The Chartered Institution of Building Services Engineers

Presidential Address 2005
Trust Matters: Prosper by Changing
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CIBSE

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Donald Leeper has worked in the construction field for nearly forty years. After early experience in the research and nuclear power sectors, he was attracted to the challenges offered by the Building Services Industry in 1966, where he has remained ever since.

A graduate of Imperial College, University of London, Donald's postgraduate courses included business studies at the London School of Economics. He has worked for the engineering consultancy Zisman Bowyer and Partners for thirty-nine years, twenty-one of them as Senior Partner. He has always been a firm believer in staff professional development and the sponsorship, involvement and adoption of cutting edge research.

As the 'Champion for Constructing Excellence' for the Chartered Institution of Building Services Engineers, Donald has been working to promote CIBSE's support for a real culture of better trust, understanding and improvement as a means to ensure Best Practice.

Amongst his external appointments he has served on the Editorial Panel of the CIBSE Journal and as a Council Member and Vice-President. He has also served as Building Services member of the Department of the Environment's Assessment Review Panel for Construction Research, a member of the General Council of the Construction Industry Council and a member of the Services Industry Panel on Innovation.

He has a long association with the Building Services Research and Information Association, (BSRIA) with service as a Director and also Chairman of the Association. He became an honorary life member of BSRIA in 2003, one of only five ever awarded.

Donald was awarded an OBE in the Millennium Honours list for services to construction. Leisure interests include music, walking and finescale modelling. He has three children, two of whom work in the engineering industry and the third is a Major in the Army.

Trust Matters: Prosper by Changing

Introduction

It seems hard to keep a sense of balance these days between scaremongering and complacency. So much change, so many threats, and these seemingly set to grow even larger.

In this address I would like to share with you in a positive way why we must change even more, how we might prosper in the process and the overriding importance of trust – and because they are interrelated, to do this from the point of view of the individual, the organisation, the institution and the government.

I will touch briefly on –

◆ Past changes in my experience, which I believe have contributed to increased adversarialism.
◆ How the ideas embodied in the word Partnering might really improve money and trust.
◆ How, increasingly, we might tackle two interrelated challenges that are truly global in their effects – climate change and worldwide industrialisation.

Also, to say some good things about our Industry, the responsibilities that our increasing importance carries and the potential benefits that we might bring to the wider public we seek to serve.

The role of the scientist/engineer

Over this last 100 years it has been the scientists/engineers who have brought about the reality of lengthening our lives and providing the equivalent of four servants for each of us through technological advances. Throughout, we have been amongst the finest of the wealth creators, doing work which at best is enjoyable, creative and so valuable for society.

The CIC's recent letter to the Prime Minister sets out that at its broadest definition, construction has a workforce of almost 3 million people employed in 350,000 companies (not one of which has more than 2 per cent of the work) and it is the largest sector of the economy accounting for some 10 per cent of GDP. What we collectively do each day really does matter. We are literally building Britain.

We have so much to be grateful for

My father recently celebrated his 99th birthday. The Great Britain that he was born into[1] in 1906 was a country where 40 per cent of families lived in homes with no running water or sanitation; where people's health was so poor that 4 out of every 10 volunteers for the Army were refused on grounds of ill-health; where only 3 in 100 children made it into secondary school.

Inequality was extreme, with 4 per cent of the population owning 90 per cent of the wealth. There was no system for compensating workers for accidents they suffered at work, neither were there systems for providing social security, pensions or health.

Women did not have the vote. Only a few years earlier, children as young as 12 years old worked in mines.

How far we have travelled in the past 100 years!

A more adversarial industry

However, as I look back over my working career, it is clear that we have definitely become more adversarial over the past 40 years. As a result, relationships have too often deteriorated to the point where "My word is my bond," has become "At all costs watch your back!".

When I was a young engineer my founding partner, Leslie Zisman, constantly taught the importance of doing the current job well, because, he told us, if we did then the next appointment would surely follow, which it so often did.

