

## Building Our Industrial Strategy

### Response to the Industrial Strategy Green Paper from the Construction Industry Council [CIC]

#### Introduction

1. The Construction Industry Council (CIC) was formed in 1988 and brings the **Built Environment Professions Together**. It comprises 31 members, listed below:

ACA	Association of Consultant Architects
ACAI	Association of Consultant Approved Inspectors
ACE	Association for Consultancy and Engineering
APM	Association for Project Management
APS	Association for Project Safety
BIID	British Institute of Interior Design
BIFM	British Institute of Facilities Management
BRE	Building Research Establishment
BSRIA	Building Services Research and Information Association
CABE	Chartered Association of Building Engineers
CIAT	Chartered Institute of Architectural Technologists
CIBSE	Chartered Institution of Building Services Engineers
CICES	Chartered Institution of Civil Engineering Surveyors
CIH	Chartered Institute of Housing
CIHT	Chartered Institution of Highways and Transportation
CIOB	Chartered Institute of Building
CIPHE	Chartered Institute of Plumbing and Heating Engineering
CIRIA	Construction Industry Research and Information Association
GF	Ground Forum
ICE	Institution of Civil Engineers
ICWCI	Institute of Clerks of Works and Construction Inspectorate
IET	Institution of Engineering and Technology [Built Environment Sector]
IIRSM	International Institute of Risk and Safety Management
ISSE	Institute of Specialist Surveyors and Engineers
IStructE	Institution of Structural Engineers
LABC	Local Authority Building Control
LI	Landscape Institute
NHBC	National House-Building Council

RIBA Royal Institute of British Architects  
RICS Royal Institution of Chartered Surveyors  
RTPI Royal Town Planning Institute

2. The Built Environment Professions cut across many industries and are the front line in creating solutions for clients and society, especially in relation to the **Creative, Engineering, Advanced Urban Services and Construction Industries**. In many respects the CIC provides a bridge between these industrial sectors at the professional level.
3. The built environment professions are an essential, but distinct, and sizeable sector. There are around 500,000 such professionals working across the whole spectrum of the built environment, in relation to buildings, infrastructure and landscape: in client bodies, in surveying, design, engineering, construction, project management and then on into facilities management, refurbishment, renovation and demolition. They also work in research, academia (both FE and HE), in dispute resolution, health and safety, marketing and public relations. **Our built environment professions are world leaders.**
4. CIC exists solely to provide cohesion amongst the professional bodies within the built environment. It is not a trade association and does not represent individual companies.
5. CIC's Mission is:  
  
***To improve the UK construction industry by collectively representing and supporting the built environment professions.***
6. CIC works with its members and others to facilitate the creation and maintenance of a sustainable built environment that serves the needs of society.
7. This response makes the essential point that the built environment professions are a cross-cutting sector in their own right, servicing every industrial sector as a client and forming an important branch of the creative industries; the engineering industries and the construction industry.
8. Architecture, Landscape Architecture and Interior Design are amongst the UK's creative industries; a distinct part of the UK economy that supports 2.9m jobs and contributes around £90bn to the economy. It is a fast-growing sector.
9. **The CIC supports the recommendations of the Creative Industries Federation for a sector deal for the creative industries , specifically with a view to establishing enterprise zones, tax breaks and access to finance for creative firms, including those operating within the built environment.**
10. Several of our members are also involved in supporting a sector deal for the Advanced Urban Services industries.

11. The opportunity in the advanced urban services sector is huge, but in many ways its marketplace is failing. The future potential of the sector to become one of the UK's leading traded sectors depends on much improved efficiency and integration, and an overhaul of legacy systems and practices.
12. **In principle, we support the Future Cities Catapult call for a sector deal for the Advanced Urban Services industries and CIC seeks to become a part of that sector Council.**
13. The UK construction industry contributes £150bn to UK GDP and employs 2.9 million people. This figure does not generally include the office-based members of the built environment professions [see paragraph 3].
14. **The industry accounts for about 8% of GDP and, as a sector, it is bigger than car production and aerospace combined.**
15. **This response largely concerns the built environment professions within the construction industry. It is dove-tailed as far as possible with the response of the Construction Leadership Council, which the CIC fully supports as the leadership vehicle for construction.**
16. The construction industry has a key role in supporting UK economic growth and productivity through the delivery of essential housing, buildings and infrastructure and through its contribution to the creation of sustainable cities and communities.
17. All UK nations and regions and every other industrial sector rely on the construction industry for the delivery of essential capital investment. Regions also benefit from the high local economic multiplier generated by construction through employment and through SMEs in the supply chain.
18. **The CIC supports the CLC's role in leading the implementation of the Construction Industry Strategy in order to increase sector productivity. The Farmer Review, entitled *Modernise or Die*, also supported and endorsed by the CIC, recommended that the CLC takes on an overall role in coordinating industry initiatives to improve performance as well as highlighting specific initiatives associated with business models and innovation.**
19. There is a window of current opportunity for performance improvement in the sector because construction has not yet taken full advantage of the mass adoption of modern technologies such as digital technology and off-site manufacture.
20. The CLC has chosen to focus on three key themes:
  - **DIGITAL** - delivering better, more certain outcomes by using digitally-enabled design, construction and operation;
  - **MANUFACTURING** - increasing the proportion of off-site manufacture to improve productivity, quality and safety;

