PII-Open 2002

Better designed buildings: improving the valuation of intangibles

Lead partner: Eclipse Research Consultants

DTI file reference STBF/04/22C

Deliverable 6: Milestone 6: Workstep 6

Final Report

Aim and conduct of the study

The overall objective of this study has been to improve the quality and performance of delivered buildings, including value for money for clients. The study was envisaged as a strategically-targeted study to explore the valuation of 'intangibles' - benefits to clients and other stakeholders which a building raises in terms of its design value but which are difficult to measure and not taken into account by current valuation methods.

The general issue of 'value delivery' is highly topical and is a priority in various current industry improvement initiatives such as, *rethinking construction, building a better quality of life, better public buildings, accelerating change, design quality indicators,* and *achieving excellence.* All of these initiatives share the aim of encouraging improvements in the construction industry's products as well as it its business processes. For example, *Accelerating Change*[1] says:

> Our vision is for the UK construction industry to realise maximum value for all clients, end users and stakeholders and exceed their expectations through the consistent delivery of world class products and services. In order to achieve this the UK construction industry must:
> - add value for its customers, whether occasional or experienced, large or small;
> - exploit the economic and social value of good design to improve both the functionality and enjoyment for its end users of the environments it creates (for example, hospitals where patients recover more quickly, schools and work places which are more productive and more enjoyable to work in, and housing which raises the spirits and enhances the sense of self worth).

The introduction to the *Better Public Buildings*[2] campaign said:

> '…we know that good design provides a host of benefits. The best designed schools encourage children to learn. The best designed hospitals help patients to recover their spirits and their health. Well-designed parks and town centres help to bring communities together. …

The subject of the study also relates to a concern by nCRISP to promote a better understanding of the social and economic value of the built environment as a whole and who commissioned Professor David Pearce to report on 'The social and economic value of the built environment'[3].

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[1] Strategic Forum for Construction, 2002, *Accelerating Change*, Strategic Forum
[2] DCMS, 2000, *Better Public Buildings: a proud legacy for the future,* Department of Culture, Media and Sport
[3] Pearce, D, 2003, *The social and economic value of construction,* published by nCRISP

A Value Task Group which is part of the industry body Be (Collaboration for the Built Environment) and is also serving as the nCRISP task group on value was set up in 2004, and will report to nCRISP in 2005 with a series of strategic recommendations for research and innovation into the nature of value and its delivery in the built environment. Among other tasks, the group is investigating the validity and reliability of the data underpinning the 1:5:200 ratio which was first put forward in 1998 in a paper published by the Royal Academy of Engineering[4]. The Chair of the Task Group is Richard Saxon who has written a first draft of a proposed Be publication called *Be Valuable – a guide to creating value in the built environment*. Wide ranging in its scope, this will put forward some clear definitions of value and will explore value exchanges in the built environment, identifying key stakeholder groups, mapping the transactions between them, and proposing ways for the industry to ensure maximum value for all stakeholders. It is scheduled for publication during 2005.

Reinforcing how topical the issue of value delivery is, two reports were issued towards the end of the study in other sectors of the economy. In the arts, concern has been expressed about the difficulty of capturing value. A report published by Demos [5], explores the question 'How, in going beyond targets, can we best capture the value of culture?' It identifies that cultural value may include historical, social, aesthetic and symbolic aspects and needs to be recognised as having intrinsic value in itself. The Demos report makes the case that economic value alone cannot completely express the 'worth' of a cultural asset. In the public sector, the emergent notion of public value – the added value created by government and the public sector in its widest sense, and delivered through services, laws, regulations and so on – is being keenly debated as part of a move towards public service reform. A recent paper from the Cabinet Office[6] categorises the things citizens value into better outcomes, services and trust, and proposes that a public value perspective could generate more effective policy conclusions. One of the authors of that paper – Geoff Mulgan – participated in an Edge debate at the RIBA on 24 January 2005, having written a paper for CABE (not yet officially available) on public value and physical capital.

The specific origins of the study lie primarily in the MBA thesis by Jon Rouse[7]. Rouse described how a number of corporate clients, whose expenditure on their new buildings exceeded the market value, had tried to measure architectural value in order to justify the extra over expenditure. All the organisations recognised the corporate benefits from architectural investment, representing both tangible benefits of the sort that can be counted by traditional cost/benefit but also intangible benefits that are more difficult to measure. Employee satisfaction was the most highly rated motivation; human capital is the major resource of the organisations and they seek to enhance the ability of their employees to contribute to turnover and profitability. Corporate policy in architectural investment was also very important, and several of the organisations had design champions at senior levels within the organisation and corporate precedents for high quality architecture. For seven of the ten organisations, procuring a building was part of a much wider corporate development process – with the goals typically of transforming how the company does business, encouraging creativity, enhancing communication, promoting team work, operating less formally, encouraging flexible working and reducing hierarchy. Rouse went on to argue that if the benefits of architectural quality and value can be demonstrated then additional investment into the built environment can be released – and by the same token that an absence of methods to value design quality holds back such investment.

[4] The original paper was: Raymond Evans, Richard Haryott, Norman Haste and Alan Jones, 1998, *The long term costs of owning and using buildings*, Royal Academy of Engineering. A critique was published by Will Hughes, Debbie Ancell, Stephen Gruneberg and Luke Hirst, 2004, 'Exposing the myth of the 1:5:ratio relating initial cost, maintenance and staff costs of office buildings', paper to Annual ARCOM Conference

[5] Holden, J, 2004, *Capturing Cultural Value: how culture has become a tool of government policy*, Demos

[6] Gavin Kelly, Geoff Mulgan and Stephen Muers, 2002, *Creating Public Value: an analytical framework for public service reform*, Cabinet Office

[7] Jon Rouse, 2004, 'Measuring value or only cost: the need for new valuation methods', in *Designing Better Buildings* edited by S. Macmillan, Spon Press, 2004

The aims of this study then are to explore the nature and scope of intangibles and their influence on different stakeholders, as well as the need for new methods and the actions required across the industry to promote new processes and procedures that recognise the contribution of intangibles and encourage a 'whole life value' approach to the built environment

The project was conceived and led by Eclipse Research Consultants and was supported by the DTI under the Partners in Innovation programme. The project partners included CIC, CABE, RIBA, RICS, and BIFM, as well as a dozen leading organisations - NHS Confederation, King's Fund, Catalyst Healthcare Management, DEGW, Penoyre & Prasad, Hoare Lea, AMEC, Feilden Clegg Bradley, Peabody Trust, ECOS/Battle McCarthy, and Barts & the London NHS Trust. Members of the Office Productivity Network participated, as did a number of other individuals and organisations.