Some, *but by no means all,* of the deterioration since then can be put down to our supply side industry. I think I have lived through an example of the law of unintended consequences, where the effects of successive decisions of well intentioned people have cumulatively had the opposite effect to that desired.

In the 1960's, as designers, we routinely worked with key manufacturers to improve our design solutions and to aid their product development. It was the obvious thing to do. We undertook pre-tendering exercises with every bit as much integrity as the professional quantity surveyor.

Subsequently, we were not allowed to pre-tender and specify suppliers without adding 'or equal and approved', then we were stopped from naming any supplier, instead only being allowed to write a generalised performance specification. Responsible suppliers found themselves being asked to contribute to the overall project before being swept aside by those not paying for such developmental work and apparently offering a lower price.

It is not much more than 15 years ago that we risked being sacked if we attempted to build a relationship with key suppliers and incorporate their products into the works. More recently, this has been totally reversed. As designers we are exhorted to work closely with key suppliers, but too often these suppliers are still underbid later when orders are finally placed.

> *It is my strong belief that if the Government is serious about improving the carbon emissions of our buildings, it needs to become an expert client again, perhaps by using the positive aspects of the PSA model.*

There is only one large player in construction. Central and local government collectively procures around 40 per cent of the construction industry's output. But during this same period, the Government relinquished its internal resources as an informed client; by abolishing the PSA and closing the Department of Health's technical expert centre at Euston Tower. Government largely abandoned its opportunities for internal informed technical guidance and feedback. Then it delegated the public sector procurement role even further to individual schools and hospital groups, so more and more projects were in effect procured by first time clients.

Not surprisingly, many of the delegated procurement bodies who have had to satisfy a District Auditor, found it easier to judge which was the lowest price rather than on any other criteria. Perhaps not surprisingly too, the industry learned it had to price low to win – subsequently attempting to recover the lost margins both by claims on the client and from within the supply chain later – not a policy to encourage mutual collaboration and support, nor enhance the industry's collective reputation.

Even where a project turned in a first class result, it was often clear that this would count for little next time; since under EC tendering directives, the next tender list would be open to all, including those who through lack of experience or conscious policy priced below sensible cost before again attempting recovery later.

It is my strong belief that if the Government is serious about improving the outcome of the construction industry, not least the carbon emissions of our buildings, it needs to become an expert client, perhaps by using the positive aspects of the PSA model.

The cumulative claims culture, adversarialism and waste of this process formed the background to Sir Michael Latham's and subsequently Sir John Egan's Reports attempting to bring reform to the industry.

The view is sometimes proposed that our adversarialism is entirely a supply side problem and entirely ours to address, but if the law of unintended consequences is seen to apply, then both supply and demand bodies have it in their interests to reconsider the pressures and behaviours of the past 25 years.

Collaboration and Competition

In so much of modern commercial life we experience the tension between (a) the need for collaboration with others to achieve a common objective and (b) the intention to pass on as much risk as possible to protect one's individual profit, often exacerbated by the disparity of power between contracting parties.

Way back in 1948 in the very first Reith Lecture, Lord Russell spoke of how man's instincts have developed from his earliest hunting days, when each hunter needed two square miles for game. He drew out how man learnt to work with other members of his family to improve the results of his hunting and how that family group depended also on joint hostility to other groups to defend its territory. From there, our history has developed through the cohesion of the tribe working together, strengthened by conflicts with other tribes. We learnt that to achieve common objectives, we need to nurture collaboration whether it is at the level of the individual, organisation, industry or government.

From my informal discussions, many areas of our industry have yet to fully grasp this.

The difference between professional services and goods

There is a very practical difference between a professional service and a product (something that is already created, whether it is a newspaper, a car, or a packet of cereal). In the latter case, the rules of caveat emptor, buyer beware, can be followed by forming a view on what is already there. Fundamentally different is a service still to be provided, whether it is a future haircut or car servicing or new or modified buildings and maintenance. For this case, caveat emptor means judging to what extent what is promised will actually be delivered - which is the essence of trust.

