

01/03/10

## APDIG Innovation in Construction Dinner - Transcript

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### 1. Attendees

Rod MacDonald	<b>Buro Happold</b>
Mark Prisk MP	<b>House of Commons</b>
Paul Morrell	<b>Chief Construction Advisor</b>
Barry Sheerman MP	<b>House of Commons</b>
Mike Cook	<b>Buro Happold</b>
Gavin Thompson	<b>Buro Happold</b>
Lynva Russell	<b>Policy Connect</b>
Eddie McElhinney	<b>SAS International</b>
John Stehle	<b>Laing O'Rourke</b>
Bill Olnier MP	<b>House of Commons</b>
Derek Wyatt MP	<b>House of Commons</b>
Prof. James Powell	<b>University of Salford</b>
Sir Alan Rudge	<b>ERA Foundation</b>
Richard Barrington	<b>Sustainable Innovation</b>
Paul Finch	<b>CABE</b>
Andrew Wolstenholme	<b>Balfour Beatty</b>
Donnathea Campbell	<b>Billings Jackson</b>
Robin Oram	<b>Sir Robert McAlpine</b>
Tim Boswell MP	<b>House of Commons</b>
Eleonora Cervellera	<b>Buro Happold</b>
Jocelyn Bailey	<b>APDIG</b>
Nick Raynsford MP	<b>House of Commons</b>
Lord Alan Howarth	<b>House of Lords</b>
Keith Priest	<b>Fletcher Priest</b>
Peter Kelly	<b>Blueprint Magazine</b>

### 2. Speeches

#### **Barry Sheerman**

What a distinguished gathering this is. My part is to make sure that informality rules. Let's see this is an opportunity to talk, to debate, to discuss and to move issues forward.

#### **Rod Macdonald**

First of all thank you for coming along to this. I want to start with perhaps something slightly provocative that Ted Happold once said: 'all innovation comes from engineering and technology.'

We've pulled together this dinner to discuss this issue with politicians, private sector and academia. I hope that we will find something to take forward from this.

*The APDIG is a forum for open debate between Parliament and the UK's design and innovation communities*

I am a professional engineer, fundamentally interested in design and innovation and how they fit into my work as chairman of BH.

The thought behind my ideas tonight is that the UK has many of the world's best designers, and yet when we look around at our buildings, we find that many of the pieces – the fittings and products – we put into them, are Victorian and older and some of them actually don't work very well. And that's not good enough. Things that we put into our buildings should work well, should be easily fitted, they should be easily maintained, look good and be the right price.

I'm going to run through some examples – some of them are trivial but they all demonstrate this point.

Let's start with windows. It seems to be impossible to purchase a window that is good environmentally, it's secure when it's open, you can hang curtains and blinds from it. (You used to get trickle vents but actually they're not sufficient in terms of ventilation.)

Window shades – in terms of passive design and energy in buildings – two of the key factors are ventilation and shade. But you can't actually buy a standard window shade on the market.

Doors – are not reversible. To hang a door the other way round you have to know your carpentry. Refrigerator doors are designed with this capability in mind, you can easily reverse the way they hang. We produce an order of magnitude more doors in the construction industry than we do for fridges.

Taps – we normally wreck the sink changing a tap – and yet in the garden you can change the tap on a hose with a click. Why doesn't that happen in the construction industry. And actually if you design in that capability you create a whole new industry – you could have red, blue, gold – things that you could buy from the supermarket. Why aren't we innovating like this?

Light switches – why do we wire light switches? There's enough energy in a touch to send a signal to turn the light switch on. We don't need batteries or wires. And yet the work that goes into cutting and chasing and wiring and putting switches in is enormous. Why aren't we moving on? Why are we still working in this way?

Light fittings – we all want to use low energy light fittings, but we can never find one that actually looks good that we want to use! We should be moving onto LEDs surely?

One of our senior engineers wrote a magnificent blog the other day:

'I was sitting in an aeroplane last night looking around me. Every thing I could see was different to the way it would have been ten years ago. Every single fitting in that aeroplane was manufactured in a different way to ten years ago. The aircraft industry has completely changed over that period and we haven't in the construction industry. And these are only the visible things.'

Our world deserves better. Innovation is going to be necessary to meet ambitious sustainability targets and for us to thrive in a competitive world.

I believe we need to start thinking and encouraging commoditisation. People have been scared of it in the past, but I think we can use it, and use it well. Use it to create art, to create quality, to find a new way of creating buildings using really great bits – and I deliberately call them 'bits'.

We have the designers, we have the technology, and I'm not arguing that everything should look the same. I think one of the benefits of real commoditisation is that we could achieve things that are enormously different, but going through a really good design process.

This is not meant to be an attack on architects. We have great architectural design going in to our buildings, and it's happening in the absence of great product design. When architects find themselves in that situation they design bespoke things – beautiful bespoke things – but of course anything bespoke is by nature expensive. Why are we doing this?

I'm also aware of the very successful work that was done by BAA and Terminal 5. I know they did an enormous amount of work trying to find products that would really work, really last, really serve the needs of that building well. And I believe when you look at that building you can see that that has been done. But I can imagine they had a very hard time trying to find those products.

So we have, as we know, a fragmented industry that is resistant to change. And we had the initiative of Egan, Rethinking Construction leading to Constructing Excellence. And we know that after 10 years Egan has given the progress on his recommendations 2 out of 10. And I also think that Constructing Excellence has lost steam. I think it's not actually driving the industry in the way that it could be at the moment.

I believe that design is the key to changing the folly of fragmentation.

The industry doesn't need to get another organisation. We have the organisations, but actually we need to change the way we are thinking. So why talk to government about this when it's the private sector that's got to do it?

