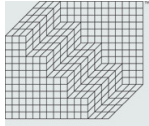


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Innovation in Construction

The design of our built environment

Meeting of Steering Group

Wednesday 28th July 2010

8.30am – 10.00am

@ President's Room, One Great George Street, Westminster, London, SW1P 3AA

TRANSCRIPT

1. Welcome and introduction from Rod Macdonald

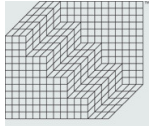
Rod: Most of us regard the construction industry as a place where every project we do is unique. Someone at the Treasury once asked me: all the buildings I go into seem to have doors and floor slabs and columns – why do you make it so difficult? There is a grain of truth in that. I'm also aware of many industries where they are driving continuous change, and are achieving incredible things by doing that. They have specialist designer and fabricators who are continually developing the parts of the things they are making. And that's something we don't have in our own industry.

I've deliberately talked about bits rather than components, because components sound terribly expensive and everyone has an image of what a component is. I think we need to broaden our view. And think about all the bits that make up the building. I would say almost without question that even the best bits could be better, and some of the bits we put into buildings are frankly atrocious. And why is this?

I should say that, because I'm an engineer, I'm not criticising architects in saying this. The job that architects have to do, they should be given better bits to put together in the first place. And what architects often have to do is 'make do' with a situation where the industry isn't producing what is actually needed.

If we're going to do something effective in this inquiry, I think first of all we're going to have to focus quite carefully, and secondly look at what are the levers and drivers we can use to make something happen. In many of the other industries we look at and compare ourselves with there is a 'mother company' somewhere, that's driving a whole load of other companies to do things for them. In the construction industry we don't really have that, and so we're going to have to find another way of doing it. And not only do we not have that, we've never actually defined what we'd like to achieve in our products. There isn't anything set up to say that

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we would like to have products which are easy to assemble, are sustainable – all the different things that need to go together.

So what I would like to see is us coming out of this process with something that has some levers and drivers to it, and in doing that, **we might be able to get in a position where we can continue to produce unique buildings, but they are unique buildings that have built into them things which are very good and continually improving.** Those are my initial thoughts.

2. Attendees

Rod Macdonald, chair of Buro Happold and an engineer

Jim Dawton, partner of DesignIt London, by origin a Danish firm, growing across Northern Europe and hopefully soon Southern Europe. And rather unusually for the UK market, DesignIt is a multidisciplinary design consultancy: so from product, to brand, to experience. And one project that we're doing at the moment is Copenhagen metro. Looking at the experience of using the metro to provide specifications for a new build for a new line.

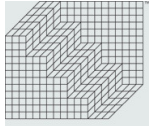
Mike Cook, engineer, a partner of Rod's, do some teaching of creative design and also getting more involved in organisations like TRADA, like the Steel Construction Institute, who try to represent this bridge between construction, making and designing. I don't know whether they succeed...

Jocelyn Bailey, secretariat for the APDIG

Keith Priest, partner in Fletcher Priest, worked with Rod about 40 years ago with Buro Happold. A firm architects and urban designers active here, Germany, South America and a little bit of North America. And some parts of South East Asia. We run our own research group and things we're doing in London: masterplanning Broadgate for the Big Bang, Stratford City athlete's village we're involved in, and other things like that.

Nick Raynsford, Member of Parliament for Greenwich and Woolwich, and in a former incarnation Minister responsible for construction in the early days of the last government. Also with an interest in the Olympics,

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among other things I've just recently been appointed to chair Triathlon Homes, which is one of the agencies delivering the legacy in the village.

Alan Howarth, member of the House of Lords, chair of the All Party Parliamentary Group on Architecture and Planning, which has a particular interest in how we improve design in our built environment.

Ian Reeves, like everyone around the table I have a few hats, but I'm here today because I'm chairman of Constructing Excellence. I've been involved in that movement for change and improvement in the industry since the very early days of Sir Michael Latham's review of the industry in various roles. So I'm very pleased to be here, as I think it actually has identified a real problem with the industry, which I hope we'll be able to do something to change.

Don Ward, Constructing Excellence, big focus in the organisation on value and what a good built environment means, and then what the best processes are for delivering that.

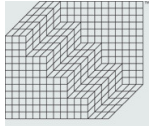
Robin Oram, Head of Education at Sir Robert McAlpine, which in the current climate is quite an interesting place to be. I'm passionate about innovation in the industry, and I have set up, and I chair, an innovations forum.

Eoin Billings, Billings Jackson Design. This forum is of particular interest to me because we are a product design company that does specialise in the built environment, and we've worked with a huge range of companies, from BAA to Grimshaw architects, through to ... on the recent Formula 1 building – where we're helping architects to work out the details and solve problems. We also work with manufacturing, globally, and we have a huge range of award-winning products that answer maybe some of the questions you're asking. But reading through the paperwork before today, I think there's a couple of ideas I'd like to put forward - I really do think we're trying to 'eat an elephant', and we maybe need to start somewhere smaller, it maybe needs to be sectorised.

Eleonora Cervellera, from Buro happold, public affairs for BH, I'm not a designer or an engineer so I will try to bring a different perspective if I can – hopefully a thought leadership perspective.

John Stehle, looking after the structural innovation layer in Laing O'Rourke across the group. A big thing for LOR is the DFMA agenda (design for manufacture and assembly). We're one of the few construction

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companies that have an integrated supply chain to a large degree, where we invest in our own manufacturing facilities, the latest being a £100 bn investment in the midlands, which is probably Europe's largest precast concrete factory.

Christopher Exeter, Director of Policy and Chief Economist at the Design Council, an agency (some may say 'quango') of the department for business innovation and skills.

James Powell, Professor at Salford University, where I'm involved in the Salford Centre for Research Innovation. As a result of our last meeting we've put together a bid with Loughborough University to the EPSRC to take some of these ideas forward, which I might share later with you if that's appropriate.

Chris Davies, structural engineer at Buro Happold, and also board member of Generation for Change, the young persons' construction group, that sits underneath Constructing Excellence.

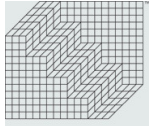
Eddie McElhinney, from SAS International, a manufacturer of products for the construction industry.