How we make personal choices

Consider how we behave on personal issues. Few of us use lowest price to decide which garage will service our car, let alone which surgeon will operate on our children. Price is but one of a number of criteria we instinctively use in making such judgments.

Two years ago our then President, Terry Wyatt, drew attention to the growth of standardisation, offsite prefabrication and what he termed 'plug and play' modules which are already shifting the emphasis from professional services (as conventionally understood) to products. We are developing elements of our work, in changing from future service to established products – but construction is still largely a future service business.

How to Prosper by Changing: Partnering – Improving Money & Trust

Some ten years ago Sir Michael Latham published his interim report titled *Trust and Money*[2]. A decade on, these two interlinked issues still bedevil much of our industry.

Real partnering, in relationships as well as in processes, has – with some honourable exceptions – not achieved anything like the potential benefits. If it had, surely market competition would have compelled others to follow the principles.

Instead:-

◆ 'Partnering' contract clauses are becoming even more onerous.
◆ Responsibility boundaries are becoming more blurred, when joint and several liability for the whole project is required of each key supply chain member.
◆ Risk dumping occurs frequently, even where the risk is quite beyond the influence of the supply partner to manage.
◆ Insistence on retentions continues.
◆ Designers, both architects and engineers, find themselves playing an elaborate game of musical chairs as they continue to be sought after for their specialist skills, but by different leading contractors/consortia.
◆ Profit margins remain very low for much of the supply chain.

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Why is this?

We have noted already that Central and Local Government Authorities, through Public Sector Procurement, are by a big margin the largest and most influential participant in the construction industry. To their credit, they have introduced a variety of initiatives to encourage more integrated supply side processes through PPP, PFI, Procure 21, Term Appointments, the list is extensive. So why has this not been more successful?

Last July Sir Evelyn de Rothschild wrote an influential article[3] *"Capitalism may be under threat from itself"* quoting recent cases of market abuse ranging from skimming off small amounts from many accounts through to the failures and alleged fraud in companies the size of Enron, BCCI and Parmalat. Even companies of the stature of Shell have allowed their perceived self-interests to damage their reputation.

Whilst we may not have faced the construction equivalent of these collapses, many of us have experienced a gap between what those at board level may claim is the strategic intention of their company and the pressures that are experienced by the negotiators and managers assigned to individual projects. Industry leaders increasingly aspire to Latham/Egan objectives – whilst their middle ranking managers perceive that they will be judged (and rewarded) directly on the results of their current project. This so often means squeezing that extra margin out of the current supply side partners – the pressures on short term results acting to undermine long term good relationships.

It is difficult to avoid the conclusion that many organisations have not yet fully realised that developing trust is potentially a powerful source of competitive advantage: that being adversarial with suppliers and partners consumes more resources for less benefit than taking a proactive commercial approach based on trust. I know this works: I have proved it in our practice over more than two decades.

Trust involves two fundamental qualities.

To be trusted we need to demonstrate both by our competence and our character, that we are worthy of trust, that our actions support our words.

A survey reported last year[4] rated a wide range of desirable attributes in deciding whether or not to trust someone. The ten most frequently looked for attributes were:-

1. Fairness
2. Dependability
3. Respect
4. Openness
5. Courage
6. Unselfishness
7. Competence
8. Supportiveness
9. Empathy
10. Compassion

Nine fall into the category of character qualities with only one, competence, being directly concerned with technical skills and expertise.

When asked to indicate how close the attributes we want are to the attributes we experience in reality, only competence scored highly. On all nine of the character attributes, the gap between what we want and what we find in practice was much greater.

This correlates closely with the points made in Sir Robert Malpas' report; *The Universe of Engineering*,[5] where he draws a distinction between engineering knowledge, the 'know-what' and engineering process, the 'know how' – the former relating to the possession of a growing body of facts, experience and skills, whilst the latter relates to the creative process that applies knowledge, experience and resources, usually of a number of disciplines (the supply chain) to exercise informed judgment to best meet the customers' needs.