- **WHOLE-LIFE PERFORMANCE** - getting more out of new and existing assets through the use of smart technologies.
21. The CLC aspiration - supported by the CIC - is that, by focusing on the above themes, the construction industry will raise its game: delivering more homes, school places and adding to road and rail capacity at a lower cost whilst making more profit to be able to reinvest in even better performance.
  22. The CLC currently has work streams, led by senior industry figures, focused on business models; skills; innovation in buildings; smart infrastructure; sustainability; and exports. By working with industry bodies and by assembling specific task groups, the CLC is taking a leading role in bringing together key players in the industry, including clients, in order to drive significantly better industry outcomes.
  23. **The CIC is supporting the CLC work streams**, specifically on skills, sustainability and exports; with direct involvement in the former, advising on specialist professional skills needs; direct representation on the Green Construction Board; and by providing the secretariat support for the working party that is looking to establish a global hub for built environment professional services, under the Export work stream.
  24. There is already a significant balance of trade in built environment professional services, which attract somewhere between £5 and £8 billion pounds of overseas income, annually.
  25. The last full-scale survey of the UK Construction Professional Services was carried out in 2005/6; led and project managed by CIC and jointly undertaken by Davis Langdon Management Consulting and Experian.
  26. The key headline findings from that survey were:
    - UK Built Environment Professional Services firms earned a total of £13.9 billion on projects in the UK;
    - There were 27, 950 UK Built Environment Professional Services firms;
    - The UK Built Environment firms earned £2.5 billion from work overseas.
  27. This survey has not been repeated since 2005/6 and it is **recommended that the government works in partnership with industry to gain updated market intelligence on the UK Built Environment Professional Services sector.**
  28. In addition to this work on helping the CLC to further promote the value of UK built environment professional services traded internationally, the CIC leads on a number of other generic issues on behalf of the built environment professions and the construction industry, notably:

- **DIVERSITY** -innovating and leading by bringing about cultural change within the built environment professions and the construction industry. Improving the diversity of the built environment professions and bringing about cultural change in attitudes to fairness and respect with the workplace(s) is a major priority for the CIC and its Diversity Panel brings together leaders from all sectors of the professions and the industry. The Panel looks at issues of gender, ethnicity, religion, sexuality and disability. It monitors and publishes data on diversity;
- **INCLUSIVE ENVIRONMENTS** - following on from work at the 2012 Olympic Games, the CIC carries out work to promote inclusivity and accessibility within the built environment. This includes an Inclusive Environments Award, encouraging greater awareness and inclusion of accessibility in the curricula of education courses leading to professional formation in the built environment professions and promoting Disability Confident within the UK built environment community;
- **BUILDING INFORMATION MODELLING [BIM]** - the CIC has been at the forefront of developing and delivering Level 2 BIM, with an objective to reduce the whole life cost of buildings and infrastructure by 20% and to achieve reductions in carbon dioxide emissions. This work continues at Level 2 through the CIC BIM Forum and CIC's support of the UK BIM Alliance; and at Level 3 [Digital Built Britain] through the CIC Digital Board. The CIC work supports the CLC work on SMART as identified above;
- **HEALTH & SAFETY** - the CIC places a high priority on the role of the Built Environment Professions in promoting the consideration of health and safety in every sector of the built environment and notably on construction projects; and particularly in the key principal designer role of architects, engineers and other designers and in the provision of health & safety advice given to clients, consultants and project teams;
- **LIABILITY & RISK MANAGEMENT** - the CIC has a panel of experts that develop and publish guidance on contracts, liability, insurance and risk management issues;
- **FLOOD MITIGATION & RESILIENCE** - promoting leading-edge thought and co-ordination amongst the professions to mitigate the causes of flooding and ensure greater flood resilience within the built environment;
- **GREEN CONSTRUCTION** - promoting leading edge thought and co-ordination amongst the professions relating to sustainability, carbon reduction and all other green construction issues;

- **IMAGE** - the CIC is active in improving the image of the construction industry, especially through the co-ownership, alongside the Construction Products Association, of the **Considerate Constructors' Scheme**;
  - **DESIGN QUALITY** - the CIC owns and operates the **Design Quality Indicator [DQI]**, which is the main stakeholder tool for assessing and delivering improvements to the design quality of building. It is a process that enables every aspect of design quality to be assessed at every stage of the construction process, from inception to post-occupancy analysis;
  - **ADJUDICATION** - the CIC provides an independent adjudication service to resolve construction disputes within 28 days. The CIC also provides guidance for Users about the adjudication process.
29. The CIC is active in Wales and Northern Ireland as well as in eight English Regions.
30. The CIC also provides the Secretariat for the **All Party Parliamentary Group for Excellence in the Built Environment**, currently chaired by Oliver Colville MP. The Group has hosted an annual Commission of Inquiry, which publishes a report of importance to the construction industry. The reports published to date, are :
- 2013 *A Better Deal for Public Building*  
 2014 *Re-energising the Green Agenda*  
 2015 *Living with Water*  
 2016 *Quality of New Build Housing*
31. The current Commission of Inquiry concerns the impact of BREXIT on the construction industry and the built environment professions. The report will be published in June 2017.