3. Introduction to the Parliamentary Inquiry concept from Nick Raynsford MP

Nick: There's a fairly long tradition of parliamentary inquiries undertaken by select committees and by all party groups. The broad principles on which they tend to operate is an initial invitation for evidence to be submitted – and because it comes from a Parliamentary committee that's usually quite a useful way of getting evidence. For some reason people feel it's something they ought to take seriously! So that's number one – that it's quite a good way of getting people who otherwise might not feel they can give the time or the effort to put evidence together, to do so.

Secondly it allows 'grilling' of people who have submitted evidence in a non-legal, but nevertheless formal, context, where it is possible for both experts and laymen together to tease out some of the interesting issues that might otherwise not be explored. Partly I suspect because us laymen parliamentarians have the balls to ask awkward questions that technical experts sometimes wouldn't, for fear that they might look not as competent as they should. We don't have that inhibition! The format where you get round the table a group of experts and laypeople who can then interrogate those people who have submitted evidence can sometimes be a very fruitful way of teasing out useful insights.

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And thirdly, because it is a Parliamentary process, by the time the report is published it's usually capable of being publicised and getting good coverage which is obviously helpful in trying to get some action instead of the syndrome we're all familiar with of worthy reports gathering dust on the shelf. The downside I should stress is that Parliamentarians diaries are completely ghastly. And it can be nightmarish for the unfortunate organiser who has to try to corral people and get things to happen. So that's by way of apology at the outset! But I hope this may be a useful exercise.

4. Discussion

Rod: The key thing is that we know what question we're answering – we need to make sure that we've defined what that is, and I think we're looking at the idea of 3 grilling sessions, at half a day each, and in each one we would be meeting a group of people. So I think we need to think about whether we organise those around a group of people from a similar sector in the industry talking about their sector's approach, or whether they are from different sectors talking about a particular subject.

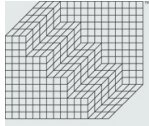
So shall we start with the question? The current one, that we have on the paper before us is 'how can we embed better and more innovative product design in construction of our built environment?'

Ian: I personally thought it was very succinct – and in a way, the moment you expand the question you actually start to narrow it down, and at the moment it's very broad.

Jocelyn: I have some notes from a Sustainable Design Consultant, Alastair Fuad-Luke, who was meant to be here today. His comment was... 'based upon the premise that 'the 'bits and pieces of construction' have not kept pace with the wider technological and design developments'. This doesn't ring true for certain sectors in the construction industry – for instance, energy efficient appliances/systems, renewable energy systems, and lighting systems are rapidly evolving. So, might it be better to look at a 'recalcitrant sector and an innovative sector', to learn if there are systemic ways of changing behaviour and outputs from the recalcitrant sector?' Would you agree with that, that there are some internal variations?

Robin: I think it's always useful to identify some good examples, so you can say how did that come about, and start to compare, and ... I think as a broad principle that's a good idea.

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Rod: It's also an important point that if the message that comes out is 'it's all wrong', that's not very helpful...

Robin: Yes, one of the issues – and I think about this from probably towards the end of the process as a contractor that puts these bits and pieces together – yes we improvise and sometimes we call that innovation – although that's not what we're talking about here... the big issue for making sure that good products are used, for us, in using that material, ultimately comes back to 'how do we deal with risk?'

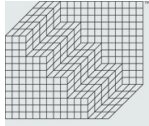
I'm reminded of some many years ago, I was personally involved in putting together what was probably the first silicon-glazed building in the UK. The clients brief was: challenge the bounds of the technology. The design team and ourselves as the contractor, worked together to deliver that brief. And we did challenge the bounds of the technology. But then parts of the silicon glazing started to explode, and in those days we didn't know why. And so we'd challenge the bounds of technology, done everything the client wanted, but unfortunately from the client's point of view it was our (the contractor's) problem. And so that kind of risk with innovative products is what we're talking about – and that's why I think having some good examples is a good idea.

Rod: We're talking about a total industry, not just the design side of the industry, and it does tend to get polarized into its different parts. And I wondered if the word 'design' should actually be replaced by development? The process of getting the products is a development – you might call it design, but it's design by a manufacturer and the assembler and various other people.

Mike: You could almost just delete the word altogether – 'innovative products in construction'. I also like the idea of compare and contrast, good and bad. I just want to bring up what I think is a very disappointing industry. The use of timber in construction is just shouting at us to be developed – in terms of carbon, in terms of sustainability. I think the way that the timber supply industry is formed is really holding it back – I think it's a fantastic example of an industry being so constrained it's not meeting a market need. We could, for example, try to identify barriers – what's gone wrong in the timber industry?

Keith: There are examples where those things are totally released like the Vorarlberg in Austria – where the timber industries, the architects and the communities all got together and everything's timber. And it was not done for design reasons or any reasons to do with the building industry – it was done to combat unemployment in an area with a lot of trees.

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Alan: I would be reluctant to lose the specific reference to design – the use of that word, in the terms of reference or the basic question we’re asking, because it seems to me that the word design powerfully implies a concern with quality, whereas when you speak of development you are suggesting that anything goes as long as it will sell. And that is actually the crucial distinction, if we’re wanting this industry to go up-market and do better, then it’s surely going to have to be by way of improving design. I think that to say development implies design is perhaps insufficient.

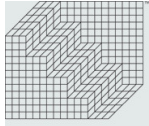
Eoin: Perhaps it’s more that what we’re trying to do here is create a platform for design and innovation, and understand how we can create that platform?

Jim: You can extend that to the word ‘innovation’. Which is a very very confusing word. I have no problem with it being in there, but an ‘innovative solution’, might be a very low-quality, cheap solution. So we could put the word quality in there somewhere – and that picks up Alan’s point. Working with Danish firms at the moment, there’s an outcry about quality, and the effect that that has on people.

James: I think the word design is important, as is the word development, but I’d add a third word: use. I think it’s product design, development and use. One of the problems is that we design good products, and develop them well, but we don’t always think about their use in reality. And tying in with something that Robin said, I think it’s more than how we deal with risk, it’s how we deal with opportunities in the context of risk. This is where I think we’ve gone wrong in the past, we haven’t thought about the whole life solutions to problems, and we’ve dumped on the industry problems that it wasn’t prepared to cope with. So some of the responses I would like to hear is people saying how they’re going to cope, with new innovative products. I suppose I’m thinking that quality is implicit in that.

