

Working Paper

Report of the CRISP Design Task Group Workshop

**Held at Davis Langdon Consultancy
14 December 1999**

CRISP Management Support Unit
Davis Langdon Consultancy
Princes House
39 Kingsway
London, WC2B 6TP

Note: This report is a working paper

Design as a Value Generator
Workshop held at Davis Langdon Consultancy on 14 December 1999

CHAIRMAN

Giles Oliver

SPEAKERS

Wendy Shillam

Sue Francis

DISCUSSION GROUPS FACILITATORS AND RAPPORTEURS

Design knowledge

Facilitator Helen Sachs Rapporteur John Cole

Values and Culture

Facilitator Wendy Shillam Rapporteur Colin Gray

**Evaluation and performance
indicators for design**

Facilitator Sue Francis Rapporteur Michael Dickson

**Questioning institutional
Frameworks**

Facilitator Nirupa Perera Rapporteur Archie Russell

WORKSHOP DESIGN AND ANALYSIS

Sebastian Macmillan

1 Workshop summary

The Construction Research and Innovation Strategy Panel is part of the UK's Construction Industry Board. It has a wide remit encompassing all aspects of generating and refining the knowledge that the industry and its clients need to improve the performance of UK construction. This remit includes improving the link between industry, research funders, and the research community.

In its recent Strategic Priorities document, CRISP suggested that *design* had received relatively little attention in research and industry initiatives. It identified design as one of five broad areas of investigation:

“Design is the activity that brings together and integrates all the diverse contributions of the construction industry to produce a product that meets customer needs. It has received relatively little in recent industry initiatives. CRISP is keen to encourage research on design which is appropriate to end user needs and to optimising the construction process.”

In mid-1999 a CRISP Design Task Group was formed under the chairmanship of Giles Oliver. A review paper was commissioned to inform the members of the Task Group about available research in design. It identified and classified academic research and industry initiatives relating to construction design as a value generator, and its implications for the construction supply chain.

In December 1999 a workshop was held at the offices of Davis Langdon Consultancy to bring together thirty participants, including members of the CRISP Design Task Group and representatives from Davis Langdon Consultancy, as the CRISP Management Support Unit. Those present represented a wide range of interest groups – public sector and private sector client bodies, designers, project managers, contractors and sub-contractors, and academic researchers.

2 Workshop activities

The workshop was opened by Giles Oliver who described the remit of CRISP and set out its aims.

Wendy Shillam introduced the map which had been devised by the Design Task Group and discussed the various areas which it covered.

Sue Francis suggested a framework for assessing design quality comprising four broad issues: function, sustainability, perception and technical performance.

Following these presentations, the participants divided into four groups to discuss particular issues, and each group was set three topics:

Group A Design Knowledge

How well is our intellectual capital acquired, stored, shared and employed?
Should design be evidence-based? Is it in practice?
Are the research needs of design currently being met?

Group B Values and Culture

Is good design sufficiently valued by clients and by society?
Which stakeholders' values are embodied in the built environment?
Can legislation promote good design, should it, and does it in practice?

Group C Evaluation and performance indicators for design

How can successful design be defined – and encouraged?

Can the performance indicator approach be used to identify and promote good design?
Should performance indicators focus on process or product – or both?

Group D Questioning institutional frameworks

Does design benefit from institutional boundaries between the professional institutions?
Is interdisciplinary design important? Who champions it?
What influence are recent changes in procurement practices (design & build, PFI, prime contracting) having on design? Who gains?

Each group was asked to address six broad questions:

- Q1 The most pressing actions required
- Q2 The barriers to implementation
- Q3 Means of overcoming the barriers
- Q4 Who should initiate the action
- Q5 How could success be measured
- Q6 The role of CRISP in making the improvements happen

All the delegates were asked to fill in a Delegates Memopad in which they were to record their own responses to the six questions. Each group also elected a rapporteur to present the group's discussion to the final plenary session of the workshop. After the presentations from rapporteurs, there was a general discussion session, and the workshop concluded with remarks from the chairman.

3 Group A Design Knowledge

Question 1 The most pressing actions required

Between them, these four delegates suggest that actions are needed at all levels, both within and beyond the construction industry:

- Within the industry, closer integration among those responsible for designing, producing and managing the built environment, including a review of the traditional divides found in professional practice, is called for. The professional institutions are thought to be locked into history (delegate A2, more thoughts).
- At tertiary educational level, the separate paths taken by built environment professions should be reviewed.
- Actions should be taken to raise the awareness and understanding of design and the built environment in primary and secondary education, and among the general public.

Question 2 What are the barriers to successfully implementing these action?

Barriers in the design community were identified as:

- Separate routes within tertiary education
- Fragmentation and lack of contact between the professions, partly relating to protectionism in respect of professional knowledge, over-specialism and lack of interest and knowledge in the work of others. While specialisation is needed, mechanisms are required to effective integration of the design team.
- Division between designers and constructors is an outdated model.

The main barriers identified in the research community were:

- A general weakness of most built environment research areas compared with other disciplines
- Separate research cultures within construction that do not overlap or interact
- Architectural research almost non-existent, and what there is suffers from poor content and quality
- Engineering research too focused on methodology, with weak dissemination

Barriers elsewhere were identified as:

- Within society, poor awareness of, and appreciation of, the value and benefits of good design
- Over-specialisation in education at 16+ resulting in inward looking graduates.

Means of overcoming the barriers in the design community were identified as:

- Developing a model for valuing design as an activity
- Encouraging interdisciplinary university courses with greater breadth
- Encouraging interdisciplinary professional practices
- Breaking down the barriers between professions

Means of overcoming the barriers in the research community were identified as:

- Provision of funding that encourages innovative and creative ideas for which deliverables cannot be entirely foreseen, and for innovative interdisciplinary 'integrative' research.
- Develop a more identifiable activity within architecture that could be classified as research

Means to overcome barriers elsewhere were proposed as:

- Encouraging cross-professional institution activities/discussion
- Remove the competitive elements between the Engineering Council, ICE, CIC etc
- Improve the cultural awareness of the role of good design, through for example, road shows or interactive building design museum or centre.

Reviewing European practices and experience was also recommended to see whether lessons could be learned there.

Question 4 Who should initiate your most pressing action and who else needs to be involved in implementing it?

The responses suggest that there should be a range of initiators (and initiatives), comprising stakeholders and anyone with forward looking ideas. An impartial body with access to funding, and dedicated to exploring new ways of developing the design process is also proposed by one delegate. Collaborators should include professionals, and there should be joint activities across the professional institutions. The private sector is also identified as a collaborator that could communicate good design (and highlight problems) to the public.

Question 5 How can success be measured?

Several different ways of measuring success were proposed:

- The number of interdisciplinary professional design practices
- The number of courses that are interdisciplinary, provide breadth, and/or offer vocational training
- The number of research projects that truly contain an innovative or creative element
- Improved discourse on the value of design

One delegate recommended the establishment of criteria in various fields (aesthetic, technical, functional etc) against which to rate buildings.

Question 6 What should CRISP do now to bring about the improvements you have identified?

Non measurable success factors include cultural changes in how well design is understood and perceived, and more publicity for building projects, through media exposure and award schemes.

This group identified a variety of actions which CRISP should take:

- Encourage research councils to develop funding streams for interdisciplinary research, and that will encourage, perhaps by earmarking funding, research into innovative (design) research, new ideas, creativity, breaking the mould, – areas that may not be able to attract industry support at the early stages.
- Encourage interdisciplinary engineering and social science research by engaging with the research community in the social sciences.
- Encourage the professional institutions to stimulate and recognise broader, interdisciplinary, courses in which design is a more dominant theme.
- Explore new models for the design/construction process.
- Engage the public.

Group A - presentation by rapporteur John Cole:

We need a definition of what knowledge is. We should aim to make new knowledge applicable. Knowledge is expanding through the generation of new knowledge. Old knowledge is redundant. There is a need for more specialisation: compare medical specialists. But we shall need a gatekeeper of knowledge. Knowledge is not passed on well, nor is it stored well.

Why is this? It is a cultural problem – we have a culture of not developing design and not bringing things together. The construction industry and built environment are not prominent in this country. Compare Italy where there is a Minister for Culture and design is a way of life. There is a higher cultural awareness elsewhere. (Although the demand for good design is increasing.)