### CIC response to Industrial Strategy Green Paper Consultation

32. The CIC's focus in responding to the Green Paper is on the headline principles of the consultation and the industry pillars that the construction industry already supports. We recognise that the Industrial Strategy aims to address the full range of UK industrial capability whilst building on existing strengths such as Aerospace and Life Sciences. We also understand that the strategy must focus on enabling all of the UK to meet its productive potential.
33. **We agree strongly with the CLC view that Construction has a unique role to play as an enabler of other industry sectors.** However, in the view of the CIC, **the Green Paper does not recognise the potential that construction has for step change** and the knock-on effects that investment in the sector will have in regions and on other industries.
34. We therefore welcome the opportunity to respond to the Green Paper Consultation, **signalling our commitment to the partnership approach being taken by**

Government and for the construction sector to deliver better outcomes for our clients, stakeholders and society.

**Question 1: Does this document identity the right areas of focus: extending our strengths; closing the gaps; and making the UK one of the most competitive places to start or grow a business?**

35. The Green Paper achieves an appropriate balance between a focus on high priority, high performance sectors, which require massive levels of support and investment in order to compete on a global stage, and the wider needs of the UK economy at a local level. The achievement of this balance is particularly important to the construction sector given that this industry is required to deliver both strategic national infrastructure and reliable, efficient support to local economies.
36. BEIS might wish to consider the impact of robotics and automation on future employment opportunities.

**Question 2: Are the ten pillars suggested the right ones to tackle low productivity and unbalanced growth? If not, which areas are missing?**

37. The ten-pillar structure provides an appropriate and flexible framework for the development of initiatives under the Industrial Strategy to tackle the UK's growth and productivity challenges.
38. We particularly welcome the inclusion of a **clean growth** pillar with its commitment to a low-cost, low-carbon energy infrastructure that will in time provide confidence for investors into key elements of UK infrastructure.
39. Whilst our view, which accords with that of the CLC, is that the ten pillars provide a coherent structure for the strategy, we also take the view that **further emphasis on investment** could provide an opportunity for Government to mitigate the impacts of cyclical investment. As highlighted in the recently published *Farmer Report*, cyclical patterns of investment in capital assets have encouraged supply chains to develop flexible business models based on low levels of capital intensity. This has an impact on productivity. We would like to see the Industrial Strategy consider how **counter-cyclical investment could be encouraged by the public-sector** - delivering much needed infrastructure at times when there is slack in the economy. We agree with the CLC that this approach would support more sustainable investment into productivity by sectors such as construction.
40. We are pleased to see that Government action to support investment in infrastructure is included within the **Infrastructure** Pillar and are keen to see the consideration of a wider range of approaches to the management of cyclical demand.

**Question 3: Are the right central government and local institutions in place to deliver an effective industrial strategy? If not, how should they be reformed? Are the types of measures to strengthen local institutions set out here and below the right ones?**

41. The CLC has recognised the increased level of ambition that devolution has introduced into the transformation of national, regional and local institutions. Whilst the Green Paper acknowledges the role of local institutions such as LEPs and new institutions including Combined Authorities, the Industrial Strategy will benefit from giving greater consideration to the future roles of these organisations in driving investment, development and regeneration at a local and regional level.
42. The crucial role that these local bodies have in sponsoring growth-enhancing regional development requires greater emphasis.
43. Science, research and innovation centres should have a strong regional dimension.

**Question 4: Are there important lessons we can learn from the industrial policies of other countries, which are not reflected in these ten pillars?**

44. There must be lessons to be learned from the industrial policies of other countries, in terms of, for example, the promotion of offsite manufacture, the advancement of new technologies and investment into capital projects. However, CIC has no international remit and so we are unable to respond to this question in any detail.

**Question 5: What should be the priority areas for science, research and innovation investment?**

**Question 6: Which challenge areas should the Industrial Challenge Strategy Fund focus on to drive maximum economic impact?**

45. The first Pillar is mostly focused on high-end foundation science and R&D initiatives. Research and innovation have a role in driving productivity in enabling sectors such as construction as well as in more capital-intensive industries.
46. The CLC has argued that, given the right conditions, **the opportunity to deliver large productivity improvements with limited investment is greater in industries such as construction**. We would also encourage government to allow a broad prioritisation of research and innovation investment as sectors come forward with firm proposals in the Industrial Challenge Strategy Fund. The highly innovative development of smart technologies in areas such as house building could have a profound impact on both productivity and quality of life.
47. The CLC believes that one of the **greatest constraints currently affecting the UK economy** is in the housing market, where insufficient affordable housing is preventing people from being able to live in areas where jobs are created. This challenge is acknowledged in the 2017 Government White Paper, *Fixing our broken housing market*.