In other words, our individual competencies are far less of a problem than our ability to work effectively together to deliver to our ultimate client.

Interestingly, a number of major private repeat order clients appear to have understood this very clearly.

Framework agreements have been entered into which increasingly not only encourage, but require their supply side members to share very openly with their same discipline framework partners, lessons learned and innovations that work from job to job – cumulative knowledge capture shared throughout the framework companies.

So – how to address this for the 'one off' clients?

For each tenderer, clients might be encouraged to look more closely at successfully completed projects, what further improvements are envisaged and how many of the key supply partners have been retained. Lead contractors/consortia (and indeed every company) might look at how closely their longer term objectives align with short term pressures on their middle ranking negotiators and managers. Above all, we in the services sector might reflect that, if we believe being adversarial with suppliers and partners consumes more resources for less benefit, then we have not been very successful at convincing our partners higher up the chain.

Whilst it is relatively easy to suggest improvements for others, what can we personally do to improve confidence and trust? Could we, for example:-

◆ Demonstrate further improvements directly arising from our last project together?
◆ Suggest ways of working together to improve sales?
◆ Show how we might together adapt to marketplace changes?
◆ Do more together to develop the expertise and skills of our people?
◆ Put more effort into getting to know better the managers of each current project so that we help them share concerns and mitigate the problems which are likely otherwise to lead them to pursue more adversarial actions as the job nears completion?

Trust and money are interdependent. More trust should mean secure profitability, as well as increasing customer satisfaction – and hence brings both renewed pleasure in our work and future commissions.

Developing our competencies

Whilst qualities of character have been dealt with above, the need to develop continually our competencies cannot be marginalised. New government regulations, including Part L, EU Directives on waste and the energy performance of buildings, developments in carbon emissions trading and competent persons legislation, not forgetting CIBSE's policy on sustainability will all need to be absorbed by us in the near future.

Possibilities for local use of renewables are developing fast. The Building Services Research and Information Association's Worldwide Market Intelligence Unit, recently published some excellent reports[6] on the world markets for renewables. These give clear indicators of how the commercial and government pressures are expected to develop both in the UK and in our export markets – and how influenced and dependent these markets are on national government policies.

ICT enabled technologies

Coming from a design practice, I am greatly encouraged by recent developments in ICT(Information Communications Technologies) and object technology – which are helping to improve change through trust and trust through change.

Working closely with the International Alliance for Interoperability, some firms (of which ours is one) are moving away from 2D drawings in favour of object modelling to realise designs in a prototype environment. The IAI have developed an open, non-proprietary industry standard, called Industry Foundation Classes which has been endorsed by the International Standards Organisation.

The prototype model is made up of IFC objects which contain geometry and property sets for each object definition. Using these intelligent objects to model the building and engineering services provides a greater understanding of the spatial constraints involved and allows potential problems to be identified sooner. This approach provides interaction between disciplines which promotes design team collaboration from first principles.

As more design team members adopt this way of working, IFC models can be shared within the design team using this CAD neutral data. This enables data rich models in CAD applications and then the reuse of the same data in other applications such as energy modelling or passing on to other design team members.

The increased understanding by clients and the construction team of each others work provides a current and practical example of mutual trust being fostered through ICT enabled technologies.

Global Challenges

So far, we have spoken of the local challenges facing us as individuals and organisations. There are, however, two challenges which are global in their nature and which will increasingly impact on us all – climate change and globalisation. Identifying these two changes is not intended to divert attention or resources away from huge regional threats such as malaria, famine, drought or disease, but these two global challenges are unavoidable wherever we live.

Climate change

A few short months ago at CIBSE's National Conference in September 2004, the Government's Chief Scientific Advisor, Sir David King, gave a key-note address on the current state of scientific research affecting the problem of climate change. He has also publicly warned that global warming is a greater threat to the world than international terrorism.