We lack tools to articulate design and communicate it.

Part of the problem arises through lack of integration in education where separate professions learn independently of each other. The structure of the industry needs to change.

Knowledge is power, it gives commercial advantage, so there is a disincentive to share it.

There is a lack of research; schools of architecture don't produce research. There is no articulation of research needs. Departments of construction management do more research, and prime contracting as a means of procurement may lead to research. But construction management research has a lower value than design research. Peer review system does not encourage radical research – we need to push out the boundaries.

The initiators need to include government, the professions, and umbrella bodies – the CIC has not yet developed into a research-promoting body. Universities have to come on board. The stakeholders in the built environment are very diverse and a new organisation is needed to represent them.

Demonstration projects have potential to establish principles, but they are inadequately studied, measured and reported. There is a schism between buildability and design. What is the relationship between following precedent and pursuing innovation?

Computers have a significant role but can have a dumbing-down effect.

In terms of measures of success, we need an evaluation matrix. The quality of the brief is crucial; if a building meets the brief it could be considered as success. We need society's brief for buildings. This could come from government. Research is needed to devise mechanisms to measure success. We don't spend enough time getting the brief right. Designers drive the solution too fast. The Japanese spend longer in planning and incubation. We need to manage the front end of the process – designers lack this ability, and a framework in which to undertake it.

CRISP should be:

- A think tank
- A facilitator
- A body that would make proposals
- A catalyst working with the professions, the industry and education to identify research areas
- A body that would argue for focused funding

Priorities should be:

- Integration across professions
- The involvement of commercial partners
- Education – to get design into schools, introduce common courses in universities
- Government – encourage the development of a government policy on design
- A national centre where the public could experience the products of the built environment

4 Group B Values and culture

Question 1 What is the most pressing action that needs to be taken to improve the current position?

Unfortunately this group had only two delegates plus a facilitator and only two Memopads were collected from the group. The most pressing actions identified were:

- To change the way institutions make valuations – by raising the cultural discussion.
- To ensure value is measured in terms of clients and society.
- To develop benchmarks for design.

Question 2 What are the barriers to successfully implementing this action?

Several barriers to implementation were identified within design, within research and elsewhere: Barriers in the design community were identified as:

- The intrinsic nature of the process
- The confusion between design, design process, management and practice management.

The barriers in the research community were identified as:

- The different timescales between industry and academia
- The small size of the design research community.

Barriers elsewhere were identified as:

- Planning policies
- Institutional barriers
- Cultural barriers, particularly that other countries value design more than UK.

Question 3 How can these barriers be overcome?

Means of over barriers were identified as follows:

- Barriers in the design community – by focusing on design skills and the full contribution of design as an integration of knowledge.
- Barriers in the research community – by operating a Specially Promoted Programme for design research
- Barriers elsewhere – by identifying a political champion for design who would raise expectations; and by introducing a system in which valuations were of the use-value of a building rather than the bricks and mortar.

Question 4 Who should initiate action and who else needs to be involved?

Only one real response was recorded here – and it suggested that real-world projects needed to be studied over a long time scale, longer than the traditional two or three year research grant. Demonstration projects were also cited.

Question 5 How can success be measured?

Measurable success factors were identified as an increase in stock market value, while non-measurable factors include public acclaim and the vision of a client. Under ‘more thoughts’ it was noted that firms in the USA have done research into what affects the value of assets.

Question 6 What should CRISP do now to bring about the improvements you have identified?

Here the actions for CRISP include:

- Review investors’ value systems.
- Identify ways to isolate the value of design.
- Test the assertion that institutions produce barriers to innovation.
- Involve the British Council for Offices.
- Involve the Investors Property Forum, which has researched investment criteria.

Group B – presentation by rapporteur Colin Gray

[Note: this section has been supplemented by notes taken during the group session.]

How do developers value design? How are values determined? The predominant value is economic/financial. The institutional view dominates. And institutions are a barrier to change – for example the valuation system in use takes account of only certain limited values. But there are changes in the wind, for example from the USA. PFI is looking at the utility of buildings.

Government suffers from having people who value a low design fee. PFI is constrained by this. In the private sector values may be broader – for example, the private sector may recognise the value of attractive entrance halls, which is difficult to measure with current institutional methods.

How can you measure the value? We are poor at measuring our buildings, including from the perspective of occupiers and users. We should remember that we are not providing a building, but a means to an end – a tool clients use to support their business.

Planning is an issue. The planning culture of society at the local level are seen as an issue and form a barrier to how design is put in place.

The British Council for Offices Finance Investment Committee would want to be involved in this design research. The Investment Property Forum have researched investment criteria.

Government needs to ensure investors’ criteria are broadened. Legislation can inhibit innovation. There is a need to change the attitudes of those in Local Authorities and government. Planners often see themselves as policemen rather than enablers. We need to help people find their way through the legislation. Legislation is not necessarily at fault – it is how the legislation is used by the authorities. Perhaps we need an award for those in Local Authorities who have helped.

Areas of study should be:

1. To provide measures of value, as aspects of the design process, specifically:

- The values of users
- The value which society puts on design

To do this we have to isolate the design variable in construction.

2. The effect of legislation on design, particularly planning.

Supplementary notes made by the Group B facilitator were as follows:

We tend to look at best practice – but we should look at exceptions and aberrations.

Research is traditionally aimed at contributing to knowledge, but in this case it should generate a greater understanding.

Design is generated and set at the upstream end, i.e. linked with cultural environment.

Value systems – he who pays the piper calls the tune – government, pension funds, merchant banks, individuals.

Innovation is risk.

Comparison of government PFI with industrial/commercial PFI – standards will be very different.

PFI makes us think about the long term.

5 Group C Evaluation and performance indicators for design

Question 1 What is the most pressing action that needs to be taken to improve the current position?

The pressing actions proposed were:

- Defining what is a successful design.
- Breaking down the barriers between disciplines and identifying design attributes used by each discipline.
- Disseminating instances of good design – where the criteria for assessment are made explicit and understandable to the community outside the design community.

Under more thoughts the following ideas were proposed:

- Examine why ‘successful’ projects get awards – what are the factors that distinguish them from the also rans? Are they aesthetic appeal; functionality; ease of realisation; innovation; answer to brief; shared value in ‘concept’ and realisation; occupational delight?
- The attempt is to change and develop overall value systems; those articulated by local communities, clients, politicians, the media and those engaged in cultural activity (film, video, theatre, literature).

Question 2 What are the barriers to successfully implementing this action?

Linking together the identified barriers in the design community, these may be summarised as:

- Absence of shared design language or representations of both process and product.
- Solo mentality among designers.
- Designers discomfort with reaching definitions - combined with mystification in the discussion on design.
- Lack of interest (among designers?) on the impact of design on the wider community.
- Unwillingness to hand on the baton from generalists to specialists.
- Lack of strategic design sense among specialists.

Barriers in the research community were identified as:

- Uneven understanding of the link between product and process.
- Little research into design method in building/planning and construction.
- Absence of empirical evidence-based research in schools of architecture and design.

Barriers elsewhere were identified as:

- Absence of basic design awareness in the community.
- Absence of public debate about design criteria.

Question 3 How can these barriers be overcome:

Means of overcoming barriers in the design community were identified as:

- Specialist education linked to interdisciplinary understanding
- Better development of shared design representation
- Appropriate recognition of all disciplines that contribute to design
- Articulation of the value brought to the product by each party – in simple language.
- Promotion of interdisciplinary activities within design education.
- Promotion of active debate between those within design and those outside including media commentators and building users – and media coverage.
- Greater publicity for design and the gains to be had from good design.
- More involvement and understanding by designers of clients’ requirements.

Means of overcoming barriers in the research community were identified as:

- Reviews of evaluation in design and art education.
- Gathering of empirical evidence of the impact of built projects – on the media, politicians, and individuals.
- Through consideration of what terminology is appropriate – for example, by arranging workshops where only those that are not involved in the research world are invited.

Means of overcoming barriers elsewhere were identified as:

- Through feedback and measurement of success/satisfaction on every product.
- By disseminating more widely the value of good design by citing the multi-valent effects of good design on processes, people’s lives, cost in use, the evolution of townscapes, and the development of local economies.

Question 4 Who should initiate your most pressing action and who else needs to be involved?