48. Housing does not currently feature as a category in the industrial strategy challenge fund. In the view of both the CLC and the CIC, the fund has a role to play in stimulating moves towards Smart Construction in buildings taking into account the interaction of physical assembly and digital design, manufacture and operation. This initiative could either be introduced as a new category or could be managed as a cross-cutting theme across the existing categories, Integrated and Sustainable Cities, Manufacturing and Materials, and Digital.
49. CLC has described this as a '*Smart Construction Catalyst Fund*', aimed at unlocking private sector investment in new capacity and stimulate smart construction. The benefits of this approach would be to address an important government policy objective - fixing the housing market, whilst also incentivising investment into new, regionally-based, sustainable manufacturing capacity.
50. CIC endorses the CLC position in this regard.

#### Question 7: What else can the UK do to create an environment that supports the commercialisation of ideas?

51. We understand that, based on detailed work undertaken over the past 12 months, the CLC will be bringing forward proposals for a sector deal to address barriers to innovation in the housing sector.
52. Bringing ideas to fruition as part of an industrial strategy will require a framework of Centres of Excellence: building upon existing expertise and facilities, sharing best practice, inspiring collaboration and showcasing new opportunities for emerging opportunities such as smart construction.

#### Questions 8: How can we best support the next generation of research leaders and entrepreneurs?

#### Question 9: How can we best support research and innovation strengths in local areas?

53. Centres of Excellence and competitive innovation challenges would help to identify the next generation of research leaders and entrepreneurs; and keep this oriented to a local (at least, regional) level.

#### Question 10: What more can we do to improve basic skills? How can we make a success of the new transition year? Should we change the way that those resitting basic qualifications study, to focus more on basic skills excellence.

54. Construction provides valuable and rewarding careers for people with a wide range of attainment in basic skills.

55. However, too many young people are leaving school without a level of literacy and numeracy skills to be employable. As a result, technical education and apprenticeship opportunities are used to backfill these basic skills. The responsibility should clearly be with the schools systems including careers advice to provide the support and motivation for all pupils to invest in their core skills. This is particularly important for industries with a high proportion of SMEs such as construction, which do not have the resources to invest in 'backfill'.
56. More work experience and better careers advice is needed, perhaps with greater involvement of employers. The **transition year** has a key role in encouraging young people to identify and prepare for appropriate career pathways through Further or Higher Education. The transition year concept will benefit from strong employer input, both in terms of design of new content and keeping pupils within the education system.
57. The content of the transition year must be broad enough to enable young people to see all the options available in their chosen occupational area. The built environment (including the construction) sector represents a particular challenge to the concept of the transition year given the huge range of opportunity and entry channels available to young people in the sector.
58. Basic skills in relation to the built environment (including the construction) sector will be subject to ongoing change, particularly in association with increasing digital technology, automation and offsite manufacture.
59. People who are **resitting basic qualifications** will almost certainly need an alternative approach to the way they study, particularly if the need to re-sit is a result of low engagement as opposed to a lack of ability.

**Question 11: Do you agree with the different elements of the vision for the new technical education system set out here?**

60. The new technical education system appears to rationalise a complex and under-achieving system. It is vital that the vision for high quality technical education is applied across all sectors and that the output of the training aligns with emerging needs from industry. The proposed technical education framework could, for example, be a suitable platform from which to deliver training into construction to equip the multi-skills operatives that will be needed for Smart Construction and for utilising Modern Methods of Construction.
61. The new Institutes of Technology will need to be fleet-footed and sufficiently flexible to be able to accommodate training that meets the current needs of employers.

62. There is also a concern that a reduction in the geographical centres of provision through the Institutes of Technology will not allow for local delivery of training in every town or local area. It seems that the Institutes of Technology will only meet the needs of employers if they are based in several localities.
63. Technical education should be employer-led and aligned to current labour market needs. There will need to be clear links between technical education and apprenticeships, enabling a clear progression route between college-based technical education and work-based apprenticeships.
64. It is noticeable that the Green paper does not refer to Higher Education or Professional Qualifications.

**Question 12: How can we make the application process for further education colleges and apprenticeships clearer and simpler, drawing lessons from the higher education sector?**

65. The answer is probably in the question, insofar as the FE application process might be improved by drawing lessons from the HE sector's application framework.

**Question 13: What skills shortages do we have or expect to have, in particular sectors or local areas, and how can we link the skills needs of industry to skills provision by educational institutions in local areas?**

66. The skills shortages in some sectors of construction and within several of the built environment professions are well documented and are reported by the CITB, various trade associations and the professions on a regular basis. Some clients including rail and highways compile their own models.
67. In addition to shortages of traditional skill sets, there are increasing demands for new skill sets required in the industry, in terms of digital construction and for modern methods of construction.
68. The construction skills crisis, reported in detail in the *Farmer Review*, highlights a number of critical challenges, including:
  - The scale of recruitment required to respond to strong growth in activity;
  - The impact of industry demographics and in particular a projected acceleration in the rate of older, skilled workers;
  - Exposure to the loss of access to European labour markets as a result of the high proportion of EU workers employed across all sectors of construction;
  - The need for new skill sets as the industry transitions to innovative methods of construction with a reduced reliance on craft skills.