This Final Report summarises the findings of the whole project. Behind it lie four other deliverables which are available on request:

1. Literature Review, 25 March 2004
2. Write up of the first workshop held at PriceWaterhouse Coopers, dated 20 April 2004
3. Write up of the second workshop held at CABE, dated 31 August 3004
4. Write up of the third workshop held at the RICS, dated 31 October 2004.

After this final report was produced, two other agreed deliverables were written - an article for the professional and technical press, and a press release. The article is shorter than this report, and offers a summary of the findings of the study and sets out a tentative model for considering value in six bundles:

- Exchange value
- Use value
- Image value
- Social value
- Environmental value
- Cultural value

The article and press release are both available on request.

Literature search

A detailed survey of the literature was carried out, covering both studies of the impact of the built environment on outcomes, as well as sources that discuss the valuation of intangibles, a highly topical issue in the financial sector as demonstrated by the publications listed in the footnote[8]. One of the Faculties of the RICS has also taken an interest[9].

Value management is, of course, a well-established technique in construction and some of the extensive guidance available to the industry was reviewed, both from the Institute of Value Management and elsewhere[10]. Typically, however, value management is associated with improved

[8] See for example:

a) Buigues, P, Jacquemin, A and Marchipont, J-F, 2000, 'Intangible Assets and the Competitiveness of the European Economy' in Buigues, P, Jacquemin, A and Marchipont, J-F. (editors) *Competitiveness and the value of intangible assets,* pub E. Elgar, Cheltenham;

b) Blair, M and Wallman, S, (no date) *Accounting for Intangible Assets,* Brookings Institute Research Proposal, www.stern.nyu.edu/ross/projectint/about/;

c) Cheney, G. 2001, 'Getting a grip on intangibles', ACCA website acca.org.uk;

d) Meritum, 2002, Guidelines for Managing and Reporting on Intangibles, cited in Aldridge, S. Halpern, D. and Fitzpatrick, S. April 2002, 'Social Capital: a discussion paper' published by the Performance and Innovation Unit of the Cabinet Office,

e) Lev, B, 2001, *Intangibles: management, measurement and reporting,* pub Brookings Institute

[9] RICS Plant and Machinery Faculty, 2003, *Valuing Intangible Assets*, RICS

[10] BRE, 2000, Value management: a series of four documents, BRE, Watford (the four documents cover value from construction; the value workshop, value for social housing and the FAST approach); Hayles, C, Bowles, G, and Gronqvist, M, 1997, *Value from construction: a comprehensive bibliography*, BRE Report BR 333; Male, S. Kelly, J. et al, 1998, *The*

cost-effectiveness rather than with better outcomes, with reducing costs rather than increasing benefits, in contrast with the present study which is more concerned with the delivery of enhanced benefits.

Fortunately in the built environment literature, there are some excellent recent reviews that address the impact of buildings on outcomes. In the health-care sector, for example, a major review[11] of the impact of built facilities on healthcare outcomes was published just a few months ago in September 2004 by a team drawn from the Center for Health Systems and Design at Texas A&M University and the College of Architecture at Georgia Tech, led by Roger Ulrich, Director of the Center and well-known authority in the field. The authors report that they combed through scores of databases and several thousand scientific articles, and identified 600-plus studies of how hospital design can impact on clinical outcomes. They acknowledge that hospitals are complex systems where it is difficult to isolate the impact of single factors. They go on to review studies of how the physical environment impacts on staff stress, fatigue and effectiveness in delivering care, and on patient safety and healthcare outcomes. The review covers design issues such as single-rooms versus multi-bed rooms, way-finding, noise and its effect, sunlight, exterior views, mechanical ventilation systems, and ergonomics. In their conclusions, they call for the adoption of evidence-based design as a means for creating health care buildings that are informed by the best available evidence about how the physical environment can interfere with or support activities by patients, families, and staff, and how the setting should be designed to provide a caring, effective, safe, patient-centred environment.

Schools figure prominently as a sector where there is interest in good design. Feilden[12] reported:

> "Gradually, research studies are being undertaken, mostly in the USA, but increasingly in Britain, with their findings being collated by the Commission for Architecture and the Built Environment. Positive correlations are claimed between the attributes of the building and pupils' examination results, and between quality of daylighting and progress in reading and maths; improvements of between 20 and 26% going from the worst daylit school to the best are reported (Heschong Mahone Group[13]). In Britain a team lead by Professor Brian Edwards is investigating the performance of 'green' schools compared with similar schools that do not have these features. Early results imply positive correlation between green features and pupil performance, particularly at the primary level, although caution is essential in interpreting the data since it is difficult to ensure comparability among the schools being investigated for factors such as pupil intake and staff capability. Both this research and that undertaken by Price Waterhouse Coopers[14] on behalf of the DfES show improved staff morale and retention in better facilities."