Initiators that were identified were:

- CRISP – which should direct the attention of Government to make a link between construction and social research.
- The construction industry – which should understand and work with a range of wider outcomes, such as social, cultural, functional, environmental, and economic.
- A Minister of Culture, working with national and local media, local politicians and local organisations, in attempts to evolve overall value systems.
- A cross-industry body (perhaps government led – being independent of the professions) that would undertake research and promote good practice.

One delegate suggested that all participants in the process should be collaborators. More specific suggestions for collaborators included:

- Architects – who have to understand what other disciplines do.
- Other disciplines who should try to understand the complexity of the design process, particularly in the intangible areas.
- Advisors, locally and nationally.
- Educators.

Under ‘more thoughts’ the following suggestions were made:

- Clients must all measure outcome – Owner/User/Developer/Neighbour - and ask all parties of their design and construct team to do it also.

- Local debate needs to be encouraged. Conflict and debate is not always negative about design if those involved in design and construction engage with it.

Question 5 How can success be measured?

Measurable success factors were identified as:

- The development of client satisfaction surveys, and the agreement of a set of measurable statistics, such as user satisfaction indices.
- Shifting the behaviour of government as client so as to encourage design, and allow time in the funding and commissioning process for good design to be realised.
- The development of design criticism applied to the products of the mass housebuilders and housing associations.
- The adoption by design and build of design values and aims, and an allowance of time and funding to ensure good design is realised.
- Emulation of building awards systems and adoption of the architectural schools assessment systems.

Non measurable success factors were identified as:

- Empirical social science measurements.
- An increase in the commitment to design by clients and the public at large.
- The adoption of ethical, sustainable policies by all parts of the construction team.
- A decrease in alienation from buildings by i) building workers, ii) design professionals, iii) building users, iv) local communities.
- Improvement in the care of the built environment by the community.

Under more thoughts, one delegate listed the following factors for measuring success:

- **Cultural Social:** Aesthetics, Appropriateness to Community, Meaning, Delight.
- **Utility Value/Technical Performance:** Customer Satisfaction, Buildability, Efficiency, Nett/Gross, Spatial Quality, kWh/sqm/year + CO2, Waste, Comfort through seasons.
- **Economy & Sustainability:** Whole Life Cost, Economic Life Span of Components, Rental (£/sqm) Cost (£/sqm), Occupational Productivity, Running Cost (£/sqm), Environmental Impact (Biodiversity, Global Climate Effect (CO2), Depletion of Resources).

Question 6 What should CRISP do now to bring about the improvements identified?

Three delegates each suggested actions. In summary there were:

- Report workshop highlights to government.
- Mobilise CIC as an umbrella body to take on this study.
- Activate the main professional institutions.
- Liaise with EPSRC to discover common links.
- Establish contact with 'design methodology' experts
- Formulate methods for defining 'good design'.
- Support new research into the evaluation of good design.
- Disseminate information about CRISP's work within and beyond the construction industry.
- Help government set up a unique independent cross-industry body on design in the built environment.
- Stimulate an ordered informed debate on design method for the built environment which should lead to research in this difficult across boundary field.

Group C – presentation by rapporteur Michael Dickson

[Note this account is based largely on the notes which Michael Dickson himself wrote up and returned after the workshop.]

The group responded positively to the diagram "Design Research Realms" linking process, value systems and product and believed it enabled design performance to be measured. Measurements should range from the basic aspects of heat, light and space requirement through to the higher psychological needs of spirituality and assessment by the public at large and peer group.

The group worried about the term indicator being referred to design performance, since it believed that such assessment needed to blend together issues in the conceptual stage of architecture (with a small a) with the practical issues of functionality, behavioural issues, and those of aesthetic appeal and delight.

They felt that the existing KPI's capture those things which can be readily measured in the construction process well, but did not address under cultural issues.

Setting indicators at the briefing and feasibility stage which capture different points of view is difficult, but is essential if what the project is being asked to do is to be clearly understood.

Comparison of construction with manufacture was thought to be crass - in that the level of market research undertaken prior to the construction of, say, a car is substantially greater and better targeted than that for products arising in the built environment.

Question 1

How can successful design be defined and encouraged? The following points emerged:

- The key was the dissemination of instances of successful projects by writing up research and awards etc.
- This should aim to make explicit value systems and match them between different players.
- Articulation of "formal" versus "informal" processes was required.
- A better understanding of the relationship of appearance to underlying satisfactory functionality was required.
- Addressing of cultural issues and capturing of different views of parties is difficult, but is needed.
- Start by gathering empirical research to look at impact of changing points of view in the industry.

Question 2

Can the performance indicator approach be used to identify good design?

- Yes if they blend together conceptual architecture and practical issues.
- Yes, if they articulate what it is that all parties are asking the project to do.
- Existing KPI's capture those things that are readily measured.
- New social science methods of gathering empirical research to help evolve 'performance' into less intangible understanding
- The diagram "Design Research Realms" is great in articulating the performance indicator approach
- One area of work should be to identify pockets of knowledge which could be brought together to make the indication process less informal. (Juries, Awards, Competition Judging).
- Recognition that the "process" to produce a product needs an "informed" client.
- Break down barriers by using language between client and all parties to which all disciplines can contribute.

Question 3

Should performance indicators focus on process or product or both?

The process for realisation needs to be separated and is well commenced by the M41 process. Whereas the conceptual to usage linkage of the product is less understood. We need to link the design process to the product.

Cannot guarantee product without having explicit approach to process.

Ability to manage the "process" between all parties is the catalyst to release new energy. The application of performance indicators would improve this.

6 Group D Questioning institutional frameworks

Question 1 What is the most pressing action that needs to be taken to improve the current position?

Across the delegates in this group, the most pressing actions were identified as:

- Better communications and interrelationships between professionals and specialists, and between design and manufacture.
- Better frameworks to encourage this communication.
- Better acknowledgement of the contributions and roles of their respective activities.
- A more inclusive definition of the 'industry' to include professionals, contractors and builders.
- Higher standards in education
- Wider recruitment in the industry from a wider cross-section of society.

These would demand changes within both design and research communities, and within government, the professional institutions, the universities, and the industry.

Question 2 What are the barriers to successfully implementing this action?

The barriers within the design community identified by delegates are:

- Contractual relationships
- Clients' attitudes towards risk (risk aversion) and towards the team
- Barriers between the professional institutions
- Exclusion of sub-contractors from the design process, arising from present contractual framework

The barriers in the research community were identified as:

- Lack of cross-disciplinary and multi-disciplinary research.
- Loss of sociological research traditions
- Divisions between the research councils – with design falling between stools
- Pressures caused by the frequency and demands of the universities' Research Assessment Exercise

Question 3 How can these barriers be overcome?

Means of overcoming the barriers in the design community were identified as:

- Project based insurance, by clients
- Restructuring of the insurance product
- Shared CPD across the industry, not just professionals
- Common education programme for construction professionals
- Improved teamwork practices and development of interpersonal skills
- Full employment of design specialists throughout the project
- Risk management

Means of overcoming the barriers in the research community were identified as:

- Improved funding for multi-disciplinary research
- Funding for long term studies of buildings in use
- Better dissemination of positive results
- Comparison of results with other sectors

Question 4 Who should initiate your most pressing action and who else needs to be involved in implementing it:

The following initiators were proposed:

- Government, which should give a lead.
- Clients, in terms of procurement
- The industry regarding knowledge and CPD.
- The institutions.
- Industry bodies, including CRISP.

Collaborators were proposed as:

- Professional teams
- Specialist contractors
- Education bodies.

Question 5 How can success be measured?

Replies began to reduce at this point. Measurable success factors only were identified, and these were:

Evaluations of projects by occupiers in the short, medium and long term.
Alternative frameworks.

Under more thoughts, one delegate proposed analysing the interface between the process and the product. Did the builders and skilled tradespeople care about producing the building? Was it a happy site? How does the process affect sustainability and long term maintenance?

Question 6 What should CRISP do now to being about the improvements you have identified?

Only one delegate proposed any actions, as follows:

- Collage alternative contractual frameworks
- Include a European/global dimension.

Under more thoughts, one delegate proposed that sociologists should look at production relations in construction, noting that this needed to be undertaken from an independent perspective and that research funding to investigate and monitor innovation is frequently tied to market constraints.