Two reasons:

I think it needs to be on the national agenda and the government can put it on the national agenda.

And the government of course is one of our largest clients. And could be driving the agenda as a client. BH has been very involved with the City Academies programme, and very involved with building schools for the future, and I'm sorry to say I think we wasted an enormous opportunity through both of those programmes. That we could actually have been driving a whole host of different changes through those programmes. Mike (Cook) and I did actually try and initiate this at the beginning of the programme but unfortunately we couldn't do it.

So essentially I'm seeking a new attitude with regard to manufacturing, and a new attitude with regard to specifying.

### **Paul Morrell**

I hoped to disagree with Rod rather more, because he said he wanted a debate and we need two sides for that. We're in danger of being in heated agreement, but let me try and be a tiny bit more provocative.

I think the reason there isn't enough design in innovation is because there is too much innovation in design and I'll try and make sense of that when I come back to it in a minute.

But first a few words of context about me. My dad was a builder, so I've been familiar with building sites since I was about two. I became a quantity surveyor. I think I've always appreciated the difference between value and cost. My journey, like many people's – when I started, coming out of a construction background because of my parental heritage – working mostly with designers in the early days you did get to a stage after two or three years of practicing where you thought 'why won't my designers just do as they're told?'

And then 2 or 3 years after that – I realised that if designers just do as they're told, you get Croydon. That was the last great time when we tried to reorganise the industry and bring manufacturing and industrialisation in to meet the last great imperative we had – housing people who were at that time were unhoused.

I then spent 8 years in CABE. Paul and I were the voices of rationalism and business in CABE. We used to say to people 'that won't work in the real world'. But it gave me a much stronger sense of where value really lies, because that was my job, to connect design to value. And it absolutely clearly lies in the outcome. In what a

building is designed to do. That means that the value is on the drawing board, not on the building site. So design has to be prioritised.

With two qualifications.

One is that even in a brief spell in government, working with CABI, you begin to understand that for a politician there is a value in quantity. That governments exist to provide services to citizens, and they have to make judgements such as: at what point do you say that 'the price of this better designed, more attractive, thing is that I build less of it.' That is a huge challenge for governments and we have to try and help by working out the answer to your question which is 'how do we innovate more?'

And the second qualification is that although designers create value, they also then set about destroying it, in one of two ways.

One by overdesign. Design that doesn't actually add utility or attraction or whatever the client chooses that they want out of the building. I've been trying to encourage Paul with CABI to espouse the idea that it's got to be good, but only good enough, and after that you start to destroy quantity, and therefore value.

So how do we get there?

Innovation isn't our first and biggest problem. If we could do invariably that which we sometimes do well this would be a better industry. We would deliver more. If we could get the worst up to the average and the average up to the best and keep moving the best forward – all of that would be great. That's more important than innovation, although innovation is important.

Particularly important because of the carbon issue. I just don't think we can get there with the thinking and the organisations that we currently have. It calls for a radical re-look. And I don't think it's clicked yet. It hadn't clicked with me until I read 2 or 3000 pages over Christmas. That we have a legal obligation to reduce our carbon emissions, that we have a timescale in which we need to do that, and the numbers are terrifying. Both in terms of the reductions that we need to make and the size of the stock new and existing we need to produce.

I'm going to propose 4 '-ations' that stand in the way of real innovation in the industry. In all cases they are a 'lack of'.

1. Lack of Importation

The reality is that our industry doesn't need much to compete. Construction is a very local business, there are high barriers to entry through regulation and codes, it's not affordable to go to another country and take your own labour and so on. The reality is that construction doesn't innovate most of all because it doesn't have to. And you can get away with second quality products because the first quality are too expensive to find, if they exist at all.

## 2. Lack of Integration

This is the big one. Good ideas do not come from single groups of people sitting in rooms on their own, they come from people working together. I came across a terrific little company recently up in Newcastle who are in Photovoltaics. Now, Government wisdom is that photovoltaics is a loss-maker, because the Chinese are already in it. So I asked 'how is it that you are prospering?' and the answer was that he has discovered that 80% of the cost of PV is in the cells, so he imports the cells, and then he gets clever, he starts to innovate. He uses those cells in new products. He's talking to other manufacturers – so for example to Kingspan about incorporating the cells into roof sheeting – so you could roof a whole factory and provide its power. He's making solar shading with the cells in it for atrium roofs etc.

Once people start to talk to each other in this way – and he works very closely with architects and designers – new ideas start to emerge.

## 3. Lack of Standardisation

It is absolutely the biggest single reason why we don't have constant and reliable products. The lack of standardisation is quite extraordinary. You mentioned the schools programme – I think that somewhere between every school being different and every school being the same there has to be enormous scope for producing products that can use repetition. Obviously each school has to respond to its context, take something from it and give something back to it. Obviously different briefs lead to different designs. But why we can't have such a thing as a standard toilet in a school does make me stop and pause. Some things designers will try and argue for, saying 'this is part of my signature', but that is a discretion that shouldn't be available to government clients. There is no added value in redesigning the toilets every time.

So 'wise standardisation'. This of course leads to some tough stuff on procurement.

I think we need to fundamentally change the way that we regard competition in procurement. From a whole lot of separate people bidding what is in truth something very close to lowest price, and then government adds into the requirements lots of things it would like to happen but doesn't then value these. Basically we go too close to the lowest price. We need to get to, certainly in our repetitive programmes, it doesn't work for one - competition between the whole supply chain. And once we've lost

the chance it's lost forever. Certainly in our schools programme, we need to find who the integrators are, and say to them: 'you can compete with each other - but by giving us your standards across the whole supply chain, and you'll be competing against another supply chain who is going to give us its standard.' Those are the judgments we'll be making, whether over time we get a better product from the whole supply chain.