In the offices sector, CABE has commissioned from DEGW a major review of the international literature on 'office design and business performance' and from UCL a study of the effect of good design on office valuation. Both reports have still to be officially released. Past reviews include those by Oseland[15], Heerwagen[16], and Haynes, Matzdorf, Nunnington, Ogunmakin, Pinder and Price[17]. It is

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Value Management Benchmark: a good practice framework for clients and practitioners, Thomas Telford, 1998; Connaughton, J and Green, S, 1996, *Value management in construction: a client's guide*, CIRIA

[11] Roger Ulrich*, Xiaobo Quan, Craig Zimring, Anjali Joseph, Ruchi Choudhary, 2004, *The Role of the Physical Environment in the Hospital of the 21st Century: A Once-in-a-Lifetime Opportunity*, report by the Center for Health Systems and Design, College of Architecture, Texas A&M University

[12] Richard Feilden 'Design Quality in New Schools', in *Designing Better Buildings*, edited S. Macmillan, Spon Press, 2004

[13] Heschong Mahone Group, 1999, *Daylighting in Schools: an investigation into the relationship between daylighting and human performance*, available on the web at www.cashnet.org

[14] PriceWaterhouse Coopers, 2001, *Building Performance: an empirical assessment of the relationship between schools capital investment and pupil performance*, DFES Research Report 242, and: PriceWaterhouse Coopers, 2003, *Building better performance: an empirical assessment of the learning and other impacts of schools capital investment*, DFES Research Report 407

[15] Oseland, N, 1996, 'Productivity and the indoor environment', paper to fourth Indoor Air Quality Conference, held at Mid Career College

[16] Heerwagen, J, 1998 'Design, Productivity and Well-being: what are the links?' Paper presented at the American Institute of Architects Conference on Highly Effective Facilities, Cincinnati, Ohio

widely accepted that productivity is affected negatively by poor indoor air quality and poor levels of thermal comfort (Wyon[18]). However according to Herzberg's Two-Factor theory of motivation[19] the converse does not necessarily hold –while poor working conditions lead to dissatisfaction, improving them does not raise productivity. Leaman and Bordass[20] report that the *killer variables* among those which are under the control of building designers and facilities managers are:

- Personal control (also referred to as adaptive opportunities by others) - the ability to raise or lower blinds, open and close windows and use switches to control services
- Responsiveness – that is the speed of reaction to staff discomfort by facilities managers
- Building depth – deeper buildings tend to reduce satisfaction and productivity, while a depth of around 12m across the building seems about optimal
- Workgroups – perceptions of productivity are higher in smaller and more integrated workgroups.

Housing is another sector where much has been written, and an excellent (if dated) review is available in Halpern's 1995 book 'Mental health and the Built Environment: more than bricks and mortar'[21]. Urban design has also been investigated and connections have been made between various design features (such as good connectivity, transport links and mixed use) and successful outcomes[22].

Project Workshops

Three project workshops were held during 2004 for the purposes of bringing together acknowledged experts in a focus group / brainstorming situation:

- 2 March 2004, at PriceWaterhouse Coopers, attended by 10 facilities managers, all core members of the Office Productivity Network
- 30 June 2004, at CABE, attended by 13 delegates, representing broadly the design community
- 13 July 2004, RICS, attended by 15 delegates, representing broadly the surveying and valuation community.

All three workshops were organised along similar lines. Prior to each workshop a briefing paper – based on the literature search about intangibles - was circulated to all the delegates. A *Delegates' Workbook* was devised, which asked series of questions rather like an extended questionnaire, and this was handed to delegates at the start of the workshop. The *Workbooks* differed across the three workshops.

Each workshop was run in four sessions:

1) General introduction to intangibles, and the contribution of buildings to business performance.
2) Whether well designed buildings command a premium.
3) The need for new methods to put a value on better designed buildings.
4) Promoting the new methods – what actions are needed, by whom, and what are the barriers.

Each session began with a short introduction, based partly on the findings of the literature search, and this was followed by a round-table discussion/brainstorming session lasting about 20-30 minutes. After each discussion, delegates were asked to record their own opinions in their workbooks –

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[17] Haynes, B, Matxdorf, F, Nunnington, N. Ogunmakin, C, Pinder, J and Price, I, 2000, 'Does property benefit occupiers? An evaluation of the literature', Occupier.org report number 1, Facilities Management Graduate Centre, Sheffield Hallam University

[18] Wyon, D. no date, 'Enhancing Productivity While Reducing Energy Use in Buildings'

[19] Herzberg, F, 1993, *Motivation to Work*, Transaction Publishers

[20] Leaman A and Bordass, B, 2000, 'Productivity in buildings: the 'killer' variables, in Clements-Croome, D (editor) 2000, *Creating the Productive Workplace*, E & FN Spon.

[21] Halpern, D, 1995, *Mental health and the built Environment: more than bricks and mortar?* Taylor & Francis

[22] Carmona, M. 2004, 'Adding value through better urban design', in Macmillan, S. 2004, *Designing Better Buildings: quality and value in the built environment*, Spon Press. See also CABE, 2001, *The value of urban design*, Thomas Telford

typically they were allowed 5-10 minutes for this. The discussions at the workshops were recorded. This write up draws on the Workbook entries and the recorded discussions.

Facilities Managers' views on the potential of buildings to contribute to the delivery of business processes

All the facilities managers reported that their buildings (mostly offices) have the potential to contribute to a wide range of business process issues. The most frequently cited were:

- teamwork and improved collaboration and communication within groups, across groups and across departments,
- brand image and reinforcement of corporate values to staff, customers and potential recruits, and
- staff motivation, creativity and satisfaction.

These are achieved by various features, but the most frequently cited were:

- open planning
- provision of a variety of types of space for individual and group working with technologies available at a variety of different specifications
- bright, light and inviting interiors
- facilities such as kitchens, cafés, bicycle racks and staff showers.