Group D - presentation by rapporteur Archie Russell

We need to address the boundaries. Are institutions part of the problem or part of the solution? If there were greater understanding of how the different groups operated that would be a good thing. We all had cultural baggage in our group. We discussed how professional perspectives affect views. Changes within the construction process are difficult. How can these be modelled to show ways of working? We have to cope with changes in procurement – within clients and at the contractual end – and here we are in the middle.

How do we relate to clients – and whether they were powerful or rich or powerful & rich?

There aren't any slick answers.

We strayed onto risk management and PI insurance; litigation can have a significant effect.

We noted the huge value of mutual trust between client and consultant; in that environment it is more easy to produce a good product.

International comparisons are valuable. There are differences between how we work here and what happens across the Channel. How do different things happen as a result of contractual differences and attitudes?

Research is deficient in this area: but it needs to be harnessed. Government, the institutions, and universities all have a role – although heaven help us if civil servants are let loose on design criteria.

We also discussed a compulsory period on site for those entering the professions.

Above all, communication has a key role.

Following the workshop, the Group D facilitator sent a set of notes of the Group's deliberations:

Question 1. Does design benefit from institutional boundaries between the professional institutions?

Question 2. Is interdisciplinary design important? Who champions it?

Question 3. What influence are recent changes in procurement practices (design & build, PFI, prime contracting) having on design? Who gains?

There appeared to be a consensus on the first two questions posed: no, design did not benefit from institutional boundaries and yes interdisciplinary design was important - the supplementary question of who champions it was not addressed.

These issues and the third question were addressed by considering the barriers that institutional frameworks present.

Barriers:

- *Contracts and contractual relationships: The way in which risk is apportioned and the fragmentation of the design and construction process were mentioned as barriers. The latter was seen as both a process issue and a function of the contracts used.*
- *Process: Separation of design and construction processes was seen to lead to inappropriate design solutions which were difficult to resolve further down the supply and construction chain. The late involvement of specialists in the construction process and poor communication between design and construction teams were seen as barriers.*
- *Professional institutions: Generally the comments were uncomplimentary. The professions were seen as too parochial and as a barrier to change. The question of whether the professions had a role in developing the knowledge base and setting standards was (barely) acknowledged. Aspects of the structure of the professions in Germany were cited by way of comparison.*
- *Education: Specialist education was seen as a barrier. Although the need for specialists was recognised it was felt that interdisciplinary skills and particularly interpersonal skills were given inadequate attention. Whether the knowledge base within specialist areas is adequate was not questioned and was taken for granted. It was suggested that the*

educational background of design professionals was very different from that of construction personnel and that this represented a barrier to effective communication.

- *Research: It was suggested that the structure of research funding was not conducive to multidisciplinary research or research that cut across specialist boundaries.*

The first three issues are seen as barriers within the design community, the last within the research community and the penultimate – education – as a shared field.

Most pressing actions:

- *Promote better communication and more integrated design and construction teams – i.e. change traditional processes.*
- *Place greater emphasis on multidisciplinary education.*
- *Fund more research into the sociological dimensions of design. It was accepted that relevant research might exist in other fields but the emphasis was on research carried out in the area of the “built environment” – i.e. research within the Value bubble in our diagram.*

Overcoming the barriers:

- *Institutional reform: [professional institutions in this context] considered necessary but vague on the nature of the reform required. Much closer co-operation between the professional institutions was thought desirable. An overarching body representing all the institutions was suggested. The possibility of the CIC taking on the role was suggested.*
- *Shared CPD was considered to be an effective way of increasing cross boundary understanding.*
- *Research – better modelling of roles and relationships in the process.*

Initiators:

The group seemed unclear about who should initiate the actions suggested. Government was seen to have a role in terms of education policy and research funding but generally the emphasis seemed to be that the initiatives should come from the designers and constructors. It was considered wrong to expect clients to take the initiative.

The role of CRISP was not addressed.

7 Views of the Design Task Group Chairman

The Design Task Group Chairman visited each of the Groups during the breakout sessions, and both he and the MSU representative completed a Delegates Memopad (see Appendix A).

The views of the Chairman were as follows:

The most pressing action was systematic post occupancy evaluation research across all principal building sectors. The design community and the research community should both prepare criteria, and there should be government sponsorship of an independent body. The barriers in the design community are twofold: a) liability insurance, and b) appointment limitations. Barriers in the research community are: a) funding over an adequately long time span to capture a range of values, and b) suitable ‘confidentiality’ methods. Other barriers include competitive advantage being threatened by disclosure, and concern over clients’ interests; which might require legislative pressure to overcome.

He suggests that client-focused education modules within all existing design professional degree courses are needed in design, while in the research community interdisciplinary co-operation are essential to capture the full range of post occupancy values and factors. A jointly funded post occupancy research institute that commands industry wide, and public, respect, would overcome some of the barriers. He envisages that the formulation of acceptable criteria could take ‘at least a decade’ to establish, but once established in one sector, the perceived advantages for briefing and procurement would drive development in other sectors.

He believes that research into international best practice in post occupancy evaluation by a number of co-ordinated commissions should be initiated. Government should 'represent' this demand to all interested parties. All appropriate research disciplines should collaborate in this research. In this way a culture change would be initiated with post occupancy evaluation seen as the norm rather than the exception. It would comprise a cycle of activities: conception – design – construction – in-use – assessment, and with intermediary feedback from all stages.

Measurable success factors would be:

- User satisfaction.
- Buildings that exceed expectations.
- Explicitness in setting out factors for success
- Non measurable success factors would be the stimulation of a wide debate about subjective criteria.

His recommended actions for CRISP are:

- Identify adequate/promising initiatives.
- Expose weaknesses in 'knowledge base'.
- Establish comprehensive sector definitions for built environments.
- Promotion of industry-wide discussion of these issues with intention to achieve appropriate research. Feedback on take-up/emerging best practice.

Under more thoughts he considers that post-occupancy evaluation should become an expected industry quality control standard, with sectoral refinements and adjustments. This then empowers all to contribute while focusing existing specialists' strengths.

8 Concluding discussion session

The following contributions to the discussion were noted:

Common themes seem to have emerged, such as the separation of the different professional institutions. The silo effect is not a good thing. How can it be overcome? (Guy Russell)

Identifying recommendations for CRISP may be the most difficult bit of the workshop. (Sebastian Macmillan)

There is a clear role for CRISP, whose task should be pulling information together. (Robin Nicholson)

We need to help define research themes – rather than defining problems. Our aim should be to say something new, such as identifying innovative processes. (David Gann)

Funding arrangements do not encourage multidisciplinary research. (Nirupa Perera)

We should look at the way projects work – studies of building in use needs to be pulled out. (Wendy Shillam)

Could CRISP be looking at a strategy for research? (Graeme Baker)

We should do long term research on real projects, but the research culture of funding organisations precludes this, with two or three years as the maximum research period. (Colin Gray)

CRISP tries to identify areas where there are knowledge gaps and influence funding bodies to support research to fill those gaps. CRISP should express an industry view of where they

should put their research money, particularly to influence them at the strategic level. (Graeme Baker)

Institutions often dictate, for example, valuations are done using a tick-box method, an old-fashioned but pervasive approach. And the regulations of institutional investors have followed the institutions. CRISP should encourage research that would examine and question the institutions, and help to replace those old-fashioned assumptions.

Answers will not come from the traditional places. Research strategies will need teams drawn from various different disciplines, for example, sociologists, political scientists.

Education is still locked in to structures that work against change and interdisciplinarity; the professional institutions need to be more open-minded.

We need to respond to all relevant research bodies. Doing research is necessary but not sufficient – the real task is knowing what you want and motivating industry to pull the work out and apply it. (Giles Oliver)

The CIC should aim to encourage interdisciplinary working.