Ian: One thing it strikes me is important, is talking about who is the customer in the context of buildings. This industry tends to think the customer is the person who pays the bill, as the developer. And I think that’s a mistake. I think the ultimate users of the building, whether they’re passengers going through an airport, or the people who actually regularly live in the space, whatever it is, are the customers. And I don’t think enough thought, by industry, is given to what the people who actually use those buildings would pay for. One of the things that’s coming out of a review we’re doing at CE at the moment, is the lack of (and pressure that we’re coming under to lead an inquiry into) post-occupancy evaluation. And I think if we could link post occupancy

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evaluation of buildings, with this drive for better design, then we might actually get 360 degrees meeting in the middle.

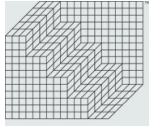
At the end of the day, if you talk to senior partners – people like Richard Ellis and others, quietly they will say to you, of course some buildings are worth more per square foot to the end user than others. They don't draw too much attention to it because they're there to sell and let buildings, but, when they go round – if we could get people from that world, who actually commercialise what we do in one form or another, and face the comments of the end users – whether those are people who live and work in the building... And we've all been inspired by being in certain buildings rather than others which depress us. I'm a passionate believer in the value of the environment in which you put human beings to do whatever they do – and I just don't think that has adequately come into the whole concept of value.

If we look to the private sector, whether it's Dyson, or Sony, or Apple, or whoever, some of the great commercial successes are design (and I include engineering and aesthetic design in one place: total design) is probably the single biggest reason for their success. Yes good management, yes good execution, but I think that's because they fundamentally believe that society would pay for value. And I also think corporations will pay for value. They'll pay more rent for this building that's presented in the right way than another building. I think you have to go right to the end of who uses and works in the buildings...

Rod: If I can just comment on your first point. I was part of the group that with London First looked at Heathrow. And what was really interesting about that bit of study, was that it was based on passenger experience. What was the passenger experience of someone leaving an office in London, or anywhere in the UK, and arriving at Heathrow, getting on an airplane and coming back again? And it completely changed the way we looked at the running of Heathrow.

Nick: I just wanted to widen the discussion a little bit by paradoxically narrowing into one area where I think there has been over recent years very significant change – and that's the whole energy efficiency/ low carbon agenda. Where a number of factors have been absolutely critical in producing positive responses from a pretty wide spectrum of the industry: the manufacturers, the designers and the contractors. It's not been a single element. I think the interplay between the elements... And that's partly been government regulation, the certainty that Part L of the building regs was going to be raised progressively towards the 2016 zero carbon for housing and 2019 for buildings undoubtedly was a driver. There was a clear tension between the anxieties of many in the industry about the cost implications, which produced a lot of climate change denial initially,

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but then interestingly produced the real pressure to reduce the cost of components, to actually get a viable market going, so that it was possible to produce code level 3 or 4 homes at virtually no extra cost to those which otherwise would have been built to lower standards.

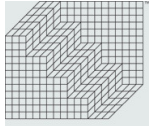
Rod: So this is minimal use of resource both in the manufacture of the item and in the way it's going to work...

Nick: But the thing I was going to come on to say, was that ultimately these different tensions could have produced stasis, because people would have said, 'well it's all too expensive we're not going to do it, no-one will buy the houses,' – one was hearing those voices expressed really quite recently – the way it changed was because people had to inter-relate. And this wasn't just a question of supply chain integration, which is important, but it was *impossible* for people to get away, or say, 'well I don't believe this is going to happen, it's not realistic.' So in a sense what we have to do is to create a framework where it becomes inevitable and people must engage. And the kind of tensions that I've described that actually have led to improved product and improved process, and a growing interest in how we learn from people's experiences of using the product – all of that produces something very much better. And I do think the key is not allowing any elements in the overall picture, any of the groupings, to be able to walk away and say, 'this isn't my problem,' or, 'this isn't going to work and therefore I'm not going to have anything to do with it.' So it's finding that framework...

Eleonora: Can I ask something? Picking up on Nick's point, and looking at all the stakeholders involved in this process – designers, engineers, manufacturers, end users – are we saying that there are no losers? Everyone stands to gain out of this change?

Eoin: Well if you take an example like... there's an Italian city which is a perfect example of this... it's the interplay that makes for the innovation. It's not sitting in any one quarter. There's a group of cities, or small towns, in Italy, that rolled out an LED lighting solution. They had a problem where they had to reduce their energy consumption by 10% per annum or they got fined. They were happily paying the fine because it was cheaper than doing anything about the city. So the energy companies approached them with an innovative idea. Which was: 'we'll supply you with light, for the town, for ten years (it's a bit like a PFI) and you just give us what you would have paid for the energy, but we'll give you a fixed price' – which they loved, because that meant they had a fixed budget every year. They got their ten percent reduction because the energy company's interest was in making as much money out of the energy price they'd just got. So they had to reduce the amount of energy that was used, so they introduced an LED system. And this is running now, in a few cities

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and we're going to try and bring it into London here. And automatically you have the innovation, because they're using brand new light fittings, the latest LED technology, and half the energy usage, because the energy company was just printing money after 5 years.

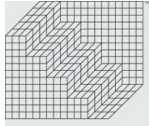
Rod: Just to pick up on what Eleonora's saying... Laing O'Rourke's doing a lot of work in developing product: John, do you think that by doing that process everyone's a winner?

John: Well, we're very keen on promoting good quality design. If you go to see some of our previous schools you'll see a very good quality. The efficiencies that we'll gain over time by having manufactured products, instead of doing an in-situ type of build, you gain from learning about the previous project, because you have a workforce co-located in one spot, and using the same designers over and over again. So you get this continual innovation happening, as well as your step change innovation that happens... I think the two aspects of this... in terms of innovative products, there is the continual innovation side and then step change side, and the step change needs more of an R&D type of approach. And in that approach it really requires more championing and the reward mechanisms probably need to be set up to encourage that.

Robin: Whereas I'm sure nobody round the table likes the concept of losers, you could say that we're all losers through not understanding that which is 'innovation'. I was really interested to hear the discussion around the table, because a microcosm of that discussion is what happens with the innovations forum that I chair within our group. And always the ultimate problem is: 'how do we capture the innovation? How do we capture the ideas?' The question here says: 'how do we embed?' Part of that embedding is being able to capture ideas, and being prepared to share them. Then, a big industry-wide problem, although we're sat around the table sharing ideas here, once we get into *competitive* mode... It's great to see John and we can always have a good discussion, but when we go back to our desks we're competitors. And so how do we overcome that strong tension? And how do we then disseminate the information in way that we all become winners?

