



Discussion Document

Edge Report for Ove Arup Foundation

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Contents

WHO WE ARE	3
THE EDGE COMMITTEE:	3
WHAT WE HAVE DONE.....	4
WHAT WE PROPOSE.....	4
APPLICATION FOR FUNDS	4
RESEARCHER POST	5
<i>Résumé for Joanna Eley</i>	5
POLITICAL CO-ORDINATOR POST	5
<i>Résumé for Adam Poole</i>	5
RECENT DEBATES	6
7 TH DEBATE: CONSTRUCTION FEEDBACK: WHAT CAN INSURANCE OFFER BEST PRACTICE.....	6
<i>Points made at the debate</i>	6
<i>Summary</i>	8
8 TH DEBATE: AGEING WORKFORCE – WHERE ARE TOMORROW’S ENGINEERS?.....	8
<i>Points made in the debate</i>	8
9 TH DEBATE: DESIGNING TOMORROW’S DESIGNERS	10
<i>Points made</i>	10
<i>Summary</i>	11
10 TH DEBATE: E-COMMERCE AND ITS IMPACT ON THE CITY.....	11
<i>Points made in the debate</i>	12
<i>Summary</i>	14
11 TH DEBATE: RIGHT FIRST TIME?.....	14
<i>Points made in the debate</i>	15
<i>Summary</i>	16
OTHER EVENTS	16
AUSTRIAN INSTITUTE HALF DAY INVITED CONFERENCE ON ENERGY AND URBAN STRATEGIES.....	16
INTERNATIONAL SCIENCE FESTIVAL APRIL 2000.....	16
ATOMISING EGAN: DINNER WITH PHILIP WARD	17
POSSIBLE FUTURE DEBATES	17
FUTURE EVENTS.....	17
EDGE CONFERENCE TAKING URBAN STOCK	17
APPENDIX	19
PERSPECTIVES ON CROSS DISCIPLINARY CO-OPERATION: THE SUM IS GREATER THAN THE PARTS..	19

Who we are

Supported by the Ove Arup Foundation, the Edge is dedicated to bringing together architects engineers and others to address important, political, social and professional issues. It seeks to stimulate public interest in policy questions that affect the built environment, and to inform and influence public opinion.

It developed from a joint Institution of Civil Engineers and the Royal Institute of British Architects invited seminar *Shaping the 21st Century* (May 1995) convened by the Ove Arup Foundation. At this seminar delegates were invited to consider how the two professions could come closer together through joint activities. The emerging Edge determined to collaborate to influence public policy on matters related to the built environment. Since central concerns have been energy and sustainability, it has now expanded to embrace the Chartered Institution of Building Services Engineers.

The Edge is sponsored by all three institutions but is not tethered to any parent body and is free to express radical and original views. All three institutions are able to use The Edge as a means of promoting public debate and interest in architectural and engineering issues without committing themselves to the particular points of view expressed. Above all, The Edge provides a continuing way of stimulating a joint architectural and engineering debate at the highest level and in the public interest, and the Edge are grateful to the professional and financial support provided by the Ove Arup Foundation.

The Edge Committee:

Guy Battle	Battle McCarthy
Bill Bordass	William Bordass Associates
Ricky Burdett	London School of Economics
Chris Colbourne	Masterworks Development Corporation
Frank Duffy	DEGW – PP RIBA
Professor Max Fordham	Max Fordham & Partners/President Elect CIBSE
David Glover	Ove Arup & Partners
Professor Peter Guthrie	Scott Wilson Kirkpatrick/Professor of Engineering for Sustainable Development, Cambridge University
Paul Hyett	Ryder (formerly Hyett Salisbury Whiteley) RIBA Vice President Education
Professor Paul Jowitt	Scottish Institute of Sustainable Technology Heriot-Watt University
Sophie Le Bourva	Ove Arup & Partners
Robin Nicholson	Edward Cullinan Architects/Deputy Chairman CIC
Andy Parker	AMEC Design & Management
Adam Poole	Adam Poole Associates
Mark Whitby	Whitby Bird & Partners/President Elect ICE

Our membership this year has been strengthened further by the inclusion of Max Fordham (Max Fordham & Partners and President Elect of CIBSE), Bill Bordass (William Bordass Associates and a lead member of the Probe Team) and David Glover (Director at Ove Arup & Partners).

What we have done

Few people would argue now about the importance of the environment. Different industries have their environmental hotspots driven by the market, but joined-up thinking is too rare, and change often slow or currently even in the wrong direction. All industries are linked by the built environment and The Edge Committee feels that they are in a position to make a positive contribution.

It exists to hold public debates on the political, social and professional issues of the day, with a strong bias towards sustainability. The debates are focused to generate action points, which are then published on the web page where it is hoped supporting institutions or other allied bodies will want to take them forward. CIBSE had sponsored the site, but since Adam Poole left CIBSE, the site has not been deleted. A list of recent debates, together with the discussion points made in those debates is included in the next section of this report.

An indication of the extent to which the Edge is the right people at the right time is that Edge members have been selected/standing for presidencies of our three respective institutions.