We need to focus on roles and methods of achievement. The Movement for Innovation has a host of projects at the demonstration stage. Clusters work well; projects are visited on a regional basis. Drawing the knowledge together and getting it out in a usable form is the problem. Could the M4I monitoring role be developed further? (Robin Nicholson)

The Housing Forum's demonstration projects need to be drawn out more. We need to be able to monitor matters effectively. (David Gann)

The briefing process needs to be addressed – how can this be expanded? A programme of issues needs to be drawn together. (Michael Dickson)

We should pull matters together so as to make the maximum gains. (Giles Oliver)

We should aim for research to be drawn through more into the industry. (Sebastian Macmillan)

The financial contribution to research is often in-kind so is difficult to measure. (Giles Oliver)

Leadership will be an issue and this needs to be exposed: who will drive it forward? Appropriate champions will be called for. (Guy Russell)

APPENDIX A

Delegates' responses to questions set in the Delegates Memopads

Background

Workshop delegates were split into four groups. Each group met in a breakout group session. Groups were asked to focus one of four specific areas of design. Three challenging issues were raised to stimulate discussion within the groups:

Group	Key issues
A Design knowledge	How well is our intellectual capital acquired, stored, shared and employed? Should design be evidence-based? Is it in practice? Are the research needs of design currently being met?
B Values and culture	Is good design sufficiently valued by clients and by society? Which stakeholders' values are embodied in the built environment? Can legislation promote good design, should it, and does it in practice?
C Evaluation and performance indicators for design	How can successful design be defined – and encouraged? Can the performance indicator approach be used to identify and promote good design? Should performance indicators focus on process or product – or both?
D Questioning institutional frameworks.	Does design benefit from institutional boundaries between the professional institutions? Is interdisciplinary design important? Who champions it? What influence are recent changes in procurement practices (design & build, PFI, prime contracting) having on design? Who gains?

Within this framework, each of the delegates was asked to fill in a pre-prepared Delegates Memopad that asked for responses to six questions:

- Q1 The most pressing actions required
- Q2 The barriers to implementation
- Q3 Overcoming the barriers
- Q4 Who should initiate the action?
- Q5 How can success be measured?
- Q5 The role of CRISP in making the improvement happen.

This appendix presents a table of the responses, group by group.

Group A Design knowledge

This group was asked to discuss the following topics:

- How well is our intellectual capital acquired, stored, shared and employed?
- Should design be evidence-based? Is it in practice?
- Are the research needs of design currently being met?

Question 1 What is the most pressing action that needs to be taken to improve the current position?

Delegate	Most pressing action	Inside the design community	Inside the research community	Elsewhere	More thoughts
Alwani-Starr	Education integration	Yes	Yes	General public	
Croll	Develop policies, practices and structures that will help move towards a re-integration of the players involved in the propagation, development, and application of 'design knowledge' in the construction sector.	Yes	Yes		Professional institutions locked into history no longer providing the appropriate support. Education has major problems, particularly for the 16-22 range which currently discourages integration of the knowledge/understanding needed for construction. Research also has major problems (see reply to Q2. General lack of cultural awareness of the role and importance of design in the built environment.
Gann	Encourage people in all parts of the 'design/production/service' industry associated with the built environment to think innovatively about integration without losing technical rigour.	Yes	Yes	Yes (not specified)	From a cultural point of view, we need to encourage a better assessment and understanding and love of design among the general public.
Ween	1 Review the existing traditional world of working – architect/QS/engineer + client + construction industry. Need an integrated model. 2 Need to get design and built environment awareness into all levels of society – through schools – at the very beginning – primary schools. 3 Universities to review traditional delineation of the professions.		Yes	Yes – education: schools and universities	

Question 2 What are the barriers to successfully implementing this action?

Delegate	Barriers in the design community	Barriers in the research community	Barriers elsewhere	More thoughts
Alwani-Starr	<ol style="list-style-type: none"> 1 Professional history 2 Education 3 Design of construction process 	<ol style="list-style-type: none"> 1 Rapid loss of independence 2 Funding 	<ol style="list-style-type: none"> 1 Education 2 Appreciation of the value of design 	
Croll	<ol style="list-style-type: none"> 1 Fragmentation of all professional groups involved in the design process. Divisions between the designers and the contractors/builders. 2 Too few share the same building and even more important too few share the same coffee facilities. 3 Competitive advantage works against lateral collaboration. Knowledge is power problem. 	<ol style="list-style-type: none"> 1 Construction sector players have extremely different research cultures that do not overlap or interact. 2 Architectural research is almost non-existent. 3 Engineering research overly dominated by too-focused methodologically driven research – no points for sharing with others. 	<ol style="list-style-type: none"> 1 Professional institutions too often are more concerned with maintaining membership lists than developing appropriate links and dialogue with cognate professions. 2 Education at 16+ is too focused working against breadth in individuals; this becomes reinforced by FE and HE courses that have become too inward looking. 	Specialisation is needed, but mechanisms needed for more effectively integrating them into the design team.
Gann	Over-specialisation and lack of interest/knowledge in work of others. And problems in understanding how to appropriation appropriate time for front-end decision making.	Over-specialisation, weakness of most built environment research areas compared with other disciplines, poor content and quality of research in architectural area.	Poor social awareness of ‘good design’ benefits.	Need to understand ‘innovative practices’ overseas. Need to understand ‘innovative practices’ in other sectors and assess these for lessons for built environment.
Ween	Professional protectionism. Outdated model for the design and construction industry.	Architects don’t produce any research.	Society not equipped with the tools to evaluate the built environment.	

Question 3 How can these barriers be overcome?

Delegate	Overcoming barriers in the design community	Overcoming barriers in the research community	Overcoming barriers elsewhere	More thoughts
Alwani-Starr	Develop a model for valuing design as an activity.	Provide funding for this type of research.	Education.	
Croll	Encourage more inter-/cross-disciplinary practices. Encourage the developing of more university courses that have a greater cross-disciplinary base and greater breadth.	Vital that research funding has an identifiable stream which encourages innovatory/creative ideas that may not be at a stage for which a detailed work plan can be prescribed, or for which deliverables cannot be prescribed. Develop a more identifiable activity within architecture that could be classified as research – could be developing more effective evaluative methodologies for assessing design.	Encouraging cross-professional institution activities/discussion. Remove the competitive elements between say the Engineering Council, ICE, CIC, etc. Improve cultural/public awareness of the role of good/bad design. Why not an activities/tactile driven centre which could help develop and understanding of the design process – this could be a design equivalent of the ‘Launch Pad’ at the Science Museum.	
Gann	Break down barriers! Don't tolerate old language and practices. What value do professional boundaries add? Technical rigour and focus. If they go beyond this they become part of the problem.	Provide and encourage space for new innovative interdisciplinary ‘integrative’ research.	Road shows a good thing.	Get BAA to sponsor a design centre in its airports.
Ween	Change in the educational model of training designers.		Look at process persons: in Europe where the architect's role is less ??? the result is not a lack of good architecture.	Good design is a response to a good brief – the skill of developing the brief needs exploring. The client needs education!

Question 4 Who should initiate your most pressing action and who else needs to be involved in implementing it?

Delegate	Initiator	Collaborator	More thoughts
Alwani-Starr	Stakeholder	Professionals	
Croll	No one initiator, but rather a broad range of initiatives that would need to be taken if greater integration is to occur.	Professional institutions, IStructE, ICE, RIBA, etc need to generate more joint activities, encourage new/relevant educational developments at FE and HE. At present structures discourage broader more integrative university courses.	
Gann	Anyone with forward looking ideas.		
Ween	Need for an impartial body, with access to funding, to sponsor exploring new ways of developing the design process.	Involve private sectors (shops and fabricators) to communicate good design (and highlight problems to the public).	Change the process of awarding projects to architects – COMPETITIONS – get away from the current situation of all big projects going to the ‘top line’ stable. Have competitions which encourage collaborative working.

Question 5 How can success be measured?

Delegate	Measurable success factors	Non-measurable success factors	More thoughts
Alwani-Starr	Value for every scheme must depend on a stakeholder		
Croll	Monitoring the numbers of professional practices that are interdisciplinary and/or bring together design/build. How many university courses break away from the British Standard mode and ensure that accreditation bodies do not discourage change. Need courses that provide greater breadth. Need more courses that are vocational and provide training. How many research grants are given to projects that truly contain an innovatory/creative element in engineering, and in architecture whether any research projects can be developed.	Cultural changes as to how design in construction is understood and perceived.	In engineering the SARTOR requirements recently introduced by the Engineering Council were intended to create diversity in engineering education (i.e. to bring back more courses that involve more vocational elements to replace the loss of traditional apprenticeships, sandwich courses, etc) but appear to be having the opposite effect. Universities would rather close Engineering Departments than put on non-Chartered Engineer courses. Need to break down the status structures that discourage the development of diversity in Engineering Education.
Gann	A better discourse on the value of design.	Aesthetics.	Leave room for innovation. Sometimes novel ideas (by definition) cannot be measured.
Ween	Establish criteria (in all fields – aesthetic/technical/functional etc) against which to measure the success of projects: ratings for buildings.	Consult public. More journalism, TV, public debate – Booker type prizes for projects to generate debate.	