Since that conference, the observatory at Mauna Loa has confirmed even higher than predicted CO_2 levels in the past year, the British Antarctic Survey has reported on further weakening in the West Antarctic Ice Shelf, the American Oceanographic Research Centre has reported on the significantly worrying increases of temperature in the planet's oceans, the phenomenon of global dimming has received measured scientific support and the Meteorological Office's Hadley Centre has reported at its recent conference on continuing deterioration being observed and measured across the world.

Some politicians and journalists, not only in the United States, have been tempted to claim that anthropogenic climate science is uncertain. They have suggested that there might be significant disagreement in the scientific community about the reality of climate change originating from human activity and so susceptible in any significant way to human mitigating actions.

Last December the journal 'Science' published the results of a survey[7] confirming that a scientific consensus is clearly expressed in the reports of the Intergovernmental Panel on Climate Change (IPCC) a body created in 1998 by the World Meteorological Organisation and

the United Nations Environmental Programme. The American National Academy of Sciences report *Climate Change Science: An Analysis of Some Key Questions* states: "The IPCC's conclusion that most of the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations accurately reflects the current thinking of the scientific community on this issue".

Lest it be claimed that the consensus of American and UK professional bodies might downplay legitimate dissenting options, this survey considered all the individual peer-reviewed abstracts published from the start of the ISI database in 1993 to 2003, which listed the key words 'climate change'.

There were found to be 928 referred papers. These were divided into 6 categories: 75 per cent concerned explicit endorsement of the consensus position, evaluation of impacts or mitigation proposals, 25 per cent of the peer-reviewed papers published dealt with methods or palaeo-climate analysis. The report found that not one of the referred papers published fitted in the 6th category, disagreement with the consensus position.

The time has passed when climate change can be regarded as other than largely anthropogenic, hugely dangerous and requiring our national and individual response.

Globalisation

This too has received increasing attention in the past decade, commonly in terms of the flows of capital (and jobs) from richer to developing nations, as education has improved and trade barriers have eased somewhat. In recent years we have also observed the opposite flow, where labour has moved from developing to richer economies in search of higher rewards for their work (the immigration question).

Professor John Gray, School Professor of European Thought at the LSE, has described[8] globalisation in a rather different way, as something more long lasting, profound and irreversible. He has suggested that we should think of globalisation as the current state of worldwide industrialisation, the spread of new technologies of communication, connecting us

all, providing access to our knowledge stores all over the world. In his opinion, the increasing populations of emerging economies of Brazil, India, China and South East Asia particularly will become hugely more energy hungry, not least hydrocarbon energy hungry, the major resources of which are in the Middle East and Central Asia. Market forces will not assuage these demands, once access to our knowledge stores becomes widespread.

When I was a young man we understood the world's population to be about 3.5 billion people. Currently, the total world population is estimated at 6.1 billion, whilst in the next 20 to 40 years total world population is predicted to top out at about 8.5 to 9 billion. With increases of this size in population having access to knowledge and hence developing economic aspirations, maintaining today's energy consumption differences between richer and developing nations would seem to be practically impossible and morally indefensible.

Given our recent experience, says Professor Gray, where powerful states set aside the opinion of so many others in pursuance of what they perceive as their national interests, the emergence of some international body with the authority and power to control the mightiest of our national states seems to be fantasy. Far more likely, it seems to Professor Gray (and to me) that different nations, embracing different religions, different economic systems, different policies, will decide what serves them best and try to implement this.

Some have suggested that if governments are unable, then free market forces will exert corrective influences – whether by the price/scarcity measure of resource availability – not only of hydrocarbon, but of water, agricultural land and disease control. However, the evidence suggests that neither politicians nor the military, nor we ourselves, are prepared to wait long enough for the 'market solution' to function if we feel threatened in some serious way.