The contributions to business process most successfully met in buildings are reported as:

- Teamwork, communication and collaboration, and
- Motivation and pride through quality and choice of the working environment

When asked about the contributions to business performance that are least successfully delivered, the facilities managers identified several issues. The potential for teamwork can be frustrated by the layout of a building - subdivision into departments on different floors can reduce communication, information-sharing and cross-fertilisation of ideas. Motivation can be reduced by lack of ownership of space through diluting personalisation, lack of privacy, and lack of control over physical variables. High density and excessive bustle can reduce concentration and creativity. A gloomy, uninspiring, or noisy working environment affects business performance. And the possibility of using unstructured or collaborative space intended for informal meetings can be frustrated by the traditional work pattern which involves only two options – at a workstation or in a formal cellular meeting room.

All ten facilities managers agreed that better building design leads to premises that deliver intangible benefits. The reasons they gave may be summarised as:

- Impact on communication, satisfaction, effectiveness and productivity:
- Flexibility and adaptability to changing or temporary needs
- 'Look and feel': loyalty and retention for both occupants and visitors

Impacts and outcomes for stakeholders

Buildings lead to a wide variety of outcomes for the various stakeholders involved, which table 1 (below) attempts to summarise, and which emerged across the three workshops. These outcomes represent many different benefits that are both tangible and intangible. Delegates at the RICS workshop pointed out that 'intangible benefits' mean many things to many different people. The delegates asked two pertinent questions:

- Can you capture value for different people in different ways and transfer them from one party to another.
- Which intangibles can be captured?

They went on to suggest:

- Should we begin by choosing one or two intangibles and track to whom they are of value in the building process?
- Or identify those intangibles more likely to be captured and those less likely?

No attempt has been made at this stage to separate out or try to define tangible and intangible outcomes, but this seems to be a priority. It seems probably this will need to be done on a sector by sector basis, since the outcomes vary widely.

Category	Stakeholders	Outcomes
Finance	Financiers, banks, PFI consortia, developers, government	Return on capital, profitability, long term value, ease of letting or selling, awards
Design and construction	Architects, engineers, surveyors, designers, contractors, sub-contractors and suppliers	Profitability, repeat business, awards, prestige
Occupant organisation	Chief Executive, Project Directors, Communications & Marketing Managers, general workforce, HR, Facilities Managers, Security staff, cleaners	Organisational productivity and profitability, organisational vision, image and identity, corporate brand and reputation, corporate social responsibility, good working environment - staff health and well-being, recruitment and retention, absenteeism, energy and maintenance costs
Public realm	Local authority Local community Regional and national community	Regeneration and inward investment, impact on property values, pollution, local health, employment, civic pride, neighbourly behaviour, vandalism
Visitors to building	Hospital patients, hotel guests, retail customers, students, pupils, the general public	Hospital recovery rates, retail footfall, educational achievements

Table 1 Beneficiaries and outcomes

Surveyors and valuers ranking of business outcomes

Delegates at the third workshop placed seven pre-specified business outcomes in the following order: Functional quality; Cost efficiency; Employee satisfaction; Flexibility in use; Corporate identity; Disposability; Book value. Asked to identify other business outcomes, they offered the following list: safety in use for staff and public (cited by 7); productivity of the support environment (cited by 2); manageability; risk; image value; competitive advantage; reputation; business continuity; customer/client satisfaction; ease of maintenance; environmental performance; profit margin; impact on those beyond the immediate users – the community; profitable use; adaptability to future uses; corporate responsibility. Location and transport were also mentioned.

In the discussion at this workshop measurement was emphasised. Measurement is important, such as measuring the difference in outcomes. A culture of feedback through measurement leads to a virtuous circle, or at least stops things going horribly wrong. What adds value is more than just initial design, it is a process with feedback loops and modification. But the contribution of a building is limited – a bad building doesn't cause a firm to go into liquidation. It was also noted that there are a lot of things that are tangible that we haven't captured but which would be useful. Duffy's Orbit study separated: image value; exchange value; use value; and there may be others like environmental and sustainable value, and social value.

Are designers motivated by the delivery of improved outcomes?

There was broad agreement among the designers that designers *are* motivated to a greater or lesser extent by outcomes, but that the extent of commitment varied according to the designer themselves, and their experience, according to the context, and according to which stakeholders' interests were

involved. It could depend on the degree of social commitment, on commercial imperatives and job-winning, on job-satisfaction, and on peer group recognition. One respondent said that the form and extent of commitment might vary during the designer's career. The commitment to outcomes might also be towards a 'design statement' or profitability over amenity. One delegate pointed out that designers' remuneration is decoupled from the value outcomes, other than construction cost, while another said the commitment could be limited by what time and financial resources were available. Just one designer at the workshop said he thought designers were not motivated by outcomes since these are peripheral rather than core – core concerns tend to be taken up by finance, risk, delivery, professional peer pressure, and so on.

Differing motivations at the procurement stage

The third workshop identified that lack of investment often originates at the front end of procurement when people are deciding how much they want to spend on a project. Typically, the person taking the decision – e.g. the finance director – is in post for only 1,2, or 3 years and doesn't want to spend more money in the short term to produce greater long term returns. One delegate asked whether the problem was lack of investment, or getting the right brief, the right designers and good processes? Another emphasised the need to construct adaptable buildings that can be modified easily to suit new uses when faced with technological changes.

In the discussion, LIFT and PFI were identified as have diametrically opposed motivations – at the end of the LIFT period, the building reverts to the private sector so the developer has to find an alternative use. But with PFI at the end of the period, it reverts to the state. In PFI – the decision is taken on what it's going to cost in year 1, so everything is predicated on how much they can afford in year 1 of a 30 year commitment (short term affordability). Someone else can worry about it downstream. So our behaviour is perverted. We have the NPV calculation of payment stream over 30 years which should reign, but it doesn't. Procurement drives the wrong behaviour. And the valuation techniques used in procurement are not being evaluated and valued to get the right behaviour. There needs to be a different valuation technique that says 'we will procure differently and take the whole life cost in use of this building very seriously'.