69. Some regions are more sensitive to skills shortages, with a significant % [up to two-thirds] of the site-based construction workforce of London and the South East being resourced from other countries within the European Union.
70. Skills shortages presently contribute to a construction cost premium and constrain the ability of the industry to respond to increased demand.
71. CLC's work on Smart Construction has also highlighted the **barriers to implementation of new technologies caused by the need for new professional and trade skill sets** covering design and specification, manufacture and process, installation and commissioning and sign off and assurance. Some of these skills can be acquired through technology and knowledge transfer from outside the sector but sector-specific skills academy/apprenticeship programmes will also be required. These are likely to need some investment to create capacity in advance that will benefit from support via an industrial strategy.
72. **The CIC has serious misgivings about whether the Construction Industry Training Board [CITB] is fit for purpose and awaits the recommendations of the current review being conducted by Paul Morrell, with interest.**
73. BREXIT [surprisingly unmentioned in the Green Paper] will have a significant impact on future skills shortages. As mentioned in the introduction [paragraph 31], the All Party Parliamentary Group on Excellence in the Built Environment has recently completed a study into the impact of BREXIT on skills needs in the construction industry and the Built Environment Professions. This report is due to be published in June 2017.
74. There are at least 250,000 migrant workers in construction and its related Built Environment Professions. Approximately, 125,000 are known to come from EU countries. **That represents a workforce large enough to build 2 Olympic Parks, 3 Terminal 5's or 4 Crossrail's.**
75. These EU Migrants are economic migrants who are most likely to go where they can earn the most. There is some early anecdotal evidence that they are beginning to leave the UK, post-referendum and the consequent devaluation of sterling against the euro.
76. The UK has decided to leave the EU with a firm emphasis on taking control of borders and net migration. Businesses in construction (including the built environment professions) need to understand and prepare for the new rules which will apply to recruiting people from outside of the UK. For example:
  - What will our new "visa" system look like?;
  - Will it be points-based?; and
  - It must include provision for seasonal and tidal migrant workforces in sectors like agriculture and construction.

77. Currently there are virtually no built environment professions or construction trades on the occupation shortage list. This is a major obstacle to a potential solution to our skills crisis in construction and the built environment professions.
78. Construction is currently losing about 140,000 people, each year, largely through retirement; and we cannot train their replacements fast enough.
79. Depending upon the level of skills and expertise required in each occupation, it would take between 5 and 15 years to train enough people to replace those that we are currently losing.
80. In the meantime, we need to be looking for that talent in the world outside of the UK (and the EU) and we need to be doing that now.
81. The Apprenticeship Levy has been described as a “double whammy” for construction firms already paying the CITB levy.
82. There is recognition that this new levy is necessary but most large firms cannot utilise the levy that they will pay and are concerned that their unused levy will be lost. In this case, it is merely a tax if the benefit is lost to training in that industry.
83. These large firms in the UK Built Environment Professional Services Sector want to see this unused levy remain in construction to train brick layers and building surveyors, not bakers and ballet dancers.
84. As Mark Farmer recently concluded in his review, construction is in a difficult place; almost on life-support in terms of the need to recruit and train.
85. Being able to retain unused levy from construction firms within the sector would make a huge difference to the number of apprentices we could train, particularly for smaller firms.
86. About half the available places on Built Environment HE courses are used by overseas students. In Quantity Surveying, for example, that leaves only about 600 UK students to graduate with a cognate degree in Quantity Surveying at a time when more than 1,000 members of that profession are retiring each year.
87. The increased fees from overseas students are integral to the funding of these courses in the current financial model.
88. At present overseas students generally return home after they have graduated, thus their expertise is lost to the UK. It would help considerably, in the short term, if overseas students were enabled to remain in the UK to work for UK-based businesses, while they complete their training.

89. Entry for holders of non-cognate degrees (any subject apart from QS) has helped the major employers who now take up to 50% of their graduates from this source. But it costs about £25,000 more to train a non-cognate graduate than one with a QS degree.
90. The major employers in Quantity Surveying hoped to have this route approved as a degree apprenticeship which would allow the SME firms to access this route but so far the employer-led group has met resistance from government departments.
91. In conclusion, the most advantageous transitional arrangements to mitigate the impact of Brexit, for the UK construction industry and the built environment professions, would be:
- early clarity of a new UK visa entry system would be most beneficial to construction and other sectors dependant on migrant labour. It is probably the one area that could be published in advance as in a hard-Brexit world, such arrangements would be entirely within the control of the UK;
  - a specialist three-year visa for the UK Built Environment Professions, subject to employment in a UK business and without providing access to the UK welfare system;
  - inclusion of many built environment professions and specialist construction trades on the occupation shortage list;
  - enabling unspent Apprenticeship levy from one sector of construction to remain available with construction to increase training in other sectors of the greatest need;
  - enabling graduates from UK universities - who have come from overseas - to remain in the UK, working with a UK-based employer, while they complete their professional qualification; and
  - accord a high priority to the completion of degree apprenticeships in the built environment professions.