Alan: I think what we're essentially talking about is how to identify the critical, contextual and market pressures that make for high performance, or allow people to get away with relatively low performance. A number of them have been mentioned. Nick's talked about the role of government in regulation. The requirement to produce low carbon buildings for example: if the regulation is well designed, if it's clear-cut, if it's ineluctable, you can't escape it, then of course that becomes part of the context in which people have to work and they have to respond to.

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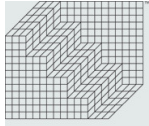
Picking up the point that was made about whole life costs and post-occupancy evaluation, there may be issues about evaluation and accounting conventions and regulations which are worth examining because they too are a very forceful context. And the question of incentives. Is there a role that government can play to incentivise and reward good design and technology and penalise the reverse?

There are a number of other candidates under this broad banner I think. One is the quality of clients. Is there anything that could be done to improve the capacity of clients to insist on the best and to help them understand what that may mean? Does that lead us to think about the quality of advice that may be available to them? Should we also be thinking about professional curricula, professional formation? Whether there is something to be gained (it has been talked about forever but nothing much has happened yet so far as I know) in terms of trying to achieve some commonality of professional formation between the different professions that are all part of the construction industry mix? One or two much broader issues, but we can't escape, living in this country, from the shadow of boom and bust (which not many of us thought had finally been abolished – and it turned out emphatically not to have been abolished!) - that bedeviling context induces defensiveness and a shying away from innovation I suspect, for prolonged periods at a time. There are probably other such issues... One of the imperatives of course that drives people to innovate is the arrival on the scene of some new technology that you simply can't escape, that if you don't adopt it you go out of business. Unfortunately we can't rely on that happening.

James: To build on that, I think the client is absolutely essential. And the profession is, I absolutely agree with you. The study we've just completed of 4 small to medium-sized contractors – they're really determined to change their activity because of the client's demands and understanding. Because their client's much more professional than normal... they're doing the sort of thing Laing O'Rourke are doing quite on their own... and so what we've shown is that by them being more professional there's a different negotiation and there's a sharing of knowledge between the client and the contractor, and then the customer, the end-user, is brought into the process in a meaningful way. You shouldn't just be bringing the customer in for the sake of it. It's the way that's done. Now these are normally Housing Associations who put the pressure on who are becoming more professional, and the same with government, but I think all clients have to be much more professional and they could be a real power for creating change.

Ian: I think we've got to be careful what we mean by good design. If we mean the finest products, I think we're going to fall foul of value for money and affordability questions. I think if Paul Morrell were here at the

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moment, he would be repeating what he said during a parliamentary function the other night, about trying to get buildings which are good enough, and he said it to what he hoped was an intelligent enough audience not to exploit what he meant, but I think it's a real issue of meeting what is appropriate design. I remember going to a function and listening to the then chairman of the British Property Federation say, 'I wish people would stop talking to me about the finest buildings, I wish they would talk to me about appropriate quality.'

Appropriate to the location, appropriate to the end-user of the building and what they can afford.

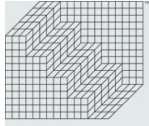
I went yesterday to talk to a company that is specializing and focusing on intermediate housing, for people that are not on a sufficiently low of income that they can get social housing, but cannot afford first-time properties on the open or the private market. I was extremely impressed by the way they had approached that, by designing their product and thinking about use, thinking about the market, thinking about how they could deliver these at a price that these people could afford. And it had to do with density, it had to do with how do you design a development at very high density, but in a way that you weren't building a modern slum, to cut to the chase. That, I thought, was outstanding design, but they certainly weren't putting gold-leaf taps all over the place. But it was certainly very attractive. And in fact somebody who was with me who has nothing to do with this industry, he's a finance person, said, 'I've been in a few Barratt (he did use that name) homes, and it's never looked that attractive, internally.'

Rod: As we were saying before in other industries you have another organization that's driving design, and one of the key factors that they are driving is cost. They're saying, 'you must improve this design but it will be within this cost,' and that's an important factor.

Keith: Actually our experience is quite different. Working with Sony when they developed Playstation. They created a completely new industry, that's about 10 times bigger than Hollywood, and they did it up the road, a bunch of guys sitting in a room. They were betting the whole ranch. They didn't know it was going to work, the company would not exist the following year if that gamble did not pay off. Throughout the company they were committed to that degree of risk, to that degree of innovation. They didn't know if there was a market because they were creating a new industry.

The same applied on a much smaller cost to someone called Edward Atkin, making baby bottles in Suffolk. And from nothing he made a company which produces something called a vent: anyone who's got kids, all your kids probably feed from a vent. He combined medical technology, production technology, and Suffolk workforces to produce a world-beater. We couldn't build factories for him fast enough. Because factories were

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built at the normal cost of factories but he has design standards... he's a British success... These two bunches of people are passionate about what they do, they never have customers in mind, they just make the best product. Edward's product retails at £1.99, but it's double the price of the £1 feeding bottle. It's just a higher quality product and it sweeps the world it's not a British phenomenon, it's all over South America, South East Asia – if you're in Mumbai you can buy your kid a good bottle not a poor quality bottle. And the same attitude applies at IBM (we're doing their research HQ) and they don't have customers in mind. This idea that you plan everything around some demand that might exist: if you make something that's genuinely good, it does sell. Those are three examples that we're aware of.

They're all very passionate. They're all very passionate about the shortcomings of the building industry because we have to deliver them accommodation within the building industry and the speak passionately about it: they'd be very good witnesses all of them, to have a view on this. Edward's gone on – we coincidentally bumped into him in a college in Oxford we're doing, where our client is 50 fellows, and the fortune he's made out of baby bottles is funding this building we're doing in Oxford. The issue that came out there – the most innovative thing that everybody wanted from those 50 diverse brains, and Edward – was longevity. So our research efforts are all based around making components that will last 400 years.

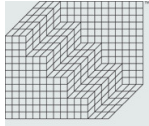
Nick: Can I come in... I just want to disagree quite profoundly. I'm sure that works very well for lots of products, but actually the example I gave of energy efficiency in housing: no-one would have bought it if it had remained a very clever idea but an expensive idea. It actually only became feasible when you got people able to produce buildings that actually were saleable to the public. Because otherwise they would have bought rubbish – because they weren't interested in reducing carbon emissions.