Delegates at the third workshop also discussed what kinds of evidence were needed to say 'this building will start paying for itself in years 2, 3, 4 and 5?' It may be in the so called smaller things, FM, maybe more energy efficiency. But in the more operational aspects of the building, we need the evidence to be able to assert that this building will actually reduce recovery times - shorter stays in hospital, and better throughput. They concluded that at present the evidence base for hospital design - even from around the world - is relatively low.

Is there evidence of good design delivering successful outcomes and who holds it?

Designers were asked about the evidence linking design attributes to successful outcomes. The majority said there was some evidence of good design achieving successful outcomes, and drew attention to emerging results in the retail and healthcare sectors. However, it was also suggested that some of the existing evidence is anecdotal and not robust or replicable – housing developers' surveys of buyers preferences were cited as being limited to market niches. Existing evidence was thought to be too diverse to provide a clear foundation from which to act. One delegate said that evidence-based design is gaining in credibility (though she questioned whether this was just 'fashion talk') and identified scientific evidence (trials and experiments), social (attitudes, satisfaction, experience) and theoretical (AEDET etc). Another said that amassing the evidence and categorising it was an important first step, and should lead to the ability to transfer values to a new context and provide values for a specific new project.

Designers were further asked who held this evidence. They identified a wide variety of sources including government, the NHS, CABE, specialists consultancies, experienced clients and - in housing - developers, the Housing Corporation and the Housing Forum. However some also noted that the evidence was dispersed, anecdotal, academic and unsorted. There was no common language or shared

understanding, and a rag-bag of variables had been studied under various headings of building quality, management, rent, etc. The difficulty of measuring outcomes arising from design - as distinct from many other influences - was also noted. Finally, one delegate said it was unclear how much evidence really filters through and influences designers.

It is in urban regeneration where the returns are potentially large. There are externalities which can be levered to generate increased returns to scale. By spending more you start raising values, encouraging inward investment which then makes your initial investment more valuable, leading to a virtuous circle going. That's the hardest kind of intangible, where the payoff you're going to get from your investment depends on knowing how other neighbouring property owners are going to react and respond. It's not predictable.

The Treasury Green Book is trying to grasp these issues of how you value regeneration and social impact and economic benefit to society. It's the Treasury line we should be trying to develop, and help them by providing the evidence that will overcome the spending departments and affordability criteria. We need to get to some of the technical advisors at the Treasury and see what they're doing. They're desperate for tools and will seize anything that comes out of this project.

Is the potential of good design reflected in time available for briefing and design?

Designers were asked whether the potential contribution of good design to successful outcomes was reflected in the time and funding available for briefing, design and/or construction. Their replies varied. One said that well-timed interventions did not in practice need much additional input. Several said that experienced clients could be good in this regard for they viewed the building as an investment and understood the benefits from thorough analysis and evidence-based design. Others identified various barriers, such as the constraints of institutional funding mechanisms, political imperatives, and time constraints. Strategic planning and briefing were reported as often being compressed and poorly facilitated, owing to insufficient skill, capacity and experience. One delegate said that design, as an iterative process, never received sufficient time or funding.

About two thirds of the delegates at the RICS workshop said 'no' to this question, and gave as the over-riding reasons cost and commercial time pressures, combined with ignorance of the potential benefits and complexity of relationships between the parties. In more detail the reasons given included: because people are in a hurry and don't realise the value than can be added (or subtracted); because briefing and concept design are too compressed in time to allow design to be research-based; because decisions are dominated by short-term low-cost considerations and an emphasis on immediate value for money (including public sector procurement methods that focus on evaluation of affordability in year 1 terms, not over useful life); because of the complex relationship between designer/architect, client, contractor, end user, and financier. Finally, when building for profit to an institutional standard, time and money will not go beyond achieving market rent, which will be based on what the general market would want and be prepared to pay. Delegates did draw attention to some examples where adequate time and funding had been allowed, particularly where occupiers with a (theoretically) 'unrestricted' budget were the decision takers; or where the 'briefing' phase has a clear focus on expected business objectives (such as the development of a certain number of new drugs in a given period of time).

Are well designed buildings valued by clients and society?

Facilities Managers' were asked whether buildings that provide intangible benefits command a market premium. Their replies were mixed. Three said yes, three said maybe and four said no. Although their replies differed, half the delegates identified that the benefits were likely to be client-specific or business-specific, arising from how the space is used – and may not transfer to a second user. As one said, the lowest common denominator allows greater flexibility. Three also identified that the market is driven by the real estate profession and investors/landlords to a degree, and not only do the market makers seek to protect their own interests but also the traditional property market approach to valuation is based on an agreed specification for a particular building type.

Designers were asked whether well-designed buildings were adequately valued by clients and society. There were variations in the replies. Three said yes (although one added that badly designed new hospitals are also valued as they are 'better than the old one'.) Seven said in part they were, and the evidence was in contented clients, repeat business, surveyors' valuations, journal coverage and awards. However, public relations coverage could be mixed up with evaluation, media reviews tended to be limited to highly visible buildings, and icon buildings while valued in the short term were less so in the long term. One delegate said that things were beginning to improve, owing to an increased recognition of the social value of buildings.

Two thirds of the delegates at the RICS workshop said well designed buildings were not valued, and explained that worth to the business is not the accepted currency of valuation and the necessary metrics are not available. Even if occupants value their buildings, the building owner and/or commissioning client have different parameters for judging value, such as the cash flows generated in NPV terms against payment risk.

In the offices sector there is a separation between investors and occupiers. Investors want buildings that appeal to wide markets, and there is little incentive for the investor to meet the intangible wants of a single occupying organisation. So the model of ownership can work against the delivery of intangible benefits.

Furthermore, what might be positive for one organisation might be negative for another because of a different value system. These need sorting out under a number of different headings. In modern health centres or schools it's become a given to arrive in a two storey atrium. We can measure the cost very easily. What are the benefits and why do they want it? It's partly image value, but it leaks into use value as well; there are benefits about transparency of the school and supervision, you can see where people are moving to.