**Question 14: How can we enable and encourage people to retrain and upskill throughout their working lives, particularly in places where industries are changing or declining? Are there particular sectors where this could be appropriate?**

92. The construction industry is one that would benefit from re-training and up skilling. This is in line with the transition to Smart Construction and the opportunity to retain skills of older people within the industry.
93. The professional bodies' support of Continuing Professional Development [CPD] is well documented and many of the professional bodies are now looking at non-cognate routes of entry, coupled with retraining and CPD.
94. Construction and the built environment professions represent a sustainable career option for many people currently employed in sectors that are in transition or decline. In particular, the opportunity to transition manufacturing skills into construction pre-fabrication skills presents a crucial opportunity for skills and knowledge exchange into construction.

## Question 15: Are there further actions we could take to support private investment in infrastructure?

95. UK Government has made significant efforts to encourage private investment into infrastructure. In particular, the CLC has noted the success of the long-term certainty provided by the regulated utilities model in driving capital investment into critical infrastructure and the important role of the National Infrastructure Commission and the Infrastructure Projects Authority in promoting a long-term pipeline of work against which the supply chain can invest in capacity.
96. A crucial aspect of private investment in infrastructure is the **house building industry**. We welcome the government's initiative in establishing the £2.3 billion Housing Infrastructure Fund aimed at removing barriers to housing development caused by requirements for large-scale infrastructure investment.
97. However, as the *CIC Offsite Housing Review* carried out for BIS and the DCLG under the joint leadership of Professor John Miles and Professor Nick Whitehouse [published February 2013] identified, the increase in new housing delivery to the levels required can only be achieved by substantially increasing the amount of new homes achieved by offsite manufacture.
98. The delivery of 50,000 modular homes per year will, for example, equate to a requirement for several (at least 10) large factories along with the necessary supply chain. This represents an unprecedented investment in fixed capital by the house building industry. This can only be achieved with a level of investment from house-builders that is not sustainable in current market conditions.
99. We support a sector deal proposal to leverage new and existing funding including:
  - Housing Infrastructure Fund;
  - Affordable Housing Programme;
  - Tax breaks for the design and development of new offsite production systems;
  - Fiscal incentives to grow the self-build sector;
  - Stimulus fund to encourage new housing schemes involving a significant percentage [by value] of offsite construction methods;
  - Accelerated Construction Programme.
100. Looking beyond house building, the CLC has recognised that there are limits to the extent to which UK Government can support private investors in infrastructure but emphasised that interventions which encourage the conversion of pipeline into delivery will underwrite the ability of the construction industry to **invest in its own capacity**. Construction industry investment in Digital, Manufacture and Whole-life performance in line with the CLC strategy will deliver better and more certain

project outcomes to clients including lower overall costs, reduced carbon emissions and accelerated programmes.

101. Areas where CIC believe that Government could consider further actions to support private infrastructure investment include:

- Wider adoption of the flexible commercial model adopted on Thames Tideway Tunnel where aspects of delivery risk are shared between Government and Private Sector partners;
- Wider adoption by the public sector of the developer role - delivering operational assets that can be financed against assured income-streams; and
- Introduction of mandates for the adoption of productivity tools such as Building Information Modelling [BIM] on private sector programmes where Government is providing direct or indirect support.

**Question 16: How can local infrastructure needs be incorporated within national UK infrastructure policy most effectively?**

102. CIC has not responded to this question.

**Question 17: What further actions can we take to improve the performance of infrastructure towards international benchmarks? How can government work with industry to ensure we have the skills and supply chain needed to deliver strategic infrastructure in the UK?**

103. The CLC has noted that many UK infrastructure projects deliver exceptional outcomes and that several initiatives have already created platforms for sharing industry best practice and are helping to drive significant change into industry business models.

104. The CLC's industry reform agenda aligns directly with the steps that are necessary to delivery improved whole-life performance:

- **Digital** - the adoption of digitally enabled infrastructure design, construction, maintenance and operation that increases productivity and certainty of outcome;
- **Manufacturing** - using modern methods of manufacture to improve productivity, quality and safety and to deliver a better performing asset; and
- **Whole life performance** - getting more out of new and existing assets through the use of smart technologies and data-enabled asset management.

105. The Industrial Strategy should be developed specifically to deliver these improved outcomes whilst ensuring that industry secures the capacity and investment required to meet baseline infrastructure needs.