Which raises the question of who we think the integrators are. I believe it's the Tier 1 contractor. They are used to integrating. But they lack some of the skills you need to do that. They lack proper understanding of whole-life value, as a generalisation (much better as a consequence of PPP and its forebears), and they lack an understanding of how to manage design for that long-term value.

And then I think designers will work for them, and we'll suddenly find that we work together. When that starts to work properly it will no longer look like a power struggle. And we'll have a completely different kind of supply chain, where there's a proper balance between design and execution. And we'll be able to compete on that basis.

That requires government to take some risks. Innovation and risk are balanced. You need to come to us with a slightly different question.

#### 4. My last –ation is Regulation.

I hate it, but it works. I had a meeting earlier today about the distinction between that kind of regulation that all of us hate because it's procedural and we feel it's bureaucratic, and that regulation that is code for standards. The evidence is that if you look at the new code for sustainable homes for example – it's doing what markets should do. People are building to those standards, they're designing to them. Market leaders are trying to get ahead of the curve by moving up that staircase. It will give confidence to invest. And it goes back to the point I made about standardisation. Nobody will invest money in producing the answer to a question that isn't going to get asked twice. And that's the truth of the construction industry, is that nobody asks the same question twice – and that's why you can't find the products you need. Because each time the person who makes that product gets asked to make one, the requirements change. It's very hard to invest in driving cost down, driving quality and being confident that...

In many ways the two big things therefore are – looking ahead to the carbon challenge – regulation, properly balanced, it has to be proportionate, but with a proper degree of incentivisation. And then some wisdom in procurement so we finally get this thing we keep saying we want to get – which is an integrated supply chain.

So: Importation – some form of competition being brought to bear on the market place – Integration, Standardisation and Wise Regulation.

## **Barry Sheerman**

One of my jobs as chair of the Select Committee is to scrutinise the BSF programme. And we've done it for quite a while now. I was a bit worried when you were so pessimistic about the lost opportunities. I feel there is room for improvement as we go along.

Interestingly historically though - there were times when we built standard schools pretty well. Those yellow brick Victorian schools all built in London about 1890-1910. When we did our inquiry we found that no modern building could beat them for sustainability. In West Yorkshire the Chair of the Education Committee made absolutely sure that you know when you're in a West Riding school, because they're all the same design, and well-designed.

Now the Shadow Minister in this strange sprawling department we have, otherwise known as BIS, who's been keeping very busy.

## **Mark Prisk MP**

It's nice to see colleagues from both sides of the house with us here. And without wanting to embarrass him too much – and there will be some things we disagree on – in my book Nick was an excellent Minister for Construction.

When I first looked at the description of this – 'how do we encourage UK Construction to put design at the heart of innovation', it seemed somewhat paradoxical in one sense. As you've heard already from the other speakers – we really have world class designers – whether it's architects, engineers, or other parts of the sector – in the UK construction sector. I was with Bill and Derek here in Shanghai on a very important fact-finding mission with the Industry and Parliament Trust to see how UK does its role there, and we saw some world-class UK designers doing their work in Shanghai.

And (without wishing to upset Sir Thomas Legg) I was then in Berlin at New Year, and I saw the remarkable work David Chipperfield has done with the Neues Museum – both in architectural and engineering terms, it is a wonderful reworking of a very tight site, where he's used both architectural design and engineering innovation, to really bring to life what was a very respected institution. And of course Berlin, in many ways, has so many world-class British engineering and architectural practices represented. We should not be shy in that sense.

But this evening what we are talking about is design as a tool for driving forward innovation in procurement rather than necessarily the individual's skills. I think there are problems, as both Rod and Paul rightly said, there are some issues here in terms of the understanding and willingness, whether it's in design or contracting, whether it's in products, where we need to change.

I was looking at the Design Council's work in this field recently, and I noticed they were saying that just 40% of the companies they surveyed had launched a new product or service in the last 2 years. And just 15% of small or medium sized enterprises have actually cited design as an integral part of their business – so there is work to do.

Now I've identified the need – the question is how. And here I'm a carrot man. By which I mean I believe if you encourage and aid people, rather than beating them over the head, you're more likely to achieve the end goal. So we have to show people real advantages to making a change, changing how they run their business – because it is cultural, it's about how a business operates. Clearly you can talk about saving money – innovation and design can show the business how to save money. That will help. A year or so ago I was looking at what (??) have done with their eco-distribution/ logistical centre in Suffolk, where they've taken the classic distribution centre design and they've got a (planted roof?) and hemp walls. It was quite revolutionary at the time and they're saving themselves 40% on their power bills per year. A radical step, and they're saving themselves money.

I would say however that the real advantage for businesses going into this area, to encourage the sector to move forward, lies in the ability to get a real edge, to open up new markets, new services.

We all know the example of how Apple has changed the market – not just gained an edge on competitors, but changed the market on a number of occasions and it will be interesting to see how their new iPad device does that. I think the role of design and technology to transform business is evident.

But they're not the only ones – I think it was the Queen's Award for Exports showed, when questioning the people who have received those awards, something like just over half cited time and again that in order to achieve those awards they put innovation and design at the heart of how they changed what they were doing. Redesigning the product, redesigning the service, in order to make that change. There are advantages that we can and should say to the sector are there.

Let me now talk about three things that I think we, in public affairs – both the industry as a whole and those of us in public life – may need to address.

Procurement, regulation – both of which have been touched on before – I will give you my thoughts on those.