Question 6 What should CRISP do now to bring about the improvements you have identified?

Part A CRISP's role

Only one delegate (Gann) identified a specific role for CRISP when he said: "Encourage government to sponsor a fund of research for more adventurous, innovative research across disciplines. Help identify new research themes and show that more of the same is not an option."

Part B A five point action plan for CRISP.

Delegate	Action 1	Action 2	Action 3	Action 4	Action 5	More thoughts
Alwani-Starr	Recommend the earmarking of funding for innovative research.					
Croll	Encourage research councils to develop more funding streams for interdisciplinary research work across the construction industry.	Encourage research councils to have funding streams that will not discourage new ideas, innovation, creativity. These may not be able to attract industry support at the early stages.	Encourage professional institutions to stimulate and recognise interdisciplinary/broader courses in which design is a more dominant theme.			
Gann	Argue to create space for new knowledge development.	Help encourage ideas for themes that break the mould.	Focus on 'integration' and education process.	Raise awareness of constraints to new ideas (e.g. professional structures etc)	Engage with new research community, e.g. in social sciences, to encourage integrated interdisciplinary engineering and social science research.	Do not compromise on quality.
Ween	Address education	Explore new model for the design/construction process.	Engage the public.	Develop strategy for change in the process		Fund experimental models for design development and collaboration – to explore new ways of doing things.

Group B Values and culture

This group was asked to address three issues:

- Is good design sufficiently valued by clients and by society?
- Which stakeholders' values are embodied in the built environment?
- Can legislation promote good design, should it, and does it in practice?

Not yet incorporated comments on back of Wendy's pages.

Question 1 What is the most pressing action that needs to be taken to improve the current position?

Delegate	Most pressing action	Inside the design community	Inside the research community	Elsewhere	More thoughts
Gray	Produce definitions and measure value in terms of clients and society. Differentiate the markets. Develop benchmarks – UK and international	Yes	Yes	Society must debate the issue of what it wants.	What is the value to UK PLC of the UK design contribution? This can be exploited as both a restraint/cost on UK business or as an export advantage.
Shillam	To change the way institutions value land through education and by raising the cultural discussion.			Clients, society, institutions arrogant designers.	

Question 2 What are the barriers to successfully implementing this action?

Delegate	Barriers in the design community	Barriers in the research community	Barriers elsewhere	More thoughts
Gray	<ul style="list-style-type: none"> • The intrinsic nature of the process. • The reliance on 'good' people. • The confusion between design, design process, management, and practice management. 	<ul style="list-style-type: none"> • Difficulty in accessing a large enough academic community in design. • Research of 'commercial' issues. • The different timescales between industry and academics. 	<ul style="list-style-type: none"> • Planning policies. 	
Shillam			Institutional – finance evaluation, but it is breaking down. Cultural barriers – why do other countries value design more.	Government attitudes. Power (or not) of occupiers.

Question 3 How can these barriers be overcome?

Delegate	Overcoming barriers in the design community	Overcoming barriers in the research community	Overcoming barriers elsewhere	More thoughts
Gray	<ul style="list-style-type: none"> Focus on design skills and the full contribution of design as an integration of knowledge. 	Linking EPSRC/ESRC funds – not limiting to design researchers. Specially Promoted Programme in design methodology research.	Political champion of design with a clear brief. Fed down to the local level. Raise expectations. Politics linked to urban disaster – e.g. 1.2m homes in Home Counties causing a negative feeling towards design and construction.	
Shillam	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> 	Valuation of use of building rather than valuing the bricks and mortar. Appetite of the city to value real yields.	Legislation does have an effect – but better to change the attitudes of those in local and national government. We need officers who can help people find their way through the legislation.

Question 4 Who should initiate your most pressing action and who else needs to be involved in implementing it?

Delegate	Initiator	Collaborator	More thoughts
Gray			
Shillam	Can educators help – no. We need to study real projects – longer term research funding. Use demonstration projects.		Quantifying value changes – client, occupier, society. Sharing business goals. Stock market is backing development companies differently – the old ones are losing value, the new ones like Trillion are taking more risk and generating higher returns.

Question 5 How can success be measured?

Delegate	Measurable success factors	Non-measurable success factors	More thoughts
Gray			
Shillam	Increase in stock market value.	Public acclaim. Vision of client, e.g. Stuart Lipton.	Non-British – Japan, US – these influence our ideas. There needs to be a recording of evidence of change. Where is the evidence? Big American companies have done research into what affects the value of assets.

Question 6 What should CRISP do now to bring about the improvements you have identified?

CRISP's role

Neither of the two delegates identified a role for CRISP.

Five point action plan for CRISP.

Delegate	Action 1	Action 2	Action 3	Action 4	Action 5	More thoughts
Gray						
Shillam	Using investors value systems.	Key thing – isolating the design value.	Test the assertion that institutions produce barriers to innovation.	British Council for Offices would like to be involved.	Investment property forum – research into investment criteria.	CABE – good design is a value judgement. Initiation of debate. Getting into society and cultural values. Education – a government brief.

Group 3 Evaluation and performance indicators for design

This group was asked to address the following issues:

- How can successful design be defined – and encouraged?
- Can the performance indicator approach be used to identify and promote good design?
- Should performance indicators focus on process or product – or both?

Question 1 What is the most pressing action that needs to be taken to improve the current position?

Delegate	Most pressing action	Inside the design community	Inside the research community	Elsewhere	More thoughts
Dickson	Start feedback loops to 'basic' and 'spiritual' elements of product. Break down barriers between disciplines by asking responses on one project from separate disciplines and studying differences in valuation.		Yes	Committees.	Ask Hospital Boards for their responses. IBM for their response to product. Examine why 'successful' projects get awards. What are factors that distinguish them from the also rans. Aesthetic appeal, Functionality, Ease of realisation, Innovation, Answer to brief. Shared value in 'concept' and realisation. Occupational delight.
Dwyer	To disseminate instances of good design where the criteria for assessing the design are made explicit and understandable to the community <u>outside</u> the design community. The criteria too should take on the impact of design on the wider community.	Yes	Yes	The Construction Industry.	The attempt is to change and develop overall value systems; those articulated by local communities, clients, politicians, the media and those engaged in cultural activity (film, video, theatre, literature.)
Gregory	Define what is a successful design	Yes	Yes	Clients.	
Wingrave	Capturing today's information for tomorrow's benefit.	Yes	Yes	Throughout the industry.	

Dickson also responded to five of the original six questions with the following replies:

The most pressing action: linking briefing/initial design to outcome success.

Barriers to implementation: between institutional thinking, lack of research in intangible cultural values.

Overcoming the barriers: start empirical/anecdotal research to establish value sets.

How can success be measured: By assessing performance of 'satisfactory' and 'commodity' products and comparing value sets.

The role of CRISP: direct research to link construction product, 'design' to social science techniques.

Question 2 What are the barriers to successfully implementing this action?

Delegate	Barriers in the design community	Barriers in the research community	Barriers elsewhere	More thoughts
Dickson	<ul style="list-style-type: none"> Lack of willingness to hand on baton from generalists to specialists. Lack of strategic 'design' sense in specialists and awareness of specialists opportunity by generalists. (I believe the aircraft industry calls these facilitators 'communicators' – see G Vincenti's What engineers know and how they know it'. Absence of shared design language of representations of product and process (see S Groak 'Representations in building' lecture at RSA, Feb 98). 	<ul style="list-style-type: none"> Uneven understanding of link of 'product' to 'process'. Little research into design method in building/planning and construction. No 'inner' feedback on overall value of 'basic' and 'higher order' values. 	<ul style="list-style-type: none"> Absence of basic design awareness in community/design bodies. No public debate on criteria of acceptance and appeal. 	
Dwyer	<ul style="list-style-type: none"> Mystification of design discussion. Lack of interest in the impact of design on the wider community. Lack of sensitivity to media's influence – communication skills are not valued. 	<ul style="list-style-type: none"> Value role of empirical evidence in research. Extension of this kind of research to architecture and design in schools. 		
Gregory	Designers feel uncomfortable with reaching definitions. Are designers happy to develop their 'briefing' skills? Demystification is required.	Agreeing on the real focus. Involving people outside the normal people involved in such a scheme. Language used should be made more clear.		Generally, there is merit in creating a 'performance indicator' approach to assist in ensuring that the client's brief is better considered/defined.
Wingrave	Solo mentality – better to move to matrix management.	A desire to attain the indefinable aspects of life. Move more into different management structures of/for projects.		