As two delegates between them reported, the most successful buildings probably have a number of core features in common, but there is a difficulty in defining cause and effect. Also, you may find that a poorly designed building will not perform any worse than a well designed one, e.g. a state school that is modern might get worse exam results than a private school where the buildings are poorer.

Do organisations make the connection between built facilities and business outcomes?

Delegates at the RICS workshops were asked this question and most of them said typically organisations do not make this connection. They gave a variety of reasons including: buildings are generally regarded as a nuisance or as containers of business activity rather than an integral part of delivery; feedback from buildings is not undertaken routinely and there are few procedures, metrics and benchmarks; commissioning client and user client are often different people, even if from the same organisation; most organisations have limited data on occupancy and little incentive to collect any; because building procurement is not undertaken often enough to learn from experience; because of the short time frame for decision taking; and because professional advisers don't spend enough time understanding the clients' business. And finally, the connection wasn't made because we lack whole life/long term cost/valuation methodologies.

Do organisations quantify, measure or value the business outcomes arising from built facilities

Delegates at the RICS workshop were asked whether client organisations and their professional advisors quantify, measure or value the business outcomes arising from their built facilities. About two thirds of the delegates said they didn't, although a few qualified this by saying 'not often' or 'not generally'. The reasons given were that buildings are often below the business radar and not considered a significant factor in business or profit generation, except when they become barriers to the business's function; there is weak awareness and absence of case studies demonstrating costs and

benefits; there are no established techniques or methodology - it's too complex; and public sector investment is budget-limited rather than concerned with value for money. Five delegates reported business did quantify business outcomes and used methods such as: occupant surveys and focus groups; measures of absenteeism; staff performance; staff productivity; staff retention and turnover; recruitment; retail sales in £/sq ft; pupil performance; performance of the business; rules of thumb; and heuristics embodying prejudices and assumptions based on the 'lessons of the past'.

Does a lack of appropriate methods for valuing intangibles hold back investment?

When Facilities Managers were asked whether lack of appropriate methods to value intangibles holds back investment in the built environment, their replies were mixed – five said yes, four said maybe, one said no. Whether replying yes or maybe, there was consensus in the reasons given. Several delegates reported the difficulty of demonstrating, proving and quantifying the added value obtained by better buildings so as to convince a board to make the necessary investment – as a result costs rather than value were dominant, and decision-making was conservative based on the cheapest 'do nothing' option. As one delegate put it: 'To date there is no commercially accepted scoring system to include in accommodation business cases to justify investment.' One delegated noted that intangibles are user-specific and do not influence external building value. Finally, one delegated noted that there was a need to identify the intangibles that measurement/valuation might help to influence.

All but one of the designers said they did think a lack of appropriate methods to value intangible benefits held back investment in the built environment. They offered various explanations. Several said there was inadequate investment in time for briefing and reviewing and for developing design team skill and formation. The future was constrained by the past, and clients carried on as they had before – clients had to be convinced and their awareness raised to encourage them to spend extra money; evidence, good arguments and a road-map were needed that would alert them to considering potential benefits early in the design process. One delegate said there was an absence of evidence to support greater investment. One warned of the danger of focusing narrowly on *easily measured* 'intangibles' which could skew design.

Delegates at the RICS workshop were evenly divided on this question. Those who agreed investment was held back gave as their reasons: lack of trust in designers and design; lack of engagement by the industry and its clients with outcomes resulting in a lack of credible value propositions; lack of appropriate methods equating to lack of evidence that intangibles have value in a situation where investment decisions require a number of people to be persuaded. Additionally, from an investment perspective, each organisation reacts differently to intangibles and therefore valuing is very difficult; and it is difficult to identify which intangibles contribute to value overall. Also, there is a shortage of information for evidence-based assessment of value. For example, in the use of atria as a 'meeting space' for chance interaction, some atria are good but others fail to promote interdisciplinary exchange.

Delegates at the RICS workshop who doubted that investment was held back by lack of methods to capture intangible benefits, said that valuers can value 'intangibles' but decision makers don't generally want to increase short-term cost for long term gain; also valuers need 'evidence' on which to base their assumptions. One delegate asked: 'are we even valuing tangibles properly, never mind intangibles?' And another asked 'if intangibles could be priced/valued using a standard system, is it the property which benefits or the occupier? It must be the occupier'.

A way forward

Rather than a single point value, at the RICS Workshop the suggestion emerged of the need to consider the range and the errors in predicting value – perhaps in the form of a probability curve. The discussion developed as follows:

> "Taking image, exchange and use value from the Orbit study, different owners value each of those differently. We need a sort of matrix that we can put those values in, and then say that

> the valuation will depend according to the type of user and where we are on the probability curve. Could we get some framework around it? This is a complex issue, at least we can start to address it. In terms of what drives hospitals valuation, it's the NPV of cash flow over 30 years – the NHS are saying 'what's it going to cost us next year?' What would the matrix look like? …..
>
> We've established that it's difficult to categorise anything as either tangible or intangible. There's a spectrum from something that is absolutely tangible (floor area, net/gross) to at the far reaches are the truly elusive qualities such as what do you feel like and how do you capture that. In between that if we could lay that out and take some concrete examples along the route and then apply the brand/image/use value – can we construct a matrix through those kinds of methods. As for time, each intangible will be written off at different time scales. …..
>
> There is a useful distinction between rental and yield – does better design by and large, in offices, have more impact on the rent or on the yield? In our office, the people who get excited about architecture and design are our letting agents (through better rents and fuller occupancy?). They're the people who can go round an office with potential occupier, explaining the building."

These ideas were considered by the delegates to have definite possibilities for the development of new methods.