**Question 18: What are the most important causes of lower rates of fixed capital investment in the UK compared to other countries, and how can they be addressed?**

106. As identified in the *Farmer Report*, the construction industry has not achieved a significant increase in per capita productivity for many years. This is evidence of a persistent pattern of low rates of fixed capital investment in the design and construction elements of the industry. Investment in fixed capital is risky, as can be seen from the poor financial results of contractors that have chosen to invest in their business. Reasons for low rates of fixed capital investment, cited by the CLC, include:

- Low profit margins - typical profit margins for large contractors are less than 2% of turnover;
- Cyclical workload - turnover amongst contractors at all levels in the supply chain is highly volatile. In house building for example, workload fell by 50% in the immediate aftermath of the 2008 crash;
- Fragmentation - UK construction is made up of over 280,000 businesses, employing approximately 2.9 million people. Of these, less than 300 businesses employ more than 250 people. The small size of enterprises and lack of vertical integration is a disincentive to investment in fixed capital;
- Trade-credit financed business model - construction has very low barriers to entry and a higher reliance on trade credit than other industries, equivalent to 20% of turnover. High levels of trade credit act as a barrier to extending other borrowing.
- Industry risk model - all risk associated with the utilisation of assets is passed down the supply chain, with over 40% of operatives being self-employed.

107. The principal barrier to increased investment in fixed assets is that contractors are exposed to a higher risk associated with fixed plant utilisation compared to other risks that can be managed through a contract. Furthermore, a combination of high fragmentation, high levels of trade credit and low operating margins massively reduces the construction industry's appetite to take on additional borrowing.

108. The CLC has identified the following potential solutions to increase investment:

- Constrained labour supply - continuing constraints on labour availability will eventually incentivise investment in fixed plant;
- Prompt payment - payment in line with contractual terms will release money into the supply chain, potentially freeing up money for longer-term investment;
- Best value procurement - procurement which takes into account the wider benefits of a proposal should mitigate the effects of lowest price procurement, which acts as a deterrent to long-term investment;
- Long-term appointments - extended, multi-project appointments typically build-in incentives for suppliers to improve productivity, which can encourage up-front investment from suppliers;

- Certainty of work-load based on a medium-term pipeline of work. This provides suppliers with greater confidence with respect to return on investment.

109. The CIC identifies strongly with these potential improvements.

110. Steps taken to increase pipeline certainty and to mitigate the impacts of large cyclical fluctuations in demand will provide greater confidence with respect to the utilisation of capital assets.

**Question 19: What are the most important factors which constrain quoted companies and fund managers from making longer-term investment decisions, and how can we best address these factors?**

**Question 20: Given public sector investment already accounts for a large share of equity deals in some regions, how can we best catalyse uptake of equity capital outside the South East?**

**Question 21: How can we drive the adoption of new funding opportunities like crowdfunding across the country?**

**Question 22: What are the barriers faced by those businesses that have the potential to scale-up and achieve greater growth, and how can we address these barriers? Where are the outstanding examples of business networks for fast growing firms which we could learn from or spread?**

111. CIC has not responded to these questions.

**Question 23: Are there further steps that the Government can take to support innovation through public procurement?**

112. From 2012 until 2016, CIC managed a programme, via an Industrial Development Grant, to develop the documentation framework and the training of Departmental project teams that was designed to equip government departments for the 2016 Government BIM Level 2 mandate. This encouraged the take-up of digital technologies in connection with the delivery of UK Government capital projects.

113. The Ministry of Justice was at the leading edge of the Level 2 BIM programme and its 2017 Prisons Programme has been organised to encourage the adoption of an offsite manufacture approach.

114. The Department of Work and Pensions has indicated that the Disability Confident programme could be a future requirement for bidding for certain public work.

115. These are examples of supporting innovation through public procurement and CIC anticipates that public procurement will play a significant role in the incentivisation

of investment in connection with further innovation in the digital/manufacture/whole-life performance agenda.

116. Greater emphasis on project outcome value rather than cost when procuring professionals would reap considerable budgetary rewards.

**Question 24: What further steps can be taken to use public procurement to drive the industrial strategy in areas where government is the main client, such as healthcare and defence? Do we have the right institutions and policies in place in these sectors to exploit government's purchasing power to drive economic growth?**

117. Government is a major construction client, and is directly or indirectly responsible for around £30bn of construction spend per annum. Whilst spend in some departments such as Defence Estates is quite centralised, detailed decisions associated with capital spend on health and education are delegated to health trusts and schools. There are a range of opportunities for intervention that could play a part of the Government's role in a sector deal. These include:

- Innovative procurement practice: using the Cabinet Office *Procuring for Growth* balanced scorecard for example;
- Adopting principles of supplier management and supplier category management - these were described in the 2011 Government Construction Strategy, but were never implemented; and
- Centralisation of procurement to drive product innovation and volume savings - as currently practiced by Education Funding Agency and others.

118. In addition to the encouragement of innovation, there are also opportunities to eliminate waste and duplication in procurement, for example in endless repetitions of pre-qualification requirements.

**Question 25: What can the government do to improve our support for firms wanting to start exporting? What can the government do to improve support for firms in increasing their exports?**

119. The government tends to think about exports in terms of manufactured goods and yet we are most successful in the export of professional services, especially in the creative industries.
120. The proposed development of a **global hub for built environment professional services**, based in the UK, which is being explored by the CLC, under the leadership of CLC member, David Cash [formerly Chairman of BDP] is a huge opportunity to help share information with Built Environment Professional Services firms and enable new starters and an overall increased in the £8bn already remitted back to the UK in fees earned overseas.