And then, what I misheard as ‘pro-creation’, or co-creation earlier – or what I would think of as being interdisciplinary culture.

So beginning with procurement, clearly the Cox Review was a good step forward some years ago as to how things could be changed. I would argue, and I share the points that Paul was making, that we do need to reduce the barriers to entry, because I think there are some significant problems, both in this sector and more broadly with the way in which government procurement creates barriers. A classic example is the guidance that most public agencies follow that you can’t even prequalify unless you have three years worth of fully audited accounts. And especially as we come out of recession and into recovery that kind of rigid pre-qualification rule is going to stop new players from competing. So we do need to look at how we reduce the barriers to them.

Secondly, like Paul I’m a convert, or rather a believer in, whole-life value. Now, I’m slightly cautious here because if we’re going to be honest, after an election, whoever’s going to be in power, is going to have a hell of a struggle to move gently to this very important principle in the climate we’re going to be living in, in which the lowest price wins. So I’m not going to pretend to you that were there a change of government there would be some miraculous instant change to whole-life value overnight.

But Paul is absolutely right, in that if we simply look at the lowest price we will never get the step change in how we actually deliver genuinely innovative solutions to a whole range of construction, and indeed IT, areas. So I think whole-life value is important. I’d also add that the way in which contracts are developed is important, and it may seem possibly counterintuitive – but the Pentagon (which does many strange things in its procurement processes) but what it does do, where they are looking at new areas of change or where they wish to encourage innovation, they will take from the larger contract a proportion to put to one side, specifically to encourage and allow the more innovative applications to be worked up beyond the early feasibility stages. In other words there’s a specific and deliberate attempt to incorporate in the procurement process the ability of those leftfield applications to be able to be worked up further. I think that’s a good principle and one we should develop in our own procurement.

Regulation: I think here we have an issue – I agree with the two previous speakers on the question of standardisation – but I’d also put another thought in here as well, which is partly about public sector culture. And that is the constant desire for example with building regulations, to prescribe not just the problem, but then the detailed solution that it wants to see achieved. I think of the introduction of Part L about the conserving of fuel and power, where the insulation standards were set very prescriptively. And I had a stream of complaints from the industry. Because actually, depending on the building in question, there were a number of ways of reaching that target. Why was it that government needed to decide how to do it on your

behalf? So I think there is an area there where we can just think a little more laterally about setting the aim, rather than constantly prescribing the solution. There is no profit in being able to be innovative if the government has already decided, or if the client has already decided, what the solution should be. We need to get a little bit more thoughtful around that in some areas of regulation.

And then lastly – culture. Interdisciplinary work I think is very important. I've worked in multi-disciplinary practices, and I've worked in single-disciplinary practices, and in looking at the different cultures I'm very much of the view that wherever we can within businesses, within projects and within the sector we need to encourage much greater interdisciplinary working. It does foster lateral thinking. I think Arup's view of 'Total Architecture' is a good example, and I'm sure there are many others in this room.

I think it is important that we get this approach to lateral thinking. It forces you to think outside the box, you're challenged by a different mindset. Secondly I think it does enable a more objective scrutiny of how you perform your business and what that particular specialism brings. And thirdly because in my book, whichever sector you're in, a lot of innovation occurs not within a group but between groups.

I was in the Silicon Valley in April of last year, and it struck me there that actually the big innovations in IT didn't come within the entrepreneurs, or within the inventors or within the VC (?) market, it came because those three rather different worlds blend together. Innovation happens between the cracks. Therefore one of the keys is how we get those different cultures and expertise and viewpoints, to intermingle and produce that culture where 2 and 2 can suddenly equal 6. That I think is one of the challenges.

It is an important principle that we try to look at how we bring those different views together. And there are a number of things – we've seen the DQI original approach from the industry – I hear different comments and views on that and I'd be interested to know what professionals feel about that. But I do actually think this is where the industry can lead. I think we have a role, in politics, in opposition and in government, but I do actually think this is an area where industry can lead – fostering that interdisciplinary practice.

So: changing procurement practice to foster a different mindset, making a regulation environment that actually allows people to be different, and having a culture within business and within the sector, that recognises that very often change occurs not within your specialisation, but between.

### **3. Discussion**

#### **Tim Boswell MP**

1) If you're going to achieve whole-life costing you need a financial model that delivers it

- 2) Do we have informed consumers who can tell the difference between rotten design and good? How do we engender that sort of sense of delight that gets people wanting to stroke F1 cars if they can get close enough?
- 3) I've always wanted to award a prize every year to the most insensitive building development – because I know of some superb ones! We have a problem and this would be a good way of recognising it – we don't make enough fuss. We've just been having a little aside about Germany, and immediately – whether you're talking about windows, or the tiles on your patio – the quality is much better. Somehow we don't care enough or make enough fuss about it.

### **Bill Olnier MP**

Very interesting discussion and provocative in some areas – particularly the sameness argument. I can remember seeing local authority housing some 30 or 40 years ago – they were absolutely ghastly and they all looked the same – they all had what was at the time state-of-the-art windows – but they still looked awful. But the problem is where do you set the criteria? Because the people who lived in those houses loved them. They looked awful – but they loved them because the interiors and the space standards were so good, really built for family living – and it's a question of how you balance those two things. How do you balance some individualness with the uniformity that you need to bring good design at a cost-efficient basis.

One other thing I'd throw into the equation: architecture and building design is different I suppose to other design areas. I'm thinking about the motor car, or the aircraft engine. I always see architectural stuff as being consumer led. The consumer led industry that has been really innovative and moved forward at a pace has been the TV manufacturers, and all of the add-ons to that industry. The lifetime cycle of a television now could be 15-20 years, but do people keep them that long? No – the next bit of design or technology comes in and people say 'I want that'. It's really how you shorten the timescale in the architecture and engineering business.