What we propose

All the members of the Edge Committee are extremely grateful to the Ove Arup Foundation for their financial support during the last year. It has enabled Jane Powell to act as a part-time co-ordinator, taking the minutes at our regular Edge Committee meetings, acting on our decisions and most importantly organising all the arrangements with the speakers, chairmen, institutions and attendees for the debates throughout this year.

We have been able to run a much praised series of debates on topical engineering and society issues and in doing so forge some very close links between the key institutions. We would, however, like to do more. Our debates distil down to a series of action points that used to be available on the Edge web site. We want to get our web site up and working again and to be able to have extra resource to pursue some of these action points to their logical conclusions. We therefore like to ask to Ove Arup Foundation to support us for the coming year and would like to make the following application for funds:

Application for Funds

1	The continuation of Jane Powell's commitment to act as The Edge Committee's Co-ordinator for the year 2000-2001	£3,000.00
2	The appointment of Joanna Eley to act as a researcher (a short c.v. is printed below)	£1,500.00
3	Adam Poole as political co-ordinator (a short c.v. is printed below)	£6,000.00
4	Creating and linking to world-wide web sites	£6,000.00
5	Expenses	£1,500.00
	TOTAL	£18,000.00

We suggest that payment should be quarterly as at present through Whitby Bird & Partners

Researcher Post

Résumé for Joanna Eley

Joanna Eley has twenty years experience in architectural design, consultancy and technical writing. She has worked independently, and within teams created by others such as DEGW, AMA, William Bordass Associates, Davis Langdon Consultancy, on strategic briefing for buildings, general briefing guidance, building evaluation for clients, space planning and design projects, post occupancy evaluation, and a variety of research topics. She has helped many organisations to achieve new and effective working environments. She has worked with large organisations such as IBM, British Airways, British Petroleum, as well as smaller ones and local and central Government clients, helping them understand the options for new working patterns and the implications for their buildings. She maintains contact with theoretical research, practical consultancy and live building projects and focuses on the needs of users. She is co-author of the Penguin book "Understanding Offices - What every manager needs to know about office buildings", "Planning Office Space" McGraw Hill, New York, 2000 and "Architects and their Practices - A Changing Profession" Butterworths, Oxford 1995.

Political Co-ordinator Post

Résumé for Adam Poole

Adam Poole has degrees from Stirling and London in African studies, he used to edit South Africa Confidential Review and he used to run an African affairs consultancy. He worked for two heads of state in Nigeria; other jobs have included teacher, statistical researcher, market researcher and clerical assistant at the House of Commons. He has worked for CIBSE (communications and marketing manager) from 1995 to May 2000, when he went independent. He now works for a number of people in a variety of roles: Whitby Bird & Partners — Reader, Institution of Civil Engineers — Parliamentary Liaison, CIBSE Patrons — Administrator, Archi-link.com — founding partner, Battle & McCarthy Consulting Engineers — Consultant.

RECENT DEBATES

During the last 12 months the following debates have been held:

7th Debate: Construction Feedback: What can Insurance offer Best Practice

If Sir John Egan's Report, Rethinking Construction, is to be effective, it is our view that either our clients will realise that PII and other insurances represent poor value by supporting feedback and by helping us gain real knowledge, through a formal review process. Sir John always refers to the importance of learning from mistakes, as well as successes but, in this, our industry is often shy.

Speakers	Stephen Bamforth Gillian Kirby Mike Murray Leon Winnert	Griffiths & Armour Insurers Partner in the Construction and Engineering Department of Rowe & Maw, Solicitors Director of Design AMEC Design Management Ltd Civil Aviation Authority
Chairman	Martin Reynolds	Rail-track, Chairman of the Construction Round Table and founder member of the Board of the Movement for Innovation

Points made at the debate

- Third party feedback? How to change the culture – building down barriers programme/MoD. All buy into the design before project starts.
- Proposition: if we had better feedback we could design better? Where are the gains? Designing better or settling quickly? How bad are our buildings. Not as bad as we are telling ourselves they are.
- Design review/Brief example.
- PI originally for technical error. Now, majority of claims – pass the parcel with contracts. Focus should be on contractual management between the parties.
- Technical claims have fallen by about 20% (G&A, 1000 claims p.a.). Improvement overtaken by contractual claims. More sense for clients to adopt no blame loss policy.
- Sense of a weak insurer behind you attracts claims.
- A sense that problem that can only be solved by the client. What is needed is for someone to produce a nice set of sums for clients. Project based insurance is cheaper.
- Problem with this is supply and demand. Cannot move from one system to another overnight. Insurers will need to build in a margin. Market forces will not be able to force this through. Something else is needed.
- Client is the prime mover. If a big client is prepared to make a stand there can be a passing benefits from big jobs on to small.
- Where there are enlightened clients, they need help from insurers.
- Problem with industry comparisons. Construction – everything is unique, for example, DMC contractors to sit with Railtrack to produce a standard station.
- Tesco's/repeat business what are the aspects of the job that you cannot control?