Question 3 How can these barriers be overcome?

Delegate	Overcoming barriers in the design community	Overcoming barriers in the research community	Overcoming barriers elsewhere	More thoughts
Dickson	<ul style="list-style-type: none"> • Importance of specialist education linked to interdisciplinary understanding. • Better development of shared design representation. • Shared 'focus' and 'recognition' of all disciplines. • Articulation of value brought to product by each party in simple language. 	<p>Researchers need to share 'design' process in real projects.</p>	<p>Feedback and measurement of success/satisfaction on every product.</p>	<p>Need to do 'feedback' process on 'award winning', 'commodity' <u>and</u> 'failure' projects.</p>
Dwyer	<ul style="list-style-type: none"> • Promote interdisciplinary activities and 'live' community based activities within design education. • Promote active debate between designers/architects and people outside design: articulate media commentators, building users etc – and do not shy away from conflict in this area. 	<ul style="list-style-type: none"> • Look at evaluation in design and art education. • Look at gathering empirical evidence of the impact of built projects: on media, politicians, individuals: address methodological problems with this. 	<p>Disseminate more widely the value of good design by citing the multi-valent effects of good design on processes, lives lead, cost-in-use, evolution of townscapes and development of local economies.</p>	
Gregory	<p>They might benefit from groups allowing themselves to be focused by 'managers' or facilitators in order to assist in reaching resolution.</p>	<p>Through really considering what terminology should be used as 'indicators' does not feel appropriate. Be brave and tryout some workshops where only people that are not involved in the 'research' world are invited.</p>		
Wingrave	<p>Publicity of design (and gains to be had of good design.) More involvement at client base (listening/informing.)</p>			

Question 4 Who should initiate your most pressing action and who else needs to be involved in implementing it?

Delegate	Initiator	Collaborator	More thoughts
Dickson	CRISP to direct attention of Government to link construction to social research. Construction Industry must understand and work with wider outcomes: social/cultural/functional/environmental and Economic ???	Architects have to understand what other disciplines do and other disciplines try to understand complexity of design process, particularly in the intangible areas.	Clients must all measure outcome – Owner/User/Developer/Neighbour - and ask all parties of their design and construct team to do it also.
Dwyer	Minister of Culture! National and local media, local politicians, local organisations. (Attempts to evolve overall value systems.)	Advisers, locally and nationally. Educators.	Local debate needs to be encouraged. Conflict and debate is not always negative about design if those involved in construction and design engage with it.
Gregory	CRISP	Architects. Clients. Other designers. Contractors.	
Wingrave	A better cross-industry (maybe government led – being independent of the professions) body to: <ul style="list-style-type: none"> • Promote • Research 	All.	

Question 5 How can success be measured?

Delegate	Measurable success factors	Non-measurable success factors	More thoughts
Dickson	Agreeing a 'few' measurable statistics. User satisfaction indices.	Empirical social science type measurements.	Cultural Social: Aesthetics, Appropriateness to Community, Meaning, Delight. Utility Value/Technical Performance: Customer Satisfaction, Buildability, Efficiency, Nett/Gross, Spatial Quality, kWh/sqm/year + CO ₂ , Waste, Comfort through seasons. Economy & Sustainability: Whole Life Cost, Economic Life Span of Components, Rental (£/sqm) Cost (£/sqm), Occupational Productivity, Running Cost (£/sqm), Environmental Impact (Biodiversity, Global Climate Effect (CO ₂), Depletion of Resources).
Dwyer	Shifting the behaviour of government as client so as to encourage design and (almost more importantly) allow time in the funding and commissioning process for good design to be realised. The spreading of widespread criticism of the products of the mass housebuilders and housing associations on design grounds. The adoption by design & build of design values and aims, and the allowing of time and funding to realise good design. The construction (for the first time) of sustainable (well-designed) temporary warehouse large sheds.	An increase in commitment to design by clients and the public at large. An adoption of ethical, sustainable policies by all parts of the construction team. A decrease in alienation from buildings by i) building workers, ii) design professionals, iii) building users, iv) local communities.	
Gregory	Client satisfaction surveys.	Improvement in the care of the built environment by the community.	
Wingrave	<ul style="list-style-type: none"> • Emulate building awards system. • Emulate architectural schools assessment systems. • Need more social element injected (quasi-government organisation?) 		

Question 6 What should CRISP do now to bring about the improvements you have identified?

Part A CRISP's role

None of the delegates identified a role for CRISP.

Part B Five point action plan for CRISP.

Delegate	Action 1	Action 2	Action 3	Action 4	Action 5	More thoughts
Dickson	Report to Government of Workshop highlights.	Mobilise CIC to take on study as an umbrella body.	Actuate Institutions (RIBA, RICS, ICE, ISE, CIBSE).	Liase with EPSRC to discover common links.	Establish contacts with 'Design Methodology Experts'.	Stimulate an ordered informed debate on design method for the built environment which should lead to research in this difficult across boundary field. Look at work in USA and Japan (see 'Rich and Easy Story' revolution to Matsushita (?) Electric Goods).
Dwyer	Formulate some methods for defining 'good design' (not all of these are necessarily verbally based)	Support new research into the evaluation of good design.	Disseminate information about CRISP's work within all levels of the construction industry, directly and indirectly.	Find ways for disseminating information on CRISP's work outside of the construction industry.		I encourage and support this initiative, finding it more valuable than initiatives within narrow interest groups such as the RIBA.
Gregory						I think this was adequately discussed at the end of the session.
Wingrave	Become a cross-industry voice to the country.*	Help Government set up a unique independent research/process cross-industry body.*				

* These were actually set out under CRISP's role, but have been inserted into this table of actions for CRISP.

Group 4 Questioning institutional frameworks.

This group was asked to address the following issues:

- Does design benefit from institutional boundaries between the professional institutions?
- Is interdisciplinary design important? Who champions it?
- What influence are recent changes in procurement practices (design & build, PFI, prime contracting) having on design? Who gains?

Question 1 What is the most pressing action that needs to be taken to improve the current position?

Delegate	Most pressing action	Inside the design community	Inside the research community	Elsewhere	More thoughts
Nicholson	Develop alternative frameworks to allow designers and specialists/manufacturers and communications. Branded office product is one such contender (?) Funding for sociological research.				
Richardson	Closer involvement of clients, professional teams. Training at colleges/universities to include practical involvement with projects.	Yes		Government	Novating professional bodies onto contract teams. Likewise co-op specialists at design stage.
Russell	Better communication/interrelationships between professionals and specialists: acknowledgement of roles/activity.	Yes	Yes	Government. Professional institutions. Universities. Schools.	
Wall	Design and manufacturing – better communication. Education – high standards and wider recruitment, a more inclusive definition of ‘industry’ to include professionals, contractors and builders.	Yes		Industry.	Education and recruitment: participants/members of professions and the industry at large do not represent the wider society they serve and supply buildings for. The industry is dominated by white, male, middle class professionals and male contractors – a radical change might have an effect on the built environment – it has never been tried before.

Question 2 What are the barriers to successfully implementing this action?