### **Nick Raynsford MP**

I want to make two observations, and they're quite optimistic ones. I think in the UK we have a tendency to be slightly self-deprecating and to run down our achievements. There are two areas where I'm conscious there are rather significant changes.

Not just because I'm next to Paul Finch – but I do think that CABI has had an impact. I serve on the panel that awards the Building for Life Award. I know that the view of all the panel members is that despite the awfulness of some buildings that still get produced, we actually do now see a significant number of high quality, well-designed developments that do provide not just good quality homes but really nice environments – and I'm not sure if you go back 20 years or so you could say that was the case then.

The second observation is to do with energy efficiency – and really picks up the issue about regulation. And I agree with Paul – I hate regulation and I would minimise it but actually what we know, is that giving certitude to the industry, that there will be a ratcheted programme of increase in the building regulations, requiring them to up their performance has done something extraordinary. When I was first appointed as Housing Minister in 1997, housebuilders were totally implacably opposed to an extremely modest reform of Part L of the building regulations which we were undertaking at that stage – very modest indeed, nothing near what is required by the 2010 regulations that have/ will come into effect this year. There was almost total opposition – they just didn't want to know, they saw this as an unnecessary burden and not relevant at all. When I talked to the boss of Barratts, who was telling me proudly about his new development, Cannon Hall in Bristol, where they're going for code level 6 – the code for sustainable homes. And this is Barratt's – who were regarded as Neanderthal in many respects in the past. So that is an industry that is changing – and changing because they have been given the right regulatory signs. I agree with Mark that these regulations must not be prescriptive – they've got to indicate direction of travel but allow creativity for good solutions. Setting the regulatory framework that tells people where they've got to go, and sets a level playing field.

### **Professor James Powell**

It sounds funny for an academic to be agreeing with everyone. But on one level, I think we're hitting on a very important point. Tim said 'can consumers, or clients, play a role?' I've designed, with colleagues, 16 community banks, and now 15 affordable housing schemes that are coming up the line, that are all controlled by consumers, communities, who otherwise wouldn't have housing – in areas like Devon and Cornwall. They do that, but they need a lot of help. They need supporting. They have just as much passion as the rest but they don't know how to articulate it. What community land trusts have done is enable us to do that. We need to build on that, but we need to help communities do it for themselves. I believe not in regeneration, but in a renaissance. I think it is about creating a renaissance for our people where they can flourish. But we can't do it for them, we have to do it with them.

The second point I want to make is that you can't exhort people to change. I've tried this for 42 years as an academic – I decided not to become a Vice Chancellor because by being a VC I would have had to abrogate my values and passions in order to get more students through the line. I think it's incredibly important that we create real change partly by regulation, but also by getting clients to become more professional in the way they act. And as a result to – in a way – force contractor-developers to move more purposefully to a different end. I've worked with a contractor in the north-west, with a local RSL, and they have put this contractor in a position where they want to grow in a different way.

My final point is about co-creation. We have some very talented people who don't work together. We need RSLs. We've only built 9000 houses so far this year and we wanted 63,000, according to the HCA. That's intolerable – not many of those are really up to Code 6. So how do we do this? We do need innovation, but we

only do it by working together. We have the skills – and in the past they haven't worked together. This is where government could step in and say 'you've got to work together in a different way.' ?? in Salford for instance is trying to come up with the interdisciplinary nature that you were talking about – rather than my co-creation. Do we choose the right problems that are worthy of change? Do we design together in a different way? I have the good fortune to be a non-exec of Arups as well as my day job and I learned so much from what Arup meant, and from Ted Happold about what he wanted. We have these skills, right across the board, and you could help us by getting us all to work together in a different way.

### **Lord Howarth**

The challenge for public policymakers is how to align the public with the private interest so that we create a context – create the carrots and the sticks and everything else – that encourage the private sectors to do what is perceived and believed to be in the public interest. So we promote all this interdisciplinarity, lateral thinking, and taking the medium and the longer term view. I do think that we've got off rather lightly in the earlier part of this discussion: I think the challenge for politicians and ministers is to revisit and revise their systems – because it seems to me that the systems we have make for short-termism and make for fragmentation. There are all sorts of pressures of early accountability, electoral accountability, media accountability. Which cause politicians all the time to evaluate hastily and to evaluate early, and not give people the chance to experiment enough, or give people the chance to breakout of the matrix of inherited practice and inherited thinking. I hardly dare suggest this in the presence of the distinguished chair of the select committee – but select committees are in a sense a reflection of this. It's not their fault because they're set up to mark Whitehall departments. And the Treasury itself has sustained its dominance in Whitehall by dividing and conquering across the departments. To just give one little instance of how this is liable to work frustratingly: take the case of the creative industries. What is really happening when someone with a PhD encounters a practicing artist in Hoxton – there is something called Knowledge Transfer presumably taking place in that interaction, or there may be. But, the approved HEFCE model of Knowledge Transfer simply doesn't recognise that – doesn't endorse it, doesn't support it. I think there's a lot of thinking to be done, in the light of the consistent pleas we heard this evening for interdisciplinarity and for the longer view, as to how we can devise systems of so-called public support which really do support those things.