In other words, the potential for international upheavals, with population migration pressures seeking access to ever scarcer resources may become even more immediately threatening and exacerbated by the looming changes in

climate. Recent papers consulted which expand on these challenges include those by Professor Michael Grubb of Imperial College and the Carbon Trust[9] and Dr. James Lovelock[10] of Gaia theory fame.

What we have left to turn to is technology, which is the theme of this year's Reith Lectures by Lord Broers, and which places our Institution with others in key positions of importance.

I have spent this time on these problems because they are both so acute and so long lasting. They require huge changes which we acknowledge in our heads, but do not always emotionally commit to with our hearts and consequently translate into action.

A simple, if rhetorical question: how many of us leave TVs and PCs on standby rather than switching them off, or use low energy lamps or walk or cycle short journeys? We have just gone through an election campaign. How often were these problems even referred to?

Many of us may feel that this data is already being widely publicised, yet the anti-hunting bill can bring huge crowds on to the streets, whilst no one has managed to do that for climate change threats. We, as responsible engineers, who claim to understand heat transfer, must address this with great vigour, if we expect others to care enough to change their behaviour.

As an Institution, we already provide considerable guidance and information, not least through our publications, courses and events but there is still room for us to act even closer with other key bodies within the built environment, both to further inform our members and to influence those we work with and work for.

I hope, as collaborating Institutions, we can learn to ever more actively speak with a common voice. Particularly, given the five years that it took for the framework convention in Rio de Janeiro to become the negotiated Kyoto protocol, and then the further eight years that it has taken governments to bring it into force, the need for this could hardly be clearer.

The Potential Role of the Institutions

Increasingly, over the past decade one has sensed that the view of government, senior civil servants, journalists and others too often has been that the Institutions are old fashioned and self-centred with a silo mentality – part of the problem, not the solution.

Beyond the requirement on their members to serve their clients competently and with integrity, all the Institution Royal Charters that I have read include as a fundamental objective a wider duty of care to society at large. Given this clear undertaking, the Institutions could and should be seen as an important part of any attempt at solutions. With their Corporate Responsibility Policies, commercial organisations now seek to convince that they embrace what has been our core purpose for the past 100 years or more.

There has been speculation in the media recently on the need for a major regrouping of the professional bodies into a very small number of far larger institutions, but much less emphasis on why this is so desirable, or what this would achieve. For me, it is far more helpful to seek consensus on the desired outcomes we want and how these might be progressed, rather than assume without evidence that one bigger body would better fulfil our Royal Charters.

Thinking about how our Institution might develop, raises for me the question – what are the key attributes of a professional institution? I think that there are six, which I give below, only very slightly modified, from a speech by the then IEE President in 1950.

The six dominant attributes of a professional institution:

1. the possession of and commitment to grow a body of knowledge
2. an educational process
3. a standard of professional qualification
4. a standard of conduct
5. formal recognition of status, by colleagues and the State
6. an organisation devoted to common advancement and social duty rather than the maintenance of an economic monopoly.

W. E. Wickenden President IEE 1950

CIBSE's commitment to grow our body of knowledge to harness technological change in response to the problems outlined earlier is widely acknowledged.

Our Institution continues to enhance its reputation with a steady stream of technical publications. As our understanding of technology grows, however, we are also recognising how our own and related disciplines are becoming more and more interdependent. Our development of specialist societies which reach out across disciplines for mutual benefit is but part of our wider intent to work with other bodies of knowledge in the wider public good as well as for our immediate clients. It is our declared intention to seek the benefits of more positive and closer working together that is already enhancing our body of knowledge and hence our publications and events.

The question of trust is again central to the closer working together of our Institutions.

Not so long ago when the director general of a national institution was effectively (rightly or wrongly) forced to resign, 6,000 supportive emails came to him from the staff and they actually took to the streets campaigning to bring him back. Such reactions were unprecedented in any organisation that I have heard of. In Greg Dyke's own words: "The most successful companies and organisations around the world are ones where the staff and the leaders share a common purpose, believe in similar values and are both trying to achieve the same thing".