Keith: I was making the example because we're talking about products and some products that are cited as being successful begin their lives without a market...

Nick: Providing there is a public demand for them.

Jim: Picking up Robin's point earlier about how to capture ideas – there's two bits of research I'm just about to undertake – one in the healthcare industry and one in the technology industry. The healthcare one is about the challenges of diffusion of innovation, which is even beyond the adoption of innovation. I think one of the issues in healthcare we've been preoccupied – in innovation generally in the UK – with the idea, and not the successful commercialization of the novel idea. A lot of government energies are being put into idea

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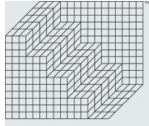
generation, and that's I think indicative of the fact that DTI became DIUS and BERR – and innovation sat with universities and skills and not business and enterprise, and regulatory reform, which I think highlights one of the challenges there. So for me it's less about how do we capture ideas, it's more about how do we disseminate and diffuse good innovation practice.

And then picking up on Ian's point of 'good enough' and it comes back to this debate here as well I think – the other bit of research I'm just about to undertake for the Technology Strategy Board is looking at the currency of innovation in technology. And at the moment the currency is very much around the technology, it's around the patent, and no-one gets out of bed (in terms of funding) without a clear indication of a patent. The problem with that is the end user is actually not interested in that little bit of technology handshake. That's a wider discussion which perhaps isn't so relevant to this forum, but one of the key objectives here in terms of good enough, and in terms of who buys what... the single word I can use to summarise that is 'brand'. Because brand actually defines a set of values, and expectations, and a level of quality. There is Easyjet brand, and there is BA brand. And they're different offers, although it's the same 'thing'. But very, very clear and distinct offers, and the customer, or whoever it is, knows what they're getting. I think this is where we miss a trick in terms of defining what is good enough, defining and communicating where we're trying to market something, and establishing brands in those areas. Or we can use another word if we want to. I think that's key to successful adoption and diffusion of what's going on, because people then know what to expect, what they're going to get, and they know against what they can complain when it goes wrong.

Rod: We're trying to define the question, and I'm conscious that we've only got half an hour left, and I think it's important we also talk about the process. I suggest it's not a good idea that we try and write the sentence here in this room. I think there's been a whole host of different thoughts that I think have been recorded. I've been listening to things about post-occupancy evaluation, about minimal use of resources, about platform, about appropriate value, about quality, about improving clients – there's a whole host of things here. So I think if we can as simply as possible try and modify that sentence to incorporate the thoughts that have come out around the table just now and we'll send it out to you and unless you violently object we'll use that as the question.

Mike: Yes it does seem to me that there are some here who feel an urge to widen the question, because it's too constraining, and the question is are we going to exercise discipline and keep that quite tight – and then we will have to therefore not touch every element in the chain...

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Rod: Yes I think that's very important – we must focus because if we don't focus then we'll have too broad a remit to have any effect.

Jocelyn: Perhaps it would be useful to have a conversation about outcomes, about what you think might be a useful thing to achieve at the end of the process and that might then help inform the question that we want to ask?

Rod: We're going on to talk about the process, so if we talk about what we would like to achieve – if we're going to produce a report what would we like that report to achieve? Does anyone want to kick off on that?

Chris Davies: Well I'd say, in terms of demonstrating the capabilities, where the products are working, that's always a good starting point – to recognise where it's working well. I'd say so far from my experience in the industry, some of the big questions and where I really see this question sitting is how can you tie those interdisciplinary related items of the building – the bits of the building that solve the big questions but that involve quite a party of people to pull together and to solve – is how do you innovate that product as we've discussed? Is it by capability – selling the capability from the contractor for longevity of use? Or is it defining a product which can then be bought by the contractor? And I think in terms of this report and the outputs of it, I think it's got to pull it back to clear identification of a key design issue that's got to be understood. So as an example – the façade, the elevation – the envelope – there's got to be clear identification of these pockets of innovation that need to occur and what can be channeled into them to achieve those...

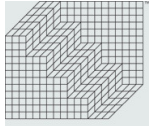
Alan: Identification of the forces that will tend to make for better quality and the forces that if allowed to operate, tend to make for inferior quality.

Rod: So the forces you're talking about these are the levers – this is regulation or commercial things or definition by clients or things like that?

Alan: All those things yes.

Ian: I think the structure of the industry is one of the reasons ... For example you have consciously or subconsciously decided to have a different model – a vertically integrated model – from delivery to the client to design and build through manufacture. I suggest it's been done because you... inherently believe that the

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means of breaking down the barriers and at the same time ... being able to have an integrated product, take the cost out, have control over the entire process... there are a number of factors I think coming out of that...

If that's right, and let's assume it is, it is to imply that the body of the industry which is today so fragmented in its process, is part of the reason for us not having the very best design – whatever best means – coming through.

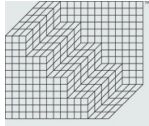
Therefore one of the things I hope we would look at here is why – if we assume that most people like attractive buildings, innovative products, and we see in the rest of our lives people adopting innovative technology with their iPhones and they sell 2 million of them, I think we can believe human beings like good design and like things that are attractive whatever they are – therefore on the one hand how can we promote the vision of better designed buildings à la Dyson (and I keep using him as an example because I think he has struck the imagination of the average member of the public about what can be done by thinking outside the box and coming at something in a different way)... And I think we've got to look at the structure of the industry at what actually prevents that innate desire for more beautiful buildings, more functional buildings? One of the things that struck me this morning was your point about Italy. What that said to me was the incentives were applied in the wrong place. That the incentives that logically were given to people... to have... the consumer to change their attitude, here it was the integration again and the deliverer of electricity saying I'm not actually sending in electricity, I'm sending light. Somebody once said to me a long time ago, 'We sell light, not lightbulbs.'

Rod: The challenge in what you're saying Ian, is if we take on the structure of the industry then we're really broadening the matter. My view is that we have to look and see what would be the levers to actually bring about the improvement in product despite the fact that the industry is... And I'd say to you, as Chairman of Constructing Excellence, it's your job to deal with the fragmentation of the industry. With our help of course!

Ian: I wasn't suggesting we should change the structure, I was trying to suggest that we need to recognise that is a major issue for this, and how can we make some strides to overcoming it. Or recognise that what we end up wanting to see will not happen (coming back to making things happen) unless we have regard to why it isn't happening already.

