

7 Conclusions and recommendations

Bringing together the three sessions of the workshop (section 4-6 above) leads us to the following conclusions and recommendations:

- There is a need for an Infrastructure Forum as a pan-supply-chain body bringing together both demand side and supply side to work collaboratively to address barriers to industry improvement that none of the parties can address on their own. The Infrastructure Forum will develop a route map to identify substantive and real areas to contribute to the delivery of sector improvement, focused around the objectives stated below in collaboration with key strategic partners.
- The five-point agenda for the Forum should be as follows:
 - Long-term strategic planning, Government leadership and funding policies
 - People and skills shortages
 - Supply chain integration, collaborative working and procurement
 - Waste
 - Innovation (and design).
- The specific objectives of the Forum should be as follows:
 - An holistic, integrated, long-term investment strategy for UK infrastructure which is independent of 'Party' politics.
 - Action to address the sector skills shortage, of which image and pay levels are causal factors.
 - Process improvement initially through collaborative working, supply chain integration, smarter procurement based on whole life value (including design, construction, operation, maintenance), and early involvement of the supply chain in projects.
 - Reduction of waste in all its forms and physical waste in particular. Energy use, water saving and sustainability in general are important sub-topics.
 - A long-term structure for, and culture of, innovation in the sector.
- Action plans for each of these objectives should be developed as a priority, section 6 of this report serves as a valuable starting point.
- The Forum should issue this report to all attendees of the workshop as well as other invitees and stakeholders inviting recipients to:
 - Comment on the recommendations
 - Express interest in joining a pan-sector steering group for the next phase of the Forum's activities
 - Identify other organisations who would be interested in participating in the Forum.
- The Forum should approach key stakeholders who would be valuable partners in seeking to deliver its objectives, these will include government and other client bodies, research associations such as CIRIA and the European Construction Institute (ECI), and trade and professional bodies such as the Civil Engineering Contractors Association (CECA), the Institution of Civil Engineers (ICE) and the Association of Consulting Engineers (ACE).

Andrew McNaughton, Chairman, Infrastructure Forum, Constructing Excellence
Don Ward, Chief Operating Officer, Constructing Excellence, August 2006

Annex A. Attendees, sorted by company

Alan Garner, Alfred McAlpine Government Services Ltd
Andre Gibbs, Argent Group PLC
Paul Houllis, AWE
Andrew McNaughton, Balfour Beatty Civil Engineering
Simon Flint, Balfour Beatty Construction
Des Steadman, Birse Civils Ltd
Mark Farrah, Birse CL
Anthony Hill, Blackpool Council
Gareth Evans, BP Bitumen
Sandy Mackay, BRE
George Martin, British Telecom
Chris Slezakowski, Burdens Limited
Jonathan Thomas, Capita Symonds
Paul Monaghan, City of London
Don Ward, Constructing Excellence
Andrew Carpenter, Constructing Excellence
Rodger Evans, Constructing Excellence
Bernard Gambrill, Cross London Rail Links Ltd
Richard Lee, Cube Surveys Limited
Geoffrey Daw, Daniel Contractors Limited
Mike Holley, DHL Exel
John Humphreys, DHL Exel
Ian McLeod, DHL Exel
Grant Robertson, DHL Exel
Ed King, ekologika
Emanuel Carvalho, Enterprise Ireland
Sue Kershaw, Head of Programme Management, ODA
Nigel Thomas, Head of Rail, ODA
Chay Smalls, Henry Recruitment
Nick Hopcraft, Highways Agency

Hannah Hislop, Instarmac Group Plc
Mehran Azari, KBR
Alan Hart, Kennedys
Jaz Vilku, Marshalls
Bob Page, Mouchel Parkman
Henry Loo, NHS
Kevin Thomas, OGC
Jason Carter, Oxford Hydrotechnics
Robert Blackadder, Parsons Brinckerhoff
Scott Witchalls, Peter Brett Associates
Peter Ralph, Peter Brett Associates
Derry Long, Plowman Craven
David Walker, RCS
Neil Pengilly, Relocity Limited
Tony Stephens, Ringway Infrastructure Services
Paul Bracegirdle, Scott Wilson
Chris Jennison, Scott Wilson Group plc
Peter Browne, Sheffield Hallam University
Colin Courtney, Skanska
Geoff Hayes, Skanska Civil Engineering
Phil Shirley, The PR Firm
Mark Channon, Transitional Head of Delivery & Programmes
Judith Bird, Trowers & Hamblins
Tony Clifford, Tube Lines
Lester Hillman, Union Railways (North) Limited
Yannis Zoiopoulos, University College of London
Prof Peter Morris, University College of London
Fazal Ahmad, WCI
Dan Harvey, Whitby Bird

Annex B. Agenda

INFRASTRUCTURE FORUM

Kick-off Workshop

29th June 2006 08:30 – 13:30

76 Portland Place London W1B 1NT

To consider the current and future challenges for the infrastructure sector and to develop proposals for an infrastructure forum within the Constructing Excellence membership.

0830 Registration and coffee

Chairman's Introduction and welcome

Objectives for the day

Andrew McNaughton, Managing Director of Balfour Beatty Civil Engineering

Long-term challenges for the sector; Guest Speakers:

Peter Morris, Head of Construction and Engineering Unit, UCL

Jaz Vilku, Commercial Sales Director, Marshalls

Grant Robertson, Business Director, DHL, ExEL Supply Chain

1045 Coffee

Group Discussions

- Challenges over the next 1-3 years
- Gap analysis and possible solutions
- Priorities

Action plan and forward agenda

1230 Lunch
Close

Annex C. Background and introduction to the new CE

In 2005 Dennis Lenard instigated an Infrastructure Task Group under the chairmanship of Andrew McNaughton, Managing Director of Balfour Beatty Civil Engineering. This consisted of the following invited individuals, a report of their proceedings is separately available:

Andrew McNaughton, Balfour Beatty Civil Engineering
John Anderson, Dudley MBC
Peter Bishop, Local Government Task Force
Mark Farrah, Birse

Anthony Hill, Blackpool BC
Dennis Lenard, Constructing Excellence
David Mosey, Trowers & Hamlin
Steve Rowsell, Highways Agency
Peter Woolliscroft, NHS Estates.

Construction Excellence is now a very different type of organisation. We are a single new organisation for business improvement with the vision of a demonstrably better built environment. At our core is membership from leading edge customers and suppliers in the built environment sector. We also deliver major government programmes (eg for DTI to promote best practice in the wider industry) and commercial contracts (eg for Transport for London on logistics).

Our agenda derives from initiatives such as the Latham report, "Building Down Barriers", "Rethinking Construction", and "Construction Best Practice" and our five priority themes are:

- Value
- Integration and collaborative working
- Sustainability
- Safety and health
- Leadership and people development.

We have six core activities which add value through our regional and local networks as well as at a national level:

- Innovation and research
- Measurement and diagnostics
- Tailored services for business improvement
- Business-to-business networks
- Showcasing & exemplars
- Leadership & influence.

Membership participation is currently through the following market-facing sector forums:

- Housing Forum
- Buildings and Estates (BE)
- Construction Clients Group
- Infrastructure Forum
- Local Government.

Currently membership stands at about 220 comprising a pan-industry and multi-disciplinary mix of clients in the public and private sectors; consultants of all kinds including architects, engineers, surveyors, lawyers; contractors, house-builders and facilities managers; specialist contractors, product suppliers, manufacturers and other specialists (eg IT firms).