Why shouldn't this apply just as much to a group of independent collaborating institutions?

Underpinning such collaboration and the six attributes of a professional institution are core values as embodied in our Royal Charter. Here, I would like to paraphrase these core values briefly:-

1. Trust is the foundation of our Institution; we are impartial, independent and honest.
2. Our society and clients are at the heart of everything we seek to do.
3. We take pride in delivering quality and value for money.
4. Creativity and innovation are the lifeblood of our Institution.
5. We respect each other and celebrate our diversity so that everyone (and every organisation) can give of their best.

Interestingly, the Royal Institute of British Architects have recently drawn up a set of core values of remarkable similarity.

Think of the impact if we, the construction institutions, could collectively arrive at core values and codes of conduct that respected our individual knowledge bases and competencies, but spoke of a unified approach to these great challenges.

We can be Allies of Government

Government cannot avoid being hugely influential in how our industry performs and is perceived. As a client, it is by far the largest player. As a regulator, it sets the framework within which we must operate, and through the DTI, it acts to foster the success of the UK's wealth generating industries.

However, in our modern western democracies, government has to undertake these three roles (among others) within a constrained timescale. Every four to five years it must seek a fresh mandate, under a competitive system, in which its rivals seek to challenge and denigrate its achievements. Against this background, it is not fair for us to passively await new legislation, but rather to actively try to help, when we are asking governments to respond to the longer term challenges, in effect, to act in the interest of voters not yet born.

If we can develop consensus amongst ourselves as Institutions, we can offer government a committed group that recognise their wider duty to society, who can be used to help create the climate for the government to 'respond', making the case for taking the longer term view. We can help government facing the dilemma of 100 year problems whilst acting within 4 year terms.

The built environment institutions can be central to this by showing that we are working proactively in collaboration together. Six presidents and chief executives all giving the same messages to Lord Sainsbury, as they did recently, are every bit as powerful, as the head of one large body might be. It's the widespread buy-in to the message that is important here, and for which I want to work during my year.

It would seem axiomatic that attitude change is the critical precursor to behaviour change across the UK, whether in promoting existing behaviour change campaigns or to prepare the ground for unpopular policy changes.

Looking to write positively about how this might be tackled, my attention was drawn to '*The Rules of the Game*' a report[11] prepared by Futerra for the Climate Change Communications Workshop Group.

They have identified 20 rules, arranged in 6 sections on how the government's response to climate change might be developed. A number of these rules suggest ways in which the Institutions too might both further their Royal Charters and support the government's efforts. These principles are fresh and important enough to bear repetition and a short summary is quoted overleaf:-

> "The Institutions are increasingly seen as old fashioned and self-centred with a silo mentality – part of the problem. But Royal Charters of Institutions include as a fundamental objective a duty of care to society at large. We are here for the public good, we work for the public good, and we empower our members to do so too. We are a major part of the solution."

"

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'The Rules of the Game'

Blowing Away Myths

1. **Challenging habits of climate change communication**

   (a) Don't rely on concern about children's future or human survival instincts

   Recent surveys show that people without children may care more about climate change than many parents.

   'Fight or flight' human survival instincts have a time limit measured in minutes, not years.

   (b) Don't create fear without agency

   Fear can create apathy if individuals have no 'agency' to act upon that fear. Use fear with great caution.

   (c) Don't attack or criticise home or family

   It is unproductive to attack the things which people hold dear.

2. **Forget the climate change detractors**
   Those who deny climate change science are irritating but unimportant. The argument is about how we deal with climate change, not if we do.

3. **There is no 'rational man'**
   We rarely weigh objectively the value of different decisions and then take the clear self-interested choice. The evidence discredits the 'rational man' theory.

4. **Information can't work alone**
   Providing information is not wrong; relying on information alone is wrong. Also remember that money messages are important, but not that important.