- Why do we use standard contracts when everything else in the industry is unique?
- French railways: good designers but limited so that anyone can build.
- Argument that not every building is a prototype. Prototype issue is interface between standard products.
- Building down the barriers is concerned to address e.g.: *DMC contractors to sit with Railtrack to produce a standard station.*
- We are all saying it is someone else's problem. Surely it is industry-wide. Taking building interruption insurance and building into it some of the issues that have been discussed.
- Construction Quality Forum. Feedback ceased when useful information exhausted from PSA database. Little feedback from industry. Voluntary scheme unlikely to work.
- Insurer is not part of the team in any M41 demo project.
- Challenges not just before the clients, but also before the insurance industry. CRT should take this up. More holistic view of the process needed.
- It is not in the insurer's interest to reduce the claims. Large premiums do not exist for non-existent risks.
- Construction industry continually called upon to become more efficient. This means more prototypes and risk.
- If premiums come down, may lose incentive to guard as effectively against making mistakes.
- Legal notification can be made in good time, but can sit around for years before proceedings begin.
- Woolf Reforms are front-end loaded.
- Judge can cap costs under CPR.
- Type of insurance claim: 80/20 one symptom of industry PII procedure. Also defensive practice and lack of innovation. Clients focused on passing liability – forcing up barriers.
- Need to differentiate between different types of client. Why have larger corporations needed to set up single vehicles for some type of projects?
- Why are legal fees roughly equal to all the other fees on the job? Lenders trying to offset risk. Could cut out cost if didn't need to borrow money. Behaviour of ultimate funder is a factor.
- No blame, loss of incentive to avoid faults.
- Look at potential consultant's exposure relative to fees, incentives still there. Netherlands – statutory cap on consultant equal to fee. Cost of PI is 10% of what they are in the UK. A practical example of what can happen if there is a will from industry or action from government.
- Project by project insurance. Some clients might want turnover insurance. P by P may carry high excess. Consultants should have more limited risk and be over less attractive to attack.
- Gamble factor. For client, size of consultant's PI. What does client risk in legal fee for consultant's PI? If there is statutory cap, gamble changes.
- If half of industry's product commissioned by government, can we not look to a government depart. Have there been discussions within government on this?
- Suggestions would raise interesting opportunities/CRT? It is an industry-wide issue.
- Government had just released 'constructing the best government client'. Interesting to see how they are going to resource it/achieve it?
- Feedback in relation to problems that have occurred. There is a way that one should be looking at design. More holistic, directed towards eliminating mistakes. We live in a magazine culture. Cumulative effect of poor buildings. Buildings evaluated in press before occupancy. Need to know the building behaviour in real life.
- For real post-occupancy feedback design construction professionals should read *The Way Buildings Learn* by Stewart Brand.

Summary:

- Linking enlightened clients, innovation projects M41 through CRT
- Holistic approach: change of culture
- Needs proactive participation of insurance industry/funders, clients
- Analysis of risk and improve qualifications of management of projects
- Anonymous feedback/balance between risk and reward
- Mediation greater role in reducing cost. Facing errors on projects much earlier on.

8th Debate: Ageing workforce – Where are tomorrow’s Engineers?

The falling recruitment in the engineering and the built environment based on the findings of the Ove Arup Foundation report and the work of the CIC Education and Training Forum, and HEFC research.

Speakers	Richard Haryott Professor John Bale	Director at Ove Arup & Partners Professor of Construction Management at Leeds Metropolitan/Chairman of the CIC Education and Training Forum
Chairman :	Andrew Ramsay Andy Breckon	Engineering Council Chief Executive Design and Technology Association

Points made in debate

- Equating report to accelerators. Latham and Egan same accelerator. Part of constant acceleration. Everyone (high and low) needs to be part of the same team
- The 26% figure -- 41% if you look at UK figures. Situation worse. What is causing decline to Civil engineering?
- General issue relating to science. Too many engineering courses. Complicated by training needs. Have a set of general engineering courses, scrap the specific ones. Why can't engineering be fun? Problem for employer is to find engineers who are creative. Have abstract and less abstract modules.
- Reduce the number of professional bodies in the field. Does the built environment require 36 bodies?
- Should be reducing the number of 'label' engineers. Should organisations be set up to reflect general nature of business it is operating in. Should be getting better about multi-skilling/university for industry?
- Failures of general education – basic informing role/process of design & product. Close the gap between knowing and doing.
- How many good engineers do we want/what will technology do the professions (esp. the average professionals). Need small number of specialists/suspect that we have more than enough.
- Image in construction industry: global issues – construction (can) damages the environment, lack of respect for people in the industry, not seen as dynamic enough. Were invitations sent to young professionals?
- Think about integration of institutions. Problem to do with SARTOR
- Shortage might be a good thing. Need 'creative engineering'.
- Questions have been asked before. More endorsement for moving to the generalist position/an assault on the institutions. Look at how government departments have turned through 180 degrees.
- Need specialist interests. Specialisations difficult to swallow up. Need federal structure. If institutions gave up accredited course, would

need to pay attention to training. Not a university issue. Need to marginalise institutions but not scrap them.