Robin: First of all I strongly agree with this difficulty, and it is a huge difficulty, and I think it would be ... to sort out a disaggregated industry and pull it together using this platform. I gave some thought before I arrived

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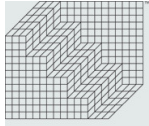
here to outcomes that would be useful, and it's always dangerous because it starts to sound prescriptive, but in view of the time and if I might dare – for us to be more innovative a central repository of information and knowledge would be a great outcome. There's no one place you can go to at the moment and get it – you have to gather it and that comes back to the point about capture and dissemination.

It seems to me that we simply don't draw on international experience, even in the way we used to do in relatively recent years. I remember I, some years ago, worked on a project where I was charged with literally going around the world to find out about glass – because we didn't know. So we went out and found out about it. One doesn't hear of that kind of approach so much these days. It's as if we've decided we know it all here – and we don't. I was interested in your organization being associated with a Danish one. I've spent quite a lot of time in Scandinavia and it always amazes me that we've not picked up on the product ideas from Scandinavia, particularly around the sustainability agenda and climate change agenda, where their approach and their delivery is frankly so much better than ours. So I think drawing on international experience and knowing that we've done so and evaluated it would be a great outcome.

And I think, picking up on what somebody said about incentives to innovate, there has to be some driver to make organisations, individually and collectively, take risk. Organisations like IBM and Sony – they have their internal drivers. For a fragmented industry to take these risks I think there has to be some recognition of how that's dealt with.

Eddie: Well I have a rather jaundiced view about the needs of UK construction products to succeed abroad... because I see huge opportunity, and it's quite interesting for me to read about this week's visit to India. Our company is doing at least four (airports?) in India, but we never went there supported by any government organization. So you start off with markets, you then have products, and the word you use here is 'innovation'. And I could change that word – to 'solutions'. Innovation is a sexy word, solutions is a pragmatic word. If we come back to markets, you obviously will always want to play to your strengths. So if you mention an industry like the curtain walling industry, in the curtain walling industry we are minnows. Absolute minnows. And the capital investment and the brand time recognition that would be necessary to succeed in that product is minimum ten years. So we have markets, we have products, and we align products with markets. Buildings are complex – so are motor cars. It doesn't make any difference what delegation has gone to India this week. It's unlikely we will build cars in India. But we can supply parts of cars. So I come back to products. In a building there are many products. I come back to playing to your strengths. Do we know what

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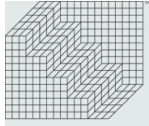
our strengths are? Does Fred Bloggs, who is sitting down in his 10,000 sq ft in Swindon making nobbs and knockers realise what strength he has?

I see government as a catalyst to bring suppliers into markets. Two things may drive you in or out of a market. Need. UK construction recession has driven our company into exports. Our exports today are significantly greater than the domestic market. So there was a need. Then if we look at the element of (fee??). A smaller business is not experienced at trading abroad... In the case of a major project we have recently won in a European country, settlement terms are one year plus. So even though we've won a major project with a good client and good contractor, we're not going to get any money for a year. Now how does a little player, a small company, deal with that? Does he know how to go to government to get assistance? So I come back and say that in certain projects – and I think Rod we could be somewhat definitive about some of these projects – we do not see a British company appear, on some of these large infrastructure projects. Not one. You see plenty of Chinese. But you don't see one British company. And these projects are aspirational infrastructure projects: airports, railway stations. Now we have got in the UK a lot of experience in airport construction, and railways. How do we as government get hold of the challenge of promoting these companies into these situations? Saudi Arabia is the largest construction market in the world (or maybe number 2?) and it's very difficult to trade there. Very difficult. But it's a huge market looking for our products and services. How are we going to help the smaller man? If it's the motor industry, and you've got a brand name in brakes like..., your brakes sell to everyone. Here in the UK there are products with brand names – ok they may have withered a little bit, decayed a little bit – but they're still recognised in many countries. Now what we – the group – have got to do is figure out how we are going to get UK suppliers into markets. To be totally frank you don't have to help me. Because we're already set up, tracking every major project worldwide, in several sectors. Sometimes we have to decide which one we're going to really go for, because of capacity. But the smaller guy who's producing building products in the UK today – good building products – they may not be the most innovative products – but in some of these emerging markets they're looking for solutions, they're looking for a product that does the job. And it's how do you get these people to those markets.

Rod: Thank you Eddie and I think that's really important, to get those – for anything to actually happen, to identify those drivers and those...

James: From a university perspective, I think it's a changing perspective in Britain. I think we have 4 or 5 universities that are beginning to reach out and do things in a different way from before. And what I'm looking for is for you to embrace what the universities can do for you. And make a difference. Because some

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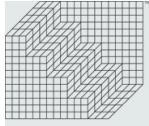
of these things are going to take some long term R&D going on beyond what you're doing at the moment... And I'll leave a proposal we put into the EPSRC which stemmed from the last meeting of this group when we were talking about whole life solutions. And I think solutions is the real issue here – it's innovation for solutions and wealth creation. And what we need – we perhaps have a bit of time to do some detailed thinking of the kind that you want – but we don't want to be dumped problems. We want to work with you, on the deliverables... for you to say 'these are the real questions that are burning a hole in our brains, this is how we want to tackle this, and these are practical real world solutions.' And we can't do that without you. So I would like to see as one of the deliverables some sensible research questions that go to the TSB, that go to the EPSRC and others. And then for government to put pressure on the ministries to say 'this is a bona fide activity for Universities to take part in.' Now it says that, it's in the rhetoric, but when you get down to it, it's still the ivory tower work that actually takes precedence. So those two things together would be very good.

Rod: That's very interesting, and we have two product designers here as well, and we were talking about the development of product... if you go to the primary product design schools in the UK, the students will be taken through all sorts of learning processes, and hardly any of them ever relate to the construction industry. And I know that personally because I've got two sons who have been through two of the leading schools. And I tried to encourage the staff there to actually change the direction and move into a bit into the construction industry, but I think they sort of feel it's a 'dirty' industry.

Alan: So one of the things to look into is why you have that kind of inertia, that refusal to respond to something that is so obviously sensible and necessary.