Actions required by building owners to introduce new methods

What should building owners do to support the introduction of new valuation methods? Facilities Managers said there was a need for them to be more aware of, and recognise, the added value of their property provided by intangibles, and that they should gather evidence and measure the business benefits and operational returns arising from improved functionality and raised productivity, which in turn would lead to better marketability, better returns and lower tenant turnover. Chief Executives should be made more aware of the impact of their premises and become more demanding of quantification of property decisions based on outputs not just cost.

Designers said building owners should give higher recognition to the impact of buildings on their business models, be more open to arguments other than financial ones, conduct regular post occupancy reviews and be prepared to share information across owner organisations. They argued that, once there is evidence, owners would be in a position to have higher expectations and be more demanding including putting a demand on designers to use evidence from past projects. There was also a need to integrate evidence-based design and social amenity issues into the briefing process and business case reviews, and to introduce design quality indicators into key sectors. Owners should also provide opportunities to debate requirements and expand understanding.

Surveyors and valuers said that owners should give greater recognition to use value, be more aware of their stakeholders and develop a closer relationship with the users and their needs. They also identified a need for more clarity from owners in what was wanted and what attributes were valued, and called for the setting of higher standards and expectations including a longer term perspective.

Actions required by building managers to introduce new methods

All three workshops identified similar actions needed on the part of building managers:

- They should get close to occupying business units, develop a greater appreciation of the working environment and its fit with key business outcomes, gather data about outputs and outcomes from end users, keep proper records of factual data documenting links between building design factors and organisational outcomes, and develop in-house benchmarking and valuation tools that identify and capture intangible benefits. They should make comparisons between different solutions, and recognise the trends and aspects that add value.

- They should offer case studies for comparison and evaluation, and share data externally so as to contribute to a common method of evaluation.
- They should ensure their knowledge of business operations is linked to management decisions about buildings, involve themselves in the design process at the earliers stages in order to inform and influence it. A proportion of the resulting cost savings or financial gains should be set aside for better evidence gathering and dissemination.

Actions required by building designers

Facilities managers said they thought designers should recognise more clearly that design can add value to the occupiers' business processes and must reflect business needs; they should develop better understanding of the use of the building and the functionality required, and they should investigate the components that contribute to tangible and intangible benefits. Designers should design buildings to suit people and processes, or at least to be flexible enough to accommodate a range of processes and different organisations.

The surveyors and valuers agreed that designers should have better awareness of value drivers; more engagement with the outcomes; and analysis of potential value-adding attributes and systematic correlation of these with various types of outcome.

The designers said that designers should:
- Set out aspirations as part of briefing
- Convene the skills of related professions rather than going it alone, and apply emerging information, lessons and methods
- learn to interrogate clients and evidence about how outcomes are influenced by design
- make arguments for evidence based design using case studies and accepted wisdom, and in client language
- Take opportunities to remain in the loop after the design process is complete
- Offer case studies for examination.

Actions required by surveyors and valuers

Facilities managers said that surveyors and valuers needed to have greater awareness and understanding of how buildings affect productivity and business performance, and to recognise that intangible benefits can impact on the value and saleability of a property. They should set criteria so as to differentiate the bad from the good, develop measures to identify and rate intangible benefits, and translate their improved understanding into a standard format and set of rating criteria.

Designers said that surveyors and valuers should be open to intangible benefits and take into account environmental performance, employee satisfaction and related evidence. They should open up the 'black box' of valuation and work with investment analysts, corporate finance professionals and other experts such as those in brand valuation to identify and distil possible new approaches and methods

Surveyors and valuers said their own community should improve its understanding of the nature of intangibles; develop insights and methods to value the benefit of the building to the occupant operation in terms of an economic model of outputs of production; improve their role as an information conduit between investors and occupiers; and develop probability-based methods of valuation in addition to the single point method of valuation.

Other suggested actions to introduce new methods

Delegates at the workshops recommended various further actions to devise and promote new methods:
- A general need to raise the profile of intangibles and their potential benefits
- The professional institutions, particularly RICS, should establish a cross disciplinary research body or standing committee to develop consensus-based evaluations, review examples from other sectors, and develop a methodology. This would have the potential to become a valuable tool to

aid decision makers. There would be a need to look outside the property field for methodologies, for example the valuing of brands.

In terms of research, delegates suggested that:

- Government should set aside research funds to study improved valuation methods, and encourage internal collaboration between research outputs and its own client departments
- There should be a bringing together of international resources and joint research efforts
- The research community should examine the extent to which their existing valuation tools could provide a framework for application to building design, and
- Research funders should demand better application of the results of feedback research.

As an important procurer of buildings, government should show a willingness to pay on a 'value for money' basis, should recognise the potential benefits of improved outcomes, accept the risk for their delivery and work out how to share this with the private sector. Other project funders should be more aware of the opportunities for buildings to contribute to future employment and health, and develop a vision of the future.

In design education, there should be greater awareness of the social value of buildings.

All stakeholders involved in devising improved valuation methods in practice need to develop clearer models of what is being evaluated, ensure consistency across all parties of models and language, devise a process to feed evaluation results to where they are really usable. Evaluation models from other sectors need to be reviewed.

Introducing the new methods into mainstream practice

When asked what actions were needed to introduce the new methods into mainstream practice, delegates said that:

- Occupiers need to become more aware, smart and intelligent
- New methods need simplicity, clarity and to offer demonstrable benefits. And they will need to be well publicised, credible and persuasive, linked or integrated into existing methods (for example, environmental impact or sustainability assessment), presented in a way that encourages participation including in individuals' own language, and with the benefits of adoption clearly identified
- Pioneers will be needed, with buy in from whole projects, with perhaps external incentives, and with the results published to demonstrate what can be done and the resulting benefits
- Evidence will be needed about the validity of new methods, so as to convince decision makers they can be used reliably in practice, are a useful aid to taking decisions, and will impact on the bottom line
- They will need adoption by the professional institutes as a standard, or their endorsement as best practice, if they are to be taken up widely by the property professions. The basics will need to be included in the curriculum for qualification and introduced into training and CPD.
- At best, they need to become an integral part of the decision making process. A legislative push may be required, and there may be a need for subsidy and tax breaks.