- What does drop in applications actually mean? Essential to know. A role for government to get together with institutions and monitor situation year by year. Issue of training the teachers. Industry is managing to do more with fewer people. Maybe a halving of the workforce in last 10 years with bigger salaries being paid?
- University take-up increased. Engineering not getting a good press, achievements not charter marked.
- Client view: issue is about global competitiveness. UK is not a closed system. Have can the UK systems be expanded to take advantage of global opportunities, and this might, in turn, grow the system. Clients would like more concentrated support from the professions. We are not making enough of the good projects that are occurring/ transmit this sense of excitement to a wider public.
- Why shouldn't the specialisms be in one profession? Government would pay more attention
- Need to start educating the current workforce/there is the Europe/world question about education. Inspiration to be taken from other systems – esp. French system of generalist engineer.
- Ignoring the fact that European engineers can work here/Work is being done in field of emotional intelligence. Where it is happening, we do need to disseminate the work and telling of best practice.
- Entry requirements same subject different institutions – different story. What is happening with drift in UK A levels? Creative technology courses are the ones that hold up.
- Deterrent effect of different professions/institutions. Thorough RD into what is going to be the future of construction. Institutions need to come together to produce the funds for this research. The right way to chop things up changes over time/e.g. nation state. Institutions are bad divisions. Need to have a broad base and overlaid on this all sorts of specialisms.
- Where are our groupings in international rankings and how do these reflect back into our industries. Look at best practice initiatives within educational systems and build on these.
- Who is 'we'? We are going to have more diversity and this will require more and more specialists. Real skill is then how you draw them all together.
- Cohort argument. IEng are being educated together with MEng.
- UK has an anti-industrial culture. UK excels in the arts. How many head teachers with engineering degree. The better the school the better the classics degree. Not the image that is wrong, but the reality. Problem is with A levels/Scottish system better because it is broader.
- Levels of engineering/facets of engineering. Misunderstanding of various facets of engineering is barrier (e.g., you can only be an engineer if you have CEng).
- Increase in study of industry in GCSE and A level. If you want engineering PR, there is an opportunity. Problem in schools in getting industry to come into the schools and tell the story.
- Endorsement for the global view. Impact on the schools the RIBA addresses (70,000) could be remarkable in a short time.
- Little support for CFE/ more needed
- Throw point about how institutions should work together to CIC. One area institutions could work together is on the impact of IT
- Look again at Andrew Ramsay's 5 questions/ esp. what is being done on the recruitment of teachers. Universities and institutions are now in the retail trade. No one has to join an institution. Likely to happen and something you have to work around. General engineering courses are not as popular as specialist ones at universities.
- Integration has to be to the needs of the clients/not playing around with labels that are producer-driven.
- Problem with recruiting products of general degree courses and then fitting them into an institution.

Marketing for product of specialist courses is good. No one is marketing for the generalists. Registration issue. Should you register as an engineer and then look for specialist support

- We should know more about whether standard of education is about to go up or down. Universities appointing staff on basis of their research not their teaching ability.

9th Debate: Designing Tomorrow's designers

Large parts of engineering feel perpetually short-changed by the educational system since there are not enough engineers. It raises questions about the numbers of intelligent people coming into our industry through the education system. Is it a question of people with the right aptitude (in this case, to be engineers) not getting past first base?

There is another set of questions on the relative appeal of engineering as a career. Our simple 'compare and contrast' model looks at architecture and asks why are these courses over-subscribed at university and engineering not? There are many reasons for the differences, some profound and others merely cosmetic.

Speakers :	Michael Dickson	Buro Happold
	Leonie Milliner	Director of Education at the RIBA
	Sonny Masero	ABS Consulting
Chairman:	Paul Hyett	Vice Chairman RIBA Education and founding partner at Hyett Salisbury and Whiteley

Points made

- Focus on schools – Design and Technology statutory component of national curriculum – way of capturing imagination/tacit knowledge. Works esp. well for children from impoverished backgrounds. Action: Design and Technology under threat. Consumes more resources
- Design and Technology probably one of worst taught subjects. Maths and reading a structured way of thinking. Design and Technology another way – more inclusive? Prob. the way forward. Project-based learning way to get people to link things together.
- Baggage: being prepared to jettison experience and look to imagination
- Industry changes, especially procurement. Gulf between what happens in the world and in training. Far more integration needed. Particular role for institutions in this process.
- Role of engineering clubs and their capacity to make a difference. Rather than have companies sponsoring initiatives, find out which ones work and put resources into those. Tempting to leave this to the educators. Inspiration can come from anywhere. Design and Technology probably only curriculum subjects that really involves kids in project-based work. Options however can be limited, and can be taught badly.
- Modularity and interdisciplinarity two crucial elements. Difficulty in how to move to a position where these become the norms, when you have professional institutions which have such a strangle hold and force people into silos. Where do the cross connections come from?
- Engineering clubs at one level do not want to be talking about what we can do for schools, What do we want the educational system to give us at secondary school level. We say to

the universities -- do these things for us. We ask for things that are too specific. People who feed into the universities better have some skills especially working with their hands. As designers should set ourselves a brief: what are we going to ask the schools to do?