### **Keith Priest**

As an architect – we looked at an area called the Vorarlberg, and we couldn't understand why this little corner of Austria was producing wonderful little timber buildings all over the place – and of a magnificently high standard. There might be 4000 of them in this small area – roof extensions, old folks homes, bus shelters – we couldn't understand why they were like this. We went there. It was because of unemployment. This picks up on the point of your 'working together' – the timber industry, the architects, the politicians got together, and they decided to just start building lots of buildings out of this stuff that they had lying around. It's a magnificent programme. It doesn't make the architectural magazines, but they're of an enormously

high standard, and it is a direct product of a bunch of people sitting in a room and talking and deciding that they've got to dig themselves out of a mess. And I started to wonder why my part of the world – the north east of England where I was born – why they can't sit down and do that rather than build stupid millennium projects or whatever.

The other point I'd like to pick up on – Rod's 'bits'. We have an office in Germany, and over a period of about 12-15 years I've watched the German government fund endless projects, which we've benefitted from, where we might have... We've built two high-speed rail stations (we've built one in London in that period). We built two for private clients on private sites, where the whole government has taxed the population for 12.5% of their income – a surcharge on whatever tax they already pay – to rewire East Germany. The rewiring of East Germany as far as I can see has got nothing to do with East Germany and it's got everything to do with your 'bits'. In that for instance, one shower tray manufacturer – we still make them out of clay, we still have warehouses, we stack them on racks, we produce catalogues, they crack on delivery, all that sort of thing, and there are not very many models of them – the equivalent manufacturer, supposedly in the same market, is CADAM related, you can sit in the office, it's 1mm variation on each shower tray size, a thousand colours, and if you pay £200 you can have your own purpose-built mould for your own shower tray and then produce 300 of them... The whole of that factory was financed out of the German surcharge. You sort of feel – I have to say – let down by our politicians, in that if our industry is competing against German industry and we're holding them up as paragons of imagination, how do they do it when they're funded by the Government? I've actually watched a diesel engine manufacturer in Cologne, be moved to Leipzig, have the whole place set up so that they're the world's most efficient industrial diesel engine manufacturer... Then we've got the job of taking their site on the banks of the Rhine and turn it into something which adds enormous amounts of money into their coffers to help them to be even more competitive.

To me, it just seems that we don't operate as a group together, and we just watch our industries get slaughtered. And it isn't at this sort of marginal level that we need to operate, we need to think of it as: if we don't do something really serious and really radical we're just not going to be around – we're going to be wiped out!

### **Richard Barrington**

Two points. One picking up on what you were just saying: I was staggered to hear the news that we're closing the steel plant, but we're opening the world's largest offshore windfarm manufacturer. Where will they get the steel from? China and India, which has twice the carbon intensity of steel production than we do. We're not having the whole-life cost approach to the raw materials going into what we're doing.

Secondly, having spent three years in the Cabinet office on secondment, I wanted to touch on the issue of regulation. The problem I have with regulation is that it tends to drive a compliance mentality. What is the

minimum we need to do to get the tick in the box? So, for me, the challenge is always about how do we deliver outcome-based policy development that drives continuous improvement? That has to be around the creation of standards. The example I would use is one that I worked on with my previous employer, Sun, and in the time I was with that company we spent \$20bn on R&D. When we realised that as the polluter, from a technology point of view – we made the stuff, we were going to be liable for it – we had a choice under the WEEE directive and RoHS – do we just do the minimum we can or do we think there is an opportunity to go beyond the regulation? The only part of our business for the last 5 years that made money, was a recovery process. We said first of all, if it's good enough for Europe it's good enough for everybody, so we rolled out this globally. And we went back to first principles and redesigned every product we had, on the understanding it was coming back to us, therefore we had to work out how we recovered the most value from that asset. Because it wasn't waste – there is no such thing as waste, it's an asset to be recovered. By taking a whole life view of the product we were able to create a new profit centre for the business by taking what was quite an unusual piece of regulation (particularly the way the UK implemented it) and actually go beyond the regulation. And it became the mantra in the business that we always seek to go beyond the regulation. We never wanted to be the 'compliant company', we wanted to be the leading company. The question is then how do you translate that into real value to return to your shareholders and your staff and everyone else?

### **Eddie McElhinney**

I hope I'm not controversial in what I'm going to say. Business is about investment for return. Shareholder value. We can sit round this table for ever, and talk about aspirational issues. The bigger picture is, that the best businesses in the world survive from making profit. Return on capital. Now I hope Rod that I don't embarrass you in saying that you have intellectual value in your business, and you market it very well, and you're also very profitable. Profits lead to continuing investment, and investment invariably produces the better product (not necessarily the best product). Now if we try and learn by example, by looking at other industries, and of course we all recognise the motor industry. Best in class, never-ending consolidation. However, we can look at other industries, such as the pharmaceutical industry. How many big players in the world in the pharma industry, and why is GSK successful? They must be doing something right, and they're British. Now forgive me for saying that, in listening to the conversation round the table, we are somewhat parochial. We talk about the UK, all the best aspirational things we would like to do in the UK. We don't have one UK company today that features in the top 5 building materials companies in the world. Not one. It's between Lafarge and Saint Gobain and every now and again CRH come in, and is Wolseley a UK company? Definitely not. The big drivers in the products – a building is made up of components, and these components have got to be the best, fulfilling all of those aspirational things you were talking about, but you start off by getting the product right. The gizmos that go into the building.

Now – I've got a small interest in motor racing. We all drive different types of cars – there are many many good cars. But there are only two manufacturers in the world of gear boxes. There are many others, but when

it comes to the best of the best, one German dominates the world. Look at the brakes in your car – whether it's a Ferrari, Lamborghini, Porsche – they all come from one supplier. One supplier in Italy leads the world. Now unless we recognise, and I think Paul mentioned this, that if we don't get standardisation and critical mass into what we do... While it's marvellous to meet abroad, and see what's going on, and try and be a small part of that – and it is so exciting, because these economies are massive economies.