121. This should be a key part of a sector deal bridging between the construction and creative industries.

Question 26: What can we learn from other countries to improve our support for inward investment and how can we measure its success? Should we put more emphasis on measuring the impact of Foreign Direct Investment [FDI] on growth?

Question 27: What are the most important steps the government should take to limit energy costs over the long term?

Question 28: How can we move towards a position in which energy is supplied by competitive markets without the requirement for ongoing subsidy?

Question 29: How can the Government, business and researchers work together to develop the competitive opportunities from innovation in energy and our existing industrial strengths?

Question 30: How can the Government support businesses in realising cost savings through greater resource and energy efficiency?

122. CIC has not responded to these questions.

Question 31: How can the Government and industry help sectors come together to identify the opportunities for a 'sector deal' to address - especially where industries are fragmented or not well defined?

123. The Construction Industry is a highly-fragmented industry. No-one knows exactly how many businesses there are even within a relatively narrow definition of the construction sector, such as just those firms operating directly on construction sites. There are at least 280,000 businesses within the contracting supply chain and a further 30,000 in the professional services sector.

124. To be successful, the sector deal has to reach out to the broad range of businesses within the sector.

125. In construction, the Construction Leadership Council is the right body to lead the sector deal but it will require the whole-hearted and committed support of the leading industry bodies if it is to reach out beyond the limited number of employers engaged directly in the CLC (currently representing, directly, less than 1% of the market).

126. It is recommended that the CLC needs to establish and develop a sector deal in alliance with the leading industry bodies, notably:

**BUILD UK/ Civil Engineering Contractors' Association [CECA]** - representing the supply chains in building and civil engineering;

CIC - representing the built environment professions; and  
**Construction Products Association [CPA]** - representing the manufacturers and distributors of construction products.

127. It is recommended that the coming together of industry and government would be best served by these organisations throwing their resources behind the CLC and for each of the three bodies [BUILD UK/CECA, CIC and CPA] to have direct representation on the CLC, as part of the Sector Deal.

**Question 32: How can the Government ensure that ‘sector deals’ promote competition and incorporate the interests of new entrants?**

128. The construction industry is highly competitive. In some cases, it could be argued that competitive pressure associated with lowest-price solutions is so great that the ability of the industry to innovate is severely constrained. Similarly, at present, barriers to entry into the industry are very low. Some of the proposals under development by the CLC will reduce barriers to entry and will increase transparency by simplifying pre-qualification for programmes of work.
129. It is important to recognise that the long-term vision of the CLC is for an industry transformation. This will mean that organisations which do not adapt to new ways of working may find it more difficult to secure work in sectors of the industry that have most embraced change. However, no single business or group of businesses commands a significant market share in construction and as a result, the proposed sector deal content will not significantly change the balance of competition in the industry.
130. Construction has achieved some notable successes through competitive collaboration, including the development of the UK’s BIM standards, a process which the CIC was privileged to oversee.

**Question 33: How can the Government and industry collaborate to enable growth in new sectors of the future that emerge around new technologies and new business models?**

131. The success of the widespread adoption of Level 2 BIM by clients and industry demonstrates that the UK construction industry is able to respond positively to market changes, delivering benefits to clients as well as investing in improved productivity.
132. This was the product of significant collaboration between government and industry via the BIM Task Force and the overall management by CIC.
133. We are confident that the framework is in place to enable growth through similar public-private collaboration in the future, although - as stated earlier - we would like to see the CLC being more directly representative of the wider industry.

**Question 34: Do you agree the principles set out above are the right ones? If not what is missing?**

134. CIC broadly agrees with the principles for driving growth across the whole country, but would highlight the important role that regional construction and professional services' businesses will have in enabling this growth through the efficient delivery of housing, infrastructure and other development. This highlights the central importance of a construction sector deal as part of an industrial strategy.
135. Whilst CIC acknowledges the significant progress that is being made through the channelling of leadership and investment through Local Enterprise Partnerships, Combined Authorities and other regional institutions, the scale of the transformation envisaged is very significant. Government must take steps to ensure that sufficient resources are in place at a regional level to provide the necessary leadership so that the public-sector client roles envisaged within a construction sector deal can be actioned at a regional level.

**Questions 35: What are the most important new approaches to raising skill levels in areas where they are lower? Where could investments in connectivity or innovation do most to help encourage growth across the country?**

136. Ensuring a consistency of training provision across all areas of the country.

**Questions 36: Recognising the need for local initiative and leadership, how should we best work with local areas to create and strengthen key local institutions**

137. Engage collaboratively and widely.

**Questions 37: Which are the most important institutions which we need to upgrade for support to back growth in particular areas?**

138. CIC has not responded to this question.

**Questions 38: Are there institutions missing in certain areas which we could help create or strengthen to support local growth?**

139. CIC has not responded to this question.

Graham Watts OBE  
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