- Institutions only bringing only half the people whom are eligible to join. New emphasis of teaching engineering within a business context.
- How to broaden the membership – will effect salaries
- Career statistics (get figures from Mark afterwards). Assumed education will deliver lots of people to the work place. Not necessarily so. Effect of accreditation on new degrees and risk taking
- Institutions and protectionism. Where is the problem? Role of protection of title and function. Good and bad benefits for society.
- How to stop people from falling through the gaps. A new layer? And more flexible?
- Oxbridge view: do teach interdisciplinarity, have focus on sustainability of design. Significance of teaching management. Context is wrong and what gives? What we should be doing is post-qualification MBAs on interdisciplinary basis and in context of our working practices. Could also be done on a p/t basis. Problem in way research is assessed
- in architecture. Is harmful to the profession.
- Thinking. There is a lack of people who can lead interdisciplinary teams. Where can you place interdisciplinarians within the institution structure?
- Encourage ourselves, esp. the young, to do more teaching (and not insist on being paid for it).
- Risky thinking is the strand that connects much of the debate. Nothing to stop us from changing the assessment system, especially as we are all 'designers'. Requires risky thinking.
- Design and designers of fundamental importance for tomorrow's world. Changing order of magnitude. Architectural profession gets it right more often than not. Understand the culture of design better than engineers do. Engineering education often directed at problem solving. Creativity often hammered out of engineers in the education process.
- Training designers of tomorrow to be the financiers of tomorrow. Institutions should be working with employers to encourage employees to get out and contribute to industry thinking.
- Respect for architects, engineers and clients
- How many designers do we want or need. Has an effect on quality

Summary:

Important that making things and project-based work takes place at school. At university, engineering courses defined by institutions. Collapsing in some sectors. Should build on this collapse and open up silo. Good to agree on some statement of aim at this sort of level. We need to be able to talk in terms of specifics about the content of courses.

10th Debate: e-commerce and its impact on the City

The impact on the city as a product and a place, rather than the construction of buildings in the city as a process.

- *Is e-commerce just another new business, which like its predecessors needs space for its employees, a supportive and vibrant business community, accessible homes, relevant education and an effective transport system?*
- *Is it just the latest vehicle for investment capital to capture the minds of traditional city institutions?*
- *Or does e-commerce threaten, in some way, the structure, density, vibrancy, social cohesion, or life force of the city.*

- *If spatial the criterion of proximity is less important, does that in turn threaten the investment value of property in the city centre*
- *Do markets based on e-trade need a place in space or just a place in virtual space?*

Speakers :	Judith Mayhew	Chair of Policy and Resources in the Corporation of London, a lawyer and partner with Clifford Chance
	Dr Alexander Reid	Director General of the RIBA and an expert on the impact of telecom and IT on our cities and communities
	Charles Leadbeater	Independent writer, author of Living on Thin Air – the new Economy has been Labour editor and Industrial Editor of the Financial Times. He is a member of the Government's Competitive Council and an advisor to Tony Blair's Downing Street Policy Unit.
Chairman	Chris Colbourne	a former director of the Education Department at the RIBA, an architect and UK Director of the property company Masterworks

Points made in the debate

- Missed dimension – dynamic within technology. It will continue to change. Future of computing all about data, curation and bandwidth. There will be vast amounts of data; will not be able to hold it personally. Need communal storage. More dependent on place which can deliver access to this data.
- Distinction between physical and information goods. Different properties. When information becomes important component to economy. Affect nature of competition/ownership. Monopoly issues for info economy. Does clustering help monopolies? Are monopolies non-innovative? Dynamics of e-economy affect notions of the city.
- Another element of competition between cities. Information can flow away from you. Low value exported to poor areas – London workers in competition with workers in India.
- City of London 1/3 rebuilt since 1980 to accommodate fibre-optic technology. Idea of fragmentation into smaller units. Rather increasing globalisation. Trick for the cities is to have infrastructure concentration but looking for higher value end. People want to cluster. Importance of quality of life. Competition to be a regional base for multi-nationals. London is actually a city-state.
- Optical fibres. Not equally accessible. Not change makers. Cannot put wherever you like. Get laid where there is demand. Reinforces status quo. Fragmentation: new growth in USA is in smaller enterprise
- Social dimension: e-commerce making profound changes. Shapers for cities likely to be social needs, has been economic in the past. We need to think more closely about this. People will change more slowly than technical change.
- Brand of a city: benefit people get from working together rather than alone – the Friday feeling.
- What is shared in cities? What holds them together? When more of what we do involves creation of knowledge, public policy becomes more important. Radical often industries have radical culture are their root. New kinds of public and private. Shared space of city impacts on this. Silicon Valley – productive through shared values. End of

specialised city. Now going to have to combine different sorts of knowledge in the same space. Spaces of experience and consumption will be as important as places of production; thus bars are most important space in Hoxton.