Eoin: That is a very good point. Something we were talking about earlier... I'm the lead product designer on Crossrail. So for all the central stations I'm doing all the more common components going all the way through to the finishes, the linings – SAS are helping us – to investigate how we can make some extremely complex, very innovative technology to line those tunnels. But we have to do it appropriately and affordably. I won't tell you the number of people we have to go through... I compare it to the NHS where the surgeon gets his gear in surgery it has to go through an (??) at 400 degrees and there are still some bugs that can get through that: our ideas have to be that strong... In order to get our ideas through we have to go through this huge cost exercise (quite recently, oddly enough, with the new administration) and in order to get through we have to demonstrate value. And the people that we sat in front of were engineers, railway people... The railway people were saying, 'Why do we need these linings? Why do we need these fancy fittings? Why do we need these fancy finishes?' And my experience with Bouygues was they were asking, 'Why am I even in the room? What

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was our value?’ At the end of it they saw the value. And the value in the context of the underground system was the stakeholders’ experience of the space. If you didn’t deliver something that they could walk through and feel comfortable with – that Mayfair and Canary Wharf financiers could walk through and feel that they’ve got their value, you couldn’t...

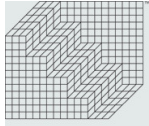
Alan: So is one of the research themes a theme about skills? About professional outlooks? About professionals who are specialists nonetheless having the range and the imagination to see the bigger picture and the bigger opportunities? And how to improve the relationship between academia and the industry? And it’s not just professional skills but also client skills. I don’t think formal education is necessarily going to be the way to do that, I don’t see how it particularly could. But the role of commentators, the role of advisors, the role of opinion formers – how you shape a culture which demands better. Is that one of our research themes?

Rod: Yes I think that’s excellent. Eleonora – yesterday we had a discussion and we wrote down 6 things... I’m not sure if they’re actually the right 6 things but they might initiate... The idea is if you’re developing a product, there are a number of things that you want to be trying to achieve, and I wondered if we should be trying to draw out of this parliamentary inquiry a set of generic things which can be demanded by anybody of a product.

Eleonora: Yes so this was part of a discussion we had about criteria of success, establishing the common denominators of product design at the same time as a minimum standard... So looking at performance – how does a piece perform? How does it perform together with other bits and parts of the building? So relation to the rest of the building... Is it easy to maintain? It maybe has the user experience involved there... The sustainability, which is linked to energy use. The aesthetics – it has to look good. And further improvements – so the fact that once you’ve delivered a piece you evaluate, could we have done it better? So reviewing all processes of design, development, delivery and the whole user experience.

Rod: The idea wasn’t that those are necessarily the final things, but those sorts of things could quite simply be defined generically for any product, and actually we could get government, specifiers, all sorts to say, ‘we want products that satisfy these things and we’re going to expand on that bit...’ I think it’s the sort of thing that as a product designer you go through every time you’re tackling a new project. I don’t think those things are ... in our industry at the moment...

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Keith: Don't you have to go beyond the product and look to the company that has certain qualities as well? I mean they've got to have an attitude...

Rod: But if you define it for the product, they may then have to adapt to be like that...

Jim: I would suggest you've got to look to the company first, as brand – it comes back to brand – and I think that one of the problems we have in the UK is we're so product-centric. Once the product's run its course or the technology's been superseded or it didn't actually make it – if all the focus is on product, it's the end of the journey. Whereas if you put your energy into defining what the values are, that the product is supposed to be delivering – in another language 'brand' – then you can grow that and go beyond a single solution.

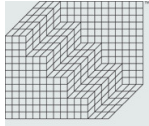
Eddie: ... I'm very enthusiastic about UK construction. If you look at the cycle the motor industry came through in the UK, from there, to a low, and now – doing quite well... How in an industry – in the motor industry – did we go down, and how have we got back up again? One of the things we must do – of course we must embrace the best – and embracing the best is helped by a positive home market. People normally prosper more easily in their home market than they do in export markets. So how good and how innovative is our home market? Are we embracing the best products? In our government buildings? Now let's be quite frank about it gentlemen, and ladies – we are not. And I think what little I know of the development work we're doing with your firm (?) – yes some excellent ideas – I showed one of your presentations in the middle east recently and they couldn't wait to introduce me to some sheikh! But you must have a strong home market, and you must have a market that demands standards at home.

Somebody mentioned Scandinavia. I have had a home in Scandinavia for 35 years. These are small countries population wise. But somehow or other, they achieve standards. In everything. Not just in building products, in everything they do, they're very, very quality conscious.

Rod: You're talking there about demanding standards. And I think that's what we were trying to say – if you can actually define the things that you're going to demand the standard in – and it might be in company, it might be in product, it might be both.

Alan: Again and again this conversation, fascinatingly to me, comes back to the relationship between the construction industry and government. Whether government is an enlightened patron of building, which historically – in Victorian times – it probably was. Which ten years ago when government produced a policy

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statement called 'Better Public Buildings' - it was a major effort to try and get departments to raise their game and insist on something better. They were very important commissioners, very important patrons, with a great deal of leverage. And the results are - I would agree - mixed at best. There have been a few good things.

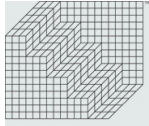
Obviously one of the research themes is the role of government. And the role of government has to be looked at in the context of the present and prospective fiscal situation, and the values of the coalition government, which are about less government but better government. And I think everybody can sign up to that - though the question of less government, whether that means less regulation? A lot of what's been said this morning underlines that some regulation is needed. Your point Jim about brand - you cited the contrast between the Easyjet offer and the British Airways offer - that alternative would not have been possible had it not been for the role of government in breaking up the cartelization of the aircraft industry, and enabling new low-cost operators to come in, as Easyjet did. So there is always a role for government.

But this industry is going to need to be enormously selective and precise in formulating what it requires of government because this government is going to be a reluctant regulator. We've talked about the role of government in stimulating, there's a role for government as purchaser - well again that is going to be enormously diminished. So again what is the minimum necessary? It seems to me we will have to think about these things. Also the role of government in enabling the industry to take better advantage of international opportunities has to be defined. Is there a role for our posts abroad to be looking out for examples, opportunities? Do they know how to do that? Is there a role for our diplomats abroad to be somehow running a dating agency to somehow link up our industry with clients of one kind or another abroad? I think that's a clutch of questions...