Research and demonstration projects were proposed including having the OGC sponsor 'trials' to capture evidence. There would be a need to influence the RICS Valuation Faculty Board, followed by introduction of new methods into education and CPD. Convincing the accountancy profession would be essential to generate confidence in the process.

Barriers to new methods

Facilities managers identified a variety of barriers to the introduction of new methods:

- Current perceptions by occupants that property is an overhead or liability, lack of connection between property decisions and operational requirements, and a desire to minimise cost rather than raise value
- Uncertainty (among finance and operational directors) about the validity, value and business benefits of new methods; that there may be an effort required to overcome ignorance, apathy and scepticism; and that they may be thought of as 'not relevant here'
- Property is investor-led rather than end-user driven, and there is discontinuity between the investment community which drives design, and the needs of occupiers and users
- And as one delegate pointed out - intangibles are business-specific

Designers noted several barriers:
- Difficulty in identifying tangible benefits or perceived value from the application of new methods
- Insufficient time and funding in a process already littered with competing demands
- Lack of awareness and understanding of the proper benefits of good design, and of possible valuation techniques,
- Short-term balance-sheet mentality, apathy, and lack of a feedback culture
- General burden of design information overload, with designers wary of taking on extra burdens unless there are immediate gains.

The surveyors and valuers identified a variety of barriers to take-up of new valuation methods. The main ones related to lack of time, money and motivation, together with lack of incentive given there is a well-established standard approach. Lack of evidence, lack of collective definitions for intangibles, and lack of confidence were also cited, as was the complexity associated with different organisations, departments and budgets (i.e. design vs. construction; capital vs. maintenance; investor vs. user). Other barriers included the 'natural conservativism' of the valuation and property investment profession; the mind-set associated with lowest possible initial cost, and the risk-averse attitude of government and initial providers.

Means to overcome the barriers

Facilities Managers suggested the following potential means to overcome the barriers:
- Customers becoming more discerning in choosing the best over the mediocre – helping to raise awareness among property investors
- Through the compilation and collation of data sets and case studies, which will demand both time and resources
- Through the development of a consistent, robust and market-recognised method (that is generic, not property specific) for valuing the benefits of accommodation that will aid the selection process and that is transparent to operational management.
- Through publicity and promotion of the new methods and the creation of a high profile through conferences and workshops, to help ensure they are perceived as relevant

Designers suggested a need to:
- Focus efforts carefully, make a sensible medium/long term plan, but with some short term (potential) quick wins and successes. Don't try and do everything first time, and avoid the feedback story where loads of methods (some contradictory) lie around for ages but all energy is dissipated by protagonists of each promoting their own. Develop the framework in the language of business models, like the Balanced Scorecard or EFQM,
- Collect existing evidence to show what's already been done. Run more workshops and cross-pollinate ideas between disciplines. Produce good factual material and/or demonstrations, ensure it is robust and evidence-based, and that it sets out the financial benefits and other advantages to all stakeholders - and in their language not expect them to learn ours. Present as an opportunity not an administrative burden.
- Use research funding to gather new data and evidence. Bring in social sciences on 'soft' issues of comprehension, follow through, commitment.

- Full and comprehensive communication and training. This needs to be sustained and monitored.
- Create a supra-national non-commercial funding body for international collaboration.

Among the surveyors and valuers, one pointed out that it was very difficult to consider something as varied as property without dividing it up in terms of sector, type etc, since the drivers between commercial property value, for example, will be very different from those behind public sector procurement – intangibles will be different and so will the end users. The need for collecting evidence was stressed, including particularly a steady flow of useful information and better understanding of value. Capturing those intangibles that are 'tangible' was recommend initially. There will be a need to appeal to international accountancy standard-setters, for education and the development of industry competence through education and CPD.

Measurable success factors

Workshop delegates were asked to identify measurable factors to demonstrate that means to capture intangible values were being successfully developed. They offered the following factors:

- The establishment of an agreed and common terminology for intangible assets
- Extent of take-up of new methods, and their demonstrable value and market-recognition
- Increased budgets for facilities and attention given at board level to the effect of property issues on core business
- Increased productivity of occupiers in good environments and greater awareness of the benefits
- More discerning property selection and differences in property rates based on evaluation of business performance
- Interest from government which identifies ways to push/pull demand and supply
- Take up of new methods, changes to practice including improved briefing, greater design certainty and fewer post contract changes
- There is a robust case for good building design
- Increased user satisfaction with the process
- Better buildings get built that provide function, delight, and better value and improved financial performance, and there is increased satisfaction from businesses and users
- Outcomes are improved and the improvements measured in a way that is transparent and intuitive
- Case studies are published, there is promotion by CABE, and good buildings gain headlines
- raised awareness;
- availability of useful metrics;
- better defined value of buildings/built environment;
- the general acceptance of new tools and their implementation and uptake in practice;
- and bids assessed on the basis of business operating costs/benefits not just initial capital expenditure. Improvement in outcomes –such as more buildings enhancing perceived productivity – were also cited.

Non-measurable success factors

When asked to identify non-measurable success factors, delegates across the three workshops suggested a wide variety of these:

- Clearer understanding of end users needs and opinions
- Greater debate and recognition of the contribution of design to society and of the cultural impact of the built environment
- Enhanced contribution of buildings to users and communities
- Increased economic growth and wealth creation.
- Happier clients, increased well-being of users, and increased user satisfaction
- Increased investment of time in briefing and evaluation by clients and consumers
- A change of attitude in the construction industry, leading to better building designs that provide improved environments for occupiers
- Increased public trust and respect for the design professions

- Interchange of new knowledge between disciplines and internationally
- Review and publication of successful outcomes
- Increased likelihood of certain beneficial but non-commercial projects proceeding.

Sebastian Macmillan, 31 January 2005, revised 21 February 2005.