- Knowledge – amount of data you can work with. Can test drugs electronically (?) Get vast amount of data. Can't transfer it over the network.
- When human is interacting with data, can only work at the speed of the human. Will vast data warehouses call for more fibres. Normal links enough?
- Do telecomms concentrate or disperse settlement? Both? Telecomms have concentrated finance in cities. In industry have had possibility of separately management from production functions. Where telecomms is of a standard nature, distance over which it is transported not important. Distinction between categories of information.
- Distinction between information and material goods. Information, where it is the basis for calculations – process information. How much information can people receive? Whole series of layers of information in communication/body language. Markets: place to bid for goods. IT can set up efficient markets. What is the critical size of organisation and how this relates to distribution? It is not going to affect the planning of cities very much.
- Potential for technology to generate anti-social behaviour. Mobile phones, stress of email overload. Technology does not necessarily mean happiness.
- City renewal generally produces buildings that people don't like. Might consider setting up client for body. Need one for commercial work place to look at construction industry and its clients in field of commerce esp. with e-commerce. Have meeting: 60% clients from city and 40% people from construction to exchange views, explain what is happening in construction. No such thing as systematic feedback in construction. Explore doing this.
- Do mobile phone conversations break down barriers? Mismatch (?) internet technology + couriers.
- What is the nature of designing cities? Knowledge managers an increasing breed. Professions need to think about how they are going to share knowledge, esp. across disciplines
- What is the role for institutions in the new economy? More scope for transparency and participation. How ready are they. Should they be doing something? Institutions have an historic structure and increasing moving forward internationally.
- What would institutions be like if starting over? Began with libraries fixed in space. City state. House prices rising to point of exclusion. Need to imagine some new models. For many possibility of ownership no longer a reality.
- RIBA – have been trying to transform what it does through RIBAnet. Members have new sorts of connections – return to roots/intentions? Library was inaccessible. Now available on the internet. Who should own the new databases? Public domain of knowledge has expanded. Marginal cost has dropped to nearly zero. Non-profit & commercial organisations making huge amounts of knowledge free (for different reasons?) Looked at from a social view it is wonderful. If institutions in construction industry are going to seize this opportunity impossible as 9 different organisations. Need to come together to be able to afford the R&D. Should be only 3 institutes competing with each other.
- People threatened by information. They want understanding and quickly. Now spending more time with computers. Value service even more. Range of criss-crossing experiences esp. education. Degrees less important.
- Information is not knowledge. Environments are economising on knowledge different from those that generate it. Future of city is how to create physical space that enable the new activities. These activities straddle public and private sector. Buildings that convey the new activities are important to this whole process.

- Gender issues/knowledge – is it an issue?
- Do women value face-to-face communication more?
- Is the City really the critical issue? Do we need cities? With world economy, how are we going to influence development of cities in developing world and help them avoid making the mistakes we have made? Maybe only have the cities as the meeting places.
- What about sustainability. Going into a new physically restrained environment. Transport is a constraint. With just-in-time developments, demise of owner-occupier. Movement towards industry standard is not innovative, but conservative. We should look at this.

Summary:

- City is a financial centre but then how does IT affect global issues and City does have consequences for this.
- IT will not change travel patterns means life as before for cities
- Importance of new economy — where does teaching come in, esp. manual skills to build the new future?
- Explored nature of the new technology and linked this to social needs. If IT is not affecting building form, then can concentrate on social needs.
- Do we need a forum for acceptability?
- If some knowledge is not being made free as a matter of policy
- Role for Edge esp. if there is going to be no change to cities. What happens now space under roads in city is full. Is it the right size? What is the right size?
- Dead easy to set up new bodies, but difficult to change an existing organisation such as institutions in search of a new future for themselves. Serious problem? Past has been to do with being in London. Do institutions need to develop workable regional structure, must be co-operative. At this level, users could be main focus for developing public policy.
- New sorts of building types. New ones unpopular (?) 1960s offices now desirable to live in. Supermarkets might be good entertainment centres, but will still require cars.

11th Debate: Right First Time?

Getting buildings right at the time of handover is a necessary part of the required improvement, but is this sufficient to meet customer expectations? Even the most carefully briefed, specified, constructed and commissioned building may need fine-tuning to support what the occupants really want, and to deal with any unexpected behaviour.

The idea that buildings are ready for use when they are physically complete relates to a bygone age when they were not full of moving parts and electronic systems. In addition, the time set aside for commissioning building services and controls is often squeezed to meet client demands for an early handover.

- Speakers :
- | | |
|----------------------|---|
| David Adamson | Director of Estates, Cambridge University |
| Mark Way | Director, RMJM |
| John Armitt | Chief Executive, Costain Group Plc |
| Bill Bordass | William Bordass Architects and a member of the Probe Team |
- Chairman: **Max Fordham** Max Fordham & Partners