Ian: Just to re-emphasise, on your point about Crossrail, that goes directly to the point I'm trying to make about post occupancy use and evaluation. The enlightened people leading Crossrail understand that the ultimate test is to get people out of their cars and into the system. You do that by making it an experience that people are prepared to endure. You have a choice. And people who say 'Why do we need this and why do we need that?' are people who only think about whether the train will actually run on time or not. And it's about who you have leading the damn process, and seeing what the whole purpose of this is, economically.

And the other thing that I would stress, in terms of Scandinavia - it's a cultural thing. We need to look to education, of people who innately believe that there is an economic and social value in good design.

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Mike: Just one very quick comment on that – what I’ve seen of Denmark – they do great products but they don’t always do great buildings. They’re perfectly capable of creating quite ordinary, poorly finished buildings, but their products are good. And it’s getting that product... But the difficulty in the construction industry is that the market – the individual who buys the iPod – who does appreciate design, isn’t the buyer of the building product. The building product has to be bought by a much more complicated supply chain. And that’s what’s getting in the way. Because if you see – when I look at self-build magazines (sad guy that I am) I see everybody wants extremely topnotch products, and they want to buy the best – like they would buy the best they could afford in terms of a car. But that’s not what we’re giving them, when we give them a building.

Ian: That’s very interesting. My father actually started the first self-build housing scheme in this country after the Second World War. And that’s an interesting discussion in itself.

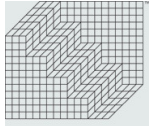
Rod: Right there’s been a lot of ideas there about the outcomes. And we’ll pull these together from the recording. What I really want to do now is to do the last bit which is to decide how we’re going to approach this. We’re going to have three grilling sessions (as Nick put it). I think it’s very clear that before those sessions it would be a good idea to ask for written evidence from quite a wide audience. And to select from that audience to actually grill certain people. The question in my mind is do we pull together 5 people from product design, 5 people from contracting, 5 people from manufacturing into different groups... and grill them as different parts of the industry. Or do we put together groups where we’ve got 5 people from different parts of the industry talking about perhaps a particular bit, a particular product in the industry. Which would be best?

Robin: I would like to suggest that the best way to approach it is to do both. You’ll get individual views, you’ll see what some of the issues are between various participants in the industry, and that may be a good way to overcome those by putting them together to discuss the issues that arise. My immediate response to do both.

Rod: So you’re suggesting that initially we take a few product ideas and get an integrator with and grill them on those ideas. And out of that we then get groups of people within the design industry, from the manufacturing, from the construction, to...

Robin: I think that would give you a process that would, if you like, ‘cover the waterfront’...

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Rod: So we'll send a question out to quite a wide range – and we can say within that question what we would like to see in terms of outcomes. To get written submissions. We'll then pull these together and there will be a panel who will interview groups of people. And what is being suggested is that the first set of interviews is with people who are representing different parts of the industry, and we might talk about particular products that are used. And then after that we might have sessions where we have just one discipline or sector represented. Or the other way around.

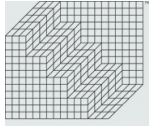
Jocelyn: I was thinking something that might be quite useful and appropriate is to set up some kind of online project space, or portal, or whatever, that everyone can feed into or contribute to...

Keith: This touches upon something I was going to raise about 'Why now? Why is this report going to be an different to any of the other reports that are lying on shelves?' It seems to us, talking about this in the office yesterday with people before I came here – we think that we're in a period of time that is different. For the first time there is a digital infrastructure across the country. Most people are equipped with very, very sophisticated... There is a connection – a digital connection – between manufacturing and design. There never used to be. For everyday stuff there is now a completely different landscape there, exploiting that landscape...

Rod: I think that's very important and we could actually use that in the inquiry – which is one thing. I think the other thing is, somebody mentioned that we should be seeking as an outcome a central repository of information. I think I'm right in saying at the moment that ... McGraw Hill actually run that for construction industry products... although you have to pay into it. There are probably several of them in fact. So that we should bring on board. We can go out formally and ask for written evidence, but at the same time we could actually be putting questions out and we can be allowing a free flow of information across the industry.

Chris: We can definitely evaluate whether there are better media – twitter is out there, websites are out there – there's a lot more involvement – one of the deliverables of this piece of research could be rather than just the report it could be perhaps a portal, or something more engaging. Stirring the debate. But I think technology is a fantastic theme to always have in the background because that's what always holds us back – to my mind. You can have fantastic technology at the forefront, but when it's a photocopy of an A3 of an A3 that gets built, that's when the technology chain breaks down. We are moving to that digital infrastructure period, and it's how we can innovate suppliers to put the value back into technology.

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Eoin: ... If the outcome was – and I think the most important thing about a report is that somebody reads it of course – so if it had a digital format then I think... One of the things that's most interesting for me as a designer is that global outlook. I work all over the world and I learn a lot – every time I go to a new place I come back with something else. And I've been fortunate on Crossrail to be part of a team that's looking at case studies and bringing back information. Which means talking to people who've built other systems. Copenhagen was one example. And in that process we've built up a library of case studies which back up our evaluation... Within that there's the story of how something succeeded. And say for example if you go to Sainsbury's and look up at the light fittings there that we were lucky enough to get to design. It's not a particularly extraordinary piece of design – what is extraordinary about it is that it's even there. And that's because Sainsbury's cost consultant realised that the instore price – because it could go in so fast – was a third of the price of anything else. And it took out the risk, it took out the prelims, all sorts of costs that aren't normally measured. If our report was to highlight that the characters involved in the process of procurement (which includes the cost consultant, the marketing people, right through to in the city you've got to talk to the estates people – if you want to sell a product in a building in the city, you actually have to get the approval of the estates people – no-one really talks to them. Some very smart manufacturers have pieced this together and realised they need to talk to the estates people.) If we could, in our digital portal – or I think it should just be a website – if we had invited parties that we selected (because I think it should be to some extent filtered) to put their case studies up, and explain why it was successful – and that should be from all the different sectors and players, specifiers...

Jim: If it's a website we've done a similar thing called Digitization DK, which is a platform to encourage developers who want to set up in the public sector – it's a place for sharing knowledge etc.

James: Can I make a plea that we do that at the lowest common denominator, so we've got something where people will participate, and could we relate it to case material? I think case is absolutely essential in this, that we get people to say 'here are my practical examples of what I've done.' Real stories. But they are relevant to some generalized points but they're absolutely critical in this.

ENDS