Delegate	Barriers in the design community	Barriers in the research community	Barriers elsewhere	More thoughts
Nicholson	<ul style="list-style-type: none"> Contractual relationships Client attitude to risk and team. Institutions tend to set up divisions, leading to communications block. 	<ul style="list-style-type: none"> Lost sociological research traditions. Building up skills. Three year peer review – Research Assessment Exercise Falling between the different research bodies. 	<ul style="list-style-type: none"> Educational limitations. Will take time to change. 	
Richardson	<ul style="list-style-type: none"> Risk averse, accountability, communication, education, lack of trust. 	<ul style="list-style-type: none"> Funding 	Perception of the construction industry.	Better advertising of the good parts of the industry.
Russell	Contractual relationships. Risk element.	Limitations of funding/client requirements. 'Stars' – introspective research to achieve.		
Wall	Institutional barriers between the professions. Competition to 'lead' the building team. Exclusion of specialist sub-contractors from design process due to present contractual framework.	Lack of cross-disciplinary and multi-disciplinary research. More European-based research needed.		The idea of design as a spatial concept as opposed to detailing – some of this function can be undertaken by skilled tradesmen (e.g. joinery details).

Question 3 How can these barriers be overcome?

Delegate	Overcoming barriers in the design community	Overcoming barriers in the research community	Overcoming barriers elsewhere	More thoughts
Nicholson	<ul style="list-style-type: none"> • Project based insurance by clients. • Restructure insurance product. • Shared CPD across industry, not just professionals. • What is the industry? 			
Richardson	<ul style="list-style-type: none"> • Risk acceptance • Insurance • Full employment of design specialists throughout the project. 	<ul style="list-style-type: none"> • Publicise positive results. • Compare results against other research. 	Question why we do things the way we do and ask Is it necessary? If not, change it.	
Russell	Risk management. Insurance – PI – whom?			Shared CPD Educational elitism – soften. Interpersonal skills. Training – from school, via Higher Education, via site (but when?)
Wall	Common education programme for construction professionals --specialisation at practical level. Shared CPD. Teamwork Inclusive definition of the industry. Risk lessened by project-based insurance.	Dissemination via a magazine a cross between BD, Construction News and Building. Funding (revision) for multi-disciplinary research. Funding for long-term studies of building use.		Europe based research. Although comparative research is often limited in terms of quantitative outcomes it is often illuminating in qualitative terms, e.g. different social contexts for production – no QS in Germany and rest of Europe. Therefore cost function distributed between architect and contractor – with definite implications for the education process. Linking process to product. Where the knowledge of the architect/design team is transferred to the site the outcome is a better quality product. Ore research on the social relations behind production.

Question 4 Who should initiate your most pressing action and who else needs to be involved in implementing it?

Delegate	Initiator	Collaborator	More thoughts
Nicholson	All. Clients on procurement. Industry on knowledge (CIC).		
Richardson	Government Industry bodies.	Professional teams. Specialist contractors Education bodies.	
Russell	Who – Government, Institutions, Client.		Mutual trust – strong role, public sector problems here.
Wall	<ul style="list-style-type: none"> • Lead from central government • Clients • CRISP 		A centralised, state-run body to integrate funding for research in design and multi-disciplinary studies on the built environment. A return to longer-term sociological studies on buildings and their uses.

Question 5 How can success be measured?

Delegate	Measurable success factors	Non-measurable success factors	More thoughts
Nicholson	Alternative frameworks.		
Richardson	Occupier workforce questioned. Response after 6 months, 2 years, 5 years.		
Russell	Research could be measured: context of built environment is a bit thin – could be more work on this.		Roles in society. Women only 6% of professionals. Adequate representation. Response to needs.
Wall			Analyse the interface between process and product. Was there a loving finish to the building – ask the builders and skilled tradespeople did they care about producing the building. Was it a happy site? How does the process and the nature of the process affect sustainability and long term maintenance of the building. The perception of 'delight' will often be influenced by the quality of finish.

Question 6 What should CRISP do now to bring about the improvements you have identified?

Part A CRISP's role

None of the delegates identified a role for CRISP.

Part B Five point action plan for CRISP.

Delegate	Action 1	Action 2	Action 3	Action 4	Action 5	More thoughts
Nicholson	Collate alternative contractual framework.	Include European/Global dimension.				
Richardson						
Russell						
Wall						The field of sociology within construction: This should be integrated but not by nuts and bolts me looking at soft issues, but by sociologists looking at construction especially production relations. Academics cannot be entirely 'independent' when projects require industry partners. Research funding to investigate and monitor innovation is frequently tied to market constraints.

Views of the Design Task Group Chair and the CRISP Management Support Unit

Question 1 What is the most pressing action that needs to be taken to improve the current position?

Delegate	Most pressing action	Inside the design community	Inside the research community	Elsewhere	More thoughts
Oliver	Systematic post-occupancy evaluation research across all principal building types/sectors	Yes – preparing criteria	Yes – preparing criteria	Yes – government sponsorship of an independent body	
Lockwood	Design team	Design team co-operation			Knowledge needs to be seen as a spectrum, not falling within single skill zones.

Question 2 What are the barriers to successfully implementing this action?

Delegate	Barriers in the design community	Barriers in the research community	Barriers elsewhere	More thoughts
Oliver	<ul style="list-style-type: none"> Liability insurance (no fault research). Appointment limitations. 	<ul style="list-style-type: none"> Funding over an adequate time span to capture the range of values. Suitable 'confidentiality' methods. 	Competitive advantage threatened by disclosure. Client interest: will require legislative pressure to be widened and shared (as in sustainability ratings that require [European] disclosure at sale or lease of buildings.)	
Lockwood	Contract forms and ways of working Client, others, everyone's attitude to risk. Defining design – systemic way of working.	Education – scope and quality issues. Key buildings – measuring performance/functionality/awareness/roles. Funding available typically for too short a time scale to allow long term studies.	Communications generally. Competition between institutions. Availability of funding.	

Question 3 How can these barriers be overcome?

Delegate	Overcoming barriers in the design community	Overcoming barriers in the research community	Overcoming barriers elsewhere	More thoughts
Oliver	Client-focused education modules within all existing design profession degree courses.	Interdisciplinary co-operation essential for capture of full range of post occupancy values and factors (e.g. M&E expertise and sociological enquiry and ...)	Jointly funded post occupancy research institute that commands industry wide, and public, respect.	Accessible criteria for buildings in use will take at least a decade to establish. Once in motion in one sector however, the advantages in brief building/procurement and performance will (does in fact) drive other sector's development.
Lockwood	Educational issues. Levels of risk – PI issues. Can risk be shared more evenly.	Involvement in CPD – links/awareness/opportunities.	Involvement of different bodies. Institutional reform – ways of working – ways of bringing players together.	

Question 4 Who should initiate your most pressing action and who else needs to be involved in implementing it?

Delegate	Initiator	Collaborator	More thoughts
Oliver	Research into international best practice in post occupancy evaluation by a number of co-ordinated commissions. Government should 'represent' this demand to all interests.	All appropriate research disciplines. Non-construction expertise into customer satisfaction should be 'drafted in' to accelerate the culture change.	The essential completion of the production-in use- conception cycle. This cycle is: conception-design-construction-in use-assessment – with intermediary feedback from all stages. This will come to be seen as 'normal' rather than as currently 'exceptional'.
Lockwood	Professional bodies and clients.	Higher education, schools involvement. Badging professionals. Clients should be able to look at innovation frameworks. The concepts should be the same with more trust.	Independent skills of staff. Consideration of status.

Question 5 How can success be measured?

Delegate	Measurable success factors	Non-measurable success factors	More thoughts
Oliver	<ul style="list-style-type: none"> User satisfaction. Realisation and exceeding expectations. Making these explicit at all stages. 	Interview assessment. Ethic statements for all project stages. Wide debate of 'subjective' criteria.	
Lockwood	Quality of the product – relates to quality of relations, especially from the designer linking with construction. Getting the right product. Culture of socio-economic research – captured/ways of working.		

Question 6 What should CRISP do now to bring about the improvements you have identified?

Part A CRISP's role

Oliver: identify absences in research leading to commissioning of corrective/innovatory research.

Part B A five point action plan for CRISP.

Delegate	Action 1	Action 2	Action 3	Action 4	Action 5	More thoughts
Oliver	Identify adequate/promising initiatives.	Expose weaknesses in 'knowledge base'.	Establish comprehensive sector definitions for built environments.	Promotion of industry-wide discussion of these issues with intention to achieve appropriate research.	Feedback on take-up/emerging best practice.	Post-occupancy evaluation should become an expected industry quality control standard, with sectoral refinements and adjustments. This then empowers all to contribute while focusing existing specialists' strengths.
Lockwood						Gather knowledge about patterns of procurement. European/global perspective – ways of working. Cultural attributes – awareness of dimensions.