Points made in the debate

- Total project quality: building as a project. Look at stakeholders & their performance needs. Use this for specification. Convergence of solutions. Then est. contract methodology. With shared objectives can move project forward? Need to relate performance needs to real design. Can embrace sustain. Development. Act of faith required?
- Problem with commercial drivers. Can't have advice without legal advice. Need some means of engendering trust.
- Ask for demonstration before awarding contract. Not lowest cost.
- Third parties can intervene. Have human rights. Legal challenges.
- Will it be right second time? Is brief right? Does training culture encourage collaboration? Not 'whole life' after the event. Right for whom? – user, claims dept., developer?
- Typical building: one unit to build, 5 to maintain 200 for the people. But different stakeholders.
- Question of sound management. Cost, time and quality. Established best practice for first two, not quality – possibly lawyers. Cf.: towards zero defects.
- Stakeholders -- different people will have different budgets.
- Not convinced paying more will get it right. Could be putting money in the wrong place. Why use QSs? Put money into design management co-ordination. Would see dramatic benefits. Front end expenditure. Soft landings – phased completion.
- All serious buildings should have post occupancy studies as a matter of course. Poor dissemination of feedback in industry. Begin with M4I demonstration projects. Should be a condition.
- £8000 for a PROBE study.
- In Higher Ed. Now have post-occupancy study. How do you share information honestly?
- Workmanship? Is it an issue? One of barriers is defects list mentality. Allows us to be untidy.
- DETR-funded link contract where you are contractually obliged to share faults cf.: aeronautical industry
- Main contractors probably pay sub contractors too quickly. Can't get sub-contractors back to finish the defects.
- Workmanship is process. Allow enough time to do a good job. Also, craft training.
- BRE study 15 years ago. Other side of holding retentions is that it is demotivating?
- Not de-motivating – shortage in supply of trained labour. Health and safety issue.
- Importance of feedback loop. Begin next job before feedback in. Issues: retention of staff, how to reassemble staff to get the message across? No blame culture.
- Practice can get the feedback although individuals do move.
- Problem is that none of this happens at the moment.
- Best feedback
- PROBE studies a landmark. Threat of writ not realised. Free exchange so constructive that objections disappeared. Insurers inhibit feedback. Supply side does not want well-informed clients?
- Buildings based on past experience, not an understanding of what people want/liked. RIBA should reinstate feedback as standard part of agreement. Need it as a culture of understanding.
- Not going to get total quality zero defects in this industry. Aim for something less. What about education? Could some of the post occupancy be feed back in?
- Part M removed by RIBA insurance agency. Huge push in trying to get insurers on board. They hold the knowledge of our mistakes instead of training us to do it better.
- Who does this knowledge belong to? Sectoral wisdom. Feedback belongs to the building users. Need to relate to this. No ground rules. Should put some in and see if they work. Some loops in which clients are king. Too much information?
- Are errors influence-able by feedback? What about ignorance?
- Stakeholders – don't list designers and builders as stakeholders?
- Do designers have a long-term interest in the project?
- Masters programmes are delivering a lot of this. Things happening in the newer professions if not in the great professions.
- Training: education too fast track. Training not so visible.

- Sharing risk means sharing the cost of risk.
- Capital cost is least of the problems. Client put in 3% for problems
- Little interest in 3 year warranty – building likely to be sold on in this period. Best clients, who spend massive sums, do all the things mentioned automatically. Constant feedback with other contractors. Are prepared to take much more risk.
- Pharm. Buildings have to be right. We test them. Need to know the initial parameters. Bad at this in non-complex buildings. Clients expect to pay for validation.
- 'No win no fee' should be outlawed.
- More time for design.
- RIBA insurance cannot put off if air leakage testing is implemented?

Summary

Leadership. Should it be the client? Will this mean an agent? Get too involved and then make mistakes. Become poor leaders?

How are we running the building process? Starts with the drawing. Importance of their quality. Good pipe fitters can compensate for poor drawings. Not many good pipe fitters. Can't avoid training issue. Need craft training.

Feedback: needs to be encouraged. Prior to published feedback, need people on jobs who provide it and take it from customers. Drift towards sub-contracting. Become too small for training. No more clerks of work.

Post occupancy studies:

OTHER EVENTS

Austrian Institute half day invited conference on Energy and Urban Strategies

In July last year The Austrian Cultural Institute hosted an exhibition and symposium about the influence of climate on architecture and urban design. The exhibition was a result of a collaboration between the School of Architecture and Interior Design of the University of North London and the Institut für Hochbau und Entwerfen of the University of Innsbruck. The sensitivity of the Alpine environment offered a way of focusing attention on these issues by looking at the mutual influence of micro-climates and architectural interventions, as well as global issues.

A public symposium was sponsored by the Austrian Cultural Institute, School of Architecture and Interior Design of the University of North London, The Institut für Hochbau und Entwerfen of the University of Innsbruck, The Edge and the Embassy of Switzerland. The symposium brought architects, engineers, city planners and geographers from Austria, UK and Switzerland to a stimulating debate and challenged the assumptions held in the various specialised disciplines.

International Science Festival April 2000

The Edge was invited to have a debate as part of the International Science Festival in Edinburgh in conjunction with the Scottish Institute for Sustainable Technology (SIST) and the Scottish Environment Design Association (SEDA).

Unfortunately the Scottish Executive were not able to sponsor the Edge this year but expressed their keenness to try and work with the Edge and SEDA for a future event.

Atomising Egan: Dinner with Philip Ward

The Edge looked at the big industry initiatives, the Egan Report and its campaigning arm the Movement for Innovation and arranged for a supper with Phillip Ward and with the presidents (vice presidents) of the three institutions to discuss some of the energy and sustainability issues linked to the initiatives. In addition to Edge members the following attended a meeting on 15 November 1999.