Now if I just come back to government for a second... I think as government, you have also got to make a profit. You have got to run a successful business. How you deploy your funds to make that happen... I don't know how good the Germans are, how bad we are, but it's rather ironic that the top player always seems to be there. There are crises, but he seems to be doing better in the crisis than most of the others. So, best in class is key to success. Don't let's disappear up too many alleyways, in terms of being aspirational. A building is a building – it's a product. A house is consumer led. Some buildings are client led – palaces. The last thing the chief executive ever does, before he retires. He builds himself a palace. But we must, in our thinking, get out of the UK. We must be broader.

### **Paul Finch**

This is a very interesting conversation. I couldn't agree more about the gizmos. If you think about construction in some ways the biggest change that's happened in the last 30 years were mobile phones and hand held tools, a complete transformation of an industry. And I can't help observing that German efficiency and excellence in product manufacture – one company that I know reasonably well has grown, they make the most sophisticated shower heads and taps – it's run by a Brit, their chief designer, who is absolutely brilliant, is British. It can be done – why they're doing it there rather than here, I think this is a cultural matter which has very deep roots.

Just a couple of points: we spend a lot of time trying to square circles in these discussions and in the industry in general. We try to pretend we can have innovation without risk. The Treasury view PFI as risk transfer – 'but we do want plenty of innovation at the same time'.

We want more consultation and faster planning. Great idea. We want standardisation, but we do not want ?? Happily digital design means that standardisation can mean that you can get a Grohe shower head in any colour, in fact or of any football club if that is your fancy, and it won't cost you a penny more than a white one.

We want lack of fragmentation, but on the other hand we want an industry that can do back extensions and build the channel tunnel. Actually, fragmentation is entirely desirable, because the man doing the back extension can't and doesn't want to do the channel tunnel. Balfour Beatty do not want to do back extensions.

So, in cultural terms, what might prompt innovation in construction? I think Paul Morrell has put his finger on it, which is climate change and carbon and the requirement to retrofit a substantial proportion of our built stock. And actually this has a tradition of its own. If you look for innovation in construction – does it come from construction acts, or does it come from health? Within living memory, housing was run out of the department of health. Within living memory we transformed the environment of London through clean air acts. And I see climate change and low carbon as essentially a health (in its broadest sense) impulse and mainspring for a profound revolution in construction delivery.

As Paul has already identified, the construction industry as it stands, both with its giants, with its Tier 1s and its fragmentation, is in no position to retrofit 25 million homes. There just aren't enough white van men, let alone the Tier 1s. How are we going to do this? We're going to have to innovate in terms of what's going into the built stock – the 'gizmo' end if you like, the smart boilers, the better windows, proper insulation, the roofs and so forth. We're going to have to innovate in the delivery because if we don't we will never deliver the programmes. But, the carrot and the prize is that in the course of doing this there is an enormous market to be had, much of which will be home grown, possibly home-delivered, if we plan it right.

My final point would be – that wonderful definition of regulation, which is: 'regulation is always at least one step behind the cutting edge of worst practice'. But without it – how do you stop the buildings falling down, and how do you deal with a culture in which, if the minimum goes lower, it will be designed down to.

We have to ratchet up, think about regulation not as pure regulation, as bureaucracy, but think about it as standards in relation to the health of our future population.

### **Derek Wyatt MP**

Example of Southern Water radicalising delivery and repairs to mains by mimicking processes from F1, promoted by the Design Council.

What if Apple made schools? The innovation we've done in schools amounts to little more than changing the colour of the desks. (Jonathan Ive is a Brit).

The Italians seem to be able to do the crafting thing much better – why don't we consult with them about how they do it?

TATA – they bought Jaguar and Landrover – but we denied them the loan they asked for to get them through the recession and as a consequence we've lost the nano and the new electric car. And when it came to replacing Corus they said no because now they don't like England. They're the 7<sup>th</sup> largest company in the

world, 49,000 people in Britain and we've never heard of them. They want joint ventures with Britain to help them get into China. I don't think, politically, we get it.

### **Andrew Wolstenholme**

Fascinating debate and perhaps too many ideas flowing around the table to make sense of all of them, but I'd like to have an attempt if I can.

I think I mentioned in my preamble that I've been a designer for 10 years, I've been a client and an owner for 10 years, and it looks like I'm going to be a contractor for 10 years. But I think a very different sort of contractor because I think there's a window of opportunity. This time last year, having worked for Sir John Egan when he landed his report for rethinking construction, and you can make what you want of it. There's nothing particularly innovative other than sharing some very good ideas. There's nothing particularly wrong about his report, but I was asked last year to find out what happened in 10 years. He gave 'Housing' 0 out of 10, he gave the industry 4 out of 10. So I suppose the average is 2? In analysing why it was only 4 out of 10 – because here was a very good piece of work that stole ideas from other industries that made change happen in their own environments – and we looked very closely at the root causes. The first one was pull. Why do people change their life? They change because there is some value in changing and because there is an economic benefit to it. The last 10 years have been growth for this industry and consultants made their 8% and contractors made their turnover plus their 4% and no-one needed to change. And there were things that pulled people in, pushed rather. The capability of our industry, the processes and delivery models we use and the industry itself. And each one of these was its own sort of vicious circle in its own right. And so what the 'Never Waste a Good Crisis' was – we had ten years of no change where we didn't make much of an effort, we have an economic crisis that isn't going to mean growth now its going to mean decline or benign at best, and we have racing up the very important public debate around environment and sustainability. And if we don't take up the opportunity this crisis presents then, god forbid, the technology value will go east to west within the next 5 or 10 years.