A New Way of Thinking

5. **Climate change must be 'front of mind' before persuasion works**
   Currently, telling the public to take notice of climate change has proved unsuccessful. People don't realise (or remember) that climate change relates to them.

6. **Use both peripheral and central processing**
   A tabloid snapshot of Gwyneth Paltrow at a bus stop can 'peripherally' change attitudes to public transport.

7. **Link climate change mitigation to positive desires/aspirations**
   Links to home improvement, self-improvement, green spaces or national pride are worth investigation.

8. **Use transmitters and social learning**
   People learn through social interaction. Some people are better teachers and trendsetters than others.

9. **Beware the impacts of cognitive dissonance**
   If you confront me with the difference between my attitude of caring about climate change and my unsustainable actions, I will be more likely to change my attitude.

Linking Policy and Communications

10. Everyone must use a clear and consistent explanation of climate change

The public knows that climate change is important, but not what it is.

11. Government policy and communications on climate change must be consistent

Don't 'build in' inconsistency and failure from the start.

Audience Rules

12. Create 'agency' for combating climate change

We have 'agency' when we know what to do, think our contribution is important, decide for ourselves, and have access to the infrastructure to act.

13. Make climate change a 'home' not 'away' issue

This is a global issue, but we will feel the impact of climate change at home, and we can act on it at home.

14. Raise the status of climate change mitigation behaviours

Research shows that energy efficiency behaviours can make you seem poor and unattractive. We must work to overcome these emotional assumptions.

15. Target specific groups

A classic marketing rule, not always followed by government.

Style Rules

16. Create a trusted, credible, recognised voice on climate change

We need trusted organisations and individuals that the media call upon to explain the implications of climate change to the average citizen.

17. Use emotions and visuals

If information doesn't always work, emotions and visuals usually do.

Effective Management

18. The context affects everything

The prioritisation of these rules will be subject to an assessment of the national situation.

19. The communications must be sustained over time

All the most successful public awareness campaigns have been sustained consistently over many years.

20. Partnered delivery of messages will be more successful

Experience shows that 'partnered delivery is often a key component for projects that were complex, large or had a multitude of partners'.

The professional bodies within the Construction Industry Council are already actively engaged in working together more collaboratively. These 'rules' provide another useful source of guidance on how our interactive work might develop. They are relevant to us, as they are to government.

Delight

So far, we have inferred that services and structural engineering and architectural design are becoming ever more interdependent.

We have recognised that we will have to think in terms of 60 per cent reduction in carbon emissions in our designs, and that new skills will be needed to meet these technical requirements along with new methods of demonstrating competency, as well as trust.

Fourteen years ago, the then President, Tom Smith, (who first encouraged me to support my Institution's activities) wrote: "We engineers have for too long dealt only with what is measurable and calculable and failed miserably to address the visual and aesthetic aspects of our engineering which are, to a large degree, intuitive".

Like Tom, I believe that elegance should be sought in every aspect of life, and that one is unlikely to produce elegant solutions to problems if surrounded by ugliness. One of the greatest pleasures of my working life has been that elusive feeling of delight – when one has managed, not only to appreciate the broad principles of the architect's intent, but recognised the part our own skills have had in realising that intuitive element of design.

When function is accompanied by delight, we need be in no doubt that as engineers we serve our clients and our society well.

I must close with a word of thanks, for I have around me a team of no less than four Past Presidents still very actively committed, together with a number of potential successors working together to implement our new governance structure and to shape our response to these challenges. Last year Graham Manly spoke of delivering sustainable buildings, innovation and off-site fabrication, resources and competencies. Graham's predecessor, Terry Wyatt, addressed us on rising energy demands and the threats of both climate change and technological advance to the ways we will work in the future. The year previously, Doug Oughton examined the shortages of skills and appropriately educated and trained technologists/engineers and suggested how these might be addressed. I hope that all our addresses will be seen and considered as complementary parts of a wider whole – another facet in an unfolding story.

So much change. For each of us, of course, there is only one person we can really change … and that's not a bad place to start.

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