Phillip Ward	DETR
Macro Goldschmidt	RIBA President
Richard John	CIBSE
Mike Murray	AMEC
Doug Oughton	Oscar Faber
Duncan Price	Whitby Bird & Partners
Mark Whitby	ICE Vice President
David Wood	CIBSE Senior Vice President

There was some discussion as to the role institutions could play towards a wider debate and two opportunities were identified: a forthcoming Egan debate in September and the CIBSE Patrons Built Environment lunch on 21 October at the House of Lords.

Possible Future Debates

Debate No 12	The Hawley Report
Debate No 13	Railtrack and the HSE
Debate No 14	Avoiding Risk in a time of change
Debate No 15	Are Practices letting down Trades : New skills for tomorrow
Debate No 16	The New Generation: the energy equation
Debate No 17	Ownership of Streets : the community's loss of control over the spaces surrounding properties
Debate No 18	To pre-fabricate or not?

Future Events

Edge Conference Taking Urban Stock

The Edge Committee is planning to hold a two-day weekend conference, possibly at Madingley Hall, Cambridge, or the University of East London, in late March/early April 2001 as a joint venture with the London School of Economics.

The conference would be a chance for invited speakers and guests to take stock of the wider issues of sustainability and debate how to move forward in a positive way.

This conference would be all the more relevant since three of the Edge Committee members will be taking on very important roles at their Institutions. Max Fordham will be serving as the President of CIBSE, Mark Whitby is the president-elect of the ICE and possibly Paul Hyett will be the next President of the RIBA.

Appendix

The Edge way of working is finding increasing appeal. In an article Edge Member Mark Whitby was asked to write for the Royal Town Planning Institute News, the similarity between the Edge and UDAL are discussed and the point is made that this is an increasingly attractive way of working

Perspectives on cross disciplinary co-operation: The sum is greater than the parts

Mark Whitby, Senior Vice President gives a civil engineering perspective disciplinary co-operation articles

It was interesting to read John Dean's recent article on the RTPI and cross-disciplinary co-operation in the Construction Industry. That John's piece has spawned a series of articles on the subject from a number of institutions is actually tangible cross-disciplinary working in itself, and something I would encourage.

John's comments on how those professionally engaged in development and construction need each other and how the Urban Design Alliance (UDAL) model points a way forward for joint-working are very close to something I wrote earlier in the year for New Civil Engineer.

The starting point for me was to acknowledge a change in heart concerning a long-held belief of mine that there is a need to amalgamate some of the engineering institutions.

This volte-face is a result of my increasing proximity to the institutions. This has shaped a growing respect for the art of the possible, but it has also become clear to me that institutions are naturally evolving. A recent Edge Debate (itself, an inter-institutional group - www.cibse.org/edge/edge.htm) was an important step in recognising this. Frank Duffy, a past-president of the RIBA, commented on how professionals may start life in one institution but, with time, develop inter-disciplinary skills. He likened institutions to layers of a cake, with individual's professional development extending vertically through the strata.

This is the UDAL model. UDAL of course is not the only inter-institutional body –

the Joint Energy Forum is another where the Institution of Civil Engineers has a high involvement - but it is a key one where ICE and RTPI activities intersect.

What each of these represent are focused groups of multi-institutional membership. They are centres of excellence, provide a feedback system for each institution and are a single point of reference for the press and politicians. More importantly, they bring together a range of professionals around the issues, breaking down professional barriers and encouraging cross-disciplinary fellowship. Along side this they generate the need for focused communal CPD, which further brings together the professions, sowing the seeds for even greater inter-disciplinary co-operation.

I am relatively new to UDAL, but its effectiveness in this way of working was brought home to me recently when UDAL answered government's call for a meeting to discuss a paucity of urban design skills. UDAL commands high-level attention because of the constituencies it can bring together. As far as government is concerned, in talking to these groups, it is talking to all the institutions involved, and, conversely, through such groupings, the institutions are beginning to recover some of the ground lost through the fragmentation of the professions. What the government evidently enjoys is finding single sources of expert knowledge.

As John Dean mentioned, Ted Happold's CIC is a similar pan-industry body, as is the Engineering Council, an organisation "invented" by the government. Both are umbrella

organisations. In the CIC's case, its ambition is to present the views of the built environment professions on multi-disciplinary matters; but where an expert vertical organisation exists, it defers to them. The same is possibly true of the Engineering Council. What is important is that neither stifles the development of these specialist groups.

The value of expert vertical organisations, and why they have caused me to change my priorities is that, provided the vertical organisations resist the temptation to become institutions in their own right, they can bring together, foster, and influence the professions in a profound and concentrated manner. They can live whilst the need exists and fade away when they have answered industry's call. They can give reason for the existence

of the smaller more focused institutions, whilst giving a locus for membership in larger organisations. If, as I believe should be the case, they are funded after a period of fostering by the institutions by affiliation from industry, they will ultimately lead to the evolution of leaner institutions where we can all afford to belong to more than one.

A challenge we all face is climate change. It will affect our grandchildren. There is nothing more perilous that threatens mankind. Engineering without question is in the front line in this fight, and it is just as clear that we can achieve more together than we can separately. The time is now and, through UDAL, we appear to have a means of working effectively together. We need a sustainability group.

Mark Whitby becomes the next UDAL Chairman in January