To try and boil this pot down, I want to deal with this issue of design at three levels. Because the first one is about an economic case and business plan. If the government don't understand the price of carbon, there will be very little innovation around an industry which will be hugely dependent on it, and at the moment frankly, people don't get it. You create innovation by creating an economic model around it. The business driver is 'never waste a good crisis' and regulation. If you look at this £130bn industry, and you see where Egan had an effect, actually it was in the continually sustained, regulated industries. The water industry, utility industry, who after 5 years had to demonstrate better value, so actually took Egan as a gift, and changed their business model and changed. The one-off client who developed his own economic model, and I think BAA for a moment in time was one of those, also created a sort of nano-climate of change around it. And there's some fantastic one-off buildings where you do see this – you get the right people, you design your own business

process, and you create an economic model. And unless we can understand the policy and regulation behind the economic circumstances that incentivise people to change, it will have zero effect and it will start confusing people.

Going back to design again – design is very, very cheap. Design costs you 1, building costs you 10, lifecycle costs you 100, and business outcome costs you 1000. There is a pained business case to spend 2 on design, but there is no economic model yet, that says why don't we spend 2 on design because we can save some of our 10,000, which is an economic outcome (??) for this country. And so we can talk about door handles and we can talk about Velux – but for 5% extra you could have the most fantastic... Design is very cheap. I was talking to the Welsh Assembly the other day, and this poor architect got up, and she said 'they have squashed my design fee, to disenable me to even co-ordinate the designing', let alone try and develop a brief that will produce an output for 50 years, for which they were really vying.

So there's value in designing the economic cycle which is how you'll get industries to change, there's value in the design element, which is understanding the value of design – and that will take 80% of your lifecycle costs, that's where you lock in 80%. And then there's the 20-30% which is about procuring and collaboration. I guess I was very lucky on Terminal 5 (??) because I had chief executive officers and we had a regulator who supported us, who would say there isn't one company who could take it's place... So I was allowed to create integrated design teams, and remember putting the roof up with an Italian 4<sup>th</sup> tier supplier, with Rogers himself sitting in the room, with a crane operator and some of the builders who were going to actually put this roof up. And together the value and innovation of the supply chain was unlocked. No-one stood in the corner behind their procurement process, no-one stood in the corner behind their contracts, they were there simply to create and generate value. And unless we can generate a procurement process... Low cost pushes innovation down the supply chain. If you want anything to the left of that, then you're going to begin to drag innovation up, and so how you procure things is going to unlock the other 30%. How you design things is going to unlock 70-80%, how you regulate things is going to... (?)

### **Sir Alan Rudge**

Well this seems a little like déjà vu because in 1851 there was the Great Exhibition and about 6 million people went, which is about a quarter of the population at the time, and it made a huge profit. By the end of it the instigator of it, Prince Albert, said he was concerned. And he was concerned because the Great Exhibition opened the door to products from America, Germany, France as well as the UK. And what he saw there gave him some concern because he said it appears that the British industry is only concerned about cost, whereas the American stuff has got far more innovation (this is in 1850) and the French and Germans are much better with fine manufacture and quality. As a result of which he asked that the profits of the 1851 exhibition be used by the Royal Commission from then on to try to stimulate more, what it called, 'science and art', art meaning (??) into UK manufacture. Now UK manufacture has been on spiral ever since. In 1950 we were still

the 4<sup>th</sup> largest industrial nation in the world, we've now slipped to 7<sup>th</sup>, and we're on our way to 10<sup>th</sup>. And we'll probably be out of the top 10 in the next ten years almost certainly. And yet there is no other way for us to make money. In fact, manufacture still constitutes 50% of our exports, and other than the fact that we borrow now to keep our economy going, if it weren't for manufacture, then we'd be in a lot of trouble. If we could improve our manufacturing performance by 10% in terms of output/ export, and 10% substitution of imports, then that would replace the entire surplus we get from financial services and insurance. A 10% improvement either way in manufacture.

I believe, and what I've heard here today, that we started off with worrying about the fittings, the bits that actually go together to make buildings, The trouble is, too many of those fittings aren't made here – you have a look around your own home to identify the bits that are made in the UK. If you live in a fairly modern environment you won't find anything, barely anything that's still made in the UK. Unless we get from government some leadership back into admitting instead of talking about a post-industrial Britain, which is a nonsense, there's no route for us as a post-industrial nation, our only route is to be an industrial nation – there's nothing else. If government doesn't lead the charge back into that, then we have no future at all. And it could answer a lot of problems here in terms of getting more design, because if you have the manufacture here you'll have the input from the design here. The fact that our designers have to work round Europe to find some way to do something is very sad. So I think what government can do – if you look at a report by the ERA Foundation, we have identified 31 parameters that government could influence which would make manufacturing a more profitable and successful business in the UK. You have to create the environment for investment. Eddie made the point that you're in business to make money. So we have to make the environment for manufacture very attractive here. And with that, you'll be quite surprised about what will flourish... we might be selling T-shirts to the Chinese or chopsticks to the Japanese... it hardly matters because the technology may be in the manufacture or the design rather than in the product. I think that is the way forward. Get us back to being an industrial nation – and the one thing that all of our respondees to our survey said was they need the voice of government leading the way. It's like 1939 – if the government had said 'we're not very good at organising wars, we'll leave it to private enterprise' I think we would have had a bit of a problem. And we're in the same state today – we're losing the trade war, and if government doesn't act to raise the banner and make it very clear that they're leading the way back into an industrial nation, then I think we have a serious problem.

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